Accelerate / vImageConvert_ARGBToYpCbCr_GenerateConversion(_:_:_:_:_:_:)

Function

vImageConvert_ARGBToYpCbCr_GenerateConversion(_:_:_:_:_:_:)

Generates the information that describes the conversion from ARGB to YpCbCr.

iOS 8.0+ | iPadOS 8.0+ | Mac Catalyst 13.1+ | macOS 10.10+ | tvOS 8.0+ | visionOS 1.0+ | watchOS 1.0+

```
func vImageConvert_ARGBToYpCbCr_GenerateConversion(
    _ matrix: UnsafePointer<vImage_ARGBToYpCbCrMatrix>,
    _ pixelRange: UnsafePointer<vImage_YpCbCrPixelRange>,
    _ outInfo: UnsafeMutablePointer<vImage_ARGBToYpCbCr>,
    _ inARGBType: vImageARGBType,
    _ outYpCbCrType: vImageYpCbCrType,
    _ flags: vImage_Flags
) -> vImage_Error
```

Parameters

`matrix`

A pointer to `vImage_ARGBToYpCbCrMatrix` that contains the matrix coefficients for the conversion.

`pixelRange`

A pointer to `vImage_YpCbCrPixelRange` that contains the pixel range information for the conversion.

`outInfo`

A pointer to `vImage_ARGBToYpCbCr` that's initialized with information for the conversion function to use later.

`inARGBType`
A `vImageARGBType` to specify the input (ARGB) format.

`outYpCbCrType`
A `vImageYpCbCrType` to specify the output (YpCbCr) format.

`flags`
The options to use when performing this operation. Set the `kvImagePrintDiagnosticsToConsole` flag to print debug messages when a problem occurs.

Return Value

`kvImageNoError`; otherwise, one of the error codes in Data Types and Constants.

Discussion

You use this function to create the `vImage_ARGBToYpCbCr` conversion information necessary for all RGB-to-YUV conversion functions.

The following example shows how to prepare for the conversion of ARGB8888 to a YUV format with ITU 601 video range:

```
vImage_Error err = kvImageNoError;
vImage_Flags flags = kvImageNoFlags;
vImage_YpCbCrPixelRange pixelRange;
vImage_ARGBToYpCbCr outInfo;

pixelRange.Yp_bias          =  16;     // encoding for Y' = 0.0
pixelRange.CbCr_bias        = 128;     // encoding for CbCr = 0.0
pixelRange.YpRangeMax       = 235;     // encoding for Y'= 1.0
pixelRange.CbCrRangeMax     = 240;     // encoding for CbCr = 0.5
pixelRange.YpMax            = 255;     // a clamping limit above which the value is
pixelRange.YpMin            =   0;     // a clamping limit below which the value is
pixelRange.CbCrMax          = 255;     // a clamping limit above which the value is
pixelRange.CbCrMin          =   0;     // a clamping limit above which the value is

err = vImageConvert_ARGBToYpCbCr_GenerateConversion(kvImage_ARGBToYpCbCrMatrix_ITU_
```

The following example shows how you might define your own conversion coefficients:

```
vImage_ARGBToYpCbCrMatrix matrix;;
vImage_YpCbCrPixelRange pixelRange;

matrix.R_Yp          =  0.2989f;
matrix.G_Yp          =  0.5866f;
matrix.B_Yp          =  0.1144f;
matrix.R_Cb          = -0.1688f;
matrix.G_Cb          = -0.3312f;
matrix.B_Cb_R_Cr     =  0.5f;
matrix.G_Cr          = -0.4183f;
matrix.B_Cr          = -0.0816f;
pixelRange.Yp_bias         =  16;     // encoding for Y' = 0.0
pixelRange.CbCr_bias       = 128;     // encoding for CbCr = 0.0
pixelRange.YpRangeMax      = 235;     // encoding for Y'= 1.0
pixelRange.CbCrRangeMax    = 240;     // encoding for CbCr = 0.5
pixelRange.YpMax           = 255;     // a clamping limit above which the value is
pixelRange.YpMin           =   0;     // a clamping limit below which the value is
pixelRange.CbCrMax         = 255;     // a clamping limit above which the value is
pixelRange.CbCrMin         =   0;     // a clamping limit above which the value is

err = vImageConvert_ARGBToYpCbCr_GenerateConversion(&matrix, &pixelRange, &outInfo,
```

The `vImage_ARGBToYpCbCr` structure this function creates can be reused concurrently, multiple times from multiple threads.

The conversions that are available are:

	RGB8	RGB16Q12	RGB16
YUV8	Y	N	N
YUV10	Y	Y	N
YUV12	Y	Y	N
YUV14	Y	N	Y
YUV16	Y	N	Y

See Also

Generating conversion information

`struct vImageYpCbCrType`

Constants that describe the encoding of a YpCbCr image for conversions between RGB and YpCbCr.

`struct vImageARGBType`

Constants that describe the encoding of an ARGB image for conversions between RGB and YpCbCr.

`struct vImage_ARGBToYpCbCrMatrix`

The 3 x 3 matrix that the vImage library uses to convert from RGB to YpCbCr.

`struct vImage_ARGBToYpCbCr`

The information that describes the conversion from ARGB to YpCbCr.

`struct vImage_YpCbCrPixelRange`

The description of range and clamping information for YpCbCr pixel formats.