

NVIDIA Performance Primitives (NPP)
Version 8.0

January 28, 2016

Contents

| | |
|--|-----------|
| 1 NVIDIA Performance Primitives | 1 |
| 1.1 What is NPP? | 2 |
| 1.2 Documentation | 2 |
| 1.3 Technical Specifications | 3 |
| 1.4 Files | 3 |
| 1.4.1 Header Files | 3 |
| 1.4.2 Library Files | 3 |
| 1.5 Supported NVIDIA Hardware | 4 |
| 2 General API Conventions | 5 |
| 2.1 Memory Management | 6 |
| 2.1.1 Scratch Buffer and Host Pointer | 6 |
| 2.2 Function Naming | 7 |
| 2.3 Integer Result Scaling | 7 |
| 2.4 Rounding Modes | 8 |
| 2.4.1 Rounding Mode Parameter | 8 |
| 3 Signal-Processing Specific API Conventions | 9 |
| 3.1 Signal Data | 10 |
| 3.1.1 Parameter Names for Signal Data | 10 |
| 3.1.1.1 Source Signal Pointer | 10 |
| 3.1.1.2 Destination Signal Pointer | 10 |
| 3.1.1.3 In-Place Signal Pointer | 10 |
| 3.1.2 Signal Data Alignment Requirements | 11 |
| 3.1.3 Signal Data Related Error Codes | 11 |
| 3.2 Signal Length | 11 |
| 3.2.1 Length Related Error Codes | 11 |
| 4 Imaging-Processing Specific API Conventions | 13 |

| | | |
|---------|--|----|
| 4.1 | Function Naming | 14 |
| 4.2 | Image Data | 14 |
| 4.2.1 | Line Step | 15 |
| 4.2.2 | Parameter Names for Image Data | 15 |
| 4.2.2.1 | Passing Source-Image Data | 15 |
| 4.2.2.2 | Passing Destination-Image Data | 16 |
| 4.2.2.3 | Passing In-Place Image Data | 18 |
| 4.2.2.4 | Passing Mask-Image Data | 18 |
| 4.2.2.5 | Passing Channel-of-Interest Data | 18 |
| 4.2.3 | Image Data Alignment Requirements | 18 |
| 4.2.4 | Image Data Related Error Codes | 19 |
| 4.3 | Region-of-Interest (ROI) | 19 |
| 4.3.1 | ROI Related Error Codes | 19 |
| 4.4 | Masked Operation | 20 |
| 4.5 | Channel-of-Interest API | 20 |
| 4.5.1 | Select-Channel Source-Image Pointer | 20 |
| 4.5.2 | Select-Channel Source-Image | 20 |
| 4.5.3 | Select-Channel Destination-Image Pointer | 20 |
| 4.6 | Source-Image Sampling | 21 |
| 4.6.1 | Point-Wise Operations | 21 |
| 4.6.2 | Neighborhood Operations | 21 |
| 4.6.2.1 | Mask-Size Parameter | 21 |
| 4.6.2.2 | Anchor-Point Parameter | 22 |
| 4.6.2.3 | Sampling Beyond Image Boundaries | 22 |
| 5 | Module Index | 23 |
| 5.1 | Modules | 23 |
| 6 | Data Structure Index | 25 |
| 6.1 | Data Structures | 25 |
| 7 | Module Documentation | 27 |
| 7.1 | NPP Core | 27 |
| 7.1.1 | Detailed Description | 28 |
| 7.1.2 | Function Documentation | 28 |
| 7.1.2.1 | nppGetGpuComputeCapability | 28 |
| 7.1.2.2 | nppGetGpuDeviceProperties | 28 |
| 7.1.2.3 | nppGetGpuName | 28 |

| | | |
|----------|--|----|
| 7.1.2.4 | nppGetGpuNumSMs | 28 |
| 7.1.2.5 | nppGetLibVersion | 29 |
| 7.1.2.6 | nppGetMaxThreadsPerBlock | 29 |
| 7.1.2.7 | nppGetMaxThreadsPerSM | 29 |
| 7.1.2.8 | nppGetStream | 29 |
| 7.1.2.9 | nppGetStreamMaxThreadsPerSM | 29 |
| 7.1.2.10 | nppGetStreamNumSMs | 29 |
| 7.1.2.11 | nppSetStream | 30 |
| 7.2 | NPP Type Definitions and Constants | 31 |
| 7.2.1 | Define Documentation | 37 |
| 7.2.1.1 | NPP_MAX_16S | 37 |
| 7.2.1.2 | NPP_MAX_16U | 37 |
| 7.2.1.3 | NPP_MAX_32S | 37 |
| 7.2.1.4 | NPP_MAX_32U | 37 |
| 7.2.1.5 | NPP_MAX_64S | 37 |
| 7.2.1.6 | NPP_MAX_64U | 37 |
| 7.2.1.7 | NPP_MAX_8S | 37 |
| 7.2.1.8 | NPP_MAX_8U | 37 |
| 7.2.1.9 | NPP_MAXABS_32F | 37 |
| 7.2.1.10 | NPP_MAXABS_64F | 37 |
| 7.2.1.11 | NPP_MIN_16S | 38 |
| 7.2.1.12 | NPP_MIN_16U | 38 |
| 7.2.1.13 | NPP_MIN_32S | 38 |
| 7.2.1.14 | NPP_MIN_32U | 38 |
| 7.2.1.15 | NPP_MIN_64S | 38 |
| 7.2.1.16 | NPP_MIN_64U | 38 |
| 7.2.1.17 | NPP_MIN_8S | 38 |
| 7.2.1.18 | NPP_MIN_8U | 38 |
| 7.2.1.19 | NPP_MINABS_32F | 38 |
| 7.2.1.20 | NPP_MINABS_64F | 38 |
| 7.2.2 | Enumeration Type Documentation | 38 |
| 7.2.2.1 | NppCmpOp | 38 |
| 7.2.2.2 | NppGpuComputeCapability | 39 |
| 7.2.2.3 | NppHintAlgorithm | 39 |
| 7.2.2.4 | NppiAlphaOp | 39 |
| 7.2.2.5 | NppiAxis | 40 |

| | | |
|----------|---|----|
| 7.2.2.6 | NppiBayerGridPosition | 40 |
| 7.2.2.7 | NppiBorderType | 40 |
| 7.2.2.8 | NppiDifferentialKernel | 40 |
| 7.2.2.9 | NppiHuffmanTableType | 41 |
| 7.2.2.10 | NppiInterpolationMode | 41 |
| 7.2.2.11 | NppiMaskSize | 41 |
| 7.2.2.12 | NppiNorm | 42 |
| 7.2.2.13 | NppRoundMode | 42 |
| 7.2.2.14 | NppStatus | 43 |
| 7.2.2.15 | NppsZCType | 45 |
| 7.3 | Basic NPP Data Types | 46 |
| 7.3.1 | Typedef Documentation | 47 |
| 7.3.1.1 | Npp16s | 47 |
| 7.3.1.2 | Npp16u | 47 |
| 7.3.1.3 | Npp32f | 47 |
| 7.3.1.4 | Npp32fc | 47 |
| 7.3.1.5 | Npp32s | 47 |
| 7.3.1.6 | Npp32sc | 48 |
| 7.3.1.7 | Npp32u | 48 |
| 7.3.1.8 | Npp32uc | 48 |
| 7.3.1.9 | Npp64f | 48 |
| 7.3.1.10 | Npp64fc | 48 |
| 7.3.1.11 | Npp64s | 48 |
| 7.3.1.12 | Npp64sc | 48 |
| 7.3.1.13 | Npp64u | 48 |
| 7.3.1.14 | Npp8s | 48 |
| 7.3.1.15 | Npp8u | 48 |
| 7.3.2 | Function Documentation | 48 |
| 7.3.2.1 | __align__ | 48 |
| 7.3.2.2 | __align__ | 49 |
| 7.3.3 | Variable Documentation | 49 |
| 7.3.3.1 | Npp16sc | 49 |
| 7.3.3.2 | Npp16uc | 49 |
| 7.3.3.3 | Npp8uc | 49 |
| 7.4 | Arithmetic and Logical Operations | 50 |
| 7.4.1 | Detailed Description | 50 |

| | | |
|----------|------------------------|----|
| 7.5 | Arithmetic Operations | 51 |
| 7.6 | AddC | 53 |
| 7.6.1 | Detailed Description | 58 |
| 7.6.2 | Function Documentation | 58 |
| 7.6.2.1 | nppiAddC_16s_AC4IRSfs | 58 |
| 7.6.2.2 | nppiAddC_16s_AC4RSfs | 58 |
| 7.6.2.3 | nppiAddC_16s_C1IRSfs | 58 |
| 7.6.2.4 | nppiAddC_16s_C1RSfs | 59 |
| 7.6.2.5 | nppiAddC_16s_C3IRSfs | 59 |
| 7.6.2.6 | nppiAddC_16s_C3RSfs | 60 |
| 7.6.2.7 | nppiAddC_16s_C4IRSfs | 60 |
| 7.6.2.8 | nppiAddC_16s_C4RSfs | 60 |
| 7.6.2.9 | nppiAddC_16sc_AC4IRSfs | 61 |
| 7.6.2.10 | nppiAddC_16sc_AC4RSfs | 61 |
| 7.6.2.11 | nppiAddC_16sc_C1IRSfs | 62 |
| 7.6.2.12 | nppiAddC_16sc_C1RSfs | 62 |
| 7.6.2.13 | nppiAddC_16sc_C3IRSfs | 62 |
| 7.6.2.14 | nppiAddC_16sc_C3RSfs | 63 |
| 7.6.2.15 | nppiAddC_16u_AC4IRSfs | 63 |
| 7.6.2.16 | nppiAddC_16u_AC4RSfs | 64 |
| 7.6.2.17 | nppiAddC_16u_C1IRSfs | 64 |
| 7.6.2.18 | nppiAddC_16u_C1RSfs | 64 |
| 7.6.2.19 | nppiAddC_16u_C3IRSfs | 65 |
| 7.6.2.20 | nppiAddC_16u_C3RSfs | 65 |
| 7.6.2.21 | nppiAddC_16u_C4IRSfs | 66 |
| 7.6.2.22 | nppiAddC_16u_C4RSfs | 66 |
| 7.6.2.23 | nppiAddC_32f_AC4IR | 66 |
| 7.6.2.24 | nppiAddC_32f_AC4R | 67 |
| 7.6.2.25 | nppiAddC_32f_C1IR | 67 |
| 7.6.2.26 | nppiAddC_32f_C1R | 67 |
| 7.6.2.27 | nppiAddC_32f_C3IR | 68 |
| 7.6.2.28 | nppiAddC_32f_C3R | 68 |
| 7.6.2.29 | nppiAddC_32f_C4IR | 68 |
| 7.6.2.30 | nppiAddC_32f_C4R | 69 |
| 7.6.2.31 | nppiAddC_32fc_AC4IR | 69 |
| 7.6.2.32 | nppiAddC_32fc_AC4R | 69 |

| | |
|---|----|
| 7.6.2.33 nppiAddC_32fc_C1IR | 70 |
| 7.6.2.34 nppiAddC_32fc_C1R | 70 |
| 7.6.2.35 nppiAddC_32fc_C3IR | 70 |
| 7.6.2.36 nppiAddC_32fc_C3R | 71 |
| 7.6.2.37 nppiAddC_32fc_C4IR | 71 |
| 7.6.2.38 nppiAddC_32fc_C4R | 71 |
| 7.6.2.39 nppiAddC_32s_C1IRSfs | 72 |
| 7.6.2.40 nppiAddC_32s_C1RSfs | 72 |
| 7.6.2.41 nppiAddC_32s_C3IRSfs | 72 |
| 7.6.2.42 nppiAddC_32s_C3RSfs | 73 |
| 7.6.2.43 nppiAddC_32sc_AC4IRSfs | 73 |
| 7.6.2.44 nppiAddC_32sc_AC4RSfs | 74 |
| 7.6.2.45 nppiAddC_32sc_C1IRSfs | 74 |
| 7.6.2.46 nppiAddC_32sc_C1RSfs | 74 |
| 7.6.2.47 nppiAddC_32sc_C3IRSfs | 75 |
| 7.6.2.48 nppiAddC_32sc_C3RSfs | 75 |
| 7.6.2.49 nppiAddC_8u_AC4IRSfs | 76 |
| 7.6.2.50 nppiAddC_8u_AC4RSfs | 76 |
| 7.6.2.51 nppiAddC_8u_C1IRSfs | 76 |
| 7.6.2.52 nppiAddC_8u_C1RSfs | 77 |
| 7.6.2.53 nppiAddC_8u_C3IRSfs | 77 |
| 7.6.2.54 nppiAddC_8u_C3RSfs | 77 |
| 7.6.2.55 nppiAddC_8u_C4IRSfs | 78 |
| 7.6.2.56 nppiAddC_8u_C4RSfs | 78 |
| 7.7 MulC | 79 |
| 7.7.1 Detailed Description | 84 |
| 7.7.2 Function Documentation | 84 |
| 7.7.2.1 nppiMulC_16s_AC4IRSfs | 84 |
| 7.7.2.2 nppiMulC_16s_AC4RSfs | 84 |
| 7.7.2.3 nppiMulC_16s_C1IRSfs | 85 |
| 7.7.2.4 nppiMulC_16s_C1RSfs | 85 |
| 7.7.2.5 nppiMulC_16s_C3IRSfs | 85 |
| 7.7.2.6 nppiMulC_16s_C3RSfs | 86 |
| 7.7.2.7 nppiMulC_16s_C4IRSfs | 86 |
| 7.7.2.8 nppiMulC_16s_C4RSfs | 86 |
| 7.7.2.9 nppiMulC_16sc_AC4IRSfs | 87 |

| | |
|---|-----|
| 7.7.2.10 nppiMulC_16sc_AC4RSfs | 87 |
| 7.7.2.11 nppiMulC_16sc_C1IRSfs | 88 |
| 7.7.2.12 nppiMulC_16sc_C1RSfs | 88 |
| 7.7.2.13 nppiMulC_16sc_C3IRSfs | 88 |
| 7.7.2.14 nppiMulC_16sc_C3RSfs | 89 |
| 7.7.2.15 nppiMulC_16u_AC4IRSfs | 89 |
| 7.7.2.16 nppiMulC_16u_AC4RSfs | 90 |
| 7.7.2.17 nppiMulC_16u_C1IRSfs | 90 |
| 7.7.2.18 nppiMulC_16u_C1RSfs | 90 |
| 7.7.2.19 nppiMulC_16u_C3IRSfs | 91 |
| 7.7.2.20 nppiMulC_16u_C3RSfs | 91 |
| 7.7.2.21 nppiMulC_16u_C4IRSfs | 92 |
| 7.7.2.22 nppiMulC_16u_C4RSfs | 92 |
| 7.7.2.23 nppiMulC_32f_AC4IR | 92 |
| 7.7.2.24 nppiMulC_32f_AC4R | 93 |
| 7.7.2.25 nppiMulC_32f_C1IR | 93 |
| 7.7.2.26 nppiMulC_32f_C1R | 93 |
| 7.7.2.27 nppiMulC_32f_C3IR | 94 |
| 7.7.2.28 nppiMulC_32f_C3R | 94 |
| 7.7.2.29 nppiMulC_32f_C4IR | 94 |
| 7.7.2.30 nppiMulC_32f_C4R | 95 |
| 7.7.2.31 nppiMulC_32fc_AC4IR | 95 |
| 7.7.2.32 nppiMulC_32fc_AC4R | 95 |
| 7.7.2.33 nppiMulC_32fc_C1IR | 96 |
| 7.7.2.34 nppiMulC_32fc_C1R | 96 |
| 7.7.2.35 nppiMulC_32fc_C3IR | 96 |
| 7.7.2.36 nppiMulC_32fc_C3R | 97 |
| 7.7.2.37 nppiMulC_32fc_C4IR | 97 |
| 7.7.2.38 nppiMulC_32fc_C4R | 97 |
| 7.7.2.39 nppiMulC_32s_C1IRSfs | 98 |
| 7.7.2.40 nppiMulC_32s_C1RSfs | 98 |
| 7.7.2.41 nppiMulC_32s_C3IRSfs | 98 |
| 7.7.2.42 nppiMulC_32s_C3RSfs | 99 |
| 7.7.2.43 nppiMulC_32sc_AC4IRSfs | 99 |
| 7.7.2.44 nppiMulC_32sc_AC4RSfs | 100 |
| 7.7.2.45 nppiMulC_32sc_C1IRSfs | 100 |

| | | |
|----------|-----------------------------------|-----|
| 7.7.2.46 | nppiMulC_32sc_C1RSfs | 100 |
| 7.7.2.47 | nppiMulC_32sc_C3IRSfs | 101 |
| 7.7.2.48 | nppiMulC_32sc_C3RSfs | 101 |
| 7.7.2.49 | nppiMulC_8u_AC4IRSfs | 102 |
| 7.7.2.50 | nppiMulC_8u_AC4RSfs | 102 |
| 7.7.2.51 | nppiMulC_8u_C1IRSfs | 102 |
| 7.7.2.52 | nppiMulC_8u_C1RSfs | 103 |
| 7.7.2.53 | nppiMulC_8u_C3IRSfs | 103 |
| 7.7.2.54 | nppiMulC_8u_C3RSfs | 103 |
| 7.7.2.55 | nppiMulC_8u_C4IRSfs | 104 |
| 7.7.2.56 | nppiMulC_8u_C4RSfs | 104 |
| 7.8 | MulCScale | 105 |
| 7.8.1 | Detailed Description | 106 |
| 7.8.2 | Function Documentation | 106 |
| 7.8.2.1 | nppiMulCScale_16u_AC4IR | 106 |
| 7.8.2.2 | nppiMulCScale_16u_AC4R | 107 |
| 7.8.2.3 | nppiMulCScale_16u_C1IR | 107 |
| 7.8.2.4 | nppiMulCScale_16u_C1R | 107 |
| 7.8.2.5 | nppiMulCScale_16u_C3IR | 108 |
| 7.8.2.6 | nppiMulCScale_16u_C3R | 108 |
| 7.8.2.7 | nppiMulCScale_16u_C4IR | 108 |
| 7.8.2.8 | nppiMulCScale_16u_C4R | 109 |
| 7.8.2.9 | nppiMulCScale_8u_AC4IR | 109 |
| 7.8.2.10 | nppiMulCScale_8u_AC4R | 109 |
| 7.8.2.11 | nppiMulCScale_8u_C1IR | 110 |
| 7.8.2.12 | nppiMulCScale_8u_C1R | 110 |
| 7.8.2.13 | nppiMulCScale_8u_C3IR | 110 |
| 7.8.2.14 | nppiMulCScale_8u_C3R | 111 |
| 7.8.2.15 | nppiMulCScale_8u_C4IR | 111 |
| 7.8.2.16 | nppiMulCScale_8u_C4R | 111 |
| 7.9 | SubC | 112 |
| 7.9.1 | Detailed Description | 117 |
| 7.9.2 | Function Documentation | 117 |
| 7.9.2.1 | nppiSubC_16s_AC4IRSfs | 117 |
| 7.9.2.2 | nppiSubC_16s_AC4RSfs | 117 |
| 7.9.2.3 | nppiSubC_16s_C1IRSfs | 117 |

| | | |
|----------|----------------------------------|-----|
| 7.9.2.4 | nppiSubC_16s_C1RSfs | 118 |
| 7.9.2.5 | nppiSubC_16s_C3IRSfs | 118 |
| 7.9.2.6 | nppiSubC_16s_C3RSfs | 119 |
| 7.9.2.7 | nppiSubC_16s_C4IRSfs | 119 |
| 7.9.2.8 | nppiSubC_16s_C4RSfs | 119 |
| 7.9.2.9 | nppiSubC_16sc_AC4IRSfs | 120 |
| 7.9.2.10 | nppiSubC_16sc_AC4RSfs | 120 |
| 7.9.2.11 | nppiSubC_16sc_C1IRSfs | 121 |
| 7.9.2.12 | nppiSubC_16sc_C1RSfs | 121 |
| 7.9.2.13 | nppiSubC_16sc_C3IRSfs | 121 |
| 7.9.2.14 | nppiSubC_16sc_C3RSfs | 122 |
| 7.9.2.15 | nppiSubC_16u_AC4IRSfs | 122 |
| 7.9.2.16 | nppiSubC_16u_AC4RSfs | 123 |
| 7.9.2.17 | nppiSubC_16u_C1IRSfs | 123 |
| 7.9.2.18 | nppiSubC_16u_C1RSfs | 123 |
| 7.9.2.19 | nppiSubC_16u_C3IRSfs | 124 |
| 7.9.2.20 | nppiSubC_16u_C3RSfs | 124 |
| 7.9.2.21 | nppiSubC_16u_C4IRSfs | 125 |
| 7.9.2.22 | nppiSubC_16u_C4RSfs | 125 |
| 7.9.2.23 | nppiSubC_32f_AC4IR | 125 |
| 7.9.2.24 | nppiSubC_32f_AC4R | 126 |
| 7.9.2.25 | nppiSubC_32f_C1IR | 126 |
| 7.9.2.26 | nppiSubC_32f_C1R | 126 |
| 7.9.2.27 | nppiSubC_32f_C3IR | 127 |
| 7.9.2.28 | nppiSubC_32f_C3R | 127 |
| 7.9.2.29 | nppiSubC_32f_C4IR | 127 |
| 7.9.2.30 | nppiSubC_32f_C4R | 128 |
| 7.9.2.31 | nppiSubC_32fc_AC4IR | 128 |
| 7.9.2.32 | nppiSubC_32fc_AC4R | 128 |
| 7.9.2.33 | nppiSubC_32fc_C1IR | 129 |
| 7.9.2.34 | nppiSubC_32fc_C1R | 129 |
| 7.9.2.35 | nppiSubC_32fc_C3IR | 129 |
| 7.9.2.36 | nppiSubC_32fc_C3R | 130 |
| 7.9.2.37 | nppiSubC_32fc_C4IR | 130 |
| 7.9.2.38 | nppiSubC_32fc_C4R | 130 |
| 7.9.2.39 | nppiSubC_32s_C1IRSfs | 131 |

| | |
|---|-----|
| 7.9.2.40 nppiSubC_32s_C1RSfs | 131 |
| 7.9.2.41 nppiSubC_32s_C3IRSfs | 131 |
| 7.9.2.42 nppiSubC_32s_C3RSfs | 132 |
| 7.9.2.43 nppiSubC_32sc_AC4IRSfs | 132 |
| 7.9.2.44 nppiSubC_32sc_AC4RSfs | 133 |
| 7.9.2.45 nppiSubC_32sc_C1IRSfs | 133 |
| 7.9.2.46 nppiSubC_32sc_C1RSfs | 133 |
| 7.9.2.47 nppiSubC_32sc_C3IRSfs | 134 |
| 7.9.2.48 nppiSubC_32sc_C3RSfs | 134 |
| 7.9.2.49 nppiSubC_8u_AC4IRSfs | 135 |
| 7.9.2.50 nppiSubC_8u_AC4RSfs | 135 |
| 7.9.2.51 nppiSubC_8u_C1IRSfs | 135 |
| 7.9.2.52 nppiSubC_8u_C1RSfs | 136 |
| 7.9.2.53 nppiSubC_8u_C3IRSfs | 136 |
| 7.9.2.54 nppiSubC_8u_C3RSfs | 136 |
| 7.9.2.55 nppiSubC_8u_C4IRSfs | 137 |
| 7.9.2.56 nppiSubC_8u_C4RSfs | 137 |
| 7.10 DivC | 138 |
| 7.10.1 Detailed Description | 143 |
| 7.10.2 Function Documentation | 143 |
| 7.10.2.1 nppiDivC_16s_AC4IRSfs | 143 |
| 7.10.2.2 nppiDivC_16s_AC4RSfs | 143 |
| 7.10.2.3 nppiDivC_16s_C1IRSfs | 144 |
| 7.10.2.4 nppiDivC_16s_C1RSfs | 144 |
| 7.10.2.5 nppiDivC_16s_C3IRSfs | 144 |
| 7.10.2.6 nppiDivC_16s_C3RSfs | 145 |
| 7.10.2.7 nppiDivC_16s_C4IRSfs | 145 |
| 7.10.2.8 nppiDivC_16s_C4RSfs | 145 |
| 7.10.2.9 nppiDivC_16sc_AC4IRSfs | 146 |
| 7.10.2.10 nppiDivC_16sc_AC4RSfs | 146 |
| 7.10.2.11 nppiDivC_16sc_C1IRSfs | 147 |
| 7.10.2.12 nppiDivC_16sc_C1RSfs | 147 |
| 7.10.2.13 nppiDivC_16sc_C3IRSfs | 147 |
| 7.10.2.14 nppiDivC_16sc_C3RSfs | 148 |
| 7.10.2.15 nppiDivC_16u_AC4IRSfs | 148 |
| 7.10.2.16 nppiDivC_16u_AC4RSfs | 149 |

| | |
|--|-----|
| 7.10.2.17 nppiDivC_16u_C1IRSfs | 149 |
| 7.10.2.18 nppiDivC_16u_C1RSfs | 149 |
| 7.10.2.19 nppiDivC_16u_C3IRSfs | 150 |
| 7.10.2.20 nppiDivC_16u_C3RSfs | 150 |
| 7.10.2.21 nppiDivC_16u_C4IRSfs | 151 |
| 7.10.2.22 nppiDivC_16u_C4RSfs | 151 |
| 7.10.2.23 nppiDivC_32f_AC4IR | 151 |
| 7.10.2.24 nppiDivC_32f_AC4R | 152 |
| 7.10.2.25 nppiDivC_32f_C1IR | 152 |
| 7.10.2.26 nppiDivC_32f_C1R | 152 |
| 7.10.2.27 nppiDivC_32f_C3IR | 153 |
| 7.10.2.28 nppiDivC_32f_C3R | 153 |
| 7.10.2.29 nppiDivC_32f_C4IR | 153 |
| 7.10.2.30 nppiDivC_32f_C4R | 154 |
| 7.10.2.31 nppiDivC_32fc_AC4IR | 154 |
| 7.10.2.32 nppiDivC_32fc_AC4R | 154 |
| 7.10.2.33 nppiDivC_32fc_C1IR | 155 |
| 7.10.2.34 nppiDivC_32fc_C1R | 155 |
| 7.10.2.35 nppiDivC_32fc_C3IR | 155 |
| 7.10.2.36 nppiDivC_32fc_C3R | 156 |
| 7.10.2.37 nppiDivC_32fc_C4IR | 156 |
| 7.10.2.38 nppiDivC_32fc_C4R | 156 |
| 7.10.2.39 nppiDivC_32s_C1IRSfs | 157 |
| 7.10.2.40 nppiDivC_32s_C1RSfs | 157 |
| 7.10.2.41 nppiDivC_32s_C3IRSfs | 157 |
| 7.10.2.42 nppiDivC_32s_C3RSfs | 158 |
| 7.10.2.43 nppiDivC_32sc_AC4IRSfs | 158 |
| 7.10.2.44 nppiDivC_32sc_AC4RSfs | 159 |
| 7.10.2.45 nppiDivC_32sc_C1IRSfs | 159 |
| 7.10.2.46 nppiDivC_32sc_C1RSfs | 159 |
| 7.10.2.47 nppiDivC_32sc_C3IRSfs | 160 |
| 7.10.2.48 nppiDivC_32sc_C3RSfs | 160 |
| 7.10.2.49 nppiDivC_8u_AC4IRSfs | 161 |
| 7.10.2.50 nppiDivC_8u_AC4RSfs | 161 |
| 7.10.2.51 nppiDivC_8u_C1IRSfs | 161 |
| 7.10.2.52 nppiDivC_8u_C1RSfs | 162 |

| | |
|--|-----|
| 7.10.2.53 nppiDivC_8u_C3IRSfs | 162 |
| 7.10.2.54 nppiDivC_8u_C3RSfs | 162 |
| 7.10.2.55 nppiDivC_8u_C4IRSfs | 163 |
| 7.10.2.56 nppiDivC_8u_C4RSfs | 163 |
| 7.11 AbsDiffC | 164 |
| 7.11.1 Detailed Description | 164 |
| 7.11.2 Function Documentation | 164 |
| 7.11.2.1 nppiAbsDiffC_16u_C1R | 164 |
| 7.11.2.2 nppiAbsDiffC_32f_C1R | 164 |
| 7.11.2.3 nppiAbsDiffC_8u_C1R | 165 |
| 7.12 Add | 166 |
| 7.12.1 Detailed Description | 171 |
| 7.12.2 Function Documentation | 171 |
| 7.12.2.1 nppiAdd_16s_AC4IRSfs | 171 |
| 7.12.2.2 nppiAdd_16s_AC4RSfs | 171 |
| 7.12.2.3 nppiAdd_16s_C1IRSfs | 172 |
| 7.12.2.4 nppiAdd_16s_C1RSfs | 172 |
| 7.12.2.5 nppiAdd_16s_C3IRSfs | 173 |
| 7.12.2.6 nppiAdd_16s_C3RSfs | 173 |
| 7.12.2.7 nppiAdd_16s_C4IRSfs | 174 |
| 7.12.2.8 nppiAdd_16s_C4RSfs | 174 |
| 7.12.2.9 nppiAdd_16sc_AC4IRSfs | 174 |
| 7.12.2.10 nppiAdd_16sc_AC4RSfs | 175 |
| 7.12.2.11 nppiAdd_16sc_C1IRSfs | 175 |
| 7.12.2.12 nppiAdd_16sc_C1RSfs | 176 |
| 7.12.2.13 nppiAdd_16sc_C3IRSfs | 176 |
| 7.12.2.14 nppiAdd_16sc_C3RSfs | 176 |
| 7.12.2.15 nppiAdd_16u_AC4IRSfs | 177 |
| 7.12.2.16 nppiAdd_16u_AC4RSfs | 177 |
| 7.12.2.17 nppiAdd_16u_C1IRSfs | 178 |
| 7.12.2.18 nppiAdd_16u_C1RSfs | 178 |
| 7.12.2.19 nppiAdd_16u_C3IRSfs | 179 |
| 7.12.2.20 nppiAdd_16u_C3RSfs | 179 |
| 7.12.2.21 nppiAdd_16u_C4IRSfs | 179 |
| 7.12.2.22 nppiAdd_16u_C4RSfs | 180 |
| 7.12.2.23 nppiAdd_32f_AC4IR | 180 |

| | |
|---|-----|
| 7.12.2.24 nppiAdd_32f_AC4R | 181 |
| 7.12.2.25 nppiAdd_32f_C1IR | 181 |
| 7.12.2.26 nppiAdd_32f_C1R | 181 |
| 7.12.2.27 nppiAdd_32f_C3IR | 182 |
| 7.12.2.28 nppiAdd_32f_C3R | 182 |
| 7.12.2.29 nppiAdd_32f_C4IR | 183 |
| 7.12.2.30 nppiAdd_32f_C4R | 183 |
| 7.12.2.31 nppiAdd_32fc_AC4IR | 183 |
| 7.12.2.32 nppiAdd_32fc_AC4R | 184 |
| 7.12.2.33 nppiAdd_32fc_C1IR | 184 |
| 7.12.2.34 nppiAdd_32fc_C1R | 184 |
| 7.12.2.35 nppiAdd_32fc_C3IR | 185 |
| 7.12.2.36 nppiAdd_32fc_C3R | 185 |
| 7.12.2.37 nppiAdd_32fc_C4IR | 186 |
| 7.12.2.38 nppiAdd_32fc_C4R | 186 |
| 7.12.2.39 nppiAdd_32s_C1IRSfs | 186 |
| 7.12.2.40 nppiAdd_32s_C1R | 187 |
| 7.12.2.41 nppiAdd_32s_C1RSfs | 187 |
| 7.12.2.42 nppiAdd_32s_C3IRSfs | 188 |
| 7.12.2.43 nppiAdd_32s_C3RSfs | 188 |
| 7.12.2.44 nppiAdd_32sc_AC4IRSfs | 188 |
| 7.12.2.45 nppiAdd_32sc_AC4RSfs | 189 |
| 7.12.2.46 nppiAdd_32sc_C1IRSfs | 189 |
| 7.12.2.47 nppiAdd_32sc_C1RSfs | 190 |
| 7.12.2.48 nppiAdd_32sc_C3IRSfs | 190 |
| 7.12.2.49 nppiAdd_32sc_C3RSfs | 190 |
| 7.12.2.50 nppiAdd_8u_AC4IRSfs | 191 |
| 7.12.2.51 nppiAdd_8u_AC4RSfs | 191 |
| 7.12.2.52 nppiAdd_8u_C1IRSfs | 192 |
| 7.12.2.53 nppiAdd_8u_C1RSfs | 192 |
| 7.12.2.54 nppiAdd_8u_C3IRSfs | 193 |
| 7.12.2.55 nppiAdd_8u_C3RSfs | 193 |
| 7.12.2.56 nppiAdd_8u_C4IRSfs | 193 |
| 7.12.2.57 nppiAdd_8u_C4RSfs | 194 |
| 7.13 AddSquare | 195 |
| 7.13.1 Detailed Description | 195 |

| | |
|---|-----|
| 7.13.2 Function Documentation | 195 |
| 7.13.2.1 nppiAddSquare_16u32f_C1IMR | 195 |
| 7.13.2.2 nppiAddSquare_16u32f_C1IR | 196 |
| 7.13.2.3 nppiAddSquare_32f_C1IMR | 196 |
| 7.13.2.4 nppiAddSquare_32f_C1IR | 197 |
| 7.13.2.5 nppiAddSquare_8u32f_C1IMR | 197 |
| 7.13.2.6 nppiAddSquare_8u32f_C1IR | 197 |
| 7.14 AddProduct | 198 |
| 7.14.1 Detailed Description | 198 |
| 7.14.2 Function Documentation | 198 |
| 7.14.2.1 nppiAddProduct_16u32f_C1IMR | 198 |
| 7.14.2.2 nppiAddProduct_16u32f_C1IR | 199 |
| 7.14.2.3 nppiAddProduct_32f_C1IMR | 199 |
| 7.14.2.4 nppiAddProduct_32f_C1IR | 200 |
| 7.14.2.5 nppiAddProduct_8u32f_C1IMR | 200 |
| 7.14.2.6 nppiAddProduct_8u32f_C1IR | 201 |
| 7.15 AddWeighted | 202 |
| 7.15.1 Detailed Description | 202 |
| 7.15.2 Function Documentation | 202 |
| 7.15.2.1 nppiAddWeighted_16u32f_C1IMR | 202 |
| 7.15.2.2 nppiAddWeighted_16u32f_C1IR | 203 |
| 7.15.2.3 nppiAddWeighted_32f_C1IMR | 203 |
| 7.15.2.4 nppiAddWeighted_32f_C1IR | 204 |
| 7.15.2.5 nppiAddWeighted_8u32f_C1IMR | 204 |
| 7.15.2.6 nppiAddWeighted_8u32f_C1IR | 205 |
| 7.16 Mul | 206 |
| 7.16.1 Detailed Description | 211 |
| 7.16.2 Function Documentation | 211 |
| 7.16.2.1 nppiMul_16s_AC4IRSfs | 211 |
| 7.16.2.2 nppiMul_16s_AC4RSfs | 212 |
| 7.16.2.3 nppiMul_16s_C1IRSfs | 212 |
| 7.16.2.4 nppiMul_16s_C1RSfs | 212 |
| 7.16.2.5 nppiMul_16s_C3IRSfs | 213 |
| 7.16.2.6 nppiMul_16s_C3RSfs | 213 |
| 7.16.2.7 nppiMul_16s_C4IRSfs | 214 |
| 7.16.2.8 nppiMul_16s_C4RSfs | 214 |

| | |
|---|-----|
| 7.16.2.9 nppiMul_16sc_AC4IRSfs | 214 |
| 7.16.2.10 nppiMul_16sc_AC4RSfs | 215 |
| 7.16.2.11 nppiMul_16sc_C1IRSfs | 215 |
| 7.16.2.12 nppiMul_16sc_C1RSfs | 216 |
| 7.16.2.13 nppiMul_16sc_C3IRSfs | 216 |
| 7.16.2.14 nppiMul_16sc_C3RSfs | 216 |
| 7.16.2.15 nppiMul_16u_AC4IRSfs | 217 |
| 7.16.2.16 nppiMul_16u_AC4RSfs | 217 |
| 7.16.2.17 nppiMul_16u_C1IRSfs | 218 |
| 7.16.2.18 nppiMul_16u_C1RSfs | 218 |
| 7.16.2.19 nppiMul_16u_C3IRSfs | 219 |
| 7.16.2.20 nppiMul_16u_C3RSfs | 219 |
| 7.16.2.21 nppiMul_16u_C4IRSfs | 219 |
| 7.16.2.22 nppiMul_16u_C4RSfs | 220 |
| 7.16.2.23 nppiMul_32f_AC4IR | 220 |
| 7.16.2.24 nppiMul_32f_AC4R | 221 |
| 7.16.2.25 nppiMul_32f_C1IR | 221 |
| 7.16.2.26 nppiMul_32f_C1R | 221 |
| 7.16.2.27 nppiMul_32f_C3IR | 222 |
| 7.16.2.28 nppiMul_32f_C3R | 222 |
| 7.16.2.29 nppiMul_32f_C4IR | 223 |
| 7.16.2.30 nppiMul_32f_C4R | 223 |
| 7.16.2.31 nppiMul_32fc_AC4IR | 223 |
| 7.16.2.32 nppiMul_32fc_AC4R | 224 |
| 7.16.2.33 nppiMul_32fc_C1IR | 224 |
| 7.16.2.34 nppiMul_32fc_C1R | 224 |
| 7.16.2.35 nppiMul_32fc_C3IR | 225 |
| 7.16.2.36 nppiMul_32fc_C3R | 225 |
| 7.16.2.37 nppiMul_32fc_C4IR | 226 |
| 7.16.2.38 nppiMul_32fc_C4R | 226 |
| 7.16.2.39 nppiMul_32s_C1IRSfs | 226 |
| 7.16.2.40 nppiMul_32s_C1R | 227 |
| 7.16.2.41 nppiMul_32s_C1RSfs | 227 |
| 7.16.2.42 nppiMul_32s_C3IRSfs | 228 |
| 7.16.2.43 nppiMul_32s_C3RSfs | 228 |
| 7.16.2.44 nppiMul_32sc_AC4IRSfs | 228 |

| | |
|---|-----|
| 7.16.2.45 nppiMul_32sc_AC4RSfs | 229 |
| 7.16.2.46 nppiMul_32sc_C1IRSfs | 229 |
| 7.16.2.47 nppiMul_32sc_C1RSfs | 230 |
| 7.16.2.48 nppiMul_32sc_C3IRSfs | 230 |
| 7.16.2.49 nppiMul_32sc_C3RSfs | 230 |
| 7.16.2.50 nppiMul_8u_AC4IRSfs | 231 |
| 7.16.2.51 nppiMul_8u_AC4RSfs | 231 |
| 7.16.2.52 nppiMul_8u_C1IRSfs | 232 |
| 7.16.2.53 nppiMul_8u_C1RSfs | 232 |
| 7.16.2.54 nppiMul_8u_C3IRSfs | 233 |
| 7.16.2.55 nppiMul_8u_C3RSfs | 233 |
| 7.16.2.56 nppiMul_8u_C4IRSfs | 233 |
| 7.16.2.57 nppiMul_8u_C4RSfs | 234 |
| 7.17 MulScale | 235 |
| 7.17.1 Detailed Description | 236 |
| 7.17.2 Function Documentation | 236 |
| 7.17.2.1 nppiMulScale_16u_AC4IR | 236 |
| 7.17.2.2 nppiMulScale_16u_AC4R | 237 |
| 7.17.2.3 nppiMulScale_16u_C1IR | 237 |
| 7.17.2.4 nppiMulScale_16u_C1R | 238 |
| 7.17.2.5 nppiMulScale_16u_C3IR | 238 |
| 7.17.2.6 nppiMulScale_16u_C3R | 238 |
| 7.17.2.7 nppiMulScale_16u_C4IR | 239 |
| 7.17.2.8 nppiMulScale_16u_C4R | 239 |
| 7.17.2.9 nppiMulScale_8u_AC4IR | 240 |
| 7.17.2.10 nppiMulScale_8u_AC4R | 240 |
| 7.17.2.11 nppiMulScale_8u_C1IR | 240 |
| 7.17.2.12 nppiMulScale_8u_C1R | 241 |
| 7.17.2.13 nppiMulScale_8u_C3IR | 241 |
| 7.17.2.14 nppiMulScale_8u_C3R | 242 |
| 7.17.2.15 nppiMulScale_8u_C4IR | 242 |
| 7.17.2.16 nppiMulScale_8u_C4R | 242 |
| 7.18 Sub | 244 |
| 7.18.1 Detailed Description | 249 |
| 7.18.2 Function Documentation | 249 |
| 7.18.2.1 nppiSub_16s_AC4IRSfs | 249 |

| | |
|--|-----|
| 7.18.2.2 nppiSub_16s_AC4RSfs | 250 |
| 7.18.2.3 nppiSub_16s_C1IRSfs | 250 |
| 7.18.2.4 nppiSub_16s_C1RSfs | 251 |
| 7.18.2.5 nppiSub_16s_C3IRSfs | 251 |
| 7.18.2.6 nppiSub_16s_C3RSfs | 251 |
| 7.18.2.7 nppiSub_16s_C4IRSfs | 252 |
| 7.18.2.8 nppiSub_16s_C4RSfs | 252 |
| 7.18.2.9 nppiSub_16sc_AC4IRSfs | 253 |
| 7.18.2.10 nppiSub_16sc_AC4RSfs | 253 |
| 7.18.2.11 nppiSub_16sc_C1IRSfs | 253 |
| 7.18.2.12 nppiSub_16sc_C1RSfs | 254 |
| 7.18.2.13 nppiSub_16sc_C3IRSfs | 254 |
| 7.18.2.14 nppiSub_16sc_C3RSfs | 255 |
| 7.18.2.15 nppiSub_16u_AC4IRSfs | 255 |
| 7.18.2.16 nppiSub_16u_AC4RSfs | 255 |
| 7.18.2.17 nppiSub_16u_C1IRSfs | 256 |
| 7.18.2.18 nppiSub_16u_C1RSfs | 256 |
| 7.18.2.19 nppiSub_16u_C3IRSfs | 257 |
| 7.18.2.20 nppiSub_16u_C3RSfs | 257 |
| 7.18.2.21 nppiSub_16u_C4IRSfs | 258 |
| 7.18.2.22 nppiSub_16u_C4RSfs | 258 |
| 7.18.2.23 nppiSub_32f_AC4IR | 258 |
| 7.18.2.24 nppiSub_32f_AC4R | 259 |
| 7.18.2.25 nppiSub_32f_C1IR | 259 |
| 7.18.2.26 nppiSub_32f_C1R | 260 |
| 7.18.2.27 nppiSub_32f_C3IR | 260 |
| 7.18.2.28 nppiSub_32f_C3R | 260 |
| 7.18.2.29 nppiSub_32f_C4IR | 261 |
| 7.18.2.30 nppiSub_32f_C4R | 261 |
| 7.18.2.31 nppiSub_32fc_AC4IR | 262 |
| 7.18.2.32 nppiSub_32fc_AC4R | 262 |
| 7.18.2.33 nppiSub_32fc_C1IR | 262 |
| 7.18.2.34 nppiSub_32fc_C1R | 263 |
| 7.18.2.35 nppiSub_32fc_C3IR | 263 |
| 7.18.2.36 nppiSub_32fc_C3R | 264 |
| 7.18.2.37 nppiSub_32fc_C4IR | 264 |

| | |
|---|-----|
| 7.18.2.38 nppiSub_32fc_C4R | 264 |
| 7.18.2.39 nppiSub_32s_C1IRSfs | 265 |
| 7.18.2.40 nppiSub_32s_C1R | 265 |
| 7.18.2.41 nppiSub_32s_C1RSfs | 266 |
| 7.18.2.42 nppiSub_32s_C3IRSfs | 266 |
| 7.18.2.43 nppiSub_32s_C3RSfs | 266 |
| 7.18.2.44 nppiSub_32s_C4IRSfs | 267 |
| 7.18.2.45 nppiSub_32s_C4RSfs | 267 |
| 7.18.2.46 nppiSub_32sc_AC4IRSfs | 268 |
| 7.18.2.47 nppiSub_32sc_AC4RSfs | 268 |
| 7.18.2.48 nppiSub_32sc_C1IRSfs | 269 |
| 7.18.2.49 nppiSub_32sc_C1RSfs | 269 |
| 7.18.2.50 nppiSub_32sc_C3IRSfs | 269 |
| 7.18.2.51 nppiSub_32sc_C3RSfs | 270 |
| 7.18.2.52 nppiSub_8u_AC4IRSfs | 270 |
| 7.18.2.53 nppiSub_8u_AC4RSfs | 271 |
| 7.18.2.54 nppiSub_8u_C1IRSfs | 271 |
| 7.18.2.55 nppiSub_8u_C1RSfs | 271 |
| 7.18.2.56 nppiSub_8u_C3IRSfs | 272 |
| 7.18.2.57 nppiSub_8u_C3RSfs | 272 |
| 7.18.2.58 nppiSub_8u_C4IRSfs | 273 |
| 7.18.2.59 nppiSub_8u_C4RSfs | 273 |
| 7.19 Div | 274 |
| 7.19.1 Detailed Description | 279 |
| 7.19.2 Function Documentation | 279 |
| 7.19.2.1 nppiDiv_16s_AC4IRSfs | 279 |
| 7.19.2.2 nppiDiv_16s_AC4RSfs | 279 |
| 7.19.2.3 nppiDiv_16s_C1IRSfs | 280 |
| 7.19.2.4 nppiDiv_16s_C1RSfs | 280 |
| 7.19.2.5 nppiDiv_16s_C3IRSfs | 281 |
| 7.19.2.6 nppiDiv_16s_C3RSfs | 281 |
| 7.19.2.7 nppiDiv_16s_C4IRSfs | 281 |
| 7.19.2.8 nppiDiv_16s_C4RSfs | 282 |
| 7.19.2.9 nppiDiv_16sc_AC4IRSfs | 282 |
| 7.19.2.10 nppiDiv_16sc_AC4RSfs | 283 |
| 7.19.2.11 nppiDiv_16sc_C1IRSfs | 283 |

| | |
|---|-----|
| 7.19.2.12 nppiDiv_16sc_C1RSfs | 283 |
| 7.19.2.13 nppiDiv_16sc_C3IRSfs | 284 |
| 7.19.2.14 nppiDiv_16sc_C3RSfs | 284 |
| 7.19.2.15 nppiDiv_16u_AC4IRSfs | 285 |
| 7.19.2.16 nppiDiv_16u_AC4RSfs | 285 |
| 7.19.2.17 nppiDiv_16u_C1IRSfs | 286 |
| 7.19.2.18 nppiDiv_16u_C1RSfs | 286 |
| 7.19.2.19 nppiDiv_16u_C3IRSfs | 286 |
| 7.19.2.20 nppiDiv_16u_C3RSfs | 287 |
| 7.19.2.21 nppiDiv_16u_C4IRSfs | 287 |
| 7.19.2.22 nppiDiv_16u_C4RSfs | 288 |
| 7.19.2.23 nppiDiv_32f_AC4IR | 288 |
| 7.19.2.24 nppiDiv_32f_AC4R | 288 |
| 7.19.2.25 nppiDiv_32f_C1IR | 289 |
| 7.19.2.26 nppiDiv_32f_C1R | 289 |
| 7.19.2.27 nppiDiv_32f_C3IR | 290 |
| 7.19.2.28 nppiDiv_32f_C3R | 290 |
| 7.19.2.29 nppiDiv_32f_C4IR | 290 |
| 7.19.2.30 nppiDiv_32f_C4R | 291 |
| 7.19.2.31 nppiDiv_32fc_AC4IR | 291 |
| 7.19.2.32 nppiDiv_32fc_AC4R | 291 |
| 7.19.2.33 nppiDiv_32fc_C1IR | 292 |
| 7.19.2.34 nppiDiv_32fc_C1R | 292 |
| 7.19.2.35 nppiDiv_32fc_C3IR | 293 |
| 7.19.2.36 nppiDiv_32fc_C3R | 293 |
| 7.19.2.37 nppiDiv_32fc_C4IR | 293 |
| 7.19.2.38 nppiDiv_32fc_C4R | 294 |
| 7.19.2.39 nppiDiv_32s_C1IRSfs | 294 |
| 7.19.2.40 nppiDiv_32s_C1R | 294 |
| 7.19.2.41 nppiDiv_32s_C1RSfs | 295 |
| 7.19.2.42 nppiDiv_32s_C3IRSfs | 295 |
| 7.19.2.43 nppiDiv_32s_C3RSfs | 296 |
| 7.19.2.44 nppiDiv_32sc_AC4IRSfs | 296 |
| 7.19.2.45 nppiDiv_32sc_AC4RSfs | 296 |
| 7.19.2.46 nppiDiv_32sc_C1IRSfs | 297 |
| 7.19.2.47 nppiDiv_32sc_C1RSfs | 297 |

| | |
|---|-----|
| 7.19.2.48 nppiDiv_32sc_C3IRSfs | 298 |
| 7.19.2.49 nppiDiv_32sc_C3RSfs | 298 |
| 7.19.2.50 nppiDiv_8u_AC4IRSfs | 299 |
| 7.19.2.51 nppiDiv_8u_AC4RSfs | 299 |
| 7.19.2.52 nppiDiv_8u_C1IRSfs | 299 |
| 7.19.2.53 nppiDiv_8u_C1RSfs | 300 |
| 7.19.2.54 nppiDiv_8u_C3IRSfs | 300 |
| 7.19.2.55 nppiDiv_8u_C3RSfs | 301 |
| 7.19.2.56 nppiDiv_8u_C4IRSfs | 301 |
| 7.19.2.57 nppiDiv_8u_C4RSfs | 301 |
| 7.20 Div_Round | 303 |
| 7.20.1 Detailed Description | 305 |
| 7.20.2 Function Documentation | 305 |
| 7.20.2.1 nppiDiv_Round_16s_AC4IRSfs | 305 |
| 7.20.2.2 nppiDiv_Round_16s_AC4RSfs | 306 |
| 7.20.2.3 nppiDiv_Round_16s_C1IRSfs | 306 |
| 7.20.2.4 nppiDiv_Round_16s_C1RSfs | 307 |
| 7.20.2.5 nppiDiv_Round_16s_C3IRSfs | 307 |
| 7.20.2.6 nppiDiv_Round_16s_C3RSfs | 308 |
| 7.20.2.7 nppiDiv_Round_16s_C4IRSfs | 308 |
| 7.20.2.8 nppiDiv_Round_16s_C4RSfs | 309 |
| 7.20.2.9 nppiDiv_Round_16u_AC4IRSfs | 309 |
| 7.20.2.10 nppiDiv_Round_16u_AC4RSfs | 310 |
| 7.20.2.11 nppiDiv_Round_16u_C1IRSfs | 310 |
| 7.20.2.12 nppiDiv_Round_16u_C1RSfs | 311 |
| 7.20.2.13 nppiDiv_Round_16u_C3IRSfs | 311 |
| 7.20.2.14 nppiDiv_Round_16u_C3RSfs | 312 |
| 7.20.2.15 nppiDiv_Round_16u_C4IRSfs | 312 |
| 7.20.2.16 nppiDiv_Round_16u_C4RSfs | 313 |
| 7.20.2.17 nppiDiv_Round_8u_AC4IRSfs | 313 |
| 7.20.2.18 nppiDiv_Round_8u_AC4RSfs | 314 |
| 7.20.2.19 nppiDiv_Round_8u_C1IRSfs | 314 |
| 7.20.2.20 nppiDiv_Round_8u_C1RSfs | 315 |
| 7.20.2.21 nppiDiv_Round_8u_C3IRSfs | 315 |
| 7.20.2.22 nppiDiv_Round_8u_C3RSfs | 316 |
| 7.20.2.23 nppiDiv_Round_8u_C4IRSfs | 316 |

| | |
|---|-----|
| 7.20.2.24 nppiDiv_Round_8u_C4RSfs | 317 |
| 7.21 Abs | 318 |
| 7.21.1 Detailed Description | 319 |
| 7.21.2 Function Documentation | 319 |
| 7.21.2.1 nppiAbs_16s_AC4IR | 319 |
| 7.21.2.2 nppiAbs_16s_AC4R | 319 |
| 7.21.2.3 nppiAbs_16s_C1IR | 320 |
| 7.21.2.4 nppiAbs_16s_C1R | 320 |
| 7.21.2.5 nppiAbs_16s_C3IR | 320 |
| 7.21.2.6 nppiAbs_16s_C3R | 321 |
| 7.21.2.7 nppiAbs_16s_C4IR | 321 |
| 7.21.2.8 nppiAbs_16s_C4R | 321 |
| 7.21.2.9 nppiAbs_32f_AC4IR | 322 |
| 7.21.2.10 nppiAbs_32f_AC4R | 322 |
| 7.21.2.11 nppiAbs_32f_C1IR | 322 |
| 7.21.2.12 nppiAbs_32f_C1R | 323 |
| 7.21.2.13 nppiAbs_32f_C3IR | 323 |
| 7.21.2.14 nppiAbs_32f_C3R | 323 |
| 7.21.2.15 nppiAbs_32f_C4IR | 324 |
| 7.21.2.16 nppiAbs_32f_C4R | 324 |
| 7.22 AbsDiff | 325 |
| 7.22.1 Detailed Description | 325 |
| 7.22.2 Function Documentation | 325 |
| 7.22.2.1 nppiAbsDiff_16u_C1R | 325 |
| 7.22.2.2 nppiAbsDiff_32f_C1R | 326 |
| 7.22.2.3 nppiAbsDiff_8u_C1R | 326 |
| 7.22.2.4 nppiAbsDiff_8u_C3R | 326 |
| 7.22.2.5 nppiAbsDiff_8u_C4R | 327 |
| 7.23 Sqr | 328 |
| 7.23.1 Detailed Description | 330 |
| 7.23.2 Function Documentation | 331 |
| 7.23.2.1 nppiSqr_16s_AC4IRSfs | 331 |
| 7.23.2.2 nppiSqr_16s_AC4RSfs | 331 |
| 7.23.2.3 nppiSqr_16s_C1IRSfs | 331 |
| 7.23.2.4 nppiSqr_16s_C1RSfs | 332 |
| 7.23.2.5 nppiSqr_16s_C3IRSfs | 332 |

| | |
|--|-----|
| 7.23.2.6 nppiSqr_16s_C3RSfs | 332 |
| 7.23.2.7 nppiSqr_16s_C4IRSfs | 333 |
| 7.23.2.8 nppiSqr_16s_C4RSfs | 333 |
| 7.23.2.9 nppiSqr_16u_AC4IRSfs | 333 |
| 7.23.2.10 nppiSqr_16u_AC4RSfs | 334 |
| 7.23.2.11 nppiSqr_16u_C1IRSfs | 334 |
| 7.23.2.12 nppiSqr_16u_C1RSfs | 334 |
| 7.23.2.13 nppiSqr_16u_C3IRSfs | 335 |
| 7.23.2.14 nppiSqr_16u_C3RSfs | 335 |
| 7.23.2.15 nppiSqr_16u_C4IRSfs | 335 |
| 7.23.2.16 nppiSqr_16u_C4RSfs | 336 |
| 7.23.2.17 nppiSqr_32f_AC4IR | 336 |
| 7.23.2.18 nppiSqr_32f_AC4R | 336 |
| 7.23.2.19 nppiSqr_32f_C1IR | 337 |
| 7.23.2.20 nppiSqr_32f_C1R | 337 |
| 7.23.2.21 nppiSqr_32f_C3IR | 337 |
| 7.23.2.22 nppiSqr_32f_C3R | 338 |
| 7.23.2.23 nppiSqr_32f_C4IR | 338 |
| 7.23.2.24 nppiSqr_32f_C4R | 338 |
| 7.23.2.25 nppiSqr_8u_AC4IRSfs | 339 |
| 7.23.2.26 nppiSqr_8u_AC4RSfs | 339 |
| 7.23.2.27 nppiSqr_8u_C1IRSfs | 339 |
| 7.23.2.28 nppiSqr_8u_C1RSfs | 340 |
| 7.23.2.29 nppiSqr_8u_C3IRSfs | 340 |
| 7.23.2.30 nppiSqr_8u_C3RSfs | 340 |
| 7.23.2.31 nppiSqr_8u_C4IRSfs | 341 |
| 7.23.2.32 nppiSqr_8u_C4RSfs | 341 |
| 7.24 Sqrt | 342 |
| 7.24.1 Detailed Description | 344 |
| 7.24.2 Function Documentation | 344 |
| 7.24.2.1 nppiSqrt_16s_AC4IRSfs | 344 |
| 7.24.2.2 nppiSqrt_16s_AC4RSfs | 345 |
| 7.24.2.3 nppiSqrt_16s_C1IRSfs | 345 |
| 7.24.2.4 nppiSqrt_16s_C1RSfs | 345 |
| 7.24.2.5 nppiSqrt_16s_C3IRSfs | 346 |
| 7.24.2.6 nppiSqrt_16s_C3RSfs | 346 |

| | |
|--|-----|
| 7.24.2.7 nppiSqrt_16u_AC4IRSfs | 346 |
| 7.24.2.8 nppiSqrt_16u_AC4RSfs | 347 |
| 7.24.2.9 nppiSqrt_16u_C1IRSfs | 347 |
| 7.24.2.10 nppiSqrt_16u_C1RSfs | 348 |
| 7.24.2.11 nppiSqrt_16u_C3IRSfs | 348 |
| 7.24.2.12 nppiSqrt_16u_C3RSfs | 348 |
| 7.24.2.13 nppiSqrt_32f_AC4IR | 349 |
| 7.24.2.14 nppiSqrt_32f_AC4R | 349 |
| 7.24.2.15 nppiSqrt_32f_C1IR | 349 |
| 7.24.2.16 nppiSqrt_32f_C1R | 350 |
| 7.24.2.17 nppiSqrt_32f_C3IR | 350 |
| 7.24.2.18 nppiSqrt_32f_C3R | 350 |
| 7.24.2.19 nppiSqrt_32f_C4IR | 351 |
| 7.24.2.20 nppiSqrt_32f_C4R | 351 |
| 7.24.2.21 nppiSqrt_8u_AC4IRSfs | 351 |
| 7.24.2.22 nppiSqrt_8u_AC4RSfs | 352 |
| 7.24.2.23 nppiSqrt_8u_C1IRSfs | 352 |
| 7.24.2.24 nppiSqrt_8u_C1RSfs | 352 |
| 7.24.2.25 nppiSqrt_8u_C3IRSfs | 353 |
| 7.24.2.26 nppiSqrt_8u_C3RSfs | 353 |
| 7.25 Ln | 354 |
| 7.25.1 Detailed Description | 355 |
| 7.25.2 Function Documentation | 355 |
| 7.25.2.1 nppiLn_16s_C1IRSfs | 355 |
| 7.25.2.2 nppiLn_16s_C1RSfs | 356 |
| 7.25.2.3 nppiLn_16s_C3IRSfs | 356 |
| 7.25.2.4 nppiLn_16s_C3RSfs | 356 |
| 7.25.2.5 nppiLn_16u_C1IRSfs | 357 |
| 7.25.2.6 nppiLn_16u_C1RSfs | 357 |
| 7.25.2.7 nppiLn_16u_C3IRSfs | 357 |
| 7.25.2.8 nppiLn_16u_C3RSfs | 358 |
| 7.25.2.9 nppiLn_32f_C1IR | 358 |
| 7.25.2.10 nppiLn_32f_C1R | 358 |
| 7.25.2.11 nppiLn_32f_C3IR | 359 |
| 7.25.2.12 nppiLn_32f_C3R | 359 |
| 7.25.2.13 nppiLn_8u_C1IRSfs | 359 |

| | |
|---|-----|
| 7.25.2.14 nppiLn_8u_C1RSfs | 360 |
| 7.25.2.15 nppiLn_8u_C3IRSfs | 360 |
| 7.25.2.16 nppiLn_8u_C3RSfs | 360 |
| 7.26 Exp | 361 |
| 7.26.1 Detailed Description | 362 |
| 7.26.2 Function Documentation | 362 |
| 7.26.2.1 nppiExp_16s_C1IRSfs | 362 |
| 7.26.2.2 nppiExp_16s_C1RSfs | 363 |
| 7.26.2.3 nppiExp_16s_C3IRSfs | 363 |
| 7.26.2.4 nppiExp_16s_C3RSfs | 363 |
| 7.26.2.5 nppiExp_16u_C1IRSfs | 364 |
| 7.26.2.6 nppiExp_16u_C1RSfs | 364 |
| 7.26.2.7 nppiExp_16u_C3IRSfs | 364 |
| 7.26.2.8 nppiExp_16u_C3RSfs | 365 |
| 7.26.2.9 nppiExp_32f_C1IR | 365 |
| 7.26.2.10 nppiExp_32f_C1R | 365 |
| 7.26.2.11 nppiExp_32f_C3IR | 366 |
| 7.26.2.12 nppiExp_32f_C3R | 366 |
| 7.26.2.13 nppiExp_8u_C1IRSfs | 366 |
| 7.26.2.14 nppiExp_8u_C1RSfs | 367 |
| 7.26.2.15 nppiExp_8u_C3IRSfs | 367 |
| 7.26.2.16 nppiExp_8u_C3RSfs | 367 |
| 7.27 Logical Operations | 368 |
| 7.28 AndC | 369 |
| 7.28.1 Detailed Description | 371 |
| 7.28.2 Function Documentation | 371 |
| 7.28.2.1 nppiAndC_16u_AC4IR | 371 |
| 7.28.2.2 nppiAndC_16u_AC4R | 371 |
| 7.28.2.3 nppiAndC_16u_C1IR | 371 |
| 7.28.2.4 nppiAndC_16u_C1R | 372 |
| 7.28.2.5 nppiAndC_16u_C3IR | 372 |
| 7.28.2.6 nppiAndC_16u_C3R | 372 |
| 7.28.2.7 nppiAndC_16u_C4IR | 373 |
| 7.28.2.8 nppiAndC_16u_C4R | 373 |
| 7.28.2.9 nppiAndC_32s_AC4IR | 374 |
| 7.28.2.10 nppiAndC_32s_AC4R | 374 |

| | |
|---|-----|
| 7.28.2.11 nppiAndC_32s_C1IR | 374 |
| 7.28.2.12 nppiAndC_32s_C1R | 375 |
| 7.28.2.13 nppiAndC_32s_C3IR | 375 |
| 7.28.2.14 nppiAndC_32s_C3R | 375 |
| 7.28.2.15 nppiAndC_32s_C4IR | 376 |
| 7.28.2.16 nppiAndC_32s_C4R | 376 |
| 7.28.2.17 nppiAndC_8u_AC4IR | 376 |
| 7.28.2.18 nppiAndC_8u_AC4R | 377 |
| 7.28.2.19 nppiAndC_8u_C1IR | 377 |
| 7.28.2.20 nppiAndC_8u_C1R | 377 |
| 7.28.2.21 nppiAndC_8u_C3IR | 378 |
| 7.28.2.22 nppiAndC_8u_C3R | 378 |
| 7.28.2.23 nppiAndC_8u_C4IR | 378 |
| 7.28.2.24 nppiAndC_8u_C4R | 379 |
| 7.29 OrC | 380 |
| 7.29.1 Detailed Description | 382 |
| 7.29.2 Function Documentation | 382 |
| 7.29.2.1 nppiOrC_16u_AC4IR | 382 |
| 7.29.2.2 nppiOrC_16u_AC4R | 382 |
| 7.29.2.3 nppiOrC_16u_C1IR | 382 |
| 7.29.2.4 nppiOrC_16u_C1R | 383 |
| 7.29.2.5 nppiOrC_16u_C3IR | 383 |
| 7.29.2.6 nppiOrC_16u_C3R | 383 |
| 7.29.2.7 nppiOrC_16u_C4IR | 384 |
| 7.29.2.8 nppiOrC_16u_C4R | 384 |
| 7.29.2.9 nppiOrC_32s_AC4IR | 385 |
| 7.29.2.10 nppiOrC_32s_AC4R | 385 |
| 7.29.2.11 nppiOrC_32s_C1IR | 385 |
| 7.29.2.12 nppiOrC_32s_C1R | 386 |
| 7.29.2.13 nppiOrC_32s_C3IR | 386 |
| 7.29.2.14 nppiOrC_32s_C3R | 386 |
| 7.29.2.15 nppiOrC_32s_C4IR | 387 |
| 7.29.2.16 nppiOrC_32s_C4R | 387 |
| 7.29.2.17 nppiOrC_8u_AC4IR | 387 |
| 7.29.2.18 nppiOrC_8u_AC4R | 388 |
| 7.29.2.19 nppiOrC_8u_C1IR | 388 |

| | |
|--|-----|
| 7.29.2.20 nppiOrC_8u_C1R | 388 |
| 7.29.2.21 nppiOrC_8u_C3IR | 389 |
| 7.29.2.22 nppiOrC_8u_C3R | 389 |
| 7.29.2.23 nppiOrC_8u_C4IR | 389 |
| 7.29.2.24 nppiOrC_8u_C4R | 390 |
| 7.30 XorC | 391 |
| 7.30.1 Detailed Description | 393 |
| 7.30.2 Function Documentation | 393 |
| 7.30.2.1 nppiXorC_16u_AC4IR | 393 |
| 7.30.2.2 nppiXorC_16u_AC4R | 393 |
| 7.30.2.3 nppiXorC_16u_C1IR | 393 |
| 7.30.2.4 nppiXorC_16u_C1R | 394 |
| 7.30.2.5 nppiXorC_16u_C3IR | 394 |
| 7.30.2.6 nppiXorC_16u_C3R | 394 |
| 7.30.2.7 nppiXorC_16u_C4IR | 395 |
| 7.30.2.8 nppiXorC_16u_C4R | 395 |
| 7.30.2.9 nppiXorC_32s_AC4IR | 396 |
| 7.30.2.10 nppiXorC_32s_AC4R | 396 |
| 7.30.2.11 nppiXorC_32s_C1IR | 396 |
| 7.30.2.12 nppiXorC_32s_C1R | 397 |
| 7.30.2.13 nppiXorC_32s_C3IR | 397 |
| 7.30.2.14 nppiXorC_32s_C3R | 397 |
| 7.30.2.15 nppiXorC_32s_C4IR | 398 |
| 7.30.2.16 nppiXorC_32s_C4R | 398 |
| 7.30.2.17 nppiXorC_8u_AC4IR | 398 |
| 7.30.2.18 nppiXorC_8u_AC4R | 399 |
| 7.30.2.19 nppiXorC_8u_C1IR | 399 |
| 7.30.2.20 nppiXorC_8u_C1R | 399 |
| 7.30.2.21 nppiXorC_8u_C3IR | 400 |
| 7.30.2.22 nppiXorC_8u_C3R | 400 |
| 7.30.2.23 nppiXorC_8u_C4IR | 400 |
| 7.30.2.24 nppiXorC_8u_C4R | 401 |
| 7.31 RShiftC | 402 |
| 7.31.1 Detailed Description | 405 |
| 7.31.2 Function Documentation | 405 |
| 7.31.2.1 nppiRShiftC_16s_AC4IR | 405 |

| | |
|---|-----|
| 7.31.2.2 nppiRShiftC_16s_AC4R | 405 |
| 7.31.2.3 nppiRShiftC_16s_C1IR | 406 |
| 7.31.2.4 nppiRShiftC_16s_C1R | 406 |
| 7.31.2.5 nppiRShiftC_16s_C3IR | 406 |
| 7.31.2.6 nppiRShiftC_16s_C3R | 407 |
| 7.31.2.7 nppiRShiftC_16s_C4IR | 407 |
| 7.31.2.8 nppiRShiftC_16s_C4R | 407 |
| 7.31.2.9 nppiRShiftC_16u_AC4IR | 408 |
| 7.31.2.10 nppiRShiftC_16u_AC4R | 408 |
| 7.31.2.11 nppiRShiftC_16u_C1IR | 409 |
| 7.31.2.12 nppiRShiftC_16u_C1R | 409 |
| 7.31.2.13 nppiRShiftC_16u_C3IR | 409 |
| 7.31.2.14 nppiRShiftC_16u_C3R | 410 |
| 7.31.2.15 nppiRShiftC_16u_C4IR | 410 |
| 7.31.2.16 nppiRShiftC_16u_C4R | 410 |
| 7.31.2.17 nppiRShiftC_32s_AC4IR | 411 |
| 7.31.2.18 nppiRShiftC_32s_AC4R | 411 |
| 7.31.2.19 nppiRShiftC_32s_C1IR | 411 |
| 7.31.2.20 nppiRShiftC_32s_C1R | 412 |
| 7.31.2.21 nppiRShiftC_32s_C3IR | 412 |
| 7.31.2.22 nppiRShiftC_32s_C3R | 412 |
| 7.31.2.23 nppiRShiftC_32s_C4IR | 413 |
| 7.31.2.24 nppiRShiftC_32s_C4R | 413 |
| 7.31.2.25 nppiRShiftC_8s_AC4IR | 413 |
| 7.31.2.26 nppiRShiftC_8s_AC4R | 414 |
| 7.31.2.27 nppiRShiftC_8s_C1IR | 414 |
| 7.31.2.28 nppiRShiftC_8s_C1R | 414 |
| 7.31.2.29 nppiRShiftC_8s_C3IR | 415 |
| 7.31.2.30 nppiRShiftC_8s_C3R | 415 |
| 7.31.2.31 nppiRShiftC_8s_C4IR | 415 |
| 7.31.2.32 nppiRShiftC_8s_C4R | 416 |
| 7.31.2.33 nppiRShiftC_8u_AC4IR | 416 |
| 7.31.2.34 nppiRShiftC_8u_AC4R | 416 |
| 7.31.2.35 nppiRShiftC_8u_C1IR | 417 |
| 7.31.2.36 nppiRShiftC_8u_C1R | 417 |
| 7.31.2.37 nppiRShiftC_8u_C3IR | 417 |

| | |
|--|-----|
| 7.31.2.38 nppiRShiftC_8u_C3R | 418 |
| 7.31.2.39 nppiRShiftC_8u_C4IR | 418 |
| 7.31.2.40 nppiRShiftC_8u_C4R | 418 |
| 7.32 LShiftC | 419 |
| 7.32.1 Detailed Description | 421 |
| 7.32.2 Function Documentation | 421 |
| 7.32.2.1 nppiLShiftC_16u_AC4IR | 421 |
| 7.32.2.2 nppiLShiftC_16u_AC4R | 421 |
| 7.32.2.3 nppiLShiftC_16u_C1IR | 421 |
| 7.32.2.4 nppiLShiftC_16u_C1R | 422 |
| 7.32.2.5 nppiLShiftC_16u_C3IR | 422 |
| 7.32.2.6 nppiLShiftC_16u_C3R | 422 |
| 7.32.2.7 nppiLShiftC_16u_C4IR | 423 |
| 7.32.2.8 nppiLShiftC_16u_C4R | 423 |
| 7.32.2.9 nppiLShiftC_32s_AC4IR | 424 |
| 7.32.2.10 nppiLShiftC_32s_AC4R | 424 |
| 7.32.2.11 nppiLShiftC_32s_C1IR | 424 |
| 7.32.2.12 nppiLShiftC_32s_C1R | 425 |
| 7.32.2.13 nppiLShiftC_32s_C3IR | 425 |
| 7.32.2.14 nppiLShiftC_32s_C3R | 425 |
| 7.32.2.15 nppiLShiftC_32s_C4IR | 426 |
| 7.32.2.16 nppiLShiftC_32s_C4R | 426 |
| 7.32.2.17 nppiLShiftC_8u_AC4IR | 426 |
| 7.32.2.18 nppiLShiftC_8u_AC4R | 427 |
| 7.32.2.19 nppiLShiftC_8u_C1IR | 427 |
| 7.32.2.20 nppiLShiftC_8u_C1R | 427 |
| 7.32.2.21 nppiLShiftC_8u_C3IR | 428 |
| 7.32.2.22 nppiLShiftC_8u_C3R | 428 |
| 7.32.2.23 nppiLShiftC_8u_C4IR | 428 |
| 7.32.2.24 nppiLShiftC_8u_C4R | 429 |
| 7.33 And | 430 |
| 7.33.1 Detailed Description | 432 |
| 7.33.2 Function Documentation | 432 |
| 7.33.2.1 nppiAnd_16u_AC4IR | 432 |
| 7.33.2.2 nppiAnd_16u_AC4R | 432 |
| 7.33.2.3 nppiAnd_16u_C1IR | 432 |

| | |
|---|-----|
| 7.33.2.4 nppiAnd_16u_C1R | 433 |
| 7.33.2.5 nppiAnd_16u_C3IR | 433 |
| 7.33.2.6 nppiAnd_16u_C3R | 434 |
| 7.33.2.7 nppiAnd_16u_C4IR | 434 |
| 7.33.2.8 nppiAnd_16u_C4R | 434 |
| 7.33.2.9 nppiAnd_32s_AC4IR | 435 |
| 7.33.2.10 nppiAnd_32s_AC4R | 435 |
| 7.33.2.11 nppiAnd_32s_C1IR | 436 |
| 7.33.2.12 nppiAnd_32s_C1R | 436 |
| 7.33.2.13 nppiAnd_32s_C3IR | 436 |
| 7.33.2.14 nppiAnd_32s_C3R | 437 |
| 7.33.2.15 nppiAnd_32s_C4IR | 437 |
| 7.33.2.16 nppiAnd_32s_C4R | 437 |
| 7.33.2.17 nppiAnd_8u_AC4IR | 438 |
| 7.33.2.18 nppiAnd_8u_AC4R | 438 |
| 7.33.2.19 nppiAnd_8u_C1IR | 439 |
| 7.33.2.20 nppiAnd_8u_C1R | 439 |
| 7.33.2.21 nppiAnd_8u_C3IR | 439 |
| 7.33.2.22 nppiAnd_8u_C3R | 440 |
| 7.33.2.23 nppiAnd_8u_C4IR | 440 |
| 7.33.2.24 nppiAnd_8u_C4R | 440 |
| 7.34 Or | 442 |
| 7.34.1 Detailed Description | 444 |
| 7.34.2 Function Documentation | 444 |
| 7.34.2.1 nppiOr_16u_AC4IR | 444 |
| 7.34.2.2 nppiOr_16u_AC4R | 444 |
| 7.34.2.3 nppiOr_16u_C1IR | 444 |
| 7.34.2.4 nppiOr_16u_C1R | 445 |
| 7.34.2.5 nppiOr_16u_C3IR | 445 |
| 7.34.2.6 nppiOr_16u_C3R | 446 |
| 7.34.2.7 nppiOr_16u_C4IR | 446 |
| 7.34.2.8 nppiOr_16u_C4R | 446 |
| 7.34.2.9 nppiOr_32s_AC4IR | 447 |
| 7.34.2.10 nppiOr_32s_AC4R | 447 |
| 7.34.2.11 nppiOr_32s_C1IR | 448 |
| 7.34.2.12 nppiOr_32s_C1R | 448 |

| | |
|---|-----|
| 7.34.2.13 nppiOr_32s_C3IR | 448 |
| 7.34.2.14 nppiOr_32s_C3R | 449 |
| 7.34.2.15 nppiOr_32s_C4IR | 449 |
| 7.34.2.16 nppiOr_32s_C4R | 449 |
| 7.34.2.17 nppiOr_8u_AC4IR | 450 |
| 7.34.2.18 nppiOr_8u_AC4R | 450 |
| 7.34.2.19 nppiOr_8u_C1IR | 451 |
| 7.34.2.20 nppiOr_8u_C1R | 451 |
| 7.34.2.21 nppiOr_8u_C3IR | 451 |
| 7.34.2.22 nppiOr_8u_C3R | 452 |
| 7.34.2.23 nppiOr_8u_C4IR | 452 |
| 7.34.2.24 nppiOr_8u_C4R | 452 |
| 7.35 Xor | 454 |
| 7.35.1 Detailed Description | 456 |
| 7.35.2 Function Documentation | 456 |
| 7.35.2.1 nppiXor_16u_AC4IR | 456 |
| 7.35.2.2 nppiXor_16u_AC4R | 456 |
| 7.35.2.3 nppiXor_16u_C1IR | 456 |
| 7.35.2.4 nppiXor_16u_C1R | 457 |
| 7.35.2.5 nppiXor_16u_C3IR | 457 |
| 7.35.2.6 nppiXor_16u_C3R | 458 |
| 7.35.2.7 nppiXor_16u_C4IR | 458 |
| 7.35.2.8 nppiXor_16u_C4R | 458 |
| 7.35.2.9 nppiXor_32s_AC4IR | 459 |
| 7.35.2.10 nppiXor_32s_AC4R | 459 |
| 7.35.2.11 nppiXor_32s_C1IR | 460 |
| 7.35.2.12 nppiXor_32s_C1R | 460 |
| 7.35.2.13 nppiXor_32s_C3IR | 460 |
| 7.35.2.14 nppiXor_32s_C3R | 461 |
| 7.35.2.15 nppiXor_32s_C4IR | 461 |
| 7.35.2.16 nppiXor_32s_C4R | 461 |
| 7.35.2.17 nppiXor_8u_AC4IR | 462 |
| 7.35.2.18 nppiXor_8u_AC4R | 462 |
| 7.35.2.19 nppiXor_8u_C1IR | 463 |
| 7.35.2.20 nppiXor_8u_C1R | 463 |
| 7.35.2.21 nppiXor_8u_C3IR | 463 |

| | |
|---|-----|
| 7.35.2.22 nppiXor_8u_C3R | 464 |
| 7.35.2.23 nppiXor_8u_C4IR | 464 |
| 7.35.2.24 nppiXor_8u_C4R | 464 |
| 7.36 Not | 466 |
| 7.36.1 Detailed Description | 466 |
| 7.36.2 Function Documentation | 466 |
| 7.36.2.1 nppiNot_8u_AC4IR | 466 |
| 7.36.2.2 nppiNot_8u_AC4R | 467 |
| 7.36.2.3 nppiNot_8u_C1IR | 467 |
| 7.36.2.4 nppiNot_8u_C1R | 467 |
| 7.36.2.5 nppiNot_8u_C3IR | 468 |
| 7.36.2.6 nppiNot_8u_C3R | 468 |
| 7.36.2.7 nppiNot_8u_C4IR | 468 |
| 7.36.2.8 nppiNot_8u_C4R | 469 |
| 7.37 Alpha Composition | 470 |
| 7.38 AlphaCompC | 471 |
| 7.38.1 Detailed Description | 472 |
| 7.38.2 Function Documentation | 472 |
| 7.38.2.1 nppiAlphaCompC_16s_C1R | 472 |
| 7.38.2.2 nppiAlphaCompC_16u_AC4R | 473 |
| 7.38.2.3 nppiAlphaCompC_16u_C1R | 473 |
| 7.38.2.4 nppiAlphaCompC_16u_C3R | 474 |
| 7.38.2.5 nppiAlphaCompC_16u_C4R | 474 |
| 7.38.2.6 nppiAlphaCompC_32f_C1R | 475 |
| 7.38.2.7 nppiAlphaCompC_32s_C1R | 475 |
| 7.38.2.8 nppiAlphaCompC_32u_C1R | 476 |
| 7.38.2.9 nppiAlphaCompC_8s_C1R | 476 |
| 7.38.2.10 nppiAlphaCompC_8u_AC4R | 477 |
| 7.38.2.11 nppiAlphaCompC_8u_C1R | 477 |
| 7.38.2.12 nppiAlphaCompC_8u_C3R | 478 |
| 7.38.2.13 nppiAlphaCompC_8u_C4R | 478 |
| 7.39 AlphaPremulC | 479 |
| 7.39.1 Detailed Description | 480 |
| 7.39.2 Function Documentation | 480 |
| 7.39.2.1 nppiAlphaPremulC_16u_AC4IR | 480 |
| 7.39.2.2 nppiAlphaPremulC_16u_AC4R | 480 |

| | |
|--|-----|
| 7.39.2.3 nppiAlphaPremulC_16u_C1IR | 481 |
| 7.39.2.4 nppiAlphaPremulC_16u_C1R | 481 |
| 7.39.2.5 nppiAlphaPremulC_16u_C3IR | 482 |
| 7.39.2.6 nppiAlphaPremulC_16u_C3R | 482 |
| 7.39.2.7 nppiAlphaPremulC_16u_C4IR | 482 |
| 7.39.2.8 nppiAlphaPremulC_16u_C4R | 483 |
| 7.39.2.9 nppiAlphaPremulC_8u_AC4IR | 483 |
| 7.39.2.10 nppiAlphaPremulC_8u_AC4R | 483 |
| 7.39.2.11 nppiAlphaPremulC_8u_C1IR | 484 |
| 7.39.2.12 nppiAlphaPremulC_8u_C1R | 484 |
| 7.39.2.13 nppiAlphaPremulC_8u_C3IR | 484 |
| 7.39.2.14 nppiAlphaPremulC_8u_C3R | 485 |
| 7.39.2.15 nppiAlphaPremulC_8u_C4IR | 485 |
| 7.39.2.16 nppiAlphaPremulC_8u_C4R | 485 |
| 7.40 AlphaComp | 486 |
| 7.40.1 Detailed Description | 487 |
| 7.40.2 Function Documentation | 487 |
| 7.40.2.1 nppiAlphaComp_16s_AC1R | 487 |
| 7.40.2.2 nppiAlphaComp_16u_AC1R | 487 |
| 7.40.2.3 nppiAlphaComp_16u_AC4R | 488 |
| 7.40.2.4 nppiAlphaComp_32f_AC1R | 488 |
| 7.40.2.5 nppiAlphaComp_32f_AC4R | 489 |
| 7.40.2.6 nppiAlphaComp_32s_AC1R | 489 |
| 7.40.2.7 nppiAlphaComp_32s_AC4R | 490 |
| 7.40.2.8 nppiAlphaComp_32u_AC1R | 490 |
| 7.40.2.9 nppiAlphaComp_32u_AC4R | 491 |
| 7.40.2.10 nppiAlphaComp_8s_AC1R | 491 |
| 7.40.2.11 nppiAlphaComp_8u_AC1R | 491 |
| 7.40.2.12 nppiAlphaComp_8u_AC4R | 492 |
| 7.41 AlphaPremul | 493 |
| 7.41.1 Detailed Description | 493 |
| 7.41.2 Function Documentation | 493 |
| 7.41.2.1 nppiAlphaPremul_16u_AC4IR | 493 |
| 7.41.2.2 nppiAlphaPremul_16u_AC4R | 494 |
| 7.41.2.3 nppiAlphaPremul_8u_AC4IR | 494 |
| 7.41.2.4 nppiAlphaPremul_8u_AC4R | 494 |

| | |
|---|------------|
| 8 Data Structure Documentation | 495 |
| 8.1 NPP_ALIGN_16 Struct Reference | 495 |
| 8.1.1 Detailed Description | 495 |
| 8.1.2 Field Documentation | 495 |
| 8.1.2.1 im | 495 |
| 8.1.2.2 im | 496 |
| 8.1.2.3 re | 496 |
| 8.1.2.4 re | 496 |
| 8.2 NPP_ALIGN_8 Struct Reference | 497 |
| 8.2.1 Detailed Description | 497 |
| 8.2.2 Field Documentation | 497 |
| 8.2.2.1 im | 497 |
| 8.2.2.2 im | 497 |
| 8.2.2.3 im | 497 |
| 8.2.2.4 re | 498 |
| 8.2.2.5 re | 498 |
| 8.2.2.6 re | 498 |
| 8.3 NppiHaarBuffer Struct Reference | 499 |
| 8.3.1 Field Documentation | 499 |
| 8.3.1.1 haarBuffer | 499 |
| 8.3.1.2 haarBufferSize | 499 |
| 8.4 NppiHaarClassifier_32f Struct Reference | 500 |
| 8.4.1 Field Documentation | 500 |
| 8.4.1.1 classifiers | 500 |
| 8.4.1.2 classifierSize | 500 |
| 8.4.1.3 classifierStep | 500 |
| 8.4.1.4 counterDevice | 500 |
| 8.4.1.5 numClassifiers | 500 |
| 8.5 NppiPoint Struct Reference | 501 |
| 8.5.1 Detailed Description | 501 |
| 8.5.2 Field Documentation | 501 |
| 8.5.2.1 x | 501 |
| 8.5.2.2 y | 501 |
| 8.6 NppiRect Struct Reference | 502 |
| 8.6.1 Detailed Description | 502 |
| 8.6.2 Field Documentation | 502 |

| | | |
|---------|------------------------------------|-----|
| 8.6.2.1 | height | 502 |
| 8.6.2.2 | width | 502 |
| 8.6.2.3 | x | 502 |
| 8.6.2.4 | y | 502 |
| 8.7 | NppiSize Struct Reference | 503 |
| 8.7.1 | Detailed Description | 503 |
| 8.7.2 | Field Documentation | 503 |
| 8.7.2.1 | height | 503 |
| 8.7.2.2 | width | 503 |
| 8.8 | NppLibraryVersion Struct Reference | 504 |
| 8.8.1 | Field Documentation | 504 |
| 8.8.1.1 | build | 504 |
| 8.8.1.2 | major | 504 |
| 8.8.1.3 | minor | 504 |

Chapter 1

NVIDIA Performance Primitives

Note: Starting with release 6.5, NPP is also provided as a static library (libnppc_static.a, libnppi_static.a, and libnpps_static.a) on Linux, Android, and Mac OSes in addition to being provided as a shared library. The static NPP libraries depend on a common thread abstraction layer library called cuLIBOS (libculibos.a) that is now distributed as part of the toolkit. Consequently, cuLIBOS must be provided to the linker when the static library is being linked against. The libnppi library is becoming quite large so to minimize library loading and CUDA runtime startup times it is recommended to use the static library(s) whenever possible. To improve loading and runtime performance when using dynamic libraries NPP 8.0 now includes the full set of nppi sub-libraries in addition to the full sized nppi library itself. Linking to only the sub-libraries that contain functions that your application uses can significantly improve load time and runtime startup performance. Some nppi functions make calls to other nppi and/or npps functions internally so you may need to link to a few extra libraries depending on what function calls your application makes. The nppi sub-libraries are split into sections corresponding to the way that nppi header files are split. There are also static versions of each of the new sub-libraries. The full sized nppi library will be deprecated in the next CUDA release. This list of sub-libraries is as follows:

```
nppial arithmetic and logical operation functions in nppi_arithmetic_and_logical_operations.h  
nppicc color conversion and sampling functions in nppi_color_conversion.h  
nppicom JPEG compression and decompression functions in nppi_compression_functions.h  
nppidei data exchange and initialization functions in nppi_data_exchange_and_initialization.h  
nppif filtering and computer vision functions in nppi_filter_functions.h  
nppig geometry transformation functions found in nppi_geometry_transforms.h  
nppim morphological operation functions found in nppi_morphological_operations.h  
nppist statistics and linear transform in nppi_statistics_functions.h and nppi_linear_transforms.h  
nppisu memory support functions in nppi_support_functions.h  
nppitc threshold and compare operation functions in nppi_threshold_and_compare_operations.h
```

For example, on Linux, to compile a small application foo using NPP against the dynamic library, the following command can be used:

```
nvcc foo.c -lnppi -o foo
```

Whereas to compile against the static NPP library, the following command has to be used:

```
nvcc foo.c -lnppi_static -lculibos -o foo
```

It is also possible to use the native host C++ compiler. Depending on the host operating system, some additional libraries like pthread or dl might be needed on the linking line. The following command on Linux is suggested:

```
g++ foo.c -lnppi_static -lculibos -lcudart_static -lpthread -ldl
-I <cuda-toolkit-path>/include -L <cuda-toolkit-path>/lib64 -o foo
```

NPP is a stateless API, as of NPP 6.5 the ONLY state that NPP remembers between function calls is the current stream ID, i.e. the stream ID that was set in the most recent nppSetStream call. The default stream ID is 0. If an application intends to use NPP with multiple streams then it is the responsibility of the application to call nppSetStream whenever it wishes to change stream IDs. Several NPP functions may call other NPP functions internally to complete their functionality. For this reason it is recommended that cudaDeviceSynchronize be called before making an nppSetStream call to change to a new stream ID. This will insure that any internal function calls that have not yet occurred will be completed using the current stream ID before it changes to a new ID. Calling cudaDeviceSynchronize frequently call kill performance so minimizing the frequency of these calls is critical for good performance. It is not necessary to call cudaDeviceSynchronize for stream management while the same stream ID is used for multiple NPP calls. All NPP functions should be thread safe except for the following functions:

```
nppiGraphcut_32s8u - this function has been deprecated in NPP 8.0
nppiGraphcut_32f8u - this function has been deprecated in NPP 8.0
nppiGraphcut8_32s8u - this function has been deprecated in NPP 8.0
nppiGraphcut8_32f8u - this function has been deprecated in NPP 8.0
nppiDCTQuantFwd8x8LS_JPEG_8u16s_C1R
nppiDCTQuantInv8x8LS_JPEG_16s8u_C1R
```

As of NPP version 5.0 and beyond a few parameters for a few pre-5.0 existing image LUT functions have changed from host memory pointers to device memory pointers. Your application will fail (crash or report an error) if you use these functions with host memory pointers. The functions are the nppiLUT_Linear_-8u_xxx functions.

Also, pre-5.0 function nppiMeanStdDev8uC1RGetBufferSize has been renamed nppiMeanStdDevGetBufferSize_8u_C1R.

1.1 What is NPP?

NVIDIA NPP is a library of functions for performing CUDA accelerated processing. The initial set of functionality in the library focuses on imaging and video processing and is widely applicable for developers in these areas. NPP will evolve over time to encompass more of the compute heavy tasks in a variety of problem domains. The NPP library is written to maximize flexibility, while maintaining high performance.

NPP can be used in one of two ways:

- A stand-alone library for adding GPU acceleration to an application with minimal effort. Using this route allows developers to add GPU acceleration to their applications in a matter of hours.
- A cooperative library for interoperating with a developer's GPU code efficiently.

Either route allows developers to harness the massive compute resources of NVIDIA GPUs, while simultaneously reducing development times.

1.2 Documentation

- [General API Conventions](#)

- [Signal-Processing Specific API Conventions](#)
- [Imaging-Processing Specific API Conventions](#)

1.3 Technical Specifications

Supported Platforms:

- Microsoft Windows 7, 8, and 10 (64-bit and 32-bit)
- Microsoft Windows Vista (64-bit and 32-bit)
- Linux (Centos, Ubuntu, and several others) (64-bit and 32-bit)
- Mac OS X (64-bit)
- Android on Arm (32-bit and 64-bit)

1.4 Files

NPP is comprises the following files:

1.4.1 Header Files

- [nppdefs.h](#)
- [nppcore.h](#)
- [nppi::h](#)
- [npps::h](#)
- [nppversion.h](#)
- [npp::h](#)

All those header files are located in the CUDA Toolkit's

/include/

directory.

1.4.2 Library Files

Starting with Version 5.5 NPP's functionality is now split up into 3 distinct libraries:

- A core library (NPPC) containing basic functionality from the npp.h header files as well as functionality shared by the other two libraries.
- The image processing library NPPI. Any functions from the nppi.h header file (or the various header files named "nppi_xxx.h" are bundled into the NPPI library.

- The signal processing library NPPS. Any function from the npps.h header file (or the various header files named "npps_xxx.h" are bundled into the NPPS library.

On the Windows platform the NPP stub libraries are found in the CUDA Toolkit's library directory:

```
/lib/nppc.lib  
  
/lib/nppi.lib  
  
/lib/npps.lib
```

The matching DLLs are located in the CUDA Toolkit's binary directory. Example

```
/bin/nppi64_55_<build_no>.dll      // Dynamic image-processing library for 64-bit Windows.
```

On Linux and Mac platforms the dynamic libraries are located in the lib directory

```
/lib/libnppc32.so.5.5.<build_no>    // NPP 32-bit dynamic core library for Linux  
/lib/libnpps32.5.5.dylib   // NPP 32-bit dynamic signal processing library for Mac
```

1.5 Supported NVIDIA Hardware

NPP runs on all CUDA capable NVIDIA hardware. For details please see
http://www.nvidia.com/object/cuda_learn_products.html

Chapter 2

General API Conventions

2.1 Memory Management

The design of all the NPP functions follows the same guidelines as other NVIDIA CUDA libraries like cuFFT and cuBLAS. That is that all pointer arguments in those APIs are device pointers.

This convention enables the individual developer to make smart choices about memory management that minimize the number of memory transfers. It also allows the user the maximum flexibility regarding which of the various memory transfer mechanisms offered by the CUDA runtime is used, e.g. synchronous or asynchronous memory transfers, zero-copy and pinned memory, etc.

The most basic steps involved in using NPP for processing data is as follows:

1. Transfer input data from the host to device using

```
cudaMemcpy(...)
```

2. Process data using one or several NPP functions or custom CUDA kernels
3. Transfer the result data from the device to the host using

```
cudaMemcpy(...)
```

2.1.1 Scratch Buffer and Host Pointer

Some primitives of NPP require additional device memory buffers (scratch buffers) for calculations, e.g. signal and image reductions (Sum, Max, Min, MinMax, etc.). In order to give the NPP user maximum control regarding memory allocations and performance, it is the user's responsibility to allocate and delete those temporary buffers. For one this has the benefit that the library will not allocate memory unbeknownst to the user. It also allows developers who invoke the same primitive repeatedly to allocate the scratch only once, improving performance and potential device-memory fragmentation .

Scratch-buffer memory is unstructured and may be passed to the primitive in uninitialized form. This allows for reuse of the same scratch buffers with any primitive require scratch memory, as long as it is sufficiently sized.

The minimum scratch-buffer size for a given primitive (e.g. nppsSum_32f()) can be obtained by a companion function (e.g. nppsSumGetBufferSize_32f()). The buffer size is returned via a host pointer as allocation of the scratch-buffer is performed via CUDA runtime host code.

An example to invoke signal sum primitive and allocate and free the necessary scratch memory:

```
// pSrc, pSum, pDeviceBuffer are all device pointers.
Npp32f * pSrc;
Npp32f * pSum;
Npp8u * pDeviceBuffer;
int nLength = 1024;

// Allocate the device memroy.
cudaMalloc((void **)(&pSrc), sizeof(Npp32f) * nLength);
nppsSet_32f(1.0f, pSrc, nLength);
cudaMalloc((void **)(&pSum), sizeof(Npp32f) * 1);

// Compute the appropriate size of the scratch-memory buffer
int nBufferSize;
nppsSumGetBufferSize_32f(nLength, &nBufferSize);
// Allocate the scratch buffer
cudaMalloc((void **)(&pDeviceBuffer), nBufferSize);

// Call the primitive with the scratch buffer
```

```

nppsSum_32f(pSrc, nLength, pSum, pDeviceBuffer);
Npp32f nSumHost;
cudaMemcpy(&nSumHost, pSum, sizeof(Npp32f) * 1, cudaMemcpyDeviceToHost);
printf("sum = %f\n", nSumHost); // nSumHost = 1024.0f;

// Free the device memory
cudaFree(pSrc);
cudaFree(pDeviceBuffer);
cudaFree(pSum);

```

2.2 Function Naming

Since NPP is a C API and therefore does not allow for function overloading for different data-types the NPP naming convention addresses the need to differentiate between different flavors of the same algorithm or primitive function but for various data types. This disambiguation of different flavors of a primitive is done via a suffix containing data type and other disambiguating information.

In addition to the flavor suffix, all NPP functions are prefixed with by the letters "npp". Primitives belonging to NPP's image-processing module add the letter "i" to the npp prefix, i.e. are prefixed by "nppi". Similarly signal-processing primitives are prefixed with "npps".

The general naming scheme is:

npp<module info><PrimitiveName>_<data-type info>[_<additional flavor info>](<parameter list>)

The data-type information uses the same names as the [Basic NPP Data Types](#). For example the data-type information "8u" would imply that the primitive operates on [Npp8u](#) data.

If a primitive consumes different type data from what it produces, both types will be listed in the order of consumed to produced data type.

Details about the "additional flavor information" is provided for each of the NPP modules, since each problem domain uses different flavor information suffixes.

2.3 Integer Result Scaling

NPP signal processing and imaging primitives often operate on integer data. This integer data is usually a fixed point fractional representation of some physical magnitude (e.g. luminance). Because of this fixed-point nature of the representation many numerical operations (e.g. addition or multiplication) tend to produce results exceeding the original fixed-point range if treated as regular integers.

In cases where the results exceed the original range, these functions clamp the result values back to the valid range. E.g. the maximum positive value for a 16-bit unsigned integer is 32767. A multiplication operation of $4 * 10000 = 40000$ would exceed this range. The result would be clamped to be 32767.

To avoid the level of lost information due to clamping most integer primitives allow for result scaling. Primitives with result scaling have the "Sfs" suffix in their name and provide a parameter "nScaleFactor" that controls the amount of scaling. Before the results of an operation are clamped to the valid output-data range by multiplying them with $2^{-nScaleFactor}$.

Example: The primitive nppsSqr_8u_Sfs() computes the square of 8-bit unsigned sample values in a signal (1D array of values). The maximum value of a 8-bit value is 255. The square of $255^2 = 65025$ which would be clamped to 255 if no result scaling is performed. In order to map the maximum value of 255 to 255 in the result, one would specify an integer result scaling factor of 8, i.e. multiply each result with $2^{-8} = \frac{1}{256} = \frac{1}{256}$. The final result for a signal value of 255 being squared and scaled would be:

$$255^2 \cdot 2^{-8} = 254.00390625$$

which would be rounded to a final result of 254.

A medium gray value of 128 would result in

$$128^2 * 2^{-8} = 64$$

2.4 Rounding Modes

Many NPP functions require converting floating-point values to integers. The [NppRoundMode](#) enum lists NPP's supported rounding modes. Not all primitives in NPP that perform rounding as part of their functionality allow the user to specify the round-mode used. Instead they use NPP's default rounding mode, which is [NPP_RND_FINANCIAL](#).

2.4.1 Rounding Mode Parameter

A subset of NPP functions performing rounding as part of their functionality do allow the user to specify which rounding mode is used through a parameter of the [NppRoundMode](#) type.

Chapter 3

Signal-Processing Specific API Conventions

3.1 Signal Data

Signal data is passed to and from NPPS primitives via a pointer to the signal's data type.

The general idea behind this fairly low-level way of passing signal data is ease-of-adoption into existing software projects:

- Passing the data pointer rather than a higher- level signal struct allows for easy adoption by not requiring a specific signal representation (that could include total signal size offset, or other additional information). This avoids awkward packing and unpacking of signal data from the host application to an NPP specific signal representation.

3.1.1 Parameter Names for Signal Data

There are three general cases of image-data passing throughout NPP detailed in the following sections.

Those are signals consumed by the algorithm.

3.1.1.1 Source Signal Pointer

The source signal data is generally passed via a pointer named

`pSrc`

The source signal pointer is generally defined constant, enforcing that the primitive does not change any image data pointed to by that pointer. E.g.

```
nppsPrimitive_32s(const Npp32s * pSrc, ...)
```

In case the primitive consumes multiple signals as inputs the source pointers are numbered like this:

`pSrc1, pScr2, ...`

3.1.1.2 Destination Signal Pointer

The destination signal data is generally passed via a pointer named

`pDst`

In case the primitive consumes multiple signals as inputs the source pointers are numbered like this:

`pDst1, pDst2, ...`

3.1.1.3 In-Place Signal Pointer

In the case of in-place processing, source and destination are served by the same pointer and thus pointers to in-place signal data are called:

`pSrcDst`

3.1.2 Signal Data Alignment Requirements

NPP requires signal sample data to be naturally aligned, i.e. any pointer

```
NppType * p;
```

to a sample in a signal needs to fulfill:

```
assert(p % sizeof(p) == 0);
```

3.1.3 Signal Data Related Error Codes

All NPPI primitives operating on signal data validate the signal-data pointer for proper alignment and test that the point is not null.

Failed validation results in one of the following error codes being returned and the primitive not being executed:

- **NPP_NULL_POINTER_ERROR** is returned if the image-data pointer is 0 (NULL).
- **NPP_ALIGNMENT_ERROR** if the signal-data pointer address is not a multiple of the signal's data-type size.

3.2 Signal Length

The vast majority of NPPS functions take a

```
nLength
```

parameter that tells the primitive how many of the signal's samples starting from the given data pointer are to be processed.

3.2.1 Length Related Error Codes

All NPPS primitives taking a length parameter validate this input.

Failed validation results in the following error code being returned and the primitive not being executed:

- **NPP_SIZE_ERROR** is returned if the length is negative.

Chapter 4

Imaging-Processing Specific API Conventions

4.1 Function Naming

Image processing related functions use a number of suffixes to indicate various different flavors of a primitive beyond just different data types. The flavor suffix uses the following abbreviations:

- "A" if the image is a 4 channel image this indicates the result alpha channel is not affected by the primitive.
- "Cn" the image consists of n channel packed pixels, where n can be 1, 2, 3 or 4.
- "Pn" the image consists of n separate image planes, where n can be 1, 2, 3 or 4.
- "C" (following the channel information) indicates that the primitive only operates on one of the color channels, the "channel-of-interest". All other output channels are not affected by the primitive.
- "I" indicates that the primitive works "in-place". In this case the image-data pointer is usually named "pSrcDst" to indicate that the image data serves as source and destination at the same time.
- "M" indicates "masked operation". These types of primitives have an additional "mask image" as input. Each pixel in the destination image corresponds to a pixel in the mask image. Only pixels with a corresponding non-zero mask pixel are being processed.
- "R" indicates the primitive operates only on a rectangular "region-of-interest" or "ROI". All ROI primitives take an additional input parameter of type [NppiSize](#), which specifies the width and height of the rectangular region that the primitive should process. For details on how primitives operate on ROIs see: [Region-of-Interest \(ROI\)](#).
- "Sfs" indicates the result values are processed by fixed scaling and saturation before they're written out.

The suffixes above always appear in alphabetical order. E.g. a 4 channel primitive not affecting the alpha channel with masked operation, in place and with scaling/saturation and ROI would have the postfix: "AC4IMRSfs".

4.2 Image Data

Image data is passed to and from NPPI primitives via a pair of parameters:

1. A pointer to the image's underlying data type.
2. A line step in bytes (also sometimes called line stride).

The general idea behind this fairly low-level way of passing image data is ease-of-adoption into existing software projects:

- Passing a raw pointer to the underlying pixel data type, rather than structured (by color) channel pixel data allows usage of the function in a wide variety of situations avoiding risky type cast or expensive image data copies.
- Passing the data pointer and line step individually rather than a higher- level image struct again allows for easy adoption by not requiring a specific image representation and thus avoiding awkward packing and unpacking of image data from the host application to an NPP specific image representation.

4.2.1 Line Step

The line step (also called "line stride" or "row step") allows lines of oddly sized images to start on well-aligned addresses by adding a number of unused bytes at the ends of the lines. This type of line padding has been common practice in digital image processing for a long time and is not particular to GPU image processing.

The line step is the number of bytes in a line **including the padding**. An other way to interpret this number is to say that it is the number of bytes between the first pixel of successive rows in the image, or generally the number of bytes between two neighboring pixels in any column of pixels.

The general reason for the existence of the line step it is that uniformly aligned rows of pixel enable optimizations of memory-access patterns.

Even though all functions in NPP will work with arbitrarily aligned images, best performance can only be achieved with well aligned image data. Any image data allocated with the NPP image allocators or the 2D memory allocators in the CUDA runtime, is well aligned.

Particularly on older CUDA capable GPUs it is likely that the performance decrease for misaligned data is substantial (orders of magnitude).

All image data passed to NPPI primitives requires a line step to be provided. It is important to keep in mind that this line step is always specified in terms of bytes, not pixels.

4.2.2 Parameter Names for Image Data

There are three general cases of image-data passing throughout NPP detailed in the following sections.

4.2.2.1 Passing Source-Image Data

Those are images consumed by the algorithm.

4.2.2.1.1 Source-Image Pointer

The source image data is generally passed via a pointer named

`pSrc`

The source image pointer is generally defined constant, enforcing that the primitive does not change any image data pointed to by that pointer. E.g.

```
nppiPrimitive_32s_C1R(const Npp32s * pSrc, ...)
```

In case the primitive consumes multiple images as inputs the source pointers are numbered like this:

`pSrc1, pScr2, ...`

4.2.2.1.2 Source-Planar-Image Pointer Array

The planar source image data is generally passed via an array of pointers named

`pSrc[]`

The planar source image pointer array is generally defined a constant array of constant pointers, enforcing that the primitive does not change any image data pointed to by those pointers. E.g.

```
nppiPrimitive_8u_P3R(const Npp8u * const pSrc[3], ...)
```

Each pointer in the array points to a different image plane.

4.2.2.1.3 Source-Planar-Image Pointer

The multiple plane source image data is passed via a set of pointers named

```
pSrc1, pSrc2, ...
```

The planar source image pointer is generally defined as one of a set of constant pointers with each pointer pointing to a different input image plane.

4.2.2.1.4 Source-Image Line Step

The source image line step is the number of bytes between successive rows in the image. The source image line step parameter is

```
nSrcStep
```

or in the case of multiple source images

```
nSrcStep1, nSrcStep2, ...
```

4.2.2.1.5 Source-Planar-Image Line Step Array

The source planar image line step array is an array where each element of the array contains the number of bytes between successive rows for a particular plane in the input image. The source planar image line step array parameter is

```
rSrcStep []
```

4.2.2.1.6 Source-Planar-Image Line Step

The source planar image line step is the number of bytes between successive rows in a particular plane of the multiplane input image. The source planar image line step parameter is

```
nSrcStep1, nSrcStep2, ...
```

4.2.2.2 Passing Destination-Image Data

Those are images produced by the algorithm.

4.2.2.1 Destination-Image Pointer

The destination image data is generally passed via a pointer named

`pDst`

In case the primitive generates multiple images as outputs the destination pointers are numbered like this:

`pDst1, pDst2, ...`

4.2.2.2 Destination-Planar-Image Pointer Array

The planar destination image data pointers are generally passed via an array of pointers named

`pDst[]`

Each pointer in the array points to a different image plane.

4.2.2.3 Destination-Planar-Image Pointer

The destination planar image data is generally passed via a pointer to each plane of a multiplane output image named

`pDst1, pDst2, ...`

4.2.2.4 Destination-Image Line Step

The destination image line step parameter is

`nDstStep`

or in the case of multiple destination images

`nDstStep1, nDstStep2, ...`

4.2.2.5 Destination-Planar-Image Line Step Array

The destination planar image line step array is an array where each element of the array contains the number of bytes between successive rows for a particular plane in the output image. The destination planar image line step array parameter is

`rDstStep[]`

4.2.2.6 Destination-Planar-Image Line Step

The destination planar image line step is the number of bytes between successive rows for a particular plane in a multiplane output image. The destination planar image line step parameter is

`nDstStep1, nDstStep2, ...`

4.2.2.3 Passing In-Place Image Data

4.2.2.3.1 In-Place Image Pointer

In the case of in-place processing, source and destination are served by the same pointer and thus pointers to in-place image data are called:

`pSrcDst`

4.2.2.3.2 In-Place-Image Line Step

The in-place line step parameter is

`nSrcDstStep`

4.2.2.4 Passing Mask-Image Data

Some image processing primitives have variants supporting [Masked Operation](#).

4.2.2.4.1 Mask-Image Pointer

The mask-image data is generally passed via a pointer named

`pMask`

4.2.2.4.2 Mask-Image Line Step

The mask-image line step parameter is

`nMaskStep`

4.2.2.5 Passing Channel-of-Interest Data

Some image processing primitives support [Channel-of-Interest API](#).

4.2.2.5.1 Channel_of_Interest Number

The channel-of-interest data is generally an integer (either 1, 2, or 3):

`nCOI`

4.2.3 Image Data Alignment Requirements

NPP requires pixel data to adhere to certain alignment constraints: For 2 and 4 channel images the following alignment requirement holds: `data_pointer % (#channels * sizeof(channel type)) == 0`. E.g. a 4 channel image with underlying type [Npp8u](#) (8-bit unsigned) would require all pixels to fall on addresses that are multiples of 4 (4 channels * 1 byte size).

As a logical consequence of all pixels being aligned to their natural size the image line steps of 2 and 4 channel images also need to be multiples of the pixel size.

1 and 3 channel images only require that pixel pointers are aligned to the underlying data type, i.e. `pData % sizeof(data type) == 0`. And consequentially line steps are also held to this requirement.

4.2.4 Image Data Related Error Codes

All NPPI primitives operating on image data validate the image-data pointer for proper alignment and test that the point is not null. They also validate the line stride for proper alignment and guard against the step being less or equal to 0. Failed validation results in one of the following error codes being returned and the primitive not being executed:

- [NPP_STEP_ERROR](#) is returned if the data step is 0 or negative.
- [NPP_NOT EVEN STEP ERROR](#) is returned if the line step is not a multiple of the pixel size for 2 and 4 channel images.
- [NPP NULL POINTER ERROR](#) is returned if the image-data pointer is 0 (NULL).
- [NPP_ALIGNMENT_ERROR](#) if the image-data pointer address is not a multiple of the pixel size for 2 and 4 channel images.

4.3 Region-of-Interest (ROI)

In practice processing a rectangular sub-region of an image is often more common than processing complete images. The vast majority of NPP's image-processing primitives allow for processing of such sub regions also referred to as regions-of-interest or ROIs.

All primitives supporting ROI processing are marked by a "R" in their name suffix. In most cases the ROI is passed as a single [NppiSize](#) struct, which provides the width and height of the ROI. This raises the question how the primitive knows where in the image this rectangle of (width, height) is located. The "start pixel" of the ROI is implicitly given by the image-data pointer. I.e. instead of explicitly passing a pixel coordinate for the upper-left corner (lowest memory address), the user simply offsets the image-data pointers to point to the first pixel of the ROI.

In practice this means that for an image (`pSrc`, `nSrcStep`) and the start-pixel of the ROI being at location (`x`, `y`), one would pass

`pSrcOffset = pSrc + y * nSrcStep + x * PixelSize;`

as the image-data source to the primitive. `PixelSize` is typically computed as

`PixelSize = NumberOfColorChannels * sizeof(PixelDataType).`

E.g. for a primitive like `nppiSet_16s_C4R()` we would have

- `NumberOfColorChannels == 4;`
- `sizeof(Npp16s) == 2;`
- and thus `PixelSize = 4 * 2 = 8;`

4.3.1 ROI Related Error Codes

All NPPI primitives operating on ROIs of image data validate the ROI size and image's step size. Failed validation results in one of the following error codes being returned and the primitive not being executed:

- **NPP_SIZE_ERROR** is returned if either the ROI width or ROI height are negative.
- **NPP_STEP_ERROR** is returned if the ROI width exceeds the image's line step. In mathematical terms $(\text{widthROI} * \text{PixelSize}) > \text{nLinStep}$ indicates an error.

4.4 Masked Operation

Some primitive support masked operation. An "M" in the suffix of those variants indicates masked operation. Primitives supporting masked operation consume an additional input image provided via a [Mask-Image Pointer](#) and [Mask-Image Line Step](#). The mask image is interpreted by these primitives as a boolean image. The values of type Npp8u are interpreted as boolean values where a value of 0 indicates false, any non-zero values true.

Unless otherwise indicated the operation is only performed on pixels where its spatially corresponding mask pixel is true (non-zero). E.g. a masked copy operation would only copy those pixels in the ROI that have corresponding non-zero mask pixels.

4.5 Channel-of-Interest API

Some primitives allow restricting operations to a single channel of interest within a multi-channel image. These primitives are suffixed with the letter "C" (after the channel information, e.g. nppiCopy_8u_C3CR(...)). The channel-of-interest is generally selected by offsetting the image-data pointer to point directly to the channel-of-interest rather than the base of the first pixel in the ROI. Some primitives also explicitly specify the selected channel number and pass it via an integer, e.g. nppiMean_StdDev_8u_C3CR(...).

4.5.1 Select-Channel Source-Image Pointer

This is a pointer to the channel-of-interest within the first pixel of the source image. E.g. if pSrc is the pointer to the first pixel inside the ROI of a three channel image. Using the appropriate select-channel copy primitive one could copy the second channel of this source image into the first channel of a destination image given by pDst by offsetting the pointer by one:

```
nppiCopy_8u_C3CR(pSrc + 1, nSrcStep, pDst, nDstStep, oSizeROI);
```

4.5.2 Select-Channel Source-Image

Some primitives allow the user to select the channel-of-interest by specifying the channel number (nCOI). This approach is typically used in the image statistical functions. For example,

```
nppiMean_StdDev_8u_C3CR(pSrc, nSrcStep, oSizeROI, nCOI, pDeviceBuffer, pMean, pStdDev );
```

The channel-of-interest number can be either 1, 2, or 3.

4.5.3 Select-Channel Destination-Image Pointer

This is a pointer to the channel-of-interest within the first pixel of the destination image. E.g. if pDst is the pointer to the first pixel inside the ROI of a three channel image. Using the appropriate select-channel

copy primitive one could copy data into the second channel of this destination image from the first channel of a source image given by pSrc by offsetting the destination pointer by one:

```
nppiCopy_8u_C3CR(pSrc, nSrcStep, pDst + 1, nDstStep, oSizeROI);
```

4.6 Source-Image Sampling

A large number of NPP image-processing functions consume at least one source image and produce an output image (e.g. [nppiAddC_8u_C1RSfs\(\)](#) or [nppiFilterBox_8u_C1R\(\)](#)). All NPP functions falling into this category also operate on ROIs (see [Region-of-Interest \(ROI\)](#)) which for these functions should be considered to describe the destination ROI. In other words the ROI describes a rectangular region in the destination image and all pixels inside of this region are being written by the function in question.

In order to use such functions successfully it is important to understand how the user defined destination ROI affects which pixels in the input image(s) are being read by the algorithms. To simplify the discussion of ROI propagation (i.e. given a destination ROI, what are the ROIs in the source(s)), it makes sense to distinguish two major cases:

1. Point-Wise Operations: These are primitives like [nppiAddC_8u_C1RSfs\(\)](#). Each output pixel requires exactly one input pixel to be read.
2. Neighborhood Operations: These are primitives like [nppiFilterBox_8u_C1R\(\)](#), which require a group of pixels from the source image(s) to be read in order to produce a single output.

4.6.1 Point-Wise Operations

As mentioned above, point-wise operations consume a single pixel from the input image (or a single pixel from each input image, if the operation in question has more than one input image) in order to produce a single output pixel.

4.6.2 Neighborhood Operations

In the case of neighborhood operations a number of input pixels (a "neighborhood" of pixels) is read in the input image (or images) in order to compute a single output pixel. All of the functions for `image_-filtering_functions` and `image_morphological_operations` are neighborhood operations.

Most of these functions have parameters that affect the size and relative location of the neighborhood: a mask-size structure and an anchor-point structure. Both parameters are described in more detail in the next subsections.

4.6.2.1 Mask-Size Parameter

Many NPP neighborhood operations allow the user to specify the size of the neighborhood via a parameter usually named `oMaskSize` of type [NppiSize](#). In those cases the neighborhood of pixels read from the source(s) is exactly the size of the mask. Assuming the mask is anchored at location (0, 0) (see [Anchor-Point Parameter](#) below) and has a size of (w, h), i.e.

```
assert(oMaskSize.w == w);
assert(oMaskSize.h == h);
assert(oAnchor.x == 0);
assert(oAnchor.y == 0);
```

a neighborhood operation would read the following source pixels in order to compute destination pixel $D_{i,j}$:

$$\begin{array}{cccc} S_{i,j} & S_{i,j+1} & \dots & S_{i,j+w-1} \\ S_{i+1,j} & S_{i+1,j+1} & \dots & S_{i+1,j+w-1} \\ \vdots & \vdots & \ddots & \vdots \\ S_{i+h-1,j} & S_{i+h-1,j+1} & \dots & S_{i+h-1,j+w-1} \end{array}$$

4.6.2.2 Anchor-Point Parameter

Many NPP primitives performing neighborhood operations allow the user to specify the relative location of the neighborhood via a parameter usually named `oAnchor` of type [NppiPoint](#). Using the anchor a developer can choose the position of the mask (see [Mask-Size Parameter](#)) relative to current pixel index.

Using the same example as in [Mask-Size Parameter](#), but this time with an anchor position of (a, b) :

```
assert(oMaskSize.w == w);
assert(oMaskSize.h == h);
assert(oAnchor.x == a);
assert(oAnchor.y == b);
```

the following pixels from the source image would be read:

$$\begin{array}{cccc} S_{i-a,j-b} & S_{i-a,j-b+1} & \dots & S_{i-a,j-b+w-1} \\ S_{i-a+1,j-b} & S_{i-a+1,j-b+1} & \dots & S_{i-a+1,j-b+w-1} \\ \vdots & \vdots & \ddots & \vdots \\ S_{i-a+h-1,j-b} & S_{i-a+h-1,j-b+1} & \dots & S_{i-a+h-1,j-b+w-1} \end{array}$$

4.6.2.3 Sampling Beyond Image Boundaries

NPP primitives in general and NPP neighborhood operations in particular require that all pixel locations read and written are valid and within the boundaries of the respective images. Sampling outside of the defined image data regions results in undefined behavior and may lead to system instability.

This poses a problem in practice: when processing full-size images one cannot choose the destination ROI to be the same size as the source image. Because neighborhood operations read pixels from an enlarged source ROI, the destination ROI must be shrunk so that the expanded source ROI does not exceed the source image's size.

For cases where this "shrinking" of the destination image size is unacceptable, NPP provides a set of border-expanding Copy primitives. E.g. `nppiCopyConstBorder_8u_C1R()`, `nppiCopyReplicateBorder_-8u_C1R()` and `nppiCopyWrapBorder_8u_C1R()`. The user can use these primitives to "expand" the source image's size using one of the three expansion modes. The expanded image can then be safely passed to a neighborhood operation producing a full-size result.

Chapter 5

Module Index

5.1 Modules

Here is a list of all modules:

| | |
|--|-----|
| NPP Core | 27 |
| NPP Type Definitions and Constants | 31 |
| Basic NPP Data Types | 46 |
| Arithmetic and Logical Operations | 50 |
| Arithmetic Operations | 51 |
| AddC | 53 |
| MulC | 79 |
| MulCScale | 105 |
| SubC | 112 |
| DivC | 138 |
| AbsDiffC | 164 |
| Add | 166 |
| AddSquare | 195 |
| AddProduct | 198 |
| AddWeighted | 202 |
| Mul | 206 |
| MulScale | 235 |
| Sub | 244 |
| Div | 274 |
| Div_Round | 303 |
| Abs | 318 |
| AbsDiff | 325 |
| Sqr | 328 |
| Sqrt | 342 |
| Ln | 354 |
| Exp | 361 |
| Logical Operations | 368 |
| AndC | 369 |
| OrC | 380 |
| XorC | 391 |
| RShiftC | 402 |
| LShiftC | 419 |
| And | 430 |

| | |
|-----------------------------|-----|
| Or | 442 |
| Xor | 454 |
| Not | 466 |
| Alpha Composition | 470 |
| AlphaCompC | 471 |
| AlphaPremulC | 479 |
| AlphaComp | 486 |
| AlphaPremul | 493 |

Chapter 6

Data Structure Index

6.1 Data Structures

Here are the data structures with brief descriptions:

| | |
|--|-----|
| NPP_ALIGN_16 (Complex Number This struct represents a long long complex number) | 495 |
| NPP_ALIGN_8 (Complex Number This struct represents an unsigned int complex number) | 497 |
| NppiHaarBuffer | 499 |
| NppiHaarClassifier_32f | 500 |
| NppiPoint (2D Point) | 501 |
| NppiRect (2D Rectangle This struct contains position and size information of a rectangle in two space) | 502 |
| NppiSize (2D Size This struct typically represents the size of a a rectangular region in two space) | 503 |
| NppLibraryVersion | 504 |

Chapter 7

Module Documentation

7.1 NPP Core

Basic functions for library management, in particular library version and device property query functions.

Functions

- `const NppLibraryVersion * nppGetLibVersion (void)`
Get the NPP library version.
- `NppGpuComputeCapability nppGetGpuComputeCapability (void)`
What CUDA compute model is supported by the active CUDA device?
- `int nppGetGpuNumSMs (void)`
Get the number of Streaming Multiprocessors (SM) on the active CUDA device.
- `int nppGetMaxThreadsPerBlock (void)`
Get the maximum number of threads per block on the active CUDA device.
- `int nppGetMaxThreadsPerSM (void)`
Get the maximum number of threads per SM for the active GPU.
- `int nppGetGpuDeviceProperties (int *pMaxThreadsPerSM, int *pMaxThreadsPerBlock, int *pNumberOfSMs)`
Get the maximum number of threads per SM, maximum threads per block, and number of SMs for the active GPU.
- `const char * nppGetGpuName (void)`
Get the name of the active CUDA device.
- `cudaStream_t nppGetStream (void)`
Get the NPP CUDA stream.
- `unsigned int nppGetStreamNumSMs (void)`
Get the number of SMs on the device associated with the current NPP CUDA stream.

- `unsigned int nppGetStreamMaxThreadsPerSM (void)`

Get the maximum number of threads per SM on the device associated with the current NPP CUDA stream.

- `void nppSetStream (cudaStream_t hStream)`

Set the NPP CUDA stream.

7.1.1 Detailed Description

Basic functions for library management, in particular library version and device property query functions.

7.1.2 Function Documentation

7.1.2.1 `NppGpuComputeCapability nppGetGpuComputeCapability (void)`

What CUDA compute model is supported by the active CUDA device?

Before trying to call any NPP functions, the user should make a call this function to ensure that the current machine has a CUDA capable device.

Returns:

An enum value representing if a CUDA capable device was found and what level of compute capabilities it supports.

7.1.2.2 `int nppGetGpuDeviceProperties (int * pMaxThreadsPerSM, int * pMaxThreadsPerBlock, int * pNumberOfSMs)`

Get the maximum number of threads per SM, maximum threads per block, and number of SMs for the active GPU.

Returns:

`cudaSuccess` for success, -1 for failure

7.1.2.3 `const char* nppGetGpuName (void)`

Get the name of the active CUDA device.

Returns:

Name string of the active graphics-card/compute device in a system.

7.1.2.4 `int nppGetGpuNumSMs (void)`

Get the number of Streaming Multiprocessors (SM) on the active CUDA device.

Returns:

Number of SMs of the default CUDA device.

7.1.2.5 const NppLibraryVersion* nppGetLibVersion (void)

Get the NPP library version.

Returns:

A struct containing separate values for major and minor revision and build number.

7.1.2.6 int nppGetMaxThreadsPerBlock (void)

Get the maximum number of threads per block on the active CUDA device.

Returns:

Maximum number of threads per block on the active CUDA device.

7.1.2.7 int nppGetMaxThreadsPerSM (void)

Get the maximum number of threads per SM for the active GPU.

Returns:

Maximum number of threads per SM for the active GPU

7.1.2.8 cudaStream_t nppGetStream (void)

Get the NPP CUDA stream.

NPP enables concurrent device tasks via a global stream state variable. The NPP stream by default is set to stream 0, i.e. non-concurrent mode. A user can set the NPP stream to any valid CUDA stream. All CUDA commands issued by NPP (e.g. kernels launched by the NPP library) are then issued to that NPP stream.

7.1.2.9 unsigned int nppGetStreamMaxThreadsPerSM (void)

Get the maximum number of threads per SM on the device associated with the current NPP CUDA stream.

NPP enables concurrent device tasks via a global stream state variable. The NPP stream by default is set to stream 0, i.e. non-concurrent mode. A user can set the NPP stream to any valid CUDA stream. All CUDA commands issued by NPP (e.g. kernels launched by the NPP library) are then issued to that NPP stream. This call avoids a `cudaGetDeviceProperties()` call.

7.1.2.10 unsigned int nppGetStreamNumSMs (void)

Get the number of SMs on the device associated with the current NPP CUDA stream.

NPP enables concurrent device tasks via a global stream state variable. The NPP stream by default is set to stream 0, i.e. non-concurrent mode. A user can set the NPP stream to any valid CUDA stream. All CUDA commands issued by NPP (e.g. kernels launched by the NPP library) are then issued to that NPP stream. This call avoids a `cudaGetDeviceProperties()` call.

7.1.2.11 void nppSetStream (cudaStream_t *hStream*)

Set the NPP CUDA stream.

See also:

[nppGetStream\(\)](#)

7.2 NPP Type Definitions and Constants

Data Structures

- struct [NppLibraryVersion](#)
- struct [NppiPoint](#)

2D Point

- struct [NppiSize](#)

2D Size This struct typically represents the size of a rectangular region in two space.

- struct [NppiRect](#)

2D Rectangle This struct contains position and size information of a rectangle in two space.

- struct [NppiHaarClassifier_32f](#)
- struct [NppiHaarBuffer](#)

Modules

- [Basic NPP Data Types](#)

Defines

- #define [NPP_MIN_8U](#) (0)

Minimum 8-bit unsigned integer.

- #define [NPP_MAX_8U](#) (255)

Maximum 8-bit unsigned integer.

- #define [NPP_MIN_16U](#) (0)

Minimum 16-bit unsigned integer.

- #define [NPP_MAX_16U](#) (65535)

Maximum 16-bit unsigned integer.

- #define [NPP_MIN_32U](#) (0)

Minimum 32-bit unsigned integer.

- #define [NPP_MAX_32U](#) (4294967295U)

Maximum 32-bit unsigned integer.

- #define [NPP_MIN_64U](#) (0)

Minimum 64-bit unsigned integer.

- #define [NPP_MAX_64U](#) (18446744073709551615ULL)

Maximum 64-bit unsigned integer.

- #define [NPP_MIN_8S](#) (-127 - 1)

Minimum 8-bit signed integer.

- #define **NPP_MAX_8S** (127)
Maximum 8-bit signed integer.
- #define **NPP_MIN_16S** (-32767 - 1)
Minimum 16-bit signed integer.
- #define **NPP_MAX_16S** (32767)
Maximum 16-bit signed integer.
- #define **NPP_MIN_32S** (-2147483647 - 1)
Minimum 32-bit signed integer.
- #define **NPP_MAX_32S** (2147483647)
Maximum 32-bit signed integer.
- #define **NPP_MAX_64S** (9223372036854775807LL)
Maximum 64-bit signed integer.
- #define **NPP_MIN_64S** (-9223372036854775807LL - 1)
Minimum 64-bit signed integer.
- #define **NPP_MINABS_32F** (1.175494351e-38f)
Smallest positive 32-bit floating point value.
- #define **NPP_MAXABS_32F** (3.402823466e+38f)
Largest positive 32-bit floating point value.
- #define **NPP_MINABS_64F** (2.2250738585072014e-308)
Smallest positive 64-bit floating point value.
- #define **NPP_MAXABS_64F** (1.7976931348623158e+308)
Largest positive 64-bit floating point value.

Enumerations

- enum **NppiInterpolationMode** {

NPPI_INTER_UNDEFINED = 0,

NPPI_INTER_NN = 1,

NPPI_INTER_LINEAR = 2,

NPPI_INTER_CUBIC = 4,

NPPI_INTER_CUBIC2P_BSPLINE,

NPPI_INTER_CUBIC2P_CATMULLROM,

NPPI_INTER_CUBIC2P_B05C03,

NPPI_INTER_SUPER = 8,

NPPI_INTER_LANCZOS = 16,

NPPI_INTER_LANCZOS3_ADVANCED = 17,

NPPI_SMOOTH_EDGE =(1 << 31) }

Filtering methods.

- enum `NppiBayerGridPosition` {
 `NPPI_BAYER_BGGR` = 0,
 `NPPI_BAYER_RGGB` = 1,
 `NPPI_BAYER_GBRG` = 2,
 `NPPI_BAYER_GRBG` = 3 }

Bayer Grid Position Registration.

- enum `NppiMaskSize` {
 `NPP_MASK_SIZE_1_X_3`,
 `NPP_MASK_SIZE_1_X_5`,
 `NPP_MASK_SIZE_3_X_1` = 100,
 `NPP_MASK_SIZE_5_X_1`,
 `NPP_MASK_SIZE_3_X_3` = 200,
 `NPP_MASK_SIZE_5_X_5`,
 `NPP_MASK_SIZE_7_X_7` = 400,
 `NPP_MASK_SIZE_9_X_9` = 500,
 `NPP_MASK_SIZE_11_X_11` = 600,
 `NPP_MASK_SIZE_13_X_13` = 700,
 `NPP_MASK_SIZE_15_X_15` = 800 }

Fixed filter-kernel sizes.

- enum `NppiDifferentialKernel` {
 `NPP_FILTER_SOBEL`,
 `NPP_FILTER_SCHARR` }

Differential Filter types.

- enum `NppStatus` {
 `NPP_NOT_SUPPORTED_MODE_ERROR` = -9999,
 `NPP_INVALID_HOST_POINTER_ERROR` = -1032,
 `NPP_INVALID_DEVICE_POINTER_ERROR` = -1031,
 `NPP_LUT_PALETTE_BITSIZE_ERROR` = -1030,
 `NPP_ZC_MODE_NOT_SUPPORTED_ERROR` = -1028,
 `NPP_NOT_SUFFICIENT_COMPUTE_CAPABILITY` = -1027,
 `NPP_TEXTURE_BIND_ERROR` = -1024,
 `NPP_WRONG_INTERSECTION_ROI_ERROR` = -1020,
 `NPP_HAAR_CLASSIFIER_PIXEL_MATCH_ERROR` = -1006,
 `NPP_MEMFREE_ERROR` = -1005,
 `NPP_MEMSET_ERROR` = -1004,
 `NPP_MEMCPY_ERROR` = -1003,
 `NPP_ALIGNMENT_ERROR` = -1002,
 `NPP_CUDA_KERNEL_EXECUTION_ERROR` = -1000,

```
NPP_ROUND_MODE_NOT_SUPPORTED_ERROR = -213,  
NPP_QUALITY_INDEX_ERROR = -210,  
NPP_RESIZE_NO_OPERATION_ERROR = -201,  
NPP_OVERFLOW_ERROR = -109,  
NPP_NOT EVEN STEP_ERROR = -108,  
NPP_HISTOGRAM_NUMBER_OF_LEVELS_ERROR = -107,  
NPP_LUT_NUMBER_OF_LEVELS_ERROR = -106,  
NPP_CORRUPTED_DATA_ERROR = -61,  
NPP_CHANNEL_ORDER_ERROR = -60,  
NPP_ZERO_MASK_VALUE_ERROR = -59,  
NPP_QUADRANGLE_ERROR = -58,  
NPP_RECTANGLE_ERROR = -57,  
NPP_COEFFICIENT_ERROR = -56,  
NPP_NUMBER_OF_CHANNELS_ERROR = -53,  
NPP_COI_ERROR = -52,  
NPP_DIVISOR_ERROR = -51,  
NPP_CHANNEL_ERROR = -47,  
NPP_STRIDE_ERROR = -37,  
NPP_ANCHOR_ERROR = -34,  
NPP_MASK_SIZE_ERROR = -33,  
NPP_RESIZE_FACTOR_ERROR = -23,  
NPP_INTERPOLATION_ERROR = -22,  
NPP_MIRROR_FLIP_ERROR = -21,  
NPP_MOMENT_00_ZERO_ERROR = -20,  
NPP_THRESHOLD_NEGATIVE_LEVEL_ERROR = -19,  
NPP_THRESHOLD_ERROR = -18,  
NPP_CONTEXT_MATCH_ERROR = -17,  
NPP_FFT_FLAG_ERROR = -16,  
NPP_FFT_ORDER_ERROR = -15,  
NPP_STEP_ERROR = -14,  
NPP_SCALE_RANGE_ERROR = -13,  
NPP_DATA_TYPE_ERROR = -12,  
NPP_OUT_OF_RANGE_ERROR = -11,  
NPP_DIVIDE_BY_ZERO_ERROR = -10,  
NPP_MEMORY_ALLOCATION_ERR = -9,  
NPP_NULL_POINTER_ERROR = -8,  
NPP_RANGE_ERROR = -7,  
NPP_SIZE_ERROR = -6,  
NPP_BAD_ARGUMENT_ERROR = -5,  
NPP_NO_MEMORY_ERROR = -4,  
NPP_NOT_IMPLEMENTED_ERROR = -3,
```

```
NPP_ERROR = -2,  
NPP_ERROR_RESERVED = -1,  
NPP_NO_ERROR = 0,  
NPP_SUCCESS = NPP_NO_ERROR,  
NPP_NO_OPERATION_WARNING = 1,  
NPP_DIVIDE_BY_ZERO_WARNING = 6,  
NPP_AFFINE_QUAD_INCORRECT_WARNING = 28,  
NPP_WRONG_INTERSECTION_ROI_WARNING = 29,  
NPP_WRONG_INTERSECTION_QUAD_WARNING = 30,  
NPP_DOUBLE_SIZE_WARNING = 35,  
NPP_MISALIGNED_DST_ROI_WARNING = 10000 }
```

Error Status Codes.

- enum NppGpuComputeCapability {
 NPP_CUDA_UNKNOWN_VERSION = -1,
 NPP_CUDA_NOT_CAPABLE = 0,
 NPP_CUDA_1_0 = 100,
 NPP_CUDA_1_1 = 110,
 NPP_CUDA_1_2 = 120,
 NPP_CUDA_1_3 = 130,
 NPP_CUDA_2_0 = 200,
 NPP_CUDA_2_1 = 210,
 NPP_CUDA_3_0 = 300,
 NPP_CUDA_3_2 = 320,
 NPP_CUDA_3_5 = 350,
 NPP_CUDA_3_7 = 370,
 NPP_CUDA_5_0 = 500,
 NPP_CUDA_5_2 = 520,
 NPP_CUDA_5_3 = 530,
 NPP_CUDA_6_0 = 600 }
- enum NppiAxis {
 NPP_HORIZONTAL_AXIS,
 NPP_VERTICAL_AXIS,
 NPP_BOTH_AXIS }
- enum NppCmpOp {
 NPP_CMP_LESS,
 NPP_CMP_LESS_EQ,
 NPP_CMP_EQ,
 NPP_CMP_GREATER_EQ,
 NPP_CMP_GREATER }

- enum [NppRoundMode](#) {
 [NPP_RND_NEAR](#),
 [NPP_ROUND_NEAREST_TIES_TO_EVEN](#) = [NPP_RND_NEAR](#),
 [NPP_RND_FINANCIAL](#),
 [NPP_ROUND_NEAREST_TIES_AWAY_FROM_ZERO](#) = [NPP_RND_FINANCIAL](#),
 [NPP_RND_ZERO](#),
 [NPP_ROUND_TOWARD_ZERO](#) = [NPP_RND_ZERO](#) }

Rounding Modes.

- enum [NppiBorderType](#) {
 [NPP_BORDER_UNDEFINED](#) = 0,
 [NPP_BORDER_NONE](#) = [NPP_BORDER_UNDEFINED](#),
 [NPP_BORDER_CONSTANT](#) = 1,
 [NPP_BORDER_REPLICATE](#) = 2,
 [NPP_BORDER_WRAP](#) = 3,
 [NPP_BORDER_MIRROR](#) = 4 }
- enum [NppHintAlgorithm](#) {
 [NPP_ALG_HINT_NONE](#),
 [NPP_ALG_HINT_FAST](#),
 [NPP_ALG_HINT_ACCURATE](#) }
- enum [NppiAlphaOp](#) {
 [NPPI_OP_ALPHA_OVER](#),
 [NPPI_OP_ALPHA_IN](#),
 [NPPI_OP_ALPHA_OUT](#),
 [NPPI_OP_ALPHA_ATOP](#),
 [NPPI_OP_ALPHA_XOR](#),
 [NPPI_OP_ALPHA_PLUS](#),
 [NPPI_OP_ALPHA_OVER_PREMUL](#),
 [NPPI_OP_ALPHA_IN_PREMUL](#),
 [NPPI_OP_ALPHA_OUT_PREMUL](#),
 [NPPI_OP_ALPHA_ATOP_PREMUL](#),
 [NPPI_OP_ALPHA_XOR_PREMUL](#),
 [NPPI_OP_ALPHA_PLUS_PREMUL](#),
 [NPPI_OP_ALPHA_PREMUL](#) }
- enum [NppsZCType](#) {
 [nppZCR](#),
 [nppZCXor](#),
 [nppZCC](#) }
- enum [Nppi HuffmanTableType](#) {
 [nppiDCTable](#),
 [nppiACTable](#) }

- enum `NppiNorm` {
 `nppiNormInf` = 0,
 `nppiNormL1` = 1,
 `nppiNormL2` = 2 }

7.2.1 Define Documentation

7.2.1.1 `#define NPP_MAX_16S (32767)`

Maximum 16-bit signed integer.

7.2.1.2 `#define NPP_MAX_16U (65535)`

Maximum 16-bit unsigned integer.

7.2.1.3 `#define NPP_MAX_32S (2147483647)`

Maximum 32-bit signed integer.

7.2.1.4 `#define NPP_MAX_32U (4294967295U)`

Maximum 32-bit unsigned integer.

7.2.1.5 `#define NPP_MAX_64S (9223372036854775807LL)`

Maximum 64-bit signed integer.

7.2.1.6 `#define NPP_MAX_64U (18446744073709551615ULL)`

Maximum 64-bit unsigned integer.

7.2.1.7 `#define NPP_MAX_8S (127)`

Maximum 8-bit signed integer.

7.2.1.8 `#define NPP_MAX_8U (255)`

Maximum 8-bit unsigned integer.

7.2.1.9 `#define NPP_MAXABS_32F (3.402823466e+38f)`

Largest positive 32-bit floating point value.

7.2.1.10 `#define NPP_MAXABS_64F (1.7976931348623158e+308)`

Largest positive 64-bit floating point value.

7.2.1.11 #define NPP_MIN_16S (-32767 - 1)

Minimum 16-bit signed integer.

7.2.1.12 #define NPP_MIN_16U (0)

Minimum 16-bit unsigned integer.

7.2.1.13 #define NPP_MIN_32S (-2147483647 - 1)

Minimum 32-bit signed integer.

7.2.1.14 #define NPP_MIN_32U (0)

Minimum 32-bit unsigned integer.

7.2.1.15 #define NPP_MIN_64S (-9223372036854775807LL - 1)

Minimum 64-bit signed integer.

7.2.1.16 #define NPP_MIN_64U (0)

Minimum 64-bit unsigned integer.

7.2.1.17 #define NPP_MIN_8S (-127 - 1)

Minimum 8-bit signed integer.

7.2.1.18 #define NPP_MIN_8U (0)

Minimum 8-bit unsigned integer.

7.2.1.19 #define NPP_MINABS_32F (1.175494351e-38f)

Smallest positive 32-bit floating point value.

7.2.1.20 #define NPP_MINABS_64F (2.2250738585072014e-308)

Smallest positive 64-bit floating point value.

7.2.2 Enumeration Type Documentation

7.2.2.1 enum NppCmpOp

Enumerator:

NPP_CMP_LESS

NPP_CMP_LESS_EQ
NPP_CMP_EQ
NPP_CMP_GREATER_EQ
NPP_CMP_GREATER

7.2.2.2 enum NppGpuComputeCapability

Enumerator:

NPP_CUDA_UNKNOWN_VERSION Indicates that the compute-capability query failed.
NPP_CUDA_NOT_CAPABLE Indicates that no CUDA capable device was found.
NPP_CUDA_1_0 Indicates that CUDA 1.0 capable device is machine's default device.
NPP_CUDA_1_1 Indicates that CUDA 1.1 capable device is machine's default device.
NPP_CUDA_1_2 Indicates that CUDA 1.2 capable device is machine's default device.
NPP_CUDA_1_3 Indicates that CUDA 1.3 capable device is machine's default device.
NPP_CUDA_2_0 Indicates that CUDA 2.0 capable device is machine's default device.
NPP_CUDA_2_1 Indicates that CUDA 2.1 capable device is machine's default device.
NPP_CUDA_3_0 Indicates that CUDA 3.0 capable device is machine's default device.
NPP_CUDA_3_2 Indicates that CUDA 3.2 capable device is machine's default device.
NPP_CUDA_3_5 Indicates that CUDA 3.5 capable device is machine's default device.
NPP_CUDA_3_7 Indicates that CUDA 3.7 capable device is machine's default device.
NPP_CUDA_5_0 Indicates that CUDA 5.0 capable device is machine's default device.
NPP_CUDA_5_2 Indicates that CUDA 5.2 capable device is machine's default device.
NPP_CUDA_5_3 Indicates that CUDA 5.3 capable device is machine's default device.
NPP_CUDA_6_0 Indicates that CUDA 6.0 or better is machine's default device.

7.2.2.3 enum NppHintAlgorithm

Enumerator:

NPP_ALG_HINT_NONE
NPP_ALG_HINT_FAST
NPP_ALG_HINT_ACCURATE

7.2.2.4 enum NppiAlphaOp

Enumerator:

NPPI_OP_ALPHA_OVER
NPPI_OP_ALPHA_IN
NPPI_OP_ALPHA_OUT
NPPI_OP_ALPHA_ATOP
NPPI_OP_ALPHA_XOR

NPPI_OP_ALPHA_PLUS
NPPI_OP_ALPHA_OVER_PREMUL
NPPI_OP_ALPHA_IN_PREMUL
NPPI_OP_ALPHA_OUT_PREMUL
NPPI_OP_ALPHA_ATOP_PREMUL
NPPI_OP_ALPHA_XOR_PREMUL
NPPI_OP_ALPHA_PLUS_PREMUL
NPPI_OP_ALPHA_PREMUL

7.2.2.5 enum NppiAxis

Enumerator:

NPP_HORIZONTAL_AXIS
NPP_VERTICAL_AXIS
NPP_BOTH_AXIS

7.2.2.6 enum NppiBayerGridPosition

Bayer Grid Position Registration.

Enumerator:

NPPI_BAYER_BGGR Default registration position.
NPPI_BAYER_RGGB
NPPI_BAYER_GBRG
NPPI_BAYER_GRBG

7.2.2.7 enum NppiBorderType

Enumerator:

NPP_BORDER_UNDEFINED
NPP_BORDER_NONE
NPP_BORDER_CONSTANT
NPP_BORDER_REPLICATE
NPP_BORDER_WRAP
NPP_BORDER_MIRROR

7.2.2.8 enum NppiDifferentialKernel

Differential Filter types.

Enumerator:

NPP_FILTER_SOBEL
NPP_FILTER_SCHARR

7.2.2.9 enum NppiHuffmanTableType

Enumerator:

nppiDCTable DC Table.

nppiACTable AC Table.

7.2.2.10 enum NppiInterpolationMode

Filtering methods.

Enumerator:

NPPI_INTER_UNDEFINED

NPPI_INTER_NN Nearest neighbor filtering.

NPPI_INTER_LINEAR Linear interpolation.

NPPI_INTER_CUBIC Cubic interpolation.

NPPI_INTER_CUBIC2P_BSPLINE Two-parameter cubic filter (B=1, C=0).

NPPI_INTER_CUBIC2P_CATMULLROM Two-parameter cubic filter (B=0, C=1/2).

NPPI_INTER_CUBIC2P_B05C03 Two-parameter cubic filter (B=1/2, C=3/10).

NPPI_INTER_SUPER Super sampling.

NPPI_INTER_LANCZOS Lanczos filtering.

NPPI_INTER_LANCZOS3_ADVANCED Generic Lanczos filtering with order 3.

NPPI_SMOOTH_EDGE Smooth edge filtering.

7.2.2.11 enum NppiMaskSize

Fixed filter-kernel sizes.

Enumerator:

NPP_MASK_SIZE_1_X_3

NPP_MASK_SIZE_1_X_5

NPP_MASK_SIZE_3_X_1

NPP_MASK_SIZE_5_X_1

NPP_MASK_SIZE_3_X_3

NPP_MASK_SIZE_5_X_5

NPP_MASK_SIZE_7_X_7

NPP_MASK_SIZE_9_X_9

NPP_MASK_SIZE_11_X_11

NPP_MASK_SIZE_13_X_13

NPP_MASK_SIZE_15_X_15

7.2.2.12 enum NppiNorm

Enumerator:

- nppiNormInf* maximum
- nppiNormL1* sum
- nppiNormL2* square root of sum of squares

7.2.2.13 enum NppRoundMode

Rounding Modes.

The enumerated rounding modes are used by a large number of NPP primitives to allow the user to specify the method by which fractional values are converted to integer values. Also see [Rounding Modes](#).

For NPP release 5.5 new names for the three rounding modes are introduced that are based on the naming conventions for rounding modes set forth in the IEEE-754 floating-point standard. Developers are encouraged to use the new, longer names to be future proof as the legacy names will be deprecated in subsequent NPP releases.

Enumerator:

NPP_RND_NEAR Round to the nearest even integer.

All fractional numbers are rounded to their nearest integer. The ambiguous cases (i.e. <integer>.5) are rounded to the closest even integer. E.g.

- roundNear(0.5) = 0
- roundNear(0.6) = 1
- roundNear(1.5) = 2
- roundNear(-1.5) = -2

NPP_ROUND_NEAREST_TIES_TO_EVEN Alias name for [NPP_RND_NEAR](#).

NPP_RND_FINANCIAL Round according to financial rule.

All fractional numbers are rounded to their nearest integer. The ambiguous cases (i.e. <integer>.5) are rounded away from zero. E.g.

- roundFinancial(0.4) = 0
- roundFinancial(0.5) = 1
- roundFinancial(-1.5) = -2

NPP_ROUND_NEAREST_TIES_AWAY_FROM_ZERO Alias name for [NPP_RND_FINANCIAL](#).

NPP_RND_ZERO Round towards zero (truncation).

All fractional numbers of the form <integer>. <decimals> are truncated to <integer>.

- roundZero(1.5) = 1
- roundZero(1.9) = 1
- roundZero(-2.5) = -2

NPP_ROUND_TOWARD_ZERO Alias name for [NPP_RND_ZERO](#).

7.2.2.14 enum NppStatus

Error Status Codes.

Almost all NPP function return error-status information using these return codes. Negative return codes indicate errors, positive return codes indicate warnings, a return code of 0 indicates success.

Enumerator:

NPP_NOT_SUPPORTED_MODE_ERROR
NPP_INVALID_HOST_POINTER_ERROR
NPP_INVALID_DEVICE_POINTER_ERROR
NPP_LUT_PALETTE_BITSIZE_ERROR
NPP_ZC_MODE_NOT_SUPPORTED_ERROR ZeroCrossing mode not supported.
NPP_NOT_SUFFICIENT_COMPUTE_CAPABILITY
NPP_TEXTURE_BIND_ERROR
NPP_WRONG_INTERSECTION_ROI_ERROR
NPP_HAAR_CLASSIFIER_PIXEL_MATCH_ERROR
NPP_MEMFREE_ERROR
NPP_MEMSET_ERROR
NPP_MEMCPY_ERROR
NPP_ALIGNMENT_ERROR
NPP_CUDA_KERNEL_EXECUTION_ERROR
NPP_ROUND_MODE_NOT_SUPPORTED_ERROR Unsupported round mode.
NPP_QUALITY_INDEX_ERROR Image pixels are constant for quality index.
NPP_RESIZE_NO_OPERATION_ERROR One of the output image dimensions is less than 1 pixel.
NPP_OVERFLOW_ERROR Number overflows the upper or lower limit of the data type.
NPP_NOT EVEN STEP ERROR Step value is not pixel multiple.
NPP_HISTOGRAM_NUMBER_OF_LEVELS_ERROR Number of levels for histogram is less than 2.
NPP_LUT_NUMBER_OF_LEVELS_ERROR Number of levels for LUT is less than 2.
NPP_CORRUPTED_DATA_ERROR Processed data is corrupted.
NPP_CHANNEL_ORDER_ERROR Wrong order of the destination channels.
NPP_ZERO_MASK_VALUE_ERROR All values of the mask are zero.
NPP_QUADRANGLE_ERROR The quadrangle is nonconvex or degenerates into triangle, line or point.
NPP_RECTANGLE_ERROR Size of the rectangle region is less than or equal to 1.
NPP_COEFFICIENT_ERROR Unallowable values of the transformation coefficients.
NPP_NUMBER_OF_CHANNELS_ERROR Bad or unsupported number of channels.
NPP_COI_ERROR Channel of interest is not 1, 2, or 3.
NPP_DIVISOR_ERROR Divisor is equal to zero.
NPP_CHANNEL_ERROR Illegal channel index.
NPP_STRIDE_ERROR Stride is less than the row length.
NPP_ANCHOR_ERROR Anchor point is outside mask.

NPP_MASK_SIZE_ERROR Lower bound is larger than upper bound.

NPP_RESIZE_FACTOR_ERROR

NPP_INTERPOLATION_ERROR

NPP_MIRROR_FLIP_ERROR

NPP_MOMENT_00_ZERO_ERROR

NPP_THRESHOLD_NEGATIVE_LEVEL_ERROR

NPP_THRESHOLD_ERROR

NPP_CONTEXT_MATCH_ERROR

NPP_FFT_FLAG_ERROR

NPP_FFT_ORDER_ERROR

NPP_STEP_ERROR Step is less or equal zero.

NPP_SCALE_RANGE_ERROR

NPP_DATA_TYPE_ERROR

NPP_OUT_OF_RANGE_ERROR

NPP_DIVIDE_BY_ZERO_ERROR

NPP_MEMORY_ALLOCATION_ERR

NPP_NULL_POINTER_ERROR

NPP_RANGE_ERROR

NPP_SIZE_ERROR

NPP_BAD_ARGUMENT_ERROR

NPP_NO_MEMORY_ERROR

NPP_NOT_IMPLEMENTED_ERROR

NPP_ERROR

NPP_ERROR_RESERVED

NPP_NO_ERROR Error free operation.

NPP_SUCCESS Successful operation (same as NPP_NO_ERROR).

NPP_NO_OPERATION_WARNING Indicates that no operation was performed.

NPP_DIVIDE_BY_ZERO_WARNING Divisor is zero however does not terminate the execution.

NPP_AFFINE_QUAD_INCORRECT_WARNING Indicates that the quadrangle passed to one of affine warping functions doesn't have necessary properties.
First 3 vertices are used, the fourth vertex discarded.

NPP_WRONG_INTERSECTION_ROI_WARNING The given ROI has no intersection with either the source or destination ROI.
Thus no operation was performed.

NPP_WRONG_INTERSECTION_QUAD_WARNING The given quadrangle has no intersection with either the source or destination ROI.
Thus no operation was performed.

NPP_DOUBLE_SIZE_WARNING Image size isn't multiple of two.
Indicates that in case of 422/411/420 sampling the ROI width/height was modified for proper processing.

NPP_MISALIGNED_DST_ROI_WARNING Speed reduction due to uncoalesced memory accesses warning.

7.2.2.15 enum NppsZCType

Enumerator:

nppZCR sign change

nppZCXor sign change XOR

nppZCC sign change count_0

7.3 Basic NPP Data Types

Data Structures

- struct [NPP_ALIGN_8](#)

Complex Number This struct represents an unsigned int complex number.

- struct [NPP_ALIGN_16](#)

Complex Number This struct represents a long long complex number.

Typedefs

- typedef unsigned char [Npp8u](#)

8-bit unsigned chars

- typedef signed char [Npp8s](#)

8-bit signed chars

- typedef unsigned short [Npp16u](#)

16-bit unsigned integers

- typedef short [Npp16s](#)

16-bit signed integers

- typedef unsigned int [Npp32u](#)

32-bit unsigned integers

- typedef int [Npp32s](#)

32-bit signed integers

- typedef unsigned long long [Npp64u](#)

64-bit unsigned integers

- typedef long long [Npp64s](#)

64-bit signed integers

- typedef float [Npp32f](#)

32-bit (IEEE) floating-point numbers

- typedef double [Npp64f](#)

64-bit floating-point numbers

- typedef struct [NPP_ALIGN_8 Npp32uc](#)

Complex Number This struct represents an unsigned int complex number.

- typedef struct [NPP_ALIGN_8 Npp32sc](#)

Complex Number This struct represents a signed int complex number.

- **typedef struct NPP_ALIGN_8 Npp32fc**

Complex Number This struct represents a single floating-point complex number.

- **typedef struct NPP_ALIGN_16 Npp64sc**

Complex Number This struct represents a long long complex number.

- **typedef struct NPP_ALIGN_16 Npp64fc**

Complex Number This struct represents a double floating-point complex number.

Functions

- **struct __align__ (2)**

Complex Number This struct represents an unsigned char complex number.

- **struct __align__ (4)**

Complex Number This struct represents an unsigned short complex number.

Variables

- **Npp8uc**
- **Npp16uc**
- **Npp16sc**

7.3.1 Typedef Documentation

7.3.1.1 **typedef short Npp16s**

16-bit signed integers

7.3.1.2 **typedef unsigned short Npp16u**

16-bit unsigned integers

7.3.1.3 **typedef float Npp32f**

32-bit (IEEE) floating-point numbers

7.3.1.4 **typedef struct NPP_ALIGN_8 Npp32fc**

Complex Number This struct represents a single floating-point complex number.

7.3.1.5 **typedef int Npp32s**

32-bit signed integers

7.3.1.6 `typedef struct NPP_ALIGN_8 Npp32sc`

Complex Number This struct represents a signed int complex number.

7.3.1.7 `typedef unsigned int Npp32u`

32-bit unsigned integers

7.3.1.8 `typedef struct NPP_ALIGN_8 Npp32uc`

Complex Number This struct represents an unsigned int complex number.

7.3.1.9 `typedef double Npp64f`

64-bit floating-point numbers

7.3.1.10 `typedef struct NPP_ALIGN_16 Npp64fc`

Complex Number This struct represents a double floating-point complex number.

7.3.1.11 `typedef long long Npp64s`

64-bit signed integers

7.3.1.12 `typedef struct NPP_ALIGN_16 Npp64sc`

Complex Number This struct represents a long long complex number.

7.3.1.13 `typedef unsigned long long Npp64u`

64-bit unsigned integers

7.3.1.14 `typedef signed char Npp8s`

8-bit signed chars

7.3.1.15 `typedef unsigned char Npp8u`

8-bit unsigned chars

7.3.2 Function Documentation**7.3.2.1 `struct __align__(4) [read]`**

Complex Number This struct represents an unsigned short complex number.

Complex Number This struct represents a short complex number.

```
< Real part  
< Imaginary part  
< Real part  
< Imaginary part
```

7.3.2.2 struct __align__ (2) [read]

Complex Number This struct represents an unsigned char complex number.

```
< Real part  
< Imaginary part
```

7.3.3 Variable Documentation

7.3.3.1 Npp16sc

7.3.3.2 Npp16uc

7.3.3.3 Npp8uc

7.4 Arithmetic and Logical Operations

These functions can be found in either the nppi or nppial libraries.

Modules

- [Arithmetic Operations](#)
- [Logical Operations](#)
- [Alpha Composition](#)

7.4.1 Detailed Description

These functions can be found in either the nppi or nppial libraries.

Linking to only the sub-libraries that you use can significantly save link time, application load time, and CUDA runtime startup time when using dynamic libraries.

7.5 Arithmetic Operations

Modules

- [AddC](#)

Adds a constant value to each pixel of an image.

- [MulC](#)

Multiplies each pixel of an image by a constant value.

- [MulCScale](#)

Multiplies each pixel of an image by a constant value then scales the result by the maximum value for the data bit width.

- [SubC](#)

Subtracts a constant value from each pixel of an image.

- [DivC](#)

Divides each pixel of an image by a constant value.

- [AbsDiffC](#)

Determines absolute difference between each pixel of an image and a constant value.

- [Add](#)

Pixel by pixel addition of two images.

- [AddSquare](#)

Pixel by pixel addition of squared pixels from source image to floating point pixel values of destination image.

- [AddProduct](#)

Pixel by pixel addition of product of pixels from two source images to floating point pixel values of destination image.

- [AddWeighted](#)

Pixel by pixel addition of alpha weighted pixel values from a source image to floating point pixel values of destination image.

- [Mul](#)

Pixel by pixel multiply of two images.

- [MulScale](#)

Pixel by pixel multiplies each pixel of two images then scales the result by the maximum value for the data bit width.

- [Sub](#)

Pixel by pixel subtraction of two images.

- [Div](#)

Pixel by pixel division of two images.

- [Div_Round](#)

Pixel by pixel division of two images using result rounding modes.

- [Abs](#)

Absolute value of each pixel value in an image.

- [AbsDiff](#)

Pixel by pixel absolute difference between two images.

- [Sqr](#)

Square each pixel in an image.

- [Sqrt](#)

Pixel by pixel square root of each pixel in an image.

- [Ln](#)

Pixel by pixel natural logarithm of each pixel in an image.

- [Exp](#)

Exponential value of each pixel in an image.

7.6 AddC

Adds a constant value to each pixel of an image.

Functions

- `NppStatus nppiAddC_8u_C1RSfs` (const `Npp8u` *`pSrc1`, int `nSrc1Step`, const `Npp8u` `nConstant`, `Npp8u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, int `nScaleFactor`)
One 8-bit unsigned char channel image add constant, scale, then clamp to saturated value.
- `NppStatus nppiAddC_8u_C1IRSfs` (const `Npp8u` `nConstant`, `Npp8u` *`pSrcDst`, int `nSrcDstStep`, `NppiSize` `oSizeROI`, int `nScaleFactor`)
One 8-bit unsigned char channel in place image add constant, scale, then clamp to saturated value.
- `NppStatus nppiAddC_8u_C3RSfs` (const `Npp8u` *`pSrc1`, int `nSrc1Step`, const `Npp8u` `aConstants[3]`, `Npp8u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, int `nScaleFactor`)
Three 8-bit unsigned char channel image add constant, scale, then clamp to saturated value.
- `NppStatus nppiAddC_8u_C3IRSfs` (const `Npp8u` `aConstants[3]`, `Npp8u` *`pSrcDst`, int `nSrcDstStep`, `NppiSize` `oSizeROI`, int `nScaleFactor`)
Three 8-bit unsigned char channel 8-bit unsigned char in place image add constant, scale, then clamp to saturated value.
- `NppStatus nppiAddC_8u_AC4RSfs` (const `Npp8u` *`pSrc1`, int `nSrc1Step`, const `Npp8u` `aConstants[3]`, `Npp8u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, int `nScaleFactor`)
Four 8-bit unsigned char channel with unmodified alpha image add constant, scale, then clamp to saturated value.
- `NppStatus nppiAddC_8u_AC4IRSfs` (const `Npp8u` `aConstants[3]`, `Npp8u` *`pSrcDst`, int `nSrcDstStep`, `NppiSize` `oSizeROI`, int `nScaleFactor`)
Four 8-bit unsigned char channel with unmodified alpha in place image add constant, scale, then clamp to saturated value.
- `NppStatus nppiAddC_8u_C4RSfs` (const `Npp8u` *`pSrc1`, int `nSrc1Step`, const `Npp8u` `aConstants[4]`, `Npp8u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, int `nScaleFactor`)
Four 8-bit unsigned char channel image add constant, scale, then clamp to saturated value.
- `NppStatus nppiAddC_8u_C4IRSfs` (const `Npp8u` `aConstants[4]`, `Npp8u` *`pSrcDst`, int `nSrcDstStep`, `NppiSize` `oSizeROI`, int `nScaleFactor`)
Four 8-bit unsigned char channel in place image add constant, scale, then clamp to saturated value.
- `NppStatus nppiAddC_16u_C1RSfs` (const `Npp16u` *`pSrc1`, int `nSrc1Step`, const `Npp16u` `nConstant`, `Npp16u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, int `nScaleFactor`)
One 16-bit unsigned short channel image add constant, scale, then clamp to saturated value.
- `NppStatus nppiAddC_16u_C1IRSfs` (const `Npp16u` `nConstant`, `Npp16u` *`pSrcDst`, int `nSrcDstStep`, `NppiSize` `oSizeROI`, int `nScaleFactor`)
One 16-bit unsigned short channel in place image add constant, scale, then clamp to saturated value.
- `NppStatus nppiAddC_16u_C3RSfs` (const `Npp16u` *`pSrc1`, int `nSrc1Step`, const `Npp16u` `aConstants[3]`, `Npp16u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, int `nScaleFactor`)

Three 16-bit unsigned short channel image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_16u_C3IRSfs** (const **Npp16u** aConstants[3], **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit unsigned short channel in place image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_16u_AC4RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** aConstants[3], **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel with unmodified alpha image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_16u_AC4IRSfs** (const **Npp16u** aConstants[3], **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel with unmodified alpha in place image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_16u_C4RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** aConstants[4], **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_16u_C4IRSfs** (const **Npp16u** aConstants[4], **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel in place image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_16s_C1RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** nConstant, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short channel image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_16s_C1IRSfs** (const **Npp16s** nConstant, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short channel in place image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_16s_C3RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** aConstants[3], **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short channel image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_16s_C3IRSfs** (const **Npp16s** aConstants[3], **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short channel in place image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_16s_AC4RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** aConstants[3], **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel with unmodified alpha image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_16s_AC4IRSfs** (const **Npp16s** aConstants[3], **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel with unmodified alpha in place image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_16s_C4RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** aConstants[4], **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_16s_C4IRSfs** (const **Npp16s** aConstants[4], **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel in place image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_16sc_C1RSfs** (const **Npp16sc** *pSrc1, int nSrc1Step, const **Npp16sc** nConstant, **Npp16sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_16sc_C1IRSfs** (const **Npp16sc** nConstant, **Npp16sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_16sc_C3RSfs** (const **Npp16sc** *pSrc1, int nSrc1Step, const **Npp16sc** aConstants[3], **Npp16sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_16sc_C3IRSfs** (const **Npp16sc** aConstants[3], **Npp16sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_16sc_AC4RSfs** (const **Npp16sc** *pSrc1, int nSrc1Step, const **Npp16sc** aConstants[3], **Npp16sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_16sc_AC4IRSfs** (const **Npp16sc** aConstants[3], **Npp16sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha in place image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_32s_C1RSfs** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** nConstant, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed integer channel image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_32s_C1IRSfs** (const **Npp32s** nConstant, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed integer channel in place image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_32s_C3RSfs** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** aConstants[3], **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 32-bit signed integer channel image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_32s_C3IRSfs** (const **Npp32s** aConstants[3], **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 32-bit signed integer channel in place image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_32sc_C1RSfs** (const [Npp32sc](#) *pSrc1, int nSrc1Step, const [Npp32sc](#) nConstant, [Npp32sc](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI, int nScaleFactor)

One 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel image add constant, scale, then clamp to saturated value.
- **NppStatus nppiAddC_32sc_C1IRSfs** (const [Npp32sc](#) nConstant, [Npp32sc](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI, int nScaleFactor)

One 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel in place image add constant, scale, then clamp to saturated value.
- **NppStatus nppiAddC_32sc_C3RSfs** (const [Npp32sc](#) *pSrc1, int nSrc1Step, const [Npp32sc](#) aConstants[3], [Npp32sc](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI, int nScaleFactor)

Three 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel image add constant, scale, then clamp to saturated value.
- **NppStatus nppiAddC_32sc_C3IRSfs** (const [Npp32sc](#) aConstants[3], [Npp32sc](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI, int nScaleFactor)

Three 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel in place image add constant, scale, then clamp to saturated value.
- **NppStatus nppiAddC_32sc_AC4RSfs** (const [Npp32sc](#) *pSrc1, int nSrc1Step, const [Npp32sc](#) aConstants[3], [Npp32sc](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI, int nScaleFactor)

Four 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel with unmodified alpha image add constant, scale, then clamp to saturated value.
- **NppStatus nppiAddC_32sc_AC4IRSfs** (const [Npp32sc](#) aConstants[3], [Npp32sc](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI, int nScaleFactor)

Four 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image add constant, scale, then clamp to saturated value.
- **NppStatus nppiAddC_32f_C1R** (const [Npp32f](#) *pSrc1, int nSrc1Step, const [Npp32f](#) nConstant, [Npp32f](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI)

One 32-bit floating point channel image add constant.
- **NppStatus nppiAddC_32f_C1IR** (const [Npp32f](#) nConstant, [Npp32f](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI)

One 32-bit floating point channel in place image add constant.
- **NppStatus nppiAddC_32f_C3R** (const [Npp32f](#) *pSrc1, int nSrc1Step, const [Npp32f](#) aConstants[3], [Npp32f](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI)

Three 32-bit floating point channel image add constant.
- **NppStatus nppiAddC_32f_C3IR** (const [Npp32f](#) aConstants[3], [Npp32f](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI)

Three 32-bit floating point channel in place image add constant.
- **NppStatus nppiAddC_32f_AC4R** (const [Npp32f](#) *pSrc1, int nSrc1Step, const [Npp32f](#) aConstants[3], [Npp32f](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI)

Four 32-bit floating point channel with unmodified alpha image add constant.
- **NppStatus nppiAddC_32f_AC4IR** (const [Npp32f](#) aConstants[3], [Npp32f](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI)

Four 32-bit floating point channel with unmodified alpha in place image add constant.

Four 32-bit floating point channel with unmodified alpha in place image add constant.

- **NppStatus nppiAddC_32f_C4R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** aConstants[4], **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel image add constant.

- **NppStatus nppiAddC_32f_C4IR** (const **Npp32f** aConstants[4], **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel in place image add constant.

- **NppStatus nppiAddC_32fc_C1R** (const **Npp32fc** *pSrc1, int nSrc1Step, const **Npp32fc** nConstant, **Npp32fc** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image add constant.

- **NppStatus nppiAddC_32fc_C1IR** (const **Npp32fc** nConstant, **Npp32fc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image add constant.

- **NppStatus nppiAddC_32fc_C3R** (const **Npp32fc** *pSrc1, int nSrc1Step, const **Npp32fc** aConstants[3], **Npp32fc** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image add constant.

- **NppStatus nppiAddC_32fc_C3IR** (const **Npp32fc** aConstants[3], **Npp32fc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Three 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image add constant.

- **NppStatus nppiAddC_32fc_AC4R** (const **Npp32fc** *pSrc1, int nSrc1Step, const **Npp32fc** aConstants[3], **Npp32fc** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel with unmodified alpha image add constant.

- **NppStatus nppiAddC_32fc_AC4IR** (const **Npp32fc** aConstants[3], **Npp32fc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel with unmodified alpha in place image add constant.

- **NppStatus nppiAddC_32fc_C4R** (const **Npp32fc** *pSrc1, int nSrc1Step, const **Npp32fc** aConstants[4], **Npp32fc** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image add constant.

- **NppStatus nppiAddC_32fc_C4IR** (const **Npp32fc** aConstants[4], **Npp32fc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image add constant.

7.6.1 Detailed Description

Adds a constant value to each pixel of an image.

7.6.2 Function Documentation

7.6.2.1 NppStatus nppiAddC_16s_AC4IRSfs (const Npp16s *aConstants*[3], Npp16s **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short channel with unmodified alpha in place image add constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.6.2.2 NppStatus nppiAddC_16s_AC4RSfs (const Npp16s **pSrc1*, int *nSrc1Step*, const Npp16s *aConstants*[3], Npp16s **pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short channel with unmodified alpha image add constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.6.2.3 NppStatus nppiAddC_16s_C1IRSfs (const Npp16s *nConstant*, Npp16s **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short channel in place image add constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.6.2.4 NppStatus nppiAddC_16s_C1RSfs (const Npp16s * pSrcI, int nSrcIStep, const Npp16s nConstant, Npp16s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit signed short channel image add constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.6.2.5 NppStatus nppiAddC_16s_C3IRSfs (const Npp16s aConstants[3], Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit signed short channel in place image add constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.6.2.6 NppStatus nppiAddC_16s_C3RSfs (const Npp16s * *pSrc1*, int *nSrc1Step*, const Npp16s * *aConstants*[3], Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short channel image add constant, scale, then clamp to saturated value.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- aConstants* fixed size array of constant values, one per channel.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.6.2.7 NppStatus nppiAddC_16s_C4IRSfs (const Npp16s *aConstants*[4], Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short channel in place image add constant, scale, then clamp to saturated value.

Parameters:

- aConstants* fixed size array of constant values, one per channel.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.6.2.8 NppStatus nppiAddC_16s_C4RSfs (const Npp16s * *pSrc1*, int *nSrc1Step*, const Npp16s * *aConstants*[4], Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short channel image add constant, scale, then clamp to saturated value.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- aConstants* fixed size array of constant values, one per channel.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.6.2.9 NppStatus nppiAddC_16sc_AC4IRSfs (const Npp16sc *aConstants*[3], Npp16sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha in place image add constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.6.2.10 NppStatus nppiAddC_16sc_AC4RSfs (const Npp16sc * *pSrcI*, int *nSrcIStep*, const Npp16sc *aConstants*[3], Npp16sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha image add constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.

nSrcIStep Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.6.2.11 NppStatus nppiAddC_16sc_C1IRSfs (const Npp16sc *nConstant*, Npp16sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image add constant, scale, then clamp to saturated value.

Parameters:

- nConstant* Constant.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.6.2.12 NppStatus nppiAddC_16sc_C1RSFs (const Npp16sc * *pSrc1*, int *nSrc1Step*, const Npp16sc *nConstant*, Npp16sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image add constant, scale, then clamp to saturated value.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- nConstant* Constant.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.6.2.13 NppStatus nppiAddC_16sc_C3IRSfs (const Npp16sc *aConstants*[3], Npp16sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image add constant, scale, then clamp to saturated value.

Parameters:

- aConstants* fixed size array of constant values, one per channel.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.6.2.14 NppStatus nppiAddC_16sc_C3RSfs (const Npp16sc * *pSrc1*, int *nSrc1Step*, const Npp16sc *aConstants*[3], Npp16sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image add constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.6.2.15 NppStatus nppiAddC_16u_AC4IRSfs (const Npp16u *aConstants*[3], Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel with unmodified alpha in place image add constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.6.2.16 NppStatus nppiAddC_16u_AC4RSfs (const Npp16u * *pSrcI*, int *nSrcIStep*, const Npp16u *aConstants*[3], Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel with unmodified alpha image add constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.6.2.17 NppStatus nppiAddC_16u_C1IRSfs (const Npp16u *nConstant*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit unsigned short channel in place image add constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.6.2.18 NppStatus nppiAddC_16u_C1RSfs (const Npp16u * *pSrcI*, int *nSrcIStep*, const Npp16u *nConstant*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit unsigned short channel image add constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.6.2.19 NppStatus nppiAddC_16u_C3IRSfs (const Npp16u *aConstants*[3], Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit unsigned short channel in place image add constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.6.2.20 NppStatus nppiAddC_16u_C3RSfs (const Npp16u * *pSrcI*, int *nSrcIStep*, const Npp16u *aConstants*[3], Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit unsigned short channel image add constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.

nSrcIStep Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.6.2.21 NppStatus nppiAddC_16u_C4IRSfs (const Npp16u *aConstants*[4], Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel in place image add constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.6.2.22 NppStatus nppiAddC_16u_C4RSfs (const Npp16u * *pSrcI*, int *nSrcIStep*, const Npp16u *aConstants*[4], Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel image add constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.6.2.23 NppStatus nppiAddC_32f_AC4IR (const Npp32f *aConstants*[3], Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel with unmodified alpha in place image add constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.6.2.24 NppStatus nppiAddC_32f_AC4R (const Npp32f * pSrc1, int nSrc1Step, const Npp32f * aConstants[3], Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

Four 32-bit floating point channel with unmodified alpha image add constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.6.2.25 NppStatus nppiAddC_32f_C1IR (const Npp32f nConstant, Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

One 32-bit floating point channel in place image add constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.6.2.26 NppStatus nppiAddC_32f_C1R (const Npp32f * pSrc1, int nSrc1Step, const Npp32f * nConstant, Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

One 32-bit floating point channel image add constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.6.2.27 NppStatus nppiAddC_32f_C3IR (const Npp32f *aConstants*[3], Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 32-bit floating point channel in place image add constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.6.2.28 NppStatus nppiAddC_32f_C3R (const Npp32f * *pSrcI*, int *nSrcIStep*, const Npp32f *aConstants*[3], Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 32-bit floating point channel image add constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.6.2.29 NppStatus nppiAddC_32f_C4IR (const Npp32f *aConstants*[4], Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel in place image add constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.6.2.30 NppStatus nppiAddC_32f_C4R (const Npp32f * pSrc1, int nSrc1Step, const Npp32f * aConstants[4], Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

Four 32-bit floating point channel image add constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.6.2.31 NppStatus nppiAddC_32fc_AC4IR (const Npp32fc * aConstants[3], Npp32fc * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel with unmodified alpha in place image add constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.6.2.32 NppStatus nppiAddC_32fc_AC4R (const Npp32fc * pSrc1, int nSrc1Step, const Npp32fc * aConstants[3], Npp32fc * pDst, int nDstStep, NppiSize oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel with unmodified alpha image add constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.6.2.33 NppStatus nppiAddC_32fc_C1IR (const Npp32fc *nConstant*, Npp32fc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image add constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.6.2.34 NppStatus nppiAddC_32fc_C1R (const Npp32fc * *pSrcI*, int *nSrcIStep*, const Npp32fc *nConstant*, Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image add constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.6.2.35 NppStatus nppiAddC_32fc_C3IR (const Npp32fc *aConstants*[3], Npp32fc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image add constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.6.2.36 NppStatus nppiAddC_32fc_C3R (const Npp32fc * pSrcI, int nSrcIStep, const Npp32fc aConstants[3], Npp32fc * pDst, int nDstStep, NppiSize oSizeROI)

Three 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image add constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.6.2.37 NppStatus nppiAddC_32fc_C4IR (const Npp32fc aConstants[4], Npp32fc * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image add constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.6.2.38 NppStatus nppiAddC_32fc_C4R (const Npp32fc * pSrcI, int nSrcIStep, const Npp32fc aConstants[4], Npp32fc * pDst, int nDstStep, NppiSize oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image add constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.6.2.39 NppStatus nppiAddC_32s_C1IRSfs (const Npp32s *nConstant*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer channel in place image add constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.6.2.40 NppStatus nppiAddC_32s_C1RSfs (const Npp32s * *pSrcI*, int *nSrcIStep*, const Npp32s *nConstant*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer channel image add constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.

nSrcIStep Source-Image Line Step.

nConstant Constant.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.6.2.41 NppStatus nppiAddC_32s_C3IRSfs (const Npp32s *aConstants*[3], Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed integer channel in place image add constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.6.2.42 NppStatus nppiAddC_32s_C3RSfs (const Npp32s * pSrcI, int nSrcIStep, const Npp32s aConstants[3], Npp32s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 32-bit signed integer channel image add constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.6.2.43 NppStatus nppiAddC_32sc_AC4IRSfs (const Npp32sc aConstants[3], Npp32sc * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image add constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.6.2.44 NppStatus nppiAddC_32sc_AC4RSfs (const Npp32sc * *pSrc1*, int *nSrc1Step*, const Npp32sc *aConstants*[3], Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel with unmodified alpha image add constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.6.2.45 NppStatus nppiAddC_32sc_C1IRSfs (const Npp32sc *nConstant*, Npp32sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel in place image add constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.6.2.46 NppStatus nppiAddC_32sc_C1RSfs (const Npp32sc * *pSrc1*, int *nSrc1Step*, const Npp32sc *nConstant*, Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel image add constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.

nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.6.2.47 NppStatus nppiAddC_32sc_C3IRSfs (const Npp32sc *aConstants*[3], Npp32sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel in place image add constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.6.2.48 NppStatus nppiAddC_32sc_C3RSfs (const Npp32sc * *pSrcI*, int *nSrcIStep*, const Npp32sc *aConstants*[3], Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel image add constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.6.2.49 NppStatus nppiAddC_8u_AC4IRSfs (const Npp8u *aConstants*[3], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 8-bit unsigned char channel with unmodified alpha in place image add constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel..
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.6.2.50 NppStatus nppiAddC_8u_AC4RSfs (const Npp8u * *pSrcI*, int *nSrcIStep*, const Npp8u *aConstants*[3], Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 8-bit unsigned char channel with unmodified alpha image add constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel..
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.6.2.51 NppStatus nppiAddC_8u_C1IRSfs (const Npp8u *nConstant*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 8-bit unsigned char channel in place image add constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.6.2.52 NppStatus nppiAddC_8u_C1RSfs (const Npp8u * pSrc1, int nSrc1Step, const Npp8u aConstant, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel image add constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstant Constant.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.6.2.53 NppStatus nppiAddC_8u_C3IRSfs (const Npp8u aConstants[3], Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel 8-bit unsigned char in place image add constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel..

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.6.2.54 NppStatus nppiAddC_8u_C3RSfs (const Npp8u * pSrc1, int nSrc1Step, const Npp8u aConstants[3], Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel image add constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel..
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.6.2.55 NppStatus nppiAddC_8u_C4IRSfs (const Npp8u *aConstants*[4], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 8-bit unsigned char channel in place image add constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.6.2.56 NppStatus nppiAddC_8u_C4RSfs (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u *aConstants*[4], Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 8-bit unsigned char channel image add constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel..
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.7 MulC

Multiplies each pixel of an image by a constant value.

Functions

- `NppStatus nppiMulC_8u_C1RSfs (const Npp8u *pSrc1, int nSrc1Step, const Npp8u nConstant, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`
One 8-bit unsigned char channel image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_8u_C1IRSfs (const Npp8u nConstant, Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)`
One 8-bit unsigned char channel in place image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_8u_C3RSfs (const Npp8u *pSrc1, int nSrc1Step, const Npp8u aConstants[3], Npp8u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`
Three 8-bit unsigned char channel image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_8u_C3IRSfs (const Npp8u aConstants[3], Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)`
Three 8-bit unsigned char channel 8-bit unsigned char in place image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_8u_AC4RSfs (const Npp8u *pSrc1, int nSrc1Step, const Npp8u aConstants[3], Npp8u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`
Four 8-bit unsigned char channel with unmodified alpha image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_8u_AC4IRSfs (const Npp8u aConstants[3], Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)`
Four 8-bit unsigned char channel with unmodified alpha in place image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_8u_C4RSfs (const Npp8u *pSrc1, int nSrc1Step, const Npp8u aConstants[4], Npp8u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`
Four 8-bit unsigned char channel image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_8u_C4IRSfs (const Npp8u aConstants[4], Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)`
Four 8-bit unsigned char channel in place image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_16u_C1RSfs (const Npp16u *pSrc1, int nSrc1Step, const Npp16u nConstant, Npp16u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`
One 16-bit unsigned short channel image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_16u_C1IRSfs (const Npp16u nConstant, Npp16u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)`
One 16-bit unsigned short channel in place image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_16u_C3RSfs (const Npp16u *pSrc1, int nSrc1Step, const Npp16u aConstants[3], Npp16u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`

Three 16-bit unsigned short channel image multiply by constant, scale, then clamp to saturated value.

- **NppStatus nppiMulC_16u_C3IRSfs** (const **Npp16u** aConstants[3], **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit unsigned short channel in place image multiply by constant, scale, then clamp to saturated value.

- **NppStatus nppiMulC_16u_AC4RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** aConstants[3], **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel with unmodified alpha image multiply by constant, scale, then clamp to saturated value.

- **NppStatus nppiMulC_16u_AC4IRSfs** (const **Npp16u** aConstants[3], **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel with unmodified alpha in place image multiply by constant, scale, then clamp to saturated value.

- **NppStatus nppiMulC_16u_C4RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** aConstants[4], **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel image multiply by constant, scale, then clamp to saturated value.

- **NppStatus nppiMulC_16u_C4IRSfs** (const **Npp16u** aConstants[4], **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel in place image multiply by constant, scale, then clamp to saturated value.

- **NppStatus nppiMulC_16s_C1RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** nConstant, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short channel image multiply by constant, scale, then clamp to saturated value.

- **NppStatus nppiMulC_16s_C1IRSfs** (const **Npp16s** nConstant, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short channel in place image multiply by constant, scale, then clamp to saturated value.

- **NppStatus nppiMulC_16s_C3RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** aConstants[3], **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short channel image multiply by constant, scale, then clamp to saturated value.

- **NppStatus nppiMulC_16s_C3IRSfs** (const **Npp16s** aConstants[3], **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short channel in place image multiply by constant, scale, then clamp to saturated value.

- **NppStatus nppiMulC_16s_AC4RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** aConstants[3], **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel with unmodified alpha image multiply by constant, scale, then clamp to saturated value.

- **NppStatus nppiMulC_16s_AC4IRSfs** (const **Npp16s** aConstants[3], **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel with unmodified alpha in place image multiply by constant, scale, then clamp to saturated value.

- `NppStatus nppiMulC_16s_C4RSfs` (const `Npp16s *pSrc1`, int `nSrc1Step`, const `Npp16s aConstants[4]`, `Npp16s *pDst`, int `nDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
Four 16-bit signed short channel image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_16s_C4IRSfs` (const `Npp16s aConstants[4]`, `Npp16s *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
Four 16-bit signed short channel in place image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_16sc_C1RSfs` (const `Npp16sc *pSrc1`, int `nSrc1Step`, const `Npp16sc nConstant`, `Npp16sc *pDst`, int `nDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_16sc_C1IRSfs` (const `Npp16sc nConstant`, `Npp16sc *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_16sc_C3RSfs` (const `Npp16sc *pSrc1`, int `nSrc1Step`, const `Npp16sc aConstants[3]`, `Npp16sc *pDst`, int `nDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_16sc_C3IRSfs` (const `Npp16sc aConstants[3]`, `Npp16sc *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_16sc_AC4RSfs` (const `Npp16sc *pSrc1`, int `nSrc1Step`, const `Npp16sc aConstants[3]`, `Npp16sc *pDst`, int `nDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_16sc_AC4IRSfs` (const `Npp16sc aConstants[3]`, `Npp16sc *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha in place image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_32s_C1RSfs` (const `Npp32s *pSrc1`, int `nSrc1Step`, const `Npp32s nConstant`, `Npp32s *pDst`, int `nDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
One 32-bit signed integer channel image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_32s_C1IRSfs` (const `Npp32s nConstant`, `Npp32s *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
One 32-bit signed integer channel in place image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_32s_C3RSfs` (const `Npp32s *pSrc1`, int `nSrc1Step`, const `Npp32s aConstants[3]`, `Npp32s *pDst`, int `nDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
Three 32-bit signed integer channel image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_32s_C3IRSfs` (const `Npp32s aConstants[3]`, `Npp32s *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)

Three 32-bit signed integer channel in place image multiply by constant, scale, then clamp to saturated value.

- **NppStatus nppiMulC_32sc_C1RSfs** (const **Npp32sc** *pSrc1, int nSrc1Step, const **Npp32sc** nConstant, **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel image multiply by constant, scale, then clamp to saturated value.

- **NppStatus nppiMulC_32sc_C1IRSfs** (const **Npp32sc** nConstant, **Npp32sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel in place image multiply by constant, scale, then clamp to saturated value.

- **NppStatus nppiMulC_32sc_C3RSfs** (const **Npp32sc** *pSrc1, int nSrc1Step, const **Npp32sc** aConstants[3], **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel image multiply by constant, scale, then clamp to saturated value.

- **NppStatus nppiMulC_32sc_C3IRSfs** (const **Npp32sc** aConstants[3], **Npp32sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel in place image multiply by constant, scale, then clamp to saturated value.

- **NppStatus nppiMulC_32sc_AC4RSfs** (const **Npp32sc** *pSrc1, int nSrc1Step, const **Npp32sc** aConstants[3], **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel with unmodified alpha image multiply by constant, scale, then clamp to saturated value.

- **NppStatus nppiMulC_32sc_AC4IRSfs** (const **Npp32sc** aConstants[3], **Npp32sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image multiply by constant, scale, then clamp to saturated value.

- **NppStatus nppiMulC_32f_C1R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** nConstant, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 32-bit floating point channel image multiply by constant.

- **NppStatus nppiMulC_32f_C1IR** (const **Npp32f** nConstant, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 32-bit floating point channel in place image multiply by constant.

- **NppStatus nppiMulC_32f_C3R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** aConstants[3], **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 32-bit floating point channel image multiply by constant.

- **NppStatus nppiMulC_32f_C3IR** (const **Npp32f** aConstants[3], **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Three 32-bit floating point channel in place image multiply by constant.

- **NppStatus nppiMulC_32f_AC4R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** aConstants[3], **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel with unmodified alpha image multiply by constant.

- **NppStatus nppiMulC_32f_AC4IR** (const **Npp32f** aConstants[3], **Npp32f** *pSrcDst, int nSrcDstStep, **NppSize** oSizeROI)

Four 32-bit floating point channel with unmodified alpha in place image multiply by constant.
- **NppStatus nppiMulC_32f_C4R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** aConstants[4], **Npp32f** *pDst, int nDstStep, **NppSize** oSizeROI)

Four 32-bit floating point channel image multiply by constant.
- **NppStatus nppiMulC_32f_C4IR** (const **Npp32f** aConstants[4], **Npp32f** *pSrcDst, int nSrcDstStep, **NppSize** oSizeROI)

Four 32-bit floating point channel in place image multiply by constant.
- **NppStatus nppiMulC_32fc_C1R** (const **Npp32fc** *pSrc1, int nSrc1Step, const **Npp32fc** nConstant, **Npp32fc** *pDst, int nDstStep, **NppSize** oSizeROI)

One 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image multiply by constant.
- **NppStatus nppiMulC_32fc_C1IR** (const **Npp32fc** nConstant, **Npp32fc** *pSrcDst, int nSrcDstStep, **NppSize** oSizeROI)

One 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image multiply by constant.
- **NppStatus nppiMulC_32fc_C3R** (const **Npp32fc** *pSrc1, int nSrc1Step, const **Npp32fc** aConstants[3], **Npp32fc** *pDst, int nDstStep, **NppSize** oSizeROI)

Three 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel multiply by constant.
- **NppStatus nppiMulC_32fc_C3IR** (const **Npp32fc** aConstants[3], **Npp32fc** *pSrcDst, int nSrcDstStep, **NppSize** oSizeROI)

Three 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image multiply by constant.
- **NppStatus nppiMulC_32fc_AC4R** (const **Npp32fc** *pSrc1, int nSrc1Step, const **Npp32fc** aConstants[3], **Npp32fc** *pDst, int nDstStep, **NppSize** oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel with unmodified alpha image multiply by constant.
- **NppStatus nppiMulC_32fc_AC4IR** (const **Npp32fc** aConstants[3], **Npp32fc** *pSrcDst, int nSrcDstStep, **NppSize** oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel with unmodified alpha in place image multiply by constant.
- **NppStatus nppiMulC_32fc_C4R** (const **Npp32fc** *pSrc1, int nSrc1Step, const **Npp32fc** aConstants[4], **Npp32fc** *pDst, int nDstStep, **NppSize** oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image multiply by constant.
- **NppStatus nppiMulC_32fc_C4IR** (const **Npp32fc** aConstants[4], **Npp32fc** *pSrcDst, int nSrcDstStep, **NppSize** oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image multiply by constant.

7.7.1 Detailed Description

Multiples each pixel of an image by a constant value.

7.7.2 Function Documentation

7.7.2.1 NppStatus nppiMulC_16s_AC4IRSfs (const Npp16s *aConstants*[3], Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short channel with unmodified alpha in place image multiply by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.2 NppStatus nppiMulC_16s_AC4RSfs (const Npp16s * *pSrcI*, int *nSrcIStep*, const Npp16s *aConstants*[3], Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short channel with unmodified alpha image multiply by constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.

nSrcIStep Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.3 NppStatus nppiMulC_16s_C1IRSfs (const Npp16s *nConstant*, Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short channel in place image multiply by constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.4 NppStatus nppiMulC_16s_C1RSfs (const Npp16s * *pSrcI*, int *nSrcIStep*, const Npp16s *nConstant*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short channel image multiply by constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.5 NppStatus nppiMulC_16s_C3IRSfs (const Npp16s *aConstants*[3], Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short channel in place image multiply by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.6 NppStatus nppiMulC_16s_C3RSfs (const Npp16s * *pSrcI*, int *nSrcIStep*, const Npp16s * *aConstants*[3], Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short channel image multiply by constant, scale, then clamp to saturated value.

Parameters:

- pSrcI* Source-Image Pointer.
- nSrcIStep* Source-Image Line Step.
- aConstants* fixed size array of constant values, one per channel.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.7 NppStatus nppiMulC_16s_C4IRSfs (const Npp16s * *aConstants*[4], Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short channel in place image multiply by constant, scale, then clamp to saturated value.

Parameters:

- aConstants* fixed size array of constant values, one per channel.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.8 NppStatus nppiMulC_16s_C4RSfs (const Npp16s * *pSrcI*, int *nSrcIStep*, const Npp16s * *aConstants*[4], Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short channel image multiply by constant, scale, then clamp to saturated value.

Parameters:

- pSrcI* Source-Image Pointer.
- nSrcIStep* Source-Image Line Step.
- aConstants* fixed size array of constant values, one per channel.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.7.2.9 NppStatus nppiMulC_16sc_AC4IRSfs (const Npp16sc *aConstants*[3], Npp16sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha in place image multiply by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.7.2.10 NppStatus nppiMulC_16sc_AC4RSfs (const Npp16sc * *pSrcI*, int *nSrcIStep*, const Npp16sc *aConstants*[3], Npp16sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha image multiply by constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.

nSrcIStep Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.7.2.11 NppStatus nppiMulC_16sc_C1IRSfs (const Npp16sc *nConstant*, Npp16sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image multiply by constant, scale, then clamp to saturated value.

Parameters:

- nConstant* Constant.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.12 NppStatus nppiMulC_16sc_C1RSFs (const Npp16sc * *pSrc1*, int *nSrc1Step*, const Npp16sc *nConstant*, Npp16sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image multiply by constant, scale, then clamp to saturated value.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- nConstant* Constant.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.13 NppStatus nppiMulC_16sc_C3IRSfs (const Npp16sc *aConstants*[3], Npp16sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image multiply by constant, scale, then clamp to saturated value.

Parameters:

- aConstants* fixed size array of constant values, one per channel.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.14 NppStatus nppiMulC_16sc_C3RSfs (const Npp16sc * pSrc1, int nSrc1Step, const Npp16sc aConstants[3], Npp16sc * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image multiply by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.15 NppStatus nppiMulC_16u_AC4IRSfs (const Npp16u aConstants[3], Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel with unmodified alpha in place image multiply by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.16 NppStatus nppiMulC_16u_AC4RSfs (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u *aConstants*[3], Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel with unmodified alpha image multiply by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.17 NppStatus nppiMulC_16u_C1IRSfs (const Npp16u *nConstant*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit unsigned short channel in place image multiply by constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.18 NppStatus nppiMulC_16u_C1RSfs (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u *nConstant*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit unsigned short channel image multiply by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nConstant Constant.

pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.19 NppStatus nppiMulC_16u_C3IRSfs (const Npp16u *aConstants*[3], Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit unsigned short channel in place image multiply by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.20 NppStatus nppiMulC_16u_C3RSfs (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u *aConstants*[3], Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit unsigned short channel image multiply by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.21 NppStatus nppiMulC_16u_C4IRSfs (const Npp16u *aConstants*[4], Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel in place image multiply by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.22 NppStatus nppiMulC_16u_C4RSfs (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u *aConstants*[4], Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel image multiply by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.23 NppStatus nppiMulC_32f_AC4IR (const Npp32f *aConstants*[3], Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel with unmodified alpha in place image multiply by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.24 NppStatus nppiMulC_32f_AC4R (const Npp32f * pSrc1, int nSrc1Step, const Npp32f * aConstants[3], Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

Four 32-bit floating point channel with unmodified alpha image multiply by constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.25 NppStatus nppiMulC_32f_C1IR (const Npp32f nConstant, Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

One 32-bit floating point channel in place image multiply by constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.26 NppStatus nppiMulC_32f_C1R (const Npp32f * pSrc1, int nSrc1Step, const Npp32f * nConstant, Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

One 32-bit floating point channel image multiply by constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.27 NppStatus nppiMulC_32f_C3IR (const Npp32f *aConstants*[3], Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 32-bit floating point channel in place image multiply by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.28 NppStatus nppiMulC_32f_C3R (const Npp32f * *pSrcI*, int *nSrcIStep*, const Npp32f *aConstants*[3], Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 32-bit floating point channel image multiply by constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.29 NppStatus nppiMulC_32f_C4IR (const Npp32f *aConstants*[4], Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel in place image multiply by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.30 NppStatus nppiMulC_32f_C4R (const Npp32f * pSrc1, int nSrc1Step, const Npp32f * aConstants[4], Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

Four 32-bit floating point channel image multiply by constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.31 NppStatus nppiMulC_32fc_AC4IR (const Npp32fc * aConstants[3], Npp32fc * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel with unmodified alpha in place image multiply by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.32 NppStatus nppiMulC_32fc_AC4R (const Npp32fc * pSrc1, int nSrc1Step, const Npp32fc * aConstants[3], Npp32fc * pDst, int nDstStep, NppiSize oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel with unmodified alpha image multiply by constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.33 NppStatus nppiMulC_32fc_C1IR (const Npp32fc *nConstant*, Npp32fc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image multiply by constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.34 NppStatus nppiMulC_32fc_C1R (const Npp32fc * *pSrcI*, int *nSrcIStep*, const Npp32fc *nConstant*, Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image multiply by constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.35 NppStatus nppiMulC_32fc_C3IR (const Npp32fc *aConstants*[3], Npp32fc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image multiply by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.36 NppStatus nppiMulC_32fc_C3R (const Npp32fc * pSrc1, int nSrc1Step, const Npp32fc * aConstants[3], Npp32fc * pDst, int nDstStep, NppiSize oSizeROI)

Three 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image multiply by constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.37 NppStatus nppiMulC_32fc_C4IR (const Npp32fc aConstants[4], Npp32fc * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image multiply by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.38 NppStatus nppiMulC_32fc_C4R (const Npp32fc * pSrc1, int nSrc1Step, const Npp32fc * aConstants[4], Npp32fc * pDst, int nDstStep, NppiSize oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image multiply by constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.7.2.39 NppStatus nppiMulC_32s_C1IRSfs (const Npp32s *nConstant*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer channel in place image multiply by constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.7.2.40 NppStatus nppiMulC_32s_C1RSfs (const Npp32s * *pSrcI*, int *nSrcIStep*, const Npp32s *nConstant*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer channel image multiply by constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.

nSrcIStep Source-Image Line Step.

nConstant Constant.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.7.2.41 NppStatus nppiMulC_32s_C3IRSfs (const Npp32s *aConstants*[3], Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed integer channel in place image multiply by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.42 NppStatus nppiMulC_32s_C3RSfs (const Npp32s * pSrcI, int nSrcIStep, const Npp32s aConstants[3], Npp32s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 32-bit signed integer channel image multiply by constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.43 NppStatus nppiMulC_32sc_AC4IRSfs (const Npp32sc aConstants[3], Npp32sc * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image multiply by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.44 NppStatus nppiMulC_32sc_AC4RSfs (const Npp32sc * *pSrc1*, int *nSrc1Step*, const Npp32sc *aConstants*[3], Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel with unmodified alpha image multiply by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.45 NppStatus nppiMulC_32sc_C1IRSfs (const Npp32sc *nConstant*, Npp32sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel in place image multiply by constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.46 NppStatus nppiMulC_32sc_C1RSfs (const Npp32sc * *pSrc1*, int *nSrc1Step*, const Npp32sc *nConstant*, Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel image multiply by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.

nConstant Constant.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.47 NppStatus nppiMulC_32sc_C3IRSfs (const Npp32sc *aConstants*[3], Npp32sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel in place image multiply by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.48 NppStatus nppiMulC_32sc_C3RSfs (const Npp32sc * *pSrcI*, int *nSrcIStep*, const Npp32sc *aConstants*[3], Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel image multiply by constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.

nSrcIStep Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.49 NppStatus nppiMulC_8u_AC4IRSfs (const Npp8u *aConstants*[3], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 8-bit unsigned char channel with unmodified alpha in place image multiply by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.50 NppStatus nppiMulC_8u_AC4RSfs (const Npp8u * *pSrcI*, const Npp8u *aConstants*[3], Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 8-bit unsigned char channel with unmodified alpha image multiply by constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.51 NppStatus nppiMulC_8u_C1IRSfs (const Npp8u *nConstant*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 8-bit unsigned char channel in place image multiply by constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.7.2.52 NppStatus nppiMulC_8u_C1RSfs (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * nConstant, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel image multiply by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

nConstant Constant.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.7.2.53 NppStatus nppiMulC_8u_C3IRSfs (const Npp8u aConstants[3], Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel 8-bit unsigned char in place image multiply by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.7.2.54 NppStatus nppiMulC_8u_C3RSfs (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * aConstants[3], Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel image multiply by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.7.2.55 NppStatus nppiMulC_8u_C4IRSfs (const Npp8u *aConstants*[4], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 8-bit unsigned char channel in place image multiply by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.7.2.56 NppStatus nppiMulC_8u_C4RSfs (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u *aConstants*[4], Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 8-bit unsigned char channel image multiply by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.8 MulCScale

Multiples each pixel of an image by a constant value then scales the result by the maximum value for the data bit width.

Functions

- **NppStatus nppiMulCScale_8u_C1R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** nConstant, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 8-bit unsigned char channel image multiply by constant and scale by max bit width value.

- **NppStatus nppiMulCScale_8u_C1IR** (const **Npp8u** nConstant, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 8-bit unsigned char channel in place image multiply by constant and scale by max bit width value.

- **NppStatus nppiMulCScale_8u_C3R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** aConstants[3], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 8-bit unsigned char channel image multiply by constant and scale by max bit width value.

- **NppStatus nppiMulCScale_8u_C3IR** (const **Npp8u** aConstants[3], **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Three 8-bit unsigned char channel 8-bit unsigned char in place image multiply by constant and scale by max bit width value.

- **NppStatus nppiMulCScale_8u_AC4R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** aConstants[3], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel with unmodified alpha image multiply by constant and scale by max bit width value.

- **NppStatus nppiMulCScale_8u_AC4IR** (const **Npp8u** aConstants[3], **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel with unmodified alpha in place image multiply by constant, scale and scale by max bit width value.

- **NppStatus nppiMulCScale_8u_C4R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** aConstants[4], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel image multiply by constant and scale by max bit width value.

- **NppStatus nppiMulCScale_8u_C4IR** (const **Npp8u** aConstants[4], **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel in place image multiply by constant and scale by max bit width value.

- **NppStatus nppiMulCScale_16u_C1R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** nConstant, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 16-bit unsigned short channel image multiply by constant and scale by max bit width value.

- **NppStatus nppiMulCScale_16u_C1IR** (const **Npp16u** nConstant, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 16-bit unsigned short channel in place image multiply by constant and scale by max bit width value.

- `NppStatus nppiMulCScale_16u_C3R` (const `Npp16u *pSrc1`, int `nSrc1Step`, const `Npp16u aConstants[3]`, `Npp16u *pDst`, int `nDstStep`, `NppiSize oSizeROI`)
Three 16-bit unsigned short channel image multiply by constant and scale by max bit width value.
- `NppStatus nppiMulCScale_16u_C3IR` (const `Npp16u aConstants[3]`, `Npp16u *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`)
Three 16-bit unsigned short channel in place image multiply by constant and scale by max bit width value.
- `NppStatus nppiMulCScale_16u_AC4R` (const `Npp16u *pSrc1`, int `nSrc1Step`, const `Npp16u aConstants[3]`, `Npp16u *pDst`, int `nDstStep`, `NppiSize oSizeROI`)
Four 16-bit unsigned short channel with unmodified alpha image multiply by constant and scale by max bit width value.
- `NppStatus nppiMulCScale_16u_AC4IR` (const `Npp16u aConstants[3]`, `Npp16u *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`)
Four 16-bit unsigned short channel with unmodified alpha in place image multiply by constant and scale by max bit width value.
- `NppStatus nppiMulCScale_16u_C4R` (const `Npp16u *pSrc1`, int `nSrc1Step`, const `Npp16u aConstants[4]`, `Npp16u *pDst`, int `nDstStep`, `NppiSize oSizeROI`)
Four 16-bit unsigned short channel image multiply by constant and scale by max bit width value.
- `NppStatus nppiMulCScale_16u_C4IR` (const `Npp16u aConstants[4]`, `Npp16u *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`)
Four 16-bit unsigned short channel in place image multiply by constant and scale by max bit width value.

7.8.1 Detailed Description

Multiplies each pixel of an image by a constant value then scales the result by the maximum value for the data bit width.

7.8.2 Function Documentation

7.8.2.1 `NppStatus nppiMulCScale_16u_AC4IR` (const `Npp16u aConstants[3]`, `Npp16u *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`)

Four 16-bit unsigned short channel with unmodified alpha in place image multiply by constant and scale by max bit width value.

Parameters:

`aConstants` fixed size array of constant values, one per channel.
`pSrcDst` In-Place Image Pointer.
`nSrcDstStep` In-Place-Image Line Step.
`oSizeROI` Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.8.2.2 NppStatus nppiMulCScale_16u_AC4R (const Npp16u * pSrc1, int nSrc1Step, const Npp16u aConstants[3], Npp16u * pDst, int nDstStep, NppiSize oSizeROI)

Four 16-bit unsigned short channel with unmodified alpha image multiply by constant and scale by max bit width value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.3 NppStatus nppiMulCScale_16u_C1IR (const Npp16u nConstant, Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

One 16-bit unsigned short channel in place image multiply by constant and scale by max bit width value.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.4 NppStatus nppiMulCScale_16u_C1R (const Npp16u * pSrc1, int nSrc1Step, const Npp16u nConstant, Npp16u * pDst, int nDstStep, NppiSize oSizeROI)

One 16-bit unsigned short channel image multiply by constant and scale by max bit width value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.5 NppStatus nppiMulCScale_16u_C3IR (const Npp16u *aConstants*[3], Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 16-bit unsigned short channel in place image multiply by constant and scale by max bit width value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.6 NppStatus nppiMulCScale_16u_C3R (const Npp16u * *pSrcI*, int *nSrcIStep*, const Npp16u *aConstants*[3], Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 16-bit unsigned short channel image multiply by constant and scale by max bit width value.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.7 NppStatus nppiMulCScale_16u_C4IR (const Npp16u *aConstants*[4], Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel in place image multiply by constant and scale by max bit width value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.8 NppStatus nppiMulCScale_16u_C4R (const Npp16u **pSrc1*, int *nSrc1Step*, const Npp16u **aConstants*[4], Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel image multiply by constant and scale by max bit width value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.9 NppStatus nppiMulCScale_8u_AC4IR (const Npp8u **aConstants*[3], Npp8u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel with unmodified alpha in place image multiply by constant, scale and scale by max bit width value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.10 NppStatus nppiMulCScale_8u_AC4R (const Npp8u **pSrc1*, int *nSrc1Step*, const Npp8u **aConstants*[3], Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel with unmodified alpha image multiply by constant and scale by max bit width value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.11 NppStatus nppiMulCScale_8u_C1IR (const Npp8u *nConstant*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 8-bit unsigned char channel in place image multiply by constant and scale by max bit width value.

Parameters:

- nConstant* Constant.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.8.2.12 NppStatus nppiMulCScale_8u_C1R (const Npp8u * *pSrcI*, int *nSrcIStep*, const Npp8u *nConstant*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 8-bit unsigned char channel image multiply by constant and scale by max bit width value.

Parameters:

- pSrcI* Source-Image Pointer.
- nSrcIStep* Source-Image Line Step.
- nConstant* Constant.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.8.2.13 NppStatus nppiMulCScale_8u_C3IR (const Npp8u *aConstants[3]*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 8-bit unsigned char channel 8-bit unsigned char in place image multiply by constant and scale by max bit width value.

Parameters:

- aConstants* fixed size array of constant values, one per channel.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.8.2.14 NppStatus nppiMulCScale_8u_C3R (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * aConstants[3], Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Three 8-bit unsigned char channel image multiply by constant and scale by max bit width value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.15 NppStatus nppiMulCScale_8u_C4IR (const Npp8u aConstants[4], Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 8-bit unsigned char channel in place image multiply by constant and scale by max bit width value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.16 NppStatus nppiMulCScale_8u_C4R (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * aConstants[4], Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Four 8-bit unsigned char channel image multiply by constant and scale by max bit width value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9 SubC

Subtracts a constant value from each pixel of an image.

Functions

- `NppStatus nppiSubC_8u_C1RSfs (const Npp8u *pSrc1, int nSrc1Step, const Npp8u nConstant, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`
One 8-bit unsigned char channel image subtract constant, scale, then clamp to saturated value.
- `NppStatus nppiSubC_8u_C1IRSfs (const Npp8u nConstant, Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)`
One 8-bit unsigned char channel in place image subtract constant, scale, then clamp to saturated value.
- `NppStatus nppiSubC_8u_C3RSfs (const Npp8u *pSrc1, int nSrc1Step, const Npp8u aConstants[3], Npp8u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`
Three 8-bit unsigned char channel image subtract constant, scale, then clamp to saturated value.
- `NppStatus nppiSubC_8u_C3IRSfs (const Npp8u aConstants[3], Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)`
Three 8-bit unsigned char channel 8-bit unsigned char in place image subtract constant, scale, then clamp to saturated value.
- `NppStatus nppiSubC_8u_AC4RSfs (const Npp8u *pSrc1, int nSrc1Step, const Npp8u aConstants[3], Npp8u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`
Four 8-bit unsigned char channel with unmodified alpha image subtract constant, scale, then clamp to saturated value.
- `NppStatus nppiSubC_8u_AC4IRSfs (const Npp8u aConstants[3], Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)`
Four 8-bit unsigned char channel with unmodified alpha in place image subtract constant, scale, then clamp to saturated value.
- `NppStatus nppiSubC_8u_C4RSfs (const Npp8u *pSrc1, int nSrc1Step, const Npp8u aConstants[4], Npp8u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`
Four 8-bit unsigned char channel image subtract constant, scale, then clamp to saturated value.
- `NppStatus nppiSubC_8u_C4IRSfs (const Npp8u aConstants[4], Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)`
Four 8-bit unsigned char channel in place image subtract constant, scale, then clamp to saturated value.
- `NppStatus nppiSubC_16u_C1RSfs (const Npp16u *pSrc1, int nSrc1Step, const Npp16u nConstant, Npp16u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`
One 16-bit unsigned short channel image subtract constant, scale, then clamp to saturated value.
- `NppStatus nppiSubC_16u_C1IRSfs (const Npp16u nConstant, Npp16u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)`
One 16-bit unsigned short channel in place image subtract constant, scale, then clamp to saturated value.
- `NppStatus nppiSubC_16u_C3RSfs (const Npp16u *pSrc1, int nSrc1Step, const Npp16u aConstants[3], Npp16u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`

Three 16-bit unsigned short channel image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_16u_C3IRSfs** (const **Npp16u** aConstants[3], **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit unsigned short channel in place image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_16u_AC4RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** aConstants[3], **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel with unmodified alpha image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_16u_AC4IRSfs** (const **Npp16u** aConstants[3], **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel with unmodified alpha in place image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_16u_C4RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** aConstants[4], **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_16u_C4IRSfs** (const **Npp16u** aConstants[4], **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel in place image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_16s_C1RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** nConstant, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short channel image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_16s_C1IRSfs** (const **Npp16s** nConstant, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short channel in place image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_16s_C3RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** aConstants[3], **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short channel image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_16s_C3IRSfs** (const **Npp16s** aConstants[3], **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short channel in place image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_16s_AC4RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** aConstants[3], **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel with unmodified alpha image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_16s_AC4IRSfs** (const **Npp16s** aConstants[3], **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel with unmodified alpha in place image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_16s_C4RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** aConstants[4], **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_16s_C4IRSfs** (const **Npp16s** aConstants[4], **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel in place image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_16sc_C1RSfs** (const **Npp16sc** *pSrc1, int nSrc1Step, const **Npp16sc** nConstant, **Npp16sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_16sc_C1IRSfs** (const **Npp16sc** nConstant, **Npp16sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_16sc_C3RSfs** (const **Npp16sc** *pSrc1, int nSrc1Step, const **Npp16sc** aConstants[3], **Npp16sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_16sc_C3IRSfs** (const **Npp16sc** aConstants[3], **Npp16sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_16sc_AC4RSfs** (const **Npp16sc** *pSrc1, int nSrc1Step, const **Npp16sc** aConstants[3], **Npp16sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_16sc_AC4IRSfs** (const **Npp16sc** aConstants[3], **Npp16sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha in place image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_32s_C1RSfs** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** nConstant, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed integer channel image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_32s_C1IRSfs** (const **Npp32s** nConstant, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed integer channel in place image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_32s_C3RSfs** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** aConstants[3], **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 32-bit signed integer channel image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_32s_C3IRSfs** (const **Npp32s** aConstants[3], **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 32-bit signed integer channel in place image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_32sc_C1RSFs** (const **Npp32sc** *pSrc1, int nSrc1Step, const **Npp32sc** nConstant, **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel image subtract constant, scale, then clamp to saturated value.
- **NppStatus nppiSubC_32sc_C1IRSFs** (const **Npp32sc** nConstant, **Npp32sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel in place image subtract constant, scale, then clamp to saturated value.
- **NppStatus nppiSubC_32sc_C3RSFs** (const **Npp32sc** *pSrc1, int nSrc1Step, const **Npp32sc** aConstants[3], **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel image subtract constant, scale, then clamp to saturated value.
- **NppStatus nppiSubC_32sc_C3IRSFs** (const **Npp32sc** aConstants[3], **Npp32sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel in place image subtract constant, scale, then clamp to saturated value.
- **NppStatus nppiSubC_32sc_AC4RSFs** (const **Npp32sc** *pSrc1, int nSrc1Step, const **Npp32sc** aConstants[3], **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel with unmodified alpha image subtract constant, scale, then clamp to saturated value.
- **NppStatus nppiSubC_32sc_AC4IRSFs** (const **Npp32sc** aConstants[3], **Npp32sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image subtract constant, scale, then clamp to saturated value.
- **NppStatus nppiSubC_32f_C1R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** nConstant, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 32-bit floating point channel image subtract constant.
- **NppStatus nppiSubC_32f_C1IR** (const **Npp32f** nConstant, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 32-bit floating point channel in place image subtract constant.
- **NppStatus nppiSubC_32f_C3R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** aConstants[3], **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 32-bit floating point channel image subtract constant.
- **NppStatus nppiSubC_32f_C3IR** (const **Npp32f** aConstants[3], **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Three 32-bit floating point channel in place image subtract constant.
- **NppStatus nppiSubC_32f_AC4R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** aConstants[3], **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel with unmodified alpha image subtract constant.
- **NppStatus nppiSubC_32f_AC4IR** (const **Npp32f** aConstants[3], **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel with unmodified alpha in place image subtract constant.

Four 32-bit floating point channel with unmodified alpha in place image subtract constant.

- **NppStatus nppiSubC_32f_C4R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** aConstants[4], **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel image subtract constant.

- **NppStatus nppiSubC_32f_C4IR** (const **Npp32f** aConstants[4], **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel in place image subtract constant.

- **NppStatus nppiSubC_32fc_C1R** (const **Npp32fc** *pSrc1, int nSrc1Step, const **Npp32fc** nConstant, **Npp32fc** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image subtract constant.

- **NppStatus nppiSubC_32fc_C1IR** (const **Npp32fc** nConstant, **Npp32fc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image subtract constant.

- **NppStatus nppiSubC_32fc_C3R** (const **Npp32fc** *pSrc1, int nSrc1Step, const **Npp32fc** aConstants[3], **Npp32fc** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image subtract constant.

- **NppStatus nppiSubC_32fc_C3IR** (const **Npp32fc** aConstants[3], **Npp32fc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Three 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image subtract constant.

- **NppStatus nppiSubC_32fc_AC4R** (const **Npp32fc** *pSrc1, int nSrc1Step, const **Npp32fc** aConstants[3], **Npp32fc** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel with unmodified alpha image subtract constant.

- **NppStatus nppiSubC_32fc_AC4IR** (const **Npp32fc** aConstants[3], **Npp32fc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel with unmodified alpha in place image subtract constant.

- **NppStatus nppiSubC_32fc_C4R** (const **Npp32fc** *pSrc1, int nSrc1Step, const **Npp32fc** aConstants[4], **Npp32fc** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image subtract constant.

- **NppStatus nppiSubC_32fc_C4IR** (const **Npp32fc** aConstants[4], **Npp32fc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image subtract constant.

7.9.1 Detailed Description

Subtracts a constant value from each pixel of an image.

7.9.2 Function Documentation

7.9.2.1 NppStatus nppiSubC_16s_AC4IRSfs (const Npp16s *aConstants*[3], Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short channel with unmodified alpha in place image subtract constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.2 NppStatus nppiSubC_16s_AC4RSfs (const Npp16s * *pSrcI*, int *nSrcIStep*, const Npp16s *aConstants*[3], Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short channel with unmodified alpha image subtract constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.3 NppStatus nppiSubC_16s_C1IRSfs (const Npp16s *nConstant*, Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short channel in place image subtract constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.4 NppStatus nppiSubC_16s_C1RSfs (const Npp16s * *pSrc1*, int *nSrc1Step*, const Npp16s *nConstant*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short channel image subtract constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.5 NppStatus nppiSubC_16s_C3IRSfs (const Npp16s *aConstants*[3], Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short channel in place image subtract constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.6 NppStatus nppiSubC_16s_C3RSfs (const Npp16s * pSrc1, int nSrc1Step, const Npp16s * aConstants[3], Npp16s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit signed short channel image subtract constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.7 NppStatus nppiSubC_16s_C4IRSfs (const Npp16s aConstants[4], Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit signed short channel in place image subtract constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.8 NppStatus nppiSubC_16s_C4RSfs (const Npp16s * pSrc1, int nSrc1Step, const Npp16s * aConstants[4], Npp16s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit signed short channel image subtract constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.9 NppStatus nppiSubC_16sc_AC4IRSfs (const Npp16sc *aConstants*[3], Npp16sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha in place image subtract constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.10 NppStatus nppiSubC_16sc_AC4RSfs (const Npp16sc * *pSrc1*, int *nSrc1Step*, const Npp16sc *aConstants*[3], Npp16sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha image subtract constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.11 NppStatus nppiSubC_16sc_C1IRSfs (const Npp16sc *nConstant*, Npp16sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image subtract constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.12 NppStatus nppiSubC_16sc_C1RSFs (const Npp16sc * *pSrc1*, int *nSrc1Step*, const Npp16sc *nConstant*, Npp16sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image subtract constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.13 NppStatus nppiSubC_16sc_C3IRSfs (const Npp16sc *aConstants[3]*, Npp16sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image subtract constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.14 NppStatus nppiSubC_16sc_C3RSfs (const Npp16sc * pSrc1, int nSrc1Step, const Npp16sc aConstants[3], Npp16sc * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image subtract constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.15 NppStatus nppiSubC_16u_AC4IRSfs (const Npp16u aConstants[3], Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel with unmodified alpha in place image subtract constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.16 NppStatus nppiSubC_16u_AC4RSfs (const Npp16u * pSrc1, int nSrc1Step, const Npp16u * aConstants[3], Npp16u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel with unmodified alpha image subtract constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.17 NppStatus nppiSubC_16u_C1IRSfs (const Npp16u nConstant, Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit unsigned short channel in place image subtract constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.18 NppStatus nppiSubC_16u_C1RSfs (const Npp16u * pSrc1, int nSrc1Step, const Npp16u * nConstant, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit unsigned short channel image subtract constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.19 NppStatus nppiSubC_16u_C3IRSfs (const Npp16u *aConstants*[3], Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit unsigned short channel in place image subtract constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.20 NppStatus nppiSubC_16u_C3RSfs (const Npp16u * *pSrcI*, int *nSrcIStep*, const Npp16u *aConstants*[3], Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit unsigned short channel image subtract constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.

nSrcIStep Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.21 NppStatus nppiSubC_16u_C4IRSfs (const Npp16u *aConstants*[4], Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel in place image subtract constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.22 NppStatus nppiSubC_16u_C4RSfs (const Npp16u * *pSrcI*, int *nSrcIStep*, const Npp16u *aConstants*[4], Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel image subtract constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.23 NppStatus nppiSubC_32f_AC4IR (const Npp32f *aConstants*[3], Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel with unmodified alpha in place image subtract constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.24 NppStatus nppiSubC_32f_AC4R (const Npp32f * *pSrc1*, int *nSrc1Step*, const Npp32f * *aConstants*[3], Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel with unmodified alpha image subtract constant.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- aConstants* fixed size array of constant values, one per channel.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.25 NppStatus nppiSubC_32f_C1IR (const Npp32f *nConstant*, Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point channel in place image subtract constant.

Parameters:

- nConstant* Constant.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.26 NppStatus nppiSubC_32f_C1R (const Npp32f * *pSrc1*, int *nSrc1Step*, const Npp32f * *nConstant*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point channel image subtract constant.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- nConstant* Constant.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.27 NppStatus nppiSubC_32f_C3IR (const Npp32f *aConstants*[3], Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 32-bit floating point channel in place image subtract constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.28 NppStatus nppiSubC_32f_C3R (const Npp32f * *pSrcI*, int *nSrcIStep*, const Npp32f *aConstants*[3], Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 32-bit floating point channel image subtract constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.29 NppStatus nppiSubC_32f_C4IR (const Npp32f *aConstants*[4], Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel in place image subtract constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.30 NppStatus nppiSubC_32f_C4R (const Npp32f * pSrc1, int nSrc1Step, const Npp32f * aConstants[4], Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

Four 32-bit floating point channel image subtract constant.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- aConstants* fixed size array of constant values, one per channel.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.31 NppStatus nppiSubC_32fc_AC4IR (const Npp32fc * aConstants[3], Npp32fc * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel with unmodified alpha in place image subtract constant.

Parameters:

- aConstants* fixed size array of constant values, one per channel.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.32 NppStatus nppiSubC_32fc_AC4R (const Npp32fc * pSrc1, int nSrc1Step, const Npp32fc * aConstants[3], Npp32fc * pDst, int nDstStep, NppiSize oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel with unmodified alpha image subtract constant.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- aConstants* fixed size array of constant values, one per channel.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.33 NppStatus nppiSubC_32fc_C1IR (const Npp32fc *nConstant*, Npp32fc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image subtract constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.34 NppStatus nppiSubC_32fc_C1R (const Npp32fc * *pSrc1*, int *nSrc1Step*, const Npp32fc *nConstant*, Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image subtract constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.35 NppStatus nppiSubC_32fc_C3IR (const Npp32fc *aConstants*[3], Npp32fc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image subtract constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.36 NppStatus nppiSubC_32fc_C3R (const Npp32fc * pSrc1, int nSrc1Step, const Npp32fc * aConstants[3], Npp32fc * pDst, int nDstStep, NppiSize oSizeROI)

Three 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image subtract constant.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- aConstants* fixed size array of constant values, one per channel.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.37 NppStatus nppiSubC_32fc_C4IR (const Npp32fc aConstants[4], Npp32fc * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image subtract constant.

Parameters:

- aConstants* fixed size array of constant values, one per channel.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.38 NppStatus nppiSubC_32fc_C4R (const Npp32fc * pSrc1, int nSrc1Step, const Npp32fc * aConstants[4], Npp32fc * pDst, int nDstStep, NppiSize oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image subtract constant.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- aConstants* fixed size array of constant values, one per channel.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.39 NppStatus nppiSubC_32s_C1IRSfs (const Npp32s *nConstant*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer channel in place image subtract constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.40 NppStatus nppiSubC_32s_C1RSfs (const Npp32s * *pSrcI*, int *nSrcIStep*, const Npp32s *nConstant*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer channel image subtract constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.

nSrcIStep Source-Image Line Step.

nConstant Constant.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.41 NppStatus nppiSubC_32s_C3IRSfs (const Npp32s *aConstants*[3], Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed integer channel in place image subtract constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.42 NppStatus nppiSubC_32s_C3RSfs (const Npp32s * pSrcI, int nSrcIStep, const Npp32s * aConstants[3], Npp32s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 32-bit signed integer channel image subtract constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.43 NppStatus nppiSubC_32sc_AC4IRSfs (const Npp32sc * aConstants[3], Npp32sc * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image subtract constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.44 NppStatus nppiSubC_32sc_AC4RSfs (const Npp32sc * pSrc1, int nSrc1Step, const Npp32sc aConstants[3], Npp32sc * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel with unmodified alpha image subtract constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.45 NppStatus nppiSubC_32sc_C1IRSfs (const Npp32sc nConstant, Npp32sc * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel in place image subtract constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.46 NppStatus nppiSubC_32sc_C1RSfs (const Npp32sc * pSrc1, int nSrc1Step, const Npp32sc nConstant, Npp32sc * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel image subtract constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.

nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.47 NppStatus nppiSubC_32sc_C3IRSfs (const Npp32sc *aConstants*[3], Npp32sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel in place image subtract constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.48 NppStatus nppiSubC_32sc_C3RSfs (const Npp32sc * *pSrcI*, int *nSrcIStep*, const Npp32sc *aConstants*[3], Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel image subtract constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.49 NppStatus nppiSubC_8u_AC4IRSfs (const Npp8u *aConstants*[3], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 8-bit unsigned char channel with unmodified alpha in place image subtract constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.50 NppStatus nppiSubC_8u_AC4RSfs (const Npp8u * *pSrcI*, const Npp8u *aConstants*[3], Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 8-bit unsigned char channel with unmodified alpha image subtract constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.51 NppStatus nppiSubC_8u_C1IRSfs (const Npp8u *nConstant*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 8-bit unsigned char channel in place image subtract constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.52 NppStatus nppiSubC_8u_C1RSfs (const Npp8u * pSrc1, int nSrc1Step, const Npp8u nConstant, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel image subtract constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.53 NppStatus nppiSubC_8u_C3IRSfs (const Npp8u aConstants[3], Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel 8-bit unsigned char in place image subtract constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.54 NppStatus nppiSubC_8u_C3RSfs (const Npp8u * pSrc1, int nSrc1Step, const Npp8u aConstants[3], Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel image subtract constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.55 NppStatus nppiSubC_8u_C4IRSfs (const Npp8u *aConstants*[4], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 8-bit unsigned char channel in place image subtract constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.56 NppStatus nppiSubC_8u_C4RSfs (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u *aConstants*[4], Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 8-bit unsigned char channel image subtract constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.10 DivC

Divides each pixel of an image by a constant value.

Functions

- `NppStatus nppiDivC_8u_C1RSfs (const Npp8u *pSrc1, int nSrc1Step, const Npp8u nConstant, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`
One 8-bit unsigned char channel image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_8u_C1IRSfs (const Npp8u nConstant, Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)`
One 8-bit unsigned char channel in place image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_8u_C3RSfs (const Npp8u *pSrc1, int nSrc1Step, const Npp8u aConstants[3], Npp8u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`
Three 8-bit unsigned char channel image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_8u_C3IRSfs (const Npp8u aConstants[3], Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)`
Three 8-bit unsigned char channel 8-bit unsigned char in place image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_8u_AC4RSfs (const Npp8u *pSrc1, int nSrc1Step, const Npp8u aConstants[3], Npp8u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`
Four 8-bit unsigned char channel with unmodified alpha image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_8u_AC4IRSfs (const Npp8u aConstants[3], Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)`
Four 8-bit unsigned char channel with unmodified alpha in place image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_8u_C4RSfs (const Npp8u *pSrc1, int nSrc1Step, const Npp8u aConstants[4], Npp8u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`
Four 8-bit unsigned char channel image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_8u_C4IRSfs (const Npp8u aConstants[4], Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)`
Four 8-bit unsigned char channel in place image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_16u_C1RSfs (const Npp16u *pSrc1, int nSrc1Step, const Npp16u nConstant, Npp16u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`
One 16-bit unsigned short channel image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_16u_C1IRSfs (const Npp16u nConstant, Npp16u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)`
One 16-bit unsigned short channel in place image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_16u_C3RSfs (const Npp16u *pSrc1, int nSrc1Step, const Npp16u aConstants[3], Npp16u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`

Three 16-bit unsigned short channel image divided by constant, scale, then clamp to saturated value.

- **NppStatus nppiDivC_16u_C3IRSfs** (const **Npp16u** aConstants[3], **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit unsigned short channel in place image divided by constant, scale, then clamp to saturated value.

- **NppStatus nppiDivC_16u_AC4RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** aConstants[3], **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel with unmodified alpha image divided by constant, scale, then clamp to saturated value.

- **NppStatus nppiDivC_16u_AC4IRSfs** (const **Npp16u** aConstants[3], **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel with unmodified alpha in place image divided by constant, scale, then clamp to saturated value.

- **NppStatus nppiDivC_16u_C4RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** aConstants[4], **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel image divided by constant, scale, then clamp to saturated value.

- **NppStatus nppiDivC_16u_C4IRSfs** (const **Npp16u** aConstants[4], **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel in place image divided by constant, scale, then clamp to saturated value.

- **NppStatus nppiDivC_16s_C1RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** nConstant, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short channel image divided by constant, scale, then clamp to saturated value.

- **NppStatus nppiDivC_16s_C1IRSfs** (const **Npp16s** nConstant, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short channel in place image divided by constant, scale, then clamp to saturated value.

- **NppStatus nppiDivC_16s_C3RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** aConstants[3], **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short channel image divided by constant, scale, then clamp to saturated value.

- **NppStatus nppiDivC_16s_C3IRSfs** (const **Npp16s** aConstants[3], **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short channel in place image divided by constant, scale, then clamp to saturated value.

- **NppStatus nppiDivC_16s_AC4RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** aConstants[3], **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel with unmodified alpha image divided by constant, scale, then clamp to saturated value.

- **NppStatus nppiDivC_16s_AC4IRSfs** (const **Npp16s** aConstants[3], **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel with unmodified alpha in place image divided by constant, scale, then clamp to saturated value.

- `NppStatus nppiDivC_16s_C4RSfs` (const `Npp16s *pSrc1`, int `nSrc1Step`, const `Npp16s aConstants[4]`, `Npp16s *pDst`, int `nDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
Four 16-bit signed short channel image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_16s_C4IRSfs` (const `Npp16s aConstants[4]`, `Npp16s *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
Four 16-bit signed short channel in place image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_16sc_C1RSfs` (const `Npp16sc *pSrc1`, int `nSrc1Step`, const `Npp16sc nConstant`, `Npp16sc *pDst`, int `nDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_16sc_C1IRSfs` (const `Npp16sc nConstant`, `Npp16sc *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_16sc_C3RSfs` (const `Npp16sc *pSrc1`, int `nSrc1Step`, const `Npp16sc aConstants[3]`, `Npp16sc *pDst`, int `nDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_16sc_C3IRSfs` (const `Npp16sc aConstants[3]`, `Npp16sc *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_16sc_AC4RSfs` (const `Npp16sc *pSrc1`, int `nSrc1Step`, const `Npp16sc aConstants[3]`, `Npp16sc *pDst`, int `nDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_16sc_AC4IRSfs` (const `Npp16sc aConstants[3]`, `Npp16sc *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha in place image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_32s_C1RSfs` (const `Npp32s *pSrc1`, int `nSrc1Step`, const `Npp32s nConstant`, `Npp32s *pDst`, int `nDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
One 32-bit signed integer channel image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_32s_C1IRSfs` (const `Npp32s nConstant`, `Npp32s *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
One 32-bit signed integer channel in place image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_32s_C3RSfs` (const `Npp32s *pSrc1`, int `nSrc1Step`, const `Npp32s aConstants[3]`, `Npp32s *pDst`, int `nDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
Three 32-bit signed integer channel image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_32s_C3IRSfs` (const `Npp32s aConstants[3]`, `Npp32s *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)

Three 32-bit signed integer channel in place image divided by constant, scale, then clamp to saturated value.

- **NppStatus nppiDivC_32sc_C1RSfs** (const **Npp32sc** *pSrc1, int nSrc1Step, const **Npp32sc** nConstant, **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel image divided by constant, scale, then clamp to saturated value.

- **NppStatus nppiDivC_32sc_C1IRSfs** (const **Npp32sc** nConstant, **Npp32sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel in place image divided by constant, scale, then clamp to saturated value.

- **NppStatus nppiDivC_32sc_C3RSfs** (const **Npp32sc** *pSrc1, int nSrc1Step, const **Npp32sc** aConstants[3], **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel image divided by constant, scale, then clamp to saturated value.

- **NppStatus nppiDivC_32sc_C3IRSfs** (const **Npp32sc** aConstants[3], **Npp32sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel in place image divided by constant, scale, then clamp to saturated value.

- **NppStatus nppiDivC_32sc_AC4RSfs** (const **Npp32sc** *pSrc1, int nSrc1Step, const **Npp32sc** aConstants[3], **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel with unmodified alpha image divided by constant, scale, then clamp to saturated value.

- **NppStatus nppiDivC_32sc_AC4IRSfs** (const **Npp32sc** aConstants[3], **Npp32sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image divided by constant, scale, then clamp to saturated value.

- **NppStatus nppiDivC_32f_C1R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** nConstant, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 32-bit floating point channel image divided by constant.

- **NppStatus nppiDivC_32f_C1IR** (const **Npp32f** nConstant, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 32-bit floating point channel in place image divided by constant.

- **NppStatus nppiDivC_32f_C3R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** aConstants[3], **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 32-bit floating point channel image divided by constant.

- **NppStatus nppiDivC_32f_C3IR** (const **Npp32f** aConstants[3], **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Three 32-bit floating point channel in place image divided by constant.

- **NppStatus nppiDivC_32f_AC4R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** aConstants[3], **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel with unmodified alpha image divided by constant.

- `NppStatus nppiDivC_32f_AC4IR (const Npp32f aConstants[3], Npp32f *pSrcDst, int nSrcDstStep, NppiSize oSizeROI)`
Four 32-bit floating point channel with unmodified alpha in place image divided by constant.
- `NppStatus nppiDivC_32f_C4R (const Npp32f *pSrc1, int nSrc1Step, const Npp32f aConstants[4], Npp32f *pDst, int nDstStep, NppiSize oSizeROI)`
Four 32-bit floating point channel image divided by constant.
- `NppStatus nppiDivC_32f_C4IR (const Npp32f aConstants[4], Npp32f *pSrcDst, int nSrcDstStep, NppiSize oSizeROI)`
Four 32-bit floating point channel in place image divided by constant.
- `NppStatus nppiDivC_32fc_C1R (const Npp32fc *pSrc1, int nSrc1Step, const Npp32fc nConstant, Npp32fc *pDst, int nDstStep, NppiSize oSizeROI)`
One 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image divided by constant.
- `NppStatus nppiDivC_32fc_C1IR (const Npp32fc nConstant, Npp32fc *pSrcDst, int nSrcDstStep, NppiSize oSizeROI)`
One 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image divided by constant.
- `NppStatus nppiDivC_32fc_C3R (const Npp32fc *pSrc1, int nSrc1Step, const Npp32fc aConstants[3], Npp32fc *pDst, int nDstStep, NppiSize oSizeROI)`
Three 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image divided by constant.
- `NppStatus nppiDivC_32fc_C3IR (const Npp32fc aConstants[3], Npp32fc *pSrcDst, int nSrcDstStep, NppiSize oSizeROI)`
Three 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image divided by constant.
- `NppStatus nppiDivC_32fc_AC4R (const Npp32fc *pSrc1, int nSrc1Step, const Npp32fc aConstants[3], Npp32fc *pDst, int nDstStep, NppiSize oSizeROI)`
Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel with unmodified alpha image divided by constant.
- `NppStatus nppiDivC_32fc_AC4IR (const Npp32fc aConstants[3], Npp32fc *pSrcDst, int nSrcDstStep, NppiSize oSizeROI)`
Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel with unmodified alpha in place image divided by constant.
- `NppStatus nppiDivC_32fc_C4R (const Npp32fc *pSrc1, int nSrc1Step, const Npp32fc aConstants[4], Npp32fc *pDst, int nDstStep, NppiSize oSizeROI)`
Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image divided by constant.
- `NppStatus nppiDivC_32fc_C4IR (const Npp32fc aConstants[4], Npp32fc *pSrcDst, int nSrcDstStep, NppiSize oSizeROI)`
Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image divided by constant.

7.10.1 Detailed Description

Divides each pixel of an image by a constant value.

7.10.2 Function Documentation

7.10.2.1 NppStatus nppiDivC_16s_AC4IRSfs (const Npp16s *aConstants*[3], Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short channel with unmodified alpha in place image divided by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.2 NppStatus nppiDivC_16s_AC4RSfs (const Npp16s * *pSrcI*, int *nSrcIStep*, const Npp16s *aConstants*[3], Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short channel with unmodified alpha image divided by constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.

nSrcIStep Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.3 NppStatus nppiDivC_16s_C1IRSfs (const Npp16s *nConstant*, Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short channel in place image divided by constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.4 NppStatus nppiDivC_16s_C1RSfs (const Npp16s * *pSrcI*, int *nSrcIStep*, const Npp16s *nConstant*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short channel image divided by constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.5 NppStatus nppiDivC_16s_C3IRSfs (const Npp16s *aConstants*[3], Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short channel in place image divided by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.6 NppStatus nppiDivC_16s_C3RSfs (const Npp16s * pSrc1, int nSrc1Step, const Npp16s * aConstants[3], Npp16s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit signed short channel image divided by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.7 NppStatus nppiDivC_16s_C4IRSfs (const Npp16s aConstants[4], Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit signed short channel in place image divided by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.8 NppStatus nppiDivC_16s_C4RSfs (const Npp16s * pSrc1, int nSrc1Step, const Npp16s * aConstants[4], Npp16s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit signed short channel image divided by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.9 NppStatus nppiDivC_16sc_AC4IRSfs (const Npp16sc *aConstants*[3], Npp16sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha in place image divided by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.10 NppStatus nppiDivC_16sc_AC4RSfs (const Npp16sc * *pSrcI*, int *nSrcIStep*, const Npp16sc *aConstants*[3], Npp16sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha image divided by constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.

nSrcIStep Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.11 NppStatus nppiDivC_16sc_C1IRSfs (const Npp16sc *nConstant*, Npp16sc **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image divided by constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.12 NppStatus nppiDivC_16sc_C1RSfs (const Npp16sc **pSrc1*, int *nSrc1Step*, const Npp16sc *nConstant*, Npp16sc **pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image divided by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.13 NppStatus nppiDivC_16sc_C3IRSfs (const Npp16sc *aConstants*[3], Npp16sc **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image divided by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.10.2.14 NppStatus nppiDivC_16sc_C3RSfs (const Npp16sc * pSrcI, int nSrcIStep, const Npp16sc aConstants[3], Npp16sc * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image divided by constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.

nSrcIStep Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.10.2.15 NppStatus nppiDivC_16u_AC4IRSfs (const Npp16u aConstants[3], Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel with unmodified alpha in place image divided by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.10.2.16 NppStatus nppiDivC_16u_AC4RSfs (const Npp16u * pSrc1, int nSrc1Step, const Npp16u aConstants[3], Npp16u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel with unmodified alpha image divided by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.17 NppStatus nppiDivC_16u_C1IRSfs (const Npp16u nConstant, Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit unsigned short channel in place image divided by constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.18 NppStatus nppiDivC_16u_C1RSfs (const Npp16u * pSrc1, int nSrc1Step, const Npp16u nConstant, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit unsigned short channel image divided by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.19 NppStatus nppiDivC_16u_C3IRSfs (const Npp16u *aConstants*[3], Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit unsigned short channel in place image divided by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.20 NppStatus nppiDivC_16u_C3RSfs (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u *aConstants*[3], Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit unsigned short channel image divided by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.21 NppStatus nppiDivC_16u_C4IRSfs (const Npp16u *aConstants*[4], Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel in place image divided by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.22 NppStatus nppiDivC_16u_C4RSfs (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u *aConstants*[4], Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel image divided by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.23 NppStatus nppiDivC_32f_AC4IR (const Npp32f *aConstants*[3], Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel with unmodified alpha in place image divided by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.24 NppStatus nppiDivC_32f_AC4R (const Npp32f * pSrc1, int nSrc1Step, const Npp32f * aConstants[3], Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

Four 32-bit floating point channel with unmodified alpha image divided by constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.25 NppStatus nppiDivC_32f_C1IR (const Npp32f nConstant, Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

One 32-bit floating point channel in place image divided by constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.26 NppStatus nppiDivC_32f_C1R (const Npp32f * pSrc1, int nSrc1Step, const Npp32f * nConstant, Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

One 32-bit floating point channel image divided by constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.27 NppStatus nppiDivC_32f_C3IR (const Npp32f *aConstants*[3], Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 32-bit floating point channel in place image divided by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.28 NppStatus nppiDivC_32f_C3R (const Npp32f * *pSrcI*, int *nSrcIStep*, const Npp32f *aConstants*[3], Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 32-bit floating point channel image divided by constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.29 NppStatus nppiDivC_32f_C4IR (const Npp32f *aConstants*[4], Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel in place image divided by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.30 NppStatus nppiDivC_32f_C4R (const Npp32f * pSrc1, int nSrc1Step, const Npp32f * aConstants[4], Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

Four 32-bit floating point channel image divided by constant.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- aConstants* fixed size array of constant values, one per channel.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.31 NppStatus nppiDivC_32fc_AC4IR (const Npp32fc * aConstants[3], Npp32fc * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel with unmodified alpha in place image divided by constant.

Parameters:

- aConstants* fixed size array of constant values, one per channel.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.32 NppStatus nppiDivC_32fc_AC4R (const Npp32fc * pSrc1, int nSrc1Step, const Npp32fc * aConstants[3], Npp32fc * pDst, int nDstStep, NppiSize oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel with unmodified alpha image divided by constant.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- aConstants* fixed size array of constant values, one per channel.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.33 NppStatus nppiDivC_32fc_C1IR (const Npp32fc *nConstant*, Npp32fc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image divided by constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.34 NppStatus nppiDivC_32fc_C1R (const Npp32fc * *pSrcI*, int *nSrcIStep*, const Npp32fc *nConstant*, Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image divided by constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.35 NppStatus nppiDivC_32fc_C3IR (const Npp32fc *aConstants[3]*, Npp32fc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image divided by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.36 NppStatus nppiDivC_32fc_C3R (const Npp32fc * *pSrcI*, int *nSrcIStep*, const Npp32fc * *aConstants*[3], Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image divided by constant.

Parameters:

- pSrcI* Source-Image Pointer.
- nSrcIStep* Source-Image Line Step.
- aConstants* fixed size array of constant values, one per channel.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.37 NppStatus nppiDivC_32fc_C4IR (const Npp32fc *aConstants*[4], Npp32fc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image divided by constant.

Parameters:

- aConstants* fixed size array of constant values, one per channel.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.38 NppStatus nppiDivC_32fc_C4R (const Npp32fc * *pSrcI*, int *nSrcIStep*, const Npp32fc * *aConstants*[4], Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image divided by constant.

Parameters:

- pSrcI* Source-Image Pointer.
- nSrcIStep* Source-Image Line Step.
- aConstants* fixed size array of constant values, one per channel.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.10.2.39 NppStatus nppiDivC_32s_C1IRSfs (const Npp32s *nConstant*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer channel in place image divided by constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.10.2.40 NppStatus nppiDivC_32s_C1RSfs (const Npp32s * *pSrcI*, int *nSrcIStep*, const Npp32s *nConstant*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer channel image divided by constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.

nSrcIStep Source-Image Line Step.

nConstant Constant.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.10.2.41 NppStatus nppiDivC_32s_C3IRSfs (const Npp32s *aConstants[3]*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed integer channel in place image divided by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.42 NppStatus nppiDivC_32s_C3RSfs (const Npp32s * *pSrcI*, int *nSrcIStep*, const Npp32s *aConstants*[3], Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed integer channel image divided by constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.43 NppStatus nppiDivC_32sc_AC4IRSfs (const Npp32sc *aConstants*[3], Npp32sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image divided by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.44 NppStatus nppiDivC_32sc_AC4RSfs (const Npp32sc * *pSrc1*, int *nSrc1Step*, const Npp32sc *aConstants*[3], Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel with unmodified alpha image divided by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.45 NppStatus nppiDivC_32sc_C1IRSfs (const Npp32sc *nConstant*, Npp32sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel in place image divided by constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.46 NppStatus nppiDivC_32sc_C1RSfs (const Npp32sc * *pSrc1*, int *nSrc1Step*, const Npp32sc *nConstant*, Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel image divided by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.10.2.47 NppStatus nppiDivC_32sc_C3IRSfs (const Npp32sc *aConstants*[3], Npp32sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel in place image divided by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.10.2.48 NppStatus nppiDivC_32sc_C3RSfs (const Npp32sc * *pSrc1*, int *nSrc1Step*, const Npp32sc *aConstants*[3], Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel image divided by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.10.2.49 NppStatus nppiDivC_8u_AC4IRSfs (const Npp8u *aConstants*[3], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 8-bit unsigned char channel with unmodified alpha in place image divided by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.50 NppStatus nppiDivC_8u_AC4RSfs (const Npp8u * *pSrcI*, const Npp8u *aConstants*[3], Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 8-bit unsigned char channel with unmodified alpha image divided by constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.51 NppStatus nppiDivC_8u_C1IRSfs (const Npp8u *nConstant*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 8-bit unsigned char channel in place image divided by constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.10.2.52 NppStatus nppiDivC_8u_C1RSfs (const Npp8u * *pSrcI*, int *nSrcIStep*, const Npp8u *nConstant*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 8-bit unsigned char channel image divided by constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.10.2.53 NppStatus nppiDivC_8u_C3IRSfs (const Npp8u *aConstants*[3], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 8-bit unsigned char channel 8-bit unsigned char in place image divided by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.10.2.54 NppStatus nppiDivC_8u_C3RSfs (const Npp8u * *pSrcI*, int *nSrcIStep*, const Npp8u *aConstants*[3], Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 8-bit unsigned char channel image divided by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.10.2.55 NppStatus nppiDivC_8u_C4IRSfs (const Npp8u *aConstants*[4], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 8-bit unsigned char channel in place image divided by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.10.2.56 NppStatus nppiDivC_8u_C4RSfs (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u *aConstants*[4], Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 8-bit unsigned char channel image divided by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.11 AbsDiffC

Determines absolute difference between each pixel of an image and a constant value.

Functions

- `NppStatus nppiAbsDiffC_8u_C1R (const Npp8u *pSrc1, int nSrc1Step, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, Npp8u nConstant)`

One 8-bit unsigned char channel image absolute difference with constant.

- `NppStatus nppiAbsDiffC_16u_C1R (const Npp16u *pSrc1, int nSrc1Step, Npp16u *pDst, int nDstStep, NppiSize oSizeROI, Npp16u nConstant)`

One 16-bit unsigned short channel image absolute difference with constant.

- `NppStatus nppiAbsDiffC_32f_C1R (const Npp32f *pSrc1, int nSrc1Step, Npp32f *pDst, int nDstStep, NppiSize oSizeROI, Npp32f nConstant)`

One 32-bit floating point channel image absolute difference with constant.

7.11.1 Detailed Description

Determines absolute difference between each pixel of an image and a constant value.

7.11.2 Function Documentation

7.11.2.1 `NppStatus nppiAbsDiffC_16u_C1R (const Npp16u * pSrc1, int nSrc1Step, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, Npp16u nConstant)`

One 16-bit unsigned short channel image absolute difference with constant.

Parameters:

`pSrc1` Source-Image Pointer.

`nSrc1Step` Source-Image Line Step.

`nConstant` Constant.

`pDst` Destination-Image Pointer.

`nDstStep` Destination-Image Line Step.

`oSizeROI` Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.2 `NppStatus nppiAbsDiffC_32f_C1R (const Npp32f * pSrc1, int nSrc1Step, Npp32f * pDst, int nDstStep, NppiSize oSizeROI, Npp32f nConstant)`

One 32-bit floating point channel image absolute difference with constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.11.2.3 NppStatus nppiAbsDiffC_8u_C1R (const Npp8u **pSrc1*, int *nSrc1Step*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, Npp8u *nConstant*)

One 8-bit unsigned char channel image absolute difference with constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.12 Add

Pixel by pixel addition of two images.

Functions

- **NppStatus nppiAdd_8u_C1RSfs** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_8u_C1IRSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_8u_C3RSfs** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_8u_C3IRSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_8u_AC4RSfs** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel with unmodified alpha image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_8u_AC4IRSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel with unmodified alpha in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_8u_C4RSfs** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_8u_C4IRSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_16u_C1RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit unsigned short channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiAdd_16u_C1RSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit unsigned short channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_16u_C3RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit unsigned short channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_16u_C3IRSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit unsigned short channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_16u_AC4RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel with unmodified alpha image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_16u_AC4IRSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel with unmodified alpha in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_16u_C4RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_16u_C4IRSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_16s_C1RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** *pSrc2, int nSrc2Step, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_16s_C1IRSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_16s_C3RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** *pSrc2, int nSrc2Step, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_16s_C3IRSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Three 16-bit signed short channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiAdd_16s_AC4RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** *pSrc2, int nSrc2Step, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel with unmodified alpha image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiAdd_16s_AC4IRSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel with unmodified alpha in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiAdd_16s_C4RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** *pSrc2, int nSrc2Step, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiAdd_16s_C4IRSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiAdd_16sc_C1RSfs** (const **Npp16sc** *pSrc1, int nSrc1Step, const **Npp16sc** *pSrc2, int nSrc2Step, **Npp16sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiAdd_16sc_C1IRSfs** (const **Npp16sc** *pSrc, int nSrcStep, **Npp16sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiAdd_16sc_C3RSfs** (const **Npp16sc** *pSrc1, int nSrc1Step, const **Npp16sc** *pSrc2, int nSrc2Step, **Npp16sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiAdd_16sc_C3IRSfs** (const **Npp16sc** *pSrc, int nSrcStep, **Npp16sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiAdd_16sc_AC4RSfs** (const **Npp16sc** *pSrc1, int nSrc1Step, const **Npp16sc** *pSrc2, int nSrc2Step, **Npp16sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiAdd_16sc_AC4IRSfs** (const **Npp16sc** *pSrc, int nSrcStep, **Npp16sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiAdd_32s_C1RSfs** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed integer channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_32s_C1R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)

Note: This function is to be deprecated in future NPP releases, use the function above with a scale factor of 0 instead.
- **NppStatus nppiAdd_32s_C1IRSfs** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed integer channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_32s_C3RSfs** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 32-bit signed integer channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_32s_C3IRSfs** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 32-bit signed integer channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_32sc_C1RSfs** (const **Npp32sc** *pSrc1, int nSrc1Step, const **Npp32sc** *pSrc2, int nSrc2Step, **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_32sc_C1IRSfs** (const **Npp32sc** *pSrc, int nSrcStep, **Npp32sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_32sc_C3RSfs** (const **Npp32sc** *pSrc1, int nSrc1Step, const **Npp32sc** *pSrc2, int nSrc2Step, **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_32sc_C3IRSfs** (const **Npp32sc** *pSrc, int nSrcStep, **Npp32sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_32sc_AC4RSfs** (const **Npp32sc** *pSrc1, int nSrc1Step, const **Npp32sc** *pSrc2, int nSrc2Step, **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_32sc_AC4IRSfs** (const **Npp32sc** *pSrc, int nSrcStep, **Npp32sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiAdd_32f_C1R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** *pSrc2, int nSrc2Step, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 32-bit floating point channel image addition.

- **NppStatus nppiAdd_32f_C1IR** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 32-bit floating point channel in place image addition.

- **NppStatus nppiAdd_32f_C3R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** *pSrc2, int nSrc2Step, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 32-bit floating point channel image addition.

- **NppStatus nppiAdd_32f_C3IR** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Three 32-bit floating point channel in place image addition.

- **NppStatus nppiAdd_32f_AC4R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** *pSrc2, int nSrc2Step, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel with unmodified alpha image addition.

- **NppStatus nppiAdd_32f_AC4IR** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel with unmodified alpha in place image addition.

- **NppStatus nppiAdd_32f_C4R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** *pSrc2, int nSrc2Step, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel image addition.

- **NppStatus nppiAdd_32f_C4IR** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel in place image addition.

- **NppStatus nppiAdd_32fc_C1R** (const **Npp32fc** *pSrc1, int nSrc1Step, const **Npp32fc** *pSrc2, int nSrc2Step, **Npp32fc** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image addition.

- **NppStatus nppiAdd_32fc_C1IR** (const **Npp32fc** *pSrc, int nSrcStep, **Npp32fc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image addition.

- **NppStatus nppiAdd_32fc_C3R** (const **Npp32fc** *pSrc1, int nSrc1Step, const **Npp32fc** *pSrc2, int nSrc2Step, **Npp32fc** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image addition.

- **NppStatus nppiAdd_32fc_C3IR** (const **Npp32fc** *pSrc, int nSrcStep, **Npp32fc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Three 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image addition.

- **NppStatus nppiAdd_32fc_AC4R** (const [Npp32fc](#) *[pSrc1](#), int [nSrc1Step](#), const [Npp32fc](#) *[pSrc2](#), int [nSrc2Step](#), [Npp32fc](#) *[pDst](#), int [nDstStep](#), [NppiSize](#) [oSizeROI](#))
Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha image addition.
- **NppStatus nppiAdd_32fc_AC4IR** (const [Npp32fc](#) *[pSrc](#), int [nSrcStep](#), [Npp32fc](#) *[pSrcDst](#), int [nSrcDstStep](#), [NppiSize](#) [oSizeROI](#))
Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image addition.
- **NppStatus nppiAdd_32fc_C4R** (const [Npp32fc](#) *[pSrc1](#), int [nSrc1Step](#), const [Npp32fc](#) *[pSrc2](#), int [nSrc2Step](#), [Npp32fc](#) *[pDst](#), int [nDstStep](#), [NppiSize](#) [oSizeROI](#))
Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image addition.
- **NppStatus nppiAdd_32fc_C4IR** (const [Npp32fc](#) *[pSrc](#), int [nSrcStep](#), [Npp32fc](#) *[pSrcDst](#), int [nSrcDstStep](#), [NppiSize](#) [oSizeROI](#))
Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image addition.

7.12.1 Detailed Description

Pixel by pixel addition of two images.

7.12.2 Function Documentation

7.12.2.1 NppStatus nppiAdd_16s_AC4IRSfs (const [Npp16s](#) *[pSrc](#), int [nSrcStep](#), [Npp16s](#) *[pSrcDst](#), int [nSrcDstStep](#), [NppiSize](#) [oSizeROI](#), int [nScaleFactor](#))

Four 16-bit signed short channel with unmodified alpha in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- [pSrc](#) Source-Image Pointer.
- [nSrcStep](#) Source-Image Line Step.
- [pSrcDst](#) In-Place Image Pointer.
- [nSrcDstStep](#) In-Place-Image Line Step.
- [oSizeROI](#) Region-of-Interest (ROI).
- [nScaleFactor](#) Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.12.2.2 NppStatus nppiAdd_16s_AC4RSfs (const [Npp16s](#) *[pSrc1](#), int [nSrc1Step](#), const [Npp16s](#) *[pSrc2](#), int [nSrc2Step](#), [Npp16s](#) *[pDst](#), int [nDstStep](#), [NppiSize](#) [oSizeROI](#), int [nScaleFactor](#))

Four 16-bit signed short channel with unmodified alpha image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.12.2.3 NppStatus nppiAdd_16s_C1IRSfs (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short channel in place image addition, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.12.2.4 NppStatus nppiAdd_16s_C1RSFs (const Npp16s * *pSrc1*, int *nSrc1Step*, const Npp16s * *pSrc2*, int *nSrc2Step*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short channel image addition, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.12.2.5 NppStatus nppiAdd_16s_C3IRSfs (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.12.2.6 NppStatus nppiAdd_16s_C3RSFs (const Npp16s * *pSrc1*, int *nSrc1Step*, const Npp16s * *pSrc2*, int *nSrc2Step*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.12.2.7 NppStatus nppiAdd_16s_C4IRSfs (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.12.2.8 NppStatus nppiAdd_16s_C4RSfs (const Npp16s * *pSrc1*, int *nSrc1Step*, const Npp16s * *pSrc2*, int *nSrc2Step*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.
- nSrc2Step* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.12.2.9 NppStatus nppiAdd_16sc_AC4IRSfs (const Npp16sc * *pSrc*, int *nSrcStep*, Npp16sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.12.2.10 NppStatus nppiAdd_16sc_AC4RSfs (const Npp16sc * pSrc1, int nSrc1Step, const Npp16sc * pSrc2, int nSrc2Step, Npp16sc * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha image addition, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.12.2.11 NppStatus nppiAdd_16sc_C1IRSfs (const Npp16sc * pSrc, int nSrcStep, Npp16sc * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image addition, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.12.2.12 NppStatus nppiAdd_16sc_C1RSfs (const Npp16sc * *pSrc1*, int *nSrc1Step*, const Npp16sc * *pSrc2*, int *nSrc2Step*, Npp16sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image addition, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.
- nSrc2Step* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.12.2.13 NppStatus nppiAdd_16sc_C3IRSfs (const Npp16sc * *pSrc*, int *nSrcStep*, Npp16sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image addition, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.12.2.14 NppStatus nppiAdd_16sc_C3RSfs (const Npp16sc * *pSrc1*, int *nSrc1Step*, const Npp16sc * *pSrc2*, int *nSrc2Step*, Npp16sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image addition, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.12.2.15 NppStatus nppiAdd_16u_AC4IRSfs (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel with unmodified alpha in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.12.2.16 NppStatus nppiAdd_16u_AC4RSfs (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u * *pSrc2*, int *nSrc2Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel with unmodified alpha image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.12.2.17 NppStatus nppiAdd_16u_C1IRSfs (const Npp16u **pSrc*, int *nSrcStep*, Npp16u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit unsigned short channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.12.2.18 NppStatus nppiAdd_16u_C1RSfs (const Npp16u **pSrc1*, int *nSrc1Step*, const Npp16u **pSrc2*, int *nSrc2Step*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit unsigned short channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.12.2.19 NppStatus nppiAdd_16u_C3IRSfs (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit unsigned short channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.12.2.20 NppStatus nppiAdd_16u_C3RSfs (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u * *pSrc2*, int *nSrc2Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit unsigned short channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.12.2.21 NppStatus nppiAdd_16u_C4IRSfs (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.12.2.22 NppStatus nppiAdd_16u_C4RSfs (const Npp16u **pSrc1*, int *nSrc1Step*, const Npp16u **pSrc2*, int *nSrc2Step*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.12.2.23 NppStatus nppiAdd_32f_AC4IR (const Npp32f **pSrc*, int *nSrcStep*, Npp32f **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel with unmodified alpha in place image addition.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.12.2.24 NppStatus nppiAdd_32f_AC4R (const Npp32f **pSrc1*, int *nSrc1Step*, const Npp32f **pSrc2*, int *nSrc2Step*, Npp32f **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel with unmodified alpha image addition.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.12.2.25 NppStatus nppiAdd_32f_C1IR (const Npp32f **pSrc*, int *nSrcStep*, Npp32f **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point channel in place image addition.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.12.2.26 NppStatus nppiAdd_32f_C1R (const Npp32f **pSrc1*, int *nSrc1Step*, const Npp32f **pSrc2*, int *nSrc2Step*, Npp32f **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point channel image addition.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.12.2.27 NppStatus nppiAdd_32f_C3IR (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 32-bit floating point channel in place image addition.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.12.2.28 NppStatus nppiAdd_32f_C3R (const Npp32f * *pSrc1*, int *nSrc1Step*, const Npp32f * *pSrc2*, int *nSrc2Step*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 32-bit floating point channel image addition.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.12.2.29 NppStatus nppiAdd_32f_C4IR (const Npp32f **pSrc*, int *nSrcStep*, Npp32f **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel in place image addition.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.12.2.30 NppStatus nppiAdd_32f_C4R (const Npp32f **pSrc1*, int *nSrc1Step*, const Npp32f **pSrc2*, int *nSrc2Step*, Npp32f **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel image addition.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.12.2.31 NppStatus nppiAdd_32fc_AC4IR (const Npp32fc **pSrc*, int *nSrcStep*, Npp32fc **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image addition.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.12.2.32 NppStatus nppiAdd_32fc_AC4R (const Npp32fc * *pSrc1*, int *nSrc1Step*, const Npp32fc * *pSrc2*, int *nSrc2Step*, Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha image addition.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.
- nSrc2Step* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.12.2.33 NppStatus nppiAdd_32fc_C1IR (const Npp32fc * *pSrc*, int *nSrcStep*, Npp32fc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image addition.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.12.2.34 NppStatus nppiAdd_32fc_C1R (const Npp32fc * *pSrc1*, int *nSrc1Step*, const Npp32fc * *pSrc2*, int *nSrc2Step*, Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image addition.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.
- nSrc2Step* Source-Image Line Step.

pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.12.2.35 NppStatus nppiAdd_32fc_C3IR (const Npp32fc * *pSrc*, int *nSrcStep*, Npp32fc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image addition.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.12.2.36 NppStatus nppiAdd_32fc_C3R (const Npp32fc * *pSrc1*, int *nSrc1Step*, const Npp32fc * *pSrc2*, int *nSrc2Step*, Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image addition.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.12.2.37 NppStatus nppiAdd_32fc_C4IR (const Npp32fc * *pSrc*, int *nSrcStep*, Npp32fc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image addition.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.12.2.38 NppStatus nppiAdd_32fc_C4R (const Npp32fc * *pSrc1*, int *nSrc1Step*, const Npp32fc * *pSrc2*, int *nSrc2Step*, Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image addition.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.
- nSrc2Step* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.12.2.39 NppStatus nppiAdd_32s_C1IRSfs (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer channel in place image addition, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.12.2.40 NppStatus nppiAdd_32s_C1R (const Npp32s * pSrc1, int nSrc1Step, const Npp32s * pSrc2, int nSrc2Step, Npp32s * pDst, int nDstStep, NppiSize oSizeROI)

Note: This function is to be deprecated in future NPP releases, use the function above with a scale factor of 0 instead.

32-bit image add. Add the pixel values of corresponding pixels in the ROI and write them to the output image.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.12.2.41 NppStatus nppiAdd_32s_C1RSfs (const Npp32s * pSrc1, int nSrc1Step, const Npp32s * pSrc2, int nSrc2Step, Npp32s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 32-bit signed integer channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.12.2.42 NppStatus nppiAdd_32s_C3IRSfs (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed integer channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.12.2.43 NppStatus nppiAdd_32s_C3RSfs (const Npp32s * *pSrc1*, int *nSrc1Step*, const Npp32s * *pSrc2*, int *nSrc2Step*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed integer channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.12.2.44 NppStatus nppiAdd_32sc_AC4IRSfs (const Npp32sc * *pSrc*, int *nSrcStep*, Npp32sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.12.2.45 NppStatus nppiAdd_32sc_AC4RSfs (const Npp32sc * pSrc1, int nSrc1Step, const Npp32sc * pSrc2, int nSrc2Step, Npp32sc * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.12.2.46 NppStatus nppiAdd_32sc_C1IRSfs (const Npp32sc * pSrc, int nSrcStep, Npp32sc * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.12.2.47 NppStatus nppiAdd_32sc_C1RSfs (const Npp32sc * *pSrc1*, int *nSrc1Step*, const Npp32sc * *pSrc2*, int *nSrc2Step*, Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel image addition, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.12.2.48 NppStatus nppiAdd_32sc_C3IRSfs (const Npp32sc * *pSrc*, int *nSrcStep*, Npp32sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel in place image addition, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.12.2.49 NppStatus nppiAdd_32sc_C3RSfs (const Npp32sc * *pSrc1*, int *nSrc1Step*, const Npp32sc * *pSrc2*, int *nSrc2Step*, Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel image addition, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.12.2.50 NppStatus nppiAdd_8u_AC4IRSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel with unmodified alpha in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.12.2.51 NppStatus nppiAdd_8u_AC4RSfs (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel with unmodified alpha image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.12.2.52 NppStatus nppiAdd_8u_C1IRSfs (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 8-bit unsigned char channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.12.2.53 NppStatus nppiAdd_8u_C1RSfs (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u * *pSrc2*, int *nSrc2Step*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 8-bit unsigned char channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.12.2.54 NppStatus nppiAdd_8u_C3IRSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel in place image addition, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.12.2.55 NppStatus nppiAdd_8u_C3RSfs (const Npp8u * pSrc1, const Npp8u * pSrc2, int nSrc1Step, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel image addition, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.12.2.56 NppStatus nppiAdd_8u_C4IRSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel in place image addition, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.12.2.57 NppStatus nppiAdd_8u_C4RSfs (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u * *pSrc2*, int *nSrc2Step*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 8-bit unsigned char channel image addition, scale by $2^{\wedge}(-nScaleFactor)$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.13 AddSquare

Pixel by pixel addition of squared pixels from source image to floating point pixel values of destination image.

Functions

- [NppStatus nppiAddSquare_8u32f_C1IMR](#) (const [Npp8u](#) *pSrc, int nSrcStep, const [Npp8u](#) *pMask, int nMaskStep, [Npp32f](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI)
One 8-bit unsigned char channel image squared then added to in place floating point destination image using filter mask (updates destination when mask is non-zero).
- [NppStatus nppiAddSquare_8u32f_C1IR](#) (const [Npp8u](#) *pSrc, int nSrcStep, [Npp32f](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI)
One 8-bit unsigned char channel image squared then added to in place floating point destination image.
- [NppStatus nppiAddSquare_16u32f_C1IMR](#) (const [Npp16u](#) *pSrc, int nSrcStep, const [Npp8u](#) *pMask, int nMaskStep, [Npp32f](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI)
One 16-bit unsigned short channel image squared then added to in place floating point destination image using filter mask (updates destination when mask is non-zero).
- [NppStatus nppiAddSquare_16u32f_C1IR](#) (const [Npp16u](#) *pSrc, int nSrcStep, [Npp32f](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI)
One 16-bit unsigned short channel image squared then added to in place floating point destination image.
- [NppStatus nppiAddSquare_32f_C1IMR](#) (const [Npp32f](#) *pSrc, int nSrcStep, const [Npp8u](#) *pMask, int nMaskStep, [Npp32f](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI)
One 32-bit floating point channel image squared then added to in place floating point destination image using filter mask (updates destination when mask is non-zero).
- [NppStatus nppiAddSquare_32f_C1IR](#) (const [Npp32f](#) *pSrc, int nSrcStep, [Npp32f](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI)
One 32-bit floating point channel image squared then added to in place floating point destination image.

7.13.1 Detailed Description

Pixel by pixel addition of squared pixels from source image to floating point pixel values of destination image.

7.13.2 Function Documentation

7.13.2.1 [NppStatus nppiAddSquare_16u32f_C1IMR](#) (const [Npp16u](#) *pSrc, int nSrcStep, const [Npp8u](#) *pMask, int nMaskStep, [Npp32f](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI)

One 16-bit unsigned short channel image squared then added to in place floating point destination image using filter mask (updates destination when mask is non-zero).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.13.2.2 NppStatus nppiAddSquare_16u32f_C1IR (const Npp16u **pSrc*, int *nSrcStep*, Npp32f **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 16-bit unsigned short channel image squared then added to in place floating point destination image.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.13.2.3 NppStatus nppiAddSquare_32f_C1IMR (const Npp32f **pSrc*, int *nSrcStep*, const Npp8u **pMask*, int *nMaskStep*, Npp32f **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point channel image squared then added to in place floating point destination image using filter mask (updates destination when mask is non-zero).

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.13.2.4 NppStatus nppiAddSquare_32f_C1IR (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point channel image squared then added to in place floating point destination image.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.13.2.5 NppStatus nppiAddSquare_8u32f_C1IMR (const Npp8u * *pSrc*, int *nSrcStep*, const Npp8u * *pMask*, int *nMaskStep*, Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 8-bit unsigned char channel image squared then added to in place floating point destination image using filter mask (updates destination when mask is non-zero).

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.13.2.6 NppStatus nppiAddSquare_8u32f_C1IR (const Npp8u * *pSrc*, int *nSrcStep*, Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 8-bit unsigned char channel image squared then added to in place floating point destination image.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.14 AddProduct

Pixel by pixel addition of product of pixels from two source images to floating point pixel values of destination image.

Functions

- **NppStatus nppiAddProduct_8u32f_C1IMR** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, const **Npp8u** *pMask, int nMaskStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 8-bit unsigned char channel image product added to in place floating point destination image using filter mask (updates destination when mask is non-zero).
- **NppStatus nppiAddProduct_8u32f_C1IR** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 8-bit unsigned char channel image product added to in place floating point destination image.
- **NppStatus nppiAddProduct_16u32f_C1IMR** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, const **Npp8u** *pMask, int nMaskStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 16-bit unsigned short channel image product added to in place floating point destination image using filter mask (updates destination when mask is non-zero).
- **NppStatus nppiAddProduct_16u32f_C1IR** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 16-bit unsigned short channel image product added to in place floating point destination image.
- **NppStatus nppiAddProduct_32f_C1IMR** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** *pSrc2, int nSrc2Step, const **Npp8u** *pMask, int nMaskStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 32-bit floating point channel image product added to in place floating point destination image using filter mask (updates destination when mask is non-zero).
- **NppStatus nppiAddProduct_32f_C1IR** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** *pSrc2, int nSrc2Step, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 32-bit floating point channel image product added to in place floating point destination image.

7.14.1 Detailed Description

Pixel by pixel addition of product of pixels from two source images to floating point pixel values of destination image.

7.14.2 Function Documentation

- 7.14.2.1 NppStatus nppiAddProduct_16u32f_C1IMR (const Npp16u * pSrc1, int nSrc1Step, const Npp16u * pSrc2, int nSrc2Step, const Npp8u * pMask, int nMaskStep, Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)**

One 16-bit unsigned short channel image product added to in place floating point destination image using filter mask (updates destination when mask is non-zero).

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.14.2.2 NppStatus nppiAddProduct_16u32f_C1IR (const Npp16u * pSrc1, int nSrc1Step, const Npp16u * pSrc2, int nSrc2Step, Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

One 16-bit unsigned short channel image product added to in place floating point destination image.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.14.2.3 NppStatus nppiAddProduct_32f_C1IMR (const Npp32f * pSrc1, int nSrc1Step, const Npp32f * pSrc2, int nSrc2Step, const Npp8u * pMask, int nMaskStep, Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

One 32-bit floating point channel image product added to in place floating point destination image using filter mask (updates destination when mask is non-zero).

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.

pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.14.2.4 NppStatus nppiAddProduct_32f_C1IR (const Npp32f * pSrc1, int nSrc1Step, const Npp32f * pSrc2, int nSrc2Step, Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

One 32-bit floating point channel image product added to in place floating point destination image.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.14.2.5 NppStatus nppiAddProduct_8u32f_C1IMR (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, const Npp8u * pMask, int nMaskStep, Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

One 8-bit unsigned char channel image product added to in place floating point destination image using filter mask (updates destination when mask is non-zero).

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.14.2.6 NppStatus nppiAddProduct_8u32f_C1IR (const Npp8u **pSrc1*, int *nSrc1Step*, const Npp8u **pSrc2*, int *nSrc2Step*, Npp32f **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 8-bit unsigned char channel image product added to in place floating point destination image.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.15 AddWeighted

Pixel by pixel addition of alpha weighted pixel values from a source image to floating point pixel values of destination image.

Functions

- **NppStatus nppiAddWeighted_8u32f_C1IMR** (const **Npp8u** *pSrc, int nSrcStep, const **Npp8u** *pMask, int nMaskStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, **Npp32f** nAlpha)

One 8-bit unsigned char channel alpha weighted image added to in place floating point destination image using filter mask (updates destination when mask is non-zero).

- **NppStatus nppiAddWeighted_8u32f_C1IR** (const **Npp8u** *pSrc, int nSrcStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, **Npp32f** nAlpha)

One 8-bit unsigned char channel alpha weighted image added to in place floating point destination image.

- **NppStatus nppiAddWeighted_16u32f_C1IMR** (const **Npp16u** *pSrc, int nSrcStep, const **Npp8u** *pMask, int nMaskStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, **Npp32f** nAlpha)

One 16-bit unsigned short channel alpha weighted image added to in place floating point destination image using filter mask (updates destination when mask is non-zero).

- **NppStatus nppiAddWeighted_16u32f_C1IR** (const **Npp16u** *pSrc, int nSrcStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, **Npp32f** nAlpha)

One 16-bit unsigned short channel alpha weighted image added to in place floating point destination image.

- **NppStatus nppiAddWeighted_32f_C1IMR** (const **Npp32f** *pSrc, int nSrcStep, const **Npp8u** *pMask, int nMaskStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, **Npp32f** nAlpha)

One 32-bit floating point channel alpha weighted image added to in place floating point destination image using filter mask (updates destination when mask is non-zero).

- **NppStatus nppiAddWeighted_32f_C1IR** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, **Npp32f** nAlpha)

One 32-bit floating point channel alpha weighted image added to in place floating point destination image.

7.15.1 Detailed Description

Pixel by pixel addition of alpha weighted pixel values from a source image to floating point pixel values of destination image.

7.15.2 Function Documentation

- 7.15.2.1 NppStatus nppiAddWeighted_16u32f_C1IMR (const Npp16u * pSrc, int nSrcStep, const Npp8u * pMask, int nMaskStep, Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, Npp32f nAlpha)**

One 16-bit unsigned short channel alpha weighted image added to in place floating point destination image using filter mask (updates destination when mask is non-zero).

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nAlpha Alpha weight to be applied to source image pixels (0.0F to 1.0F)

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.15.2.2 NppStatus nppiAddWeighted_16u32f_C1IR (const Npp16u * pSrc, int nSrcStep, Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, Npp32f nAlpha)

One 16-bit unsigned short channel alpha weighted image added to in place floating point destination image.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nAlpha Alpha weight to be applied to source image pixels (0.0F to 1.0F)

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.15.2.3 NppStatus nppiAddWeighted_32f_C1IMR (const Npp32f * pSrc, int nSrcStep, const Npp8u * pMask, int nMaskStep, Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, Npp32f nAlpha)

One 32-bit floating point channel alpha weighted image added to in place floating point destination image using filter mask (updates destination when mask is non-zero).

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nAlpha Alpha weight to be applied to source image pixels (0.0F to 1.0F)

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.15.2.4 NppStatus nppiAddWeighted_32f_C1IR (const Npp32f * pSrc, int nSrcStep, Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, Npp32f nAlpha)

One 32-bit floating point channel alpha weighted image added to in place floating point destination image.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nAlpha Alpha weight to be applied to source image pixels (0.0F to 1.0F)

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.15.2.5 NppStatus nppiAddWeighted_8u32f_C1IMR (const Npp8u * pSrc, int nSrcStep, const Npp8u * pMask, int nMaskStep, Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, Npp32f nAlpha)

One 8-bit unsigned char channel alpha weighted image added to in place floating point destination image using filter mask (updates destination when mask is non-zero).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pMask Mask-Image Pointer.

nMaskStep Mask-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nAlpha Alpha weight to be applied to source image pixels (0.0F to 1.0F)

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.15.2.6 NppStatus nppiAddWeighted_8u32f_C1IR (const Npp8u **pSrc*, int *nSrcStep*, Npp32f **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, Npp32f *nAlpha*)

One 8-bit unsigned char channel alpha weighted image added to in place floating point destination image.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nAlpha Alpha weight to be applied to source image pixels (0.0F to 1.0F)

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16 Mul

Pixel by pixel multiply of two images.

Functions

- **NppStatus nppiMul_8u_C1RSfs** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_8u_C1IRSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_8u_C3RSfs** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_8u_C3IRSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_8u_AC4RSfs** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel with unmodified alpha image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_8u_AC4IRSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel with unmodified alpha in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_8u_C4RSfs** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_8u_C4IRSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_16u_C1RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit unsigned short channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiMul_16u_C1IRSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
One 16-bit unsigned short channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_16u_C3RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Three 16-bit unsigned short channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_16u_C3IRSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Three 16-bit unsigned short channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_16u_AC4RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Four 16-bit unsigned short channel with unmodified alpha image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_16u_AC4IRSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Four 16-bit unsigned short channel with unmodified alpha in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_16u_C4RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Four 16-bit unsigned short channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_16u_C4IRSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Four 16-bit unsigned short channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_16s_C1RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** *pSrc2, int nSrc2Step, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
One 16-bit signed short channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_16s_C1IRSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
One 16-bit signed short channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_16s_C3RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** *pSrc2, int nSrc2Step, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Three 16-bit signed short channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_16s_C3IRSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiMul_16s_AC4RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** *pSrc2, int nSrc2Step, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel with unmodified alpha image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiMul_16s_AC4IRSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel with unmodified alpha in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiMul_16s_C4RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** *pSrc2, int nSrc2Step, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiMul_16s_C4IRSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiMul_16sc_C1RSfs** (const **Npp16sc** *pSrc1, int nSrc1Step, const **Npp16sc** *pSrc2, int nSrc2Step, **Npp16sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiMul_16sc_C1IRSfs** (const **Npp16sc** *pSrc, int nSrcStep, **Npp16sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiMul_16sc_C3RSfs** (const **Npp16sc** *pSrc1, int nSrc1Step, const **Npp16sc** *pSrc2, int nSrc2Step, **Npp16sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiMul_16sc_C3IRSfs** (const **Npp16sc** *pSrc, int nSrcStep, **Npp16sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiMul_16sc_AC4RSfs** (const **Npp16sc** *pSrc1, int nSrc1Step, const **Npp16sc** *pSrc2, int nSrc2Step, **Npp16sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiMul_16sc_AC4IRSfs** (const **Npp16sc** *pSrc, int nSrcStep, **Npp16sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiMul_32s_C1RSfs** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
One 32-bit signed integer channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_32s_C1R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)
Note: This function is to be deprecated in future NPP releases, use the function above with a scale factor of 0 instead.
- **NppStatus nppiMul_32s_C1IRSfs** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
One 32-bit signed integer channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_32s_C3RSfs** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Three 32-bit signed integer channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_32s_C3IRSfs** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Three 32-bit signed integer channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_32sc_C1RSfs** (const **Npp32sc** *pSrc1, int nSrc1Step, const **Npp32sc** *pSrc2, int nSrc2Step, **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
One 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_32sc_C1IRSfs** (const **Npp32sc** *pSrc, int nSrcStep, **Npp32sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
One 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_32sc_C3RSfs** (const **Npp32sc** *pSrc1, int nSrc1Step, const **Npp32sc** *pSrc2, int nSrc2Step, **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Three 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_32sc_C3IRSfs** (const **Npp32sc** *pSrc, int nSrcStep, **Npp32sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Three 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_32sc_AC4RSfs** (const **Npp32sc** *pSrc1, int nSrc1Step, const **Npp32sc** *pSrc2, int nSrc2Step, **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Four 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiMul_32sc_AC4IRSfs** (const **Npp32sc** *pSrc, int nSrcStep, **Npp32sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_32f_C1R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** *pSrc2, int nSrc2Step, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 32-bit floating point channel image multiplication.
- **NppStatus nppiMul_32f_C1IR** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 32-bit floating point channel in place image multiplication.
- **NppStatus nppiMul_32f_C3R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** *pSrc2, int nSrc2Step, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 32-bit floating point channel image multiplication.
- **NppStatus nppiMul_32f_C3IR** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Three 32-bit floating point channel in place image multiplication.
- **NppStatus nppiMul_32f_AC4R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** *pSrc2, int nSrc2Step, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel with unmodified alpha image multiplication.
- **NppStatus nppiMul_32f_AC4IR** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel with unmodified alpha in place image multiplication.
- **NppStatus nppiMul_32f_C4R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** *pSrc2, int nSrc2Step, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel image multiplication.
- **NppStatus nppiMul_32f_C4IR** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel in place image multiplication.
- **NppStatus nppiMul_32fc_C1R** (const **Npp32fc** *pSrc1, int nSrc1Step, const **Npp32fc** *pSrc2, int nSrc2Step, **Npp32fc** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image multiplication.
- **NppStatus nppiMul_32fc_C1IR** (const **Npp32fc** *pSrc, int nSrcStep, **Npp32fc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image multiplication.
- **NppStatus nppiMul_32fc_C3R** (const **Npp32fc** *pSrc1, int nSrc1Step, const **Npp32fc** *pSrc2, int nSrc2Step, **Npp32fc** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image multiplication.

- **NppStatus nppiMul_32fc_C3IR** (const **Npp32fc** ***pSrc**, int **nSrcStep**, **Npp32fc** ***pSrcDst**, int **nSrcDstStep**, **NppiSize** **oSizeROI**)
Three 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image multiplication.
- **NppStatus nppiMul_32fc_AC4R** (const **Npp32fc** ***pSrc1**, int **nSrc1Step**, const **Npp32fc** ***pSrc2**, int **nSrc2Step**, **Npp32fc** ***pDst**, int **nDstStep**, **NppiSize** **oSizeROI**)
Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha image multiplication.
- **NppStatus nppiMul_32fc_AC4IR** (const **Npp32fc** ***pSrc**, int **nSrcStep**, **Npp32fc** ***pSrcDst**, int **nSrcDstStep**, **NppiSize** **oSizeROI**)
Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image multiplication.
- **NppStatus nppiMul_32fc_C4R** (const **Npp32fc** ***pSrc1**, int **nSrc1Step**, const **Npp32fc** ***pSrc2**, int **nSrc2Step**, **Npp32fc** ***pDst**, int **nDstStep**, **NppiSize** **oSizeROI**)
Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image multiplication.
- **NppStatus nppiMul_32fc_C4IR** (const **Npp32fc** ***pSrc**, int **nSrcStep**, **Npp32fc** ***pSrcDst**, int **nSrcDstStep**, **NppiSize** **oSizeROI**)
Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image multiplication.

7.16.1 Detailed Description

Pixel by pixel multiply of two images.

7.16.2 Function Documentation

7.16.2.1 NppStatus nppiMul_16s_AC4IRSfs (const Npp16s * pSrc, int nSrcStep, Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit signed short channel with unmodified alpha in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc** Source-Image Pointer.
- nSrcStep** Source-Image Line Step.
- pSrcDst** In-Place Image Pointer.
- nSrcDstStep** In-Place-Image Line Step.
- oSizeROI** Region-of-Interest (ROI).
- nScaleFactor** Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.16.2.2 NppStatus nppiMul_16s_AC4RSfs (const Npp16s * *pSrc1*, int *nSrc1Step*, const Npp16s * *pSrc2*, int *nSrc2Step*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short channel with unmodified alpha image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.
- nSrc2Step* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16.2.3 NppStatus nppiMul_16s_C1IRSfs (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16.2.4 NppStatus nppiMul_16s_C1RSfs (const Npp16s * *pSrc1*, int *nSrc1Step*, const Npp16s * *pSrc2*, int *nSrc2Step*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc1* Source-Image Pointer.

nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16.2.5 NppStatus nppiMul_16s_C3IRSfs (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short channel in place image multiplication, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16.2.6 NppStatus nppiMul_16s_C3RSFs (const Npp16s * *pSrc1*, int *nSrc1Step*, const Npp16s * *pSrc2*, int *nSrc2Step*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short channel image multiplication, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16.2.7 NppStatus nppiMul_16s_C4IRSfs (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16.2.8 NppStatus nppiMul_16s_C4RSfs (const Npp16s * *pSrc1*, int *nSrc1Step*, const Npp16s * *pSrc2*, int *nSrc2Step*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.
- nSrc2Step* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16.2.9 NppStatus nppiMul_16sc_AC4IRSfs (const Npp16sc * *pSrc*, int *nSrcStep*, Npp16sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc* Source-Image Pointer.

nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.16.2.10 NppStatus nppiMul_16sc_AC4RSfs (const Npp16sc * pSrc1, int nSrc1Step, const Npp16sc * pSrc2, int nSrc2Step, Npp16sc * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha image multiplication, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.16.2.11 NppStatus nppiMul_16sc_C1IRSfs (const Npp16sc * pSrc, int nSrcStep, Npp16sc * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image multiplication, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.16.2.12 NppStatus nppiMul_16sc_C1RSfs (const Npp16sc * *pSrc1*, int *nSrc1Step*, const Npp16sc * *pSrc2*, int *nSrc2Step*, Npp16sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.
- nSrc2Step* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16.2.13 NppStatus nppiMul_16sc_C3IRSfs (const Npp16sc * *pSrc*, int *nSrcStep*, Npp16sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16.2.14 NppStatus nppiMul_16sc_C3RSfs (const Npp16sc * *pSrc1*, int *nSrc1Step*, const Npp16sc * *pSrc2*, int *nSrc2Step*, Npp16sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16.2.15 NppStatus nppiMul_16u_AC4IRSfs (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel with unmodified alpha in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16.2.16 NppStatus nppiMul_16u_AC4RSfs (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u * *pSrc2*, int *nSrc2Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel with unmodified alpha image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16.2.17 NppStatus nppiMul_16u_C1IRSfs (const Npp16u * pSrc, int nSrcStep, Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit unsigned short channel in place image multiplication, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16.2.18 NppStatus nppiMul_16u_C1RSfs (const Npp16u * pSrc1, const Npp16u * pSrc2, int nSrc1Step, int nSrc2Step, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit unsigned short channel image multiplication, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16.2.19 NppStatus nppiMul_16u_C3IRSfs (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit unsigned short channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16.2.20 NppStatus nppiMul_16u_C3RSfs (const Npp16u * *pSrc1*, const Npp16u * *pSrc2*, int *nSrc1Step*, int *nSrc2Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit unsigned short channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16.2.21 NppStatus nppiMul_16u_C4IRSfs (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16.2.22 NppStatus nppiMul_16u_C4RSfs (const Npp16u * pSrc1, int nSrc1Step, const Npp16u * pSrc2, int nSrc2Step, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16.2.23 NppStatus nppiMul_32f_AC4IR (const Npp32f * pSrc, int nSrcStep, Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 32-bit floating point channel with unmodified alpha in place image multiplication.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16.2.24 NppStatus nppiMul_32f_AC4R (const Npp32f * *pSrc1*, int *nSrc1Step*, const Npp32f * *pSrc2*, int *nSrc2Step*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel with unmodified alpha image multiplication.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16.2.25 NppStatus nppiMul_32f_C1IR (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point channel in place image multiplication.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16.2.26 NppStatus nppiMul_32f_C1R (const Npp32f * *pSrc1*, int *nSrc1Step*, const Npp32f * *pSrc2*, int *nSrc2Step*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point channel image multiplication.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.16.2.27 NppStatus nppiMul_32f_C3IR (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 32-bit floating point channel in place image multiplication.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.16.2.28 NppStatus nppiMul_32f_C3R (const Npp32f * *pSrc1*, int *nSrc1Step*, const Npp32f * *pSrc2*, int *nSrc2Step*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 32-bit floating point channel image multiplication.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.16.2.29 NppStatus nppiMul_32f_C4IR (const Npp32f **pSrc*, int *nSrcStep*, Npp32f **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel in place image multiplication.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16.2.30 NppStatus nppiMul_32f_C4R (const Npp32f **pSrc1*, int *nSrc1Step*, const Npp32f **pSrc2*, int *nSrc2Step*, Npp32f **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel image multiplication.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16.2.31 NppStatus nppiMul_32fc_AC4IR (const Npp32fc **pSrc*, int *nSrcStep*, Npp32fc **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image multiplication.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16.2.32 NppStatus nppiMul_32fc_AC4R (const Npp32fc * *pSrc1*, int *nSrc1Step*, const Npp32fc * *pSrc2*, int *nSrc2Step*, Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha image multiplication.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.
- nSrc2Step* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16.2.33 NppStatus nppiMul_32fc_C1IR (const Npp32fc * *pSrc*, int *nSrcStep*, Npp32fc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image multiplication.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16.2.34 NppStatus nppiMul_32fc_C1R (const Npp32fc * *pSrc1*, int *nSrc1Step*, const Npp32fc * *pSrc2*, int *nSrc2Step*, Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image multiplication.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.
- nSrc2Step* Source-Image Line Step.

pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.16.2.35 NppStatus nppiMul_32fc_C3IR (const Npp32fc * *pSrc*, int *nSrcStep*, Npp32fc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image multiplication.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.16.2.36 NppStatus nppiMul_32fc_C3R (const Npp32fc * *pSrc1*, int *nSrc1Step*, const Npp32fc * *pSrc2*, int *nSrc2Step*, Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image multiplication.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.16.2.37 NppStatus nppiMul_32fc_C4IR (const Npp32fc * *pSrc*, int *nSrcStep*, Npp32fc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image multiplication.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16.2.38 NppStatus nppiMul_32fc_C4R (const Npp32fc * *pSrc1*, int *nSrc1Step*, const Npp32fc * *pSrc2*, int *nSrc2Step*, Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image multiplication.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.
- nSrc2Step* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16.2.39 NppStatus nppiMul_32s_C1IRSfs (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer channel in place image multiplication, scale by $2^{\wedge}(-nScaleFactor)$, then clamp to saturated value.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.16.2.40 NppStatus nppiMul_32s_C1R (const Npp32s * *pSrc1*, int *nSrc1Step*, const Npp32s * *pSrc2*, int *nSrc2Step*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Note: This function is to be deprecated in future NPP releases, use the function above with a scale factor of 0 instead.

1 channel 32-bit image multiplication. Multiply corresponding pixels in ROI.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.16.2.41 NppStatus nppiMul_32s_C1RSfs (const Npp32s * *pSrc1*, int *nSrc1Step*, const Npp32s * *pSrc2*, int *nSrc2Step*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer channel image multiplication, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.16.2.42 NppStatus nppiMul_32s_C3IRSfs (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed integer channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16.2.43 NppStatus nppiMul_32s_C3RSfs (const Npp32s * *pSrc1*, const Npp32s * *pSrc2*, int *nSrc1Step*, int *nSrc2Step*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed integer channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16.2.44 NppStatus nppiMul_32sc_AC4IRSfs (const Npp32sc * *pSrc*, int *nSrcStep*, Npp32sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.16.2.45 NppStatus nppiMul_32sc_AC4RSfs (const Npp32sc * pSrc1, int nSrc1Step, const Npp32sc * pSrc2, int nSrc2Step, Npp32sc * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha image multiplication, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.16.2.46 NppStatus nppiMul_32sc_C1IRSfs (const Npp32sc * pSrc, int nSrcStep, Npp32sc * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel in place image multiplication, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.16.2.47 NppStatus nppiMul_32sc_C1RSfs (const Npp32sc * *pSrc1*, int *nSrc1Step*, const Npp32sc * *pSrc2*, int *nSrc2Step*, Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16.2.48 NppStatus nppiMul_32sc_C3IRSfs (const Npp32sc * *pSrc*, int *nSrcStep*, Npp32sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16.2.49 NppStatus nppiMul_32sc_C3RSfs (const Npp32sc * *pSrc1*, int *nSrc1Step*, const Npp32sc * *pSrc2*, int *nSrc2Step*, Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16.2.50 NppStatus nppiMul_8u_AC4IRSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel with unmodified alpha in place image multiplication, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16.2.51 NppStatus nppiMul_8u_AC4RSfs (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel with unmodified alpha image multiplication, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.16.2.52 NppStatus nppiMul_8u_C1IRSfs (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 8-bit unsigned char channel in place image multiplication, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.16.2.53 NppStatus nppiMul_8u_C1RSfs (const Npp8u **pSrc1*, int *nSrc1Step*, const Npp8u **pSrc2*, int *nSrc2Step*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 8-bit unsigned char channel image multiplication, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.16.2.54 NppStatus nppiMul_8u_C3IRSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16.2.55 NppStatus nppiMul_8u_C3RSFs (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16.2.56 NppStatus nppiMul_8u_C4IRSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.16.2.57 NppStatus nppiMul_8u_C4RSfs (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u * *pSrc2*, int *nSrc2Step*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 8-bit unsigned char channel image multiplication, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.17 MulScale

Pixel by pixel multiplies each pixel of two images then scales the result by the maximum value for the data bit width.

Functions

- **NppStatus nppiMulScale_8u_C1R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 8-bit unsigned char channel image multiplication then scale by maximum value for pixel bit width.

- **NppStatus nppiMulScale_8u_C1IR** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 8-bit unsigned char channel in place image multiplication then scale by maximum value for pixel bit width.

- **NppStatus nppiMulScale_8u_C3R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 8-bit unsigned char channel image multiplication then scale by maximum value for pixel bit width.

- **NppStatus nppiMulScale_8u_C3IR** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Three 8-bit unsigned char channel in place image multiplication then scale by maximum value for pixel bit width.

- **NppStatus nppiMulScale_8u_AC4R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel with unmodified alpha image multiplication then scale by maximum value for pixel bit width.

- **NppStatus nppiMulScale_8u_AC4IR** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel with unmodified alpha in place image multiplication then scale by maximum value for pixel bit width.

- **NppStatus nppiMulScale_8u_C4R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel image multiplication then scale by maximum value for pixel bit width.

- **NppStatus nppiMulScale_8u_C4IR** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel in place image multiplication then scale by maximum value for pixel bit width.

- **NppStatus nppiMulScale_16u_C1R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 16-bit unsigned short channel image multiplication then scale by maximum value for pixel bit width.

- **NppStatus nppiMulScale_16u_C1IR** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 16-bit unsigned short channel in place image multiplication then scale by maximum value for pixel bit width.

- **NppStatus nppiMulScale_16u_C3R** (const **Npp16u** ***pSrc1**, int **nSrc1Step**, const **Npp16u** ***pSrc2**, int **nSrc2Step**, **Npp16u** ***pDst**, int **nDstStep**, **NppiSize** **oSizeROI**)

Three 16-bit unsigned short channel image multiplication then scale by maximum value for pixel bit width.

- **NppStatus nppiMulScale_16u_C3IR** (const **Npp16u** ***pSrc**, int **nSrcStep**, **Npp16u** ***pSrcDst**, int **nSrcDstStep**, **NppiSize** **oSizeROI**)

Three 16-bit unsigned short channel in place image multiplication then scale by maximum value for pixel bit width.

- **NppStatus nppiMulScale_16u_AC4R** (const **Npp16u** ***pSrc1**, int **nSrc1Step**, const **Npp16u** ***pSrc2**, int **nSrc2Step**, **Npp16u** ***pDst**, int **nDstStep**, **NppiSize** **oSizeROI**)

Four 16-bit unsigned short channel with unmodified alpha image multiplication then scale by maximum value for pixel bit width.

- **NppStatus nppiMulScale_16u_AC4IR** (const **Npp16u** ***pSrc**, int **nSrcStep**, **Npp16u** ***pSrcDst**, int **nSrcDstStep**, **NppiSize** **oSizeROI**)

Four 16-bit unsigned short channel with unmodified alpha in place image multiplication then scale by maximum value for pixel bit width.

- **NppStatus nppiMulScale_16u_C4R** (const **Npp16u** ***pSrc1**, int **nSrc1Step**, const **Npp16u** ***pSrc2**, int **nSrc2Step**, **Npp16u** ***pDst**, int **nDstStep**, **NppiSize** **oSizeROI**)

Four 16-bit unsigned short channel image multiplication then scale by maximum value for pixel bit width.

- **NppStatus nppiMulScale_16u_C4IR** (const **Npp16u** ***pSrc**, int **nSrcStep**, **Npp16u** ***pSrcDst**, int **nSrcDstStep**, **NppiSize** **oSizeROI**)

Four 16-bit unsigned short channel in place image multiplication then scale by maximum value for pixel bit width.

7.17.1 Detailed Description

Pixel by pixel multiplies each pixel of two images then scales the result by the maximum value for the data bit width.

7.17.2 Function Documentation

7.17.2.1 NppStatus nppiMulScale_16u_AC4IR (const Npp16u * pSrc, int nSrcStep, Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 16-bit unsigned short channel with unmodified alpha in place image multiplication then scale by maximum value for pixel bit width.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.2 NppStatus nppiMulScale_16u_AC4R (const Npp16u * pSrc1, int nSrc1Step, const Npp16u * pSrc2, int nSrc2Step, Npp16u * pDst, int nDstStep, NppiSize oSizeROI)

Four 16-bit unsigned short channel with unmodified alpha image multiplication then scale by maximum value for pixel bit width.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.3 NppStatus nppiMulScale_16u_C1IR (const Npp16u * pSrc, int nSrcStep, Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

One 16-bit unsigned short channel in place image multiplication then scale by maximum value for pixel bit width.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.4 NppStatus nppiMulScale_16u_C1R (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u * *pSrc2*, int *nSrc2Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 16-bit unsigned short channel image multiplication then scale by maximum value for pixel bit width.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.
- nSrc2Step* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.5 NppStatus nppiMulScale_16u_C3IR (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 16-bit unsigned short channel in place image multiplication then scale by maximum value for pixel bit width.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.6 NppStatus nppiMulScale_16u_C3R (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u * *pSrc2*, int *nSrc2Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 16-bit unsigned short channel image multiplication then scale by maximum value for pixel bit width.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.
- nSrc2Step* Source-Image Line Step.

pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.7 NppStatus nppiMulScale_16u_C4IR (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel in place image multiplication then scale by maximum value for pixel bit width.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.8 NppStatus nppiMulScale_16u_C4R (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u * *pSrc2*, int *nSrc2Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel image multiplication then scale by maximum value for pixel bit width.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.9 NppStatus nppiMulScale_8u_AC4IR (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel with unmodified alpha in place image multiplication then scale by maximum value for pixel bit width.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.10 NppStatus nppiMulScale_8u_AC4R (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u * *pSrc2*, int *nSrc2Step*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel with unmodified alpha image multiplication then scale by maximum value for pixel bit width.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.11 NppStatus nppiMulScale_8u_C1IR (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 8-bit unsigned char channel in place image multiplication then scale by maximum value for pixel bit width.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.17.2.12 NppStatus nppiMulScale_8u_C1R (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u * *pSrc2*, int *nSrc2Step*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 8-bit unsigned char channel image multiplication then scale by maximum value for pixel bit width.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.17.2.13 NppStatus nppiMulScale_8u_C3IR (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 8-bit unsigned char channel in place image multiplication then scale by maximum value for pixel bit width.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.17.2.14 NppStatus nppiMulScale_8u_C3R (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u * *pSrc2*, int *nSrc2Step*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 8-bit unsigned char channel image multiplication then scale by maximum value for pixel bit width.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.15 NppStatus nppiMulScale_8u_C4IR (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel in place image multiplication then scale by maximum value for pixel bit width.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.16 NppStatus nppiMulScale_8u_C4R (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u * *pSrc2*, int *nSrc2Step*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel image multiplication then scale by maximum value for pixel bit width.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.18 Sub

Pixel by pixel subtraction of two images.

Functions

- **NppStatus nppiSub_8u_C1RSfs** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_8u_C1IRSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_8u_C3RSfs** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_8u_C3IRSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_8u_AC4RSfs** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel with unmodified alpha image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_8u_AC4IRSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel with unmodified alpha in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_8u_C4RSfs** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_8u_C4IRSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_16u_C1RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit unsigned short channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSub_16u_C1IRSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
One 16-bit unsigned short channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_16u_C3RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Three 16-bit unsigned short channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_16u_C3IRSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Three 16-bit unsigned short channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_16u_AC4RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Four 16-bit unsigned short channel with unmodified alpha image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_16u_AC4IRSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Four 16-bit unsigned short channel with unmodified alpha in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_16u_C4RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Four 16-bit unsigned short channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_16u_C4IRSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Four 16-bit unsigned short channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_16s_C1RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** *pSrc2, int nSrc2Step, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
One 16-bit signed short channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_16s_C1IRSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
One 16-bit signed short channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_16s_C3RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** *pSrc2, int nSrc2Step, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Three 16-bit signed short channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_16s_C3IRSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSub_16s_AC4RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** *pSrc2, int nSrc2Step, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel with unmodified alpha image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSub_16s_AC4IRSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel with unmodified alpha in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSub_16s_C4RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** *pSrc2, int nSrc2Step, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSub_16s_C4IRSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSub_16sc_C1RSfs** (const **Npp16sc** *pSrc1, int nSrc1Step, const **Npp16sc** *pSrc2, int nSrc2Step, **Npp16sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSub_16sc_C1IRSfs** (const **Npp16sc** *pSrc, int nSrcStep, **Npp16sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSub_16sc_C3RSfs** (const **Npp16sc** *pSrc1, int nSrc1Step, const **Npp16sc** *pSrc2, int nSrc2Step, **Npp16sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSub_16sc_C3IRSfs** (const **Npp16sc** *pSrc, int nSrcStep, **Npp16sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSub_16sc_AC4RSfs** (const **Npp16sc** *pSrc1, int nSrc1Step, const **Npp16sc** *pSrc2, int nSrc2Step, **Npp16sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSub_16sc_AC4IRSfs** (const **Npp16sc** *pSrc, int nSrcStep, **Npp16sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSub_32s_C1RSfs** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
One 32-bit signed integer channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_32s_C1R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)
Note: This function is to be deprecated in future NPP releases, use the function above with a scale factor of 0 instead.
- **NppStatus nppiSub_32s_C1IRSfs** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
One 32-bit signed integer channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_32s_C3RSfs** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Three 32-bit signed integer channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_32s_C3IRSfs** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Three 32-bit signed integer channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_32s_C4RSfs** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Four 32-bit signed integer channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_32s_C4IRSfs** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Four 32-bit signed integer channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_32sc_C1RSfs** (const **Npp32sc** *pSrc1, int nSrc1Step, const **Npp32sc** *pSrc2, int nSrc2Step, **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
One 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_32sc_C1IRSfs** (const **Npp32sc** *pSrc, int nSrcStep, **Npp32sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
One 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_32sc_C3RSfs** (const **Npp32sc** *pSrc1, int nSrc1Step, const **Npp32sc** *pSrc2, int nSrc2Step, **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Three 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSub_32sc_C3IRSfs** (const **Npp32sc** *pSrc, int nSrcStep, **Npp32sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSub_32sc_AC4RSfs** (const **Npp32sc** *pSrc1, int nSrc1Step, const **Npp32sc** *pSrc2, int nSrc2Step, **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSub_32sc_AC4IRSfs** (const **Npp32sc** *pSrc, int nSrcStep, **Npp32sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSub_32f_C1R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** *pSrc2, int nSrc2Step, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 32-bit floating point channel image subtraction.

- **NppStatus nppiSub_32f_C1IR** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 32-bit floating point channel in place image subtraction.

- **NppStatus nppiSub_32f_C3R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** *pSrc2, int nSrc2Step, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 32-bit floating point channel image subtraction.

- **NppStatus nppiSub_32f_C3IR** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Three 32-bit floating point channel in place image subtraction.

- **NppStatus nppiSub_32f_AC4R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** *pSrc2, int nSrc2Step, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel with unmodified alpha image subtraction.

- **NppStatus nppiSub_32f_AC4IR** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel with unmodified alpha in place image subtraction.

- **NppStatus nppiSub_32f_C4R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** *pSrc2, int nSrc2Step, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel image subtraction.

- **NppStatus nppiSub_32f_C4IR** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel in place image subtraction.

- **NppStatus nppiSub_32fc_C1R** (const **Npp32fc** *pSrc1, int nSrc1Step, const **Npp32fc** *pSrc2, int nSrc2Step, **Npp32fc** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image subtraction.

- **NppStatus nppiSub_32fc_C1IR** (const **Npp32fc** ***pSrc**, int **nSrcStep**, **Npp32fc** ***pSrcDst**, int **nSrcDstStep**, **NppiSize** **oSizeROI**)
One 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image subtraction.
- **NppStatus nppiSub_32fc_C3R** (const **Npp32fc** ***pSrc1**, int **nSrc1Step**, const **Npp32fc** ***pSrc2**, int **nSrc2Step**, **Npp32fc** ***pDst**, int **nDstStep**, **NppiSize** **oSizeROI**)
Three 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image subtraction.
- **NppStatus nppiSub_32fc_C3IR** (const **Npp32fc** ***pSrc**, int **nSrcStep**, **Npp32fc** ***pSrcDst**, int **nSrcDstStep**, **NppiSize** **oSizeROI**)
Three 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image subtraction.
- **NppStatus nppiSub_32fc_AC4R** (const **Npp32fc** ***pSrc1**, int **nSrc1Step**, const **Npp32fc** ***pSrc2**, int **nSrc2Step**, **Npp32fc** ***pDst**, int **nDstStep**, **NppiSize** **oSizeROI**)
Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha image subtraction.
- **NppStatus nppiSub_32fc_AC4IR** (const **Npp32fc** ***pSrc**, int **nSrcStep**, **Npp32fc** ***pSrcDst**, int **nSrcDstStep**, **NppiSize** **oSizeROI**)
Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image subtraction.
- **NppStatus nppiSub_32fc_C4R** (const **Npp32fc** ***pSrc1**, int **nSrc1Step**, const **Npp32fc** ***pSrc2**, int **nSrc2Step**, **Npp32fc** ***pDst**, int **nDstStep**, **NppiSize** **oSizeROI**)
Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image subtraction.
- **NppStatus nppiSub_32fc_C4IR** (const **Npp32fc** ***pSrc**, int **nSrcStep**, **Npp32fc** ***pSrcDst**, int **nSrcDstStep**, **NppiSize** **oSizeROI**)
Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image subtraction.

7.18.1 Detailed Description

Pixel by pixel subtraction of two images.

7.18.2 Function Documentation

7.18.2.1 NppStatus nppiSub_16s_AC4IRSfs (const **Npp16s** ***pSrc**, int **nSrcStep**, **Npp16s** ***pSrcDst**, int **nSrcDstStep**, **NppiSize** **oSizeROI**, int **nScaleFactor**)

Four 16-bit signed short channel with unmodified alpha in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc** Source-Image Pointer.
- nSrcStep** Source-Image Line Step.
- pSrcDst** In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.18.2.2 NppStatus nppiSub_16s_AC4RSfs (const Npp16s * *pSrc1*, int *nSrc1Step*, const Npp16s * *pSrc2*, int *nSrc2Step*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short channel with unmodified alpha image subtraction, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.18.2.3 NppStatus nppiSub_16s_C1IRSfs (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short channel in place image subtraction, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.18.2.4 NppStatus nppiSub_16s_C1RSfs (const Npp16s * pSrc1, int nSrc1Step, const Npp16s * pSrc2, int nSrc2Step, Npp16s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit signed short channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.5 NppStatus nppiSub_16s_C3IRSfs (const Npp16s * pSrc, int nSrcStep, Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit signed short channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.6 NppStatus nppiSub_16s_C3RSfs (const Npp16s * pSrc1, int nSrc1Step, const Npp16s * pSrc2, int nSrc2Step, Npp16s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit signed short channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.7 NppStatus nppiSub_16s_C4IRSfs (const Npp16s * pSrc, int nSrcStep, Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit signed short channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.8 NppStatus nppiSub_16s_C4RSfs (const Npp16s * pSrc1, int nSrc1Step, const Npp16s * pSrc2, int nSrc2Step, Npp16s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit signed short channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.9 NppStatus nppiSub_16sc_AC4IRSfs (const Npp16sc * *pSrc*, int *nSrcStep*, Npp16sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha in place image subtraction, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.10 NppStatus nppiSub_16sc_AC4RSfs (const Npp16sc * *pSrc1*, int *nSrc1Step*, const Npp16sc * *pSrc2*, int *nSrc2Step*, Npp16sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha image subtraction, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.11 NppStatus nppiSub_16sc_C1IRSfs (const Npp16sc * *pSrc*, int *nSrcStep*, Npp16sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image subtraction, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.18.2.12 NppStatus nppiSub_16sc_C1RSfs (const Npp16sc * pSrc1, int nSrc1Step, const Npp16sc * pSrc2, int nSrc2Step, Npp16sc * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image subtraction, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.18.2.13 NppStatus nppiSub_16sc_C3IRSfs (const Npp16sc * pSrc, int nSrcStep, Npp16sc * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image subtraction, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.18.2.14 NppStatus nppiSub_16sc_C3RSfs (const Npp16sc * pSrc1, int nSrc1Step, const Npp16sc * pSrc2, int nSrc2Step, Npp16sc * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.15 NppStatus nppiSub_16u_AC4IRSfs (const Npp16u * pSrc, int nSrcStep, Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel with unmodified alpha in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.16 NppStatus nppiSub_16u_AC4RSfs (const Npp16u * pSrc1, int nSrc1Step, const Npp16u * pSrc2, int nSrc2Step, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel with unmodified alpha image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.18.2.17 NppStatus nppiSub_16u_C1IRSfs (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit unsigned short channel in place image subtraction, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.18.2.18 NppStatus nppiSub_16u_C1RSfs (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u * *pSrc2*, int *nSrc2Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit unsigned short channel image subtraction, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.19 NppStatus nppiSub_16u_C3IRSfs (const Npp16u **pSrc*, int *nSrcStep*, Npp16u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit unsigned short channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.20 NppStatus nppiSub_16u_C3RSfs (const Npp16u **pSrc1*, int *nSrc1Step*, const Npp16u **pSrc2*, int *nSrc2Step*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit unsigned short channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.21 NppStatus nppiSub_16u_C4IRSfs (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.22 NppStatus nppiSub_16u_C4RSfs (const Npp16u * *pSrc1*, const Npp16u * *pSrc2*, int *nSrc1Step*, int *nSrc2Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.
- nSrc2Step* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.23 NppStatus nppiSub_32f_AC4IR (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel with unmodified alpha in place image subtraction.

Parameters:

- pSrc* Source-Image Pointer.

nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.18.2.24 NppStatus nppiSub_32f_AC4R (const Npp32f * *pSrc1*, int *nSrc1Step*, const Npp32f * *pSrc2*, int *nSrc2Step*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel with unmodified alpha image subtraction.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.18.2.25 NppStatus nppiSub_32f_C1IR (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point channel in place image subtraction.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.18.2.26 NppStatus nppiSub_32f_C1R (const Npp32f * pSrc1, int nSrc1Step, const Npp32f * pSrc2, int nSrc2Step, Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

One 32-bit floating point channel image subtraction.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.27 NppStatus nppiSub_32f_C3IR (const Npp32f * pSrc, int nSrcStep, Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Three 32-bit floating point channel in place image subtraction.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.28 NppStatus nppiSub_32f_C3R (const Npp32f * pSrc1, int nSrc1Step, const Npp32f * pSrc2, int nSrc2Step, Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

Three 32-bit floating point channel image subtraction.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.18.2.29 NppStatus nppiSub_32f_C4IR (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel in place image subtraction.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.18.2.30 NppStatus nppiSub_32f_C4R (const Npp32f * *pSrc1*, int *nSrc1Step*, const Npp32f * *pSrc2*, int *nSrc2Step*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel image subtraction.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.18.2.31 NppStatus nppiSub_32fc_AC4IR (const Npp32fc * *pSrc*, int *nSrcStep*, Npp32fc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image subtraction.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.32 NppStatus nppiSub_32fc_AC4R (const Npp32fc * *pSrc1*, int *nSrc1Step*, const Npp32fc * *pSrc2*, int *nSrc2Step*, Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha image subtraction.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.33 NppStatus nppiSub_32fc_C1IR (const Npp32fc * *pSrc*, int *nSrcStep*, Npp32fc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image subtraction.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.18.2.34 NppStatus nppiSub_32fc_C1R (const Npp32fc **pSrc1*, int *nSrc1Step*, const Npp32fc **pSrc2*, int *nSrc2Step*, Npp32fc **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image subtraction.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.18.2.35 NppStatus nppiSub_32fc_C3IR (const Npp32fc **pSrc*, int *nSrcStep*, Npp32fc **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image subtraction.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.18.2.36 NppStatus nppiSub_32fc_C3R (const Npp32fc **pSrc1*, int *nSrc1Step*, const Npp32fc **pSrc2*, int *nSrc2Step*, Npp32fc **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image subtraction.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.
- nSrc2Step* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.37 NppStatus nppiSub_32fc_C4IR (const Npp32fc **pSrc*, int *nSrcStep*, Npp32fc **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image subtraction.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.38 NppStatus nppiSub_32fc_C4R (const Npp32fc **pSrc1*, int *nSrc1Step*, const Npp32fc **pSrc2*, int *nSrc2Step*, Npp32fc **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image subtraction.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.
- nSrc2Step* Source-Image Line Step.

pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.39 NppStatus nppiSub_32s_C1IRSfs (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.40 NppStatus nppiSub_32s_C1R (const Npp32s * *pSrc1*, int *nSrc1Step*, const Npp32s * *pSrc2*, int *nSrc2Step*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Note: This function is to be deprecated in future NPP releases, use the function above with a scale factor of 0 instead.

32-bit image subtraction. Subtract pSrc1's pixels from corresponding pixels in pSrc2.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.41 NppStatus nppiSub_32s_C1RSfs (const Npp32s * *pSrc1*, int *nSrc1Step*, const Npp32s * *pSrc2*, int *nSrc2Step*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.42 NppStatus nppiSub_32s_C3IRSfs (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed integer channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.43 NppStatus nppiSub_32s_C3RSfs (const Npp32s * *pSrc1*, int *nSrc1Step*, const Npp32s * *pSrc2*, int *nSrc2Step*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed integer channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.18.2.44 NppStatus nppiSub_32s_C4IRSfs (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 32-bit signed integer channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.18.2.45 NppStatus nppiSub_32s_C4RSfs (const Npp32s * *pSrc1*, int *nSrc1Step*, const Npp32s * *pSrc2*, int *nSrc2Step*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 32-bit signed integer channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.46 NppStatus nppiSub_32sc_AC4IRSfs (const Npp32sc * pSrc, int nSrcStep, Npp32sc * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image subtraction, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.47 NppStatus nppiSub_32sc_AC4RSfs (const Npp32sc * pSrc1, int nSrc1Step, const Npp32sc * pSrc2, int nSrc2Step, Npp32sc * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha image subtraction, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.48 NppStatus nppiSub_32sc_C1IRSfs (const Npp32sc * *pSrc*, int *nSrcStep*, Npp32sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel in place image subtraction, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.49 NppStatus nppiSub_32sc_C1RSfs (const Npp32sc * *pSrc1*, int *nSrc1Step*, const Npp32sc * *pSrc2*, int *nSrc2Step*, Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel image subtraction, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.50 NppStatus nppiSub_32sc_C3IRSfs (const Npp32sc * *pSrc*, int *nSrcStep*, Npp32sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel in place image subtraction, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.51 NppStatus nppiSub_32sc_C3RSfs (const Npp32sc * pSrc1, int nSrc1Step, const Npp32sc * pSrc2, int nSrc2Step, Npp32sc * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.52 NppStatus nppiSub_8u_AC4IRSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel with unmodified alpha in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.53 NppStatus nppiSub_8u_AC4RSfs (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel with unmodified alpha image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.54 NppStatus nppiSub_8u_C1IRSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.55 NppStatus nppiSub_8u_C1RSfs (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.56 NppStatus nppiSub_8u_C3IRSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.57 NppStatus nppiSub_8u_C3RSFs (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.58 NppStatus nppiSub_8u_C4IRSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.59 NppStatus nppiSub_8u_C4RSfs (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19 Div

Pixel by pixel division of two images.

Functions

- **NppStatus nppiDiv_8u_C1RSfs** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiDiv_8u_C1IRSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiDiv_8u_C3RSfs** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiDiv_8u_C3IRSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiDiv_8u_AC4RSfs** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel with unmodified alpha image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiDiv_8u_AC4IRSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel with unmodified alpha in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiDiv_8u_C4RSfs** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiDiv_8u_C4IRSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiDiv_16u_C1RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit unsigned short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiDiv_16u_C1IRSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit unsigned short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_16u_C3RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit unsigned short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_16u_C3IRSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit unsigned short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_16u_AC4RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel with unmodified alpha image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_16u_AC4IRSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel with unmodified alpha in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_16u_C4RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_16u_C4IRSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_16s_C1RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** *pSrc2, int nSrc2Step, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_16s_C1IRSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_16s_C3RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** *pSrc2, int nSrc2Step, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_16s_C3IRSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- `NppStatus nppiDiv_16s_AC4RSfs` (const `Npp16s` *`pSrc1`, int `nSrc1Step`, const `Npp16s` *`pSrc2`, int `nSrc2Step`, `Npp16s` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, int `nScaleFactor`)
Four 16-bit signed short channel with unmodified alpha image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- `NppStatus nppiDiv_16s_AC4IRSfs` (const `Npp16s` *`pSrc`, int `nSrcStep`, `Npp16s` *`pSrcDst`, int `nSrcDstStep`, `NppiSize` `oSizeROI`, int `nScaleFactor`)
Four 16-bit signed short channel with unmodified alpha in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- `NppStatus nppiDiv_16s_C4RSfs` (const `Npp16s` *`pSrc1`, int `nSrc1Step`, const `Npp16s` *`pSrc2`, int `nSrc2Step`, `Npp16s` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, int `nScaleFactor`)
Four 16-bit signed short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- `NppStatus nppiDiv_16s_C4IRSfs` (const `Npp16s` *`pSrc`, int `nSrcStep`, `Npp16s` *`pSrcDst`, int `nSrcDstStep`, `NppiSize` `oSizeROI`, int `nScaleFactor`)
Four 16-bit signed short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- `NppStatus nppiDiv_16sc_C1RSfs` (const `Npp16sc` *`pSrc1`, int `nSrc1Step`, const `Npp16sc` *`pSrc2`, int `nSrc2Step`, `Npp16sc` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, int `nScaleFactor`)
One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- `NppStatus nppiDiv_16sc_C1IRSfs` (const `Npp16sc` *`pSrc`, int `nSrcStep`, `Npp16sc` *`pSrcDst`, int `nSrcDstStep`, `NppiSize` `oSizeROI`, int `nScaleFactor`)
One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- `NppStatus nppiDiv_16sc_C3RSfs` (const `Npp16sc` *`pSrc1`, int `nSrc1Step`, const `Npp16sc` *`pSrc2`, int `nSrc2Step`, `Npp16sc` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, int `nScaleFactor`)
Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- `NppStatus nppiDiv_16sc_C3IRSfs` (const `Npp16sc` *`pSrc`, int `nSrcStep`, `Npp16sc` *`pSrcDst`, int `nSrcDstStep`, `NppiSize` `oSizeROI`, int `nScaleFactor`)
Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- `NppStatus nppiDiv_16sc_AC4RSfs` (const `Npp16sc` *`pSrc1`, int `nSrc1Step`, const `Npp16sc` *`pSrc2`, int `nSrc2Step`, `Npp16sc` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, int `nScaleFactor`)
Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- `NppStatus nppiDiv_16sc_AC4IRSfs` (const `Npp16sc` *`pSrc`, int `nSrcStep`, `Npp16sc` *`pSrcDst`, int `nSrcDstStep`, `NppiSize` `oSizeROI`, int `nScaleFactor`)
Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- `NppStatus nppiDiv_32s_C1RSfs` (const `Npp32s` *`pSrc1`, int `nSrc1Step`, const `Npp32s` *`pSrc2`, int `nSrc2Step`, `Npp32s` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, int `nScaleFactor`)

One 32-bit signed integer channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_32s_C1R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)

Note: This function is to be deprecated in future NPP releases, use the function above with a scale factor of 0 instead.

- **NppStatus nppiDiv_32s_C1IRSfs** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed integer channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_32s_C3RSfs** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 32-bit signed integer channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_32s_C3IRSfs** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 32-bit signed integer channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_32sc_C1RSfs** (const **Npp32sc** *pSrc1, int nSrc1Step, const **Npp32sc** *pSrc2, int nSrc2Step, **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_32sc_C1IRSfs** (const **Npp32sc** *pSrc, int nSrcStep, **Npp32sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_32sc_C3RSfs** (const **Npp32sc** *pSrc1, int nSrc1Step, const **Npp32sc** *pSrc2, int nSrc2Step, **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_32sc_C3IRSfs** (const **Npp32sc** *pSrc, int nSrcStep, **Npp32sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_32sc_AC4RSfs** (const **Npp32sc** *pSrc1, int nSrc1Step, const **Npp32sc** *pSrc2, int nSrc2Step, **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_32sc_AC4IRSfs** (const **Npp32sc** *pSrc, int nSrcStep, **Npp32sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_32f_C1R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** *pSrc2, int nSrc2Step, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 32-bit floating point channel image division.
- **NppStatus nppiDiv_32f_C1IR** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 32-bit floating point channel in place image division.
- **NppStatus nppiDiv_32f_C3R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** *pSrc2, int nSrc2Step, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 32-bit floating point channel image division.
- **NppStatus nppiDiv_32f_C3IR** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Three 32-bit floating point channel in place image division.
- **NppStatus nppiDiv_32f_AC4R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** *pSrc2, int nSrc2Step, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel with unmodified alpha image division.
- **NppStatus nppiDiv_32f_AC4IR** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel with unmodified alpha in place image division.
- **NppStatus nppiDiv_32f_C4R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** *pSrc2, int nSrc2Step, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel image division.
- **NppStatus nppiDiv_32f_C4IR** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel in place image division.
- **NppStatus nppiDiv_32fc_C1R** (const **Npp32fc** *pSrc1, int nSrc1Step, const **Npp32fc** *pSrc2, int nSrc2Step, **Npp32fc** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image division.
- **NppStatus nppiDiv_32fc_C1IR** (const **Npp32fc** *pSrc, int nSrcStep, **Npp32fc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image division.
- **NppStatus nppiDiv_32fc_C3R** (const **Npp32fc** *pSrc1, int nSrc1Step, const **Npp32fc** *pSrc2, int nSrc2Step, **Npp32fc** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image division.
- **NppStatus nppiDiv_32fc_C3IR** (const **Npp32fc** *pSrc, int nSrcStep, **Npp32fc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Three 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image division.
- **NppStatus nppiDiv_32fc_AC4R** (const **Npp32fc** *pSrc1, int nSrc1Step, const **Npp32fc** *pSrc2, int nSrc2Step, **Npp32fc** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha image division.

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha image division.

- **NppStatus nppiDiv_32fc_AC4IR** (const **Npp32fc** **pSrc*, int *nSrcStep*, **Npp32fc** **pSrcDst*, int *nSrcDstStep*, **NppiSize** *oSizeROI*)

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image division.

- **NppStatus nppiDiv_32fc_C4R** (const **Npp32fc** **pSrc1*, int *nSrc1Step*, const **Npp32fc** **pSrc2*, int *nSrc2Step*, **Npp32fc** **pDst*, int *nDstStep*, **NppiSize** *oSizeROI*)

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image division.

- **NppStatus nppiDiv_32fc_C4IR** (const **Npp32fc** **pSrc*, int *nSrcStep*, **Npp32fc** **pSrcDst*, int *nSrcDstStep*, **NppiSize** *oSizeROI*)

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image division.

7.19.1 Detailed Description

Pixel by pixel division of two images.

7.19.2 Function Documentation

7.19.2.1 NppStatus nppiDiv_16s_AC4IRSfs (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short channel with unmodified alpha in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc*** Source-Image Pointer.
- nSrcStep*** Source-Image Line Step.
- pSrcDst*** In-Place Image Pointer.
- nSrcDstStep*** In-Place-Image Line Step.
- oSizeROI*** Region-of-Interest (ROI).
- nScaleFactor*** Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.2 NppStatus nppiDiv_16s_AC4RSfs (const Npp16s * *pSrc1*, int *nSrc1Step*, const Npp16s * *pSrc2*, int *nSrc2Step*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short channel with unmodified alpha image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc1*** Source-Image Pointer.

nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.19.2.3 NppStatus nppiDiv_16s_C1IRSfs (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short channel in place image division, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.19.2.4 NppStatus nppiDiv_16s_C1RSfs (const Npp16s * *pSrc1*, int *nSrc1Step*, const Npp16s * *pSrc2*, int *nSrc2Step*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short channel image division, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.19.2.5 NppStatus nppiDiv_16s_C3IRSfs (const Npp16s * pSrc, int nSrcStep, Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit signed short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.6 NppStatus nppiDiv_16s_C3RSFs (const Npp16s * pSrc1, int nSrc1Step, const Npp16s * pSrc2, int nSrc2Step, Npp16s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit signed short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.7 NppStatus nppiDiv_16s_C4IRSfs (const Npp16s * pSrc, int nSrcStep, Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit signed short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.19.2.8 NppStatus nppiDiv_16s_C4RSfs (const Npp16s * *pSrc1*, int *nSrc1Step*, const Npp16s * *pSrc2*, int *nSrc2Step*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short channel image division, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.19.2.9 NppStatus nppiDiv_16sc_AC4IRSfs (const Npp16sc * *pSrc*, int *nSrcStep*, Npp16sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha in place image division, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.19.2.10 NppStatus nppiDiv_16sc_AC4RSfs (const Npp16sc * pSrc1, int nSrc1Step, const Npp16sc * pSrc2, int nSrc2Step, Npp16sc * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha image division, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.11 NppStatus nppiDiv_16sc_C1IRSfs (const Npp16sc * pSrc, int nSrcStep, Npp16sc * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image division, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.12 NppStatus nppiDiv_16sc_C1RSfs (const Npp16sc * pSrc1, int nSrc1Step, const Npp16sc * pSrc2, int nSrc2Step, Npp16sc * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image division, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.13 NppStatus nppiDiv_16sc_C3IRSfs (const Npp16sc * *pSrc*, int *nSrcStep*, Npp16sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image division, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.14 NppStatus nppiDiv_16sc_C3RSfs (const Npp16sc * *pSrc1*, int *nSrc1Step*, const Npp16sc * *pSrc2*, int *nSrc2Step*, Npp16sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image division, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.15 NppStatus nppiDiv_16u_AC4IRSfs (const Npp16u * pSrc, int nSrcStep, Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel with unmodified alpha in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.16 NppStatus nppiDiv_16u_AC4RSfs (const Npp16u * pSrc1, int nSrc1Step, const Npp16u * pSrc2, int nSrc2Step, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel with unmodified alpha image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.17 NppStatus nppiDiv_16u_C1IRSfs (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit unsigned short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.18 NppStatus nppiDiv_16u_C1RSfs (const Npp16u * *pSrc1*, const Npp16u * *pSrc2*, int *nSrc1Step*, int *nSrc2Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit unsigned short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.
- nSrc2Step* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.19 NppStatus nppiDiv_16u_C3IRSfs (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit unsigned short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc* Source-Image Pointer.

nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.20 NppStatus nppiDiv_16u_C3RSfs (const Npp16u * pSrc1, int nSrc1Step, const Npp16u * pSrc2, int nSrc2Step, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit unsigned short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.21 NppStatus nppiDiv_16u_C4IRSfs (const Npp16u * pSrc, int nSrcStep, Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.22 NppStatus nppiDiv_16u_C4RSfs (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u * *pSrc2*, int *nSrc2Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel image division, scale by $2^{\wedge}(-\text{nScaleFactor})$, then clamp to saturated value.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.
- nSrc2Step* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.23 NppStatus nppiDiv_32f_AC4IR (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel with unmodified alpha in place image division.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.24 NppStatus nppiDiv_32f_AC4R (const Npp32f * *pSrc1*, int *nSrc1Step*, const Npp32f * *pSrc2*, int *nSrc2Step*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel with unmodified alpha image division.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.19.2.25 NppStatus nppiDiv_32f_C1IR (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point channel in place image division.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.19.2.26 NppStatus nppiDiv_32f_C1R (const Npp32f * *pSrc1*, int *nSrc1Step*, const Npp32f * *pSrc2*, int *nSrc2Step*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point channel image division.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.19.2.27 NppStatus nppiDiv_32f_C3IR (const Npp32f * pSrc, int nSrcStep, Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Three 32-bit floating point channel in place image division.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.28 NppStatus nppiDiv_32f_C3R (const Npp32f * pSrc1, int nSrc1Step, const Npp32f * pSrc2, int nSrc2Step, Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

Three 32-bit floating point channel image division.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.29 NppStatus nppiDiv_32f_C4IR (const Npp32f * pSrc, int nSrcStep, Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 32-bit floating point channel in place image division.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.30 NppStatus nppiDiv_32f_C4R (const Npp32f * *pSrc1*, int *nSrc1Step*, const Npp32f * *pSrc2*, int *nSrc2Step*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel image division.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.31 NppStatus nppiDiv_32fc_AC4IR (const Npp32fc * *pSrc*, int *nSrcStep*, Npp32fc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image division.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.32 NppStatus nppiDiv_32fc_AC4R (const Npp32fc * *pSrc1*, int *nSrc1Step*, const Npp32fc * *pSrc2*, int *nSrc2Step*, Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha image division.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.19.2.33 NppStatus nppiDiv_32fc_C1IR (const Npp32fc **pSrc*, int *nSrcStep*, Npp32fc **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image division.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.19.2.34 NppStatus nppiDiv_32fc_C1R (const Npp32fc **pSrc1*, int *nSrc1Step*, const Npp32fc **pSrc2*, int *nSrc2Step*, Npp32fc **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image division.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.19.2.35 NppStatus nppiDiv_32fc_C3IR (const Npp32fc * pSrc, int nSrcStep, Npp32fc * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Three 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image division.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.36 NppStatus nppiDiv_32fc_C3R (const Npp32fc * pSrc1, int nSrc1Step, const Npp32fc * pSrc2, int nSrc2Step, Npp32fc * pDst, int nDstStep, NppiSize oSizeROI)

Three 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image division.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.37 NppStatus nppiDiv_32fc_C4IR (const Npp32fc * pSrc, int nSrcStep, Npp32fc * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image division.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.38 NppStatus nppiDiv_32fc_C4R (const Npp32fc * *pSrc1*, int *nSrc1Step*, const Npp32fc * *pSrc2*, int *nSrc2Step*, Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image division.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.
- nSrc2Step* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.39 NppStatus nppiDiv_32s_C1IRSfs (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer channel in place image division, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.40 NppStatus nppiDiv_32s_C1R (const Npp32s * *pSrc1*, int *nSrc1Step*, const Npp32s * *pSrc2*, int *nSrc2Step*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Note: This function is to be deprecated in future NPP releases, use the function above with a scale factor of 0 instead.

32-bit image division. Divide pixels in pSrc2 by pSrc1's pixels.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.

pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.41 NppStatus nppiDiv_32s_C1RSfs (const Npp32s * pSrc1, int nSrc1Step, const Npp32s * pSrc2, int nSrc2Step, Npp32s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 32-bit signed integer channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.42 NppStatus nppiDiv_32s_C3IRSfs (const Npp32s * pSrc, int nSrcStep, Npp32s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 32-bit signed integer channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.43 NppStatus nppiDiv_32s_C3RSfs (const Npp32s * *pSrc1*, int *nSrc1Step*, const Npp32s * *pSrc2*, int *nSrc2Step*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed integer channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.44 NppStatus nppiDiv_32sc_AC4IRSfs (const Npp32sc * *pSrc*, int *nSrcStep*, Npp32sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.45 NppStatus nppiDiv_32sc_AC4RSfs (const Npp32sc * *pSrc1*, int *nSrc1Step*, const Npp32sc * *pSrc2*, int *nSrc2Step*, Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.46 NppStatus nppiDiv_32sc_C1IRSfs (const Npp32sc * *pSrc*, int *nSrcStep*, Npp32sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.47 NppStatus nppiDiv_32sc_C1RSfs (const Npp32sc * *pSrc1*, int *nSrc1Step*, const Npp32sc * *pSrc2*, int *nSrc2Step*, Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.48 NppStatus nppiDiv_32sc_C3IRSfs (const Npp32sc * *pSrc*, int *nSrcStep*, Npp32sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel in place image division, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.49 NppStatus nppiDiv_32sc_C3RSfs (const Npp32sc * *pSrc1*, int *nSrc1Step*, const Npp32sc * *pSrc2*, int *nSrc2Step*, Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel image division, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.50 NppStatus nppiDiv_8u_AC4IRSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel with unmodified alpha in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.51 NppStatus nppiDiv_8u_AC4RSfs (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel with unmodified alpha image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.52 NppStatus nppiDiv_8u_C1IRSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.53 NppStatus nppiDiv_8u_C1RSfs (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel image division, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.54 NppStatus nppiDiv_8u_C3IRSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel in place image division, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.55 NppStatus nppiDiv_8u_C3RSfs (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel image division, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.56 NppStatus nppiDiv_8u_C4IRSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel in place image division, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.57 NppStatus nppiDiv_8u_C4RSfs (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel image division, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.20 Div_Round

Pixel by pixel division of two images using result rounding modes.

Functions

- `NppStatus nppiDiv_Round_8u_C1RSfs` (const `Npp8u *pSrc1`, int `nSrc1Step`, const `Npp8u *pSrc2`, int `nSrc2Step`, `Npp8u *pDst`, int `nDstStep`, `NppiSize oSizeROI`, `NppRoundMode rndMode`, int `nScaleFactor`)

One 8-bit unsigned char channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- `NppStatus nppiDiv_Round_8u_C1IRSfs` (const `Npp8u *pSrc`, int `nSrcStep`, `Npp8u *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`, `NppRoundMode rndMode`, int `nScaleFactor`)

One 8-bit unsigned char channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- `NppStatus nppiDiv_Round_8u_C3RSfs` (const `Npp8u *pSrc1`, int `nSrc1Step`, const `Npp8u *pSrc2`, int `nSrc2Step`, `Npp8u *pDst`, int `nDstStep`, `NppiSize oSizeROI`, `NppRoundMode rndMode`, int `nScaleFactor`)

Three 8-bit unsigned char channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- `NppStatus nppiDiv_Round_8u_C3IRSfs` (const `Npp8u *pSrc`, int `nSrcStep`, `Npp8u *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`, `NppRoundMode rndMode`, int `nScaleFactor`)

Three 8-bit unsigned char channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- `NppStatus nppiDiv_Round_8u_AC4RSfs` (const `Npp8u *pSrc1`, int `nSrc1Step`, const `Npp8u *pSrc2`, int `nSrc2Step`, `Npp8u *pDst`, int `nDstStep`, `NppiSize oSizeROI`, `NppRoundMode rndMode`, int `nScaleFactor`)

Four 8-bit unsigned char channel image division with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- `NppStatus nppiDiv_Round_8u_AC4IRSfs` (const `Npp8u *pSrc`, int `nSrcStep`, `Npp8u *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`, `NppRoundMode rndMode`, int `nScaleFactor`)

Four 8-bit unsigned char channel in place image division with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- `NppStatus nppiDiv_Round_8u_C4RSfs` (const `Npp8u *pSrc1`, int `nSrc1Step`, const `Npp8u *pSrc2`, int `nSrc2Step`, `Npp8u *pDst`, int `nDstStep`, `NppiSize oSizeROI`, `NppRoundMode rndMode`, int `nScaleFactor`)

Four 8-bit unsigned char channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- `NppStatus nppiDiv_Round_8u_C4IRSfs` (const `Npp8u *pSrc`, int `nSrcStep`, `Npp8u *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`, `NppRoundMode rndMode`, int `nScaleFactor`)

Four 8-bit unsigned char channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- `NppStatus nppiDiv_Round_16u_C1RSfs` (const `Npp16u *pSrc1`, int `nSrc1Step`, const `Npp16u *pSrc2`, int `nSrc2Step`, `Npp16u *pDst`, int `nDstStep`, `NppiSize oSizeROI`, `NppRoundMode rndMode`, int `nScaleFactor`)

One 16-bit unsigned short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_Round_16u_C1IRSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, **NppRoundMode** rndMode, int nScaleFactor)

One 16-bit unsigned short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_Round_16u_C3RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, **NppRoundMode** rndMode, int nScaleFactor)

Three 16-bit unsigned short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_Round_16u_C3IRSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, **NppRoundMode** rndMode, int nScaleFactor)

Three 16-bit unsigned short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_Round_16u_AC4RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, **NppRoundMode** rndMode, int nScaleFactor)

Four 16-bit unsigned short channel image division with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_Round_16u_AC4IRSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, **NppRoundMode** rndMode, int nScaleFactor)

Four 16-bit unsigned short channel in place image division with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_Round_16u_C4RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, **NppRoundMode** rndMode, int nScaleFactor)

Four 16-bit unsigned short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_Round_16u_C4IRSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, **NppRoundMode** rndMode, int nScaleFactor)

Four 16-bit unsigned short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_Round_16s_C1RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** *pSrc2, int nSrc2Step, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, **NppRoundMode** rndMode, int nScaleFactor)

One 16-bit signed short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_Round_16s_C1IRSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, **NppRoundMode** rndMode, int nScaleFactor)

One 16-bit signed short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_Round_16s_C3RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** *pSrc2, int nSrc2Step, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, **NppRoundMode** rndMode, int nScaleFactor)

Three 16-bit signed short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiDiv_Round_16s_C3IRSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, **NppRoundMode** rndMode, int nScaleFactor)

Three 16-bit signed short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiDiv_Round_16s_AC4RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** *pSrc2, int nSrc2Step, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, **NppRoundMode** rndMode, int nScaleFactor)

Four 16-bit signed short channel image division with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiDiv_Round_16s_AC4IRSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, **NppRoundMode** rndMode, int nScaleFactor)

Four 16-bit signed short channel in place image division with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiDiv_Round_16s_C4RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** *pSrc2, int nSrc2Step, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, **NppRoundMode** rndMode, int nScaleFactor)

Four 16-bit signed short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiDiv_Round_16s_C4IRSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, **NppRoundMode** rndMode, int nScaleFactor)

Four 16-bit signed short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

7.20.1 Detailed Description

Pixel by pixel division of two images using result rounding modes.

7.20.2 Function Documentation

7.20.2.1 NppStatus nppiDiv_Round_16s_AC4IRSfs (const Npp16s * pSrc, int nSrcStep, Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, NppRoundMode rndMode, int nScaleFactor)

Four 16-bit signed short channel in place image division with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc** Source-Image Pointer.
- nSrcStep** Source-Image Line Step.
- pSrcDst** In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_-
FINANCIAL)

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.20.2.2 NppStatus nppiDiv_Round_16s_AC4RSfs (const Npp16s * pSrc1, int nSrc1Step, const
Npp16s * pSrc2, int nSrc2Step, Npp16s * pDst, int nDstStep, NppiSize oSizeROI,
NppRoundMode rndMode, int nScaleFactor)**

Four 16-bit signed short channel image division with unmodified alpha, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_-
FINANCIAL)

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.20.2.3 NppStatus nppiDiv_Round_16s_C1IRSfs (const Npp16s * pSrc, int nSrcStep, Npp16s
* pSrcDst, int nSrcDstStep, NppiSize oSizeROI, NppRoundMode rndMode, int
nScaleFactor)**

One 16-bit signed short channel in place image division, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_-
FINANCIAL)

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.20.2.4 NppStatus nppiDiv_Round_16s_C1RSfs (const Npp16s * *pSrc1*, int *nSrc1Step*, const
Npp16s * *pSrc2*, int *nSrc2Step*, Npp16s * *pDst*, int *nDstStep*, NppSize *oSizeROI*,
NppRoundMode rndMode, int *nScaleFactor*)**

One 16-bit signed short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_-
FINANCIAL)

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.20.2.5 NppStatus nppiDiv_Round_16s_C3IRSfs (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s
* *pSrcDst*, int *nSrcDstStep*, NppSize *oSizeROI*, NppRoundMode *rndMode*, int
nScaleFactor)**

Three 16-bit signed short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_-
FINANCIAL)

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.6 NppStatus nppiDiv_Round_16s_C3RSfs (const Npp16s * pSrc1, int nSrc1Step, const Npp16s * pSrc2, int nSrc2Step, Npp16s * pDst, int nDstStep, NppiSize oSizeROI, NppRoundMode rndMode, int nScaleFactor)

Three 16-bit signed short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_FINANCIAL)
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.7 NppStatus nppiDiv_Round_16s_C4IRSfs (const Npp16s * pSrc, int nSrcStep, Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, NppRoundMode rndMode, int nScaleFactor)

Four 16-bit signed short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_FINANCIAL)
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.8 NppStatus nppiDiv_Round_16s_C4RSfs (const Npp16s * pSrc1, int nSrc1Step, const Npp16s * pSrc2, int nSrc2Step, Npp16s * pDst, int nDstStep, NppiSize oSizeROI, NppRoundMode rndMode, int nScaleFactor)

Four 16-bit signed short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_- FINANCIAL)

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.9 NppStatus nppiDiv_Round_16u_AC4IRSfs (const Npp16u * pSrc, int nSrcStep, Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, NppRoundMode rndMode, int nScaleFactor)

Four 16-bit unsigned short channel in place image division with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_- FINANCIAL)

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.10 NppStatus nppiDiv_Round_16u_AC4RSfs (const Npp16u **pSrc1*, int *nSrc1Step*, const Npp16u **pSrc2*, int *nSrc2Step*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppRoundMode *rndMode*, int *nScaleFactor*)

Four 16-bit unsigned short channel image division with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_-FINANCIAL)
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.11 NppStatus nppiDiv_Round_16u_C1IRSfs (const Npp16u **pSrc*, int *nSrcStep*, Npp16u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, NppRoundMode *rndMode*, int *nScaleFactor*)

One 16-bit unsigned short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_-FINANCIAL)
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.12 NppStatus nppiDiv_Round_16u_C1RSfs (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u * *pSrc2*, int *nSrc2Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppRoundMode *rndMode*, int *nScaleFactor*)

One 16-bit unsigned short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_FINANCIAL)
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.13 NppStatus nppiDiv_Round_16u_C3IRSfs (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, NppRoundMode *rndMode*, int *nScaleFactor*)

Three 16-bit unsigned short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_FINANCIAL)
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.14 NppStatus nppiDiv_Round_16u_C3RSfs (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u * *pSrc2*, int *nSrc2Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppRoundMode *rndMode*, int *nScaleFactor*)

Three 16-bit unsigned short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_FINANCIAL)
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.15 NppStatus nppiDiv_Round_16u_C4IRSfs (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, NppRoundMode *rndMode*, int *nScaleFactor*)

Four 16-bit unsigned short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_FINANCIAL)
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.16 NppStatus nppiDiv_Round_16u_C4RSfs (const Npp16u * pSrc1, int nSrc1Step, const Npp16u * pSrc2, int nSrc2Step, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, NppRoundMode rndMode, int nScaleFactor)

Four 16-bit unsigned short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_FINANCIAL)
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.17 NppStatus nppiDiv_Round_8u_AC4IRSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, NppRoundMode rndMode, int nScaleFactor)

Four 8-bit unsigned char channel in place image division with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_FINANCIAL)
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.18 NppStatus nppiDiv_Round_8u_AC4RSfs (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u * *pSrc2*, int *nSrc2Step*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppRoundMode *rndMode*, int *nScaleFactor*)

Four 8-bit unsigned char channel image division with unmodified alpha, scale by $2^{\wedge}(-nScaleFactor)$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_-FINANCIAL)
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.19 NppStatus nppiDiv_Round_8u_C1IRSfs (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, NppRoundMode *rndMode*, int *nScaleFactor*)

One 8-bit unsigned char channel in place image division, scale by $2^{\wedge}(-nScaleFactor)$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_-FINANCIAL)
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.20 NppStatus nppiDiv_Round_8u_C1RSfs (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u * *pSrc2*, int *nSrc2Step*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppRoundMode *rndMode*, int *nScaleFactor*)

One 8-bit unsigned char channel image division, scale by $2^{\wedge}(-nScaleFactor)$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_- FINANCIAL)
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.21 NppStatus nppiDiv_Round_8u_C3IRSfs (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, NppRoundMode *rndMode*, int *nScaleFactor*)

Three 8-bit unsigned char channel in place image division, scale by $2^{\wedge}(-nScaleFactor)$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_- FINANCIAL)
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.22 NppStatus nppiDiv_Round_8u_C3RSfs (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u * *pSrc2*, int *nSrc2Step*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppRoundMode *rndMode*, int *nScaleFactor*)

Three 8-bit unsigned char channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_FINANCIAL)
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.23 NppStatus nppiDiv_Round_8u_C4IRSfs (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, NppRoundMode *rndMode*, int *nScaleFactor*)

Four 8-bit unsigned char channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_FINANCIAL)
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.24 NppStatus nppiDiv_Round_8u_C4RSfs (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u * *pSrc2*, int *nSrc2Step*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppRoundMode *rndMode*, int *nScaleFactor*)

Four 8-bit unsigned char channel image division, scale by $2^{\text{-nScaleFactor}}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_-FINANCIAL)
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.21 Abs

Absolute value of each pixel value in an image.

Functions

- **NppStatus nppiAbs_16s_C1R** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 16-bit signed short channel image absolute value.
- **NppStatus nppiAbs_16s_C1IR** (**Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 16-bit signed short channel in place image absolute value.
- **NppStatus nppiAbs_16s_C3R** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 16-bit signed short channel image absolute value.
- **NppStatus nppiAbs_16s_C3IR** (**Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Three 16-bit signed short channel in place image absolute value.
- **NppStatus nppiAbs_16s_AC4R** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 16-bit signed short channel image absolute value with unmodified alpha.
- **NppStatus nppiAbs_16s_AC4IR** (**Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 16-bit signed short channel in place image absolute value with unmodified alpha.
- **NppStatus nppiAbs_16s_C4R** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 16-bit signed short channel image absolute value.
- **NppStatus nppiAbs_16s_C4IR** (**Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 16-bit signed short channel in place image absolute value.
- **NppStatus nppiAbs_32f_C1R** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 32-bit floating point channel image absolute value.
- **NppStatus nppiAbs_32f_C1IR** (**Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 32-bit floating point channel in place image absolute value.
- **NppStatus nppiAbs_32f_C3R** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 32-bit floating point channel image absolute value.
- **NppStatus nppiAbs_32f_C3IR** (**Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Three 32-bit floating point channel in place image absolute value.
- **NppStatus nppiAbs_32f_AC4R** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel image absolute value.

Four 32-bit floating point channel image absolute value with unmodified alpha.

- **NppStatus nppiAbs_32f_AC4IR (Npp32f *pSrcDst, int nSrcDstStep, NppiSize oSizeROI)**

Four 32-bit floating point channel in place image absolute value with unmodified alpha.

- **NppStatus nppiAbs_32f_C4R (const Npp32f *pSrc, int nSrcStep, Npp32f *pDst, int nDstStep, NppiSize oSizeROI)**

Four 32-bit floating point channel image absolute value.

- **NppStatus nppiAbs_32f_C4IR (Npp32f *pSrcDst, int nSrcDstStep, NppiSize oSizeROI)**

Four 32-bit floating point channel in place image absolute value.

7.21.1 Detailed Description

Absolute value of each pixel value in an image.

7.21.2 Function Documentation

7.21.2.1 NppStatus nppiAbs_16s_AC4IR (Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 16-bit signed short channel in place image absolute value with unmodified alpha.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.21.2.2 NppStatus nppiAbs_16s_AC4R (const Npp16s * pSrc, int nSrcStep, Npp16s * pDst, int nDstStep, NppiSize oSizeROI)

Four 16-bit signed short channel image absolute value with unmodified alpha.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.21.2.3 NppStatus nppiAbs_16s_C1IR (Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

One 16-bit signed short channel in place image absolute value.

Parameters:

- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.21.2.4 NppStatus nppiAbs_16s_C1R (const Npp16s * pSrc, int nSrcStep, Npp16s * pDst, int nDstStep, NppiSize oSizeROI)

One 16-bit signed short channel image absolute value.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.21.2.5 NppStatus nppiAbs_16s_C3IR (Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Three 16-bit signed short channel in place image absolute value.

Parameters:

- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.21.2.6 NppStatus nppiAbs_16s_C3R (const Npp16s **pSrc*, int *nSrcStep*, Npp16s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 16-bit signed short channel image absolute value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.21.2.7 NppStatus nppiAbs_16s_C4IR (Npp16s **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 16-bit signed short channel in place image absolute value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.21.2.8 NppStatus nppiAbs_16s_C4R (const Npp16s **pSrc*, int *nSrcStep*, Npp16s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 16-bit signed short channel image absolute value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.21.2.9 NppStatus nppiAbs_32f_AC4IR (Npp32f **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel in place image absolute value with unmodified alpha.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.21.2.10 NppStatus nppiAbs_32f_AC4R (const Npp32f **pSrc*, int *nSrcStep*, Npp32f **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel image absolute value with unmodified alpha.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.21.2.11 NppStatus nppiAbs_32f_C1IR (Npp32f **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point channel in place image absolute value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.21.2.12 NppStatus nppiAbs_32f_C1R (const Npp32f * pSrc, int nSrcStep, Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

One 32-bit floating point channel image absolute value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.21.2.13 NppStatus nppiAbs_32f_C3IR (Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Three 32-bit floating point channel in place image absolute value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.21.2.14 NppStatus nppiAbs_32f_C3R (const Npp32f * pSrc, int nSrcStep, Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

Three 32-bit floating point channel image absolute value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.21.2.15 NppStatus nppiAbs_32f_C4IR (Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 32-bit floating point channel in place image absolute value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.21.2.16 NppStatus nppiAbs_32f_C4R (const Npp32f * pSrc, int nSrcStep, Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

Four 32-bit floating point channel image absolute value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.22 AbsDiff

Pixel by pixel absolute difference between two images.

Functions

- **NppStatus nppiAbsDiff_8u_C1R** (const **Npp8u** ***pSrc1**, int **nSrc1Step**, const **Npp8u** ***pSrc2**, int **nSrc2Step**, **Npp8u** ***pDst**, int **nDstStep**, **NppiSize** **oSizeROI**)
One 8-bit unsigned char channel absolute difference of image1 minus image2.
- **NppStatus nppiAbsDiff_8u_C3R** (const **Npp8u** ***pSrc1**, int **nSrc1Step**, const **Npp8u** ***pSrc2**, int **nSrc2Step**, **Npp8u** ***pDst**, int **nDstStep**, **NppiSize** **oSizeROI**)
Three 8-bit unsigned char channels absolute difference of image1 minus image2.
- **NppStatus nppiAbsDiff_8u_C4R** (const **Npp8u** ***pSrc1**, int **nSrc1Step**, const **Npp8u** ***pSrc2**, int **nSrc2Step**, **Npp8u** ***pDst**, int **nDstStep**, **NppiSize** **oSizeROI**)
Four 8-bit unsigned char channels absolute difference of image1 minus image2.
- **NppStatus nppiAbsDiff_16u_C1R** (const **Npp16u** ***pSrc1**, int **nSrc1Step**, const **Npp16u** ***pSrc2**, int **nSrc2Step**, **Npp16u** ***pDst**, int **nDstStep**, **NppiSize** **oSizeROI**)
One 16-bit unsigned short channel absolute difference of image1 minus image2.
- **NppStatus nppiAbsDiff_32f_C1R** (const **Npp32f** ***pSrc1**, int **nSrc1Step**, const **Npp32f** ***pSrc2**, int **nSrc2Step**, **Npp32f** ***pDst**, int **nDstStep**, **NppiSize** **oSizeROI**)
One 32-bit floating point channel absolute difference of image1 minus image2.

7.22.1 Detailed Description

Pixel by pixel absolute difference between two images.

7.22.2 Function Documentation

7.22.2.1 NppStatus nppiAbsDiff_16u_C1R (const Npp16u * pSrc1, int nSrc1Step, const Npp16u * pSrc2, int nSrc2Step, Npp16u * pDst, int nDstStep, NppiSize oSizeROI)

One 16-bit unsigned short channel absolute difference of image1 minus image2.

Parameters:

- pSrc1** Source-Image Pointer.
- nSrc1Step** Source-Image Line Step.
- pSrc2** Source-Image Pointer.
- nSrc2Step** Source-Image Line Step.
- pDst** Destination-Image Pointer.
- nDstStep** Destination-Image Line Step.
- oSizeROI** Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.22.2.2 NppStatus nppiAbsDiff_32f_C1R (const Npp32f * pSrc1, int nSrc1Step, const Npp32f * pSrc2, int nSrc2Step, Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

One 32-bit floating point channel absolute difference of image1 minus image2.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.22.2.3 NppStatus nppiAbsDiff_8u_C1R (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

One 8-bit unsigned char channel absolute difference of image1 minus image2.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.22.2.4 NppStatus nppiAbsDiff_8u_C3R (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Three 8-bit unsigned char channels absolute difference of image1 minus image2.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.22.2.5 NppStatus nppiAbsDiff_8u_C4R (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u * *pSrc2*, int *nSrc2Step*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channels absolute difference of image1 minus image2.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.23 Sqr

Square each pixel in an image.

Functions

- **NppStatus nppiSqr_8u_C1RSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSqr_8u_C1IRSfs** (**Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel in place image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSqr_8u_C3RSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSqr_8u_C3IRSfs** (**Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel in place image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSqr_8u_AC4RSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel image squared with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSqr_8u_AC4IRSfs** (**Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel in place image squared with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSqr_8u_C4RSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSqr_8u_C4IRSfs** (**Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel in place image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSqr_16u_C1RSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit unsigned short channel image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSqr_16u_C1IRSfs** (**Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit unsigned short channel in place image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSqr_16u_C3RSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit unsigned short channel image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSqr_16u_C3IRSfs** (**Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit unsigned short channel in place image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSqr_16u_AC4RSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel image squared with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSqr_16u_AC4IRSfs** (**Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel in place image squared with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSqr_16u_C4RSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSqr_16u_C4IRSfs** (**Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel in place image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSqr_16s_C1RSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short channel image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSqr_16s_C1IRSfs** (**Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short channel in place image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSqr_16s_C3RSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short channel image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSqr_16s_C3IRSfs** (**Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short channel in place image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSqr_16s_AC4RSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel image squared with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSqr_16s_AC4IRSfs** (**Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel in place image squared with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSqr_16s_C4RSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSqr_16s_C4IRSfs** (**Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel in place image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSqr_32f_C1R** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 32-bit floating point channel image squared.
- **NppStatus nppiSqr_32f_C1IR** (**Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 32-bit floating point channel in place image squared.
- **NppStatus nppiSqr_32f_C3R** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 32-bit floating point channel image squared.
- **NppStatus nppiSqr_32f_C3IR** (**Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Three 32-bit floating point channel in place image squared.
- **NppStatus nppiSqr_32f_AC4R** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel image squared with unmodified alpha.
- **NppStatus nppiSqr_32f_AC4IR** (**Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel in place image squared with unmodified alpha.
- **NppStatus nppiSqr_32f_C4R** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel image squared.
- **NppStatus nppiSqr_32f_C4IR** (**Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel in place image squared.

7.23.1 Detailed Description

Square each pixel in an image.

7.23.2 Function Documentation

7.23.2.1 NppStatus nppiSqr_16s_AC4IRSfs (Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit signed short channel in place image squared with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.23.2.2 NppStatus nppiSqr_16s_AC4RSfs (const Npp16s * pSrc, int nSrcStep, Npp16s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit signed short channel image squared with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.23.2.3 NppStatus nppiSqr_16s_C1IRSfs (Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit signed short channel in place image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.23.2.4 NppStatus nppiSqr_16s_C1RSfs (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short channel image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.23.2.5 NppStatus nppiSqr_16s_C3IRSfs (Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short channel in place image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.23.2.6 NppStatus nppiSqr_16s_C3RSfs (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short channel image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.23.2.7 NppStatus nppiSqr_16s_C4IRSfs (Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit signed short channel in place image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.23.2.8 NppStatus nppiSqr_16s_C4RSfs (const Npp16s * pSrc, int nSrcStep, Npp16s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit signed short channel image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.23.2.9 NppStatus nppiSqr_16u_AC4IRSfs (Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel in place image squared with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.23.2.10 NppStatus nppiSqr_16u_AC4RSfs (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel image squared with unmodified alpha, scale by $2^{\wedge}(-nScaleFactor)$, then clamp to saturated value.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.23.2.11 NppStatus nppiSqr_16u_C1IRSfs (Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit unsigned short channel in place image squared, scale by $2^{\wedge}(-nScaleFactor)$, then clamp to saturated value.

Parameters:

- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.23.2.12 NppStatus nppiSqr_16u_C1RSfs (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit unsigned short channel image squared, scale by $2^{\wedge}(-nScaleFactor)$, then clamp to saturated value.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.23.2.13 NppStatus nppiSqr_16u_C3IRSfs (Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit unsigned short channel in place image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.23.2.14 NppStatus nppiSqr_16u_C3RSfs (const Npp16u * pSrc, int nSrcStep, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit unsigned short channel image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.23.2.15 NppStatus nppiSqr_16u_C4IRSfs (Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel in place image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.23.2.16 NppStatus nppiSqr_16u_C4RSfs (const Npp16u * pSrc, int nSrcStep, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.23.2.17 NppStatus nppiSqr_32f_AC4IR (Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 32-bit floating point channel in place image squared with unmodified alpha.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.23.2.18 NppStatus nppiSqr_32f_AC4R (const Npp32f * pSrc, int nSrcStep, Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

Four 32-bit floating point channel image squared with unmodified alpha.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.23.2.19 NppStatus nppiSqr_32f_C1IR (Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

One 32-bit floating point channel in place image squared.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.23.2.20 NppStatus nppiSqr_32f_C1R (const Npp32f * pSrc, int nSrcStep, Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

One 32-bit floating point channel image squared.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.23.2.21 NppStatus nppiSqr_32f_C3IR (Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Three 32-bit floating point channel in place image squared.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.23.2.22 NppStatus nppiSqr_32f_C3R (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 32-bit floating point channel image squared.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.23.2.23 NppStatus nppiSqr_32f_C4IR (Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel in place image squared.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.23.2.24 NppStatus nppiSqr_32f_C4R (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel image squared.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.23.2.25 NppStatus nppiSqr_8u_AC4IRSfs (Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel in place image squared with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.23.2.26 NppStatus nppiSqr_8u_AC4RSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel image squared with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.23.2.27 NppStatus nppiSqr_8u_C1IRSfs (Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel in place image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.23.2.28 NppStatus nppiSqr_8u_C1RSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.23.2.29 NppStatus nppiSqr_8u_C3IRSfs (Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel in place image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.23.2.30 NppStatus nppiSqr_8u_C3RSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.23.2.31 NppStatus nppiSqr_8u_C4IRSfs (Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 8-bit unsigned char channel in place image squared, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.23.2.32 NppStatus nppiSqr_8u_C4RSfs (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 8-bit unsigned char channel image squared, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.24 Sqrt

Pixel by pixel square root of each pixel in an image.

Functions

- `NppStatus nppiSqrt_8u_C1RSfs (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`
One 8-bit unsigned char channel image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- `NppStatus nppiSqrt_8u_C1IRSfs (Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)`
One 8-bit unsigned char channel in place image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- `NppStatus nppiSqrt_8u_C3RSfs (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`
Three 8-bit unsigned char channel image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- `NppStatus nppiSqrt_8u_C3IRSfs (Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)`
Three 8-bit unsigned char channel in place image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- `NppStatus nppiSqrt_8u_AC4RSfs (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`
Four 8-bit unsigned char channel image square root with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- `NppStatus nppiSqrt_8u_AC4IRSfs (Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)`
Four 8-bit unsigned char channel in place image square root with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- `NppStatus nppiSqrt_16u_C1RSfs (const Npp16u *pSrc, int nSrcStep, Npp16u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`
One 16-bit unsigned short channel image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- `NppStatus nppiSqrt_16u_C1IRSfs (Npp16u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)`
One 16-bit unsigned short channel in place image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- `NppStatus nppiSqrt_16u_C3RSfs (const Npp16u *pSrc, int nSrcStep, Npp16u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`
Three 16-bit unsigned short channel image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSqrt_16u_C3IRSfs** (`Npp16u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor`)
Three 16-bit unsigned short channel in place image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSqrt_16u_AC4RSfs** (`const Npp16u *pSrc, int nSrcStep, Npp16u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor`)
Four 16-bit unsigned short channel image square root with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSqrt_16u_AC4IRSfs** (`Npp16u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor`)
Four 16-bit unsigned short channel in place image square root with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSqrt_16s_C1RSfs** (`const Npp16s *pSrc, int nSrcStep, Npp16s *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor`)
One 16-bit signed short channel image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSqrt_16s_C1IRSfs** (`Npp16s *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor`)
One 16-bit signed short channel in place image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSqrt_16s_C3RSfs** (`const Npp16s *pSrc, int nSrcStep, Npp16s *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor`)
Three 16-bit signed short channel image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSqrt_16s_C3IRSfs** (`Npp16s *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor`)
Three 16-bit signed short channel in place image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSqrt_16s_AC4RSfs** (`const Npp16s *pSrc, int nSrcStep, Npp16s *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor`)
Four 16-bit signed short channel image square root with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSqrt_16s_AC4IRSfs** (`Npp16s *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor`)
Four 16-bit signed short channel in place image square root with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSqrt_32f_C1R** (`const Npp32f *pSrc, int nSrcStep, Npp32f *pDst, int nDstStep, NppiSize oSizeROI`)
One 32-bit floating point channel image square root.
- **NppStatus nppiSqrt_32f_C1IR** (`Npp32f *pSrcDst, int nSrcDstStep, NppiSize oSizeROI`)
One 32-bit floating point channel in place image square root.

- [NppStatus nppiSqrt_32f_C3R](#) (const [Npp32f](#) *[pSrc](#), int [nSrcStep](#), [Npp32f](#) *[pDst](#), int [nDstStep](#), [NppiSize](#) [oSizeROI](#))
Three 32-bit floating point channel image square root.
- [NppStatus nppiSqrt_32f_C3IR](#) ([Npp32f](#) *[pSrcDst](#), int [nSrcDstStep](#), [NppiSize](#) [oSizeROI](#))
Three 32-bit floating point channel in place image square root.
- [NppStatus nppiSqrt_32f_AC4R](#) (const [Npp32f](#) *[pSrc](#), int [nSrcStep](#), [Npp32f](#) *[pDst](#), int [nDstStep](#), [NppiSize](#) [oSizeROI](#))
Four 32-bit floating point channel image square root with unmodified alpha.
- [NppStatus nppiSqrt_32f_AC4IR](#) ([Npp32f](#) *[pSrcDst](#), int [nSrcDstStep](#), [NppiSize](#) [oSizeROI](#))
Four 32-bit floating point channel in place image square root with unmodified alpha.
- [NppStatus nppiSqrt_32f_C4R](#) (const [Npp32f](#) *[pSrc](#), int [nSrcStep](#), [Npp32f](#) *[pDst](#), int [nDstStep](#), [NppiSize](#) [oSizeROI](#))
Four 32-bit floating point channel image square root.
- [NppStatus nppiSqrt_32f_C4IR](#) ([Npp32f](#) *[pSrcDst](#), int [nSrcDstStep](#), [NppiSize](#) [oSizeROI](#))
Four 32-bit floating point channel in place image square root.

7.24.1 Detailed Description

Pixel by pixel square root of each pixel in an image.

7.24.2 Function Documentation

7.24.2.1 [NppStatus nppiSqrt_16s_AC4IRSfs](#) ([Npp16s](#) *[pSrcDst](#), int [nSrcDstStep](#), [NppiSize](#) [oSizeROI](#), int [nScaleFactor](#))

Four 16-bit signed short channel in place image square root with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- [pSrcDst](#) In-Place Image Pointer.
- [nSrcDstStep](#) In-Place-Image Line Step.
- [oSizeROI](#) Region-of-Interest (ROI).
- [nScaleFactor](#) Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.2 NppStatus nppiSqrt_16s_AC4RSfs (const Npp16s * pSrc, int nSrcStep, Npp16s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit signed short channel image square root with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.3 NppStatus nppiSqrt_16s_C1IRSfs (Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit signed short channel in place image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.4 NppStatus nppiSqrt_16s_C1RSfs (const Npp16s * pSrc, int nSrcStep, Npp16s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit signed short channel image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.24.2.5 NppStatus nppiSqrt_16s_C3IRSfs (Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit signed short channel in place image square root, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.24.2.6 NppStatus nppiSqrt_16s_C3RSfs (const Npp16s * pSrc, int nSrcStep, Npp16s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit signed short channel image square root, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.24.2.7 NppStatus nppiSqrt_16u_AC4IRSfs (Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel in place image square root with unmodified alpha, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.24.2.8 NppStatus nppiSqrt_16u_AC4RSfs (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel image square root with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.24.2.9 NppStatus nppiSqrt_16u_C1IRSfs (Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit unsigned short channel in place image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.24.2.10 NppStatus nppiSqrt_16u_C1RSfs (const Npp16u **pSrc*, int *nSrcStep*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit unsigned short channel image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.11 NppStatus nppiSqrt_16u_C3IRSfs (Npp16u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit unsigned short channel in place image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.12 NppStatus nppiSqrt_16u_C3RSfs (const Npp16u **pSrc*, int *nSrcStep*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit unsigned short channel image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.13 NppStatus nppiSqrt_32f_AC4IR (Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 32-bit floating point channel in place image square root with unmodified alpha.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.14 NppStatus nppiSqrt_32f_AC4R (const Npp32f * pSrc, int nSrcStep, Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

Four 32-bit floating point channel image square root with unmodified alpha.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.15 NppStatus nppiSqrt_32f_C1IR (Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

One 32-bit floating point channel in place image square root.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.16 NppStatus nppiSqrt_32f_C1R (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point channel image square root.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.17 NppStatus nppiSqrt_32f_C3IR (Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 32-bit floating point channel in place image square root.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.18 NppStatus nppiSqrt_32f_C3R (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 32-bit floating point channel image square root.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.19 NppStatus nppiSqrt_32f_C4IR (Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 32-bit floating point channel in place image square root.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.20 NppStatus nppiSqrt_32f_C4R (const Npp32f * pSrc, int nSrcStep, Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

Four 32-bit floating point channel image square root.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.21 NppStatus nppiSqrt_8u_AC4IRSfs (Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel in place image square root with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.22 NppStatus nppiSqrt_8u_AC4RSfs (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 8-bit unsigned char channel image square root with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.23 NppStatus nppiSqrt_8u_C1IRSfs (Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 8-bit unsigned char channel in place image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.24 NppStatus nppiSqrt_8u_C1RSfs (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 8-bit unsigned char channel image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.24.2.25 NppStatus nppiSqrt_8u_C3IRSfs (Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel in place image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.24.2.26 NppStatus nppiSqrt_8u_C3RSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.25 Ln

Pixel by pixel natural logarithm of each pixel in an image.

Functions

- **NppStatus nppiLn_8u_C1RSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiLn_8u_C1IRSfs** (**Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel in place image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiLn_8u_C3RSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiLn_8u_C3IRSfs** (**Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel in place image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiLn_16u_C1RSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit unsigned short channel image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiLn_16u_C1IRSfs** (**Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit unsigned short channel in place image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiLn_16u_C3RSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit unsigned short channel image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiLn_16u_C3IRSfs** (**Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit unsigned short channel in place image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiLn_16s_C1RSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short channel image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiLn_16s_C1IRSfs** (*Npp16s *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor*)
One 16-bit signed short channel in place image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiLn_16s_C3RSfs** (*const Npp16s *pSrc, int nSrcStep, Npp16s *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor*)
Three 16-bit signed short channel image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiLn_16s_C3IRSfs** (*Npp16s *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor*)
Three 16-bit signed short channel in place image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiLn_32f_C1R** (*const Npp32f *pSrc, int nSrcStep, Npp32f *pDst, int nDstStep, NppiSize oSizeROI*)
One 32-bit floating point channel image natural logarithm.
- **NppStatus nppiLn_32f_C1IR** (*Npp32f *pSrcDst, int nSrcDstStep, NppiSize oSizeROI*)
One 32-bit floating point channel in place image natural logarithm.
- **NppStatus nppiLn_32f_C3R** (*const Npp32f *pSrc, int nSrcStep, Npp32f *pDst, int nDstStep, NppiSize oSizeROI*)
Three 32-bit floating point channel image natural logarithm.
- **NppStatus nppiLn_32f_C3IR** (*Npp32f *pSrcDst, int nSrcDstStep, NppiSize oSizeROI*)
Three 32-bit floating point channel in place image natural logarithm.

7.25.1 Detailed Description

Pixel by pixel natural logarithm of each pixel in an image.

7.25.2 Function Documentation

7.25.2.1 NppStatus nppiLn_16s_C1IRSfs (*Npp16s *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor*)

One 16-bit signed short channel in place image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.25.2.2 NppStatus nppiLn_16s_C1RSfs (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short channel image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.25.2.3 NppStatus nppiLn_16s_C3IRSfs (Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short channel in place image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.25.2.4 NppStatus nppiLn_16s_C3RSfs (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short channel image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.25.2.5 NppStatus nppiLn_16u_C1IRSfs (Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit unsigned short channel in place image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.25.2.6 NppStatus nppiLn_16u_C1RSfs (const Npp16u * pSrc, int nSrcStep, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit unsigned short channel image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.25.2.7 NppStatus nppiLn_16u_C3IRSfs (Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit unsigned short channel in place image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.25.2.8 NppStatus nppiLn_16u_C3RSfs (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit unsigned short channel image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.25.2.9 NppStatus nppiLn_32f_C1IR (Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point channel in place image natural logarithm.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.25.2.10 NppStatus nppiLn_32f_C1R (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point channel image natural logarithm.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.25.2.11 NppStatus nppiLn_32f_C3IR (Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Three 32-bit floating point channel in place image natural logarithm.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.25.2.12 NppStatus nppiLn_32f_C3R (const Npp32f * pSrc, int nSrcStep, Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

Three 32-bit floating point channel image natural logarithm.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.25.2.13 NppStatus nppiLn_8u_C1IRSfs (Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel in place image natural logarithm, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.25.2.14 NppStatus nppiLn_8u_C1RSfs (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 8-bit unsigned char channel image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.25.2.15 NppStatus nppiLn_8u_C3IRSfs (Npp8u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 8-bit unsigned char channel in place image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.25.2.16 NppStatus nppiLn_8u_C3RSfs (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 8-bit unsigned char channel image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.26 Exp

Exponential value of each pixel in an image.

Functions

- **NppStatus nppiExp_8u_C1RSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
One 8-bit unsigned char channel image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiExp_8u_C1IRSfs** (**Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
One 8-bit unsigned char channel in place image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiExp_8u_C3RSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Three 8-bit unsigned char channel image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiExp_8u_C3IRSfs** (**Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Three 8-bit unsigned char channel in place image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiExp_16u_C1RSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
One 16-bit unsigned short channel image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiExp_16u_C1IRSfs** (**Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
One 16-bit unsigned short channel in place image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiExp_16u_C3RSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Three 16-bit unsigned short channel image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiExp_16u_C3IRSfs** (**Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Three 16-bit unsigned short channel in place image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiExp_16s_C1RSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
One 16-bit signed short channel image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiExp_16s_C1IRSfs** (`Npp16s *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor`)
One 16-bit signed short channel in place image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiExp_16s_C3RSfs** (`const Npp16s *pSrc, int nSrcStep, Npp16s *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor`)
Three 16-bit signed short channel image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiExp_16s_C3IRSfs** (`Npp16s *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor`)
Three 16-bit signed short channel in place image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiExp_32f_C1R** (`const Npp32f *pSrc, int nSrcStep, Npp32f *pDst, int nDstStep, NppiSize oSizeROI`)
One 32-bit floating point channel image exponential.
- **NppStatus nppiExp_32f_C1IR** (`Npp32f *pSrcDst, int nSrcDstStep, NppiSize oSizeROI`)
One 32-bit floating point channel in place image exponential.
- **NppStatus nppiExp_32f_C3R** (`const Npp32f *pSrc, int nSrcStep, Npp32f *pDst, int nDstStep, NppiSize oSizeROI`)
Three 32-bit floating point channel image exponential.
- **NppStatus nppiExp_32f_C3IR** (`Npp32f *pSrcDst, int nSrcDstStep, NppiSize oSizeROI`)
Three 32-bit floating point channel in place image exponential.

7.26.1 Detailed Description

Exponential value of each pixel in an image.

7.26.2 Function Documentation

7.26.2.1 NppStatus nppiExp_16s_C1IRSfs (`Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor`)

One 16-bit signed short channel in place image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrcDst** In-Place Image Pointer.
- nSrcDstStep** In-Place-Image Line Step.
- oSizeROI** Region-of-Interest (ROI).
- nScaleFactor** Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.26.2.2 NppStatus nppiExp_16s_C1RSfs (const Npp16s * pSrc, int nSrcStep, Npp16s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit signed short channel image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.26.2.3 NppStatus nppiExp_16s_C3IRSfs (Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit signed short channel in place image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.26.2.4 NppStatus nppiExp_16s_C3RSfs (const Npp16s * pSrc, int nSrcStep, Npp16s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit signed short channel image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.26.2.5 NppStatus nppiExp_16u_C1IRSfs (Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit unsigned short channel in place image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.26.2.6 NppStatus nppiExp_16u_C1RSfs (const Npp16u * pSrc, int nSrcStep, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit unsigned short channel image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.26.2.7 NppStatus nppiExp_16u_C3IRSfs (Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit unsigned short channel in place image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.26.2.8 NppStatus nppiExp_16u_C3RSfs (const Npp16u * pSrc, int nSrcStep, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit unsigned short channel image exponential, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.26.2.9 NppStatus nppiExp_32f_C1IR (Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

One 32-bit floating point channel in place image exponential.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.26.2.10 NppStatus nppiExp_32f_C1R (const Npp32f * pSrc, int nSrcStep, Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

One 32-bit floating point channel image exponential.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.26.2.11 NppStatus nppiExp_32f_C3IR (Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Three 32-bit floating point channel in place image exponential.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.26.2.12 NppStatus nppiExp_32f_C3R (const Npp32f * pSrc, int nSrcStep, Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

Three 32-bit floating point channel image exponential.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.26.2.13 NppStatus nppiExp_8u_C1IRSfs (Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel in place image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.26.2.14 NppStatus nppiExp_8u_C1RSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.26.2.15 NppStatus nppiExp_8u_C3IRSfs (Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel in place image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.26.2.16 NppStatus nppiExp_8u_C3RSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.27 Logical Operations

Modules

- [AndC](#)

Pixel by pixel logical and of an image with a constant.

- [OrC](#)

Pixel by pixel logical or of an image with a constant.

- [XorC](#)

Pixel by pixel logical exclusive or of an image with a constant.

- [RShiftC](#)

Pixel by pixel right shift of an image by a constant value.

- [LShiftC](#)

Pixel by pixel left shift of an image by a constant value.

- [And](#)

Pixel by pixel logical and of images.

- [Or](#)

Pixel by pixel logical or of images.

- [Xor](#)

Pixel by pixel logical exclusive or of images.

- [Not](#)

Pixel by pixel logical not of image.

7.28 AndC

Pixel by pixel logical and of an image with a constant.

Functions

- **NppStatus nppiAndC_8u_C1R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** nConstant, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
One 8-bit unsigned char channel image logical and with constant.
- **NppStatus nppiAndC_8u_C1IR** (const **Npp8u** nConstant, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
One 8-bit unsigned char channel in place image logical and with constant.
- **NppStatus nppiAndC_8u_C3R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** aConstants[3], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Three 8-bit unsigned char channel image logical and with constant.
- **NppStatus nppiAndC_8u_C3IR** (const **Npp8u** aConstants[3], **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Three 8-bit unsigned char channel in place image logical and with constant.
- **NppStatus nppiAndC_8u_AC4R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** aConstants[3], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Four 8-bit unsigned char channel image logical and with constant with unmodified alpha.
- **NppStatus nppiAndC_8u_AC4IR** (const **Npp8u** aConstants[3], **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Four 8-bit unsigned char channel in place image logical and with constant with unmodified alpha.
- **NppStatus nppiAndC_8u_C4R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** aConstants[4], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Four 8-bit unsigned char channel image logical and with constant.
- **NppStatus nppiAndC_8u_C4IR** (const **Npp8u** aConstants[4], **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Four 8-bit unsigned char channel in place image logical and with constant.
- **NppStatus nppiAndC_16u_C1R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** nConstant, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)
One 16-bit unsigned short channel image logical and with constant.
- **NppStatus nppiAndC_16u_C1IR** (const **Npp16u** nConstant, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
One 16-bit unsigned short channel in place image logical and with constant.
- **NppStatus nppiAndC_16u_C3R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** aConstants[3], **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Three 16-bit unsigned short channel image logical and with constant.

- **NppStatus nppiAndC_16u_C3IR** (const **Npp16u** aConstants[3], **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Three 16-bit unsigned short channel in place image logical and with constant.
- **NppStatus nppiAndC_16u_AC4R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** aConstants[3], **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 16-bit unsigned short channel image logical and with constant with unmodified alpha.
- **NppStatus nppiAndC_16u_AC4IR** (const **Npp16u** aConstants[3], **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 16-bit unsigned short channel in place image logical and with constant with unmodified alpha.
- **NppStatus nppiAndC_16u_C4R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** aConstants[4], **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 16-bit unsigned short channel image logical and with constant.
- **NppStatus nppiAndC_16u_C4IR** (const **Npp16u** aConstants[4], **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 16-bit unsigned short channel in place image logical and with constant.
- **NppStatus nppiAndC_32s_C1R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** nConstant, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 32-bit signed integer channel image logical and with constant.
- **NppStatus nppiAndC_32s_C1IR** (const **Npp32s** nConstant, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 32-bit signed integer channel in place image logical and with constant.
- **NppStatus nppiAndC_32s_C3R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** aConstants[3], **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 32-bit signed integer channel image logical and with constant.
- **NppStatus nppiAndC_32s_C3IR** (const **Npp32s** aConstants[3], **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Three 32-bit signed integer channel in place image logical and with constant.
- **NppStatus nppiAndC_32s_AC4R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** aConstants[3], **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit signed integer channel image logical and with constant with unmodified alpha.
- **NppStatus nppiAndC_32s_AC4IR** (const **Npp32s** aConstants[3], **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 32-bit signed integer channel in place image logical and with constant with unmodified alpha.
- **NppStatus nppiAndC_32s_C4R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** aConstants[4], **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit signed integer channel image logical and with constant.
- **NppStatus nppiAndC_32s_C4IR** (const **Npp32s** aConstants[4], **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 32-bit signed integer channel in place image logical and with constant.

7.28.1 Detailed Description

Pixel by pixel logical and of an image with a constant.

7.28.2 Function Documentation

7.28.2.1 NppStatus nppiAndC_16u_AC4IR (const Npp16u *aConstants*[3], Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel in place image logical and with constant with unmodified alpha.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.28.2.2 NppStatus nppiAndC_16u_AC4R (const Npp16u * *pSrcI*, int *nSrcIStep*, const Npp16u *aConstants*[3], Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel image logical and with constant with unmodified alpha.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.28.2.3 NppStatus nppiAndC_16u_C1IR (const Npp16u *nConstant*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 16-bit unsigned short channel in place image logical and with constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.28.2.4 NppStatus nppiAndC_16u_C1R (const Npp16u **pSrcI*, int *nSrcIStep*, const Npp16u *nConstant*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 16-bit unsigned short channel image logical and with constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.28.2.5 NppStatus nppiAndC_16u_C3IR (const Npp16u *aConstants*[3], Npp16u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 16-bit unsigned short channel in place image logical and with constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.28.2.6 NppStatus nppiAndC_16u_C3R (const Npp16u **pSrcI*, int *nSrcIStep*, const Npp16u *aConstants*[3], Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 16-bit unsigned short channel image logical and with constant.

Parameters:

pSrcI Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.28.2.7 NppStatus nppiAndC_16u_C4IR (const Npp16u *aConstants*[4], Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel in place image logical and with constant.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.28.2.8 NppStatus nppiAndC_16u_C4R (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u *aConstants*[4], Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel image logical and with constant.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.28.2.9 NppStatus nppiAndC_32s_AC4IR (const Npp32s *aConstants*[3], Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel in place image logical and with constant with unmodified alpha.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.28.2.10 NppStatus nppiAndC_32s_AC4R (const Npp32s * *pSrcI*, int *nSrcIStep*, const Npp32s *aConstants*[3], Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel image logical and with constant with unmodified alpha.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.28.2.11 NppStatus nppiAndC_32s_C1IR (const Npp32s *nConstant*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit signed integer channel in place image logical and with constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.28.2.12 NppStatus nppiAndC_32s_C1R (const Npp32s * pSrc1, int nSrc1Step, const Npp32s nConstant, Npp32s * pDst, int nDstStep, NppiSize oSizeROI)

One 32-bit signed integer channel image logical and with constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.28.2.13 NppStatus nppiAndC_32s_C3IR (const Npp32s aConstants[3], Npp32s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Three 32-bit signed integer channel in place image logical and with constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.28.2.14 NppStatus nppiAndC_32s_C3R (const Npp32s * pSrc1, int nSrc1Step, const Npp32s aConstants[3], Npp32s * pDst, int nDstStep, NppiSize oSizeROI)

Three 32-bit signed integer channel image logical and with constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.28.2.15 NppStatus nppiAndC_32s_C4IR (const Npp32s *aConstants*[4], Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel in place image logical and with constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.28.2.16 NppStatus nppiAndC_32s_C4R (const Npp32s * *pSrc1*, int *nSrc1Step*, const Npp32s *aConstants*[4], Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel image logical and with constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.28.2.17 NppStatus nppiAndC_8u_AC4IR (const Npp8u *aConstants*[3], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel in place image logical and with constant with unmodified alpha.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.28.2.18 NppStatus nppiAndC_8u_AC4R (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * aConstants[3], Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Four 8-bit unsigned char channel image logical and with constant with unmodified alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.28.2.19 NppStatus nppiAndC_8u_C1IR (const Npp8u nConstant, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

One 8-bit unsigned char channel in place image logical and with constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.28.2.20 NppStatus nppiAndC_8u_C1R (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * nConstant, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

One 8-bit unsigned char channel image logical and with constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.28.2.21 NppStatus nppiAndC_8u_C3IR (const Npp8u *aConstants*[3], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 8-bit unsigned char channel in place image logical and with constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.28.2.22 NppStatus nppiAndC_8u_C3R (const Npp8u * *pSrcI*, int *nSrcIStep*, const Npp8u *aConstants*[3], Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 8-bit unsigned char channel image logical and with constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.28.2.23 NppStatus nppiAndC_8u_C4IR (const Npp8u *aConstants*[4], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel in place image logical and with constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.28.2.24 NppStatus nppiAndC_8u_C4R (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * aConstants[4], Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Four 8-bit unsigned char channel image logical and with constant.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.29 OrC

Pixel by pixel logical or of an image with a constant.

Functions

- **NppStatus nppiOrC_8u_C1R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** nConstant, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 8-bit unsigned char channel image logical or with constant.
- **NppStatus nppiOrC_8u_C1IR** (const **Npp8u** nConstant, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 8-bit unsigned char channel in place image logical or with constant.
- **NppStatus nppiOrC_8u_C3R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** aConstants[3], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 8-bit unsigned char channel image logical or with constant.
- **NppStatus nppiOrC_8u_C3IR** (const **Npp8u** aConstants[3], **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Three 8-bit unsigned char channel in place image logical or with constant.
- **NppStatus nppiOrC_8u_AC4R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** aConstants[3], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel image logical or with constant with unmodified alpha.
- **NppStatus nppiOrC_8u_AC4IR** (const **Npp8u** aConstants[3], **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel in place image logical or with constant with unmodified alpha.
- **NppStatus nppiOrC_8u_C4R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** aConstants[4], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel image logical or with constant.
- **NppStatus nppiOrC_8u_C4IR** (const **Npp8u** aConstants[4], **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel in place image logical or with constant.
- **NppStatus nppiOrC_16u_C1R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** nConstant, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 16-bit unsigned short channel image logical or with constant.
- **NppStatus nppiOrC_16u_C1IR** (const **Npp16u** nConstant, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 16-bit unsigned short channel in place image logical or with constant.
- **NppStatus nppiOrC_16u_C3R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** aConstants[3], **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 16-bit unsigned short channel image logical or with constant.

- `NppStatus nppiOrC_16u_C3IR (const Npp16u aConstants[3], Npp16u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI)`
Three 16-bit unsigned short channel in place image logical or with constant.
- `NppStatus nppiOrC_16u_AC4R (const Npp16u *pSrc1, int nSrc1Step, const Npp16u aConstants[3], Npp16u *pDst, int nDstStep, NppiSize oSizeROI)`
Four 16-bit unsigned short channel image logical or with constant with unmodified alpha.
- `NppStatus nppiOrC_16u_AC4IR (const Npp16u aConstants[3], Npp16u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI)`
Four 16-bit unsigned short channel in place image logical or with constant with unmodified alpha.
- `NppStatus nppiOrC_16u_C4R (const Npp16u *pSrc1, int nSrc1Step, const Npp16u aConstants[4], Npp16u *pDst, int nDstStep, NppiSize oSizeROI)`
Four 16-bit unsigned short channel image logical or with constant.
- `NppStatus nppiOrC_16u_C4IR (const Npp16u aConstants[4], Npp16u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI)`
Four 16-bit unsigned short channel in place image logical or with constant.
- `NppStatus nppiOrC_32s_C1R (const Npp32s *pSrc1, int nSrc1Step, const Npp32s nConstant, Npp32s *pDst, int nDstStep, NppiSize oSizeROI)`
One 32-bit signed integer channel image logical or with constant.
- `NppStatus nppiOrC_32s_C1IR (const Npp32s nConstant, Npp32s *pSrcDst, int nSrcDstStep, NppiSize oSizeROI)`
One 32-bit signed integer channel in place image logical or with constant.
- `NppStatus nppiOrC_32s_C3R (const Npp32s *pSrc1, int nSrc1Step, const Npp32s aConstants[3], Npp32s *pDst, int nDstStep, NppiSize oSizeROI)`
Three 32-bit signed integer channel image logical or with constant.
- `NppStatus nppiOrC_32s_C3IR (const Npp32s aConstants[3], Npp32s *pSrcDst, int nSrcDstStep, NppiSize oSizeROI)`
Three 32-bit signed integer channel in place image logical or with constant.
- `NppStatus nppiOrC_32s_AC4R (const Npp32s *pSrc1, int nSrc1Step, const Npp32s aConstants[3], Npp32s *pDst, int nDstStep, NppiSize oSizeROI)`
Four 32-bit signed integer channel image logical or with constant with unmodified alpha.
- `NppStatus nppiOrC_32s_AC4IR (const Npp32s aConstants[3], Npp32s *pSrcDst, int nSrcDstStep, NppiSize oSizeROI)`
Four 32-bit signed integer channel in place image logical or with constant with unmodified alpha.
- `NppStatus nppiOrC_32s_C4R (const Npp32s *pSrc1, int nSrc1Step, const Npp32s aConstants[4], Npp32s *pDst, int nDstStep, NppiSize oSizeROI)`
Four 32-bit signed integer channel image logical or with constant.
- `NppStatus nppiOrC_32s_C4IR (const Npp32s aConstants[4], Npp32s *pSrcDst, int nSrcDstStep, NppiSize oSizeROI)`
Four 32-bit signed integer channel in place image logical or with constant.

7.29.1 Detailed Description

Pixel by pixel logical or of an image with a constant.

7.29.2 Function Documentation

7.29.2.1 NppStatus nppiOrC_16u_AC4IR (const Npp16u *aConstants*[3], Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel in place image logical or with constant with unmodified alpha.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.29.2.2 NppStatus nppiOrC_16u_AC4R (const Npp16u * *pSrcI*, int *nSrcIStep*, const Npp16u *aConstants*[3], Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel image logical or with constant with unmodified alpha.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.29.2.3 NppStatus nppiOrC_16u_C1IR (const Npp16u *nConstant*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 16-bit unsigned short channel in place image logical or with constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.29.2.4 NppStatus nppiOrC_16u_C1R (const Npp16u * pSrcI, int nSrcIStep, const Npp16u nConstant, Npp16u * pDst, int nDstStep, NppiSize oSizeROI)

One 16-bit unsigned short channel image logical or with constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.29.2.5 NppStatus nppiOrC_16u_C3IR (const Npp16u aConstants[3], Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Three 16-bit unsigned short channel in place image logical or with constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.29.2.6 NppStatus nppiOrC_16u_C3R (const Npp16u * pSrcI, int nSrcIStep, const Npp16u aConstants[3], Npp16u * pDst, int nDstStep, NppiSize oSizeROI)

Three 16-bit unsigned short channel image logical or with constant.

Parameters:

pSrcI Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.29.2.7 NppStatus nppiOrC_16u_C4IR (const Npp16u *aConstants*[4], Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel in place image logical or with constant.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.29.2.8 NppStatus nppiOrC_16u_C4R (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u *aConstants*[4], Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel image logical or with constant.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.29.2.9 NppStatus nppiOrC_32s_AC4IR (const Npp32s *aConstants*[3], Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel in place image logical or with constant with unmodified alpha.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.29.2.10 NppStatus nppiOrC_32s_AC4R (const Npp32s * *pSrc1*, int *nSrc1Step*, const Npp32s *aConstants*[3], Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel image logical or with constant with unmodified alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.29.2.11 NppStatus nppiOrC_32s_C1IR (const Npp32s *nConstant*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit signed integer channel in place image logical or with constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.29.2.12 NppStatus nppiOrC_32s_C1R (const Npp32s * pSrc1, int nSrc1Step, const Npp32s nConstant, Npp32s * pDst, int nDstStep, NppiSize oSizeROI)

One 32-bit signed integer channel image logical or with constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.29.2.13 NppStatus nppiOrC_32s_C3IR (const Npp32s aConstants[3], Npp32s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Three 32-bit signed integer channel in place image logical or with constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.29.2.14 NppStatus nppiOrC_32s_C3R (const Npp32s * pSrc1, int nSrc1Step, const Npp32s aConstants[3], Npp32s * pDst, int nDstStep, NppiSize oSizeROI)

Three 32-bit signed integer channel image logical or with constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.29.2.15 NppStatus nppiOrC_32s_C4IR (const Npp32s *aConstants*[4], Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel in place image logical or with constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.29.2.16 NppStatus nppiOrC_32s_C4R (const Npp32s * *pSrcI*, int *nSrcIStep*, const Npp32s *aConstants*[4], Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel image logical or with constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.29.2.17 NppStatus nppiOrC_8u_AC4IR (const Npp8u *aConstants*[3], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel in place image logical or with constant with unmodified alpha.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.29.2.18 NppStatus nppiOrC_8u_AC4R (const Npp8u * *pSrcI*, int *nSrcIStep*, const Npp8u * *aConstants*[3], Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel image logical or with constant with unmodified alpha.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.29.2.19 NppStatus nppiOrC_8u_C1IR (const Npp8u *nConstant*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 8-bit unsigned char channel in place image logical or with constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.29.2.20 NppStatus nppiOrC_8u_C1R (const Npp8u * *pSrcI*, int *nSrcIStep*, const Npp8u *nConstant*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 8-bit unsigned char channel image logical or with constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.29.2.21 NppStatus nppiOrC_8u_C3IR (const Npp8u *aConstants*[3], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 8-bit unsigned char channel in place image logical or with constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.29.2.22 NppStatus nppiOrC_8u_C3R (const Npp8u * *pSrcI*, int *nSrcIStep*, const Npp8u *aConstants*[3], Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 8-bit unsigned char channel image logical or with constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.29.2.23 NppStatus nppiOrC_8u_C4IR (const Npp8u *aConstants*[4], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel in place image logical or with constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.29.2.24 NppStatus nppiOrC_8u_C4R (const Npp8u **pSrc1*, int *nSrc1Step*, const Npp8u **aConstants*[4], Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel image logical or with constant.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30 XorC

Pixel by pixel logical exclusive or of an image with a constant.

Functions

- **NppStatus nppiXorC_8u_C1R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** nConstant, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
One 8-bit unsigned char channel image logical exclusive or with constant.
- **NppStatus nppiXorC_8u_C1IR** (const **Npp8u** nConstant, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
One 8-bit unsigned char channel in place image logical exclusive or with constant.
- **NppStatus nppiXorC_8u_C3R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** aConstants[3], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Three 8-bit unsigned char channel image logical exclusive or with constant.
- **NppStatus nppiXorC_8u_C3IR** (const **Npp8u** aConstants[3], **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Three 8-bit unsigned char channel in place image logical exclusive or with constant.
- **NppStatus nppiXorC_8u_AC4R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** aConstants[3], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Four 8-bit unsigned char channel image logical exclusive or with constant with unmodified alpha.
- **NppStatus nppiXorC_8u_AC4IR** (const **Npp8u** aConstants[3], **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Four 8-bit unsigned char channel in place image logical exclusive or with constant with unmodified alpha.
- **NppStatus nppiXorC_8u_C4R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** aConstants[4], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Four 8-bit unsigned char channel image logical exclusive or with constant.
- **NppStatus nppiXorC_8u_C4IR** (const **Npp8u** aConstants[4], **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Four 8-bit unsigned char channel in place image logical exclusive or with constant.
- **NppStatus nppiXorC_16u_C1R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** nConstant, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)
One 16-bit unsigned short channel image logical exclusive or with constant.
- **NppStatus nppiXorC_16u_C1IR** (const **Npp16u** nConstant, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
One 16-bit unsigned short channel in place image logical exclusive or with constant.
- **NppStatus nppiXorC_16u_C3R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** aConstants[3], **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Three 16-bit unsigned short channel image logical exclusive or with constant.

- **NppStatus nppiXorC_16u_C3IR** (const **Npp16u** aConstants[3], **Npp16u** *pSrcDst, int nSrcDstStep, **NppSize** oSizeROI)

Three 16-bit unsigned short channel in place image logical exclusive or with constant.
- **NppStatus nppiXorC_16u_AC4R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** aConstants[3], **Npp16u** *pDst, int nDstStep, **NppSize** oSizeROI)

Four 16-bit unsigned short channel image logical exclusive or with constant with unmodified alpha.
- **NppStatus nppiXorC_16u_AC4IR** (const **Npp16u** aConstants[3], **Npp16u** *pSrcDst, int nSrcDstStep, **NppSize** oSizeROI)

Four 16-bit unsigned short channel in place image logical exclusive or with constant with unmodified alpha.
- **NppStatus nppiXorC_16u_C4R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** aConstants[4], **Npp16u** *pDst, int nDstStep, **NppSize** oSizeROI)

Four 16-bit unsigned short channel image logical exclusive or with constant.
- **NppStatus nppiXorC_16u_C4IR** (const **Npp16u** aConstants[4], **Npp16u** *pSrcDst, int nSrcDstStep, **NppSize** oSizeROI)

Four 16-bit unsigned short channel in place image logical exclusive or with constant.
- **NppStatus nppiXorC_32s_C1R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** nConstant, **Npp32s** *pDst, int nDstStep, **NppSize** oSizeROI)

One 32-bit signed integer channel image logical exclusive or with constant.
- **NppStatus nppiXorC_32s_C1IR** (const **Npp32s** nConstant, **Npp32s** *pSrcDst, int nSrcDstStep, **NppSize** oSizeROI)

One 32-bit signed integer channel in place image logical exclusive or with constant.
- **NppStatus nppiXorC_32s_C3R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** aConstants[3], **Npp32s** *pDst, int nDstStep, **NppSize** oSizeROI)

Three 32-bit signed integer channel image logical exclusive or with constant.
- **NppStatus nppiXorC_32s_C3IR** (const **Npp32s** aConstants[3], **Npp32s** *pSrcDst, int nSrcDstStep, **NppSize** oSizeROI)

Three 32-bit signed integer channel in place image logical exclusive or with constant.
- **NppStatus nppiXorC_32s_AC4R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** aConstants[3], **Npp32s** *pDst, int nDstStep, **NppSize** oSizeROI)

Four 32-bit signed integer channel image logical exclusive or with constant with unmodified alpha.
- **NppStatus nppiXorC_32s_AC4IR** (const **Npp32s** aConstants[3], **Npp32s** *pSrcDst, int nSrcDstStep, **NppSize** oSizeROI)

Four 32-bit signed integer channel in place image logical exclusive or with constant with unmodified alpha.
- **NppStatus nppiXorC_32s_C4R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** aConstants[4], **Npp32s** *pDst, int nDstStep, **NppSize** oSizeROI)

Four 32-bit signed integer channel image logical exclusive or with constant.
- **NppStatus nppiXorC_32s_C4IR** (const **Npp32s** aConstants[4], **Npp32s** *pSrcDst, int nSrcDstStep, **NppSize** oSizeROI)

Four 32-bit signed integer channel in place image logical exclusive or with constant.

7.30.1 Detailed Description

Pixel by pixel logical exclusive or of an image with a constant.

7.30.2 Function Documentation

7.30.2.1 NppStatus nppiXorC_16u_AC4IR (const Npp16u *aConstants*[3], Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel in place image logical exclusive or with constant with unmodified alpha.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30.2.2 NppStatus nppiXorC_16u_AC4R (const Npp16u * *pSrcI*, int *nSrcIStep*, const Npp16u *aConstants*[3], Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel image logical exclusive or with constant with unmodified alpha.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30.2.3 NppStatus nppiXorC_16u_C1IR (const Npp16u *nConstant*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 16-bit unsigned short channel in place image logical exclusive or with constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30.2.4 NppStatus nppiXorC_16u_C1R (const Npp16u * pSrcI, int nSrc1Step, const Npp16u nConstant, Npp16u * pDst, int nDstStep, NppiSize oSizeROI)

One 16-bit unsigned short channel image logical exclusive or with constant.

Parameters:

pSrcI Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30.2.5 NppStatus nppiXorC_16u_C3IR (const Npp16u aConstants[3], Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Three 16-bit unsigned short channel in place image logical exclusive or with constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30.2.6 NppStatus nppiXorC_16u_C3R (const Npp16u * pSrcI, int nSrc1Step, const Npp16u aConstants[3], Npp16u * pDst, int nDstStep, NppiSize oSizeROI)

Three 16-bit unsigned short channel image logical exclusive or with constant.

Parameters:

pSrcI Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.30.2.7 NppStatus nppiXorC_16u_C4IR (const Npp16u *aConstants*[4], Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel in place image logical exclusive or with constant.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.30.2.8 NppStatus nppiXorC_16u_C4R (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u *aConstants*[4], Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel image logical exclusive or with constant.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.30.2.9 NppStatus nppiXorC_32s_AC4IR (const Npp32s *aConstants*[3], Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel in place image logical exclusive or with constant with unmodified alpha.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30.2.10 NppStatus nppiXorC_32s_AC4R (const Npp32s * *pSrcI*, int *nSrcIStep*, const Npp32s *aConstants*[3], Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel image logical exclusive or with constant with unmodified alpha.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30.2.11 NppStatus nppiXorC_32s_C1IR (const Npp32s *nConstant*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit signed integer channel in place image logical exclusive or with constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30.2.12 NppStatus nppiXorC_32s_C1R (const Npp32s **pSrc1*, int *nSrc1Step*, const Npp32s *nConstant*, Npp32s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 32-bit signed integer channel image logical exclusive or with constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30.2.13 NppStatus nppiXorC_32s_C3IR (const Npp32s *aConstants*[3], Npp32s **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 32-bit signed integer channel in place image logical exclusive or with constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30.2.14 NppStatus nppiXorC_32s_C3R (const Npp32s **pSrc1*, int *nSrc1Step*, const Npp32s *aConstants*[3], Npp32s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 32-bit signed integer channel image logical exclusive or with constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30.2.15 NppStatus nppiXorC_32s_C4IR (const Npp32s *aConstants*[4], Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel in place image logical exclusive or with constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30.2.16 NppStatus nppiXorC_32s_C4R (const Npp32s * *pSrcI*, int *nSrcIStep*, const Npp32s *aConstants*[4], Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel image logical exclusive or with constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30.2.17 NppStatus nppiXorC_8u_AC4IR (const Npp8u *aConstants*[3], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel in place image logical exclusive or with constant with unmodified alpha.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30.2.18 NppStatus nppiXorC_8u_AC4R (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * aConstants[3], Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Four 8-bit unsigned char channel image logical exclusive or with constant with unmodified alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30.2.19 NppStatus nppiXorC_8u_C1IR (const Npp8u nConstant, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

One 8-bit unsigned char channel in place image logical exclusive or with constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30.2.20 NppStatus nppiXorC_8u_C1R (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * nConstant, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

One 8-bit unsigned char channel image logical exclusive or with constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30.2.21 NppStatus nppiXorC_8u_C3IR (const Npp8u *aConstants*[3], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 8-bit unsigned char channel in place image logical exclusive or with constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30.2.22 NppStatus nppiXorC_8u_C3R (const Npp8u * *pSrcI*, int *nSrcIStep*, const Npp8u *aConstants*[3], Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 8-bit unsigned char channel image logical exclusive or with constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30.2.23 NppStatus nppiXorC_8u_C4IR (const Npp8u *aConstants*[4], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel in place image logical exclusive or with constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30.2.24 NppStatus nppiXorC_8u_C4R (const Npp8u * pSrc1, int nSrc1Step, const Npp8u aConstants[4], Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Four 8-bit unsigned char channel image logical exclusive or with constant.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31 RShiftC

Pixel by pixel right shift of an image by a constant value.

Functions

- `NppStatus nppiRShiftC_8u_C1R (const Npp8u *pSrc1, int nSrc1Step, const Npp32u nConstant, Npp8u *pDst, int nDstStep, NppiSize oSizeROI)`
One 8-bit unsigned char channel image right shift by constant.
- `NppStatus nppiRShiftC_8u_C1IR (const Npp32u nConstant, Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI)`
One 8-bit unsigned char channel in place image right shift by constant.
- `NppStatus nppiRShiftC_8u_C3R (const Npp8u *pSrc1, int nSrc1Step, const Npp32u aConstants[3], Npp8u *pDst, int nDstStep, NppiSize oSizeROI)`
Three 8-bit unsigned char channel image right shift by constant.
- `NppStatus nppiRShiftC_8u_C3IR (const Npp32u aConstants[3], Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI)`
Three 8-bit unsigned char channel in place image right shift by constant.
- `NppStatus nppiRShiftC_8u_AC4R (const Npp8u *pSrc1, int nSrc1Step, const Npp32u aConstants[3], Npp8u *pDst, int nDstStep, NppiSize oSizeROI)`
Four 8-bit unsigned char channel image right shift by constant with unmodified alpha.
- `NppStatus nppiRShiftC_8u_AC4IR (const Npp32u aConstants[3], Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI)`
Four 8-bit unsigned char channel in place image right shift by constant with unmodified alpha.
- `NppStatus nppiRShiftC_8u_C4R (const Npp8u *pSrc1, int nSrc1Step, const Npp32u aConstants[4], Npp8u *pDst, int nDstStep, NppiSize oSizeROI)`
Four 8-bit unsigned char channel image right shift by constant.
- `NppStatus nppiRShiftC_8u_C4IR (const Npp32u aConstants[4], Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI)`
Four 8-bit unsigned char channel in place image right shift by constant.
- `NppStatus nppiRShiftC_8s_C1R (const Npp8s *pSrc1, int nSrc1Step, const Npp32u nConstant, Npp8s *pDst, int nDstStep, NppiSize oSizeROI)`
One 8-bit signed char channel image right shift by constant.
- `NppStatus nppiRShiftC_8s_C1IR (const Npp32u nConstant, Npp8s *pSrcDst, int nSrcDstStep, NppiSize oSizeROI)`
One 8-bit signed char channel in place image right shift by constant.
- `NppStatus nppiRShiftC_8s_C3R (const Npp8s *pSrc1, int nSrc1Step, const Npp32u aConstants[3], Npp8s *pDst, int nDstStep, NppiSize oSizeROI)`
Three 8-bit signed char channel image right shift by constant.

- **NppStatus nppiRShiftC_8s_C3IR** (const **Npp32u** aConstants[3], **Npp8s** *pSrcDst, int nSrcDstStep, **NppSize** oSizeROI)
Three 8-bit signed char channel in place image right shift by constant.
- **NppStatus nppiRShiftC_8s_AC4R** (const **Npp8s** *pSrc1, int nSrc1Step, const **Npp32u** aConstants[3], **Npp8s** *pDst, int nDstStep, **NppSize** oSizeROI)
Four 8-bit signed char channel image right shift by constant with unmodified alpha.
- **NppStatus nppiRShiftC_8s_AC4IR** (const **Npp32u** aConstants[3], **Npp8s** *pSrcDst, int nSrcDstStep, **NppSize** oSizeROI)
Four 8-bit signed char channel in place image right shift by constant with unmodified alpha.
- **NppStatus nppiRShiftC_8s_C4R** (const **Npp8s** *pSrc1, int nSrc1Step, const **Npp32u** aConstants[4], **Npp8s** *pDst, int nDstStep, **NppSize** oSizeROI)
Four 8-bit signed char channel image right shift by constant.
- **NppStatus nppiRShiftC_8s_C4IR** (const **Npp32u** aConstants[4], **Npp8s** *pSrcDst, int nSrcDstStep, **NppSize** oSizeROI)
Four 8-bit signed char channel in place image right shift by constant.
- **NppStatus nppiRShiftC_16u_C1R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp32u** nConstant, **Npp16u** *pDst, int nDstStep, **NppSize** oSizeROI)
One 16-bit unsigned short channel image right shift by constant.
- **NppStatus nppiRShiftC_16u_C1IR** (const **Npp32u** nConstant, **Npp16u** *pSrcDst, int nSrcDstStep, **NppSize** oSizeROI)
One 16-bit unsigned short channel in place image right shift by constant.
- **NppStatus nppiRShiftC_16u_C3R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp32u** aConstants[3], **Npp16u** *pDst, int nDstStep, **NppSize** oSizeROI)
Three 16-bit unsigned short channel image right shift by constant.
- **NppStatus nppiRShiftC_16u_C3IR** (const **Npp32u** aConstants[3], **Npp16u** *pSrcDst, int nSrcDstStep, **NppSize** oSizeROI)
Three 16-bit unsigned short channel in place image right shift by constant.
- **NppStatus nppiRShiftC_16u_AC4R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp32u** aConstants[3], **Npp16u** *pDst, int nDstStep, **NppSize** oSizeROI)
Four 16-bit unsigned short channel image right shift by constant with unmodified alpha.
- **NppStatus nppiRShiftC_16u_AC4IR** (const **Npp32u** aConstants[3], **Npp16u** *pSrcDst, int nSrcDstStep, **NppSize** oSizeROI)
Four 16-bit unsigned short channel in place image right shift by constant with unmodified alpha.
- **NppStatus nppiRShiftC_16u_C4R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp32u** aConstants[4], **Npp16u** *pDst, int nDstStep, **NppSize** oSizeROI)
Four 16-bit unsigned short channel image right shift by constant.
- **NppStatus nppiRShiftC_16u_C4IR** (const **Npp32u** aConstants[4], **Npp16u** *pSrcDst, int nSrcDstStep, **NppSize** oSizeROI)
Four 16-bit unsigned short channel in place image right shift by constant.

- `NppStatus nppiRShiftC_16s_C1R (const Npp16s *pSrc1, int nSrc1Step, const Npp32u nConstant, Npp16s *pDst, int nDstStep, NppiSize oSizeROI)`
One 16-bit signed short channel image right shift by constant.
- `NppStatus nppiRShiftC_16s_C1IR (const Npp32u nConstant, Npp16s *pSrcDst, int nSrcDstStep, NppiSize oSizeROI)`
One 16-bit signed short channel in place image right shift by constant.
- `NppStatus nppiRShiftC_16s_C3R (const Npp16s *pSrc1, int nSrc1Step, const Npp32u aConstants[3], Npp16s *pDst, int nDstStep, NppiSize oSizeROI)`
Three 16-bit signed short channel image right shift by constant.
- `NppStatus nppiRShiftC_16s_C3IR (const Npp32u aConstants[3], Npp16s *pSrcDst, int nSrcDstStep, NppiSize oSizeROI)`
Three 16-bit signed short channel in place image right shift by constant.
- `NppStatus nppiRShiftC_16s_AC4R (const Npp16s *pSrc1, int nSrc1Step, const Npp32u aConstants[3], Npp16s *pDst, int nDstStep, NppiSize oSizeROI)`
Four 16-bit signed short channel image right shift by constant with unmodified alpha.
- `NppStatus nppiRShiftC_16s_AC4IR (const Npp32u aConstants[3], Npp16s *pSrcDst, int nSrcDstStep, NppiSize oSizeROI)`
Four 16-bit signed short channel in place image right shift by constant with unmodified alpha.
- `NppStatus nppiRShiftC_16s_C4R (const Npp16s *pSrc1, int nSrc1Step, const Npp32u aConstants[4], Npp16s *pDst, int nDstStep, NppiSize oSizeROI)`
Four 16-bit signed short channel image right shift by constant.
- `NppStatus nppiRShiftC_16s_C4IR (const Npp32u aConstants[4], Npp16s *pSrcDst, int nSrcDstStep, NppiSize oSizeROI)`
Four 16-bit signed short channel in place image right shift by constant.
- `NppStatus nppiRShiftC_32s_C1R (const Npp32s *pSrc1, int nSrc1Step, const Npp32u nConstant, Npp32s *pDst, int nDstStep, NppiSize oSizeROI)`
One 32-bit signed integer channel image right shift by constant.
- `NppStatus nppiRShiftC_32s_C1IR (const Npp32u nConstant, Npp32s *pSrcDst, int nSrcDstStep, NppiSize oSizeROI)`
One 32-bit signed integer channel in place image right shift by constant.
- `NppStatus nppiRShiftC_32s_C3R (const Npp32s *pSrc1, int nSrc1Step, const Npp32u aConstants[3], Npp32s *pDst, int nDstStep, NppiSize oSizeROI)`
Three 32-bit signed integer channel image right shift by constant.
- `NppStatus nppiRShiftC_32s_C3IR (const Npp32u aConstants[3], Npp32s *pSrcDst, int nSrcDstStep, NppiSize oSizeROI)`
Three 32-bit signed integer channel in place image right shift by constant.
- `NppStatus nppiRShiftC_32s_AC4R (const Npp32s *pSrc1, int nSrc1Step, const Npp32u aConstants[3], Npp32s *pDst, int nDstStep, NppiSize oSizeROI)`

Four 32-bit signed integer channel image right shift by constant with unmodified alpha.

- [NppStatus nppiRShiftC_32s_AC4IR \(const Npp32u aConstants\[3\], Npp32s *pSrcDst, int nSrcDstStep, NppiSize oSizeROI\)](#)

Four 32-bit signed integer channel in place image right shift by constant with unmodified alpha.

- [NppStatus nppiRShiftC_32s_C4R \(const Npp32s *pSrc1, int nSrc1Step, const Npp32u aConstants\[4\], Npp32s *pDst, int nDstStep, NppiSize oSizeROI\)](#)

Four 32-bit signed integer channel image right shift by constant.

- [NppStatus nppiRShiftC_32s_C4IR \(const Npp32u aConstants\[4\], Npp32s *pSrcDst, int nSrcDstStep, NppiSize oSizeROI\)](#)

Four 32-bit signed integer channel in place image right shift by constant.

7.31.1 Detailed Description

Pixel by pixel right shift of an image by a constant value.

7.31.2 Function Documentation

7.31.2.1 NppStatus nppiRShiftC_16s_AC4IR (const Npp32u *aConstants*[3], Npp16s **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 16-bit signed short channel in place image right shift by constant with unmodified alpha.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.2 NppStatus nppiRShiftC_16s_AC4R (const Npp16s **pSrc1*, int *nSrc1Step*, const Npp32u *aConstants*[3], Npp16s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 16-bit signed short channel image right shift by constant with unmodified alpha.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.31.2.3 NppStatus nppiRShiftC_16s_C1IR (const Npp32u *nConstant*, Npp16s **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 16-bit signed short channel in place image right shift by constant.

Parameters:

nConstant Constant.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.31.2.4 NppStatus nppiRShiftC_16s_C1R (const Npp16s **pSrcI*, int *nSrcIStep*, const Npp32u *nConstant*, Npp16s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 16-bit signed short channel image right shift by constant.

Parameters:

pSrcI Source-Image Pointer.

nSrcIStep Source-Image Line Step.

nConstant Constant.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.31.2.5 NppStatus nppiRShiftC_16s_C3IR (const Npp32u *aConstants*[3], Npp16s **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 16-bit signed short channel in place image right shift by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.6 NppStatus nppiRShiftC_16s_C3R (const Npp16s * pSrcI, int nSrcIStep, const Npp32u aConstants[3], Npp16s * pDst, int nDstStep, NppiSize oSizeROI)

Three 16-bit signed short channel image right shift by constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.7 NppStatus nppiRShiftC_16s_C4IR (const Npp32u aConstants[4], Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 16-bit signed short channel in place image right shift by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.8 NppStatus nppiRShiftC_16s_C4R (const Npp16s * pSrcI, int nSrcIStep, const Npp32u aConstants[4], Npp16s * pDst, int nDstStep, NppiSize oSizeROI)

Four 16-bit signed short channel image right shift by constant.

Parameters:

pSrcI Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.31.2.9 NppStatus nppiRShiftC_16u_AC4IR (const Npp32u *aConstants*[3], Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel in place image right shift by constant with unmodified alpha.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.31.2.10 NppStatus nppiRShiftC_16u_AC4R (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp32u *aConstants*[3], Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel image right shift by constant with unmodified alpha.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.31.2.11 NppStatus nppiRShiftC_16u_C1IR (const Npp32u *nConstant*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 16-bit unsigned short channel in place image right shift by constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.12 NppStatus nppiRShiftC_16u_C1R (const Npp16u * *pSrcI*, int *nSrcIStep*, const Npp32u *nConstant*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 16-bit unsigned short channel image right shift by constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.13 NppStatus nppiRShiftC_16u_C3IR (const Npp32u *aConstants*[3], Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 16-bit unsigned short channel in place image right shift by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.14 NppStatus nppiRShiftC_16u_C3R (const Npp16u **pSrc1*, int *nSrc1Step*, const Npp32u *aConstants*[3], Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 16-bit unsigned short channel image right shift by constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.15 NppStatus nppiRShiftC_16u_C4IR (const Npp32u *aConstants*[4], Npp16u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel in place image right shift by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.16 NppStatus nppiRShiftC_16u_C4R (const Npp16u **pSrc1*, int *nSrc1Step*, const Npp32u *aConstants*[4], Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel image right shift by constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.17 NppStatus nppiRShiftC_32s_AC4IR (const Npp32u *aConstants*[3], Npp32s **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel in place image right shift by constant with unmodified alpha.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.18 NppStatus nppiRShiftC_32s_AC4R (const Npp32s **pSrcI*, int *nSrcIStep*, const Npp32u *aConstants*[3], Npp32s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel image right shift by constant with unmodified alpha.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.19 NppStatus nppiRShiftC_32s_C1IR (const Npp32u *nConstant*, Npp32s **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit signed integer channel in place image right shift by constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.20 NppStatus nppiRShiftC_32s_C1R (const Npp32s **pSrcI*, int *nSrcIStep*, const Npp32u *nConstant*, Npp32s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 32-bit signed integer channel image right shift by constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.21 NppStatus nppiRShiftC_32s_C3IR (const Npp32u *aConstants*[3], Npp32s **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 32-bit signed integer channel in place image right shift by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.22 NppStatus nppiRShiftC_32s_C3R (const Npp32s **pSrcI*, int *nSrcIStep*, const Npp32u *aConstants*[3], Npp32s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 32-bit signed integer channel image right shift by constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.23 NppStatus nppiRShiftC_32s_C4IR (const Npp32u *aConstants*[4], Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel in place image right shift by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.24 NppStatus nppiRShiftC_32s_C4R (const Npp32s * *pSrcI*, int *nSrcIStep*, const Npp32u *aConstants*[4], Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel image right shift by constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.25 NppStatus nppiRShiftC_8s_AC4IR (const Npp32u *aConstants*[3], Npp8s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 8-bit signed char channel in place image right shift by constant with unmodified alpha.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.26 NppStatus nppiRShiftC_8s_AC4R (const Npp8s * pSrc1, int nSrc1Step, const Npp32u aConstants[3], Npp8s * pDst, int nDstStep, NppiSize oSizeROI)

Four 8-bit signed char channel image right shift by constant with unmodified alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.27 NppStatus nppiRShiftC_8s_C1IR (const Npp32u nConstant, Npp8s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

One 8-bit signed char channel in place image right shift by constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.28 NppStatus nppiRShiftC_8s_C1R (const Npp8s * pSrc1, int nSrc1Step, const Npp32u nConstant, Npp8s * pDst, int nDstStep, NppiSize oSizeROI)

One 8-bit signed char channel image right shift by constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.29 NppStatus nppiRShiftC_8s_C3IR (const Npp32u *aConstants*[3], Npp8s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 8-bit signed char channel in place image right shift by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.30 NppStatus nppiRShiftC_8s_C3R (const Npp8s * *pSrcI*, int *nSrcIStep*, const Npp32u *aConstants*[3], Npp8s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 8-bit signed char channel image right shift by constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.31 NppStatus nppiRShiftC_8s_C4IR (const Npp32u *aConstants*[4], Npp8s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 8-bit signed char channel in place image right shift by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.32 NppStatus nppiRShiftC_8s_C4R (const Npp8s * pSrc1, int nSrc1Step, const Npp32u aConstants[4], Npp8s * pDst, int nDstStep, NppiSize oSizeROI)

Four 8-bit signed char channel image right shift by constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.33 NppStatus nppiRShiftC_8u_AC4IR (const Npp32u aConstants[3], Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 8-bit unsigned char channel in place image right shift by constant with unmodified alpha.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.34 NppStatus nppiRShiftC_8u_AC4R (const Npp8u * pSrc1, int nSrc1Step, const Npp32u aConstants[3], Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Four 8-bit unsigned char channel image right shift by constant with unmodified alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.35 NppStatus nppiRShiftC_8u_C1IR (const Npp32u *nConstant*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 8-bit unsigned char channel in place image right shift by constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.36 NppStatus nppiRShiftC_8u_C1R (const Npp8u * *pSrcI*, int *nSrcIStep*, const Npp32u *nConstant*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 8-bit unsigned char channel image right shift by constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.37 NppStatus nppiRShiftC_8u_C3IR (const Npp32u *aConstants*[3], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 8-bit unsigned char channel in place image right shift by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.38 NppStatus nppiRShiftC_8u_C3R (const Npp8u * pSrcI, int nSrcIStep, const Npp32u aConstants[3], Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Three 8-bit unsigned char channel image right shift by constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.39 NppStatus nppiRShiftC_8u_C4IR (const Npp32u aConstants[4], Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 8-bit unsigned char channel in place image right shift by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.40 NppStatus nppiRShiftC_8u_C4R (const Npp8u * pSrcI, int nSrcIStep, const Npp32u aConstants[4], Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Four 8-bit unsigned char channel image right shift by constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32 LShiftC

Pixel by pixel left shift of an image by a constant value.

Functions

- **NppStatus nppiLShiftC_8u_C1R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp32u** nConstant, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
One 8-bit unsigned char channel image left shift by constant.
- **NppStatus nppiLShiftC_8u_C1IR** (const **Npp32u** nConstant, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
One 8-bit unsigned char channel in place image left shift by constant.
- **NppStatus nppiLShiftC_8u_C3R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp32u** aConstants[3], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Three 8-bit unsigned char channel image left shift by constant.
- **NppStatus nppiLShiftC_8u_C3IR** (const **Npp32u** aConstants[3], **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Three 8-bit unsigned char channel in place image left shift by constant.
- **NppStatus nppiLShiftC_8u_AC4R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp32u** aConstants[3], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Four 8-bit unsigned char channel image left shift by constant with unmodified alpha.
- **NppStatus nppiLShiftC_8u_AC4IR** (const **Npp32u** aConstants[3], **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Four 8-bit unsigned char channel in place image left shift by constant with unmodified alpha.
- **NppStatus nppiLShiftC_8u_C4R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp32u** aConstants[4], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Four 8-bit unsigned char channel image left shift by constant.
- **NppStatus nppiLShiftC_8u_C4IR** (const **Npp32u** aConstants[4], **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Four 8-bit unsigned char channel in place image left shift by constant.
- **NppStatus nppiLShiftC_16u_C1R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp32u** nConstant, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)
One 16-bit unsigned short channel image left shift by constant.
- **NppStatus nppiLShiftC_16u_C1IR** (const **Npp32u** nConstant, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
One 16-bit unsigned short channel in place image left shift by constant.
- **NppStatus nppiLShiftC_16u_C3R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp32u** aConstants[3], **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Three 16-bit unsigned short channel image left shift by constant.

- `NppStatus nppiLShiftC_16u_C3IR` (const `Npp32u` aConstants[3], `Npp16u` *pSrcDst, int nSrcDstStep, `NppiSize` oSizeROI)

Three 16-bit unsigned short channel in place image left shift by constant.
- `NppStatus nppiLShiftC_16u_AC4R` (const `Npp16u` *pSrc1, int nSrc1Step, const `Npp32u` aConstants[3], `Npp16u` *pDst, int nDstStep, `NppiSize` oSizeROI)

Four 16-bit unsigned short channel image left shift by constant with unmodified alpha.
- `NppStatus nppiLShiftC_16u_AC4IR` (const `Npp32u` aConstants[3], `Npp16u` *pSrcDst, int nSrcDstStep, `NppiSize` oSizeROI)

Four 16-bit unsigned short channel in place image left shift by constant with unmodified alpha.
- `NppStatus nppiLShiftC_16u_C4R` (const `Npp16u` *pSrc1, int nSrc1Step, const `Npp32u` aConstants[4], `Npp16u` *pDst, int nDstStep, `NppiSize` oSizeROI)

Four 16-bit unsigned short channel image left shift by constant.
- `NppStatus nppiLShiftC_16u_C4IR` (const `Npp32u` aConstants[4], `Npp16u` *pSrcDst, int nSrcDstStep, `NppiSize` oSizeROI)

Four 16-bit unsigned short channel in place image left shift by constant.
- `NppStatus nppiLShiftC_32s_C1R` (const `Npp32s` *pSrc1, int nSrc1Step, const `Npp32u` nConstant, `Npp32s` *pDst, int nDstStep, `NppiSize` oSizeROI)

One 32-bit signed integer channel image left shift by constant.
- `NppStatus nppiLShiftC_32s_C1IR` (const `Npp32u` nConstant, `Npp32s` *pSrcDst, int nSrcDstStep, `NppiSize` oSizeROI)

One 32-bit signed integer channel in place image left shift by constant.
- `NppStatus nppiLShiftC_32s_C3R` (const `Npp32s` *pSrc1, int nSrc1Step, const `Npp32u` aConstants[3], `Npp32s` *pDst, int nDstStep, `NppiSize` oSizeROI)

Three 32-bit signed integer channel image left shift by constant.
- `NppStatus nppiLShiftC_32s_C3IR` (const `Npp32u` aConstants[3], `Npp32s` *pSrcDst, int nSrcDstStep, `NppiSize` oSizeROI)

Three 32-bit signed integer channel in place image left shift by constant.
- `NppStatus nppiLShiftC_32s_AC4R` (const `Npp32s` *pSrc1, int nSrc1Step, const `Npp32u` aConstants[3], `Npp32s` *pDst, int nDstStep, `NppiSize` oSizeROI)

Four 32-bit signed integer channel image left shift by constant with unmodified alpha.
- `NppStatus nppiLShiftC_32s_AC4IR` (const `Npp32u` aConstants[3], `Npp32s` *pSrcDst, int nSrcDstStep, `NppiSize` oSizeROI)

Four 32-bit signed integer channel in place image left shift by constant with unmodified alpha.
- `NppStatus nppiLShiftC_32s_C4R` (const `Npp32s` *pSrc1, int nSrc1Step, const `Npp32u` aConstants[4], `Npp32s` *pDst, int nDstStep, `NppiSize` oSizeROI)

Four 32-bit signed integer channel image left shift by constant.
- `NppStatus nppiLShiftC_32s_C4IR` (const `Npp32u` aConstants[4], `Npp32s` *pSrcDst, int nSrcDstStep, `NppiSize` oSizeROI)

Four 32-bit signed integer channel in place image left shift by constant.

7.32.1 Detailed Description

Pixel by pixel left shift of an image by a constant value.

7.32.2 Function Documentation

7.32.2.1 NppStatus nppiLShiftC_16u_AC4IR (const Npp32u *aConstants*[3], Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel in place image left shift by constant with unmodified alpha.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.2 NppStatus nppiLShiftC_16u_AC4R (const Npp16u * *pSrcI*, int *nSrcIStep*, const Npp32u *aConstants*[3], Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel image left shift by constant with unmodified alpha.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.3 NppStatus nppiLShiftC_16u_C1IR (const Npp32u *nConstant*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 16-bit unsigned short channel in place image left shift by constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.4 NppStatus nppiLShiftC_16u_C1R (const Npp16u **pSrcI*, int *nSrc1Step*, const Npp32u *nConstant*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 16-bit unsigned short channel image left shift by constant.

Parameters:

pSrcI Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nConstant Constant
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.5 NppStatus nppiLShiftC_16u_C3IR (const Npp32u *aConstants*[3], Npp16u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 16-bit unsigned short channel in place image left shift by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.6 NppStatus nppiLShiftC_16u_C3R (const Npp16u **pSrcI*, int *nSrc1Step*, const Npp32u *aConstants*[3], Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 16-bit unsigned short channel image left shift by constant.

Parameters:

pSrcI Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.32.2.7 NppStatus nppiLShiftC_16u_C4IR (const Npp32u *aConstants*[4], Npp16u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel in place image left shift by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.32.2.8 NppStatus nppiLShiftC_16u_C4R (const Npp16u **pSrc1*, int *nSrc1Step*, const Npp32u *aConstants*[4], Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel image left shift by constant.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.32.2.9 NppStatus nppiLShiftC_32s_AC4IR (const Npp32u *aConstants*[3], Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel in place image left shift by constant with unmodified alpha.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.10 NppStatus nppiLShiftC_32s_AC4R (const Npp32s * *pSrcI*, int *nSrcIStep*, const Npp32u *aConstants*[3], Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel image left shift by constant with unmodified alpha.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.11 NppStatus nppiLShiftC_32s_C1IR (const Npp32u *nConstant*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit signed integer channel in place image left shift by constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.12 NppStatus nppiLShiftC_32s_C1R (const Npp32s **pSrcI*, int *nSrcIStep*, const Npp32u *nConstant*, Npp32s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 32-bit signed integer channel image left shift by constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.13 NppStatus nppiLShiftC_32s_C3IR (const Npp32u *aConstants*[3], Npp32s **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 32-bit signed integer channel in place image left shift by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.14 NppStatus nppiLShiftC_32s_C3R (const Npp32s **pSrcI*, int *nSrcIStep*, const Npp32u *aConstants*[3], Npp32s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 32-bit signed integer channel image left shift by constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.15 NppStatus nppiLShiftC_32s_C4IR (const Npp32u *aConstants*[4], Npp32s **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel in place image left shift by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.16 NppStatus nppiLShiftC_32s_C4R (const Npp32s **pSrcI*, int *nSrcIStep*, const Npp32u *aConstants*[4], Npp32s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel image left shift by constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.17 NppStatus nppiLShiftC_8u_AC4IR (const Npp32u *aConstants*[3], Npp8u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel in place image left shift by constant with unmodified alpha.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.18 NppStatus nppiLShiftC_8u_AC4R (const Npp8u **pSrcI*, int *nSrcIStep*, const Npp32u *aConstants*[3], Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel image left shift by constant with unmodified alpha.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.19 NppStatus nppiLShiftC_8u_C1IR (const Npp32u *nConstant*, Npp8u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 8-bit unsigned char channel in place image left shift by constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.20 NppStatus nppiLShiftC_8u_C1R (const Npp8u **pSrcI*, int *nSrcIStep*, const Npp32u *nConstant*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 8-bit unsigned char channel image left shift by constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.21 NppStatus nppiLShiftC_8u_C3IR (const Npp32u *aConstants*[3], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 8-bit unsigned char channel in place image left shift by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.22 NppStatus nppiLShiftC_8u_C3R (const Npp8u * *pSrcI*, int *nSrcIStep*, const Npp32u *aConstants*[3], Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 8-bit unsigned char channel image left shift by constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.23 NppStatus nppiLShiftC_8u_C4IR (const Npp32u *aConstants*[4], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel in place image left shift by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.24 NppStatus nppiLShiftC_8u_C4R (const Npp8u * pSrc1, int nSrc1Step, const Npp32u aConstants[4], Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Four 8-bit unsigned char channel image left shift by constant.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.33 And

Pixel by pixel logical and of images.

Functions

- **NppStatus nppiAnd_8u_C1R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 8-bit unsigned char channel image logical and.
- **NppStatus nppiAnd_8u_C1IR** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 8-bit unsigned char channel in place image logical and.
- **NppStatus nppiAnd_8u_C3R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 8-bit unsigned char channel image logical and.
- **NppStatus nppiAnd_8u_C3IR** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Three 8-bit unsigned char channel in place image logical and.
- **NppStatus nppiAnd_8u_AC4R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel image logical and with unmodified alpha.
- **NppStatus nppiAnd_8u_AC4IR** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel in place image logical and with unmodified alpha.
- **NppStatus nppiAnd_8u_C4R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel image logical and.
- **NppStatus nppiAnd_8u_C4IR** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel in place image logical and.
- **NppStatus nppiAnd_16u_C1R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 16-bit unsigned short channel image logical and.
- **NppStatus nppiAnd_16u_C1IR** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 16-bit unsigned short channel in place image logical and.
- **NppStatus nppiAnd_16u_C3R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 16-bit unsigned short channel image logical and.

- **NppStatus nppiAnd_16u_C3IR** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Three 16-bit unsigned short channel in place image logical and.
- **NppStatus nppiAnd_16u_AC4R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Four 16-bit unsigned short channel image logical and with unmodified alpha.
- **NppStatus nppiAnd_16u_AC4IR** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Four 16-bit unsigned short channel in place image logical and with unmodified alpha.
- **NppStatus nppiAnd_16u_C4R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Four 16-bit unsigned short channel image logical and.
- **NppStatus nppiAnd_16u_C4IR** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Four 16-bit unsigned short channel in place image logical and.
- **NppStatus nppiAnd_32s_C1R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)
One 32-bit signed integer channel image logical and.
- **NppStatus nppiAnd_32s_C1IR** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
One 32-bit signed integer channel in place image logical and.
- **NppStatus nppiAnd_32s_C3R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)
Three 32-bit signed integer channel image logical and.
- **NppStatus nppiAnd_32s_C3IR** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Three 32-bit signed integer channel in place image logical and.
- **NppStatus nppiAnd_32s_AC4R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)
Four 32-bit signed integer channel image logical and with unmodified alpha.
- **NppStatus nppiAnd_32s_AC4IR** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Four 32-bit signed integer channel in place image logical and with unmodified alpha.
- **NppStatus nppiAnd_32s_C4R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)
Four 32-bit signed integer channel image logical and.
- **NppStatus nppiAnd_32s_C4IR** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Four 32-bit signed integer channel in place image logical and.

7.33.1 Detailed Description

Pixel by pixel logical and of images.

7.33.2 Function Documentation

7.33.2.1 NppStatus nppiAnd_16u_AC4IR (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel in place image logical and with unmodified alpha.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.33.2.2 NppStatus nppiAnd_16u_AC4R (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u * *pSrc2*, int *nSrc2Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel image logical and with unmodified alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.33.2.3 NppStatus nppiAnd_16u_C1IR (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 16-bit unsigned short channel in place image logical and.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.33.2.4 NppStatus nppiAnd_16u_C1R (const Npp16u **pSrc1*, int *nSrc1Step*, const Npp16u **pSrc2*, int *nSrc2Step*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 16-bit unsigned short channel image logical and.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.33.2.5 NppStatus nppiAnd_16u_C3IR (const Npp16u **pSrc*, int *nSrcStep*, Npp16u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 16-bit unsigned short channel in place image logical and.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.33.2.6 NppStatus nppiAnd_16u_C3R (const Npp16u **pSrc1*, int *nSrc1Step*, const Npp16u **pSrc2*, int *nSrc2Step*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 16-bit unsigned short channel image logical and.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.33.2.7 NppStatus nppiAnd_16u_C4IR (const Npp16u **pSrc*, int *nSrcStep*, Npp16u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel in place image logical and.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.33.2.8 NppStatus nppiAnd_16u_C4R (const Npp16u **pSrc1*, int *nSrc1Step*, const Npp16u **pSrc2*, int *nSrc2Step*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel image logical and.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.33.2.9 NppStatus nppiAnd_32s_AC4IR (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel in place image logical and with unmodified alpha.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.33.2.10 NppStatus nppiAnd_32s_AC4R (const Npp32s * *pSrc1*, int *nSrc1Step*, const Npp32s * *pSrc2*, int *nSrc2Step*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel image logical and with unmodified alpha.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.33.2.11 NppStatus nppiAnd_32s_C1IR (const Npp32s **pSrc*, int *nSrcStep*, Npp32s **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit signed integer channel in place image logical and.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.33.2.12 NppStatus nppiAnd_32s_C1R (const Npp32s **pSrc1*, int *nSrc1Step*, const Npp32s **pSrc2*, int *nSrc2Step*, Npp32s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 32-bit signed integer channel image logical and.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.33.2.13 NppStatus nppiAnd_32s_C3IR (const Npp32s **pSrc*, int *nSrcStep*, Npp32s **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 32-bit signed integer channel in place image logical and.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.33.2.14 NppStatus nppiAnd_32s_C3R (const Npp32s **pSrc1*, int *nSrc1Step*, const Npp32s **pSrc2*, int *nSrc2Step*, Npp32s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 32-bit signed integer channel image logical and.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.33.2.15 NppStatus nppiAnd_32s_C4IR (const Npp32s **pSrc*, int *nSrcStep*, Npp32s **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel in place image logical and.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.33.2.16 NppStatus nppiAnd_32s_C4R (const Npp32s **pSrc1*, int *nSrc1Step*, const Npp32s **pSrc2*, int *nSrc2Step*, Npp32s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel image logical and.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.33.2.17 NppStatus nppiAnd_8u_AC4IR (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel in place image logical and with unmodified alpha.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.33.2.18 NppStatus nppiAnd_8u_AC4R (const Npp8u **pSrc1*, int *nSrc1Step*, const Npp8u **pSrc2*, int *nSrc2Step*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel image logical and with unmodified alpha.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.33.2.19 NppStatus nppiAnd_8u_C1IR (const Npp8u * pSrc, int nSrcStep, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

One 8-bit unsigned char channel in place image logical and.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.33.2.20 NppStatus nppiAnd_8u_C1R (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

One 8-bit unsigned char channel image logical and.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.33.2.21 NppStatus nppiAnd_8u_C3IR (const Npp8u * pSrc, int nSrcStep, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Three 8-bit unsigned char channel in place image logical and.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.33.2.22 NppStatus nppiAnd_8u_C3R (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u * *pSrc2*, int *nSrc2Step*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 8-bit unsigned char channel image logical and.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.33.2.23 NppStatus nppiAnd_8u_C4IR (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel in place image logical and.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.33.2.24 NppStatus nppiAnd_8u_C4R (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u * *pSrc2*, int *nSrc2Step*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel image logical and.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.34 Or

Pixel by pixel logical or of images.

Functions

- **NppStatus nppiOr_8u_C1R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 8-bit unsigned char channel image logical or.
- **NppStatus nppiOr_8u_C1IR** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 8-bit unsigned char channel in place image logical or.
- **NppStatus nppiOr_8u_C3R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 8-bit unsigned char channel image logical or.
- **NppStatus nppiOr_8u_C3IR** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Three 8-bit unsigned char channel in place image logical or.
- **NppStatus nppiOr_8u_AC4R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel image logical or with unmodified alpha.
- **NppStatus nppiOr_8u_AC4IR** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel in place image logical or with unmodified alpha.
- **NppStatus nppiOr_8u_C4R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel image logical or.
- **NppStatus nppiOr_8u_C4IR** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel in place image logical or.
- **NppStatus nppiOr_16u_C1R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 16-bit unsigned short channel image logical or.
- **NppStatus nppiOr_16u_C1IR** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 16-bit unsigned short channel in place image logical or.
- **NppStatus nppiOr_16u_C3R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 16-bit unsigned short channel image logical or.

- **NppStatus nppiOr_16u_C3IR** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Three 16-bit unsigned short channel in place image logical or.
- **NppStatus nppiOr_16u_AC4R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Four 16-bit unsigned short channel image logical or with unmodified alpha.
- **NppStatus nppiOr_16u_AC4IR** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Four 16-bit unsigned short channel in place image logical or with unmodified alpha.
- **NppStatus nppiOr_16u_C4R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Four 16-bit unsigned short channel image logical or.
- **NppStatus nppiOr_16u_C4IR** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Four 16-bit unsigned short channel in place image logical or.
- **NppStatus nppiOr_32s_C1R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)
One 32-bit signed integer channel image logical or.
- **NppStatus nppiOr_32s_C1IR** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
One 32-bit signed integer channel in place image logical or.
- **NppStatus nppiOr_32s_C3R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)
Three 32-bit signed integer channel image logical or.
- **NppStatus nppiOr_32s_C3IR** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Three 32-bit signed integer channel in place image logical or.
- **NppStatus nppiOr_32s_AC4R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)
Four 32-bit signed integer channel image logical or with unmodified alpha.
- **NppStatus nppiOr_32s_AC4IR** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Four 32-bit signed integer channel in place image logical or with unmodified alpha.
- **NppStatus nppiOr_32s_C4R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)
Four 32-bit signed integer channel image logical or.
- **NppStatus nppiOr_32s_C4IR** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Four 32-bit signed integer channel in place image logical or.

7.34.1 Detailed Description

Pixel by pixel logical or of images.

7.34.2 Function Documentation

7.34.2.1 NppStatus nppiOr_16u_AC4IR (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel in place image logical or with unmodified alpha.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.34.2.2 NppStatus nppiOr_16u_AC4R (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u * *pSrc2*, int *nSrc2Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel image logical or with unmodified alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.34.2.3 NppStatus nppiOr_16u_C1IR (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 16-bit unsigned short channel in place image logical or.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.34.2.4 NppStatus nppiOr_16u_C1R (const Npp16u **pSrc1*, int *nSrc1Step*, const Npp16u **pSrc2*, int *nSrc2Step*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 16-bit unsigned short channel image logical or.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.34.2.5 NppStatus nppiOr_16u_C3IR (const Npp16u **pSrc*, int *nSrcStep*, Npp16u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 16-bit unsigned short channel in place image logical or.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.34.2.6 NppStatus nppiOr_16u_C3R (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u * *pSrc2*, int *nSrc2Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 16-bit unsigned short channel image logical or.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.34.2.7 NppStatus nppiOr_16u_C4IR (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel in place image logical or.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.34.2.8 NppStatus nppiOr_16u_C4R (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u * *pSrc2*, int *nSrc2Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel image logical or.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.34.2.9 NppStatus nppiOr_32s_AC4IR (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel in place image logical or with unmodified alpha.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.34.2.10 NppStatus nppiOr_32s_AC4R (const Npp32s * *pSrc1*, int *nSrc1Step*, const Npp32s * *pSrc2*, int *nSrc2Step*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel image logical or with unmodified alpha.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.34.2.11 NppStatus nppiOr_32s_C1IR (const Npp32s * pSrc, int nSrcStep, Npp32s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

One 32-bit signed integer channel in place image logical or.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.34.2.12 NppStatus nppiOr_32s_C1R (const Npp32s * pSrc1, int nSrc1Step, const Npp32s * pSrc2, int nSrc2Step, Npp32s * pDst, int nDstStep, NppiSize oSizeROI)

One 32-bit signed integer channel image logical or.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.34.2.13 NppStatus nppiOr_32s_C3IR (const Npp32s * pSrc, int nSrcStep, Npp32s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Three 32-bit signed integer channel in place image logical or.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.34.2.14 NppStatus nppiOr_32s_C3R (const Npp32s * *pSrc1*, int *nSrc1Step*, const Npp32s * *pSrc2*, int *nSrc2Step*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 32-bit signed integer channel image logical or.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.34.2.15 NppStatus nppiOr_32s_C4IR (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel in place image logical or.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.34.2.16 NppStatus nppiOr_32s_C4R (const Npp32s * *pSrc1*, int *nSrc1Step*, const Npp32s * *pSrc2*, int *nSrc2Step*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel image logical or.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.34.2.17 NppStatus nppiOr_8u_AC4IR (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel in place image logical or with unmodified alpha.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.34.2.18 NppStatus nppiOr_8u_AC4R (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u * *pSrc2*, int *nSrc2Step*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel image logical or with unmodified alpha.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.34.2.19 NppStatus nppiOr_8u_C1IR (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 8-bit unsigned char channel in place image logical or.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.34.2.20 NppStatus nppiOr_8u_C1R (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u * *pSrc2*, int *nSrc2Step*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 8-bit unsigned char channel image logical or.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.34.2.21 NppStatus nppiOr_8u_C3IR (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 8-bit unsigned char channel in place image logical or.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.34.2.22 NppStatus nppiOr_8u_C3R (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Three 8-bit unsigned char channel image logical or.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.34.2.23 NppStatus nppiOr_8u_C4IR (const Npp8u * pSrc, int nSrcStep, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 8-bit unsigned char channel in place image logical or.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.34.2.24 NppStatus nppiOr_8u_C4R (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Four 8-bit unsigned char channel image logical or.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.35 Xor

Pixel by pixel logical exclusive or of images.

Functions

- **NppStatus nppiXor_8u_C1R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 8-bit unsigned char channel image logical exclusive or.
- **NppStatus nppiXor_8u_C1IR** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 8-bit unsigned char channel in place image logical exclusive or.
- **NppStatus nppiXor_8u_C3R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 8-bit unsigned char channel image logical exclusive or.
- **NppStatus nppiXor_8u_C3IR** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Three 8-bit unsigned char channel in place image logical exclusive or.
- **NppStatus nppiXor_8u_AC4R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel image logical exclusive or with unmodified alpha.
- **NppStatus nppiXor_8u_AC4IR** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel in place image logical exclusive or with unmodified alpha.
- **NppStatus nppiXor_8u_C4R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel image logical exclusive or.
- **NppStatus nppiXor_8u_C4IR** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel in place image logical exclusive or.
- **NppStatus nppiXor_16u_C1R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 16-bit unsigned short channel image logical exclusive or.
- **NppStatus nppiXor_16u_C1IR** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 16-bit unsigned short channel in place image logical exclusive or.
- **NppStatus nppiXor_16u_C3R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 16-bit unsigned short channel image logical exclusive or.

- **NppStatus nppiXor_16u_C3IR** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Three 16-bit unsigned short channel in place image logical exclusive or.
- **NppStatus nppiXor_16u_AC4R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Four 16-bit unsigned short channel image logical exclusive or with unmodified alpha.
- **NppStatus nppiXor_16u_AC4IR** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Four 16-bit unsigned short channel in place image logical exclusive or with unmodified alpha.
- **NppStatus nppiXor_16u_C4R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Four 16-bit unsigned short channel image logical exclusive or.
- **NppStatus nppiXor_16u_C4IR** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Four 16-bit unsigned short channel in place image logical exclusive or.
- **NppStatus nppiXor_32s_C1R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)
One 32-bit signed integer channel image logical exclusive or.
- **NppStatus nppiXor_32s_C1IR** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
One 32-bit signed integer channel in place image logical exclusive or.
- **NppStatus nppiXor_32s_C3R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)
Three 32-bit signed integer channel image logical exclusive or.
- **NppStatus nppiXor_32s_C3IR** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Three 32-bit signed integer channel in place image logical exclusive or.
- **NppStatus nppiXor_32s_AC4R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)
Four 32-bit signed integer channel image logical exclusive or with unmodified alpha.
- **NppStatus nppiXor_32s_AC4IR** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Four 32-bit signed integer channel in place image logical exclusive or with unmodified alpha.
- **NppStatus nppiXor_32s_C4R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)
Four 32-bit signed integer channel image logical exclusive or.
- **NppStatus nppiXor_32s_C4IR** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Four 32-bit signed integer channel in place image logical exclusive or.

7.35.1 Detailed Description

Pixel by pixel logical exclusive or of images.

7.35.2 Function Documentation

7.35.2.1 NppStatus nppiXor_16u_AC4IR (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel in place image logical exclusive or with unmodified alpha.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.35.2.2 NppStatus nppiXor_16u_AC4R (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u * *pSrc2*, int *nSrc2Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel image logical exclusive or with unmodified alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.35.2.3 NppStatus nppiXor_16u_C1IR (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 16-bit unsigned short channel in place image logical exclusive or.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.35.2.4 NppStatus nppiXor_16u_C1R (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u * *pSrc2*, int *nSrc2Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 16-bit unsigned short channel image logical exclusive or.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.35.2.5 NppStatus nppiXor_16u_C3IR (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 16-bit unsigned short channel in place image logical exclusive or.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.35.2.6 NppStatus nppiXor_16u_C3R (const Npp16u * pSrc1, int nSrc1Step, const Npp16u * pSrc2, int nSrc2Step, Npp16u * pDst, int nDstStep, NppiSize oSizeROI)

Three 16-bit unsigned short channel image logical exclusive or.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.35.2.7 NppStatus nppiXor_16u_C4IR (const Npp16u * pSrc, int nSrcStep, Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 16-bit unsigned short channel in place image logical exclusive or.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.35.2.8 NppStatus nppiXor_16u_C4R (const Npp16u * pSrc1, int nSrc1Step, const Npp16u * pSrc2, int nSrc2Step, Npp16u * pDst, int nDstStep, NppiSize oSizeROI)

Four 16-bit unsigned short channel image logical exclusive or.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.35.2.9 NppStatus nppiXor_32s_AC4IR (const Npp32s **pSrc*, int *nSrcStep*, Npp32s **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel in place image logical exclusive or with unmodified alpha.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.35.2.10 NppStatus nppiXor_32s_AC4R (const Npp32s **pSrc1*, int *nSrc1Step*, const Npp32s **pSrc2*, int *nSrc2Step*, Npp32s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel image logical exclusive or with unmodified alpha.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.35.2.11 NppStatus nppiXor_32s_C1IR (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit signed integer channel in place image logical exclusive or.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.35.2.12 NppStatus nppiXor_32s_C1R (const Npp32s * *pSrc1*, int *nSrc1Step*, const Npp32s * *pSrc2*, int *nSrc2Step*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 32-bit signed integer channel image logical exclusive or.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.35.2.13 NppStatus nppiXor_32s_C3IR (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 32-bit signed integer channel in place image logical exclusive or.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.35.2.14 NppStatus nppiXor_32s_C3R (const Npp32s * *pSrc1*, int *nSrc1Step*, const Npp32s * *pSrc2*, int *nSrc2Step*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 32-bit signed integer channel image logical exclusive or.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.35.2.15 NppStatus nppiXor_32s_C4IR (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel in place image logical exclusive or.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.35.2.16 NppStatus nppiXor_32s_C4R (const Npp32s * *pSrc1*, int *nSrc1Step*, const Npp32s * *pSrc2*, int *nSrc2Step*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel image logical exclusive or.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.35.2.17 NppStatus nppiXor_8u_AC4IR (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel in place image logical exclusive or with unmodified alpha.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.35.2.18 NppStatus nppiXor_8u_AC4R (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u * *pSrc2*, int *nSrc2Step*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel image logical exclusive or with unmodified alpha.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.35.2.19 NppStatus nppiXor_8u_C1IR (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 8-bit unsigned char channel in place image logical exclusive or.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.35.2.20 NppStatus nppiXor_8u_C1R (const Npp8u **pSrc1*, int *nSrc1Step*, const Npp8u **pSrc2*, int *nSrc2Step*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 8-bit unsigned char channel image logical exclusive or.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.35.2.21 NppStatus nppiXor_8u_C3IR (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 8-bit unsigned char channel in place image logical exclusive or.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.35.2.22 NppStatus nppiXor_8u_C3R (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Three 8-bit unsigned char channel image logical exclusive or.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.35.2.23 NppStatus nppiXor_8u_C4IR (const Npp8u * pSrc, int nSrcStep, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 8-bit unsigned char channel in place image logical exclusive or.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.35.2.24 NppStatus nppiXor_8u_C4R (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Four 8-bit unsigned char channel image logical exclusive or.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.36 Not

Pixel by pixel logical not of image.

Functions

- [NppStatus nppiNot_8u_C1R](#) (const [Npp8u](#) *pSrc, int nSrcStep, [Npp8u](#) *pDst, int nDstStep, [NppiSize oSizeROI](#))
One 8-bit unsigned char channel image logical not.
- [NppStatus nppiNot_8u_C1IR](#) ([Npp8u](#) *pSrcDst, int nSrcDstStep, [NppiSize oSizeROI](#))
One 8-bit unsigned char channel in place image logical not.
- [NppStatus nppiNot_8u_C3R](#) (const [Npp8u](#) *pSrc, int nSrcStep, [Npp8u](#) *pDst, int nDstStep, [NppiSize oSizeROI](#))
Three 8-bit unsigned char channel image logical not.
- [NppStatus nppiNot_8u_C3IR](#) ([Npp8u](#) *pSrcDst, int nSrcDstStep, [NppiSize oSizeROI](#))
Three 8-bit unsigned char channel in place image logical not.
- [NppStatus nppiNot_8u_AC4R](#) (const [Npp8u](#) *pSrc, int nSrcStep, [Npp8u](#) *pDst, int nDstStep, [NppiSize oSizeROI](#))
Four 8-bit unsigned char channel image logical not with unmodified alpha.
- [NppStatus nppiNot_8u_AC4IR](#) ([Npp8u](#) *pSrcDst, int nSrcDstStep, [NppiSize oSizeROI](#))
Four 8-bit unsigned char channel in place image logical not with unmodified alpha.
- [NppStatus nppiNot_8u_C4R](#) (const [Npp8u](#) *pSrc, int nSrcStep, [Npp8u](#) *pDst, int nDstStep, [NppiSize oSizeROI](#))
Four 8-bit unsigned char channel image logical not.
- [NppStatus nppiNot_8u_C4IR](#) ([Npp8u](#) *pSrcDst, int nSrcDstStep, [NppiSize oSizeROI](#))
Four 8-bit unsigned char channel in place image logical not.

7.36.1 Detailed Description

Pixel by pixel logical not of image.

7.36.2 Function Documentation

7.36.2.1 NppStatus nppiNot_8u_AC4IR ([Npp8u](#) *pSrcDst, int nSrcDstStep, [NppiSize oSizeROI](#))

Four 8-bit unsigned char channel in place image logical not with unmodified alpha.

Parameters:

- [pSrcDst](#) In-Place Image Pointer.
[nSrcDstStep](#) In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.36.2.2 NppStatus nppiNot_8u_AC4R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Four 8-bit unsigned char channel image logical not with unmodified alpha.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.36.2.3 NppStatus nppiNot_8u_C1IR (Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

One 8-bit unsigned char channel in place image logical not.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.36.2.4 NppStatus nppiNot_8u_C1R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

One 8-bit unsigned char channel image logical not.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.36.2.5 NppStatus nppiNot_8u_C3IR (Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Three 8-bit unsigned char channel in place image logical not.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.36.2.6 NppStatus nppiNot_8u_C3R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Three 8-bit unsigned char channel image logical not.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.36.2.7 NppStatus nppiNot_8u_C4IR (Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 8-bit unsigned char channel in place image logical not.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.36.2.8 NppStatus nppiNot_8u_C4R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Four 8-bit unsigned char channel image logical not.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.37 Alpha Composition

Modules

- [AlphaCompC](#)

Composite two images using constant alpha values.

- [AlphaPremulC](#)

Premultiplies pixels of an image using a constant alpha value.

- [AlphaComp](#)

Composite two images using alpha opacity values contained in each image.

- [AlphaPremul](#)

Premultiplies image pixels by image alpha opacity values.

7.38 AlphaCompC

Composite two images using constant alpha values.

Functions

- `NppStatus nppiAlphaCompC_8u_C1R` (const `Npp8u *pSrc1`, int `nSrc1Step`, `Npp8u nAlpha1`, const `Npp8u *pSrc2`, int `nSrc2Step`, `Npp8u nAlpha2`, `Npp8u *pDst`, int `nDstStep`, `NppiSize oSizeROI`, `NppiAlphaOp eAlphaOp`)

One 8-bit unsigned char channel image composition using constant alpha.

- `NppStatus nppiAlphaCompC_8u_C3R` (const `Npp8u *pSrc1`, int `nSrc1Step`, `Npp8u nAlpha1`, const `Npp8u *pSrc2`, int `nSrc2Step`, `Npp8u nAlpha2`, `Npp8u *pDst`, int `nDstStep`, `NppiSize oSizeROI`, `NppiAlphaOp eAlphaOp`)

Three 8-bit unsigned char channel image composition using constant alpha.

- `NppStatus nppiAlphaCompC_8u_C4R` (const `Npp8u *pSrc1`, int `nSrc1Step`, `Npp8u nAlpha1`, const `Npp8u *pSrc2`, int `nSrc2Step`, `Npp8u nAlpha2`, `Npp8u *pDst`, int `nDstStep`, `NppiSize oSizeROI`, `NppiAlphaOp eAlphaOp`)

Four 8-bit unsigned char channel image composition using constant alpha.

- `NppStatus nppiAlphaCompC_8u_AC4R` (const `Npp8u *pSrc1`, int `nSrc1Step`, `Npp8u nAlpha1`, const `Npp8u *pSrc2`, int `nSrc2Step`, `Npp8u nAlpha2`, `Npp8u *pDst`, int `nDstStep`, `NppiSize oSizeROI`, `NppiAlphaOp eAlphaOp`)

Four 8-bit unsigned char channel image composition with alpha using constant source alpha.

- `NppStatus nppiAlphaCompC_8s_C1R` (const `Npp8s *pSrc1`, int `nSrc1Step`, `Npp8s nAlpha1`, const `Npp8s *pSrc2`, int `nSrc2Step`, `Npp8s nAlpha2`, `Npp8s *pDst`, int `nDstStep`, `NppiSize oSizeROI`, `NppiAlphaOp eAlphaOp`)

One 8-bit signed char channel image composition using constant alpha.

- `NppStatus nppiAlphaCompC_16u_C1R` (const `Npp16u *pSrc1`, int `nSrc1Step`, `Npp16u nAlpha1`, const `Npp16u *pSrc2`, int `nSrc2Step`, `Npp16u nAlpha2`, `Npp16u *pDst`, int `nDstStep`, `NppiSize oSizeROI`, `NppiAlphaOp eAlphaOp`)

One 16-bit unsigned short channel image composition using constant alpha.

- `NppStatus nppiAlphaCompC_16u_C3R` (const `Npp16u *pSrc1`, int `nSrc1Step`, `Npp16u nAlpha1`, const `Npp16u *pSrc2`, int `nSrc2Step`, `Npp16u nAlpha2`, `Npp16u *pDst`, int `nDstStep`, `NppiSize oSizeROI`, `NppiAlphaOp eAlphaOp`)

Three 16-bit unsigned short channel image composition using constant alpha.

- `NppStatus nppiAlphaCompC_16u_C4R` (const `Npp16u *pSrc1`, int `nSrc1Step`, `Npp16u nAlpha1`, const `Npp16u *pSrc2`, int `nSrc2Step`, `Npp16u nAlpha2`, `Npp16u *pDst`, int `nDstStep`, `NppiSize oSizeROI`, `NppiAlphaOp eAlphaOp`)

Four 16-bit unsigned short channel image composition using constant alpha.

- `NppStatus nppiAlphaCompC_16u_AC4R` (const `Npp16u *pSrc1`, int `nSrc1Step`, `Npp16u nAlpha1`, const `Npp16u *pSrc2`, int `nSrc2Step`, `Npp16u nAlpha2`, `Npp16u *pDst`, int `nDstStep`, `NppiSize oSizeROI`, `NppiAlphaOp eAlphaOp`)

Four 16-bit unsigned short channel image composition with alpha using constant source alpha.

- `NppStatus nppiAlphaCompC_16s_C1R (const Npp16s *pSrc1, int nSrc1Step, Npp16s nAlpha1, const Npp16s *pSrc2, int nSrc2Step, Npp16s nAlpha2, Npp16s *pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)`

One 16-bit signed short channel image composition using constant alpha.

- `NppStatus nppiAlphaCompC_32u_C1R (const Npp32u *pSrc1, int nSrc1Step, Npp32u nAlpha1, const Npp32u *pSrc2, int nSrc2Step, Npp32u nAlpha2, Npp32u *pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)`

One 32-bit unsigned integer channel image composition using constant alpha.

- `NppStatus nppiAlphaCompC_32s_C1R (const Npp32s *pSrc1, int nSrc1Step, Npp32s nAlpha1, const Npp32s *pSrc2, int nSrc2Step, Npp32s nAlpha2, Npp32s *pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)`

One 32-bit signed integer channel image composition using constant alpha.

- `NppStatus nppiAlphaCompC_32f_C1R (const Npp32f *pSrc1, int nSrc1Step, Npp32f nAlpha1, const Npp32f *pSrc2, int nSrc2Step, Npp32f nAlpha2, Npp32f *pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)`

One 32-bit floating point channel image composition using constant alpha.

7.38.1 Detailed Description

Composite two images using constant alpha values.

7.38.2 Function Documentation

7.38.2.1 `NppStatus nppiAlphaCompC_16s_C1R (const Npp16s * pSrc1, int nSrc1Step, Npp16s nAlpha1, const Npp16s * pSrc2, int nSrc2Step, Npp16s nAlpha2, Npp16s * pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)`

One 16-bit signed short channel image composition using constant alpha.

Parameters:

`pSrc1` Source-Image Pointer.

`nSrc1Step` Source-Image Line Step.

`nAlpha1` Image alpha opacity (0 - max channel pixel value).

`pSrc2` Source-Image Pointer.

`nSrc2Step` Source-Image Line Step.

`nAlpha2` Image alpha opacity (0 - max channel pixel value).

`pDst` Destination-Image Pointer.

`nDstStep` Destination-Image Line Step.

`oSizeROI` Region-of-Interest (ROI).

`eAlphaOp` alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.38.2.2 NppStatus nppiAlphaCompC_16u_AC4R (const Npp16u **pSrc1*, int *nSrc1Step*, Npp16u *nAlpha1*, const Npp16u **pSrc2*, int *nSrc2Step*, Npp16u *nAlpha2*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppiAlphaOp *eAlphaOp*)

Four 16-bit unsigned short channel image composition with alpha using constant source alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nAlpha1 Image alpha opacity (0 - max channel pixel value).
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
nAlpha2 Image alpha opacity (0 - max channel pixel value).
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.38.2.3 NppStatus nppiAlphaCompC_16u_C1R (const Npp16u **pSrc1*, int *nSrc1Step*, Npp16u *nAlpha1*, const Npp16u **pSrc2*, int *nSrc2Step*, Npp16u *nAlpha2*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppiAlphaOp *eAlphaOp*)

One 16-bit unsigned short channel image composition using constant alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nAlpha1 Image alpha opacity (0 - max channel pixel value).
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
nAlpha2 Image alpha opacity (0 - max channel pixel value).
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.38.2.4 NppStatus nppiAlphaCompC_16u_C3R (const Npp16u * pSrc1, int nSrc1Step, Npp16u nAlpha1, const Npp16u * pSrc2, int nSrc2Step, Npp16u nAlpha2, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)

Three 16-bit unsigned short channel image composition using constant alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nAlpha1 Image alpha opacity (0 - max channel pixel value).
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
nAlpha2 Image alpha opacity (0 - max channel pixel value).
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.38.2.5 NppStatus nppiAlphaCompC_16u_C4R (const Npp16u * pSrc1, int nSrc1Step, Npp16u nAlpha1, const Npp16u * pSrc2, int nSrc2Step, Npp16u nAlpha2, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)

Four 16-bit unsigned short channel image composition using constant alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nAlpha1 Image alpha opacity (0 - max channel pixel value).
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
nAlpha2 Image alpha opacity (0 - max channel pixel value).
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.38.2.6 NppStatus nppiAlphaCompC_32f_C1R (const Npp32f * pSrc1, int nSrc1Step, Npp32f nAlpha1, const Npp32f * pSrc2, int nSrc2Step, Npp32f nAlpha2, Npp32f * pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)

One 32-bit floating point channel image composition using constant alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nAlpha1 Image alpha opacity (0.0 - 1.0).
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
nAlpha2 Image alpha opacity (0.0 - 1.0).
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.38.2.7 NppStatus nppiAlphaCompC_32s_C1R (const Npp32s * pSrc1, int nSrc1Step, Npp32s nAlpha1, const Npp32s * pSrc2, int nSrc2Step, Npp32s nAlpha2, Npp32s * pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)

One 32-bit signed integer channel image composition using constant alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nAlpha1 Image alpha opacity (0 - max channel pixel value).
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
nAlpha2 Image alpha opacity (0 - max channel pixel value).
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.38.2.8 NppStatus nppiAlphaCompC_32u_C1R (const Npp32u * pSrc1, int nSrc1Step, Npp32u nAlpha1, const Npp32u * pSrc2, int nSrc2Step, Npp32u nAlpha2, Npp32u * pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)

One 32-bit unsigned integer channel image composition using constant alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nAlpha1 Image alpha opacity (0 - max channel pixel value).
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
nAlpha2 Image alpha opacity (0 - max channel pixel value).
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.38.2.9 NppStatus nppiAlphaCompC_8s_C1R (const Npp8s * pSrc1, int nSrc1Step, Npp8s nAlpha1, const Npp8s * pSrc2, int nSrc2Step, Npp8s nAlpha2, Npp8s * pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)

One 8-bit signed char channel image composition using constant alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nAlpha1 Image alpha opacity (0 - max channel pixel value).
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
nAlpha2 Image alpha opacity (0 - max channel pixel value).
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.38.2.10 NppStatus nppiAlphaCompC_8u_AC4R (const Npp8u * pSrc1, int nSrc1Step, Npp8u nAlpha1, const Npp8u * pSrc2, int nSrc2Step, Npp8u nAlpha2, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)

Four 8-bit unsigned char channel image composition with alpha using constant source alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nAlpha1 Image alpha opacity (0 - max channel pixel value).
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
nAlpha2 Image alpha opacity (0 - max channel pixel value).
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.38.2.11 NppStatus nppiAlphaCompC_8u_C1R (const Npp8u * pSrc1, int nSrc1Step, Npp8u nAlpha1, const Npp8u * pSrc2, int nSrc2Step, Npp8u nAlpha2, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)

One 8-bit unsigned char channel image composition using constant alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nAlpha1 Image alpha opacity (0 - max channel pixel value).
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
nAlpha2 Image alpha opacity (0 - max channel pixel value).
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.38.2.12 NppStatus nppiAlphaCompC_8u_C3R (const Npp8u * pSrc1, int nSrc1Step, Npp8u nAlpha1, const Npp8u * pSrc2, int nSrc2Step, Npp8u nAlpha2, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)

Three 8-bit unsigned char channel image composition using constant alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nAlpha1 Image alpha opacity (0 - max channel pixel value).
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
nAlpha2 Image alpha opacity (0 - max channel pixel value).
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.38.2.13 NppStatus nppiAlphaCompC_8u_C4R (const Npp8u * pSrc1, int nSrc1Step, Npp8u nAlpha1, const Npp8u * pSrc2, int nSrc2Step, Npp8u nAlpha2, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)

Four 8-bit unsigned char channel image composition using constant alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nAlpha1 Image alpha opacity (0 - max channel pixel value).
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
nAlpha2 Image alpha opacity (0 - max channel pixel value).
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.39 AlphaPremulC

Premultiplies pixels of an image using a constant alpha value.

Functions

- **NppStatus nppiAlphaPremulC_8u_C1R** (const **Npp8u** *pSrc1, int nSrc1Step, **Npp8u** nAlpha1, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
One 8-bit unsigned char channel image premultiplication using constant alpha.
- **NppStatus nppiAlphaPremulC_8u_C1IR** (**Npp8u** nAlpha1, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
One 8-bit unsigned char channel in place image premultiplication using constant alpha.
- **NppStatus nppiAlphaPremulC_8u_C3R** (const **Npp8u** *pSrc1, int nSrc1Step, **Npp8u** nAlpha1, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Three 8-bit unsigned char channel image premultiplication using constant alpha.
- **NppStatus nppiAlphaPremulC_8u_C3IR** (**Npp8u** nAlpha1, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Three 8-bit unsigned char channel in place image premultiplication using constant alpha.
- **NppStatus nppiAlphaPremulC_8u_C4R** (const **Npp8u** *pSrc1, int nSrc1Step, **Npp8u** nAlpha1, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Four 8-bit unsigned char channel image premultiplication using constant alpha.
- **NppStatus nppiAlphaPremulC_8u_C4IR** (**Npp8u** nAlpha1, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Four 8-bit unsigned char channel in place image premultiplication using constant alpha.
- **NppStatus nppiAlphaPremulC_8u_AC4R** (const **Npp8u** *pSrc1, int nSrc1Step, **Npp8u** nAlpha1, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Four 8-bit unsigned char channel image premultiplication with alpha using constant alpha.
- **NppStatus nppiAlphaPremulC_8u_AC4IR** (**Npp8u** nAlpha1, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Four 8-bit unsigned char channel in place image premultiplication with alpha using constant alpha.
- **NppStatus nppiAlphaPremulC_16u_C1R** (const **Npp16u** *pSrc1, int nSrc1Step, **Npp16u** nAlpha1, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)
One 16-bit unsigned short channel image premultiplication using constant alpha.
- **NppStatus nppiAlphaPremulC_16u_C1IR** (**Npp16u** nAlpha1, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
One 16-bit unsigned short channel in place image premultiplication using constant alpha.
- **NppStatus nppiAlphaPremulC_16u_C3R** (const **Npp16u** *pSrc1, int nSrc1Step, **Npp16u** nAlpha1, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Three 16-bit unsigned short channel image premultiplication using constant alpha.

- **NppStatus nppiAlphaPremulC_16u_C3IR** (**Npp16u** nAlpha1, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Three 16-bit unsigned short channel in place image premultiplication using constant alpha.
- **NppStatus nppiAlphaPremulC_16u_C4R** (const **Npp16u** *pSrc1, int nSrc1Step, **Npp16u** nAlpha1, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 16-bit unsigned short channel image premultiplication using constant alpha.
- **NppStatus nppiAlphaPremulC_16u_C4IR** (**Npp16u** nAlpha1, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 16-bit unsigned short channel in place image premultiplication using constant alpha.
- **NppStatus nppiAlphaPremulC_16u_AC4R** (const **Npp16u** *pSrc1, int nSrc1Step, **Npp16u** nAlpha1, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 16-bit unsigned short channel image premultiplication with alpha using constant alpha.
- **NppStatus nppiAlphaPremulC_16u_AC4IR** (**Npp16u** nAlpha1, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 16-bit unsigned short channel in place image premultiplication with alpha using constant alpha.

7.39.1 Detailed Description

Premultiplies pixels of an image using a constant alpha value.

7.39.2 Function Documentation

7.39.2.1 NppStatus nppiAlphaPremulC_16u_AC4IR (**Npp16u** nAlpha1, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 16-bit unsigned short channel in place image premultiplication with alpha using constant alpha.

Parameters:

- nAlpha1** Image alpha opacity (0 - max channel pixel value).
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.39.2.2 NppStatus nppiAlphaPremulC_16u_AC4R (const **Npp16u** *pSrc1, int nSrc1Step, **Npp16u** nAlpha1, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 16-bit unsigned short channel image premultiplication with alpha using constant alpha.

Parameters:

- pSrc1** Source-Image Pointer.

nSrc1Step Source-Image Line Step.

nAlpha1 Image alpha opacity (0 - max channel pixel value).

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.39.2.3 NppStatus nppiAlphaPremulC_16u_C1IR (Npp16u *nAlpha1*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 16-bit unsigned short channel in place image premultiplication using constant alpha.

Parameters:

nAlpha1 Image alpha opacity (0 - max channel pixel value).

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.39.2.4 NppStatus nppiAlphaPremulC_16u_C1R (const Npp16u * *pSrc1*, int *nSrc1Step*, Npp16u *nAlpha1*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 16-bit unsigned short channel image premultiplication using constant alpha.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

nAlpha1 Image alpha opacity (0 - max channel pixel value).

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.39.2.5 NppStatus nppiAlphaPremulC_16u_C3IR (Npp16u *nAlpha1*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 16-bit unsigned short channel in place image premultiplication using constant alpha.

Parameters:

nAlpha1 Image alpha opacity (0 - max channel pixel value).
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.39.2.6 NppStatus nppiAlphaPremulC_16u_C3R (const Npp16u * *pSrcI*, int *nSrcIStep*, Npp16u *nAlpha1*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 16-bit unsigned short channel image premultiplication using constant alpha.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
nAlpha1 Image alpha opacity (0 - max channel pixel value).
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.39.2.7 NppStatus nppiAlphaPremulC_16u_C4IR (Npp16u *nAlpha1*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel in place image premultiplication using constant alpha.

Parameters:

nAlpha1 Image alpha opacity (0 - max channel pixel value).
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.39.2.8 NppStatus nppiAlphaPremulC_16u_C4R (const Npp16u * pSrc1, int nSrc1Step, Npp16u nAlpha1, Npp16u * pDst, int nDstStep, NppiSize oSizeROI)

Four 16-bit unsigned short channel image premultiplication using constant alpha.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- nAlpha1* Image alpha opacity (0 - max channel pixel value).
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.39.2.9 NppStatus nppiAlphaPremulC_8u_AC4IR (Npp8u nAlpha1, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 8-bit unsigned char channel in place image premultiplication with alpha using constant alpha.

Parameters:

- nAlpha1* Image alpha opacity (0 - max channel pixel value).
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.39.2.10 NppStatus nppiAlphaPremulC_8u_AC4R (const Npp8u * pSrc1, int nSrc1Step, Npp8u nAlpha1, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Four 8-bit unsigned char channel image premultiplication with alpha using constant alpha.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- nAlpha1* Image alpha opacity (0 - max channel pixel value).
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.39.2.11 NppStatus nppiAlphaPremulC_8u_C1IR (Npp8u *nAlpha1*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 8-bit unsigned char channel in place image premultiplication using constant alpha.

Parameters:

nAlpha1 Image alpha opacity (0 - max channel pixel value).
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.39.2.12 NppStatus nppiAlphaPremulC_8u_C1R (const Npp8u * *pSrc1*, int *nSrc1Step*, Npp8u *nAlpha1*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 8-bit unsigned char channel image premultiplication using constant alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nAlpha1 Image alpha opacity (0 - max channel pixel value).
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.39.2.13 NppStatus nppiAlphaPremulC_8u_C3IR (Npp8u *nAlpha1*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 8-bit unsigned char channel in place image premultiplication using constant alpha.

Parameters:

nAlpha1 Image alpha opacity (0 - max channel pixel value).
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.39.2.14 NppStatus nppiAlphaPremulC_8u_C3R (const Npp8u **pSrc1*, int *nSrc1Step*, Npp8u *nAlpha1*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 8-bit unsigned char channel image premultiplication using constant alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nAlpha1 Image alpha opacity (0 - max channel pixel value).
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.39.2.15 NppStatus nppiAlphaPremulC_8u_C4IR (Npp8u *nAlpha1*, Npp8u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel in place image premultiplication using constant alpha.

Parameters:

nAlpha1 Image alpha opacity (0 - max channel pixel value).
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.39.2.16 NppStatus nppiAlphaPremulC_8u_C4R (const Npp8u **pSrc1*, int *nSrc1Step*, Npp8u *nAlpha1*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel image premultiplication using constant alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nAlpha1 Image alpha opacity (0 - max channel pixel value).
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.40 AlphaComp

Composite two images using alpha opacity values contained in each image.

Functions

- `NppStatus nppiAlphaComp_8u_AC1R (const Npp8u *pSrc1, int nSrc1Step, const Npp8u *pSrc2, int nSrc2Step, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)`
One 8-bit unsigned char channel image composition using image alpha values (0 - max channel pixel value).
- `NppStatus nppiAlphaComp_8u_AC4R (const Npp8u *pSrc1, int nSrc1Step, const Npp8u *pSrc2, int nSrc2Step, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)`
Four 8-bit unsigned char channel image composition using image alpha values (0 - max channel pixel value).
- `NppStatus nppiAlphaComp_8s_AC1R (const Npp8s *pSrc1, int nSrc1Step, const Npp8s *pSrc2, int nSrc2Step, Npp8s *pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)`
One 8-bit signed char channel image composition using image alpha values (0 - max channel pixel value).
- `NppStatus nppiAlphaComp_16u_AC1R (const Npp16u *pSrc1, int nSrc1Step, const Npp16u *pSrc2, int nSrc2Step, Npp16u *pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)`
One 16-bit unsigned short channel image composition using image alpha values (0 - max channel pixel value).
- `NppStatus nppiAlphaComp_16u_AC4R (const Npp16u *pSrc1, int nSrc1Step, const Npp16u *pSrc2, int nSrc2Step, Npp16u *pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)`
Four 16-bit unsigned short channel image composition using image alpha values (0 - max channel pixel value).
- `NppStatus nppiAlphaComp_16s_AC1R (const Npp16s *pSrc1, int nSrc1Step, const Npp16s *pSrc2, int nSrc2Step, Npp16s *pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)`
One 16-bit signed short channel image composition using image alpha values (0 - max channel pixel value).
- `NppStatus nppiAlphaComp_32u_AC1R (const Npp32u *pSrc1, int nSrc1Step, const Npp32u *pSrc2, int nSrc2Step, Npp32u *pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)`
One 32-bit unsigned integer channel image composition using image alpha values (0 - max channel pixel value).
- `NppStatus nppiAlphaComp_32u_AC4R (const Npp32u *pSrc1, int nSrc1Step, const Npp32u *pSrc2, int nSrc2Step, Npp32u *pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)`
Four 32-bit unsigned integer channel image composition using image alpha values (0 - max channel pixel value).
- `NppStatus nppiAlphaComp_32s_AC1R (const Npp32s *pSrc1, int nSrc1Step, const Npp32s *pSrc2, int nSrc2Step, Npp32s *pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)`
One 32-bit signed integer channel image composition using image alpha values (0 - max channel pixel value).

- **NppStatus nppiAlphaComp_32s_AC4R** (const **Npp32s** ***pSrc1**, int **nSrc1Step**, const **Npp32s** ***pSrc2**, int **nSrc2Step**, **Npp32s** ***pDst**, int **nDstStep**, **NppiSize** **oSizeROI**, **NppiAlphaOp** **eAlphaOp**)
Four 32-bit signed integer channel image composition using image alpha values (0 - max channel pixel value).
- **NppStatus nppiAlphaComp_32f_AC1R** (const **Npp32f** ***pSrc1**, int **nSrc1Step**, const **Npp32f** ***pSrc2**, int **nSrc2Step**, **Npp32f** ***pDst**, int **nDstStep**, **NppiSize** **oSizeROI**, **NppiAlphaOp** **eAlphaOp**)
One 32-bit floating point channel image composition using image alpha values (0.0 - 1.0).
- **NppStatus nppiAlphaComp_32f_AC4R** (const **Npp32f** ***pSrc1**, int **nSrc1Step**, const **Npp32f** ***pSrc2**, int **nSrc2Step**, **Npp32f** ***pDst**, int **nDstStep**, **NppiSize** **oSizeROI**, **NppiAlphaOp** **eAlphaOp**)
Four 32-bit floating point channel image composition using image alpha values (0.0 - 1.0).

7.40.1 Detailed Description

Composite two images using alpha opacity values contained in each image.

7.40.2 Function Documentation

7.40.2.1 NppStatus nppiAlphaComp_16s_AC1R (const **Npp16s** ***pSrc1**, int **nSrc1Step**, const **Npp16s** ***pSrc2**, int **nSrc2Step**, **Npp16s** ***pDst**, int **nDstStep**, **NppiSize** **oSizeROI**, **NppiAlphaOp** **eAlphaOp**)

One 16-bit signed short channel image composition using image alpha values (0 - max channel pixel value).

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.40.2.2 NppStatus nppiAlphaComp_16u_AC1R (const **Npp16u** ***pSrc1**, int **nSrc1Step**, const **Npp16u** ***pSrc2**, int **nSrc2Step**, **Npp16u** ***pDst**, int **nDstStep**, **NppiSize** **oSizeROI**, **NppiAlphaOp** **eAlphaOp**)

One 16-bit unsigned short channel image composition using image alpha values (0 - max channel pixel value).

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.40.2.3 NppStatus nppiAlphaComp_16u_AC4R (const Npp16u * pSrc1, int nSrc1Step, const Npp16u * pSrc2, int nSrc2Step, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)

Four 16-bit unsigned short channel image composition using image alpha values (0 - max channel pixel value).

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.40.2.4 NppStatus nppiAlphaComp_32f_AC1R (const Npp32f * pSrc1, int nSrc1Step, const Npp32f * pSrc2, int nSrc2Step, Npp32f * pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)

One 32-bit floating point channel image composition using image alpha values (0.0 - 1.0).

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.40.2.5 NppStatus nppiAlphaComp_32f_AC4R (const Npp32f * pSrc1, int nSrc1Step, const Npp32f * pSrc2, int nSrc2Step, Npp32f * pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)

Four 32-bit floating point channel image composition using image alpha values (0.0 - 1.0).

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.40.2.6 NppStatus nppiAlphaComp_32s_AC1R (const Npp32s * pSrc1, int nSrc1Step, const Npp32s * pSrc2, int nSrc2Step, Npp32s * pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)

One 32-bit signed integer channel image composition using image alpha values (0 - max channel pixel value).

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.40.2.7 NppStatus nppiAlphaComp_32s_AC4R (const Npp32s * *pSrc1*, int *nSrc1Step*, const Npp32s * *pSrc2*, int *nSrc2Step*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppiAlphaOp *eAlphaOp*)

Four 32-bit signed integer channel image composition using image alpha values (0 - max channel pixel value).

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.40.2.8 NppStatus nppiAlphaComp_32u_AC1R (const Npp32u * *pSrc1*, int *nSrc1Step*, const Npp32u * *pSrc2*, int *nSrc2Step*, Npp32u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppiAlphaOp *eAlphaOp*)

One 32-bit unsigned integer channel image composition using image alpha values (0 - max channel pixel value).

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.40.2.9 NppStatus nppiAlphaComp_32u_AC4R (const Npp32u * pSrc1, int nSrc1Step, const Npp32u * pSrc2, int nSrc2Step, Npp32u * pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)

Four 32-bit unsigned integer channel image composition using image alpha values (0 - max channel pixel value).

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.40.2.10 NppStatus nppiAlphaComp_8s_AC1R (const Npp8s * pSrc1, int nSrc1Step, const Npp8s * pSrc2, int nSrc2Step, Npp8s * pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)

One 8-bit signed char channel image composition using image alpha values (0 - max channel pixel value).

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.40.2.11 NppStatus nppiAlphaComp_8u_AC1R (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)

One 8-bit unsigned char channel image composition using image alpha values (0 - max channel pixel value).

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.40.2.12 NppStatus nppiAlphaComp_8u_AC4R (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)

Four 8-bit unsigned char channel image composition using image alpha values (0 - max channel pixel value).

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.41 AlphaPremul

Premultiplies image pixels by image alpha opacity values.

Functions

- `NppStatus nppiAlphaPremul_8u_AC4R (const Npp8u *pSrc1, int nSrc1Step, Npp8u *pDst, int nDstStep, NppiSize oSizeROI)`

Four 8-bit unsigned char channel image premultiplication with pixel alpha (0 - max channel pixel value).
- `NppStatus nppiAlphaPremul_8u_AC4IR (Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI)`

Four 8-bit unsigned char channel in place image premultiplication with pixel alpha (0 - max channel pixel value).
- `NppStatus nppiAlphaPremul_16u_AC4R (const Npp16u *pSrc1, int nSrc1Step, Npp16u *pDst, int nDstStep, NppiSize oSizeROI)`

Four 16-bit unsigned short channel image premultiplication with pixel alpha (0 - max channel pixel value).
- `NppStatus nppiAlphaPremul_16u_AC4IR (Npp16u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI)`

Four 16-bit unsigned short channel in place image premultiplication with pixel alpha (0 - max channel pixel value).

7.41.1 Detailed Description

Premultiplies image pixels by image alpha opacity values.

7.41.2 Function Documentation

7.41.2.1 `NppStatus nppiAlphaPremul_16u_AC4IR (Npp16u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI)`

Four 16-bit unsigned short channel in place image premultiplication with pixel alpha (0 - max channel pixel value).

Parameters:

- `pSrcDst` In-Place Image Pointer.
- `nSrcDstStep` In-Place-Image Line Step.
- `oSizeROI` Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.41.2.2 NppStatus nppiAlphaPremul_16u_AC4R (const Npp16u * *pSrc1*, int *nSrc1Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel image premultiplication with pixel alpha (0 - max channel pixel value).

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.41.2.3 NppStatus nppiAlphaPremul_8u_AC4IR (Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel in place image premultiplication with pixel alpha (0 - max channel pixel value).

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.41.2.4 NppStatus nppiAlphaPremul_8u_AC4R (const Npp8u * *pSrc1*, int *nSrc1Step*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel image premultiplication with pixel alpha (0 - max channel pixel value).

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

Chapter 8

Data Structure Documentation

8.1 NPP_ALIGN_16 Struct Reference

Complex Number This struct represents a long long complex number.

```
#include <nppdefs.h>
```

Data Fields

- **Npp64s re**
Real part.
- **Npp64s im**
Imaginary part.
- **Npp64f re**
Real part.
- **Npp64f im**
Imaginary part.

8.1.1 Detailed Description

Complex Number This struct represents a long long complex number.

Complex Number This struct represents a double floating-point complex number.

8.1.2 Field Documentation

8.1.2.1 Npp64f NPP_ALIGN_16::im

Imaginary part.

8.1.2.2 Npp64s NPP_ALIGN_16::im

Imaginary part.

8.1.2.3 Npp64f NPP_ALIGN_16::re

Real part.

8.1.2.4 Npp64s NPP_ALIGN_16::re

Real part.

The documentation for this struct was generated from the following file:

- C:/src/sw/rel/gpgpu/toolkit/r8.0/NPP/npp/include/nppdefs.h

8.2 NPP_ALIGN_8 Struct Reference

Complex Number This struct represents an unsigned int complex number.

```
#include <nppdefs.h>
```

Data Fields

- [Npp32u re](#)

Real part.

- [Npp32u im](#)

Imaginary part.

- [Npp32s re](#)

Real part.

- [Npp32s im](#)

Imaginary part.

- [Npp32f re](#)

Real part.

- [Npp32f im](#)

Imaginary part.

8.2.1 Detailed Description

Complex Number This struct represents an unsigned int complex number.

Complex Number This struct represents a single floating-point complex number.

Complex Number This struct represents a signed int complex number.

8.2.2 Field Documentation

8.2.2.1 Npp32f NPP_ALIGN_8::im

Imaginary part.

8.2.2.2 Npp32s NPP_ALIGN_8::im

Imaginary part.

8.2.2.3 Npp32u NPP_ALIGN_8::im

Imaginary part.

8.2.2.4 Npp32f NPP_ALIGN_8::re

Real part.

8.2.2.5 Npp32s NPP_ALIGN_8::re

Real part.

8.2.2.6 Npp32u NPP_ALIGN_8::re

Real part.

The documentation for this struct was generated from the following file:

- C:/src/sw/rel/gpgpu/toolkit/r8.0/NPP/npp/include/nppdefs.h

8.3 NppiHaarBuffer Struct Reference

```
#include <nppdefs.h>
```

Data Fields

- int **haarBufferSize**
size of the buffer
- **Npp32s * haarBuffer**
buffer

8.3.1 Field Documentation

8.3.1.1 **Npp32s* NppiHaarBuffer::haarBuffer**

buffer

8.3.1.2 **int NppiHaarBuffer::haarBufferSize**

size of the buffer

The documentation for this struct was generated from the following file:

- C:/src/sw/rel/gpgpu/toolkit/r8.0/NPP/npp/include/nppdefs.h

8.4 NppiHaarClassifier_32f Struct Reference

```
#include <nppdefs.h>
```

Data Fields

- int **numClassifiers**
number of classifiers
- **Npp32s * classifiers**
packed classifier data 40 bytes each
- size_t **classifierStep**
- **NppiSize classifierSize**
- **Npp32s * counterDevice**

8.4.1 Field Documentation

8.4.1.1 Npp32s* NppiHaarClassifier_32f::classifiers

packed classifier data 40 bytes each

8.4.1.2 NppiSize NppiHaarClassifier_32f::classifierSize

8.4.1.3 size_t NppiHaarClassifier_32f::classifierStep

8.4.1.4 Npp32s* NppiHaarClassifier_32f::counterDevice

8.4.1.5 int NppiHaarClassifier_32f::numClassifiers

number of classifiers

The documentation for this struct was generated from the following file:

- C:/src/sw/rel/gpgpu/toolkit/r8.0/NPP/npp/include/nppdefs.h

8.5 NppiPoint Struct Reference

2D Point

```
#include <nppdefs.h>
```

Data Fields

- int **x**
x-coordinate.
- int **y**
y-coordinate.

8.5.1 Detailed Description

2D Point

8.5.2 Field Documentation

8.5.2.1 int NppiPoint::x

x-coordinate.

8.5.2.2 int NppiPoint::y

y-coordinate.

The documentation for this struct was generated from the following file:

- C:/src/sw/rel/gpgpu/toolkit/r8.0/NPP/npp/include/nppdefs.h

8.6 NppiRect Struct Reference

2D Rectangle This struct contains position and size information of a rectangle in two space.

```
#include <nppdefs.h>
```

Data Fields

- int **x**
x-coordinate of upper left corner (lowest memory address).
- int **y**
y-coordinate of upper left corner (lowest memory address).
- int **width**
Rectangle width.
- int **height**
Rectangle height.

8.6.1 Detailed Description

2D Rectangle This struct contains position and size information of a rectangle in two space.

The rectangle's position is usually signified by the coordinate of its upper-left corner.

8.6.2 Field Documentation

8.6.2.1 int NppiRect::height

Rectangle height.

8.6.2.2 int NppiRect::width

Rectangle width.

8.6.2.3 int NppiRect::x

x-coordinate of upper left corner (lowest memory address).

8.6.2.4 int NppiRect::y

y-coordinate of upper left corner (lowest memory address).

The documentation for this struct was generated from the following file:

- C:/src/sw/rel/gpgpu/toolkit/r8.0/NPP/npp/include/nppdefs.h

8.7 NppiSize Struct Reference

2D Size This struct typically represents the size of a rectangular region in two space.

```
#include <nppdefs.h>
```

Data Fields

- int **width**
Rectangle width.
- int **height**
Rectangle height.

8.7.1 Detailed Description

2D Size This struct typically represents the size of a rectangular region in two space.

8.7.2 Field Documentation

8.7.2.1 int NppiSize::height

Rectangle height.

8.7.2.2 int NppiSize::width

Rectangle width.

The documentation for this struct was generated from the following file:

- C:/src/sw/rel/gpgpu/toolkit/r8.0/NPP/npp/include/nppdefs.h

8.8 NppLibraryVersion Struct Reference

```
#include <nppdefs.h>
```

Data Fields

- int **major**
Major version number.
- int **minor**
Minor version number.
- int **build**
Build number.

8.8.1 Field Documentation

8.8.1.1 int NppLibraryVersion::build

Build number.

This reflects the nightly build this release was made from.

8.8.1.2 int NppLibraryVersion::major

Major version number.

8.8.1.3 int NppLibraryVersion::minor

Minor version number.

The documentation for this struct was generated from the following file:

- C:/src/sw/rel/gpgpu/toolkit/r8.0/NPP/npp/include/nppdefs.h

Index

__align__
 npp_basic_types, 48, 49

Abs, 318
AbsDiff, 325
AbsDiffC, 164
Add, 166
AddC, 53
AddProduct, 198
AddSquare, 195
AddWeighted, 202
Alpha Composition, 470
AlphaComp, 486
AlphaCompC, 471
AlphaPremul, 493
AlphaPremulC, 479
And, 430
AndC, 369
Arithmetic and Logical Operations, 50
Arithmetic Operations, 51

Basic NPP Data Types, 46
build
 NppLibraryVersion, 504

classifiers
 NppHaarClassifier_32f, 500

classifierSize
 NppHaarClassifier_32f, 500

classifierStep
 NppHaarClassifier_32f, 500

core_npp
 nppGetGpuComputeCapability, 28
 nppGetGpuDeviceProperties, 28
 nppGetGpuName, 28
 nppGetGpuNumSMs, 28
 nppGetLibVersion, 28
 nppGetMaxThreadsPerBlock, 29
 nppGetMaxThreadsPerSM, 29
 nppGetStream, 29
 nppGetStreamMaxThreadsPerSM, 29
 nppGetStreamNumSMs, 29
 nppSetStream, 29

counterDevice
 NppHaarClassifier_32f, 500

Div, 274
Div_Round, 303
DivC, 138

Exp, 361

haarBuffer
 NppiHaarBuffer, 499

haarBufferSize
 NppiHaarBuffer, 499

height
 NppiRect, 502
 NppiSize, 503

im
 NPP_ALIGN_16, 495
 NPP_ALIGN_8, 497

image_abs
 nppiAbs_16s_AC4IR, 319
 nppiAbs_16s_AC4R, 319
 nppiAbs_16s_C1IR, 319
 nppiAbs_16s_C1R, 320
 nppiAbs_16s_C3IR, 320
 nppiAbs_16s_C3R, 320
 nppiAbs_16s_C4IR, 321
 nppiAbs_16s_C4R, 321
 nppiAbs_32f_AC4IR, 321
 nppiAbs_32f_AC4R, 322
 nppiAbs_32f_C1IR, 322
 nppiAbs_32f_C1R, 322
 nppiAbs_32f_C3IR, 323
 nppiAbs_32f_C3R, 323
 nppiAbs_32f_C4IR, 323
 nppiAbs_32f_C4R, 324

image_absdiff
 nppiAbsDiff_16u_C1R, 325
 nppiAbsDiff_32f_C1R, 326
 nppiAbsDiff_8u_C1R, 326
 nppiAbsDiff_8u_C3R, 326
 nppiAbsDiff_8u_C4R, 327

image_absdiffc
 nppiAbsDiffC_16u_C1R, 164
 nppiAbsDiffC_32f_C1R, 164
 nppiAbsDiffC_8u_C1R, 165

image_add

nppiAdd_16s_AC4IRSfs, 171
nppiAdd_16s_AC4RSfs, 171
nppiAdd_16s_C1IRSfs, 172
nppiAdd_16s_C1RSfs, 172
nppiAdd_16s_C3IRSfs, 173
nppiAdd_16s_C3RSfs, 173
nppiAdd_16s_C4IRSfs, 173
nppiAdd_16s_C4RSfs, 174
nppiAdd_16sc_AC4IRSfs, 174
nppiAdd_16sc_AC4RSfs, 175
nppiAdd_16sc_C1IRSfs, 175
nppiAdd_16sc_C1RSfs, 175
nppiAdd_16sc_C3IRSfs, 176
nppiAdd_16sc_C3RSfs, 176
nppiAdd_16u_AC4IRSfs, 177
nppiAdd_16u_AC4RSfs, 177
nppiAdd_16u_C1IRSfs, 178
nppiAdd_16u_C1RSfs, 178
nppiAdd_16u_C3IRSfs, 178
nppiAdd_16u_C3RSfs, 179
nppiAdd_16u_C4IRSfs, 179
nppiAdd_16u_C4RSfs, 180
nppiAdd_32f_AC4IR, 180
nppiAdd_32f_AC4R, 180
nppiAdd_32f_C1IR, 181
nppiAdd_32f_C1R, 181
nppiAdd_32f_C3IR, 182
nppiAdd_32f_C3R, 182
nppiAdd_32f_C4IR, 182
nppiAdd_32f_C4R, 183
nppiAdd_32fc_AC4IR, 183
nppiAdd_32fc_AC4R, 183
nppiAdd_32fc_C1IR, 184
nppiAdd_32fc_C1R, 184
nppiAdd_32fc_C3IR, 185
nppiAdd_32fc_C3R, 185
nppiAdd_32fc_C4IR, 185
nppiAdd_32fc_C4R, 186
nppiAdd_32s_C1IRSfs, 186
nppiAdd_32s_C1R, 187
nppiAdd_32s_C1RSfs, 187
nppiAdd_32s_C3IRSfs, 187
nppiAdd_32s_C3RSfs, 188
nppiAdd_32sc_AC4IRSfs, 188
nppiAdd_32sc_AC4RSfs, 189
nppiAdd_32sc_C1IRSfs, 189
nppiAdd_32sc_C1RSfs, 189
nppiAdd_32sc_C3IRSfs, 190
nppiAdd_32sc_C3RSfs, 190
nppiAdd_8u_AC4IRSfs, 191
nppiAdd_8u_AC4RSfs, 191
nppiAdd_8u_C1IRSfs, 192
nppiAdd_8u_C1RSfs, 192
nppiAdd_8u_C3IRSfs, 192
nppiAdd_8u_C3RSfs, 193
nppiAdd_8u_C4IRSfs, 193
nppiAdd_8u_C4RSfs, 194
image_addc
 nppiAddC_16s_AC4IRSfs, 58
 nppiAddC_16s_AC4RSfs, 58
 nppiAddC_16s_C1IRSfs, 58
 nppiAddC_16s_C1RSfs, 59
 nppiAddC_16s_C3IRSfs, 59
 nppiAddC_16s_C3RSfs, 59
 nppiAddC_16s_C4IRSfs, 60
 nppiAddC_16s_C4RSfs, 60
 nppiAddC_16sc_AC4IRSfs, 61
 nppiAddC_16sc_AC4RSfs, 61
 nppiAddC_16sc_C1IRSfs, 61
 nppiAddC_16sc_C1RSfs, 62
 nppiAddC_16sc_C3IRSfs, 62
 nppiAddC_16sc_C3RSfs, 63
 nppiAddC_16u_AC4IRSfs, 63
 nppiAddC_16u_AC4RSfs, 63
 nppiAddC_16u_C1IRSfs, 64
 nppiAddC_16u_C1RSfs, 64
 nppiAddC_16u_C3IRSfs, 65
 nppiAddC_16u_C3RSfs, 65
 nppiAddC_16u_C4IRSfs, 65
 nppiAddC_16u_C4RSfs, 66
 nppiAddC_32f_AC4IR, 66
 nppiAddC_32f_AC4R, 66
 nppiAddC_32f_C1IR, 67
 nppiAddC_32f_C1R, 67
 nppiAddC_32f_C3IR, 67
 nppiAddC_32f_C3R, 68
 nppiAddC_32f_C4IR, 68
 nppiAddC_32f_C4R, 68
 nppiAddC_32fc_AC4IR, 69
 nppiAddC_32fc_AC4R, 69
 nppiAddC_32fc_C1IR, 69
 nppiAddC_32fc_C1R, 70
 nppiAddC_32fc_C3IR, 70
 nppiAddC_32fc_C3R, 70
 nppiAddC_32fc_C4IR, 71
 nppiAddC_32fc_C4R, 71
 nppiAddC_32s_C1IRSfs, 72
 nppiAddC_32s_C1RSfs, 72
 nppiAddC_32s_C3IRSfs, 72
 nppiAddC_32s_C3RSfs, 73
 nppiAddC_32sc_AC4IRSfs, 73
 nppiAddC_32sc_AC4RSfs, 73
 nppiAddC_32sc_C1IRSfs, 74
 nppiAddC_32sc_C1RSfs, 74
 nppiAddC_32sc_C3IRSfs, 75
 nppiAddC_32sc_C3RSfs, 75
 nppiAddC_8u_AC4IRSfs, 75
 nppiAddC_8u_AC4RSfs, 76

- nppiAddC_8u_C1IRSfs, 76
nppiAddC_8u_C1RSfs, 77
nppiAddC_8u_C3IRSfs, 77
nppiAddC_8u_C3RSfs, 77
nppiAddC_8u_C4IRSfs, 78
nppiAddC_8u_C4RSfs, 78
- image_addproduct
 nppiAddProduct_16u32f_C1IMR, 198
 nppiAddProduct_16u32f_C1IR, 199
 nppiAddProduct_32f_C1IMR, 199
 nppiAddProduct_32f_C1IR, 200
 nppiAddProduct_8u32f_C1IMR, 200
 nppiAddProduct_8u32f_C1IR, 200
- image_addsquare
 nppiAddSquare_16u32f_C1IMR, 195
 nppiAddSquare_16u32f_C1IR, 196
 nppiAddSquare_32f_C1IMR, 196
 nppiAddSquare_32f_C1IR, 196
 nppiAddSquare_8u32f_C1IMR, 197
 nppiAddSquare_8u32f_C1IR, 197
- image_addweighted
 nppiAddWeighted_16u32f_C1IMR, 202
 nppiAddWeighted_16u32f_C1IR, 203
 nppiAddWeighted_32f_C1IMR, 203
 nppiAddWeighted_32f_C1IR, 204
 nppiAddWeighted_8u32f_C1IMR, 204
 nppiAddWeighted_8u32f_C1IR, 204
- image_alphacomp
 nppiAlphaComp_16s_AC1R, 487
 nppiAlphaComp_16u_AC1R, 487
 nppiAlphaComp_16u_AC4R, 488
 nppiAlphaComp_32f_AC1R, 488
 nppiAlphaComp_32f_AC4R, 489
 nppiAlphaComp_32s_AC1R, 489
 nppiAlphaComp_32s_AC4R, 489
 nppiAlphaComp_32u_AC1R, 490
 nppiAlphaComp_32u_AC4R, 490
 nppiAlphaComp_8s_AC1R, 491
 nppiAlphaComp_8u_AC1R, 491
 nppiAlphaComp_8u_AC4R, 492
- image_alphaocompc
 nppiAlphaCompC_16s_C1R, 472
 nppiAlphaCompC_16u_AC4R, 472
 nppiAlphaCompC_16u_C1R, 473
 nppiAlphaCompC_16u_C3R, 473
 nppiAlphaCompC_16u_C4R, 474
 nppiAlphaCompC_32f_C1R, 474
 nppiAlphaCompC_32s_C1R, 475
 nppiAlphaCompC_32u_C1R, 475
 nppiAlphaCompC_8s_C1R, 476
 nppiAlphaCompC_8u_AC4R, 476
 nppiAlphaCompC_8u_C1R, 477
 nppiAlphaCompC_8u_C3R, 477
 nppiAlphaCompC_8u_C4R, 478
- image_alpha premul
 nppiAlphaPremul_16u_AC4IR, 493
 nppiAlphaPremul_16u_AC4R, 493
 nppiAlphaPremul_8u_AC4IR, 494
 nppiAlphaPremul_8u_AC4R, 494
- image_alpha premulc
 nppiAlphaPremulC_16u_AC4IR, 480
 nppiAlphaPremulC_16u_AC4R, 480
 nppiAlphaPremulC_16u_C1IR, 481
 nppiAlphaPremulC_16u_C1R, 481
 nppiAlphaPremulC_16u_C3IR, 481
 nppiAlphaPremulC_16u_C3R, 482
 nppiAlphaPremulC_16u_C4IR, 482
 nppiAlphaPremulC_16u_C4R, 482
 nppiAlphaPremulC_8u_AC4IR, 483
 nppiAlphaPremulC_8u_AC4R, 483
 nppiAlphaPremulC_8u_C1IR, 483
 nppiAlphaPremulC_8u_C1R, 484
 nppiAlphaPremulC_8u_C3IR, 484
 nppiAlphaPremulC_8u_C3R, 484
 nppiAlphaPremulC_8u_C4IR, 485
 nppiAlphaPremulC_8u_C4R, 485
- image_and
 nppiAnd_16u_AC4IR, 432
 nppiAnd_16u_AC4R, 432
 nppiAnd_16u_C1IR, 432
 nppiAnd_16u_C1R, 433
 nppiAnd_16u_C3IR, 433
 nppiAnd_16u_C3R, 433
 nppiAnd_16u_C4IR, 434
 nppiAnd_16u_C4R, 434
 nppiAnd_32s_AC4IR, 435
 nppiAnd_32s_AC4R, 435
 nppiAnd_32s_C1IR, 435
 nppiAnd_32s_C1R, 436
 nppiAnd_32s_C3IR, 436
 nppiAnd_32s_C3R, 436
 nppiAnd_32s_C4IR, 437
 nppiAnd_32s_C4R, 437
 nppiAnd_8u_AC4IR, 438
 nppiAnd_8u_AC4R, 438
 nppiAnd_8u_C1IR, 438
 nppiAnd_8u_C1R, 439
 nppiAnd_8u_C3IR, 439
 nppiAnd_8u_C3R, 439
 nppiAnd_8u_C4IR, 440
 nppiAnd_8u_C4R, 440
- image_andc
 nppiAndC_16u_AC4IR, 371
 nppiAndC_16u_AC4R, 371
 nppiAndC_16u_C1IR, 371
 nppiAndC_16u_C1R, 372
 nppiAndC_16u_C3IR, 372
 nppiAndC_16u_C3R, 372

- nppiAndC_16u_C4IR, 373
 nppiAndC_16u_C4R, 373
 nppiAndC_32s_AC4IR, 373
 nppiAndC_32s_AC4R, 374
 nppiAndC_32s_C1IR, 374
 nppiAndC_32s_C1R, 374
 nppiAndC_32s_C3IR, 375
 nppiAndC_32s_C3R, 375
 nppiAndC_32s_C4IR, 375
 nppiAndC_32s_C4R, 376
 nppiAndC_8u_AC4IR, 376
 nppiAndC_8u_AC4R, 376
 nppiAndC_8u_C1IR, 377
 nppiAndC_8u_C1R, 377
 nppiAndC_8u_C3IR, 377
 nppiAndC_8u_C3R, 378
 nppiAndC_8u_C4IR, 378
 nppiAndC_8u_C4R, 378
 image_div
 nppiDiv_16s_AC4IRSfs, 279
 nppiDiv_16s_AC4RSfs, 279
 nppiDiv_16s_C1IRSfs, 280
 nppiDiv_16s_C1RSfs, 280
 nppiDiv_16s_C3IRSfs, 280
 nppiDiv_16s_C3RSfs, 281
 nppiDiv_16s_C4IRSfs, 281
 nppiDiv_16s_C4RSfs, 282
 nppiDiv_16sc_AC4IRSfs, 282
 nppiDiv_16sc_AC4RSfs, 282
 nppiDiv_16sc_C1IRSfs, 283
 nppiDiv_16sc_C1RSfs, 283
 nppiDiv_16sc_C3IRSfs, 284
 nppiDiv_16sc_C3RSfs, 284
 nppiDiv_16u_AC4IRSfs, 285
 nppiDiv_16u_AC4RSfs, 285
 nppiDiv_16u_C1IRSfs, 285
 nppiDiv_16u_C1RSfs, 286
 nppiDiv_16u_C3IRSfs, 286
 nppiDiv_16u_C3RSfs, 287
 nppiDiv_16u_C4IRSfs, 287
 nppiDiv_16u_C4RSfs, 287
 nppiDiv_32f_AC4IR, 288
 nppiDiv_32f_AC4R, 288
 nppiDiv_32f_C1IR, 289
 nppiDiv_32f_C1R, 289
 nppiDiv_32f_C3IR, 289
 nppiDiv_32f_C3R, 290
 nppiDiv_32f_C4IR, 290
 nppiDiv_32f_C4R, 290
 nppiDiv_32fc_AC4IR, 291
 nppiDiv_32fc_AC4R, 291
 nppiDiv_32fc_C1IR, 292
 nppiDiv_32fc_C1R, 292
 nppiDiv_32fc_C3IR, 292
 nppiDiv_32fc_C3R, 293
 nppiDiv_32fc_C4IR, 293
 nppiDiv_32fc_C4R, 293
 nppiDiv_32s_C1IRSfs, 294
 nppiDiv_32s_C1R, 294
 nppiDiv_32s_C1RSfs, 295
 nppiDiv_32s_C3IRSfs, 295
 nppiDiv_32s_C3RSfs, 295
 nppiDiv_32sc_AC4IRSfs, 296
 nppiDiv_32sc_AC4RSfs, 296
 nppiDiv_32sc_C1IRSfs, 297
 nppiDiv_32sc_C1RSfs, 297
 nppiDiv_32sc_C3IRSfs, 298
 nppiDiv_32sc_C3RSfs, 298
 nppiDiv_8u_AC4IRSfs, 298
 nppiDiv_8u_AC4RSfs, 299
 nppiDiv_8u_C1IRSfs, 299
 nppiDiv_8u_C1RSfs, 300
 nppiDiv_8u_C3IRSfs, 300
 nppiDiv_8u_C3RSfs, 300
 nppiDiv_8u_C4IRSfs, 301
 nppiDiv_8u_C4RSfs, 301
 image_divc
 nppiDivC_16s_AC4IRSfs, 143
 nppiDivC_16s_AC4RSfs, 143
 nppiDivC_16s_C1IRSfs, 143
 nppiDivC_16s_C1RSfs, 144
 nppiDivC_16s_C3IRSfs, 144
 nppiDivC_16s_C3RSfs, 144
 nppiDivC_16s_C4IRSfs, 145
 nppiDivC_16s_C4RSfs, 145
 nppiDivC_16sc_AC4IRSfs, 146
 nppiDivC_16sc_AC4RSfs, 146
 nppiDivC_16sc_C1IRSfs, 146
 nppiDivC_16sc_C1RSfs, 147
 nppiDivC_16sc_C3IRSfs, 147
 nppiDivC_16sc_C3RSfs, 148
 nppiDivC_16u_AC4IRSfs, 148
 nppiDivC_16u_AC4RSfs, 148
 nppiDivC_16u_C1IRSfs, 149
 nppiDivC_16u_C1RSfs, 149
 nppiDivC_16u_C3IRSfs, 150
 nppiDivC_16u_C3RSfs, 150
 nppiDivC_16u_C4IRSfs, 150
 nppiDivC_16u_C4RSfs, 151
 nppiDivC_32f_AC4IR, 151
 nppiDivC_32f_AC4R, 151
 nppiDivC_32f_C1IR, 152
 nppiDivC_32f_C1R, 152
 nppiDivC_32f_C3IR, 152
 nppiDivC_32f_C3R, 153
 nppiDivC_32f_C4IR, 153
 nppiDivC_32f_C4R, 153
 nppiDivC_32fc_AC4IR, 154

- nppiDivC_32fc_AC4R, 154
nppiDivC_32fc_C1IR, 154
nppiDivC_32fc_C1R, 155
nppiDivC_32fc_C3IR, 155
nppiDivC_32fc_C3R, 155
nppiDivC_32fc_C4IR, 156
nppiDivC_32fc_C4R, 156
nppiDivC_32s_C1IRSfs, 157
nppiDivC_32s_C1RSfs, 157
nppiDivC_32s_C3IRSfs, 157
nppiDivC_32s_C3RSfs, 158
nppiDivC_32sc_AC4IRSfs, 158
nppiDivC_32sc_AC4RSfs, 158
nppiDivC_32sc_C1IRSfs, 159
nppiDivC_32sc_C1RSfs, 159
nppiDivC_32sc_C3IRSfs, 160
nppiDivC_32sc_C3RSfs, 160
nppiDivC_8u_AC4IRSfs, 160
nppiDivC_8u_AC4RSfs, 161
nppiDivC_8u_C1IRSfs, 161
nppiDivC_8u_C1RSfs, 162
nppiDivC_8u_C3IRSfs, 162
nppiDivC_8u_C3RSfs, 162
nppiDivC_8u_C4IRSfs, 163
nppiDivC_8u_C4RSfs, 163
- image_divround
nppiDiv_Round_16s_AC4IRSfs, 305
nppiDiv_Round_16s_AC4RSfs, 306
nppiDiv_Round_16s_C1IRSfs, 306
nppiDiv_Round_16s_C1RSfs, 307
nppiDiv_Round_16s_C3IRSfs, 307
nppiDiv_Round_16s_C3RSfs, 307
nppiDiv_Round_16s_C4IRSfs, 308
nppiDiv_Round_16s_C4RSfs, 308
nppiDiv_Round_16u_AC4IRSfs, 309
nppiDiv_Round_16u_AC4RSfs, 309
nppiDiv_Round_16u_C1IRSfs, 310
nppiDiv_Round_16u_C1RSfs, 310
nppiDiv_Round_16u_C3IRSfs, 311
nppiDiv_Round_16u_C3RSfs, 311
nppiDiv_Round_16u_C4IRSfs, 312
nppiDiv_Round_16u_C4RSfs, 312
nppiDiv_Round_8u_AC4IRSfs, 313
nppiDiv_Round_8u_AC4RSfs, 313
nppiDiv_Round_8u_C1IRSfs, 314
nppiDiv_Round_8u_C1RSfs, 314
nppiDiv_Round_8u_C3IRSfs, 315
nppiDiv_Round_8u_C3RSfs, 315
nppiDiv_Round_8u_C4IRSfs, 316
nppiDiv_Round_8u_C4RSfs, 316
- image_exp
nppiExp_16s_C1IRSfs, 362
nppiExp_16s_C1RSfs, 362
nppiExp_16s_C3IRSfs, 363
nppiExp_16s_C3RSfs, 363
nppiExp_16u_C1IRSfs, 363
nppiExp_16u_C1RSfs, 364
nppiExp_16u_C3IRSfs, 364
nppiExp_16u_C3RSfs, 364
nppiExp_32f_C1IR, 365
nppiExp_32f_C1R, 365
nppiExp_32f_C3IR, 365
nppiExp_32f_C3R, 366
nppiExp_8u_C1IRSfs, 366
nppiExp_8u_C1RSfs, 366
nppiExp_8u_C3IRSfs, 367
nppiExp_8u_C3RSfs, 367
- image_ln
nppiLn_16s_C1IRSfs, 355
nppiLn_16s_C1RSfs, 355
nppiLn_16s_C3IRSfs, 356
nppiLn_16s_C3RSfs, 356
nppiLn_16u_C1IRSfs, 356
nppiLn_16u_C1RSfs, 357
nppiLn_16u_C3IRSfs, 357
nppiLn_16u_C3RSfs, 357
nppiLn_32f_C1IR, 358
nppiLn_32f_C1R, 358
nppiLn_32f_C3IR, 358
nppiLn_32f_C3R, 359
nppiLn_8u_C1IRSfs, 359
nppiLn_8u_C1RSfs, 359
nppiLn_8u_C3IRSfs, 360
nppiLn_8u_C3RSfs, 360
- image_lshiftc
nppiLShiftC_16u_AC4IR, 421
nppiLShiftC_16u_AC4R, 421
nppiLShiftC_16u_C1IR, 421
nppiLShiftC_16u_C1R, 422
nppiLShiftC_16u_C3IR, 422
nppiLShiftC_16u_C3R, 422
nppiLShiftC_16u_C4IR, 423
nppiLShiftC_16u_C4R, 423
nppiLShiftC_32s_AC4IR, 423
nppiLShiftC_32s_AC4R, 424
nppiLShiftC_32s_C1IR, 424
nppiLShiftC_32s_C1R, 424
nppiLShiftC_32s_C3IR, 425
nppiLShiftC_32s_C3R, 425
nppiLShiftC_32s_C4IR, 425
nppiLShiftC_32s_C4R, 426
nppiLShiftC_8u_AC4IR, 426
nppiLShiftC_8u_AC4R, 426
nppiLShiftC_8u_C1IR, 427
nppiLShiftC_8u_C1R, 427
nppiLShiftC_8u_C3IR, 427
nppiLShiftC_8u_C3R, 428
nppiLShiftC_8u_C4IR, 428

nppiLShiftC_8u_C4R, 428
 image_mul
 nppiMul_16s_AC4IRSfs, 211
 nppiMul_16s_AC4RSfs, 211
 nppiMul_16s_C1IRSfs, 212
 nppiMul_16s_C1RSfs, 212
 nppiMul_16s_C3IRSfs, 213
 nppiMul_16s_C3RSfs, 213
 nppiMul_16s_C4IRSfs, 213
 nppiMul_16s_C4RSfs, 214
 nppiMul_16sc_AC4IRSfs, 214
 nppiMul_16sc_AC4RSfs, 215
 nppiMul_16sc_C1IRSfs, 215
 nppiMul_16sc_C1RSfs, 215
 nppiMul_16sc_C3IRSfs, 216
 nppiMul_16sc_C3RSfs, 216
 nppiMul_16u_AC4IRSfs, 217
 nppiMul_16u_AC4RSfs, 217
 nppiMul_16u_C1IRSfs, 218
 nppiMul_16u_C1RSfs, 218
 nppiMul_16u_C3IRSfs, 218
 nppiMul_16u_C3RSfs, 219
 nppiMul_16u_C4IRSfs, 219
 nppiMul_16u_C4RSfs, 220
 nppiMul_32f_AC4IR, 220
 nppiMul_32f_AC4R, 220
 nppiMul_32f_C1IR, 221
 nppiMul_32f_C1R, 221
 nppiMul_32f_C3IR, 222
 nppiMul_32f_C3R, 222
 nppiMul_32f_C4IR, 222
 nppiMul_32f_C4R, 223
 nppiMul_32fc_AC4IR, 223
 nppiMul_32fc_AC4R, 223
 nppiMul_32fc_C1IR, 224
 nppiMul_32fc_C1R, 224
 nppiMul_32fc_C3IR, 225
 nppiMul_32fc_C3R, 225
 nppiMul_32fc_C4IR, 225
 nppiMul_32fc_C4R, 226
 nppiMul_32s_C1IRSfs, 226
 nppiMul_32s_C1R, 227
 nppiMul_32s_C1RSfs, 227
 nppiMul_32s_C3IRSfs, 227
 nppiMul_32s_C3RSfs, 228
 nppiMul_32sc_AC4IRSfs, 228
 nppiMul_32sc_AC4RSfs, 229
 nppiMul_32sc_C1IRSfs, 229
 nppiMul_32sc_C1RSfs, 229
 nppiMul_32sc_C3IRSfs, 230
 nppiMul_32sc_C3RSfs, 230
 nppiMul_8u_AC4IRSfs, 231
 nppiMul_8u_AC4RSfs, 231
 nppiMul_8u_C1IRSfs, 232
 nppiMul_8u_C1RSfs, 232
 nppiMul_8u_C3IRSfs, 232
 nppiMul_8u_C3RSfs, 233
 nppiMul_8u_C4IRSfs, 233
 nppiMul_8u_C4RSfs, 234
 image_mulc
 nppiMulC_16s_AC4IRSfs, 84
 nppiMulC_16s_AC4RSfs, 84
 nppiMulC_16s_C1IRSfs, 84
 nppiMulC_16s_C1RSfs, 85
 nppiMulC_16s_C3IRSfs, 85
 nppiMulC_16s_C3RSfs, 85
 nppiMulC_16s_C4IRSfs, 86
 nppiMulC_16s_C4RSfs, 86
 nppiMulC_16sc_AC4IRSfs, 87
 nppiMulC_16sc_AC4RSfs, 87
 nppiMulC_16sc_C1IRSfs, 87
 nppiMulC_16sc_C1RSfs, 88
 nppiMulC_16sc_C3IRSfs, 88
 nppiMulC_16sc_C3RSfs, 89
 nppiMulC_16u_AC4IRSfs, 89
 nppiMulC_16u_AC4RSfs, 89
 nppiMulC_16u_C1IRSfs, 90
 nppiMulC_16u_C1RSfs, 90
 nppiMulC_16u_C3IRSfs, 91
 nppiMulC_16u_C3RSfs, 91
 nppiMulC_16u_C4IRSfs, 91
 nppiMulC_16u_C4RSfs, 92
 nppiMulC_32f_AC4IR, 92
 nppiMulC_32f_AC4R, 92
 nppiMulC_32f_C1IR, 93
 nppiMulC_32f_C1R, 93
 nppiMulC_32f_C3IR, 93
 nppiMulC_32f_C3R, 94
 nppiMulC_32f_C4IR, 94
 nppiMulC_32f_C4R, 94
 nppiMulC_32fc_AC4IR, 95
 nppiMulC_32fc_AC4R, 95
 nppiMulC_32fc_C1IR, 95
 nppiMulC_32fc_C1R, 96
 nppiMulC_32fc_C3IR, 96
 nppiMulC_32fc_C3R, 96
 nppiMulC_32fc_C4IR, 97
 nppiMulC_32fc_C4R, 97
 nppiMulC_32s_C1IRSfs, 98
 nppiMulC_32s_C1RSfs, 98
 nppiMulC_32s_C3IRSfs, 98
 nppiMulC_32s_C3RSfs, 99
 nppiMulC_32sc_AC4IRSfs, 99
 nppiMulC_32sc_AC4RSfs, 99
 nppiMulC_32sc_C1IRSfs, 100
 nppiMulC_32sc_C1RSfs, 100
 nppiMulC_32sc_C3IRSfs, 101
 nppiMulC_32sc_C3RSfs, 101

- nppiMulC_8u_AC4IRSfs, 101
nppiMulC_8u_AC4RSfs, 102
nppiMulC_8u_C1IRSfs, 102
nppiMulC_8u_C1RSfs, 103
nppiMulC_8u_C3IRSfs, 103
nppiMulC_8u_C3RSfs, 103
nppiMulC_8u_C4IRSfs, 104
nppiMulC_8u_C4RSfs, 104
- image_mulcscale
 nppiMulCScale_16u_AC4IR, 106
 nppiMulCScale_16u_AC4R, 106
 nppiMulCScale_16u_C1IR, 107
 nppiMulCScale_16u_C1R, 107
 nppiMulCScale_16u_C3IR, 107
 nppiMulCScale_16u_C3R, 108
 nppiMulCScale_16u_C4IR, 108
 nppiMulCScale_16u_C4R, 108
 nppiMulCScale_8u_AC4IR, 109
 nppiMulCScale_8u_AC4R, 109
 nppiMulCScale_8u_C1IR, 109
 nppiMulCScale_8u_C1R, 110
 nppiMulCScale_8u_C3IR, 110
 nppiMulCScale_8u_C3R, 110
 nppiMulCScale_8u_C4IR, 111
 nppiMulCScale_8u_C4R, 111
- image_mulscale
 nppiMulScale_16u_AC4IR, 236
 nppiMulScale_16u_AC4R, 237
 nppiMulScale_16u_C1IR, 237
 nppiMulScale_16u_C1R, 237
 nppiMulScale_16u_C3IR, 238
 nppiMulScale_16u_C3R, 238
 nppiMulScale_16u_C4IR, 239
 nppiMulScale_16u_C4R, 239
 nppiMulScale_8u_AC4IR, 239
 nppiMulScale_8u_AC4R, 240
 nppiMulScale_8u_C1IR, 240
 nppiMulScale_8u_C1R, 241
 nppiMulScale_8u_C3IR, 241
 nppiMulScale_8u_C3R, 241
 nppiMulScale_8u_C4IR, 242
 nppiMulScale_8u_C4R, 242
- image_not
 nppiNot_8u_AC4IR, 466
 nppiNot_8u_AC4R, 467
 nppiNot_8u_C1IR, 467
 nppiNot_8u_C1R, 467
 nppiNot_8u_C3IR, 467
 nppiNot_8u_C3R, 468
 nppiNot_8u_C4IR, 468
 nppiNot_8u_C4R, 468
- image_or
 nppiOr_16u_AC4IR, 444
 nppiOr_16u_AC4R, 444
- nppiOr_16u_C1IR, 444
 nppiOr_16u_C1R, 445
 nppiOr_16u_C3IR, 445
 nppiOr_16u_C3R, 445
 nppiOr_16u_C4IR, 446
 nppiOr_16u_C4R, 446
 nppiOr_32s_AC4IR, 447
 nppiOr_32s_AC4R, 447
 nppiOr_32s_C1IR, 447
 nppiOr_32s_C1R, 448
 nppiOr_32s_C3IR, 448
 nppiOr_32s_C3R, 448
 nppiOr_32s_C4IR, 449
 nppiOr_32s_C4R, 449
 nppiOr_8u_AC4IR, 450
 nppiOr_8u_AC4R, 450
 nppiOr_8u_C1IR, 450
 nppiOr_8u_C1R, 451
 nppiOr_8u_C3IR, 451
 nppiOr_8u_C3R, 451
 nppiOr_8u_C4IR, 452
 nppiOr_8u_C4R, 452
- image Orc
 nppiOrC_16u_AC4IR, 382
 nppiOrC_16u_AC4R, 382
 nppiOrC_16u_C1IR, 382
 nppiOrC_16u_C1R, 383
 nppiOrC_16u_C3IR, 383
 nppiOrC_16u_C3R, 383
 nppiOrC_16u_C4IR, 384
 nppiOrC_16u_C4R, 384
 nppiOrC_32s_AC4IR, 384
 nppiOrC_32s_AC4R, 385
 nppiOrC_32s_C1IR, 385
 nppiOrC_32s_C1R, 385
 nppiOrC_32s_C3IR, 386
 nppiOrC_32s_C3R, 386
 nppiOrC_32s_C4IR, 386
 nppiOrC_32s_C4R, 387
 nppiOrC_8u_AC4IR, 387
 nppiOrC_8u_AC4R, 387
 nppiOrC_8u_C1IR, 388
 nppiOrC_8u_C1R, 388
 nppiOrC_8u_C3IR, 388
 nppiOrC_8u_C3R, 389
 nppiOrC_8u_C4IR, 389
 nppiOrC_8u_C4R, 389
- image_rshiftc
 nppiRShiftC_16s_AC4IR, 405
 nppiRShiftC_16s_AC4R, 405
 nppiRShiftC_16s_C1IR, 406
 nppiRShiftC_16s_C1R, 406
 nppiRShiftC_16s_C3IR, 406
 nppiRShiftC_16s_C3R, 407

nppiRShiftC_16s_C4IR, 407
 nppiRShiftC_16s_C4R, 407
 nppiRShiftC_16u_AC4IR, 408
 nppiRShiftC_16u_AC4R, 408
 nppiRShiftC_16u_C1IR, 408
 nppiRShiftC_16u_C1R, 409
 nppiRShiftC_16u_C3IR, 409
 nppiRShiftC_16u_C3R, 409
 nppiRShiftC_16u_C4IR, 410
 nppiRShiftC_16u_C4R, 410
 nppiRShiftC_32s_AC4IR, 410
 nppiRShiftC_32s_AC4R, 411
 nppiRShiftC_32s_C1IR, 411
 nppiRShiftC_32s_C1R, 411
 nppiRShiftC_32s_C3IR, 412
 nppiRShiftC_32s_C3R, 412
 nppiRShiftC_32s_C4IR, 412
 nppiRShiftC_32s_C4R, 413
 nppiRShiftC_8s_AC4IR, 413
 nppiRShiftC_8s_AC4R, 413
 nppiRShiftC_8s_C1IR, 414
 nppiRShiftC_8s_C1R, 414
 nppiRShiftC_8s_C3IR, 414
 nppiRShiftC_8s_C3R, 415
 nppiRShiftC_8s_C4IR, 415
 nppiRShiftC_8s_C4R, 415
 nppiRShiftC_8u_AC4IR, 416
 nppiRShiftC_8u_AC4R, 416
 nppiRShiftC_8u_C1IR, 416
 nppiRShiftC_8u_C1R, 417
 nppiRShiftC_8u_C3IR, 417
 nppiRShiftC_8u_C3R, 417
 nppiRShiftC_8u_C4IR, 418
 nppiRShiftC_8u_C4R, 418
 image_sqrt
 nppiSqrt_16s_AC4IRSfs, 344
 nppiSqrt_16s_AC4RSfs, 344
 nppiSqrt_16s_C1IRSfs, 345
 nppiSqrt_16s_C1RSfs, 345
 nppiSqrt_16s_C3IRSfs, 346
 nppiSqrt_16s_C3RSfs, 346
 nppiSqrt_16u_AC4IRSfs, 346
 nppiSqrt_16u_AC4RSfs, 347
 nppiSqrt_16u_C1IRSfs, 347
 nppiSqrt_16u_C1RSfs, 347
 nppiSqrt_16u_C3IRSfs, 348
 nppiSqrt_16u_C3RSfs, 348
 nppiSqrt_32f_AC4IR, 348
 nppiSqrt_32f_AC4R, 349
 nppiSqrt_32f_C1IR, 349
 nppiSqrt_32f_C1R, 349
 nppiSqrt_32f_C3IR, 350
 nppiSqrt_32f_C3R, 350
 nppiSqrt_32f_C4IR, 350
 nppiSqrt_32f_C4R, 351
 nppiSqrt_8u_AC4IRSfs, 351
 nppiSqrt_8u_AC4RSfs, 351
 nppiSqrt_8u_C1IRSfs, 352
 nppiSqrt_8u_C1RSfs, 352
 nppiSqrt_8u_C3IRSfs, 353
 nppiSqrt_8u_C3RSfs, 353
 image_sub
 nppiSub_16s_AC4IRSfs, 249
 nppiSub_16s_AC4RSfs, 250
 nppiSub_16s_C1IRSfs, 250
 nppiSub_16s_C1RSfs, 250
 nppiSub_16s_C3IRSfs, 251
 nppiSub_16s_C3RSfs, 251
 nppiSub_16s_C4IRSfs, 252
 nppiSub_16s_C4RSfs, 252
 nppiSub_16sc_AC4IRSfs, 252
 nppiSub_16sc_AC4RSfs, 253
 nppiSub_16sc_C1IRSfs, 253
 nppiSub_16sc_C1RSfs, 254
 nppiSub_16sc_C3IRSfs, 254

- nppiSub_16sc_C3RSfs, 254
nppiSub_16u_AC4IRSfs, 255
nppiSub_16u_AC4RSfs, 255
nppiSub_16u_C1IRSfs, 256
nppiSub_16u_C1RSfs, 256
nppiSub_16u_C3IRSfs, 257
nppiSub_16u_C3RSfs, 257
nppiSub_16u_C4IRSfs, 257
nppiSub_16u_C4RSfs, 258
nppiSub_32f_AC4IR, 258
nppiSub_32f_AC4R, 259
nppiSub_32f_C1IR, 259
nppiSub_32f_C1R, 259
nppiSub_32f_C3IR, 260
nppiSub_32f_C3R, 260
nppiSub_32f_C4IR, 261
nppiSub_32f_C4R, 261
nppiSub_32fc_AC4IR, 261
nppiSub_32fc_AC4R, 262
nppiSub_32fc_C1IR, 262
nppiSub_32fc_C1R, 263
nppiSub_32fc_C3IR, 263
nppiSub_32fc_C3R, 263
nppiSub_32fc_C4IR, 264
nppiSub_32fc_C4R, 264
nppiSub_32s_C1IRSfs, 265
nppiSub_32s_C1R, 265
nppiSub_32s_C1RSfs, 265
nppiSub_32s_C3IRSfs, 266
nppiSub_32s_C3RSfs, 266
nppiSub_32s_C4IRSfs, 267
nppiSub_32s_C4RSfs, 267
nppiSub_32sc_AC4IRSfs, 268
nppiSub_32sc_AC4RSfs, 268
nppiSub_32sc_C1IRSfs, 268
nppiSub_32sc_C1RSfs, 269
nppiSub_32sc_C3IRSfs, 269
nppiSub_32sc_C3RSfs, 270
nppiSub_8u_AC4IRSfs, 270
nppiSub_8u_AC4RSfs, 270
nppiSub_8u_C1IRSfs, 271
nppiSub_8u_C1RSfs, 271
nppiSub_8u_C3IRSfs, 272
nppiSub_8u_C3RSfs, 272
nppiSub_8u_C4IRSfs, 272
nppiSub_8u_C4RSfs, 273
- image_subc
 nppiSubC_16s_AC4IRSfs, 117
 nppiSubC_16s_AC4RSfs, 117
 nppiSubC_16s_C1IRSfs, 117
 nppiSubC_16s_C1RSfs, 118
 nppiSubC_16s_C3IRSfs, 118
 nppiSubC_16s_C3RSfs, 118
 nppiSubC_16s_C4IRSfs, 119
- nppiSubC_16s_C4RSfs, 119
 nppiSubC_16sc_AC4IRSfs, 120
 nppiSubC_16sc_AC4RSfs, 120
 nppiSubC_16sc_C1IRSfs, 120
 nppiSubC_16sc_C1RSfs, 121
 nppiSubC_16sc_C3IRSfs, 121
 nppiSubC_16sc_C3RSfs, 122
 nppiSubC_16u_AC4IRSfs, 122
 nppiSubC_16u_AC4RSfs, 122
 nppiSubC_16u_C1IRSfs, 123
 nppiSubC_16u_C1RSfs, 123
 nppiSubC_16u_C3IRSfs, 124
 nppiSubC_16u_C3RSfs, 124
 nppiSubC_16u_C4IRSfs, 124
 nppiSubC_16u_C4RSfs, 125
 nppiSubC_32f_AC4IR, 125
 nppiSubC_32f_AC4R, 125
 nppiSubC_32f_C1IR, 126
 nppiSubC_32f_C1R, 126
 nppiSubC_32f_C3IR, 126
 nppiSubC_32f_C3R, 127
 nppiSubC_32f_C4IR, 127
 nppiSubC_32f_C4R, 127
 nppiSubC_32fc_AC4IR, 128
 nppiSubC_32fc_AC4R, 128
 nppiSubC_32fc_C1IR, 128
 nppiSubC_32fc_C1R, 129
 nppiSubC_32fc_C3IR, 129
 nppiSubC_32fc_C3R, 129
 nppiSubC_32fc_C4IR, 130
 nppiSubC_32fc_C4R, 130
 nppiSubC_32s_C1IRSfs, 131
 nppiSubC_32s_C1RSfs, 131
 nppiSubC_32s_C3IRSfs, 131
 nppiSubC_32s_C3RSfs, 132
 nppiSubC_32sc_AC4IRSfs, 132
 nppiSubC_32sc_AC4RSfs, 132
 nppiSubC_32sc_C1IRSfs, 133
 nppiSubC_32sc_C1RSfs, 133
 nppiSubC_32sc_C3IRSfs, 134
 nppiSubC_32sc_C3RSfs, 134
 nppiSubC_8u_AC4IRSfs, 134
 nppiSubC_8u_AC4RSfs, 135
 nppiSubC_8u_C1IRSfs, 135
 nppiSubC_8u_C1RSfs, 136
 nppiSubC_8u_C3IRSfs, 136
 nppiSubC_8u_C3RSfs, 136
 nppiSubC_8u_C4IRSfs, 137
 nppiSubC_8u_C4RSfs, 137
- image_xor
 nppiXor_16u_AC4IR, 456
 nppiXor_16u_AC4R, 456
 nppiXor_16u_C1IR, 456
 nppiXor_16u_C1R, 457

nppiXor_16u_C3IR, 457
 nppiXor_16u_C3R, 457
 nppiXor_16u_C4IR, 458
 nppiXor_16u_C4R, 458
 nppiXor_32s_AC4IR, 459
 nppiXor_32s_AC4R, 459
 nppiXor_32s_C1IR, 459
 nppiXor_32s_C1R, 460
 nppiXor_32s_C3IR, 460
 nppiXor_32s_C3R, 460
 nppiXor_32s_C4IR, 461
 nppiXor_32s_C4R, 461
 nppiXor_8u_AC4IR, 462
 nppiXor_8u_AC4R, 462
 nppiXor_8u_C1IR, 462
 nppiXor_8u_C1R, 463
 nppiXor_8u_C3IR, 463
 nppiXor_8u_C3R, 463
 nppiXor_8u_C4IR, 464
 nppiXor_8u_C4R, 464

image_xorc
 nppiXorC_16u_AC4IR, 393
 nppiXorC_16u_AC4R, 393
 nppiXorC_16u_C1IR, 393
 nppiXorC_16u_C1R, 394
 nppiXorC_16u_C3IR, 394
 nppiXorC_16u_C3R, 394
 nppiXorC_16u_C4IR, 395
 nppiXorC_16u_C4R, 395
 nppiXorC_32s_AC4IR, 395
 nppiXorC_32s_AC4R, 396
 nppiXorC_32s_C1IR, 396
 nppiXorC_32s_C1R, 396
 nppiXorC_32s_C3IR, 397
 nppiXorC_32s_C3R, 397
 nppiXorC_32s_C4IR, 397
 nppiXorC_32s_C4R, 398
 nppiXorC_8u_AC4IR, 398
 nppiXorC_8u_AC4R, 398
 nppiXorC_8u_C1IR, 399
 nppiXorC_8u_C1R, 399
 nppiXorC_8u_C3IR, 399
 nppiXorC_8u_C3R, 400
 nppiXorC_8u_C4IR, 400
 nppiXorC_8u_C4R, 400

Ln, 354
 Logical Operations, 368
 LShiftC, 419

major
 NppLibraryVersion, 504
 minor
 NppLibraryVersion, 504

Mul, 206
 MulC, 79
 MulCScale, 105
 MulScale, 235

Not, 466
 NPP Core, 27
 NPP Type Definitions and Constants, 31
 Npp16s
 npp_basic_types, 47
 Npp16sc
 npp_basic_types, 49
 Npp16u
 npp_basic_types, 47
 Npp16uc
 npp_basic_types, 49
 Npp32f
 npp_basic_types, 47
 Npp32fc
 npp_basic_types, 47
 Npp32s
 npp_basic_types, 47
 Npp32sc
 npp_basic_types, 47
 Npp32u
 npp_basic_types, 48
 Npp32uc
 npp_basic_types, 48
 Npp64f
 npp_basic_types, 48
 Npp64fc
 npp_basic_types, 48
 Npp64s
 npp_basic_types, 48
 Npp64sc
 npp_basic_types, 48
 Npp64u
 npp_basic_types, 48
 Npp8s
 npp_basic_types, 48
 Npp8u
 npp_basic_types, 48
 Npp8uc
 npp_basic_types, 49

NPP_AFFINE_QUAD_INCORRECT_WARNING
 typedefs_npp, 44

NPP_ALG_HINT_ACCURATE
 typedefs_npp, 39

NPP_ALG_HINT_FAST
 typedefs_npp, 39

NPP_ALG_HINT_NONE
 typedefs_npp, 39

NPP_ALIGNMENT_ERROR
 typedefs_npp, 43

NPP_ANCHOR_ERROR
 typedefs_npp, 43
NPP_BAD_ARGUMENT_ERROR
 typedefs_npp, 44
NPP_BORDER_CONSTANT
 typedefs_npp, 40
NPP_BORDER_MIRROR
 typedefs_npp, 40
NPP_BORDER_NONE
 typedefs_npp, 40
NPP_BORDER_REPLICATE
 typedefs_npp, 40
NPP_BORDER_UNDEFINED
 typedefs_npp, 40
NPP_BORDER_WRAP
 typedefs_npp, 40
NPP_BOTH_AXIS
 typedefs_npp, 40
NPP_CHANNEL_ERROR
 typedefs_npp, 43
NPP_CHANNEL_ORDER_ERROR
 typedefs_npp, 43
NPP_CMP_EQ
 typedefs_npp, 39
NPP_CMP_GREATER
 typedefs_npp, 39
NPP_CMP_GREATER_EQ
 typedefs_npp, 39
NPP_CMP_LESS
 typedefs_npp, 38
NPP_CMP_LESS_EQ
 typedefs_npp, 38
NPP_COEFFICIENT_ERROR
 typedefs_npp, 43
NPP_COI_ERROR
 typedefs_npp, 43
NPP_CONTEXT_MATCH_ERROR
 typedefs_npp, 44
NPP_CORRUPTED_DATA_ERROR
 typedefs_npp, 43
NPP_CUDA_1_0
 typedefs_npp, 39
NPP_CUDA_1_1
 typedefs_npp, 39
NPP_CUDA_1_2
 typedefs_npp, 39
NPP_CUDA_1_3
 typedefs_npp, 39
NPP_CUDA_2_0
 typedefs_npp, 39
NPP_CUDA_2_1
 typedefs_npp, 39
NPP_CUDA_3_0
 typedefs_npp, 39
NPP_CUDA_3_2
 typedefs_npp, 39
NPP_CUDA_3_5
 typedefs_npp, 39
NPP_CUDA_3_7
 typedefs_npp, 39
NPP_CUDA_5_0
 typedefs_npp, 39
NPP_CUDA_5_2
 typedefs_npp, 39
NPP_CUDA_5_3
 typedefs_npp, 39
NPP_CUDA_6_0
 typedefs_npp, 39
NPP_CUDA_KERNEL_EXECUTION_ERROR
 typedefs_npp, 43
NPP_CUDA_NOT_CAPABLE
 typedefs_npp, 39
NPP_CUDA_UNKNOWN_VERSION
 typedefs_npp, 39
NPP_DATA_TYPE_ERROR
 typedefs_npp, 44
NPP_DIVIDE_BY_ZERO_ERROR
 typedefs_npp, 44
NPP_DIVIDE_BY_ZERO_WARNING
 typedefs_npp, 44
NPP_DIVISOR_ERROR
 typedefs_npp, 43
NPP_DOUBLE_SIZE_WARNING
 typedefs_npp, 44
NPP_ERROR
 typedefs_npp, 44
NPP_ERROR_RESERVED
 typedefs_npp, 44
NPP_FFT_FLAG_ERROR
 typedefs_npp, 44
NPP_FFT_ORDER_ERROR
 typedefs_npp, 44
NPP_FILTER_SCHARR
 typedefs_npp, 40
NPP_FILTER_SOBEL
 typedefs_npp, 40
NPP_HAAR_CLASSIFIER_PIXEL_MATCH_-
 ERROR
 typedefs_npp, 43
NPP_HISTOGRAM_NUMBER_OF_LEVELS_-
 ERROR
 typedefs_npp, 43
NPP_HORIZONTAL_AXIS
 typedefs_npp, 40
NPP_INTERPOLATION_ERROR
 typedefs_npp, 44
NPP_INVALID_DEVICE_POINTER_ERROR
 typedefs_npp, 43

NPP_INVALID_HOST_POINTER_ERROR
 typedefs_npp, 43

NPP_LUT_NUMBER_OF_LEVELS_ERROR
 typedefs_npp, 43

NPP_LUT_PALETTE_BITSIZE_ERROR
 typedefs_npp, 43

NPP_MASK_SIZE_11_X_11
 typedefs_npp, 41

NPP_MASK_SIZE_13_X_13
 typedefs_npp, 41

NPP_MASK_SIZE_15_X_15
 typedefs_npp, 41

NPP_MASK_SIZE_1_X_3
 typedefs_npp, 41

NPP_MASK_SIZE_1_X_5
 typedefs_npp, 41

NPP_MASK_SIZE_3_X_1
 typedefs_npp, 41

NPP_MASK_SIZE_3_X_3
 typedefs_npp, 41

NPP_MASK_SIZE_5_X_1
 typedefs_npp, 41

NPP_MASK_SIZE_5_X_5
 typedefs_npp, 41

NPP_MASK_SIZE_7_X_7
 typedefs_npp, 41

NPP_MASK_SIZE_9_X_9
 typedefs_npp, 41

NPP_MASK_SIZE_ERROR
 typedefs_npp, 43

NPP_MEMCPY_ERROR
 typedefs_npp, 43

NPP_MEMFREE_ERROR
 typedefs_npp, 43

NPP_MEMORY_ALLOCATION_ERR
 typedefs_npp, 44

NPP_MEMSET_ERROR
 typedefs_npp, 43

NPP_MIRROR_FLIP_ERROR
 typedefs_npp, 44

NPP_MISALIGNED_DST_ROI_WARNING
 typedefs_npp, 44

NPP_MOMENT_00_ZERO_ERROR
 typedefs_npp, 44

NPP_NO_ERROR
 typedefs_npp, 44

NPP_NO_MEMORY_ERROR
 typedefs_npp, 44

NPP_NO_OPERATION_WARNING
 typedefs_npp, 44

NPP_NOT EVEN STEP_ERROR
 typedefs_npp, 43

NPP_NOT_IMPLEMENTED_ERROR
 typedefs_npp, 44

NPP_NOT_SUFFICIENT_COMPUTE_-
 CAPABILITY
 typedefs_npp, 43

NPP_NOT_SUPPORTED_MODE_ERROR
 typedefs_npp, 43

NPP_NULL_POINTER_ERROR
 typedefs_npp, 44

NPP_NUMBER_OF_CHANNELS_ERROR
 typedefs_npp, 43

NPP_OUT_OF_RANGE_ERROR
 typedefs_npp, 44

NPP_OVERFLOW_ERROR
 typedefs_npp, 43

NPP_QUADRANGLE_ERROR
 typedefs_npp, 43

NPP_QUALITY_INDEX_ERROR
 typedefs_npp, 43

NPP_RANGE_ERROR
 typedefs_npp, 44

NPP_RECTANGLE_ERROR
 typedefs_npp, 43

NPP_RESIZE_FACTOR_ERROR
 typedefs_npp, 44

NPP_RESIZE_NO_OPERATION_ERROR
 typedefs_npp, 43

NPP_RND_FINANCIAL
 typedefs_npp, 42

NPP_RND_NEAR
 typedefs_npp, 42

NPP_RND_ZERO
 typedefs_npp, 42

NPP_ROUND_MODE_NOT_SUPPORTED_-
 ERROR
 typedefs_npp, 43

NPP_ROUND_NEAREST_TIES_AWAY_-
 FROM_ZERO
 typedefs_npp, 42

NPP_ROUND_NEAREST_TIES_TO_EVEN
 typedefs_npp, 42

NPP_ROUND_TOWARD_ZERO
 typedefs_npp, 42

NPP_SCALE_RANGE_ERROR
 typedefs_npp, 44

NPP_SIZE_ERROR
 typedefs_npp, 44

NPP_STEP_ERROR
 typedefs_npp, 44

NPP_STRIDE_ERROR
 typedefs_npp, 43

NPP_SUCCESS
 typedefs_npp, 44

NPP_TEXTURE_BIND_ERROR
 typedefs_npp, 43

NPP_THRESHOLD_ERROR

typedefs_npp, 44
NPP_THRESHOLD_NEGATIVE_LEVEL_-
 ERROR
 typedefs_npp, 44
NPP_VERTICAL_AXIS
 typedefs_npp, 40
NPP_WRONG_INTERSECTION_QUAD_-
 WARNING
 typedefs_npp, 44
NPP_WRONG_INTERSECTION_ROI_ERROR
 typedefs_npp, 43
NPP_WRONG_INTERSECTION_ROI_-
 WARNING
 typedefs_npp, 44
NPP_ZC_MODE_NOT_SUPPORTED_ERROR
 typedefs_npp, 43
NPP_ZERO_MASK_VALUE_ERROR
 typedefs_npp, 43
NPP_ALIGN_16, 495
 im, 495
 re, 496
NPP_ALIGN_8, 497
 im, 497
 re, 497, 498
npp_basic_types
 __align__, 48, 49
 Npp16s, 47
 Npp16sc, 49
 Npp16u, 47
 Npp16uc, 49
 Npp32f, 47
 Npp32fc, 47
 Npp32s, 47
 Npp32sc, 47
 Npp32u, 48
 Npp32uc, 48
 Npp64f, 48
 Npp64fc, 48
 Npp64s, 48
 Npp64sc, 48
 Npp64u, 48
 Npp8s, 48
 Npp8u, 48
 Npp8uc, 49
NPP_MAX_16S
 typedefs_npp, 37
NPP_MAX_16U
 typedefs_npp, 37
NPP_MAX_32S
 typedefs_npp, 37
NPP_MAX_32U
 typedefs_npp, 37
NPP_MAX_64S
 typedefs_npp, 37
NPP_MAX_64U
 typedefs_npp, 37
NPP_MAX_8S
 typedefs_npp, 37
NPP_MAX_8U
 typedefs_npp, 37
NPP_MAXABS_32F
 typedefs_npp, 37
NPP_MAXABS_64F
 typedefs_npp, 37
NPP_MIN_16S
 typedefs_npp, 37
NPP_MIN_16U
 typedefs_npp, 38
NPP_MIN_32S
 typedefs_npp, 38
NPP_MIN_32U
 typedefs_npp, 38
NPP_MIN_64S
 typedefs_npp, 38
NPP_MIN_64U
 typedefs_npp, 38
NPP_MIN_8S
 typedefs_npp, 38
NPP_MIN_8U
 typedefs_npp, 38
NPP_MINABS_32F
 typedefs_npp, 38
NPP_MINABS_64F
 typedefs_npp, 38
NppCmpOp
 typedefs_npp, 38
nppGetGpuComputeCapability
 core_npp, 28
nppGetGpuDeviceProperties
 core_npp, 28
nppGetGpuName
 core_npp, 28
nppGetGpuNumSMs
 core_npp, 28
nppGetLibVersion
 core_npp, 28
nppGetMaxThreadsPerBlock
 core_npp, 29
nppGetMaxThreadsPerSM
 core_npp, 29
nppGetStream
 core_npp, 29
nppGetStreamMaxThreadsPerSM
 core_npp, 29
nppGetStreamNumSMs
 core_npp, 29
NppGpuComputeCapability
 typedefs_npp, 39

NppHintAlgorithm
 typedefs_npp, 39

NPPI_BAYER_BGGR
 typedefs_npp, 40

NPPI_BAYER_GBRG
 typedefs_npp, 40

NPPI_BAYER_GRBG
 typedefs_npp, 40

NPPI_BAYER_RGGB
 typedefs_npp, 40

NPPI_INTER_CUBIC
 typedefs_npp, 41

NPPI_INTER_CUBIC2P_B05C03
 typedefs_npp, 41

NPPI_INTER_CUBIC2P_BSPLINE
 typedefs_npp, 41

NPPI_INTER_CUBIC2P_CATMULLROM
 typedefs_npp, 41

NPPI_INTER_LANCZOS
 typedefs_npp, 41

NPPI_INTER_LANCZOS3_ADVANCED
 typedefs_npp, 41

NPPI_INTER_LINEAR
 typedefs_npp, 41

NPPI_INTER_NN
 typedefs_npp, 41

NPPI_INTER_SUPER
 typedefs_npp, 41

NPPI_INTER_UNDEFINED
 typedefs_npp, 41

NPPI_OP_ALPHA_ATOP
 typedefs_npp, 39

NPPI_OP_ALPHA_ATOP_PREMUL
 typedefs_npp, 40

NPPI_OP_ALPHA_IN
 typedefs_npp, 39

NPPI_OP_ALPHA_IN_PREMUL
 typedefs_npp, 40

NPPI_OP_ALPHA_OUT
 typedefs_npp, 39

NPPI_OP_ALPHA_OUT_PREMUL
 typedefs_npp, 40

NPPI_OP_ALPHA_OVER
 typedefs_npp, 39

NPPI_OP_ALPHA_OVER_PREMUL
 typedefs_npp, 40

NPPI_OP_ALPHA_PLUS
 typedefs_npp, 39

NPPI_OP_ALPHA_PLUS_PREMUL
 typedefs_npp, 40

NPPI_OP_ALPHA_PREMUL
 typedefs_npp, 40

NPPI_OP_ALPHA_XOR
 typedefs_npp, 39

NPPI_OP_ALPHA_XOR_PREMUL
 typedefs_npp, 40

NPPI_SMOOTH_EDGE
 typedefs_npp, 41

nppiAbs_16s_AC4IR
 image_abs, 319

nppiAbs_16s_AC4R
 image_abs, 319

nppiAbs_16s_C1IR
 image_abs, 319

nppiAbs_16s_C1R
 image_abs, 320

nppiAbs_16s_C3IR
 image_abs, 320

nppiAbs_16s_C3R
 image_abs, 320

nppiAbs_16s_C4IR
 image_abs, 321

nppiAbs_16s_C4R
 image_abs, 321

nppiAbs_32f_AC4IR
 image_abs, 321

nppiAbs_32f_AC4R
 image_abs, 322

nppiAbs_32f_C1IR
 image_abs, 322

nppiAbs_32f_C1R
 image_abs, 322

nppiAbs_32f_C3IR
 image_abs, 323

nppiAbs_32f_C3R
 image_abs, 323

nppiAbs_32f_C4IR
 image_abs, 323

nppiAbs_32f_C4R
 image_abs, 323

nppiAbsDiff_16u_C1R
 image_absdiff, 325

nppiAbsDiff_32f_C1R
 image_absdiff, 326

nppiAbsDiff_8u_C1R
 image_absdiff, 326

nppiAbsDiff_8u_C3R
 image_absdiff, 326

nppiAbsDiff_8u_C4R
 image_absdiff, 327

nppiAbsDiffC_16u_C1R
 image_absdiffc, 164

nppiAbsDiffC_32f_C1R
 image_absdiffc, 164

nppiAbsDiffC_8u_C1R
 image_absdiffc, 165

nppiACTable
 typedefs_npp, 41

nppiAdd_16s_AC4IRSfs
 image_add, 171
nppiAdd_16s_AC4RSfs
 image_add, 171
nppiAdd_16s_C1IRSfs
 image_add, 172
nppiAdd_16s_C1RSfs
 image_add, 172
nppiAdd_16s_C3IRSfs
 image_add, 173
nppiAdd_16s_C3RSfs
 image_add, 173
nppiAdd_16s_C4IRSfs
 image_add, 173
nppiAdd_16s_C4RSfs
 image_add, 174
nppiAdd_16sc_AC4IRSfs
 image_add, 174
nppiAdd_16sc_AC4RSfs
 image_add, 175
nppiAdd_16sc_C1IRSfs
 image_add, 175
nppiAdd_16sc_C1RSfs
 image_add, 175
nppiAdd_16sc_C3IRSfs
 image_add, 176
nppiAdd_16sc_C3RSfs
 image_add, 176
nppiAdd_16u_AC4IRSfs
 image_add, 177
nppiAdd_16u_AC4RSfs
 image_add, 177
nppiAdd_16u_C1IRSfs
 image_add, 178
nppiAdd_16u_C1RSfs
 image_add, 178
nppiAdd_16u_C3IRSfs
 image_add, 178
nppiAdd_16u_C3RSfs
 image_add, 179
nppiAdd_16u_C4IRSfs
 image_add, 179
nppiAdd_16u_C4RSfs
 image_add, 180
nppiAdd_32f_AC4IR
 image_add, 180
nppiAdd_32f_AC4R
 image_add, 180
nppiAdd_32f_C1IR
 image_add, 181
nppiAdd_32f_C1R
 image_add, 181
nppiAdd_32f_C3IR
 image_add, 182
nppiAdd_32f_C3R
 image_add, 182
nppiAdd_32f_C4IR
 image_add, 182
nppiAdd_32f_C4R
 image_add, 183
nppiAdd_32fc_AC4IR
 image_add, 183
nppiAdd_32fc_AC4R
 image_add, 183
nppiAdd_32fc_C1IR
 image_add, 184
nppiAdd_32fc_C1R
 image_add, 184
nppiAdd_32fc_C3IR
 image_add, 185
nppiAdd_32fc_C3R
 image_add, 185
nppiAdd_32fc_C4IR
 image_add, 185
nppiAdd_32fc_C4R
 image_add, 186
nppiAdd_32s_C1IRSfs
 image_add, 186
nppiAdd_32s_C1R
 image_add, 187
nppiAdd_32s_C1RSfs
 image_add, 187
nppiAdd_32s_C3IRSfs
 image_add, 187
nppiAdd_32s_C3RSfs
 image_add, 188
nppiAdd_32sc_AC4IRSfs
 image_add, 188
nppiAdd_32sc_AC4RSfs
 image_add, 189
nppiAdd_32sc_C1IRSfs
 image_add, 189
nppiAdd_32sc_C1RSfs
 image_add, 189
nppiAdd_32sc_C3IRSfs
 image_add, 190
nppiAdd_32sc_C3RSfs
 image_add, 190
nppiAdd_8u_AC4IRSfs
 image_add, 191
nppiAdd_8u_AC4RSfs
 image_add, 191
nppiAdd_8u_C1IRSfs
 image_add, 192
nppiAdd_8u_C1RSfs
 image_add, 192
nppiAdd_8u_C3IRSfs
 image_add, 192

nppiAdd_8u_C3RSfs
 image_add, 193
nppiAdd_8u_C4IRSfs
 image_add, 193
nppiAdd_8u_C4RSfs
 image_add, 194
nppiAddC_16s_AC4IRSfs
 image_addc, 58
nppiAddC_16s_AC4RSfs
 image_addc, 58
nppiAddC_16s_C1IRSfs
 image_addc, 58
nppiAddC_16s_C1RSfs
 image_addc, 59
nppiAddC_16s_C3IRSfs
 image_addc, 59
nppiAddC_16s_C3RSfs
 image_addc, 59
nppiAddC_16s_C4IRSfs
 image_addc, 60
nppiAddC_16s_C4RSfs
 image_addc, 60
nppiAddC_16sc_AC4IRSfs
 image_addc, 61
nppiAddC_16sc_AC4RSfs
 image_addc, 61
nppiAddC_16sc_C1IRSfs
 image_addc, 61
nppiAddC_16sc_C1RSfs
 image_addc, 62
nppiAddC_16sc_C3IRSfs
 image_addc, 62
nppiAddC_16sc_C3RSfs
 image_addc, 63
nppiAddC_16u_AC4IRSfs
 image_addc, 63
nppiAddC_16u_AC4RSfs
 image_addc, 63
nppiAddC_16u_C1IRSfs
 image_addc, 64
nppiAddC_16u_C1RSfs
 image_addc, 64
nppiAddC_16u_C3IRSfs
 image_addc, 65
nppiAddC_16u_C3RSfs
 image_addc, 65
nppiAddC_16u_C4IRSfs
 image_addc, 65
nppiAddC_16u_C4RSfs
 image_addc, 66
nppiAddC_32f_AC4IR
 image_addc, 66
nppiAddC_32f_AC4R
 image_addc, 66
nppiAddC_32f_C1IR
 image_addc, 67
nppiAddC_32f_C1R
 image_addc, 67
nppiAddC_32f_C3IR
 image_addc, 67
nppiAddC_32f_C3R
 image_addc, 68
nppiAddC_32f_C4IR
 image_addc, 68
nppiAddC_32f_C4R
 image_addc, 68
nppiAddC_32fc_AC4IR
 image_addc, 69
nppiAddC_32fc_AC4R
 image_addc, 69
nppiAddC_32fc_C1IR
 image_addc, 69
nppiAddC_32fc_C1R
 image_addc, 70
nppiAddC_32fc_C3IR
 image_addc, 70
nppiAddC_32fc_C3R
 image_addc, 70
nppiAddC_32fc_C4IR
 image_addc, 71
nppiAddC_32fc_C4R
 image_addc, 71
nppiAddC_32s_C1IRSfs
 image_addc, 72
nppiAddC_32s_C1RSfs
 image_addc, 72
nppiAddC_32s_C3IRSfs
 image_addc, 72
nppiAddC_32s_C3RSfs
 image_addc, 73
nppiAddC_32sc_AC4IRSfs
 image_addc, 73
nppiAddC_32sc_AC4RSfs
 image_addc, 73
nppiAddC_32sc_C1IRSfs
 image_addc, 74
nppiAddC_32sc_C1RSfs
 image_addc, 74
nppiAddC_32sc_C3IRSfs
 image_addc, 75
nppiAddC_32sc_C3RSfs
 image_addc, 75
nppiAddC_8u_AC4IRSfs
 image_addc, 75
nppiAddC_8u_AC4RSfs
 image_addc, 76
nppiAddC_8u_C1IRSfs
 image_addc, 76

nppiAddC_8u_C1RSfs
 image_addc, 75
nppiAddC_8u_C3IRSfs
 image_addc, 77
nppiAddC_8u_C3RSfs
 image_addc, 77
nppiAddC_8u_C4IRSfs
 image_addc, 78
nppiAddC_8u_C4RSfs
 image_addc, 78
nppiAddProduct_16u32f_C1IMR
 image_addproduct, 198
nppiAddProduct_16u32f_C1IR
 image_addproduct, 199
nppiAddProduct_32f_C1IMR
 image_addproduct, 199
nppiAddProduct_32f_C1IR
 image_addproduct, 200
nppiAddProduct_8u32f_C1IMR
 image_addproduct, 200
nppiAddProduct_8u32f_C1IR
 image_addproduct, 200
nppiAddSquare_16u32f_C1IMR
 image_addsquare, 195
nppiAddSquare_16u32f_C1IR
 image_addsquare, 196
nppiAddSquare_32f_C1IMR
 image_addsquare, 196
nppiAddSquare_32f_C1IR
 image_addsquare, 196
nppiAddSquare_8u32f_C1IMR
 image_addsquare, 197
nppiAddSquare_8u32f_C1IR
 image_addsquare, 197
nppiAddWeighted_16u32f_C1IMR
 image_addweighted, 202
nppiAddWeighted_16u32f_C1IR
 image_addweighted, 203
nppiAddWeighted_32f_C1IMR
 image_addweighted, 203
nppiAddWeighted_32f_C1IR
 image_addweighted, 204
nppiAddWeighted_8u32f_C1IMR
 image_addweighted, 204
nppiAddWeighted_8u32f_C1IR
 image_addweighted, 204
nppiAlphaComp_16s_AC1R
 image_alphacomp, 487
nppiAlphaComp_16u_AC1R
 image_alphacomp, 487
nppiAlphaComp_16u_AC4R
 image_alphacomp, 488
nppiAlphaComp_32f_AC1R
 image_alphacomp, 488
nppiAlphaComp_32f_AC4R
 image_alphacomp, 489
nppiAlphaComp_32s_AC1R
 image_alphacomp, 489
nppiAlphaComp_32s_AC4R
 image_alphacomp, 489
nppiAlphaComp_32u_AC1R
 image_alphacomp, 490
nppiAlphaComp_32u_AC4R
 image_alphacomp, 490
nppiAlphaComp_8s_AC1R
 image_alphacomp, 491
nppiAlphaComp_8u_AC1R
 image_alphacomp, 491
nppiAlphaComp_8u_AC4R
 image_alphacomp, 492
nppiAlphaCompC_16s_C1R
 image_alphaocompc, 472
nppiAlphaCompC_16u_AC4R
 image_alphaocompc, 472
nppiAlphaCompC_16u_C1R
 image_alphaocompc, 473
nppiAlphaCompC_16u_C3R
 image_alphaocompc, 473
nppiAlphaCompC_16u_C4R
 image_alphaocompc, 474
nppiAlphaCompC_32f_C1R
 image_alphaocompc, 474
nppiAlphaCompC_32s_C1R
 image_alphaocompc, 475
nppiAlphaCompC_32u_C1R
 image_alphaocompc, 475
nppiAlphaCompC_8s_C1R
 image_alphaocompc, 476
nppiAlphaCompC_8u_AC4R
 image_alphaocompc, 476
nppiAlphaCompC_8u_C1R
 image_alphaocompc, 477
nppiAlphaCompC_8u_C3R
 image_alphaocompc, 477
nppiAlphaCompC_8u_C4R
 image_alphaocompc, 478
NppiAlphaOp
 typedefs_npp, 39
nppiAlphaPremul_16u_AC4IR
 image_alpha premul, 493
nppiAlphaPremul_16u_AC4R
 image_alpha premul, 493
nppiAlphaPremul_8u_AC4IR
 image_alpha premul, 494
nppiAlphaPremul_8u_AC4R
 image_alpha premul, 494
nppiAlphaPremulC_16u_AC4IR
 image_alpha premulc, 480

nppiAlphaPremulC_16u_AC4R
 image_alpha premulc, 480
 nppiAlphaPremulC_16u_C1IR
 image_alpha premulc, 481
 nppiAlphaPremulC_16u_C1R
 image_alpha premulc, 481
 nppiAlphaPremulC_16u_C3IR
 image_alpha premulc, 481
 nppiAlphaPremulC_16u_C3R
 image_alpha premulc, 482
 nppiAlphaPremulC_16u_C4IR
 image_alpha premulc, 482
 nppiAlphaPremulC_16u_C4R
 image_alpha premulc, 482
 nppiAlphaPremulC_8u_AC4IR
 image_alpha premulc, 483
 nppiAlphaPremulC_8u_AC4R
 image_alpha premulc, 483
 nppiAlphaPremulC_8u_C1IR
 image_alpha premulc, 483
 nppiAlphaPremulC_8u_C1R
 image_alpha premulc, 484
 nppiAlphaPremulC_8u_C3IR
 image_alpha premulc, 484
 nppiAlphaPremulC_8u_C3R
 image_alpha premulc, 484
 nppiAlphaPremulC_8u_C4IR
 image_alpha premulc, 485
 nppiAlphaPremulC_8u_C4R
 image_alpha premulc, 485
 nppiAnd_16u_AC4IR
 image_and, 432
 nppiAnd_16u_AC4R
 image_and, 432
 nppiAnd_16u_C1IR
 image_and, 432
 nppiAnd_16u_C1R
 image_and, 433
 nppiAnd_16u_C3IR
 image_and, 433
 nppiAnd_16u_C3R
 image_and, 433
 nppiAnd_16u_C4IR
 image_and, 434
 nppiAnd_16u_C4R
 image_and, 434
 nppiAnd_32s_AC4IR
 image_and, 435
 nppiAnd_32s_AC4R
 image_and, 435
 nppiAnd_32s_C1IR
 image_and, 435
 nppiAnd_32s_C1R
 image_and, 436

nppiAnd_32s_C3IR
 image_and, 436
 nppiAnd_32s_C3R
 image_and, 436
 nppiAnd_32s_C4IR
 image_and, 437
 nppiAnd_32s_C4R
 image_and, 437
 nppiAnd_8u_AC4IR
 image_and, 438
 nppiAnd_8u_AC4R
 image_and, 438
 nppiAnd_8u_C1IR
 image_and, 438
 nppiAnd_8u_C1R
 image_and, 439
 nppiAnd_8u_C3IR
 image_and, 439
 nppiAnd_8u_C3R
 image_and, 439
 nppiAnd_8u_C4IR
 image_and, 440
 nppiAnd_8u_C4R
 image_and, 440
 nppiAndC_16u_AC4IR
 image_andc, 371
 nppiAndC_16u_AC4R
 image_andc, 371
 nppiAndC_16u_C1IR
 image_andc, 371
 nppiAndC_16u_C1R
 image_andc, 372
 nppiAndC_16u_C3IR
 image_andc, 372
 nppiAndC_16u_C3R
 image_andc, 372
 nppiAndC_16u_C4IR
 image_andc, 373
 nppiAndC_16u_C4R
 image_andc, 373
 nppiAndC_32s_AC4IR
 image_andc, 373
 nppiAndC_32s_AC4R
 image_andc, 374
 nppiAndC_32s_C1IR
 image_andc, 374
 nppiAndC_32s_C1R
 image_andc, 374
 nppiAndC_32s_C3IR
 image_andc, 375
 nppiAndC_32s_C3R
 image_andc, 375
 nppiAndC_32s_C4IR
 image_andc, 375

nppiAndC_32s_C4R
 image_andc, 376
nppiAndC_8u_AC4IR
 image_andc, 376
nppiAndC_8u_AC4R
 image_andc, 376
nppiAndC_8u_C1IR
 image_andc, 377
nppiAndC_8u_C1R
 image_andc, 377
nppiAndC_8u_C3IR
 image_andc, 377
nppiAndC_8u_C3R
 image_andc, 378
nppiAndC_8u_C4IR
 image_andc, 378
nppiAndC_8u_C4R
 image_andc, 378
NppiAxis
 typedefs_npp, 40
NppiBayerGridPosition
 typedefs_npp, 40
NppiBorderType
 typedefs_npp, 40
nppiDCTable
 typedefs_npp, 41
NppiDifferentialKernel
 typedefs_npp, 40
nppiDiv_16s_AC4IRSfs
 image_div, 279
nppiDiv_16s_AC4RSfs
 image_div, 279
nppiDiv_16s_C1IRSfs
 image_div, 280
nppiDiv_16s_C1RSfs
 image_div, 280
nppiDiv_16s_C3IRSfs
 image_div, 280
nppiDiv_16s_C3RSfs
 image_div, 281
nppiDiv_16s_C4IRSfs
 image_div, 281
nppiDiv_16s_C4RSfs
 image_div, 282
nppiDiv_16sc_AC4IRSfs
 image_div, 282
nppiDiv_16sc_AC4RSfs
 image_div, 282
nppiDiv_16sc_C1IRSfs
 image_div, 283
nppiDiv_16sc_C1RSfs
 image_div, 283
nppiDiv_16sc_C3IRSfs
 image_div, 284
nppiDiv_16sc_C3RSfs
 image_div, 284
nppiDiv_16sc_C4IRSfs
 image_div, 284
nppiDiv_16sc_C4RSfs
 image_div, 284
nppiDiv_16u_AC4IRSfs
 image_div, 285
nppiDiv_16u_AC4RSfs
 image_div, 285
nppiDiv_16u_C1IRSfs
 image_div, 285
nppiDiv_16u_C1RSfs
 image_div, 286
nppiDiv_16u_C3IRSfs
 image_div, 286
nppiDiv_16u_C3RSfs
 image_div, 287
nppiDiv_16u_C4IRSfs
 image_div, 287
nppiDiv_16u_C4RSfs
 image_div, 287
nppiDiv_32f_AC4IR
 image_div, 288
nppiDiv_32f_AC4R
 image_div, 288
nppiDiv_32f_C1IR
 image_div, 289
nppiDiv_32f_C1R
 image_div, 289
nppiDiv_32f_C3IR
 image_div, 289
nppiDiv_32f_C3R
 image_div, 290
nppiDiv_32f_C4IR
 image_div, 290
nppiDiv_32f_C4R
 image_div, 290
nppiDiv_32fc_AC4IR
 image_div, 291
nppiDiv_32fc_AC4R
 image_div, 291
nppiDiv_32fc_C1IR
 image_div, 292
nppiDiv_32fc_C1R
 image_div, 292
nppiDiv_32fc_C3IR
 image_div, 292
nppiDiv_32fc_C3R
 image_div, 293
nppiDiv_32fc_C4IR
 image_div, 293
nppiDiv_32fc_C4R
 image_div, 293
nppiDiv_32s_C1IRSfs
 image_div, 294
nppiDiv_32s_C1R
 image_div, 294

nppiDiv_32s_C1RSfs
 image_div, 295
 nppiDiv_32s_C3IRSfs
 image_div, 295
 nppiDiv_32s_C3RSfs
 image_div, 295
 nppiDiv_32sc_AC4IRSfs
 image_div, 296
 nppiDiv_32sc_AC4RSfs
 image_div, 296
 nppiDiv_32sc_C1IRSfs
 image_div, 297
 nppiDiv_32sc_C1RSfs
 image_div, 297
 nppiDiv_32sc_C3IRSfs
 image_div, 298
 nppiDiv_32sc_C3RSfs
 image_div, 298
 nppiDiv_8u_AC4IRSfs
 image_div, 298
 nppiDiv_8u_AC4RSfs
 image_div, 299
 nppiDiv_8u_C1IRSfs
 image_div, 299
 nppiDiv_8u_C1RSfs
 image_div, 300
 nppiDiv_8u_C3IRSfs
 image_div, 300
 nppiDiv_8u_C3RSfs
 image_div, 300
 nppiDiv_8u_C4IRSfs
 image_div, 301
 nppiDiv_8u_C4RSfs
 image_div, 301
 nppiDiv_Round_16s_AC4IRSfs
 image_divround, 305
 nppiDiv_Round_16s_AC4RSfs
 image_divround, 306
 nppiDiv_Round_16s_C1IRSfs
 image_divround, 306
 nppiDiv_Round_16s_C1RSfs
 image_divround, 307
 nppiDiv_Round_16s_C3IRSfs
 image_divround, 307
 nppiDiv_Round_16s_C4IRSfs
 image_divround, 308
 nppiDiv_Round_16s_C4RSfs
 image_divround, 308
 nppiDiv_Round_16u_AC4IRSfs
 image_divround, 309
 nppiDiv_Round_16u_AC4RSfs
 image_divround, 309

nppiDiv_Round_16u_C1IRSfs
 image_divround, 310
 nppiDiv_Round_16u_C1RSfs
 image_divround, 310
 nppiDiv_Round_16u_C3IRSfs
 image_divround, 311
 nppiDiv_Round_16u_C3RSfs
 image_divround, 311
 nppiDiv_Round_16u_C4IRSfs
 image_divround, 312
 nppiDiv_Round_16u_C4RSfs
 image_divround, 312
 nppiDiv_Round_8u_AC4IRSfs
 image_divround, 313
 nppiDiv_Round_8u_AC4RSfs
 image_divround, 313
 nppiDiv_Round_8u_C1IRSfs
 image_divround, 314
 nppiDiv_Round_8u_C1RSfs
 image_divround, 314
 nppiDiv_Round_8u_C3IRSfs
 image_divround, 315
 nppiDiv_Round_8u_C3RSfs
 image_divround, 315
 nppiDiv_Round_8u_C4IRSfs
 image_divround, 316
 nppiDiv_Round_8u_C4RSfs
 image_divround, 316
 nppiDivC_16s_AC4IRSfs
 image_divc, 143
 nppiDivC_16s_AC4RSfs
 image_divc, 143
 nppiDivC_16s_C1IRSfs
 image_divc, 143
 nppiDivC_16s_C1RSfs
 image_divc, 144
 nppiDivC_16s_C3IRSfs
 image_divc, 144
 nppiDivC_16s_C3RSfs
 image_divc, 144
 nppiDivC_16s_C4IRSfs
 image_divc, 145
 nppiDivC_16s_C4RSfs
 image_divc, 145
 nppiDivC_16sc_AC4IRSfs
 image_divc, 146
 nppiDivC_16sc_AC4RSfs
 image_divc, 146
 nppiDivC_16sc_C1IRSfs
 image_divc, 146
 nppiDivC_16sc_C1RSfs
 image_divc, 147
 nppiDivC_16sc_C3IRSfs
 image_divc, 147

nppiDivC_16sc_C3RSfs
 image_divc, 148
nppiDivC_16u_AC4IRSfs
 image_divc, 148
nppiDivC_16u_AC4RSfs
 image_divc, 148
nppiDivC_16u_C1IRSfs
 image_divc, 149
nppiDivC_16u_C1RSfs
 image_divc, 149
nppiDivC_16u_C3IRSfs
 image_divc, 150
nppiDivC_16u_C3RSfs
 image_divc, 150
nppiDivC_16u_C4IRSfs
 image_divc, 150
nppiDivC_16u_C4RSfs
 image_divc, 151
nppiDivC_32f_AC4IR
 image_divc, 151
nppiDivC_32f_AC4R
 image_divc, 151
nppiDivC_32f_C1IR
 image_divc, 152
nppiDivC_32f_C1R
 image_divc, 152
nppiDivC_32f_C3IR
 image_divc, 152
nppiDivC_32f_C3R
 image_divc, 153
nppiDivC_32f_C4IR
 image_divc, 153
nppiDivC_32f_C4R
 image_divc, 153
nppiDivC_32fc_AC4IR
 image_divc, 154
nppiDivC_32fc_AC4R
 image_divc, 154
nppiDivC_32fc_C1IR
 image_divc, 154
nppiDivC_32fc_C1R
 image_divc, 155
nppiDivC_32fc_C3IR
 image_divc, 155
nppiDivC_32fc_C3R
 image_divc, 155
nppiDivC_32fc_C4IR
 image_divc, 156
nppiDivC_32fc_C4R
 image_divc, 156
nppiDivC_32s_C1IRSfs
 image_divc, 157
nppiDivC_32s_C1RSfs
 image_divc, 157
nppiDivC_32s_C3IRSfs
 image_divc, 157
nppiDivC_32s_C3RSfs
 image_divc, 158
nppiDivC_32sc_AC4IRSfs
 image_divc, 158
nppiDivC_32sc_AC4RSfs
 image_divc, 158
nppiDivC_32sc_C1IRSfs
 image_divc, 159
nppiDivC_32sc_C1RSfs
 image_divc, 159
nppiDivC_32sc_C3IRSfs
 image_divc, 160
nppiDivC_32sc_C3RSfs
 image_divc, 160
nppiDivC_8u_AC4IRSfs
 image_divc, 160
nppiDivC_8u_AC4RSfs
 image_divc, 161
nppiDivC_8u_C1IRSfs
 image_divc, 161
nppiDivC_8u_C1RSfs
 image_divc, 162
nppiDivC_8u_C3IRSfs
 image_divc, 162
nppiDivC_8u_C3RSfs
 image_divc, 162
nppiDivC_8u_C4IRSfs
 image_divc, 163
nppiDivC_8u_C4RSfs
 image_divc, 163
nppiExp_16s_C1IRSfs
 image_exp, 362
nppiExp_16s_C1RSfs
 image_exp, 362
nppiExp_16s_C3IRSfs
 image_exp, 363
nppiExp_16s_C3RSfs
 image_exp, 363
nppiExp_16u_C1IRSfs
 image_exp, 363
nppiExp_16u_C1RSfs
 image_exp, 364
nppiExp_16u_C3IRSfs
 image_exp, 364
nppiExp_16u_C3RSfs
 image_exp, 364
nppiExp_32f_C1IR
 image_exp, 365
nppiExp_32f_C1R
 image_exp, 365
nppiExp_32f_C3IR
 image_exp, 365

nppiExp_32f_C3R
 image_exp, 366
 nppiExp_8u_C1IRSfs
 image_exp, 366
 nppiExp_8u_C1RSfs
 image_exp, 366
 nppiExp_8u_C3IRSfs
 image_exp, 367
 nppiExp_8u_C3RSfs
 image_exp, 367
 NppiHaarBuffer, 499
 haarBuffer, 499
 haarBufferSize, 499
 NppiHaarClassifier_32f, 500
 classifiers, 500
 classifierSize, 500
 classifierStep, 500
 counterDevice, 500
 numClassifiers, 500
 NppiHuffmanTableType
 typedefs_npp, 40
 NppiInterpolationMode
 typedefs_npp, 41
 nppiLn_16s_C1IRSfs
 image_ln, 355
 nppiLn_16s_C1RSfs
 image_ln, 355
 nppiLn_16s_C3IRSfs
 image_ln, 356
 nppiLn_16s_C3RSfs
 image_ln, 356
 nppiLn_16u_C1IRSfs
 image_ln, 356
 nppiLn_16u_C1RSfs
 image_ln, 357
 nppiLn_16u_C3IRSfs
 image_ln, 357
 nppiLn_16u_C3RSfs
 image_ln, 357
 nppiLn_32f_C1IR
 image_ln, 358
 nppiLn_32f_C1R
 image_ln, 358
 nppiLn_32f_C3IR
 image_ln, 358
 nppiLn_32f_C3R
 image_ln, 359
 nppiLn_8u_C1IRSfs
 image_ln, 359
 nppiLn_8u_C1RSfs
 image_ln, 359
 nppiLn_8u_C3IRSfs
 image_ln, 360
 nppiLn_8u_C3RSfs
 image_ln, 360
 image_ln, 360
 nppiLShiftC_16u_AC4IR
 image_lshiftc, 421
 nppiLShiftC_16u_AC4R
 image_lshiftc, 421
 nppiLShiftC_16u_C1IR
 image_lshiftc, 421
 nppiLShiftC_16u_C1R
 image_lshiftc, 422
 nppiLShiftC_16u_C3IR
 image_lshiftc, 422
 nppiLShiftC_16u_C3R
 image_lshiftc, 422
 nppiLShiftC_16u_C4IR
 image_lshiftc, 423
 nppiLShiftC_16u_C4R
 image_lshiftc, 423
 nppiLShiftC_32s_AC4IR
 image_lshiftc, 423
 nppiLShiftC_32s_AC4R
 image_lshiftc, 424
 nppiLShiftC_32s_C1IR
 image_lshiftc, 424
 nppiLShiftC_32s_C1R
 image_lshiftc, 424
 nppiLShiftC_32s_C3IR
 image_lshiftc, 425
 nppiLShiftC_32s_C3R
 image_lshiftc, 425
 nppiLShiftC_32s_C4IR
 image_lshiftc, 425
 nppiLShiftC_32s_C4R
 image_lshiftc, 426
 nppiLShiftC_8u_AC4IR
 image_lshiftc, 426
 nppiLShiftC_8u_AC4R
 image_lshiftc, 426
 nppiLShiftC_8u_C1IR
 image_lshiftc, 427
 nppiLShiftC_8u_C1R
 image_lshiftc, 427
 nppiLShiftC_8u_C3IR
 image_lshiftc, 427
 nppiLShiftC_8u_C3R
 image_lshiftc, 428
 nppiLShiftC_8u_C4IR
 image_lshiftc, 428
 nppiLShiftC_8u_C4R
 image_lshiftc, 428
 NppiMaskSize
 typedefs_npp, 41
 nppiMul_16s_AC4IRSfs
 image_mul, 211
 nppiMul_16s_AC4RSfs

image_mul, 211
nppiMul_16s_C1IRSfs
 image_mul, 212
nppiMul_16s_C1RSfs
 image_mul, 212
nppiMul_16s_C3IRSfs
 image_mul, 213
nppiMul_16s_C3RSfs
 image_mul, 213
nppiMul_16s_C4IRSfs
 image_mul, 213
nppiMul_16s_C4RSfs
 image_mul, 214
nppiMul_16sc_AC4IRSfs
 image_mul, 214
nppiMul_16sc_AC4RSfs
 image_mul, 215
nppiMul_16sc_C1IRSfs
 image_mul, 215
nppiMul_16sc_C1RSfs
 image_mul, 215
nppiMul_16sc_C3IRSfs
 image_mul, 216
nppiMul_16sc_C3RSfs
 image_mul, 216
nppiMul_16u_AC4IRSfs
 image_mul, 217
nppiMul_16u_AC4RSfs
 image_mul, 217
nppiMul_16u_C1IRSfs
 image_mul, 218
nppiMul_16u_C1RSfs
 image_mul, 218
nppiMul_16u_C3IRSfs
 image_mul, 218
nppiMul_16u_C3RSfs
 image_mul, 219
nppiMul_16u_C4IRSfs
 image_mul, 219
nppiMul_16u_C4RSfs
 image_mul, 220
nppiMul_32f_AC4IR
 image_mul, 220
nppiMul_32f_AC4R
 image_mul, 220
nppiMul_32f_C1IR
 image_mul, 221
nppiMul_32f_C1R
 image_mul, 221
nppiMul_32f_C3IR
 image_mul, 222
nppiMul_32f_C3R
 image_mul, 222
nppiMul_32f_C4IR

 image_mul, 222
nppiMul_32f_C4R
 image_mul, 223
nppiMul_32fc_AC4IR
 image_mul, 223
nppiMul_32fc_AC4R
 image_mul, 223
nppiMul_32fc_C1IR
 image_mul, 224
nppiMul_32fc_C1R
 image_mul, 224
nppiMul_32fc_C3IR
 image_mul, 225
nppiMul_32fc_C3R
 image_mul, 225
nppiMul_32fc_C4IR
 image_mul, 225
nppiMul_32fc_C4R
 image_mul, 226
nppiMul_32s_C1IRSfs
 image_mul, 226
nppiMul_32s_C1R
 image_mul, 227
nppiMul_32s_C1RSfs
 image_mul, 227
nppiMul_32s_C3IRSfs
 image_mul, 227
nppiMul_32s_C3RSfs
 image_mul, 228
nppiMul_32sc_AC4IRSfs
 image_mul, 228
nppiMul_32sc_AC4RSfs
 image_mul, 229
nppiMul_32sc_C1IRSfs
 image_mul, 229
nppiMul_32sc_C1RSfs
 image_mul, 229
nppiMul_32sc_C3IRSfs
 image_mul, 230
nppiMul_32sc_C3RSfs
 image_mul, 230
nppiMul_8u_AC4IRSfs
 image_mul, 231
nppiMul_8u_AC4RSfs
 image_mul, 231
nppiMul_8u_C1IRSfs
 image_mul, 232
nppiMul_8u_C1RSfs
 image_mul, 232
nppiMul_8u_C3IRSfs
 image_mul, 232
nppiMul_8u_C3RSfs
 image_mul, 233
nppiMul_8u_C4IRSfs

image_mul, 233
 nppiMul_8u_C4RSfs
 image_mul, 234
 nppiMulC_16s_AC4IRSfs
 image_mulc, 84
 nppiMulC_16s_AC4RSfs
 image_mulc, 84
 nppiMulC_16s_C1IRSfs
 image_mulc, 84
 nppiMulC_16s_C1RSfs
 image_mulc, 85
 nppiMulC_16s_C3IRSfs
 image_mulc, 85
 nppiMulC_16s_C3RSfs
 image_mulc, 85
 nppiMulC_16s_C4IRSfs
 image_mulc, 86
 nppiMulC_16s_C4RSfs
 image_mulc, 86
 nppiMulC_16sc_AC4IRSfs
 image_mulc, 87
 nppiMulC_16sc_AC4RSfs
 image_mulc, 87
 nppiMulC_16sc_C1IRSfs
 image_mulc, 87
 nppiMulC_16sc_C1RSfs
 image_mulc, 88
 nppiMulC_16sc_C3IRSfs
 image_mulc, 88
 nppiMulC_16sc_C3RSfs
 image_mulc, 89
 nppiMulC_16u_AC4IRSfs
 image_mulc, 89
 nppiMulC_16u_AC4RSfs
 image_mulc, 89
 nppiMulC_16u_C1IRSfs
 image_mulc, 90
 nppiMulC_16u_C1RSfs
 image_mulc, 90
 nppiMulC_16u_C3IRSfs
 image_mulc, 91
 nppiMulC_16u_C3RSfs
 image_mulc, 91
 nppiMulC_16u_C4IRSfs
 image_mulc, 91
 nppiMulC_16u_C4RSfs
 image_mulc, 92
 nppiMulC_32f_AC4IR
 image_mulc, 92
 nppiMulC_32f_AC4R
 image_mulc, 92
 nppiMulC_32f_C1IR
 image_mulc, 93
 nppiMulC_32f_C1R

 image_mulc, 93
 nppiMulC_32f_C3IR
 image_mulc, 93
 nppiMulC_32f_C3R
 image_mulc, 94
 nppiMulC_32f_C4IR
 image_mulc, 94
 nppiMulC_32f_C4R
 image_mulc, 94
 nppiMulC_32fc_AC4IR
 image_mulc, 95
 nppiMulC_32fc_AC4R
 image_mulc, 95
 nppiMulC_32fc_C1IR
 image_mulc, 95
 nppiMulC_32fc_C1R
 image_mulc, 96
 nppiMulC_32fc_C3IR
 image_mulc, 96
 nppiMulC_32fc_C3R
 image_mulc, 96
 nppiMulC_32fc_C4IR
 image_mulc, 97
 nppiMulC_32fc_C4R
 image_mulc, 97
 nppiMulC_32s_C1IRSfs
 image_mulc, 98
 nppiMulC_32s_C1RSfs
 image_mulc, 98
 nppiMulC_32s_C3IRSfs
 image_mulc, 98
 nppiMulC_32s_C3RSfs
 image_mulc, 99
 nppiMulC_32sc_AC4IRSfs
 image_mulc, 99
 nppiMulC_32sc_AC4RSfs
 image_mulc, 99
 nppiMulC_32sc_C1IRSfs
 image_mulc, 100
 nppiMulC_32sc_C1RSfs
 image_mulc, 100
 nppiMulC_32sc_C3IRSfs
 image_mulc, 101
 nppiMulC_32sc_C3RSfs
 image_mulc, 101
 nppiMulC_8u_AC4IRSfs
 image_mulc, 101
 nppiMulC_8u_AC4RSfs
 image_mulc, 102
 nppiMulC_8u_C1IRSfs
 image_mulc, 102
 nppiMulC_8u_C1RSfs
 image_mulc, 103
 nppiMulC_8u_C3IRSfs

image_mulc, 103
nppiMulC_8u_C3RSfs
 image_mulc, 103
nppiMulC_8u_C4IRSfs
 image_mulc, 104
nppiMulC_8u_C4RSfs
 image_mulc, 104
nppiMulCScale_16u_AC4IR
 image_mulscale, 106
nppiMulCScale_16u_AC4R
 image_mulcscale, 106
nppiMulCScale_16u_C1IR
 image_mulcscale, 107
nppiMulCScale_16u_C1R
 image_mulcscale, 107
nppiMulCScale_16u_C3IR
 image_mulcscale, 107
nppiMulCScale_16u_C3R
 image_mulcscale, 108
nppiMulCScale_16u_C4IR
 image_mulcscale, 108
nppiMulCScale_16u_C4R
 image_mulcscale, 108
nppiMulCScale_8u_AC4IR
 image_mulcscale, 109
nppiMulCScale_8u_AC4R
 image_mulcscale, 109
nppiMulCScale_8u_C1IR
 image_mulcscale, 109
nppiMulCScale_8u_C1R
 image_mulcscale, 110
nppiMulCScale_8u_C3IR
 image_mulcscale, 110
nppiMulCScale_8u_C3R
 image_mulcscale, 110
nppiMulCScale_8u_C4IR
 image_mulcscale, 111
nppiMulCScale_8u_C4R
 image_mulcscale, 111
nppiMulScale_16u_AC4IR
 image_mulscale, 236
nppiMulScale_16u_AC4R
 image_mulscale, 237
nppiMulScale_16u_C1IR
 image_mulscale, 237
nppiMulScale_16u_C1R
 image_mulscale, 237
nppiMulScale_16u_C3IR
 image_mulscale, 238
nppiMulScale_16u_C3R
 image_mulscale, 238
nppiMulScale_16u_C4IR
 image_mulscale, 239
nppiMulScale_16u_C4R
 image_mulscale, 239
nppiMulScale_8u_AC4IR
 image_mulscale, 239
nppiMulScale_8u_AC4R
 image_mulscale, 240
nppiMulScale_8u_C1IR
 image_mulscale, 240
nppiMulScale_8u_C1R
 image_mulscale, 241
nppiMulScale_8u_C3IR
 image_mulscale, 241
nppiMulScale_8u_C3R
 image_mulscale, 241
nppiMulScale_8u_C4IR
 image_mulscale, 242
nppiMulScale_8u_C4R
 image_mulscale, 242
NppiNorm
 typedefs_npp, 41
nppiNormInf
 typedefs_npp, 42
nppiNormL1
 typedefs_npp, 42
nppiNormL2
 typedefs_npp, 42
nppiNot_8u_AC4IR
 image_not, 466
nppiNot_8u_AC4R
 image_not, 467
nppiNot_8u_C1IR
 image_not, 467
nppiNot_8u_C1R
 image_not, 467
nppiNot_8u_C3IR
 image_not, 467
nppiNot_8u_C3R
 image_not, 468
nppiNot_8u_C4IR
 image_not, 468
nppiNot_8u_C4R
 image_not, 468
nppiOr_16u_AC4IR
 image_or, 444
nppiOr_16u_AC4R
 image_or, 444
nppiOr_16u_C1IR
 image_or, 444
nppiOr_16u_C1R
 image_or, 445
nppiOr_16u_C3IR
 image_or, 445
nppiOr_16u_C3R
 image_or, 445
nppiOr_16u_C4IR

image_or, 446
 nppiOr_16u_C4R
 image_or, 446
 nppiOr_32s_AC4IR
 image_or, 447
 nppiOr_32s_AC4R
 image_or, 447
 nppiOr_32s_C1IR
 image_or, 447
 nppiOr_32s_C1R
 image_or, 448
 nppiOr_32s_C3IR
 image_or, 448
 nppiOr_32s_C3R
 image_or, 448
 nppiOr_32s_C4IR
 image_or, 449
 nppiOr_32s_C4R
 image_or, 449
 nppiOr_8u_AC4IR
 image_or, 450
 nppiOr_8u_AC4R
 image_or, 450
 nppiOr_8u_C1IR
 image_or, 450
 nppiOr_8u_C1R
 image_or, 451
 nppiOr_8u_C3IR
 image_or, 451
 nppiOr_8u_C3R
 image_or, 451
 nppiOr_8u_C4IR
 image_or, 452
 nppiOr_8u_C4R
 image_or, 452
 nppiOrC_16u_AC4IR
 image_orc, 382
 nppiOrC_16u_AC4R
 image_orc, 382
 nppiOrC_16u_C1IR
 image_orc, 382
 nppiOrC_16u_C1R
 image_orc, 383
 nppiOrC_16u_C3IR
 image_orc, 383
 nppiOrC_16u_C3R
 image_orc, 383
 nppiOrC_16u_C4IR
 image_orc, 384
 nppiOrC_16u_C4R
 image_orc, 384
 nppiOrC_32s_AC4IR
 image_orc, 384
 nppiOrC_32s_AC4R

 image_orc, 385
 nppiOrC_32s_C1IR
 image_orc, 385
 nppiOrC_32s_C1R
 image_orc, 385
 nppiOrC_32s_C3IR
 image_orc, 386
 nppiOrC_32s_C3R
 image_orc, 386
 nppiOrC_32s_C4IR
 image_orc, 386
 nppiOrC_32s_C4R
 image_orc, 387
 nppiOrC_8u_AC4IR
 image_orc, 387
 nppiOrC_8u_AC4R
 image_orc, 387
 nppiOrC_8u_C1IR
 image_orc, 388
 nppiOrC_8u_C1R
 image_orc, 388
 nppiOrC_8u_C3IR
 image_orc, 388
 nppiOrC_8u_C3R
 image_orc, 389
 nppiOrC_8u_C4IR
 image_orc, 389
 nppiOrC_8u_C4R
 image_orc, 389
 NppiPoint, 501
 x, 501
 y, 501
 NppiRect, 502
 height, 502
 width, 502
 x, 502
 y, 502
 nppiRShiftC_16s_AC4IR
 image_rshiftc, 405
 nppiRShiftC_16s_AC4R
 image_rshiftc, 405
 nppiRShiftC_16s_C1IR
 image_rshiftc, 406
 nppiRShiftC_16s_C1R
 image_rshiftc, 406
 nppiRShiftC_16s_C3IR
 image_rshiftc, 406
 nppiRShiftC_16s_C3R
 image_rshiftc, 407
 nppiRShiftC_16s_C4IR
 image_rshiftc, 407
 nppiRShiftC_16s_C4R
 image_rshiftc, 407
 nppiRShiftC_16u_AC4IR

image_rshiftc, 408
nppiRShiftC_16u_AC4R
 image_rshiftc, 408
nppiRShiftC_16u_C1IR
 image_rshiftc, 408
nppiRShiftC_16u_C1R
 image_rshiftc, 409

 image_rshiftc, 417
nppiRShiftC_8u_C3IR
 image_rshiftc, 417
nppiRShiftC_8u_C3R
 image_rshiftc, 417
nppiRShiftC_8u_C4IR
 image_rshiftc, 418

nppiSqr_32f_C3R
 image_sqr, 337
 nppiSqr_32f_C4IR
 image_sqr, 338
 nppiSqr_32f_C4R
 image_sqr, 338
 nppiSqr_8u_AC4IRSfs
 image_sqr, 338
 nppiSqr_8u_AC4RSfs
 image_sqr, 339
 nppiSqr_8u_C1IRSfs
 image_sqr, 339
 nppiSqr_8u_C1RSfs
 image_sqr, 339
 nppiSqr_8u_C3IRSfs
 image_sqr, 340
 nppiSqr_8u_C3RSfs
 image_sqr, 340
 nppiSqr_8u_C4IRSfs
 image_sqr, 340
 nppiSqr_8u_C4RSfs
 image_sqr, 341
 nppiSqr_16s_AC4IRSfs
 image_sqr, 344
 nppiSqr_16s_AC4RSfs
 image_sqr, 344
 nppiSqr_16s_C1IRSfs
 image_sqr, 345
 nppiSqr_16s_C1RSfs
 image_sqr, 345
 nppiSqr_16s_C3IRSfs
 image_sqr, 346
 nppiSqr_16s_C3RSfs
 image_sqr, 346
 nppiSqr_16u_AC4IRSfs
 image_sqr, 346
 nppiSqr_16u_AC4RSfs
 image_sqr, 347
 nppiSqr_16u_C1IRSfs
 image_sqr, 347
 nppiSqr_16u_C1RSfs
 image_sqr, 347
 nppiSqr_16u_C3IRSfs
 image_sqr, 348
 nppiSqr_16u_C3RSfs
 image_sqr, 348
 nppiSqr_32f_AC4IR
 image_sqr, 348
 nppiSqr_32f_AC4R
 image_sqr, 349
 nppiSqr_32f_C1IR
 image_sqr, 349
 nppiSqr_32f_C1R
 image_sqr, 349
 nppiSqrt_32f_C3IR
 image_sqrt, 350
 nppiSqrt_32f_C3R
 image_sqrt, 350
 nppiSqrt_32f_C4IR
 image_sqrt, 350
 nppiSqrt_32f_C4R
 image_sqrt, 351
 nppiSqrt_8u_AC4IRSfs
 image_sqrt, 351
 nppiSqrt_8u_AC4RSfs
 image_sqrt, 351
 nppiSqrt_8u_C1IRSfs
 image_sqrt, 352
 nppiSqrt_8u_C1RSfs
 image_sqrt, 352
 nppiSqrt_8u_C3IRSfs
 image_sqrt, 353
 nppiSqrt_8u_C3RSfs
 image_sqrt, 353
 nppiSub_16s_AC4IRSfs
 image_sub, 249
 nppiSub_16s_AC4RSfs
 image_sub, 250
 nppiSub_16s_C1IRSfs
 image_sub, 250
 nppiSub_16s_C1RSfs
 image_sub, 250
 nppiSub_16s_C3IRSfs
 image_sub, 251
 nppiSub_16s_C3RSfs
 image_sub, 251
 nppiSub_16s_C4IRSfs
 image_sub, 252
 nppiSub_16s_C4RSfs
 image_sub, 252
 nppiSub_16sc_AC4IRSfs
 image_sub, 252
 nppiSub_16sc_AC4RSfs
 image_sub, 253
 nppiSub_16sc_C1IRSfs
 image_sub, 253
 nppiSub_16sc_C1RSfs
 image_sub, 254
 nppiSub_16sc_C3IRSfs
 image_sub, 254
 nppiSub_16sc_C3RSfs
 image_sub, 254
 nppiSub_16u_AC4IRSfs
 image_sub, 255
 nppiSub_16u_AC4RSfs
 image_sub, 255
 nppiSub_16u_C1IRSfs
 image_sub, 256

nppiSub_16u_C1RSfs
 image_sub, 256
nppiSub_16u_C3IRSfs
 image_sub, 257
nppiSub_16u_C3RSfs
 image_sub, 257
nppiSub_16u_C4IRSfs
 image_sub, 257
nppiSub_16u_C4RSfs
 image_sub, 258
nppiSub_32f_AC4IR
 image_sub, 258
nppiSub_32f_AC4R
 image_sub, 259
nppiSub_32f_C1IR
 image_sub, 259
nppiSub_32f_C1R
 image_sub, 259
nppiSub_32f_C3IR
 image_sub, 260
nppiSub_32f_C3R
 image_sub, 260
nppiSub_32f_C4IR
 image_sub, 261
nppiSub_32f_C4R
 image_sub, 261
nppiSub_32fc_AC4IR
 image_sub, 261
nppiSub_32fc_AC4R
 image_sub, 262
nppiSub_32fc_C1IR
 image_sub, 262
nppiSub_32fc_C1R
 image_sub, 263
nppiSub_32fc_C3IR
 image_sub, 263
nppiSub_32fc_C3R
 image_sub, 263
nppiSub_32fc_C4IR
 image_sub, 264
nppiSub_32fc_C4R
 image_sub, 264
nppiSub_32s_C1IRSfs
 image_sub, 265
nppiSub_32s_C1R
 image_sub, 265
nppiSub_32s_C1RSfs
 image_sub, 265
nppiSub_32s_C3IRSfs
 image_sub, 266
nppiSub_32s_C3RSfs
 image_sub, 266
nppiSub_32s_C4IRSfs
 image_sub, 267
nppiSub_32s_C4RSfs
 image_sub, 267
nppiSub_32s_C4RSfs
 image_sub, 267
nppiSub_32sc_AC4IRSfs
 image_sub, 268
nppiSub_32sc_AC4RSfs
 image_sub, 268
nppiSub_32sc_C1IRSfs
 image_sub, 268
nppiSub_32sc_C1RSfs
 image_sub, 269
nppiSub_32sc_C3IRSfs
 image_sub, 269
nppiSub_32sc_C3RSfs
 image_sub, 270
nppiSub_8u_AC4IRSfs
 image_sub, 270
nppiSub_8u_AC4RSfs
 image_sub, 270
nppiSub_8u_C1IRSfs
 image_sub, 271
nppiSub_8u_C1RSfs
 image_sub, 271
nppiSub_8u_C3IRSfs
 image_sub, 272
nppiSub_8u_C3RSfs
 image_sub, 272
nppiSub_8u_C4IRSfs
 image_sub, 272
nppiSub_8u_C4RSfs
 image_sub, 273
nppiSubC_16s_AC4IRSfs
 image_subc, 117
nppiSubC_16s_AC4RSfs
 image_subc, 117
nppiSubC_16s_C1IRSfs
 image_subc, 117
nppiSubC_16s_C1RSfs
 image_subc, 118
nppiSubC_16s_C3IRSfs
 image_subc, 118
nppiSubC_16s_C3RSfs
 image_subc, 118
nppiSubC_16s_C4IRSfs
 image_subc, 119
nppiSubC_16s_C4RSfs
 image_subc, 119
nppiSubC_16sc_AC4IRSfs
 image_subc, 120
nppiSubC_16sc_AC4RSfs
 image_subc, 120
nppiSubC_16sc_C1IRSfs
 image_subc, 120
nppiSubC_16sc_C1RSfs
 image_subc, 121

nppiSubC_16sc_C3IRSfs
 image_subc, 121
 nppiSubC_16sc_C3RSfs
 image_subc, 122
 nppiSubC_16u_AC4IRSfs
 image_subc, 122
 nppiSubC_16u_AC4RSfs
 image_subc, 122
 nppiSubC_16u_C1IRSfs
 image_subc, 123
 nppiSubC_16u_C1RSfs
 image_subc, 123
 nppiSubC_16u_C3IRSfs
 image_subc, 124
 nppiSubC_16u_C3RSfs
 image_subc, 124
 nppiSubC_16u_C4IRSfs
 image_subc, 124
 nppiSubC_16u_C4RSfs
 image_subc, 125
 nppiSubC_32f_AC4IR
 image_subc, 125
 nppiSubC_32f_AC4R
 image_subc, 125
 nppiSubC_32f_C1IR
 image_subc, 126
 nppiSubC_32f_C1R
 image_subc, 126
 nppiSubC_32f_C3IR
 image_subc, 126
 nppiSubC_32f_C3R
 image_subc, 127
 nppiSubC_32f_C4IR
 image_subc, 127
 nppiSubC_32f_C4R
 image_subc, 127
 nppiSubC_32fc_AC4IR
 image_subc, 128
 nppiSubC_32fc_AC4R
 image_subc, 128
 nppiSubC_32fc_C1IR
 image_subc, 128
 nppiSubC_32fc_C1R
 image_subc, 129
 nppiSubC_32fc_C3IR
 image_subc, 129
 nppiSubC_32fc_C3R
 image_subc, 129
 nppiSubC_32fc_C4IR
 image_subc, 130
 nppiSubC_32fc_C4R
 image_subc, 130
 nppiSubC_32s_C1IRSfs
 image_subc, 131
 nppiSubC_32s_C1RSfs
 image_subc, 131
 nppiSubC_32s_C3IRSfs
 image_subc, 132
 nppiSubC_32sc_AC4IRSfs
 image_subc, 132
 nppiSubC_32sc_AC4RSfs
 image_subc, 132
 nppiSubC_32sc_C1IRSfs
 image_subc, 133
 nppiSubC_32sc_C1RSfs
 image_subc, 133
 nppiSubC_32sc_C3IRSfs
 image_subc, 134
 nppiSubC_32sc_C3RSfs
 image_subc, 134
 nppiSubC_8u_AC4IRSfs
 image_subc, 134
 nppiSubC_8u_AC4RSfs
 image_subc, 135
 nppiSubC_8u_C1IRSfs
 image_subc, 135
 nppiSubC_8u_C1RSfs
 image_subc, 136
 nppiSubC_8u_C3IRSfs
 image_subc, 136
 nppiSubC_8u_C3RSfs
 image_subc, 136
 nppiSubC_8u_C4IRSfs
 image_subc, 137
 nppiSubC_8u_C4RSfs
 image_subc, 137
 nppiXor_16u_AC4IR
 image_xor, 456
 nppiXor_16u_AC4R
 image_xor, 456
 nppiXor_16u_C1IR
 image_xor, 456
 nppiXor_16u_C1R
 image_xor, 457
 nppiXor_16u_C3IR
 image_xor, 457
 nppiXor_16u_C3R
 image_xor, 457
 nppiXor_16u_C4IR
 image_xor, 458
 nppiXor_16u_C4R
 image_xor, 458
 nppiXor_32s_AC4IR
 image_xor, 459
 nppiXor_32s_AC4R
 image_xor, 459

nppiXor_32s_C1IR
 image_xor, 459
nppiXor_32s_C1R
 image_xor, 460
nppiXor_32s_C3IR
 image_xor, 460
nppiXor_32s_C3R
 image_xor, 460
nppiXor_32s_C4IR
 image_xor, 461
nppiXor_32s_C4R
 image_xor, 461
nppiXor_8u_AC4IR
 image_xor, 462
nppiXor_8u_AC4R
 image_xor, 462
nppiXor_8u_C1IR
 image_xor, 462
nppiXor_8u_C1R
 image_xor, 463
nppiXor_8u_C3IR
 image_xor, 463
nppiXor_8u_C3R
 image_xor, 463
nppiXor_8u_C4IR
 image_xor, 464
nppiXor_8u_C4R
 image_xor, 464
nppiXorC_16u_AC4IR
 image_xorc, 393
nppiXorC_16u_AC4R
 image_xorc, 393
nppiXorC_16u_C1IR
 image_xorc, 393
nppiXorC_16u_C1R
 image_xorc, 394
nppiXorC_16u_C3IR
 image_xorc, 394
nppiXorC_16u_C3R
 image_xorc, 394
nppiXorC_16u_C4IR
 image_xorc, 395
nppiXorC_16u_C4R
 image_xorc, 395
nppiXorC_32s_AC4IR
 image_xorc, 395
nppiXorC_32s_AC4R
 image_xorc, 396
nppiXorC_32s_C1IR
 image_xorc, 396
nppiXorC_32s_C1R
 image_xorc, 396
nppiXorC_32s_C3IR
 image_xorc, 397
nppiXorC_32s_C3R
 image_xorc, 397
nppiXorC_32s_C4IR
 image_xorc, 397
nppiXorC_32s_C4R
 image_xorc, 398
nppiXorC_8u_AC4IR
 image_xorc, 398
nppiXorC_8u_AC4R
 image_xorc, 398
nppiXorC_8u_C1IR
 image_xorc, 399
nppiXorC_8u_C1R
 image_xorc, 399
nppiXorC_8u_C3IR
 image_xorc, 399
nppiXorC_8u_C3R
 image_xorc, 400
nppiXorC_8u_C4IR
 image_xorc, 400
nppiXorC_8u_C4R
 image_xorc, 400
NppLibraryVersion, 504
 build, 504
 major, 504
 minor, 504
NppRoundMode
 typedefs_npp, 42
nppSetStream
 core_npp, 29
NppStatus
 typedefs_npp, 42
NppsZCType
 typedefs_npp, 44
nppZCC
 typedefs_npp, 45
nppZCR
 typedefs_npp, 45
nppZCXor
 typedefs_npp, 45
numClassifiers
 NppiHaarClassifier_32f, 500
Or, 442
OrC, 380
re
 NPP_ALIGN_16, 496
 NPP_ALIGN_8, 497, 498
RShiftC, 402
Sqr, 328
Sqrt, 342
Sub, 244

SubC, 112

typedefs_npp

- NPP_AFFINE_QUAD_INCORRECT_-
WARNING, 44
- NPP_ALG_HINT_ACCURATE, 39
- NPP_ALG_HINT_FAST, 39
- NPP_ALG_HINT_NONE, 39
- NPP_ALIGNMENT_ERROR, 43
- NPP_ANCHOR_ERROR, 43
- NPP_BAD_ARGUMENT_ERROR, 44
- NPP_BORDER_CONSTANT, 40
- NPP_BORDER_MIRROR, 40
- NPP_BORDER_NONE, 40
- NPP_BORDER_REPLICATE, 40
- NPP_BORDER_UNDEFINED, 40
- NPP_BORDER_WRAP, 40
- NPP_BOTH_AXIS, 40
- NPP_CHANNEL_ERROR, 43
- NPP_CHANNEL_ORDER_ERROR, 43
- NPP_CMP_EQ, 39
- NPP_CMP_GREATER, 39
- NPP_CMP_GREATER_EQ, 39
- NPP_CMP_LESS, 38
- NPP_CMP_LESS_EQ, 38
- NPP_COEFFICIENT_ERROR, 43
- NPP_COI_ERROR, 43
- NPP_CONTEXT_MATCH_ERROR, 44
- NPP_CORRUPTED_DATA_ERROR, 43
- NPP_CUDA_1_0, 39
- NPP_CUDA_1_1, 39
- NPP_CUDA_1_2, 39
- NPP_CUDA_1_3, 39
- NPP_CUDA_2_0, 39
- NPP_CUDA_2_1, 39
- NPP_CUDA_3_0, 39
- NPP_CUDA_3_2, 39
- NPP_CUDA_3_5, 39
- NPP_CUDA_3_7, 39
- NPP_CUDA_5_0, 39
- NPP_CUDA_5_2, 39
- NPP_CUDA_5_3, 39
- NPP_CUDA_6_0, 39
- NPP_CUDA_KERNEL_EXECUTION_-
ERROR, 43
- NPP_CUDA_NOT_CAPABLE, 39
- NPP_CUDA_UNKNOWN_VERSION, 39
- NPP_DATA_TYPE_ERROR, 44
- NPP_DIVIDE_BY_ZERO_ERROR, 44
- NPP_DIVIDE_BY_ZERO_WARNING, 44
- NPP_DIVISOR_ERROR, 43
- NPP_DOUBLE_SIZE_WARNING, 44
- NPP_ERROR, 44
- NPP_ERROR_RESERVED, 44
- NPP_FILTER_SCHARR, 40
- NPP_FILTER_SOBEL, 40
- NPP_HAAR_CLASSIFIER_PIXEL_-
MATCH_ERROR, 43
- NPP_HISTOGRAM_NUMBER_OF_-
LEVELS_ERROR, 43
- NPP_HORIZONTAL_AXIS, 40
- NPP_INTERPOLATION_ERROR, 44
- NPP_INVALID_DEVICE_POINTER_-
ERROR, 43
- NPP_INVALID_HOST_POINTER_ERROR,
43
- NPP_LUT_NUMBER_OF_LEVELS_-
ERROR, 43
- NPP_LUT_PALETTE_BITSIZE_ERROR, 43
- NPP_MASK_SIZE_11_X_11, 41
- NPP_MASK_SIZE_13_X_13, 41
- NPP_MASK_SIZE_15_X_15, 41
- NPP_MASK_SIZE_1_X_3, 41
- NPP_MASK_SIZE_1_X_5, 41
- NPP_MASK_SIZE_3_X_1, 41
- NPP_MASK_SIZE_3_X_3, 41
- NPP_MASK_SIZE_5_X_1, 41
- NPP_MASK_SIZE_5_X_5, 41
- NPP_MASK_SIZE_7_X_7, 41
- NPP_MASK_SIZE_9_X_9, 41
- NPP_MASK_SIZE_ERROR, 43
- NPP_MEMCPY_ERROR, 43
- NPP_MEMFREE_ERROR, 43
- NPP_MEMORY_ALLOCATION_ERR, 44
- NPP_MEMSET_ERROR, 43
- NPP_MIRROR_FLIP_ERROR, 44
- NPP_MISALIGNED_DST_ROI_WARNING,
44
- NPP_MOMENT_00_ZERO_ERROR, 44
- NPP_NO_ERROR, 44
- NPP_NO_MEMORY_ERROR, 44
- NPP_NO_OPERATION_WARNING, 44
- NPP_NOT_EVEN_STEP_ERROR, 43
- NPP_NOT_IMPLEMENTED_ERROR, 44
- NPP_NOT_SUFFICIENT_COMPUTE_-
CAPABILITY, 43
- NPP_NOT_SUPPORTED_MODE_ERROR,
43
- NPP_NULL_POINTER_ERROR, 44
- NPP_NUMBER_OF_CHANNELS_ERROR,
43
- NPP_OUT_OF_RANGE_ERROR, 44
- NPP_OVERFLOW_ERROR, 43
- NPP_QUADRANGLE_ERROR, 43
- NPP_QUALITY_INDEX_ERROR, 43
- NPP_RANGE_ERROR, 44

NPP_RECTANGLE_ERROR, 43
NPP_RESIZE_FACTOR_ERROR, 44
NPP_RESIZE_NO_OPERATION_ERROR,
 43
NPP_RND_FINANCIAL, 42
NPP_RND_NEAR, 42
NPP_RND_ZERO, 42
NPP_ROUND_MODE_NOT_-
 SUPPORTED_ERROR, 43
NPP_ROUND_NEAREST_TIES_AWAY_-
 FROM_ZERO, 42
NPP_ROUND_NEAREST_TIES_TO_EVEN,
 42
NPP_ROUND_TOWARD_ZERO, 42
NPP_SCALE_RANGE_ERROR, 44
NPP_SIZE_ERROR, 44
NPP_STEP_ERROR, 44
NPP_STRIDE_ERROR, 43
NPP_SUCCESS, 44
NPP_TEXTURE_BIND_ERROR, 43
NPP_THRESHOLD_ERROR, 44
NPP_THRESHOLD_NEGATIVE_LEVEL_-
 ERROR, 44
NPP_VERTICAL_AXIS, 40
NPP_WRONG_INTERSECTION_QUAD_-
 WARNING, 44
NPP_WRONG_INTERSECTION_ROI_-
 ERROR, 43
NPP_WRONG_INTERSECTION_ROI_-
 WARNING, 44
NPP_ZC_MODE_NOT_SUPPORTED_-
 ERROR, 43
NPP_ZERO_MASK_VALUE_ERROR, 43
NPPI_BAYER_BGGR, 40
NPPI_BAYER_GBRG, 40
NPPI_BAYER_GRBG, 40
NPPI_BAYER_RGGB, 40
NPPI_INTER_CUBIC, 41
NPPI_INTER_CUBIC2P_B05C03, 41
NPPI_INTER_CUBIC2P_BSPLINE, 41
NPPI_INTER_CUBIC2P_CATMULLROM,
 41
NPPI_INTER_LANZOS, 41
NPPI_INTER_LANZOS3_ADVANCED, 41
NPPI_INTER_LINEAR, 41
NPPI_INTER_NN, 41
NPPI_INTER_SUPER, 41
NPPI_INTER_UNDEFINED, 41
NPPI_OP_ALPHA_ATOP, 39
NPPI_OP_ALPHA_ATOP_PREMUL, 40
NPPI_OP_ALPHA_IN, 39
NPPI_OP_ALPHA_IN_PREMUL, 40
NPPI_OP_ALPHA_OUT, 39
NPPI_OP_ALPHA_OUT_PREMUL, 40
NPPI_OP_ALPHA_OVER, 39
NPPI_OP_ALPHA_OVER_PREMUL, 40
NPPI_OP_ALPHA_PLUS, 39
NPPI_OP_ALPHA_PLUS_PREMUL, 40
NPPI_OP_ALPHA_PREMUL, 40
NPPI_OP_ALPHA_XOR, 39
NPPI_OP_ALPHA_XOR_PREMUL, 40
NPPI_SMOOTH_EDGE, 41
nppiACTable, 41
nppiDCTable, 41
nppiNormInf, 42
nppiNormL1, 42
nppiNormL2, 42
nppZCC, 45
nppZCR, 45
nppZCXor, 45
typedefs_npp
 NPP_MAX_16S, 37
 NPP_MAX_16U, 37
 NPP_MAX_32S, 37
 NPP_MAX_32U, 37
 NPP_MAX_64S, 37
 NPP_MAX_64U, 37
 NPP_MAX_8S, 37
 NPP_MAX_8U, 37
 NPP_MAXABS_32F, 37
 NPP_MAXABS_64F, 37
 NPP_MIN_16S, 37
 NPP_MIN_16U, 38
 NPP_MIN_32S, 38
 NPP_MIN_32U, 38
 NPP_MIN_64S, 38
 NPP_MIN_64U, 38
 NPP_MIN_8S, 38
 NPP_MIN_8U, 38
 NPP_MINABS_32F, 38
 NPP_MINABS_64F, 38
 NppCmpOp, 38
 NppGpuComputeCapability, 39
 NppHintAlgorithm, 39
 NppiAlphaOp, 39
 NppiAxis, 40
 NppiBayerGridPosition, 40
 NppiBorderType, 40
 NppiDifferentialKernel, 40
 NppiHuffmanTableType, 40
 NppiInterpolationMode, 41
 NppiMaskSize, 41
 NppiNorm, 41
 NppRoundMode, 42
 NppStatus, 42
 NppsZCType, 44
width

NppiRect, [502](#)
NppiSize, [503](#)

x

NppiPoint, [501](#)
NppiRect, [502](#)
Xor, [454](#)
XorC, [391](#)

y

NppiPoint, [501](#)
NppiRect, [502](#)