Phoronix Test Suite

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# GCC 4.8 Snapshot Intel Ivy Bridge

Benchmarking of a GCC 4.8 snapshot from 2012-06-17 on an Intel Core i7 3770K Ivy Bridge system at Phoronix.com. Benchmarking for a future article. GCC 4.8 snapshot was compared to the latest of the GCC 4.6 and GCC 4.7 compilers when being built with the same compiler options. CFLAGS/CXXFLAGS of -O3 and -march=native were set each time prior to test profile installation.

**Automated Executive Summary**

*GCC 4.8.0 20120617 had the most wins, coming in first place for 44% of the tests.*

*Based on the geometric mean of all complete results, the fastest (GCC 4.7.1) was 1.019x the speed of the slowest (GCC 4.6.3). GCC 4.8.0 20120617 was 0.997x the speed of GCC 4.7.1 and GCC 4.6.3 was 0.984x the speed of GCC 4.8.0 20120617.*

*The results with the greatest spread from best to worst included:*

*SciMark (Computational Test: Monte Carlo) at 1.319x*
*C-Ray (Total Time) at 1.29x*
*Timed MrBayes Analysis (Primate Phylogeny Analysis) at 1.16x*
*FLAC Audio Encoding (WAV To FLAC) at 1.097x*
*NAS Parallel Benchmarks (Test / Class: EP.B) at 1.081x*
*SciMark (Computational Test: Fast Fourier Transform) at 1.079x*

*NAS Parallel Benchmarks (Test / Class: SP.A) at 1.064x*
*Parallel BZIP2 Compression (256MB File Compression) at 1.045x*
*NAS Parallel Benchmarks (Test / Class: LU.A) at 1.041x*
*Himeno Benchmark (Poisson Pressure Solver) at 1.039x.*

# Test Systems:

## GCC 4.8.0 20120617

Processor: Intel Core i7-3770K @ 3.50GHz (8 Cores), Motherboard: ECS Z77H2-A2X v1.0, Chipset: Intel Ivy Bridge DRAM, Memory: 16384MB, Disk: 240GB OCZ VERTEX3, Graphics: NVIDIA GeForce GTX 460 768MB (675/1800MHz), Audio: Realtek ALC892, Network: Realtek RTL8111/8168B + Intel Centrino Advanced-N 6205

OS: Ubuntu 12.04, Kernel: 3.2.0-25-generic (x86_64), Desktop: Unity 5.12.0, Display Server: X Server 1.11.3, Display Driver: NVIDIA 295.49, OpenGL: 4.2.0 NVIDIA 295.49, Compiler: GCC 4.8.0 20120617, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --disable-multilib --enable-checking=release --enable-languages=c,c++,fortran
Processor Notes: Scaling Governor: ondemand
System Notes: Compiz was running on this system.

## GCC 4.7.1

Processor: Intel Core i7-3770K @ 3.50GHz (8 Cores), Motherboard: ECS Z77H2-A2X v1.0, Chipset: Intel Ivy Bridge DRAM, Memory: 16384MB, Disk: 240GB OCZ VERTEX3, Graphics: NVIDIA GeForce GTX 460 768MB (675/1800MHz), Audio: Realtek ALC892, Network: Realtek RTL8111/8168B + Intel Centrino Advanced-N 6205

OS: Ubuntu 12.04, Kernel: 3.2.0-25-generic (x86_64), Desktop: Unity 5.12.0, Display Server: X Server 1.11.3, Display Driver: NVIDIA 295.49, OpenGL: 4.2.0 NVIDIA 295.49, Compiler: GCC 4.7.1, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --disable-multilib --enable-checking=release --enable-languages=c,c++,fortran
Processor Notes: Scaling Governor: ondemand
System Notes: Compiz was running on this system.

## GCC 4.6.3

Processor: Intel Core i7-3770K @ 3.50GHz (8 Cores), Motherboard: ECS Z77H2-A2X v1.0, Chipset: Intel Ivy Bridge DRAM, Memory: 16384MB, Disk: 240GB OCZ VERTEX3, Graphics: NVIDIA GeForce GTX 460 768MB (675/1800MHz), Audio: Realtek ALC892, Network: Realtek RTL8111/8168B + Intel Centrino Advanced-N 6205

OS: Ubuntu 12.04, Kernel: 3.2.0-25-generic (x86_64), Desktop: Unity 5.12.0, Display Server: X Server 1.11.3, Display Driver: NVIDIA 295.49, OpenGL: 4.2.0 NVIDIA 295.49, Compiler: GCC 4.6.3, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --disable-multilib --enable-checking=release --enable-languages=c,c++,fortran
Processor Notes: Scaling Governor: ondemand
System Notes: Compiz was running on this system.

# GCC 4.8 Snapshot Intel Ivy Bridge

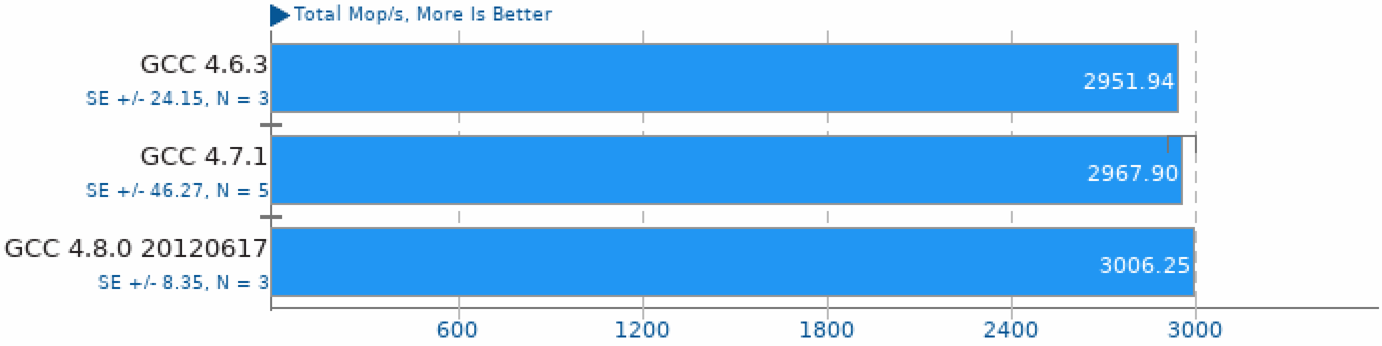
| | GCC 4.8.0 20120617 | GCC 4.7.1 | GCC 4.6.3 |
|---|---|---|---|
| **NAS Parallel Benchmarks - CG.B (Mop/s)** | 3006 | 2968 | 2952 |
| Normalized | 100% | 98.72% | 98.19% |
| Standard Deviation | 0.5% | 3.5% | 1.4% |
| **NAS Parallel Benchmarks - EP.B (Mop/s)** | 274.39 | 271.85 | 253.80 |
| Normalized | 100% | 99.07% | 92.5% |
| Standard Deviation | 1.2% | 1% | 0.2% |
| **NAS Parallel Benchmarks - LU.A (Mop/s)** | 13983 | 14002 | 13452 |
| Normalized | 99.86% | 100% | 96.07% |
| Standard Deviation | 0.6% | 1.1% | 0.8% |
| **NAS Parallel Benchmarks - MG.B (Mop/s)** | 6333 | 6331 | 6270 |
| Normalized | 100% | 99.96% | 98.99% |
| Standard Deviation | 0.2% | 0.3% | 0.3% |
| **NAS Parallel Benchmarks - SP.A (Mop/s)** | 6358 | 6367 | 5981 |
| Normalized | 99.86% | 100% | 93.94% |
| Standard Deviation | 0.3% | 0.3% | 1.1% |
| **NAS Parallel Benchmarks - UA.A (Mop/s)** | 49.65 | 49.25 | 48.64 |
| Normalized | 100% | 99.19% | 97.97% |
| Standard Deviation | 1% | 0.5% | 0.6% |
| **LAMMPS Molecular Dynamics Simulator - Rhodopsin Protein (Loop Time)** | 36.61 | 36.43 | 37.34 |
| Normalized | 99.51% | 100% | 97.56% |
| Standard Deviation | 0.4% | 0.2% | 0.1% |
| **FFTE - N.6.1.C.F.R (MFLOPS)** | 5839 | 5853 | 5643 |
| Normalized | 99.76% | 100% | 96.4% |
| Standard Deviation | 0.1% | 0.2% | 0.2% |
| **Timed HMMer Search - P.D.S (sec)** | 10.03 | 10.02 | 10.03 |
| Normalized | 99.9% | 100% | 99.9% |
| Standard Deviation | 0.3% | 0.5% | 0.3% |
| **Timed MAFFT Alignment - M.S.A (sec)** | 5.72 | 5.38 | 6.05 |
| Normalized | 94.06% | 100% | 88.93% |
| Standard Deviation | 5.9% | 8.5% | 1.3% |
| **Timed MrBayes Analysis - P.P.A (sec)** | 12.49 | 12.45 | 14.44 |
| Normalized | 99.68% | 100% | 86.22% |
| Standard Deviation | 0.6% | 0% | 0.3% |
| **SciMark - Composite (Mflops)** | 1312 | 1322 | 1345 |
| Normalized | 97.57% | 98.31% | 100% |
| Standard Deviation | 0.2% | 0.1% | 0.2% |
| **SciMark - Monte Carlo (Mflops)** | 422.32 | 423.15 | 557.07 |
| Normalized | 75.81% | 75.96% | 100% |
| Standard Deviation | 0.2% | 0.2% | 0.3% |
| **SciMark - F.F.T (Mflops)** | 348.89 | 347.48 | 323.45 |
| Normalized | 100% | 99.6% | 92.71% |
| Standard Deviation | 0.4% | 0.5% | 3.3% |
| **SciMark - S.M.M (Mflops)** | 2204 | 2257 | 2266 |
| Normalized | 97.24% | 99.59% | 100% |
| Standard Deviation | 0.1% | 0% | 0.2% |
| **SciMark - D.L.M.F (Mflops)** | 2408 | 2405 | 2400 |
| Normalized | 100% | 99.89% | 99.66% |
| Standard Deviation | 0.3% | 0.2% | 0.2% |
| **SciMark - J.S.O.R (Mflops)** | 1179 | 1179 | 1179 |
| Standard Deviation | 0% | 0% | 0% |
| **John The Ripper - Blowfish (Real C/S)** | 5999 | 6066 | 5989 |
| Normalized | 98.9% | 100% | 98.73% |
| Standard Deviation | 0.3% | 0.2% | 0.4% |

# GCC 4.8 Snapshot Intel Ivy Bridge

| | | | |
|---|---|---|---|
| **TTSIOD 3D Renderer - P.R.W.S.S.M (FPS)** | 130.25 | **127.38** | **131.24** |
| **Normalized** | 99.25% | 97.06% | 100% |
| **Standard Deviation** | 0.8% | 1% | 1% |
| **VP8 libvpx Encoding - vpxenc (FPS)** | 27.11 | **27.06** | **27.30** |
| **Normalized** | 99.3% | 99.12% | 100% |
| **Standard Deviation** | 1.6% | 1.9% | 1.1% |
| **x264 - H.2.V.E (FPS)** | 149.63 | **149.40** | **150.41** |
| **Normalized** | 99.48% | 99.33% | 100% |
| **Standard Deviation** | 1.6% | 0.8% | 1.1% |
| **GraphicsMagick - Blur (Iterations/min)** | 144 | 144 | 144 |
| **Standard Deviation** | 0% | 0% | 0.4% |
| **GraphicsMagick - Sharpen (Iterations/min)** | 96 | 96 | 96 |
| **Standard Deviation** | 0% | 0% | 0% |
| **GraphicsMagick - Resizing (Iterations/min)** | **174** | **174** | **173** |
| **Normalized** | 100% | 100% | 99.43% |
| **Standard Deviation** | 0.3% | 0% | 0.3% |
| **GraphicsMagick - HWB Color Space (Iterations/min)** | **205** | **205** | **203** |
| **Normalized** | 100% | 100% | 99.02% |
| **Standard Deviation** | 0.3% | 0% | 0% |
| **GraphicsMagick - L.A.T (Iterations/min)** | 83 | 83 | 83 |
| **Standard Deviation** | 0% | 0% | 0% |
| **Himeno Benchmark - P.P.S (MFLOPS)** | **1682** | 1680 | **1619** |
| **Normalized** | 100% | 99.9% | 96.27% |
| **Standard Deviation** | 0.2% | 0.2% | 0.1% |
| **7-Zip Compression - C.S.T (MIPS)** | 20885 | **21133** | **20826** |
| **Normalized** | 98.83% | 100% | 98.55% |
| **Standard Deviation** | 0.3% | 1.2% | 2.1% |
| **C-Ray - Total Time (sec)** | 32.94 | **32.59** | **42.04** |
| **Normalized** | 98.94% | 100% | 77.52% |
| **Standard Deviation** | 0.5% | 0.4% | 0.2% |
| **Parallel BZIP2 Compression - 2.F.C (sec)** | 7.85 | **8.07** | **7.72** |
| **Normalized** | 98.34% | 95.66% | 100% |
| **Standard Deviation** | 4.6% | 2.5% | 1.8% |
| **Smallpt - G.I.R.1.S (sec)** | 25 | 25 | 25 |
| **Standard Deviation** | 0% | 0% | 2.3% |
| **Crafty - Elapsed Time (sec)** | **72.76** | **71.44** | 72.35 |
| **Normalized** | 98.19% | 100% | 98.74% |
| **Standard Deviation** | 0.3% | 0.2% | 0.1% |
| **FLAC Audio Encoding - WAV To FLAC (sec)** | **4.76** | 4.79 | **5.22** |
| **Normalized** | 100% | 99.37% | 91.19% |
| **Standard Deviation** | 0.4% | 0.3% | 0.3% |
| **Apache Benchmark - S.W.P.S (Reqs/sec)** | **32549** | **33351** | 33267 |
| **Normalized** | 97.59% | 100% | 99.75% |
| **Standard Deviation** | 1.8% | 0.6% | 0.4% |

## NAS Parallel Benchmarks 3.3

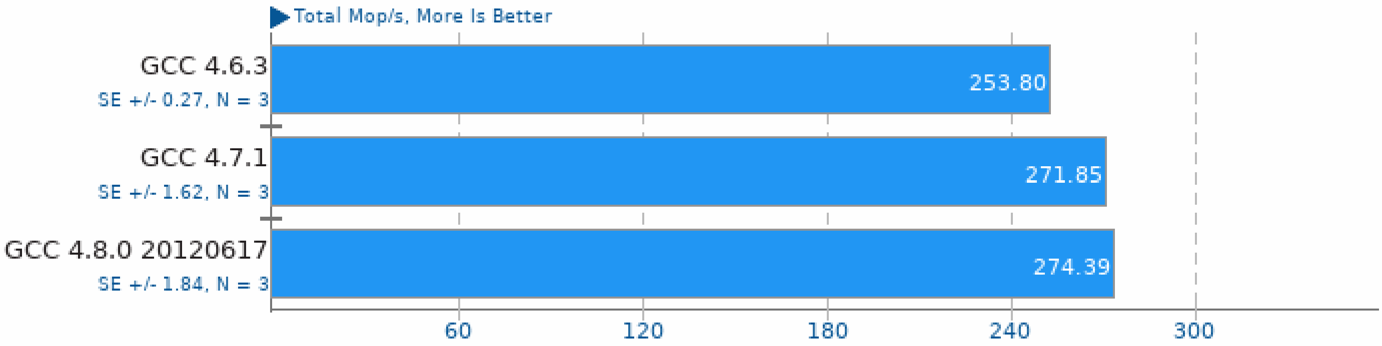
Test / Class: CG.B




1. (F9X) gfortran options: -fopenmp

## NAS Parallel Benchmarks 3.3

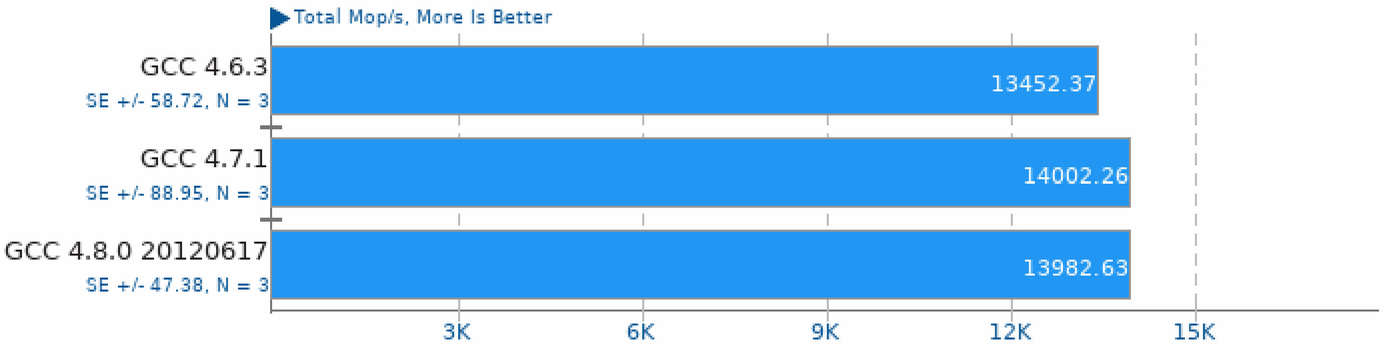
Test / Class: EP.B




1. (F9X) gfortran options: -fopenmp

## NAS Parallel Benchmarks 3.3

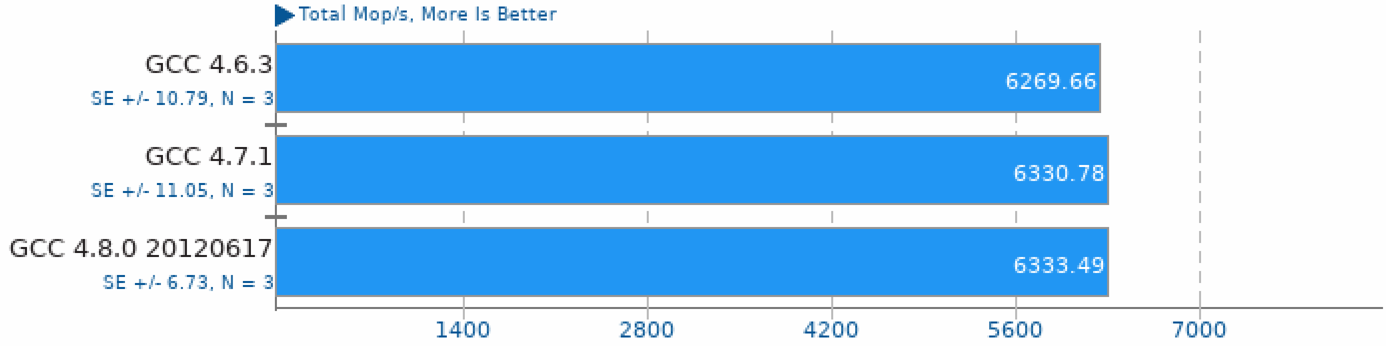
Test / Class: LU.A




1. (F9X) gfortran options: -fopenmp

## NAS Parallel Benchmarks 3.3

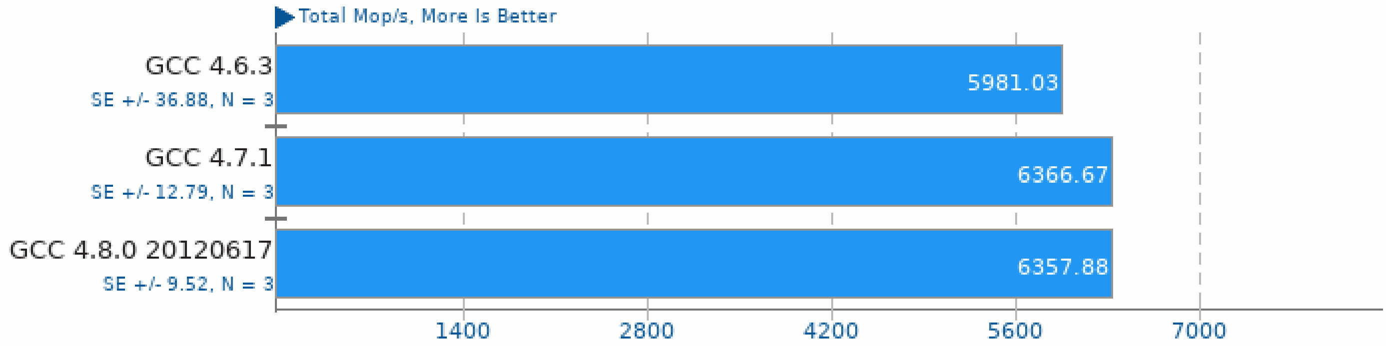
Test / Class: MG.B




1. (F9X) gfortran options: -fopenmp

## NAS Parallel Benchmarks 3.3

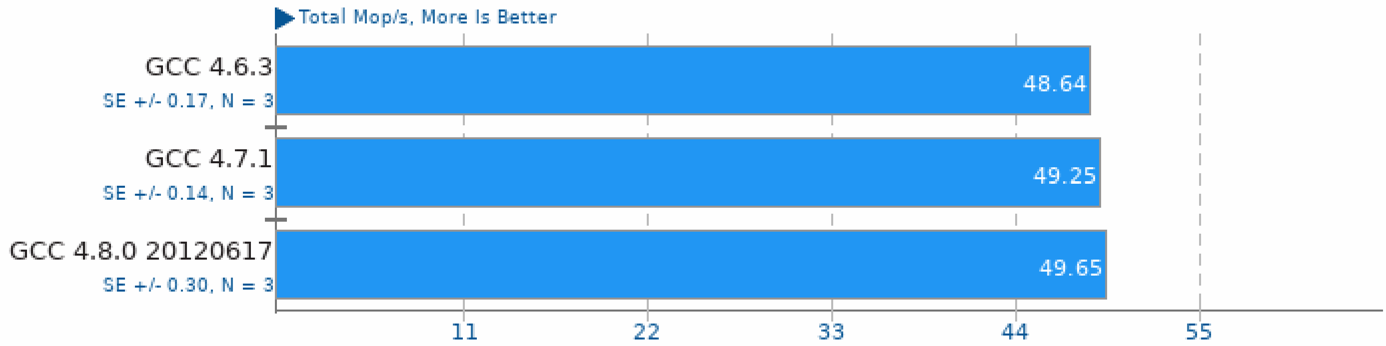
Test / Class: SP.A




1. (F9X) gfortran options: -fopenmp

## NAS Parallel Benchmarks 3.3

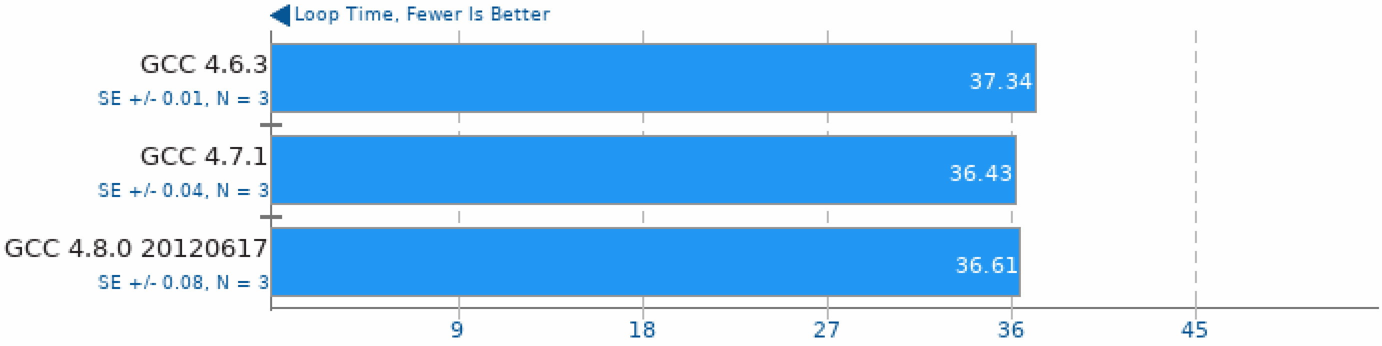
Test / Class: UA.A




1. (F9X) gfortran options: -fopenmp

## LAMMPS Molecular Dynamics Simulator 1.0

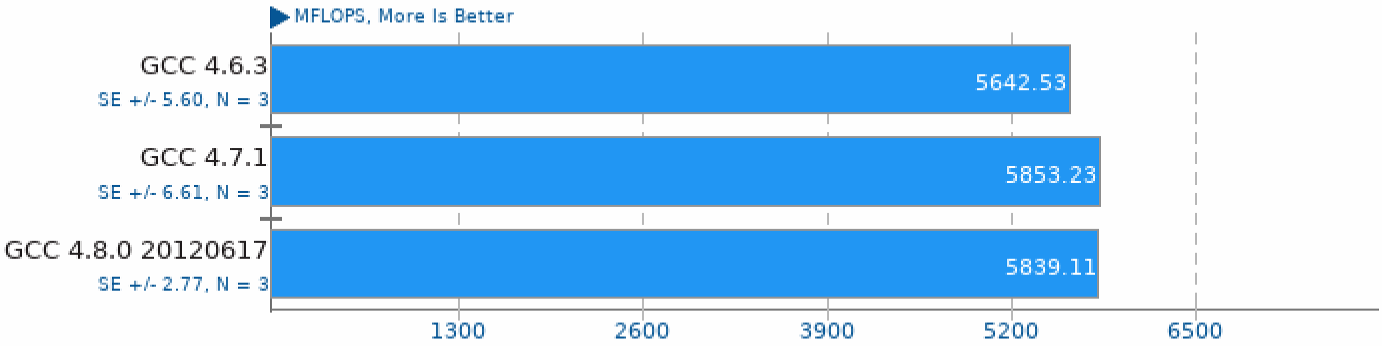
Test: Rhodopsin Protein




1. (CXX) g++ options: -lfftw -lmpich

## FFTE 5.0

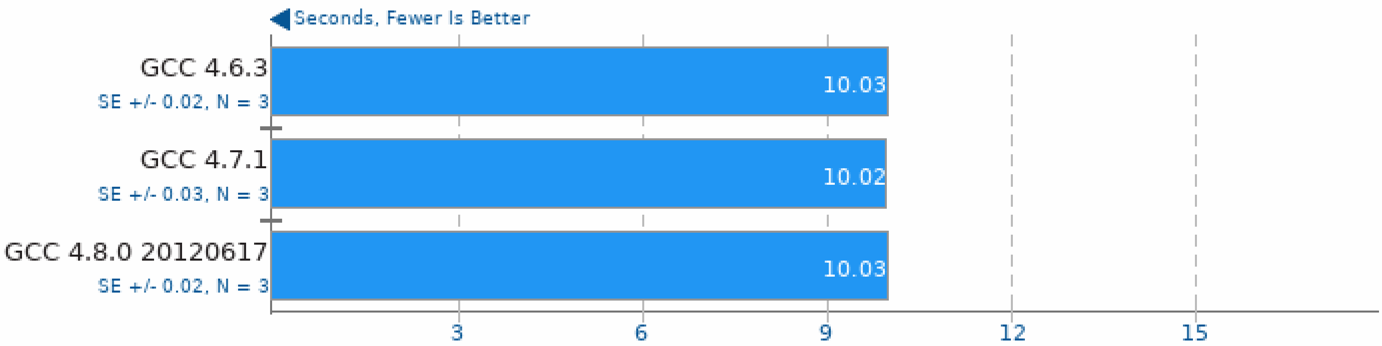
Test: N=64, 1D Complex FFT Routine




1. (F9X) gfortran options: -O3 -fomit-frame-pointer -fopenmp -lmpichf90 -lmpich -lopa -lmpl -lrt -lcr -lpthread

## Timed HMMer Search 2.3.2

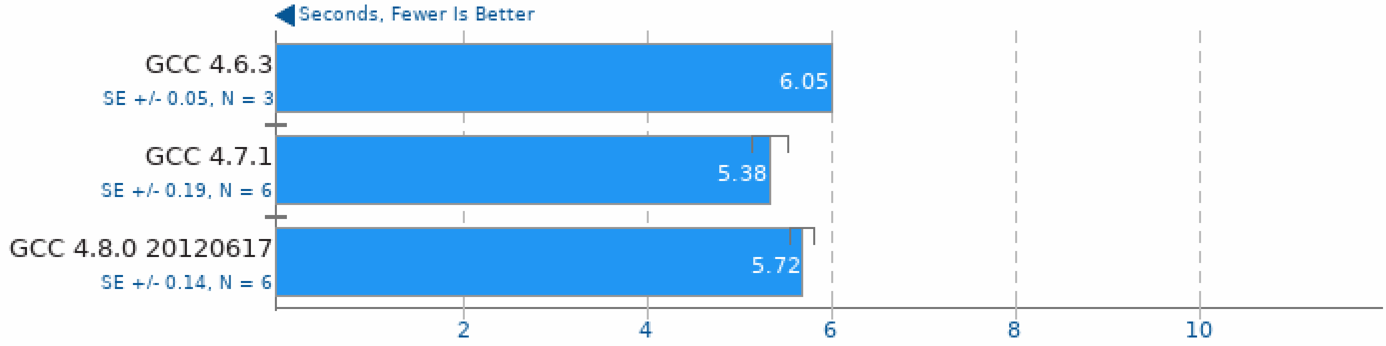
Pfam Database Search




1. (CC) gcc options: -O3 -march=native -pthread -lhmmer -lsquid -lm

## Timed MAFFT Alignment 6.864

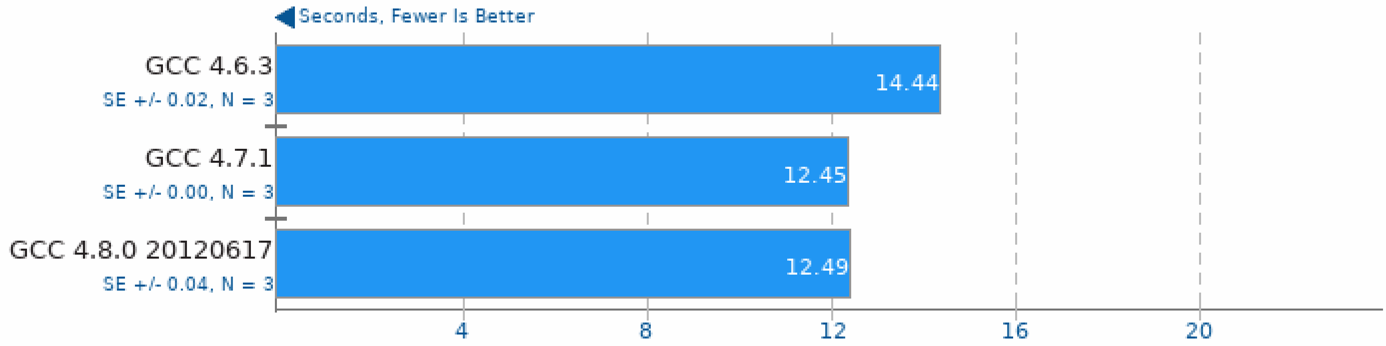
Multiple Sequence Alignment




1. (CC) gcc options: -O3 -lm -lpthread

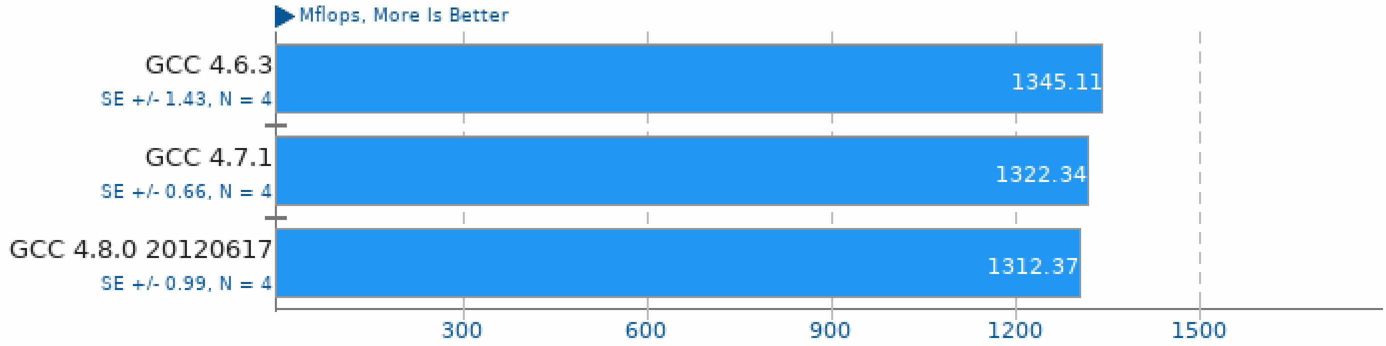
## Timed MrBayes Analysis 3.1.2

Primate Phylogeny Analysis

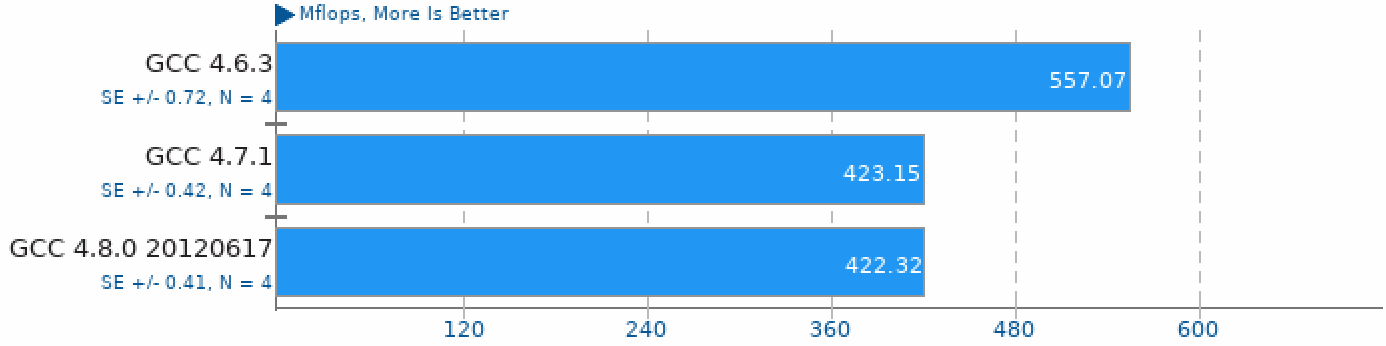



## SciMark 2.0

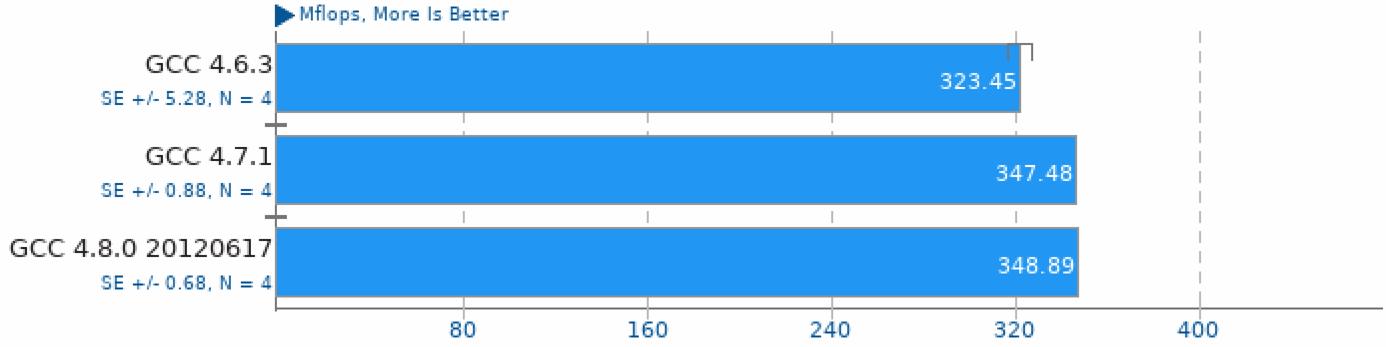
Computational Test: Composite



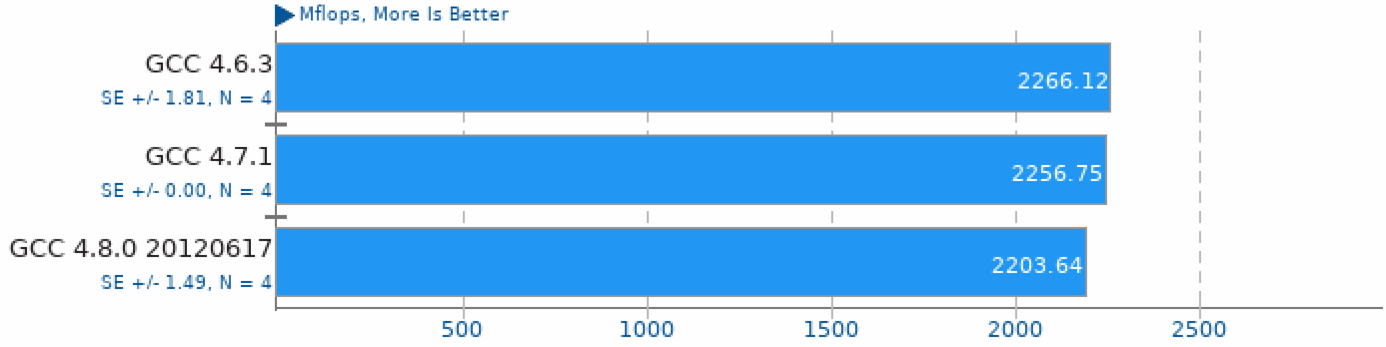
## SciMark 2.0
Computational Test: Monte Carlo



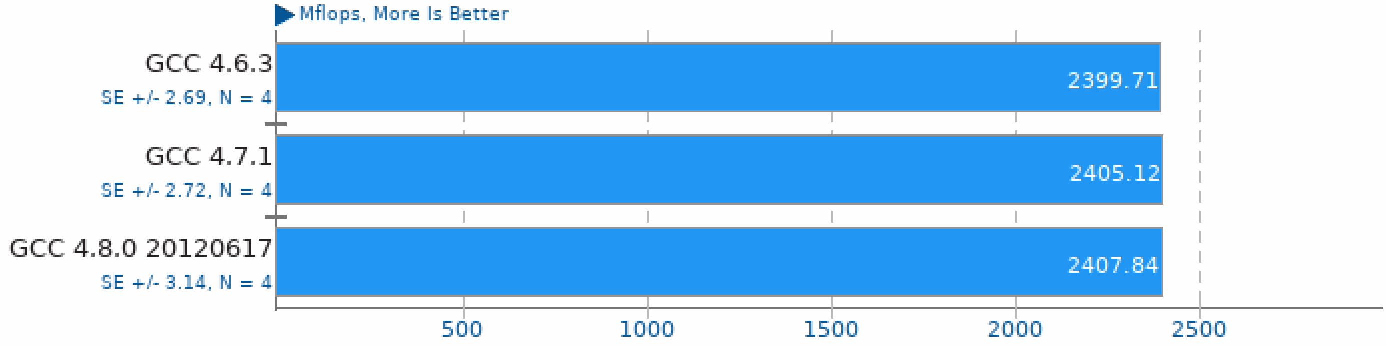

## SciMark 2.0
Computational Test: Fast Fourier Transform



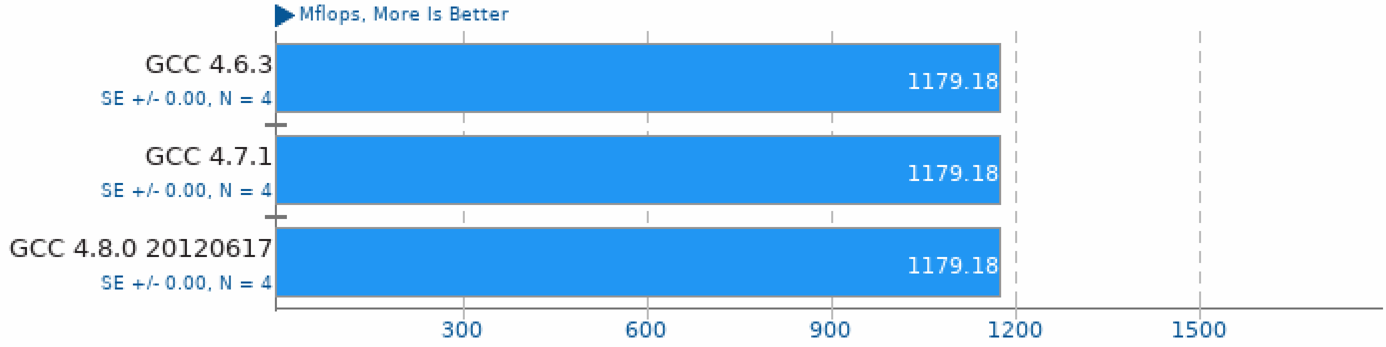

## SciMark 2.0
Computational Test: Sparse Matrix Multiply



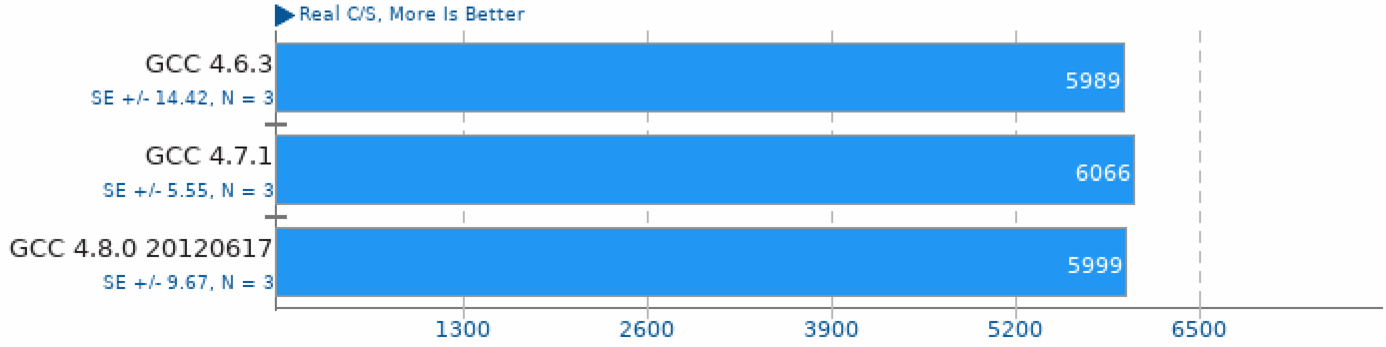
## SciMark 2.0
Computational Test: Dense LU Matrix Factorization




## SciMark 2.0
Computational Test: Jacobi Successive Over-Relaxation



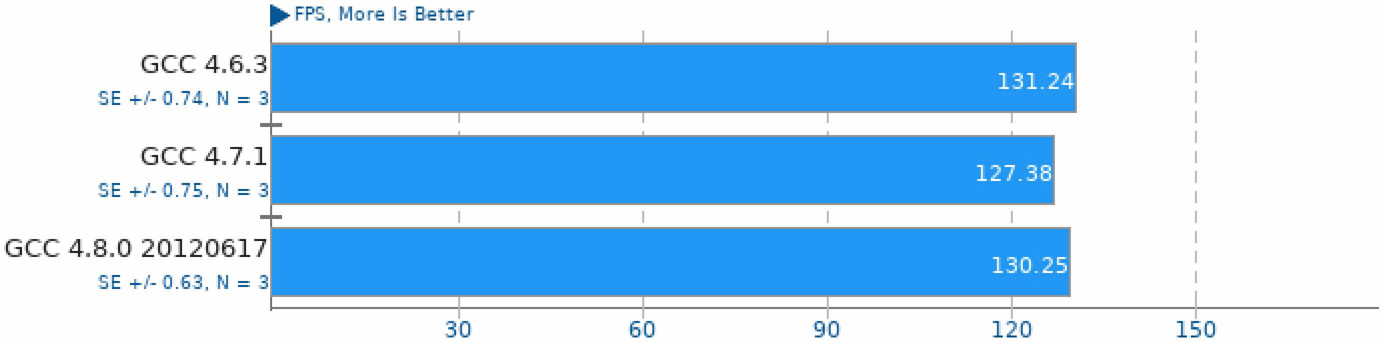

## John The Ripper 1.7.9
Test: Blowfish




1. (CC) gcc options: -fopenmp -lcrypt

## TTSIOD 3D Renderer 2.2w

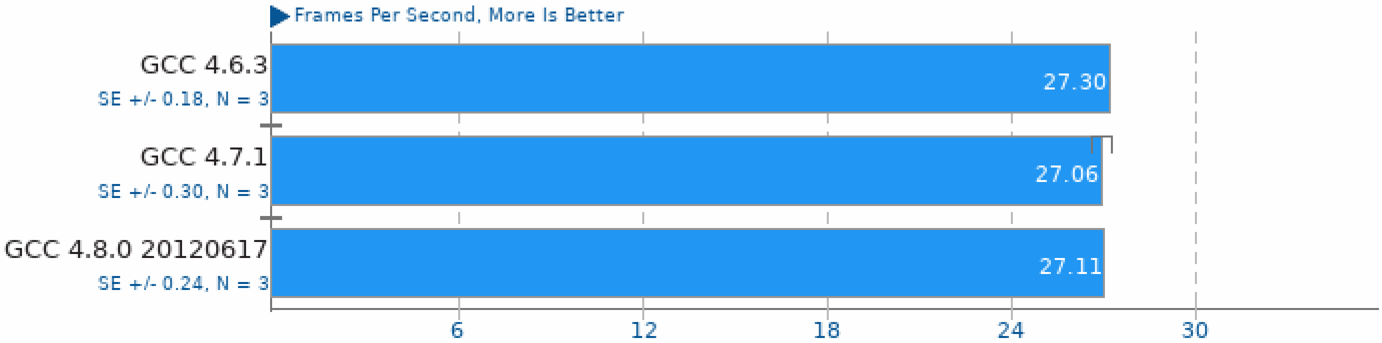
Phong Rendering With Soft-Shadow Mapping




1. (CXX) g++ options: -O3 -march=native -fomit-frame-pointer -ffast-math -mtune=native -flto -msse -mrecip -mfpmath=sse -msse2 -mssse3 -lSDL -lstd

## VP8 libvpx Encoding 0.9.7-p1

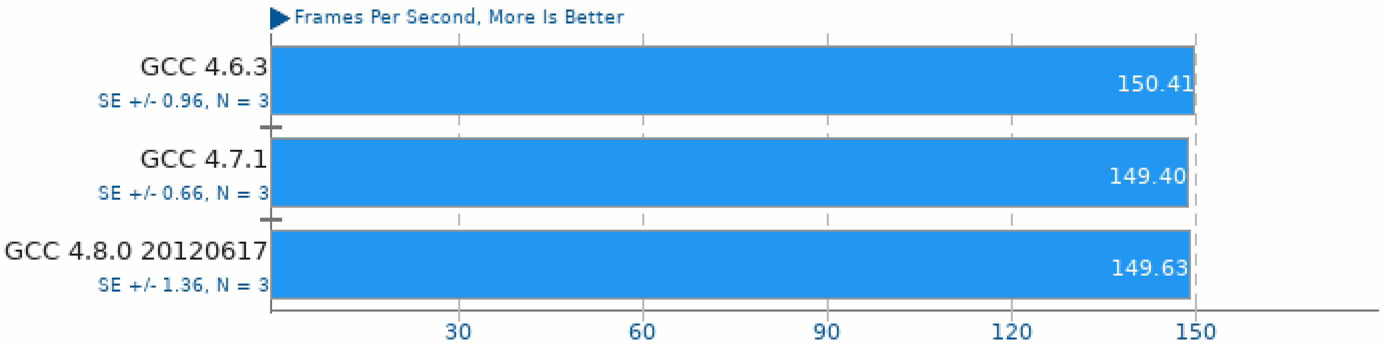
vpxenc



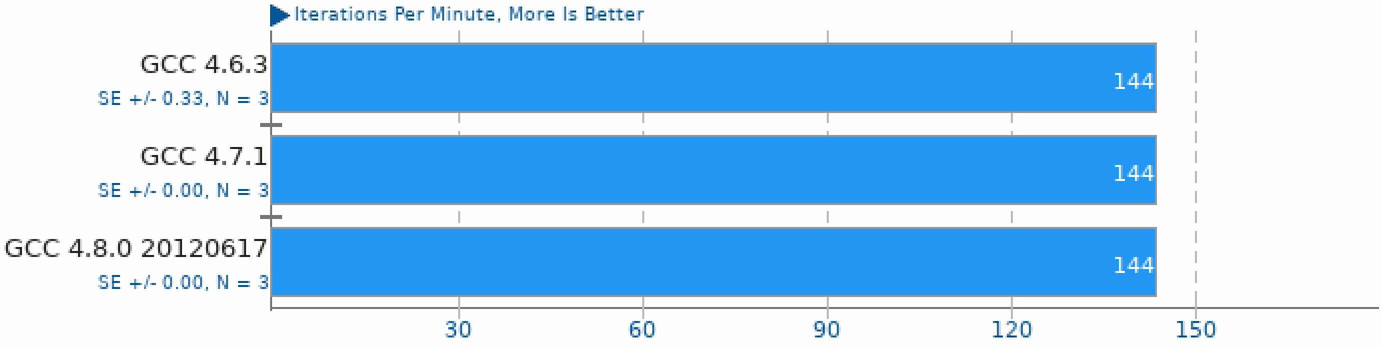

1. (CC) gcc options: -m64 -lvpx -lm -lpthread

## x264 2011-12-06

H.264 Video Encoding

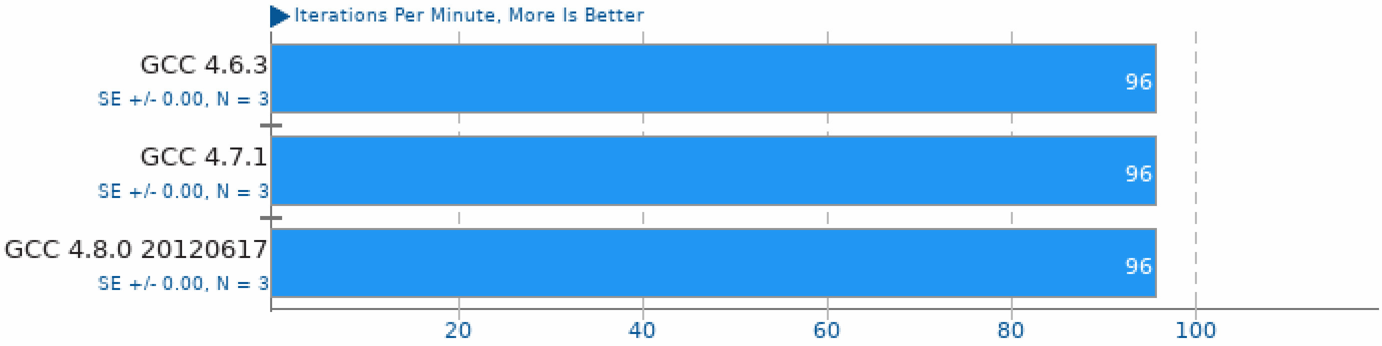


## GraphicsMagick 1.3.12
Operation: Blur



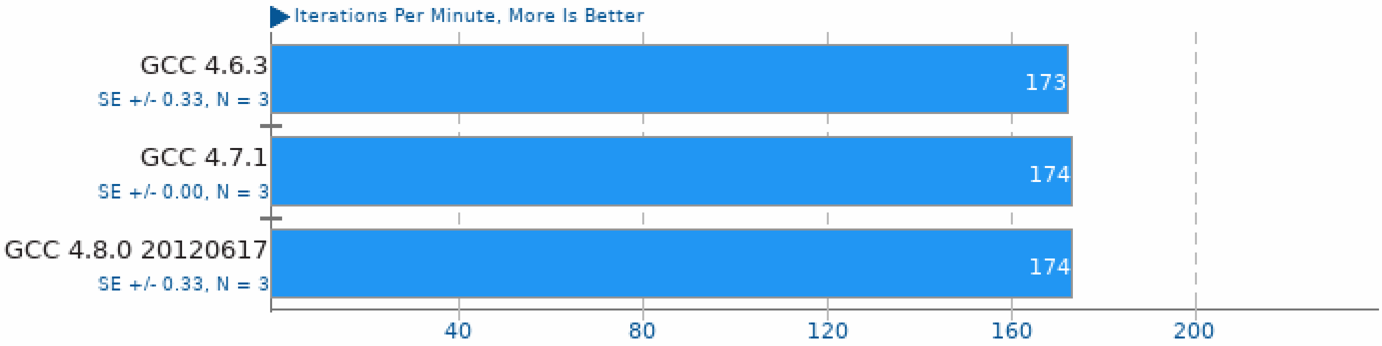

1. (CC) gcc options: -std=gnu99 -fopenmp -O3 -march=native -pthread -ltiff -lfreetype -lXext -lSM -lICE -lX11 -lz -lm -lrt -lpthread

## GraphicsMagick 1.3.12
Operation: Sharpen




1. (CC) gcc options: -std=gnu99 -fopenmp -O3 -march=native -pthread -ltiff -lfreetype -lXext -lSM -lICE -lX11 -lz -lm -lrt -lpthread

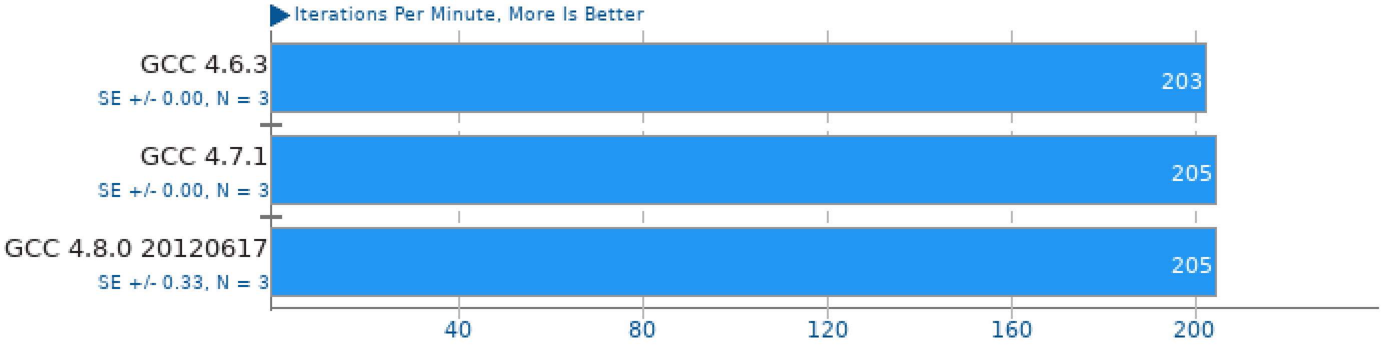
## GraphicsMagick 1.3.12
Operation: Resizing




1. (CC) gcc options: -std=gnu99 -fopenmp -O3 -march=native -pthread -ltiff -lfreetype -lXext -lSM -lICE -lX11 -lz -lm -lrt -lpthread

## GraphicsMagick 1.3.12

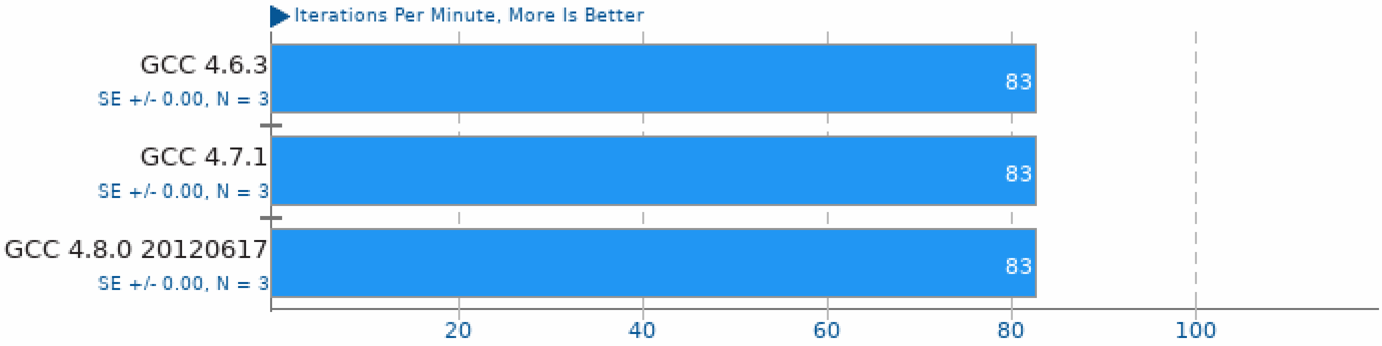
Operation: HWB Color Space




1. (CC) gcc options: -std=gnu99 -fopenmp -O3 -march=native -pthread -ltiff -lfreetype -lXext -lSM -lICE -lX11 -lz -lm -lrt -lpthread

## GraphicsMagick 1.3.12

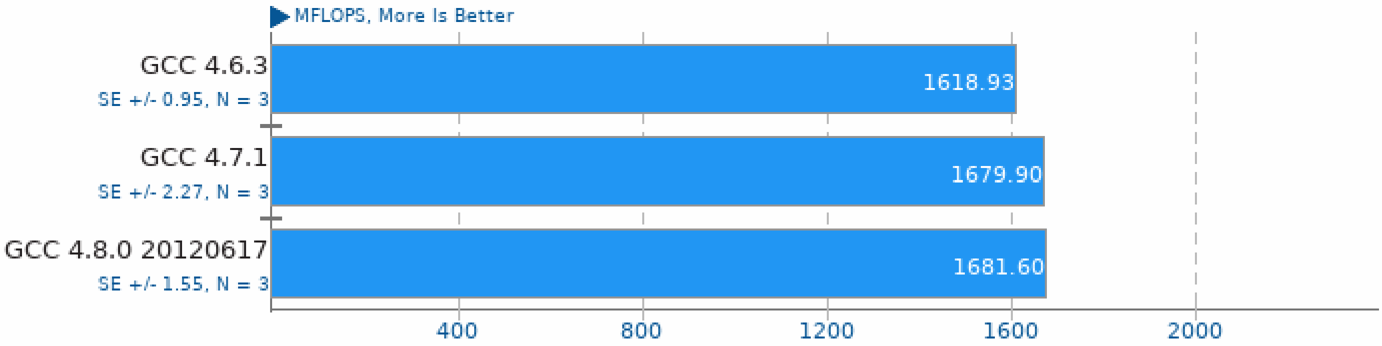
Operation: Local Adaptive Thresholding




1. (CC) gcc options: -std=gnu99 -fopenmp -O3 -march=native -pthread -ltiff -lfreetype -lXext -lSM -lICE -lX11 -lz -lm -lrt -lpthread

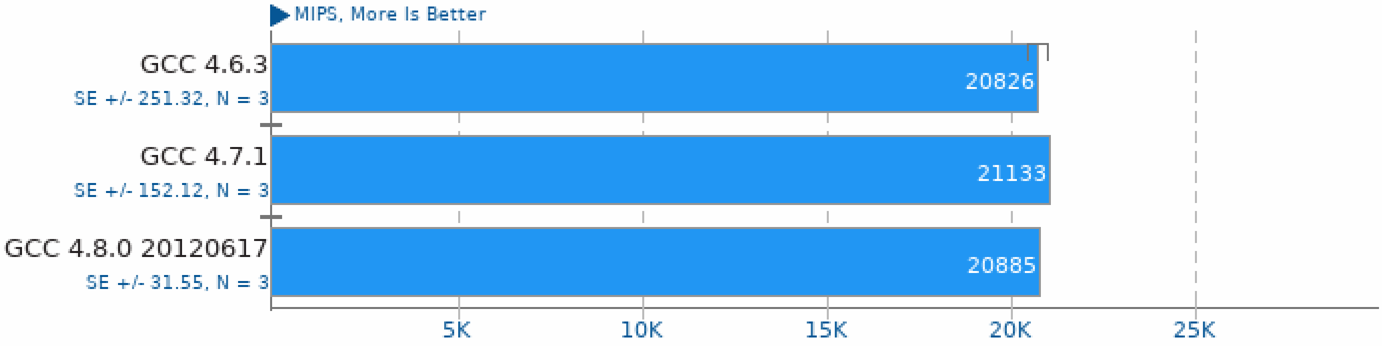
## Himeno Benchmark 3.0

Poisson Pressure Solver



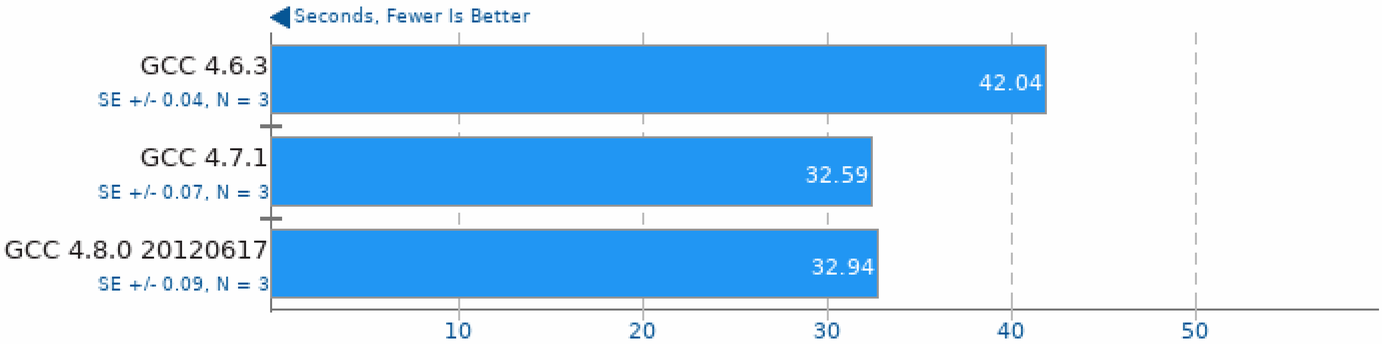

1. (CC) gcc options: -O3 -march=native

## 7-Zip Compression 9.20.1
Compress Speed Test



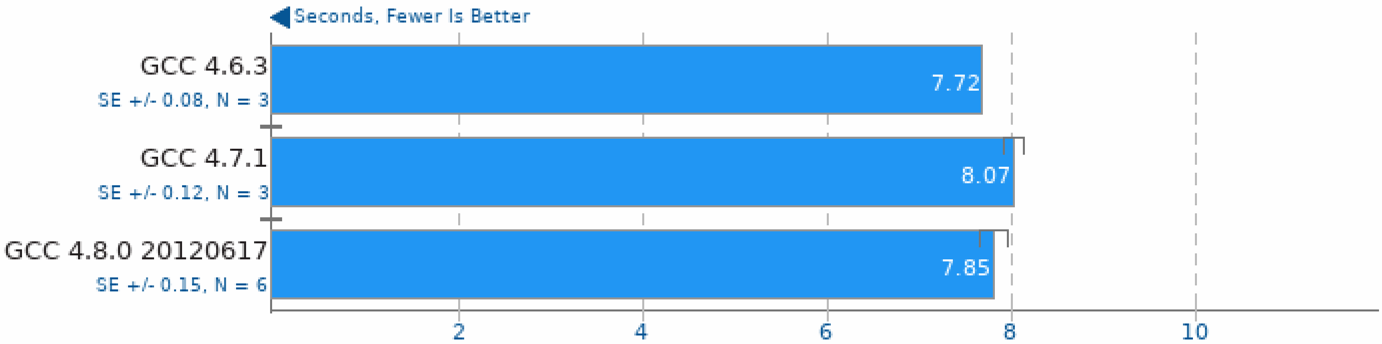

1. (CXX) g++ options: -pipe -lpthread

## C-Ray 1.1
Total Time



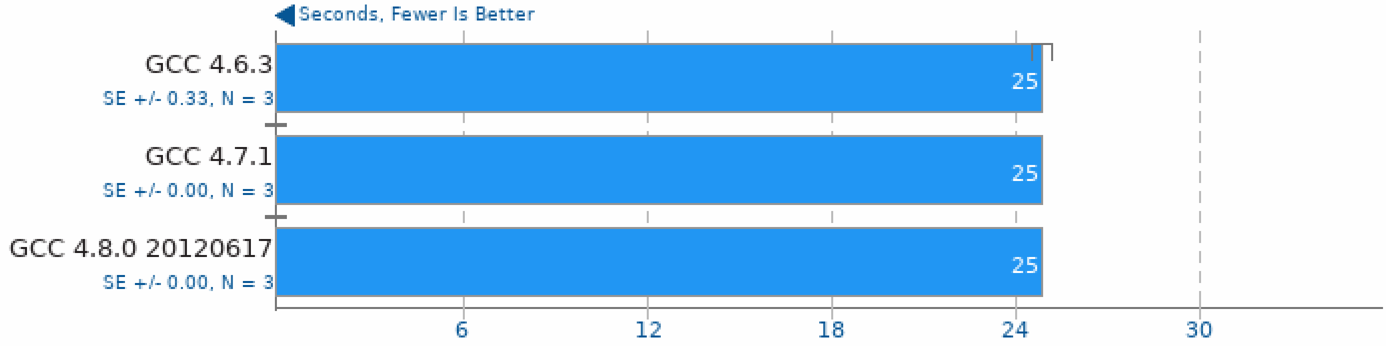

1. (CC) gcc options: -lm -lpthread -O3 -march=native

## Parallel BZIP2 Compression 1.0.5
256MB File Compression



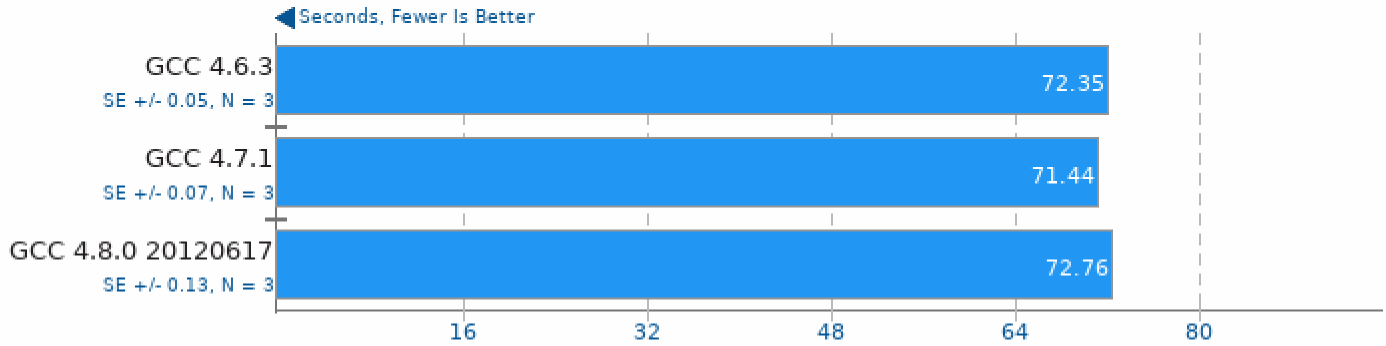

1. (CXX) g++ options: -O2 -pthread -lpthread -lbz2

## Smallpt 1.0
Global Illumination Renderer; 100 Samples



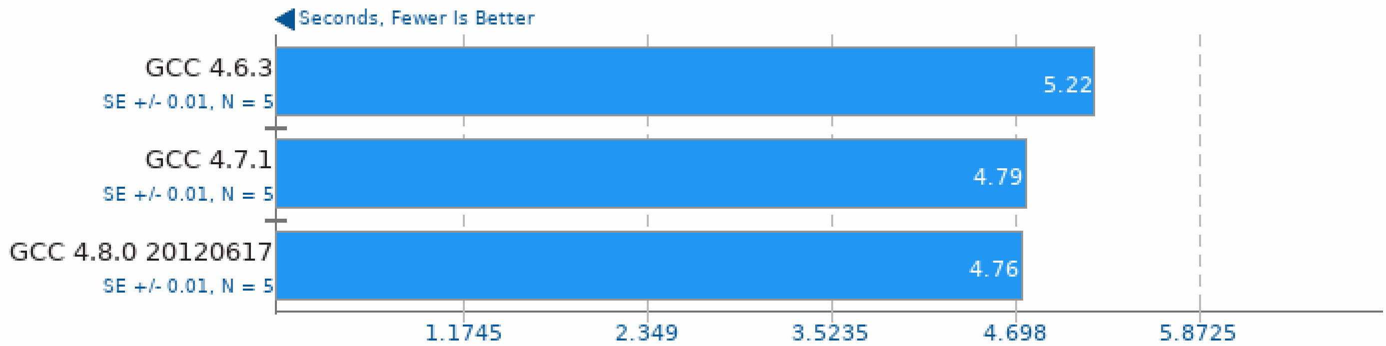

1. (CXX) g++ options: -fopenmp -O3 -march=native

## Crafty 23.4
Elapsed Time




1. (CC) gcc options: -lstdc++ -lm

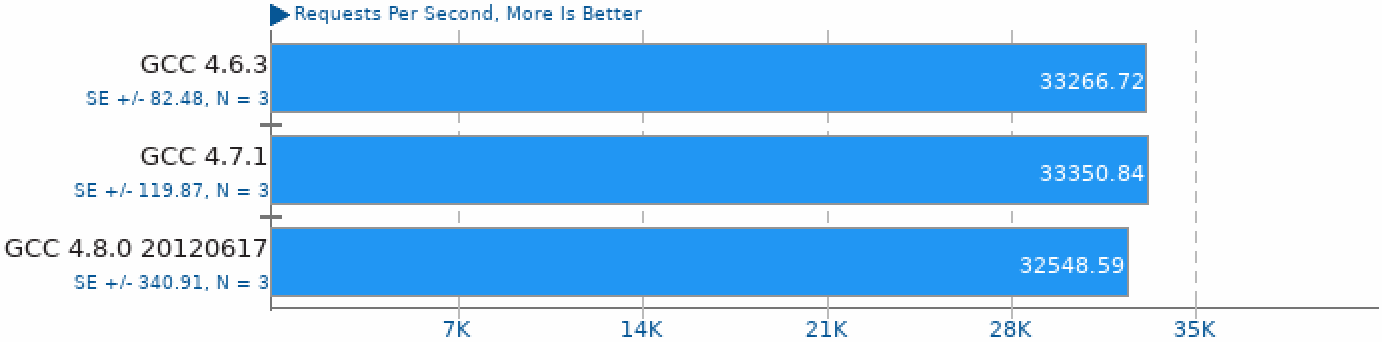
## FLAC Audio Encoding 1.2.1
WAV To FLAC




1. (CXX) g++ options: -O3 -march=native -lm

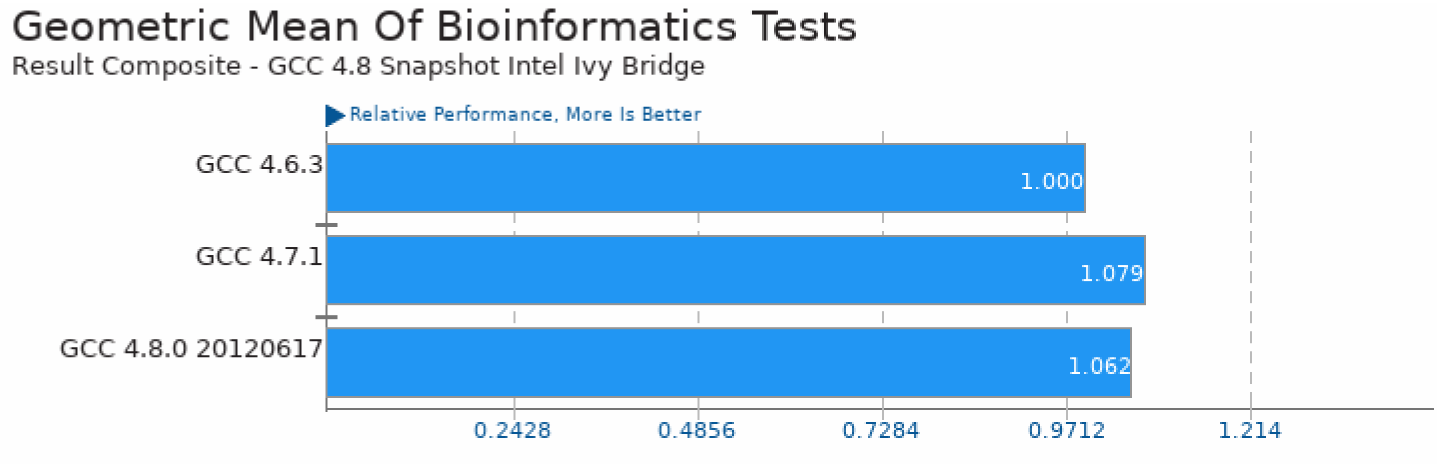
## Apache Benchmark 2.2.21

Static Web Page Serving

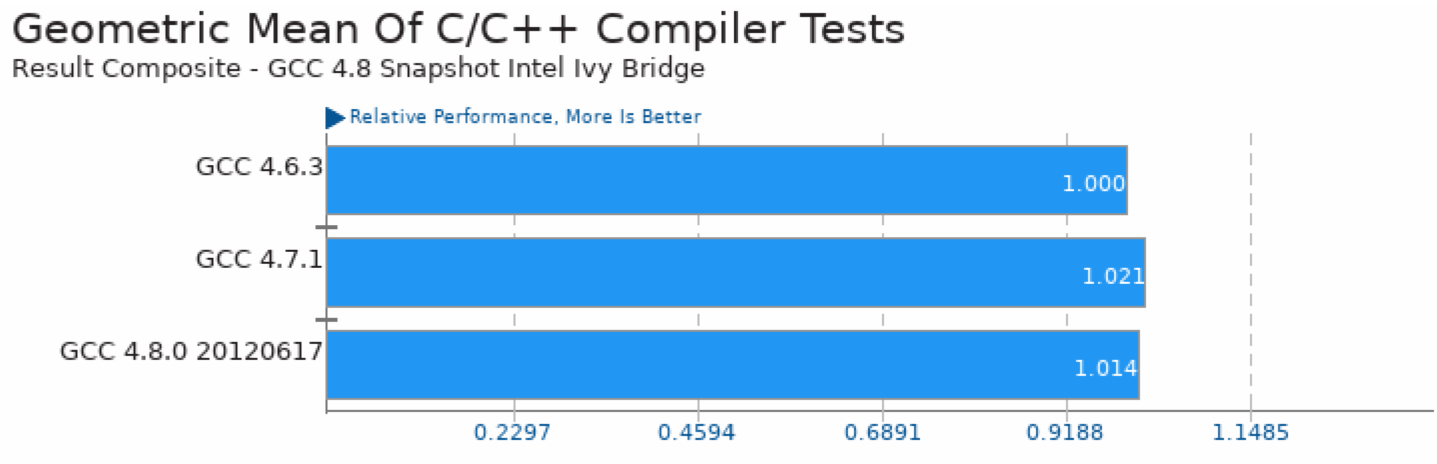



1. (CC) gcc options: -pthread -O3 -march=native -lm -lrt -lcrypt -lpthread -ldl

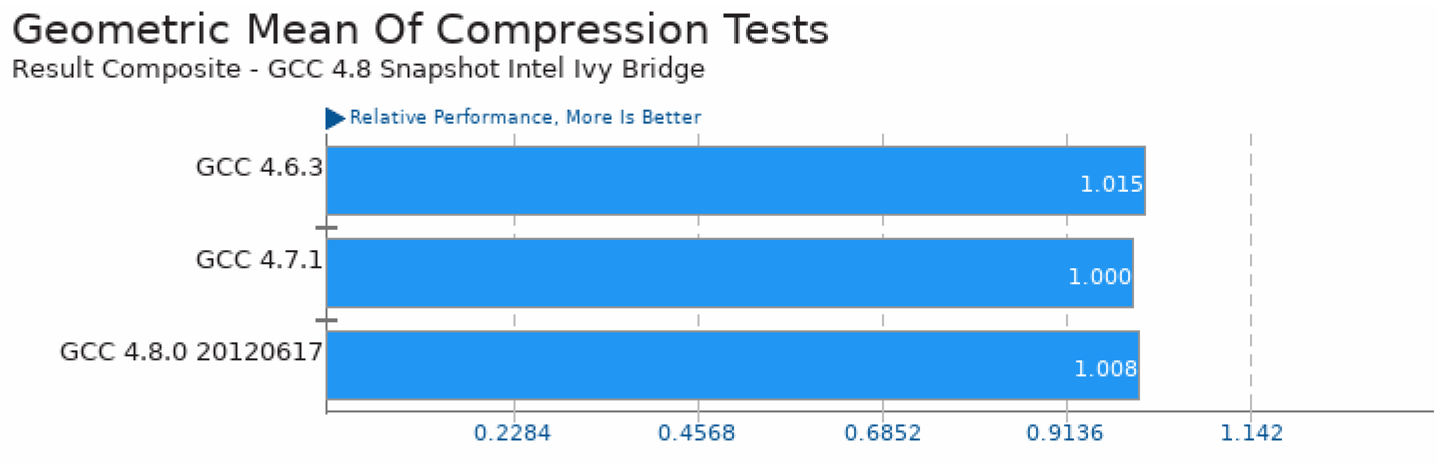
These geometric means are based upon test groupings / test suites for this result file.




Geometric mean based upon tests: pts/himeno, pts/mrbayes, pts/hmmer and pts/mafft



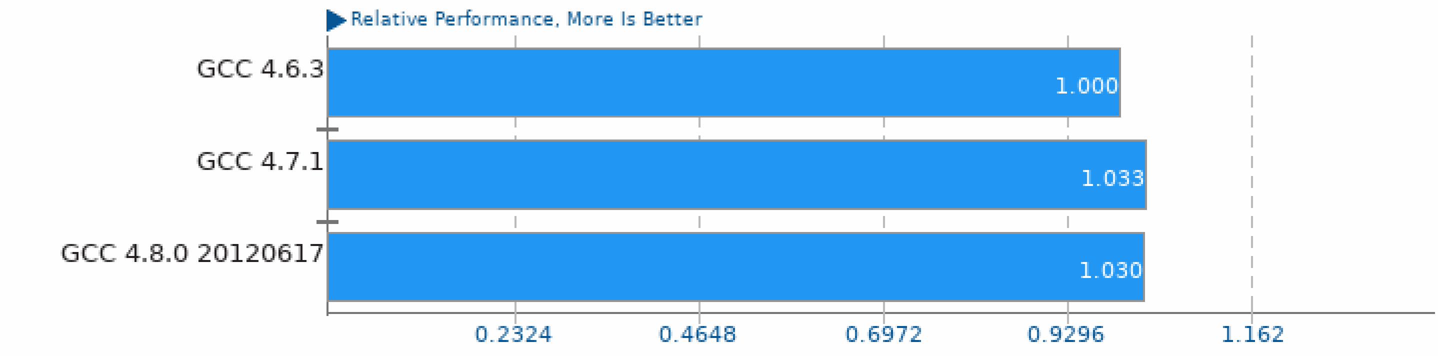

Geometric mean based upon tests: pts/mafft, pts/scimark2, pts/vpxenc, pts/graphics-magick, pts/himeno, pts/hmmer, pts/c-ray, pts/compress-7zip, pts/encode-flac, pts/apache, pts/mrbayes, pts/john-the-ripper, pts/x264 and pts/lammps




Geometric mean based upon tests: pts/compress-7zip and pts/compress-pbzip2

## Geometric Mean Of CPU Massive Tests

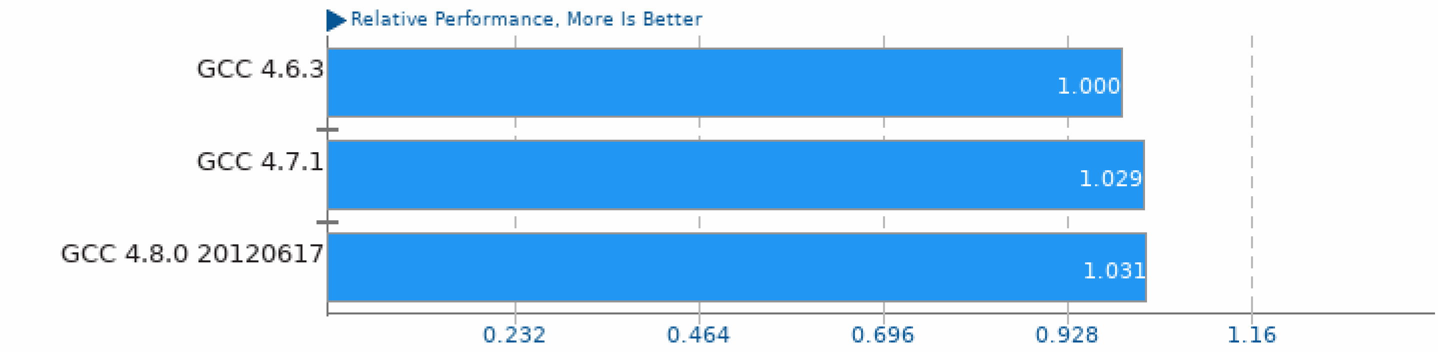
Result Composite - GCC 4.8 Snapshot Intel Ivy Bridge




Geometric mean based upon tests: pts/apache, pts/c-ray, pts/compress-7zip, pts/compress-pbzip2, pts/crafty, pts/vpxenc, pts/x264, pts/encode-flac, pts/graphics-magick, pts/himeno, pts/hmmer, pts/john-the-ripper, pts/lammps, pts/mafft, pts/mrbayes, pts/npb and pts/ttsiod-renderer

## Geometric Mean Of Creator Workloads Tests

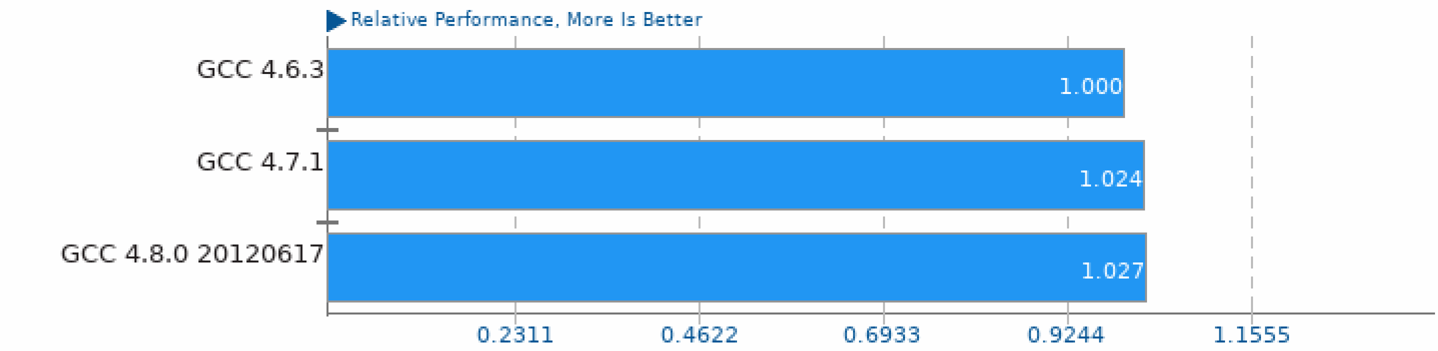
Result Composite - GCC 4.8 Snapshot Intel Ivy Bridge



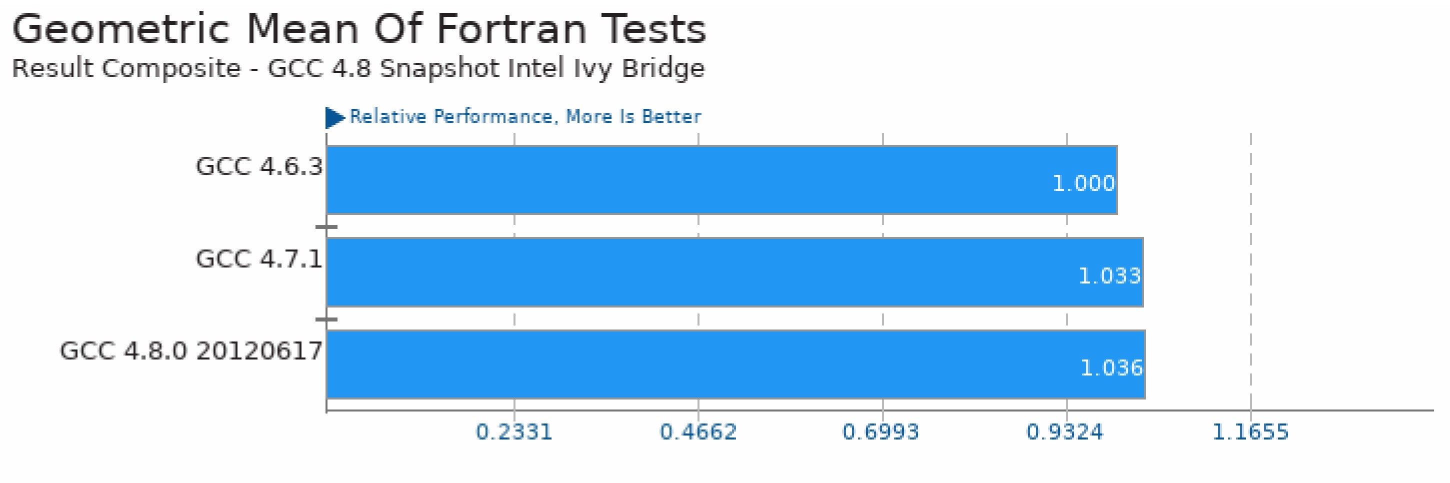

Geometric mean based upon tests: pts/c-ray, pts/smallpt, pts/ttsiod-renderer, pts/x264, pts/vpxenc, pts/encode-flac and pts/graphics-magick

## Geometric Mean Of Encoding Tests

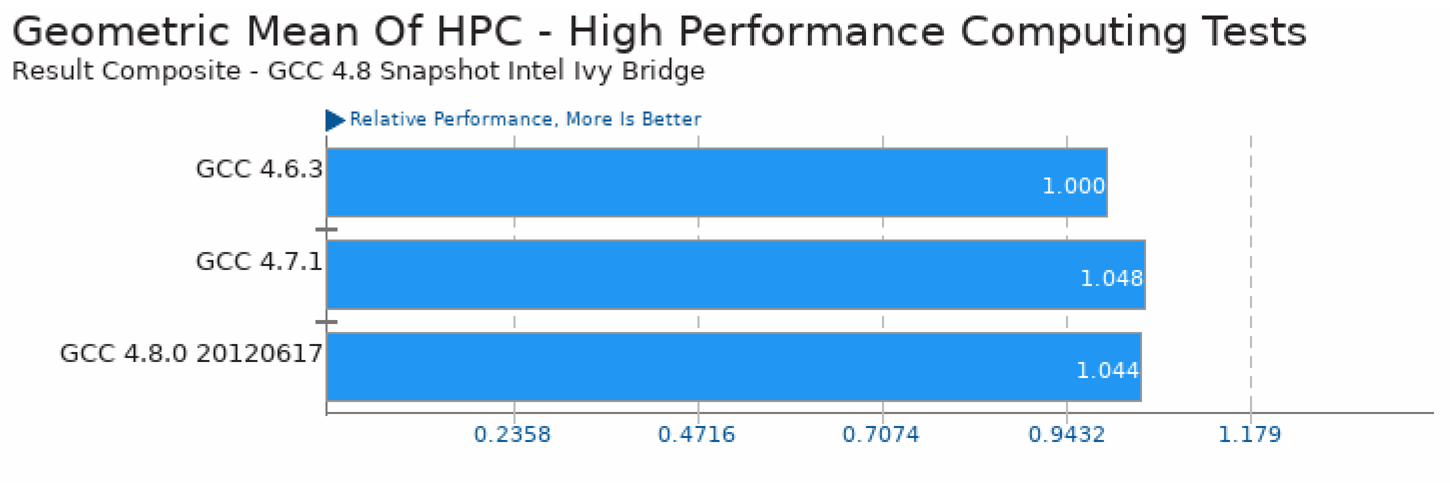
Result Composite - GCC 4.8 Snapshot Intel Ivy Bridge



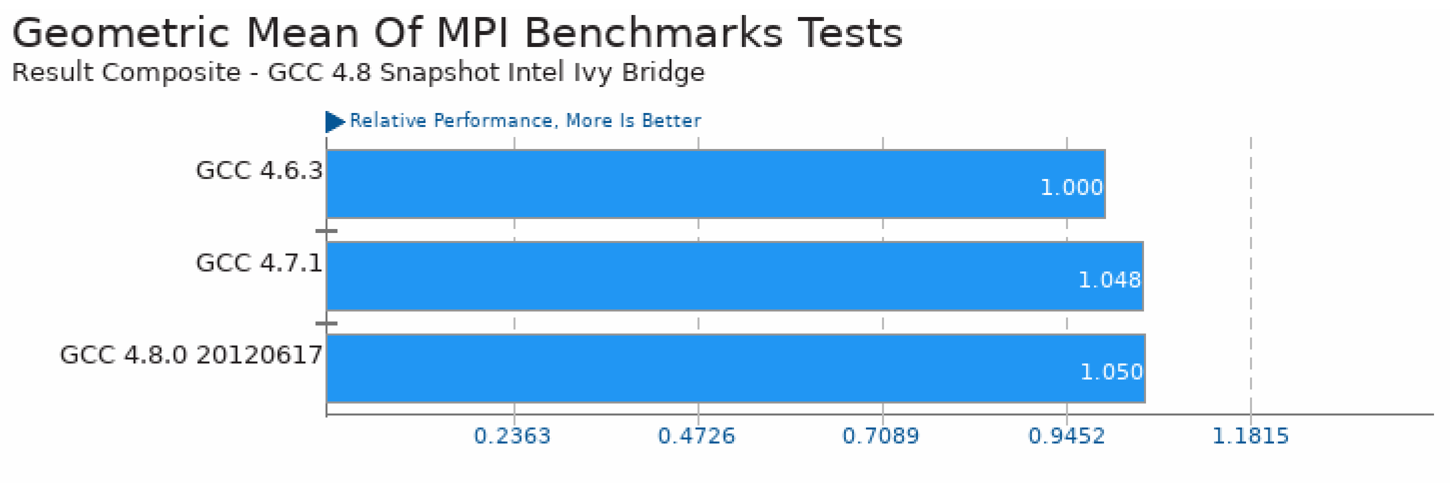

Geometric mean based upon tests: pts/encode-flac, pts/x264 and pts/vpxenc



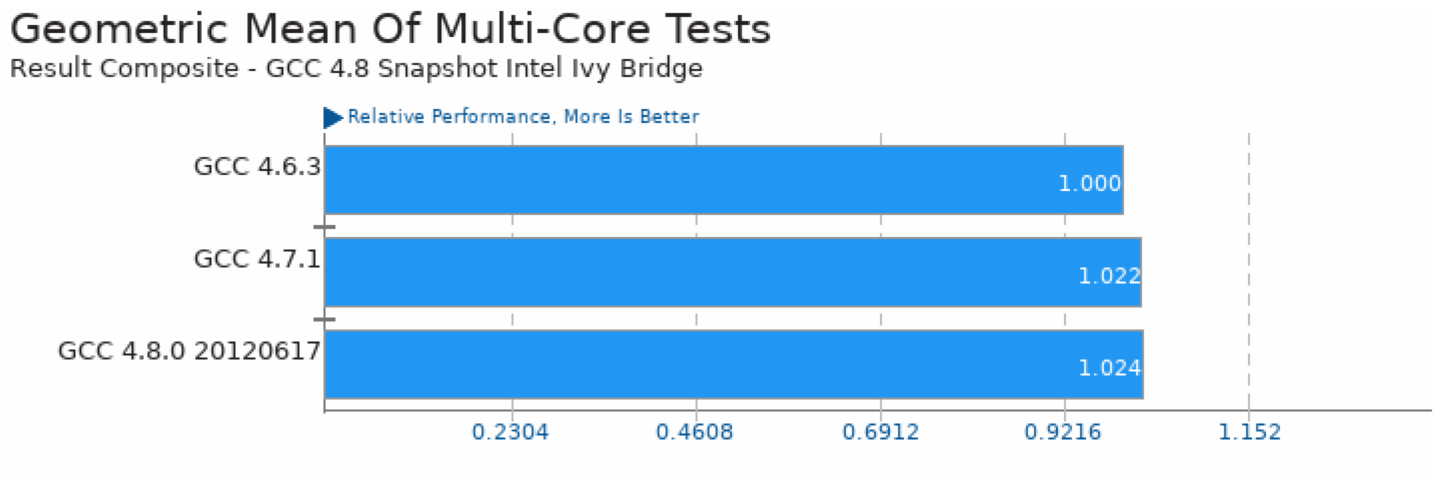

Geometric mean based upon tests: pts/npb, pts/lammps and pts/ffte



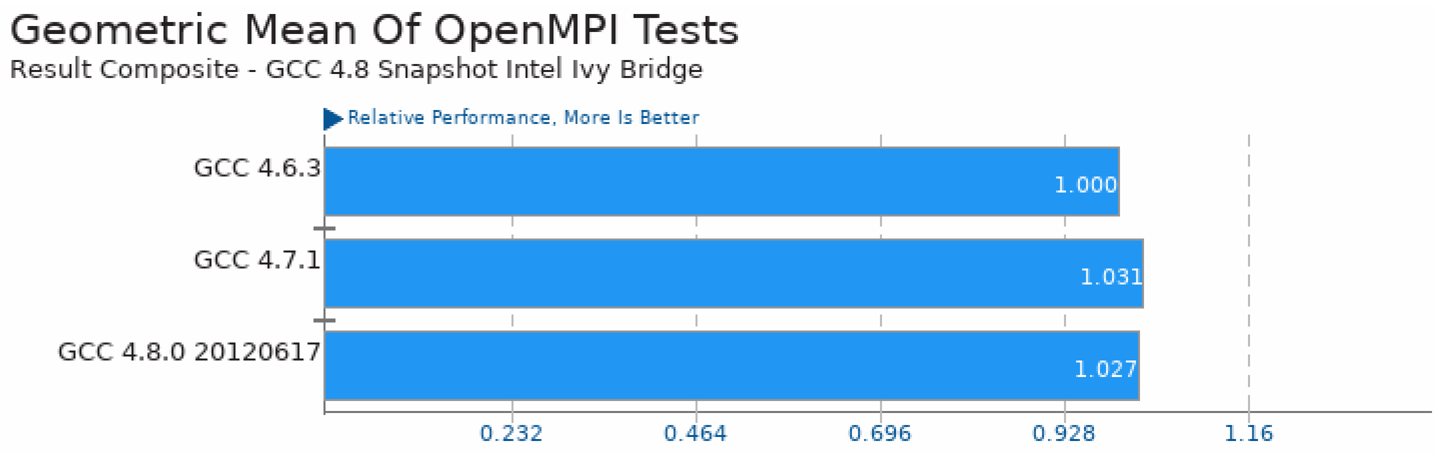

Geometric mean based upon tests: pts/npb, pts/ffte, pts/lammps, pts/himeno, pts/mrbayes, pts/hmmer and pts/mafft



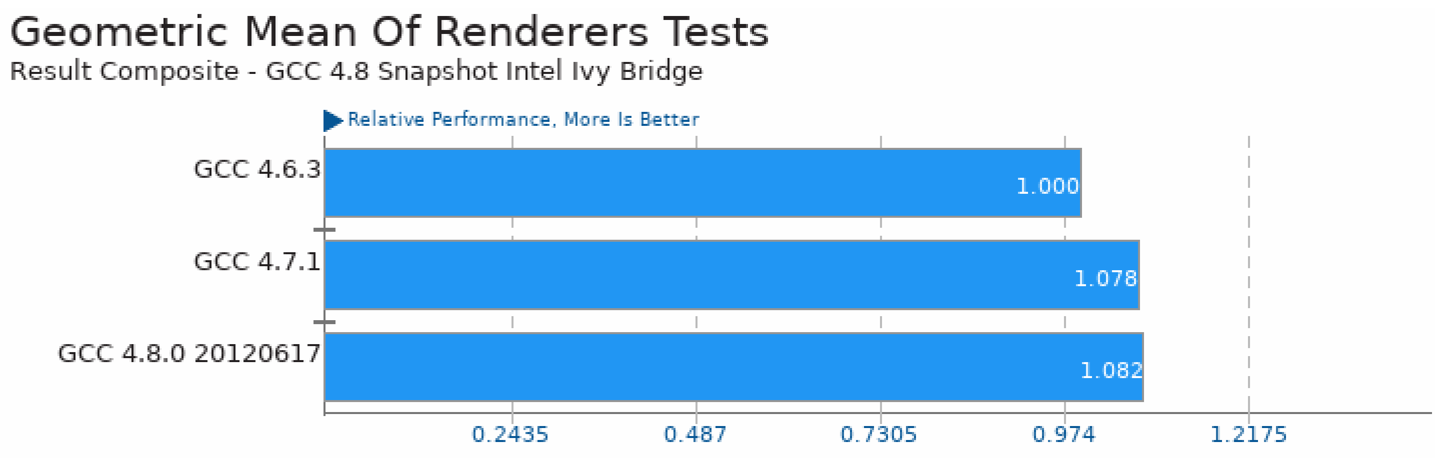

Geometric mean based upon tests: pts/lammps, pts/mrbayes and pts/npb



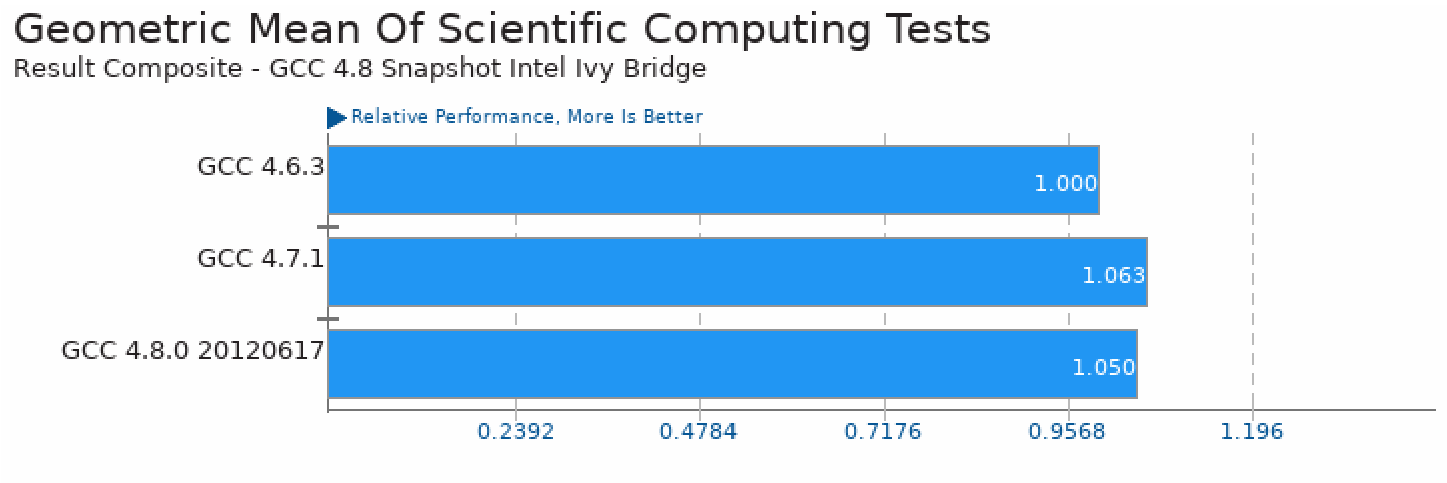

Geometric mean based upon tests: pts/c-ray, pts/x264, pts/vpxenc, pts/npb, pts/john-the-ripper, pts/smallpt, pts/graphics-magick, pts/lammps, pts/compress-7zip, pts/compress-pbzip2 and pts/ttsiod-renderer



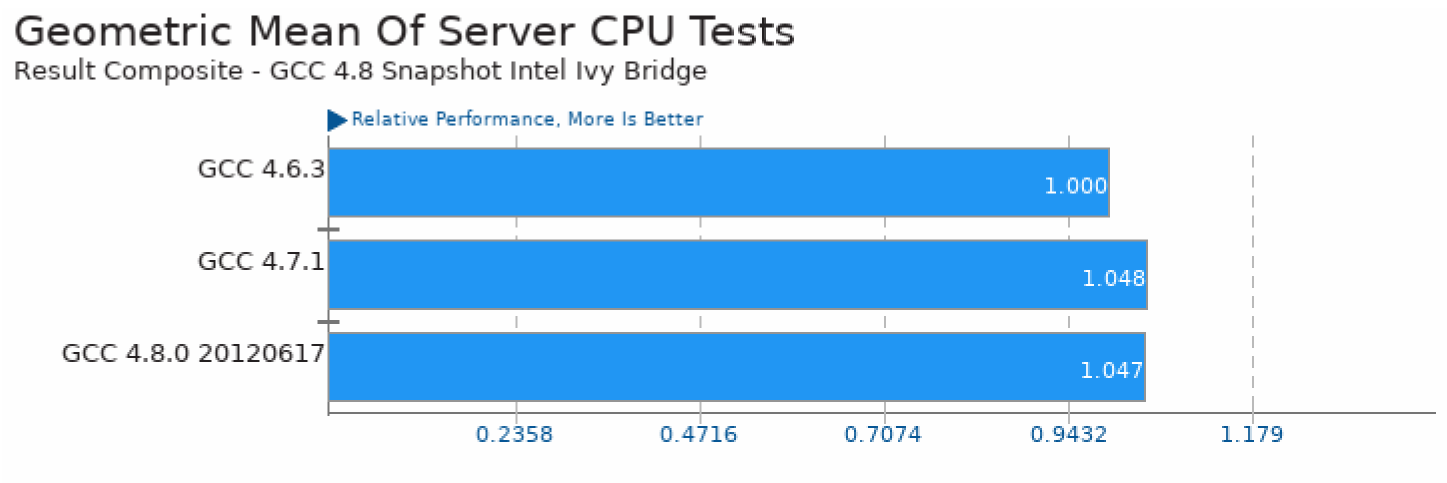

Geometric mean based upon tests: pts/lammps and pts/ffte



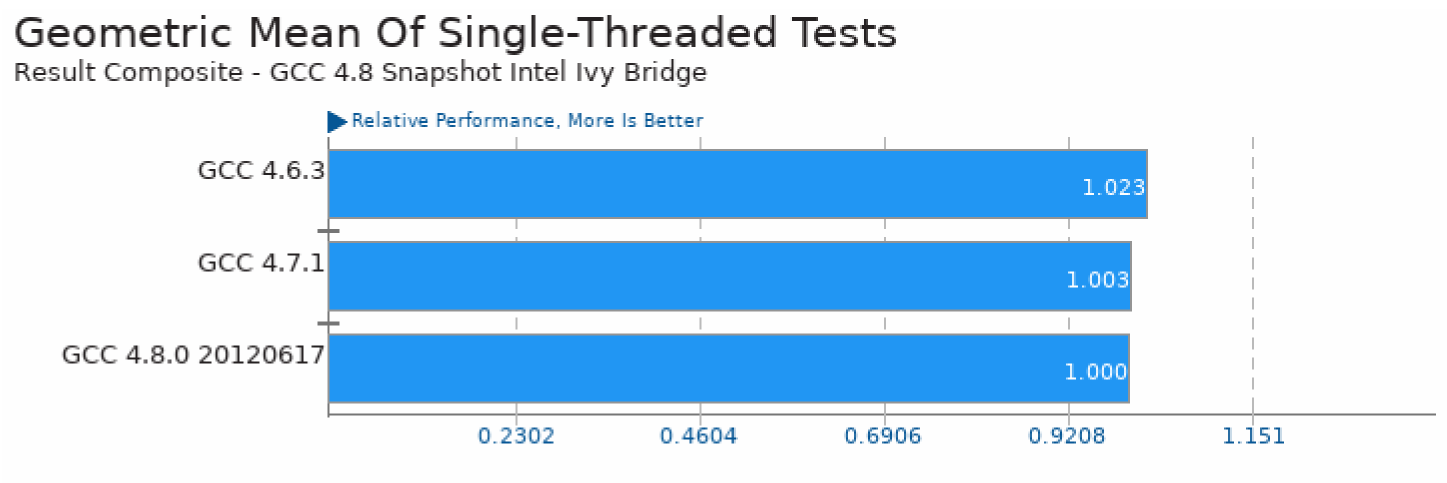

Geometric mean based upon tests: pts/c-ray, pts/smallpt and pts/ttsiod-renderer



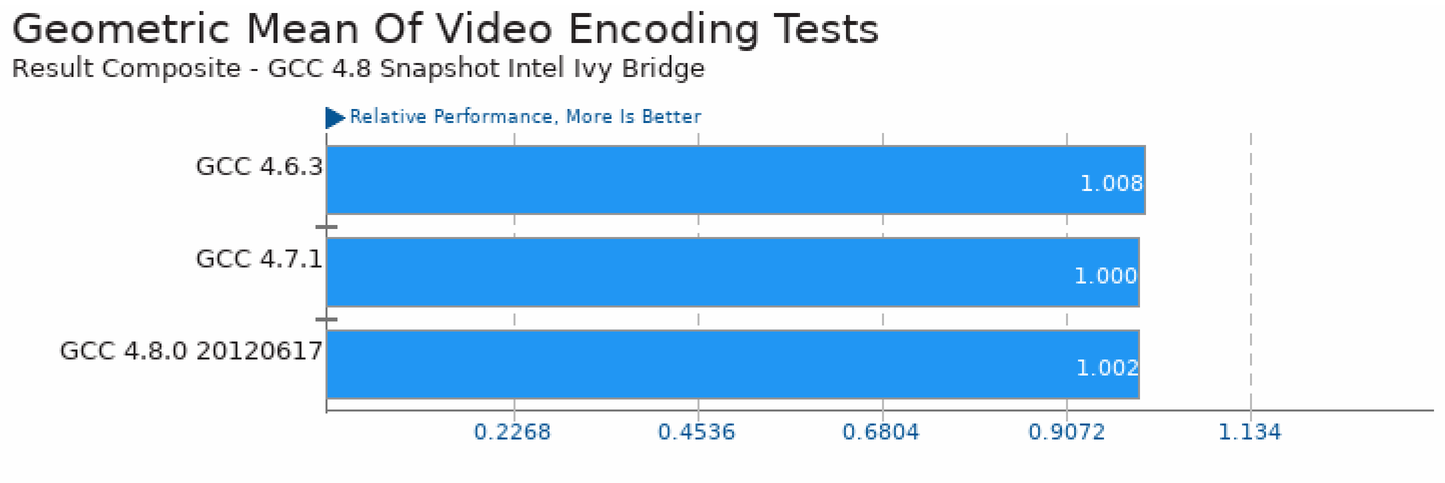

Geometric mean based upon tests: pts/ffte, pts/lammps, pts/himeno, pts/mrbayes, pts/hmmer and pts/mafft




Geometric mean based upon tests: pts/npb, pts/john-the-ripper, pts/x264, pts/himeno, pts/compress-7zip and pts/c-ray




Geometric mean based upon tests: pts/scimark2 and pts/encode-flac




Geometric mean based upon tests: pts/x264 and pts/vpxenc

*This file was automatically generated via the Phoronix Test Suite benchmarking software on Friday, 19 August 2022 23:07.*