APPENDIX C

References and Resources

The resources and references listed in this appendix are organized according to x86 references, algorithm references, additional resources, and software tools/utilities.

X86 References

Guy Ben-Haim, Itai Neoran, and Ishay Tubi, *Practical Intel AVX Optimization on 2nd Generation Intel Core Processors,* https://software.intel.com/sites/default/files/m/d/4/1/d/8/Practical_Optimization_with_AVX.pdf

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Intel 80387 Programmer's Reference Manual, Order Number 231917-001, 1987

Intel 64 and IA-32 Architectures Software Developer's Manual, Combined Volumes: 1, 2A, 2B, 2C, 3A, 3B, and 3C, Order Number 325462-051US, June 2014, http://www.intel.com/content/www/us/en/processors/architectures-software-developer-manuals.html

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Chris Kirkpatrick, *Intel AVX State Transitions: Migrating SSE Code to AVX*, https://software.intel.com/en-us/articles/intel-avx-state-transitions-migrating-sse-code-to-avx

Patrick Konsor, *Avoiding AVX-SSE Transition Penalties*, https://software.intel.com/en-us/articles/avoiding-avx-sse-transition-penalties

Max Locktyukhin, *How to Detect New Instruction Support in the 4th Generation Intel Core Processor Family*, https://software.intel.com/en-us/node/405250

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Algorithm References

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James F. Epperson, *An Introduction to Numerical Methods and Analysis*, Second Edition, ISBN 978-1-118-36759-9, Wiley, 2013

Earl Gose, Richard Johnsonbaugh, and Steve Jost, *Pattern Recognition and Image Analysis*, ISBN 0-13-236415-8, Prentice Hall PTR, 1996

Sam Kash Kachigan, *Multivariate Statistical Analysis–A Conceptual Introduction*, Second Edition, ISBN 0-942154-91-6, Radius Press, 1991

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Eric W. Weisstein, *Cone*, Mathworld, http://mathworld.wolfram.com/Cone.html

Eric W. Weisstein, *Least Squares Fitting*, Mathworld, http://mathworld.wolfram.com/LeastSquaresFitting.html

Eric W. Weisstein, *Matrix Multiplication*, Mathworld, http://mathworld.wolfram.com/MatrixMultiplication.html

Eric W. Weisstein, *Parallelogram*, Mathworld, http://mathworld.wolfram.com/Parallelogram.html

Eric W. Weisstein, *Quadratic Equation*, Mathworld, http://mathworld.wolfram.com/QuadraticEquation.html

Eric W. Weisstein, *Spherical Coordinates*, Mathworld, http://mathworld.wolfram.com/SphericalCoordinates.html

Dongrong Xu, Jiali Cui, Ravi Bansal, Xuejun Hao, Jun Liu, and Bradley S. Peterson, *The Ellipsoidal Area Ratio (EAR): An Alternative Anisotropy Index for Diffusion Tensor Imaging*, http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3575168/

David M. Young and Robert Todd Gregory, *A Survey of Numerical Mathematics*, Volume 1, ISBN 0-486-65691-8, Dover Publications, 1988

Additional Resources

Agner Fog, *The Microarchitecture of Intel, AMD and VIA CPUs*, August 2014, http://www.agner.org/optimize/microarchitecture.pdf

Agner Fog, *Optimizing Subroutines in Assembly Language*, February 2014, http://www.agner.org/optimize/optimizing_assembly.pdf

AMD64 Architecture Programmer's Manual Volume 1: Application Programming, http://support.amd.com/TechDocs/24592.pdf

AMD64 Architecture Programmer's Manual Volume 3: General-Purpose and System Instructions, http://support.amd.com/TechDocs/24594.pdf

AMD64 Architecture Programmer's Manual Volume 4: 128-Bit and 256-Bit Media Instructions, http://support.amd.com/TechDocs/26568.pdf

AMD64 Architecture Programmer's Manual Volume 5: 64-Bit Media and x87 Floating-Point Instructions, http://support.amd.com/TechDocs/26569_APM_v5.pdf

Software Optimization Guide for AMD Family 15h Processors, http://support.amd.com/TechDocs/47414_15h_sw_opt_guide.pdf

Intel Developer Zone Website, https://software.intel.com/en-us/

Intel Digital Random Number Generator (DRNG) Software Implementation Guide, Revision 2.0, May 15, 2014, https://software.intel.com/sites/default/files/managed/4d/91/DRNG_Software_Implementation_Guide_2.0.pdf

Intel Product Information Website, http://ark.intel.com/

Microsoft MSDN Library, http://msdn.microsoft.com/library/

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List of Intel CPU Microarchitectures, Wikipedia, http://en.wikipedia.org/wiki/List_of_Intel_CPU_microarchitectures

List of Intel Microprocessors, Wikipedia, http://en.wikipedia.org/wiki/Intel_processor

List of Intel Xeon Microprocessors, Wikipedia, http://en.wikipedia.org/wiki/List_of_Intel_Xeon_microprocessors

Software Tools and Utilities

Microsoft Visual Studio, http://msdn.microsoft.com/en-us/vstudio

The following utilities can be used to determine which x86 processor feature extensions are supported by your PC:

- *CPUID CPU-Z*, http://www.cpuid.com
- *Piriform SPECCY*, http://www.piriform.com