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EPYC 7642 Memory Channel Test

Benchmarks for a future article.

Automated Executive Summary

8 x 16GB DDR4-3200 had the most wins, coming in first place for 60% of the tests.

Based on the geometric mean of all complete results, the fastest (8 x 16GB DDR4-3200) was 1.112x the speed of the slowest (4 x 16GB DDR4-3200).

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

HPC Challenge (Test / Class: G-Ptrans) at 1.98x
Stream (Type: Add) at 1.973x
Stream (Type: Copy) at 1.969x
Stream (Type: Scale) at 1.969x
HPC Challenge (Test / Class: EP-STREAM Triad) at 1.953x
NAS Parallel Benchmarks (Test / Class: FT.C) at 1.853x
NAS Parallel Benchmarks (Test / Class: MG.C) at 1.828x
Parboil (Test: OpenMP Stencil) at 1.824x
Parboil (Test: OpenMP LBM) at 1.818x
NAS Parallel Benchmarks (Test / Class: SP.B) at 1.542x.

Test Systems:

8 x 16GB DDR4-3200

Processor: AMD EPYC 7642 48-Core @ 2.30GHz (48 Cores / 96 Threads), Motherboard: ASRockRack EPYCD8 (P2.10 BIOS), Chipset: AMD Starship/Matisse, Memory: 129024MB, Disk: 280GB INTEL SSDPED1D280GA + 3841GB Micron_9300_MTFDHAL3T8TDP, Graphics: llvmpipe 126GB, Audio: AMD Starship/Matisse, Network: 2 x Intel I350

OS: Ubuntu 19.10, Kernel: 5.4.0-050400-generic (x86_64), Desktop: GNOME Shell 3.34.1, Display Server: X Server 1.20.5, Display Driver: modesetting 1.20.5, OpenGL: 3.3 Mesa 19.2.1 (LLVM 9.0 128 bits), Compiler: GCC 9.2.1 20191008, File-System: ext4, Screen Resolution: 1024x768

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-offload-targets=nvptx-none,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Disk Notes: NONE / errors=remount-ro,relatime,rw
Processor Notes: Scaling Governor: acpi-cpufreq ondemand - CPU Microcode: 0x830101c
Java Notes: OpenJDK Runtime Environment (build 11.0.5+10-post-Ubuntu-0ubuntu1.1)
Python Notes: Python 2.7.17rc1 + Python 3.7.5rc1
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB: conditional IBRS_FW STIBP: always-on RSB filling + tsx_async_abort: Not affected

4 x 16GB DDR4-3200

Processor: AMD EPYC 7642 48-Core @ 2.30GHz (48 Cores / 96 Threads), Motherboard: ASRockRack EPYCD8 (P2.10 BIOS), Chipset: AMD Starship/Matisse, Memory: 64512MB, Disk: 280GB INTEL SSDPED1D280GA + 3841GB Micron_9300_MTFDHAL3T8TDP, Graphics: llvmpipe 63GB, Audio: AMD Starship/Matisse, Network: 2 x Intel I350

OS: Ubuntu 19.10, Kernel: 5.4.0-050400-generic (x86_64), Desktop: GNOME Shell 3.34.1, Display Server: X Server 1.20.5, Display Driver: modesetting 1.20.5, OpenGL: 3.3 Mesa 19.2.1 (LLVM 9.0 128 bits), Compiler: GCC 9.2.1 20191008, File-System: ext4, Screen Resolution: 1024x768

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-offload-targets=nvptx-none,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Disk Notes: NONE / errors=remount-ro,relatime,rw
Processor Notes: Scaling Governor: acpi-cpufreq ondemand - CPU Microcode: 0x830101c
Java Notes: OpenJDK Runtime Environment (build 11.0.5+10-post-Ubuntu-0ubuntu1.1)
Python Notes: Python 2.7.17rc1 + Python 3.7.5rc1
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB: conditional IBRS_FW STIBP: always-on RSB filling + tsx_async_abort: Not affected

	8 x 16GB DDR4-3200	4 x 16GB DDR4-3200
SQLite - 1 (sec)	**2.086**	**2.085**
Normalized	99.95%	100%
Standard Deviation	0.1%	0.6%
SQLite - 8 (sec)	**5.269**	**5.163**
Normalized	97.99%	100%
Standard Deviation	0.4%	1.1%

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Flexible IO Tester - Rand Read - Linux AIO - Yes - No - 2MB (MB/s)	**412**	**404**
Normalized	100%	98.06%
Flexible IO Tester - Rand Read - Linux AIO - Yes - No - 2MB (IOPS)	**203**	**198**
Normalized	100%	97.54%
Standard Deviation	0.3%	
Flexible IO Tester - Rand Write - Linux AIO - Yes - No - 2MB (MB/s)	**1020**	**1019**
Normalized	100%	99.9%
Standard Deviation		0.2%
Flexible IO Tester - Rand Write - Linux AIO - Yes - No - 2MB (IOPS)	506	506
Standard Deviation		0.1%
Flexible IO Tester - Seq Read - Linux AIO - Yes - No - 2MB (MB/s)	**1053**	**1104**
Normalized	95.38%	100%
Flexible IO Tester - Seq Read - Linux AIO - Yes - No - 2MB (IOPS)	**523**	**548**
Normalized	95.44%	100%
Flexible IO Tester - Seq Write - Linux AIO - Yes - No - 2MB (MB/s)	**1021**	**1034**
Normalized	98.74%	100%
Standard Deviation	0.3%	2.9%
Flexible IO Tester - Seq Write - Linux AIO - Yes - No - 2MB (IOPS)	**507**	**514**
Normalized	98.64%	100%
Standard Deviation	0.3%	3%
BlogBench - Read (Final Score)	**1588509**	**1274561**
Normalized	100%	80.24%
Standard Deviation	2.5%	2.9%
BlogBench - Write (Final Score)	**37311**	**44284**
Normalized	84.25%	100%
Standard Deviation	8.9%	17.7%
IOR - Write Test (MB/s)	**1569**	**1567**
Normalized	100%	99.88%
Standard Deviation	2.2%	2.3%
IOR - Read Test (MB/s)	**1353**	**1347**
Normalized	100%	99.58%
Standard Deviation	0.4%	0.3%
RAMspeed SMP - Average - Integer (MB/s)	**40168**	**36033**
Normalized	100%	89.71%
RAMspeed SMP - Average - Floating Point (MB/s)	**29530**	**27890**
Normalized	100%	94.45%
Stream - Copy (MB/s)	**90089**	**45744**
Normalized	100%	50.78%
Standard Deviation	0%	0.2%
Stream - Scale (MB/s)	**88282**	**44843**
Normalized	100%	50.79%
Standard Deviation	0%	0.2%
Stream - Add (MB/s)	**97208**	**49259**
Normalized	100%	50.67%
Standard Deviation	0%	0.2%

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Tinymembench - Standard Memcpy (MB/s)	**8807**	**8478**
Normalized	100%	96.26%
Standard Deviation	0.2%	2.5%
Tinymembench - Standard Memset (MB/s)	**14808**	**14240**
Normalized	100%	96.16%
Standard Deviation	0.6%	0.6%
MBW - Memory Copy - 4096 MiB (MiB/s)	**15377**	**15054**
Normalized	100%	97.9%
Standard Deviation	0.5%	0.1%
MBW - M.C.F.B.S - 4096 MiB (MiB/s)	**8996**	**8693**
Normalized	100%	96.63%
Standard Deviation	0%	0.1%
NAS Parallel Benchmarks - BT.C (Mop/s)	**102713**	**71485**
Normalized	100%	69.6%
Standard Deviation	0.2%	0.7%
NAS Parallel Benchmarks - EP.D (Mop/s)	**3372**	**3388**
Normalized	99.51%	100%
Standard Deviation	0.2%	0%
NAS Parallel Benchmarks - FT.C (Mop/s)	**40237**	**21719**
Normalized	100%	53.98%
Standard Deviation	0.1%	0.1%
NAS Parallel Benchmarks - LU.C (Mop/s)	**98601**	**64784**
Normalized	100%	65.7%
Standard Deviation	0.2%	0.4%
NAS Parallel Benchmarks - MG.C (Mop/s)	**50249**	**27486**
Normalized	100%	54.7%
Standard Deviation	3%	0.6%
NAS Parallel Benchmarks - SP.B (Mop/s)	**61047**	**39583**
Normalized	100%	64.84%
Standard Deviation	2.5%	0.7%
HPC Challenge - G-HPL (GFLOPS)	**111.47900**	**85.76330**
Normalized	100%	76.93%
HPC Challenge - G-Ffte (GFLOPS)	**16.92250**	**13.28070**
Normalized	100%	78.48%
HPC Challenge - G-Ffte (GFLOP/s)	**16.92250**	**13.28070**
Normalized	100%	78.48%
HPC Challenge - EP-DGEMM (GFLOPS)	**21.52910**	**14.09940**
Normalized	100%	65.49%
HPC Challenge - G-Ptrans (GB/s)	**11.84250**	**5.98166**
Normalized	100%	50.51%
HPC Challenge - EP-STREAM Triad (GB/s)	**2.11874**	**1.08504**
Normalized	100%	51.21%
HPC Challenge - G-Rand Access (GUP/s)	**0.18245**	**0.17205**
Normalized	100%	94.3%
HPC Challenge - R.R.L (usecs)	**1.10985**	**1.14298**
Normalized	100%	97.1%
HPC Challenge - R.R.B (GB/s)	**1.52375**	**1.35143**
Normalized	100%	88.69%
HPC Challenge - M.P.P.B (MB/s)	**16011**	**15882**
Normalized	100%	99.19%
Parboil - OpenMP LBM (sec)	**22.496100**	**40.888650**
Normalized	100%	55.02%
Standard Deviation	1%	0.1%
Parboil - OpenMP CUTCP (sec)	**0.933240**	**0.930197**

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Normalized	99.67%	100%
Standard Deviation	3%	0.6%
Parboil - OpenMP Stencil (sec)	**3.196558**	**5.831549**
Normalized	100%	54.81%
Standard Deviation	0.5%	2.6%
Parboil - O.M.G (sec)	**91.871808**	**90.149569**
Normalized	98.13%	100%
Standard Deviation	0.6%	0.4%
CloverLeaf - L.E.H (sec)	**0.35**	**0.42**
Normalized	100%	83.33%
Standard Deviation	0.9%	0.6%
Rodinia - OpenMP LavaMD (sec)	**8.398**	**8.053**
Normalized	95.89%	100%
Standard Deviation	0.7%	2.8%
Rodinia - OpenMP CFD Solver (sec)	**8.346**	**8.887**
Normalized	100%	93.91%
Standard Deviation	1.2%	1.6%
Rodinia - O.S (sec)	**9.022**	**9.711**
Normalized	100%	92.9%
Standard Deviation	0.6%	0.4%
NAMD - ATPase Simulation - 327,506 Atoms (days/ns)	**0.53981**	**0.55005**
Normalized	100%	98.14%
Standard Deviation	0.4%	0.2%
Polyhedron Fortran Benchmarks - ac (sec)	7.71	7.71
Polyhedron Fortran Benchmarks - air (sec)	**2.12**	**2.11**
Normalized	99.53%	100%
Polyhedron Fortran Benchmarks - mdbx (sec)	5.59	5.59
Polyhedron Fortran Benchmarks - doduc (sec)	**8.67**	**8.59**
Normalized	99.08%	100%
Polyhedron Fortran Benchmarks - linpk (sec)	**3.58**	**3.5**
Normalized	97.77%	100%
Polyhedron Fortran Benchmarks - tfft2 (sec)	**22.32**	**22**
Normalized	98.57%	100%
Polyhedron Fortran Benchmarks - aermod (sec)	**7.38**	**7.31**
Normalized	99.05%	100%
Polyhedron Fortran Benchmarks - rnflow (sec)	**19.67**	**19.65**
Normalized	99.9%	100%
Polyhedron Fortran Benchmarks - induct2 (sec)	28.22	28.22
Polyhedron Fortran Benchmarks - protein (sec)	**16.4**	**16.39**
Normalized	99.94%	100%
Polyhedron Fortran Benchmarks - capacita (sec)	**20.76**	**20.73**
Normalized	99.86%	100%
Polyhedron Fortran Benchmarks - channel2 (sec)	**45.9**	**47.6**
Normalized	100%	96.43%
Polyhedron Fortran Benchmarks - fatigue2 (sec)	**64.89**	**65**
Normalized	100%	99.83%
Polyhedron Fortran Benchmarks - gas_dyn2 (sec)	**49.43**	**50.6**
Normalized	100%	97.69%
Polyhedron Fortran Benchmarks - test_fpu2 (sec)	**38.27**	**37.25**
Normalized	97.33%	100%
Polyhedron Fortran Benchmarks - mp_prop_design	**70.28**	**70.3**
Normalized	100%	99.97%
Timed MrBayes Analysis - P.P.A (sec)	**102.932**	**104.112**
Normalized	100%	98.87%

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Standard Deviation	0.1%	2.9%
DaCapo Benchmark - H2 (msec)	**6208**	**6235**
Normalized	100%	99.57%
Standard Deviation	1.9%	0.9%
DaCapo Benchmark - Jython (msec)	**5261**	**5211**
Normalized	99.05%	100%
Standard Deviation	0.5%	0.2%
DaCapo Benchmark - Tradesoap (msec)	**5005**	**5203**
Normalized	100%	96.19%
Standard Deviation	0.6%	1.6%
DaCapo Benchmark - Tradebeans (msec)	**7700**	**7661**
Normalized	99.49%	100%
Standard Deviation	1.3%	1.3%
John The Ripper - Blowfish (Real C/S)	**60915**	**61067**
Normalized	99.75%	100%
Standard Deviation	0.1%	0.6%
Node.js Express HTTP Load Test (Reqs/sec)	**7524**	**7567**
Normalized	99.43%	100%
Standard Deviation	1%	1.3%
GraphicsMagick - Swirl (Iterations/min)	**1529**	**1523**
Normalized	100%	99.61%
Standard Deviation	0.3%	0.1%
GraphicsMagick - Rotate (Iterations/min)	**496**	**491**
Normalized	100%	98.99%
Standard Deviation	0.6%	0.4%
GraphicsMagick - Sharpen (Iterations/min)	**496**	**494**
Normalized	100%	99.6%
GraphicsMagick - Enhanced (Iterations/min)	730	730
Standard Deviation	0.2%	0.4%
GraphicsMagick - Resizing (Iterations/min)	**1814**	**1729**
Normalized	100%	95.31%
Standard Deviation	1.4%	2.6%
GraphicsMagick - Noise-Gaussian (Iterations/min)	**571**	**564**
Normalized	100%	98.77%
Standard Deviation	1%	
GraphicsMagick - HWB Color Space (Iterations/min)	**1118**	**1127**
Normalized	99.2%	100%
Standard Deviation	0.3%	2.3%
OSPray - XFrog Forest - SciVis (FPS)	**9.43**	**9.46**
Normalized	99.68%	100%
Standard Deviation	0%	0.5%
OSPray - M.R - SciVis (FPS)	**34.48**	**33.33**
Normalized	100%	96.66%
Standard Deviation	0%	0%
Embree - Pathtracer - Crown (FPS)	**41.2146**	**40.6607**
Normalized	100%	98.66%
Standard Deviation	0.1%	0.2%
rav1e - 6 (FPS)	**0.982**	**0.981**
Normalized	100%	99.9%
Standard Deviation	0.2%	0.3%
rav1e - 9 (FPS)	1.220	1.220
Standard Deviation	0.1%	0.2%
SVT-AV1 - Enc Mode 4 - 1080p (FPS)	**7.955**	**8.008**
Normalized	99.34%	100%
Standard Deviation	0.2%	0.7%

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SVT-AV1 - Enc Mode 8 - 1080p (FPS)	**59.754**	**60.046**
Normalized	99.51%	100%
Standard Deviation	0.3%	0.5%
SVT-VP9 - P.S.O - Bosphorus 1080p (FPS)	**357.01**	**336.55**
Normalized	100%	94.27%
Standard Deviation	11%	10.5%
SVT-VP9 - V.Q.O - Bosphorus 1080p (FPS)	**289.07**	**276.53**
Normalized	100%	95.66%
Standard Deviation	0.4%	2%
VP9 libvpx Encoding - Speed 0 (FPS)	**5.97**	**5.98**
Normalized	99.83%	100%
Standard Deviation	0.4%	0.2%
VP9 libvpx Encoding - Speed 5 (FPS)	**18.32**	**18.07**
Normalized	100%	98.64%
Standard Deviation	0.9%	0.5%
x264 - H.2.V.E (FPS)	**150.41**	**152.45**
Normalized	98.66%	100%
Standard Deviation	2.8%	2.8%
x265 - H.2.1.V.E (FPS)	**48.31**	**48.20**
Normalized	100%	99.77%
Standard Deviation	0.5%	0.3%
ACES DGEMM - S.F.P.R (GFLOP/s)	**14.097122**	**13.922146**
Normalized	100%	98.76%
Standard Deviation	1.1%	0.5%
Intel Open Image Denoise - Memorial (Images / Sec)	**20.07**	**18.88**
Normalized	100%	94.07%
Standard Deviation	1.7%	0.1%
Coremark - CoreMark Size 666 - I.P.S (Iterations/Sec)	**1559344**	**1558040**
Normalized	100%	99.92%
Standard Deviation	1.1%	0.8%
LuxCoreRender - DLSC (M samples/sec)	**0.86**	**0.98**
Normalized	87.76%	100%
Standard Deviation	54.3%	44.2%
LuxCoreRender - R.C.a.P (M samples/sec)	**0.90**	**0.79**
Normalized	100%	87.78%
Standard Deviation	28.1%	32.8%
Himeno Benchmark - P.P.S (MFLOPS)	**3313**	**3333**
Normalized	99.39%	100%
Standard Deviation	4.9%	2.9%
7-Zip Compression - C.S.T (MIPS)	**227567**	**174582**
Normalized	100%	76.72%
Standard Deviation	0.1%	0.4%
Stockfish - Total Time (Nodes/s)	**102088239**	**100120504**
Normalized	100%	98.07%
Standard Deviation	1.2%	1.2%
asmFish - 1.H.M.2.D (Nodes/s)	**103950643**	**103535492**
Normalized	100%	99.6%
Standard Deviation	1.5%	1.8%
Swet - Average (Operations/sec)	**604240209**	**605886108**
Normalized	99.73%	100%
Standard Deviation	1.6%	0.3%
ebizzy (Records/s)	**2607377**	**2570869**
Normalized	100%	98.6%
Standard Deviation	1.4%	4.5%
Timed GCC Compilation - Time To Compile (sec)	**758.555**	**760.820**

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Normalized	100%	99.7%
Standard Deviation	0%	0%
Timed Linux Kernel Compilation - Time To Compile	**26.477**	**26.621**
Normalized	100%	99.46%
Standard Deviation	2.7%	3%
Timed LLVM Compilation - Time To Compile (sec)	**124.286**	**122.008**
Normalized	98.17%	100%
Build2 - Time To Compile (sec)	**61.130**	**61.110**
Normalized	99.97%	100%
Standard Deviation	0.1%	0.4%
C-Ray - Total Time - 4.1.R.P.P (sec)	**15.078**	**14.981**
Normalized	99.36%	100%
Standard Deviation	0.1%	0.2%
Tungsten Renderer - Hair (sec)	**8.59740**	**8.54400**
Normalized	99.38%	100%
Standard Deviation	0.8%	0.7%
Tungsten Renderer - Water Caustic (sec)	**22.6936**	**22.7455**
Normalized	100%	99.77%
Standard Deviation	0.4%	0.3%
Tungsten Renderer - Non-Exponential (sec)	**3.35065**	**3.35198**
Normalized	100%	99.96%
Standard Deviation	0.2%	0.2%
Tungsten Renderer - Volumetric Caustic (sec)	**4.42295**	**4.39508**
Normalized	99.37%	100%
Standard Deviation	0.2%	0.2%
XZ Compression - C.u.1.0.3.s.i.i.C.L.9 (sec)	**22.264**	**23.313**
Normalized	100%	95.5%
Standard Deviation	0.7%	0.2%
Zstd Compression - C.u.1.0.3.s.i.i.C.L.1 (sec)	**9.092**	**9.958**
Normalized	100%	91.3%
Standard Deviation	1.7%	1.5%
DeepSpeech - CPU (sec)	**79.88505**	**78.21695**
Normalized	97.91%	100%
Standard Deviation	0.8%	0.5%
Radiance Benchmark - SMP Parallel (sec)	**220.775**	**220.016**
Normalized	99.66%	100%
R Benchmark (sec)	**0.3711**	**0.3566**
Normalized	96.09%	100%
Standard Deviation	3%	1.8%
OpenSSL - R.4.b.P (Signs/sec)	**10269**	**10321**
Normalized	99.5%	100%
Standard Deviation	0%	0.1%
libjpeg-turbo tjbench - D.T (Megapixels/sec)	**167.218166**	**167.426222**
Normalized	99.88%	100%
Standard Deviation	0.3%	0%
GROMACS - Water Benchmark (Ns/Day)	**4.078**	**3.269**
Normalized	100%	80.16%
Standard Deviation	0.2%	0.1%
MariaDB - 64 (Queries/sec)	**939**	**937**
Normalized	100%	99.79%
MariaDB - 128 (Queries/sec)	**369**	**368**
Normalized	100%	99.73%
MariaDB - 256 (Queries/sec)	301	301

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PostgreSQL pgbench - Buffer Test - Normal Load - Read Only (TPS)	**569843**	**574430**
Normalized	99.2%	100%
Standard Deviation	0.2%	0.3%
PostgreSQL pgbench - Buffer Test - Normal Load - Read Write (TPS)	**52151**	**52792**
Normalized	98.79%	100%
Standard Deviation	0%	1.1%
SQLite Speedtest - Timed Time - Size 1,000 (sec)	**79.057**	**78.283**
Normalized	99.02%	100%
Standard Deviation	0.3%	0.4%
GEGL - Crop (sec)	**9.946**	**9.915**
Normalized	99.69%	100%
Standard Deviation	1.2%	0.6%
GEGL - Scale (sec)	**7.280**	**7.302**
Normalized	100%	99.7%
Standard Deviation	1%	1.4%
GEGL - Cartoon (sec)	**118.141**	**118.566**
Normalized	100%	99.64%
Standard Deviation	0.1%	0.1%
GEGL - Reflect (sec)	**38.278**	**38.254**
Normalized	99.94%	100%
Standard Deviation	0.2%	0.3%
GEGL - Antialias (sec)	**50.370**	**50.437**
Normalized	100%	99.87%
Standard Deviation	0.1%	0.3%
GEGL - Tile Glass (sec)	**40.134**	**40.308**
Normalized	100%	99.57%
Standard Deviation	0.2%	0%
GEGL - Wavelet Blur (sec)	**80.838**	**80.923**
Normalized	100%	99.89%
Standard Deviation	0.1%	0.6%
GEGL - Color Enhance (sec)	**72.707**	**72.548**
Normalized	99.78%	100%
Standard Deviation	0.1%	0.1%
GEGL - Rotate 90 Degrees (sec)	**49.249**	**49.382**
Normalized	100%	99.73%
Standard Deviation	0.2%	0.2%
GNU Octave Benchmark (sec)	**16.905**	**16.220**
Normalized	95.95%	100%
Standard Deviation	3%	3.4%
Redis - SADD (Reqs/sec)	**1672023**	**1618485**
Normalized	100%	96.8%
Standard Deviation	6.7%	6%
Redis - GET (Reqs/sec)	**1902672**	**1754713**
Normalized	100%	92.22%
Standard Deviation	1.6%	4.9%
Redis - SET (Reqs/sec)	**1487985**	**1433269**
Normalized	100%	96.32%
Standard Deviation	5.1%	6.1%
Sysbench - Memory (Events/sec)	**5553388**	**5862460**
Normalized	94.73%	100%
Standard Deviation	1.9%	2.9%
Sysbench - CPU (Events/sec)	**81401**	**81507**
Normalized	99.87%	100%

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Standard Deviation	0%	0.1%
Chaos Group V-RAY - CPU (Ksamples)	**51130**	**51799**
Normalized	98.71%	100%
Standard Deviation	0.4%	1.7%
IndigoBench - Bedroom (M samples/s)	**5.239**	**5.046**
Normalized	100%	96.32%
Standard Deviation	0.2%	0.1%
IndigoBench - Supercar (M samples/s)	**8.910**	**8.758**
Normalized	100%	98.29%
Standard Deviation	0.4%	0.4%
Apache Cassandra - Reads (Op/s)	**21003**	**234**
Normalized	100%	1.11%
Standard Deviation	156%	35.4%
Apache Cassandra - Writes (Op/s)	**206720**	**192120**
Normalized	100%	92.94%
Standard Deviation	2.3%	1.7%
Apache Cassandra - Mixed 1:1 (Op/s)	**2937**	**202**
Normalized	100%	6.88%
Standard Deviation	17.8%	
Apache Cassandra - Mixed 1:3 (Op/s)	**1104**	**136**
Normalized	100%	12.32%
Standard Deviation	22.2%	7%
Facebook RocksDB - Rand Fill (Op/s)	**354730**	**349267**
Normalized	100%	98.46%
Standard Deviation	1%	0.3%
Facebook RocksDB - Rand Read (Op/s)	**164594055**	**166600539**
Normalized	98.8%	100%
Standard Deviation	0.1%	1.3%
Facebook RocksDB - Seq Fill (Op/s)	**356189**	**371013**
Normalized	96%	100%
Standard Deviation	1%	0.4%
Facebook RocksDB - Rand Fill Sync (Op/s)	**166490**	**166668**
Normalized	99.89%	100%
Standard Deviation	0.8%	0.2%
Facebook RocksDB - Read While Writing (Op/s)	**6694754**	**6026968**
Normalized	100%	90.03%
Standard Deviation	0.7%	1.6%
Blender - BMW27 - CPU-Only (sec)	**48.36**	**48.00**
Normalized	99.26%	100%
Standard Deviation	0.3%	0%
Blender - Classroom - CPU-Only (sec)	**125.50**	**124.41**
Normalized	99.13%	100%
Standard Deviation	0.4%	0.2%
Blender - Barbershop - CPU-Only (sec)	**189.87**	**189.52**
Normalized	99.82%	100%
Standard Deviation	0.1%	0.3%
Memcached mcperf - Add (Operations/sec)	**34917**	**34277**
Normalized	100%	98.17%
Standard Deviation	19.6%	1.4%
Memcached mcperf - Get (Operations/sec)	**52767**	**52077**
Normalized	100%	98.69%
Standard Deviation	2.9%	3%
Memcached mcperf - Set (Operations/sec)	**33264**	**32447**
Normalized	100%	97.54%
Standard Deviation	0.6%	2.9%

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Memcached mcperf - Append (Operations/sec)	**34310**	**34807**
Normalized	98.57%	100%
Standard Deviation	2.9%	2.9%
Memcached mcperf - Replace (Operations/sec)	**34901**	**34579**
Normalized	100%	99.08%
Standard Deviation	2.8%	3.2%
NGINX Benchmark - S.W.P.S (Reqs/sec)	**31932**	**32137**
Normalized	99.36%	100%
Standard Deviation	2.4%	2.9%
Apache Benchmark - S.W.P.S (Reqs/sec)	**26203**	**26339**
Normalized	99.49%	100%
Standard Deviation	0.3%	0.1%
Appleseed - Emily (sec)	**161.361031**	**161.834627**
Normalized	100%	99.71%
Appleseed - Disney Material (sec)	**75.763304**	**73.62161**
Normalized	97.17%	100%
Appleseed - Material Tester (sec)	**183.773634**	**184.389006**
Normalized	100%	99.67%
Apache Siege - 10 (Transactions/sec)	**16887**	**16779**
Normalized	100%	99.36%
Standard Deviation	2.9%	0.2%
Apache Siege - 50 (Transactions/sec)	**24007**	**24441**
Normalized	98.22%	100%
Standard Deviation	1.4%	1.4%
Apache Siege - 100 (Transactions/sec)	**32465**	**33053**
Normalized	98.22%	100%
Standard Deviation	0.8%	1.6%
Apache Siege - 200 (Transactions/sec)	**33422**	**32891**
Normalized	100%	98.41%
Standard Deviation	2%	0.3%
Apache Siege - 250 (Transactions/sec)	**33414**	**33252**
Normalized	100%	99.52%
Standard Deviation	0.3%	0.4%
BRL-CAD - V.P.M (VGR Performance Metric)	**497750**	**497782**
Normalized	99.99%	100%
SPECjbb 2015 - S.C.m.j (jOPS)	**99094**	**80777**
Normalized	100%	81.52%
SPECjbb 2015 - S.C.c.j (jOPS)	**56261**	**43805**
Normalized	100%	77.86%
POV-Ray - Trace Time (sec)	**13.769**	**13.688**
Normalized	99.41%	100%
Standard Deviation	0.8%	0.2%
SPEC CPU 2017 - 1 - fprate (Base Rate)	**6.73**	**6.75**
Normalized	99.7%	100%
SPEC CPU 2017 - 1 - intrate (Base Rate)	**4.12**	**4.1**
Normalized	100%	99.51%
rays1bench - Large Scene (mrays/s)	**217.29**	**218.85**
Normalized	99.29%	100%
Standard Deviation	0.4%	0.6%
Numpy Benchmark (sec)	**253.810**	**260.207**
Normalized	100%	97.54%
Standard Deviation	0.2%	0.6%
Mlpack Benchmark - scikit_svm (sec)	**15.10**	**15.03**
Normalized	99.54%	100%
Standard Deviation	0.5%	0.4%

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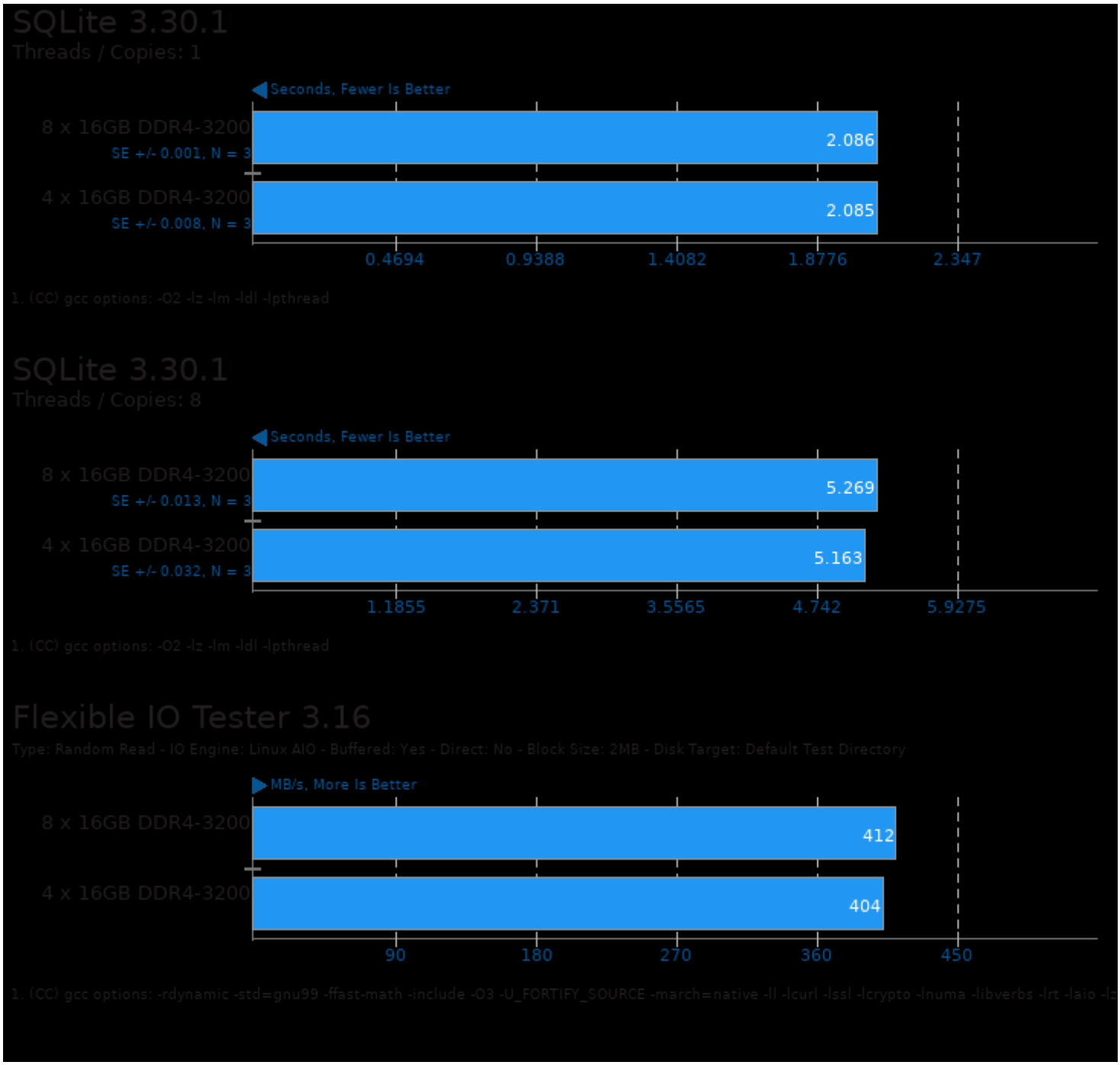
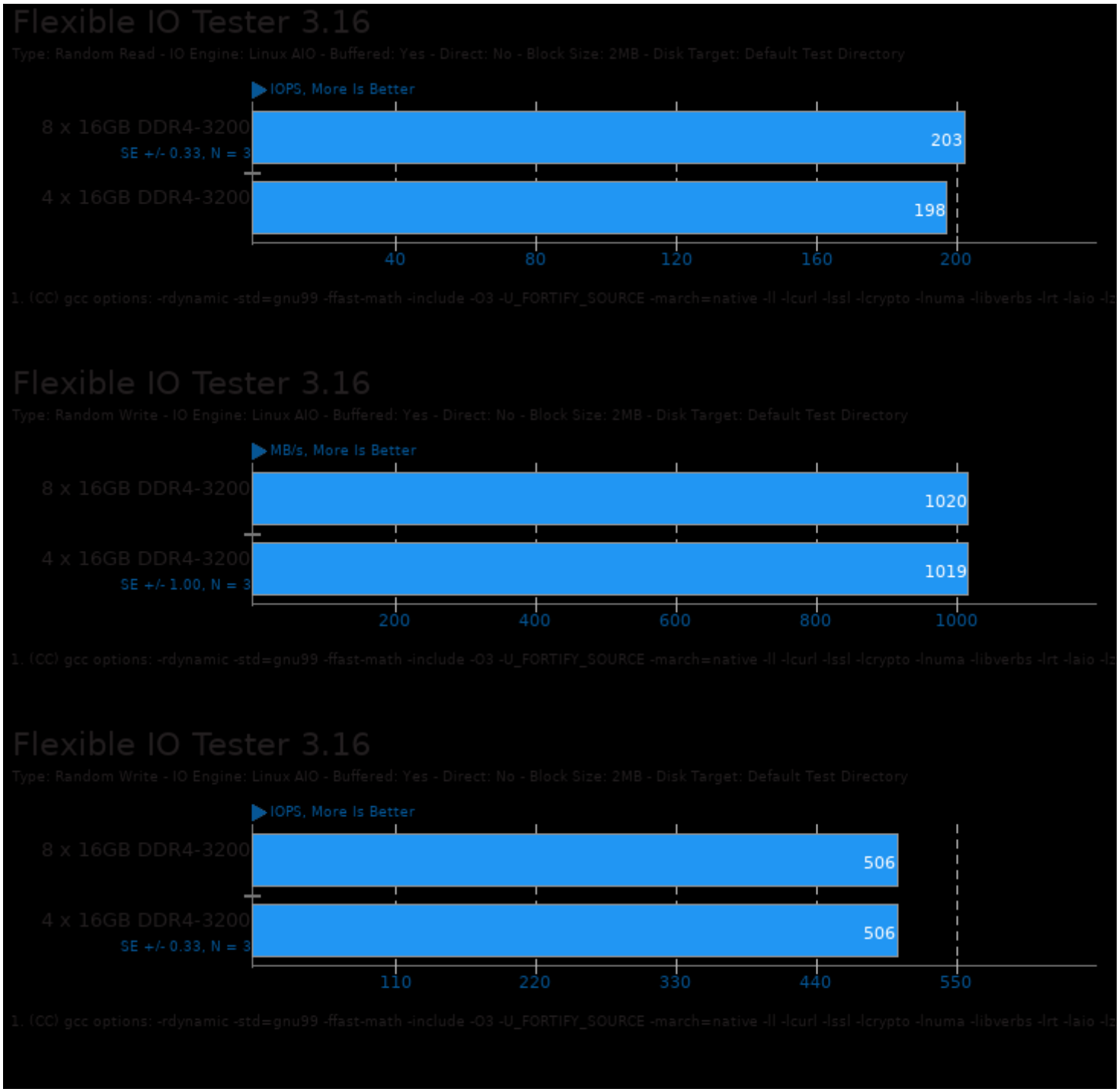
Scikit-Learn (sec)	**10.452**	**10.573**
Normalized	100%	98.86%
Standard Deviation	0.1%	0.8%
AOM AV1 - Speed 0 Two-Pass (FPS)	0.15	0.15
Standard Deviation	0%	0%
AOM AV1 - Speed 2 Two-Pass (FPS)	0.3	0.3
Standard Deviation	0%	0%
AOM AV1 - Speed 4 Realtime (FPS)	**0.62**	**0.61**
Normalized	100%	98.39%
Standard Deviation	0%	0%
AOM AV1 - Speed 5 Two-Pass (FPS)	0.9	0.9
Standard Deviation	0%	0%
AOM AV1 - Speed 6 Realtime (FPS)	**11.52**	**11.38**
Normalized	100%	98.78%
Standard Deviation	0.5%	0.1%
AOM AV1 - Speed 8 Realtime (FPS)	**29.16**	**28.65**
Normalized	100%	98.25%
Standard Deviation	0.5%	0.6%

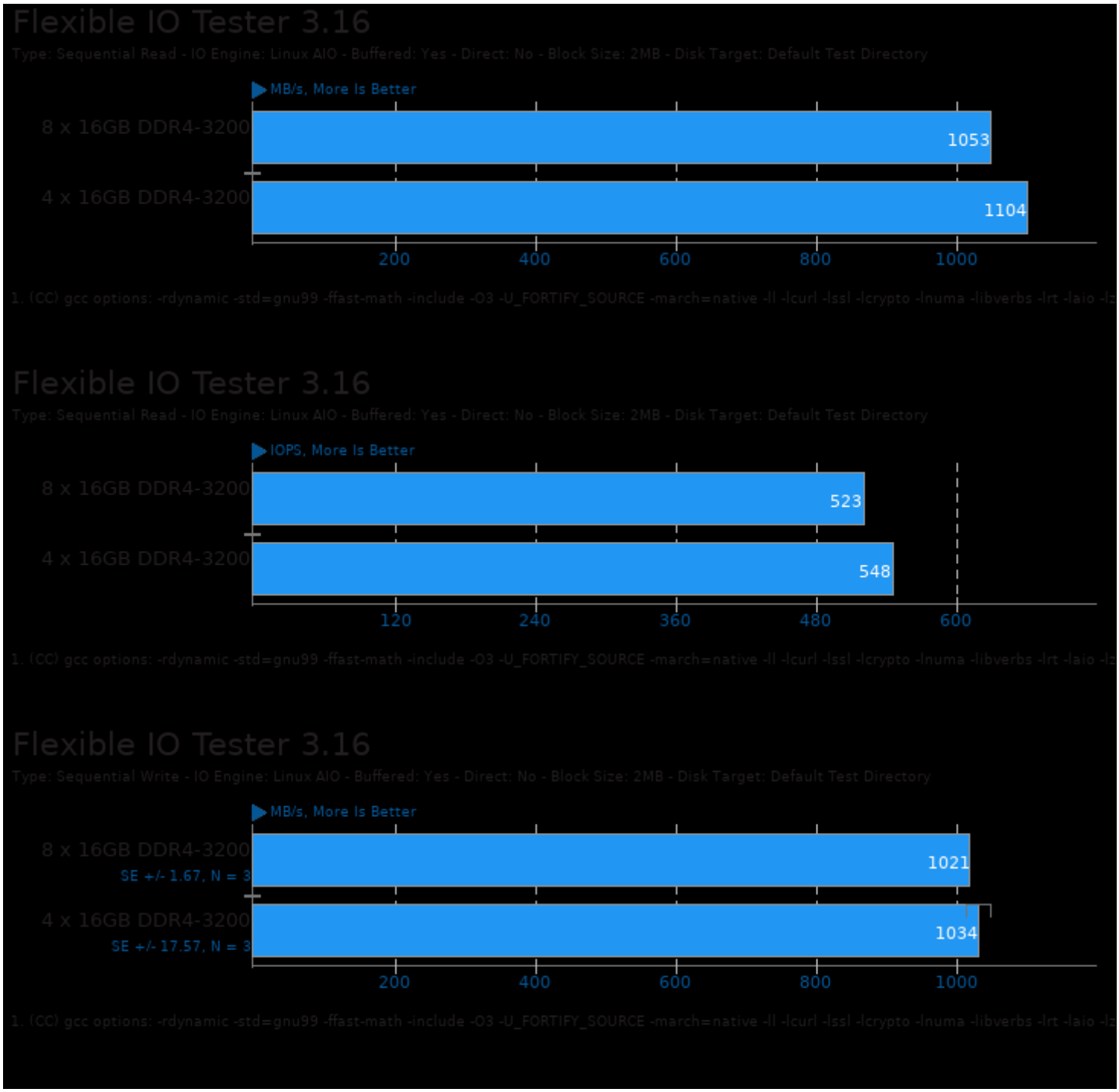
EPYC 7642 Memory Channel Test



EPYC 7642 Memory Channel Test



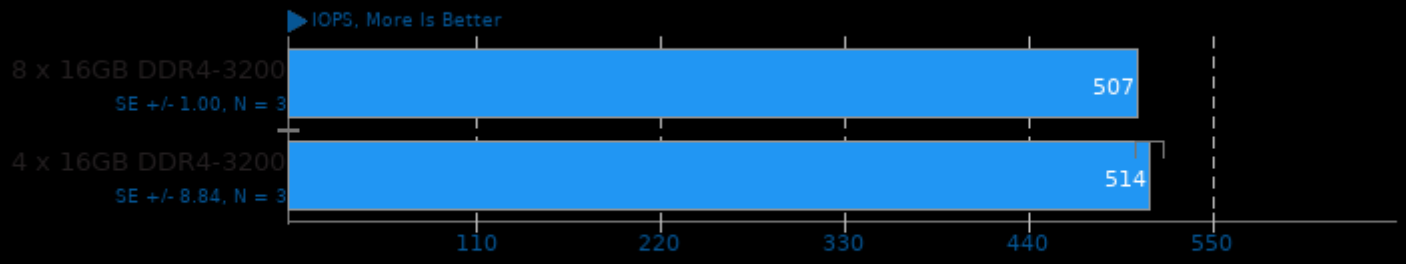
EPYC 7642 Memory Channel Test



EPYC 7642 Memory Channel Test

Flexible IO Tester 3.16

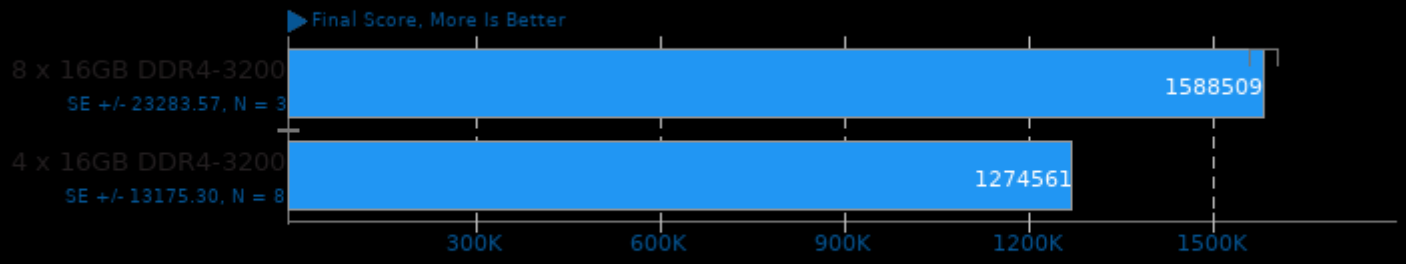
Type: Sequential Write - IO Engine: Linux AIO - Buffered: Yes - Direct: No - Block Size: 2MB - Disk Target: Default Test Directory



1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -U_FORTIFY_SOURCE -march=native -ll -lcurl -lssl -lcrypto -lnuma -libverbs -lrt -laio -l

BlogBench 1.1

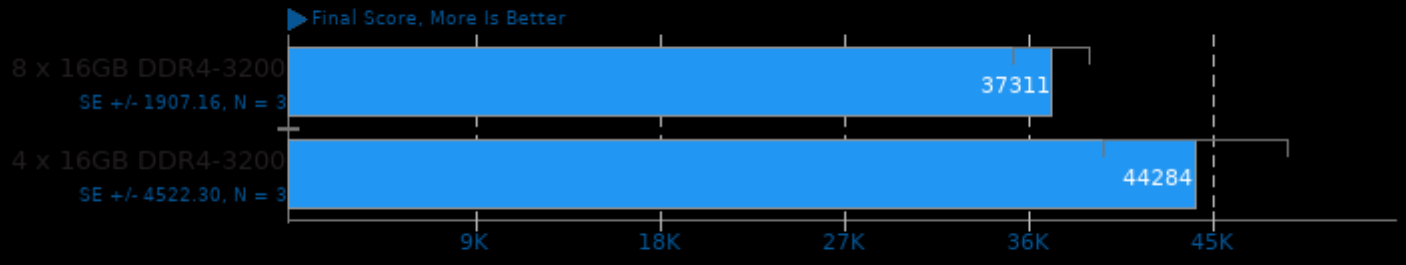
Test: Read



1. (CC) gcc options: -O2 -pthread

BlogBench 1.1

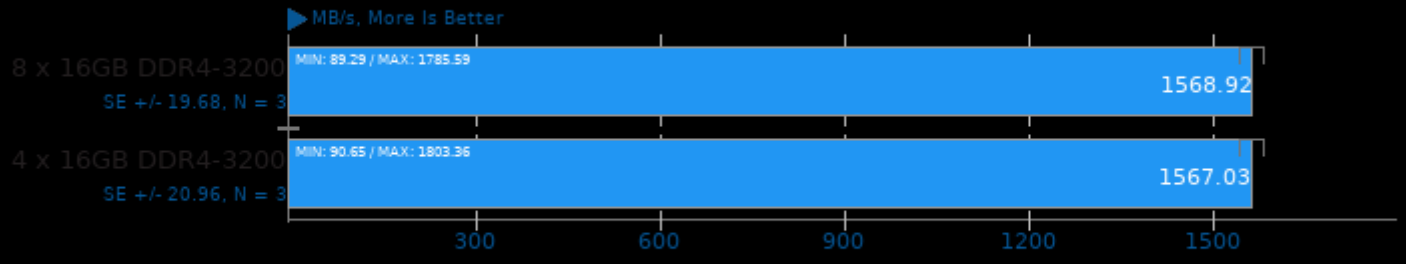
Test: Write



1. (CC) gcc options: -O2 -pthread

IOR 3.2.1

Write Test

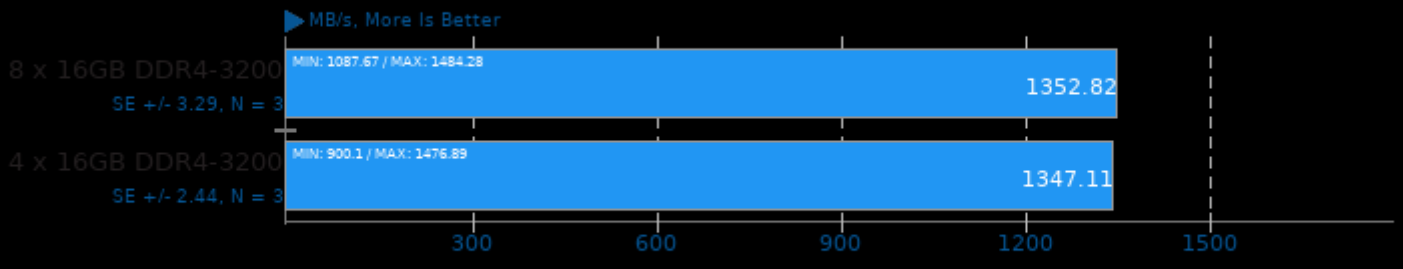


1. (CC) gcc options: -O2 -lm -pthread -lmpi

EPYC 7642 Memory Channel Test

IOR 3.2.1

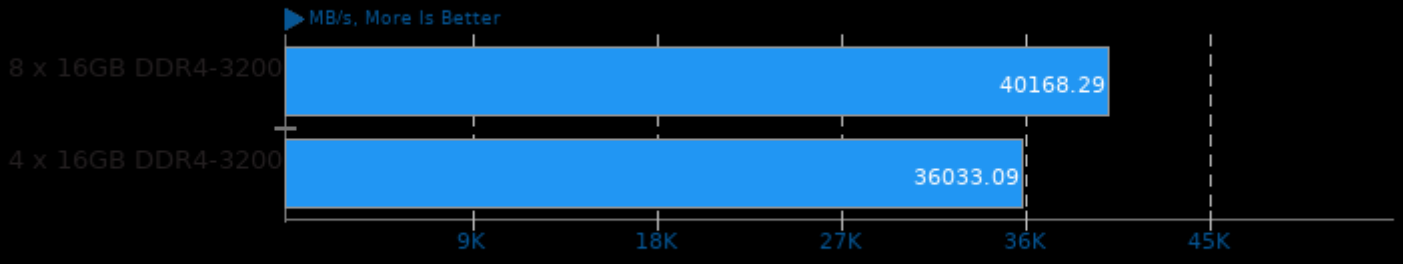
Read Test



1. (CC) gcc options: -O2 -lm -pthread -lmpi

RAMspeed SMP 3.5.0

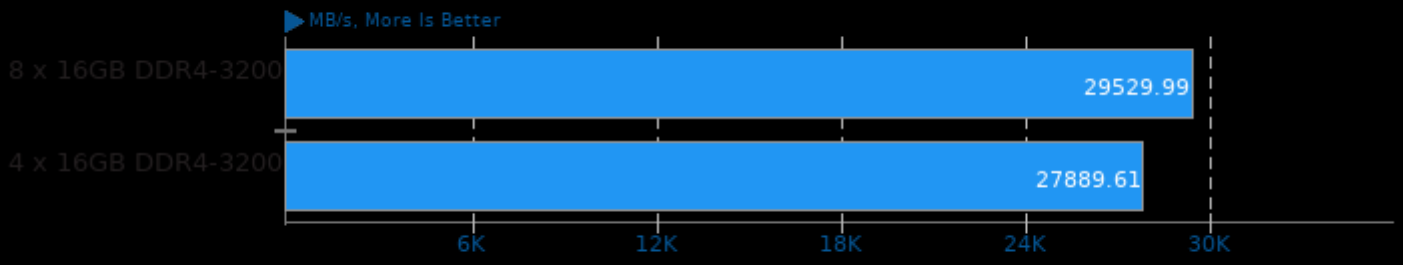
Type: Average - Benchmark: Integer



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

RAMspeed SMP 3.5.0

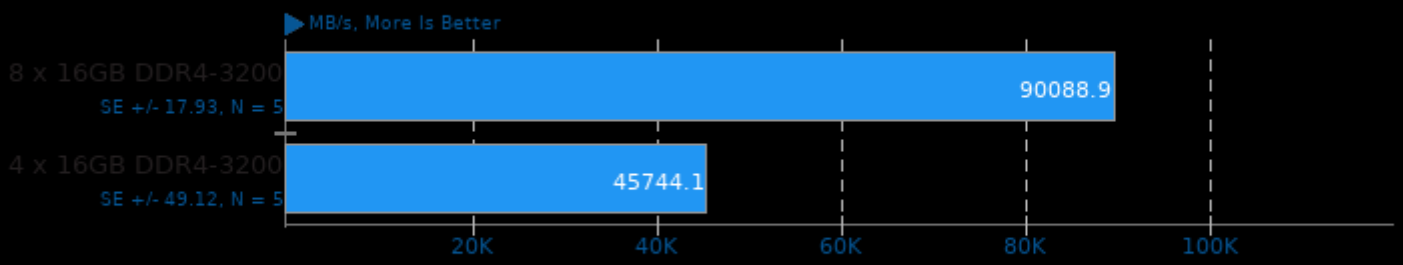
Type: Average - Benchmark: Floating Point



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

Stream 2013-01-17

Type: Copy

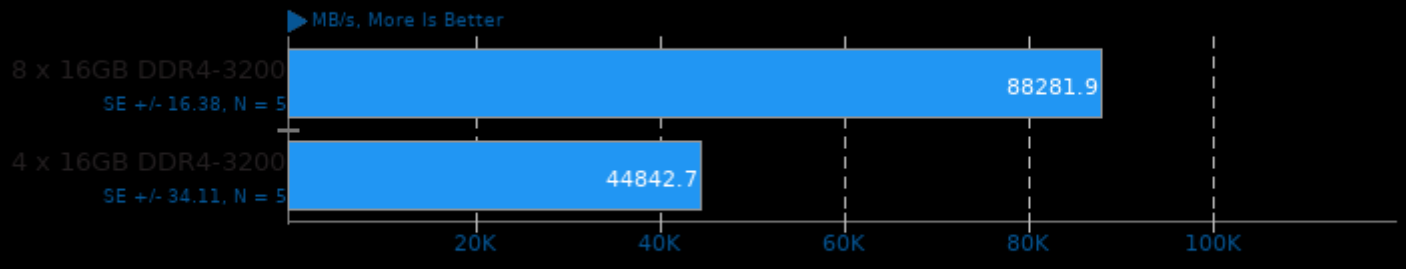


1. (CC) gcc options: -O3 -march=native -fopenmp

EPYC 7642 Memory Channel Test

Stream 2013-01-17

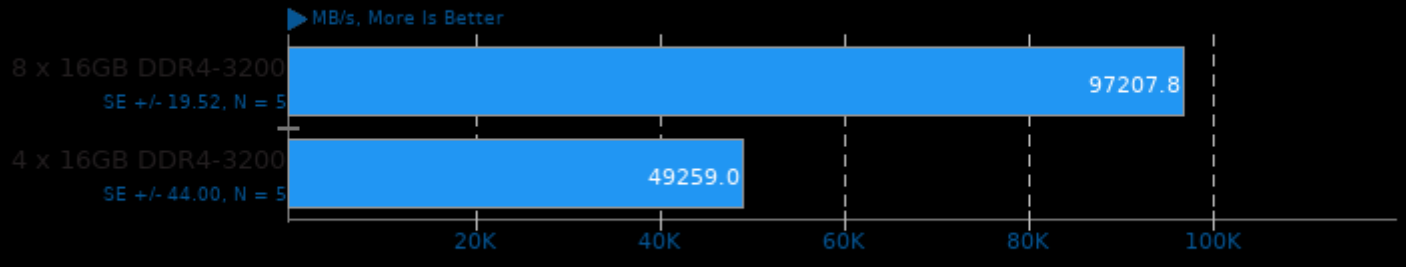
Type: Scale



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

Stream 2013-01-17

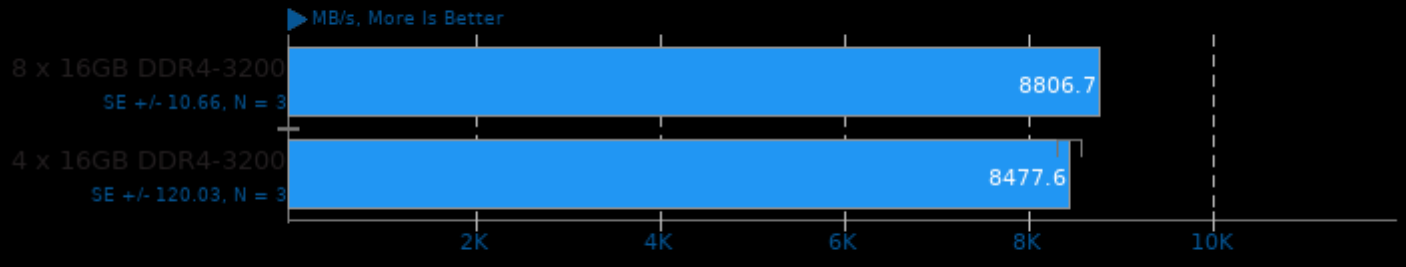
Type: Add



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

Tinymembench 2018-05-28

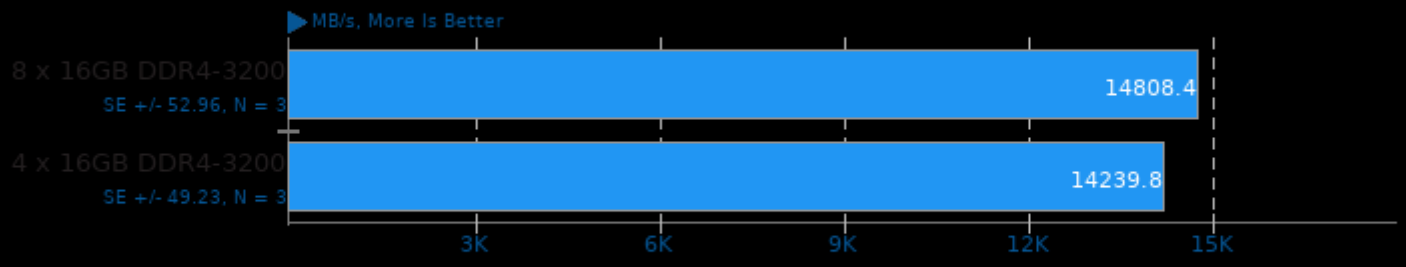
Standard Memcpy



1. (CC) gcc options: -O2 -lm

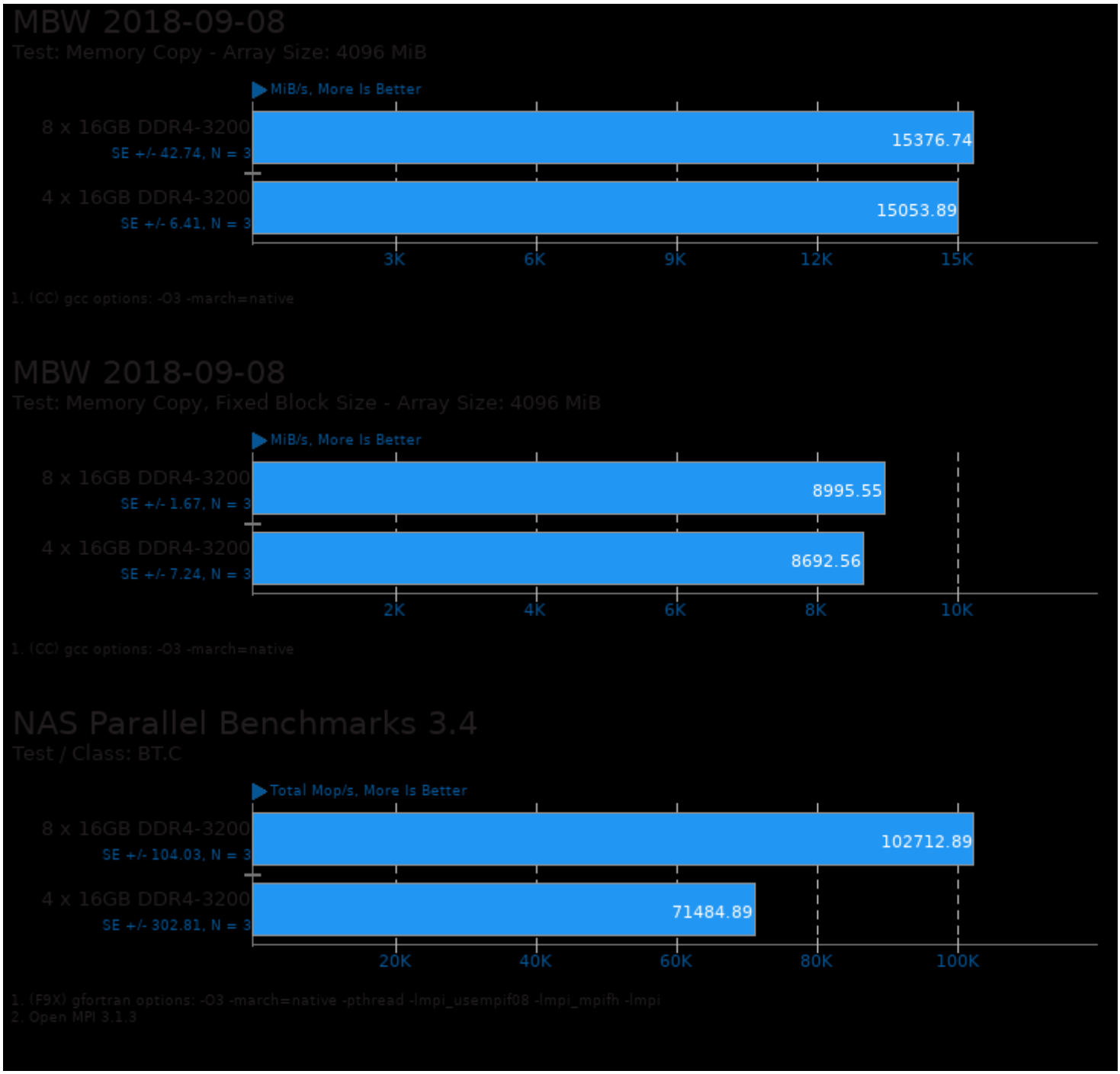
Tinymembench 2018-05-28

Standard Memset

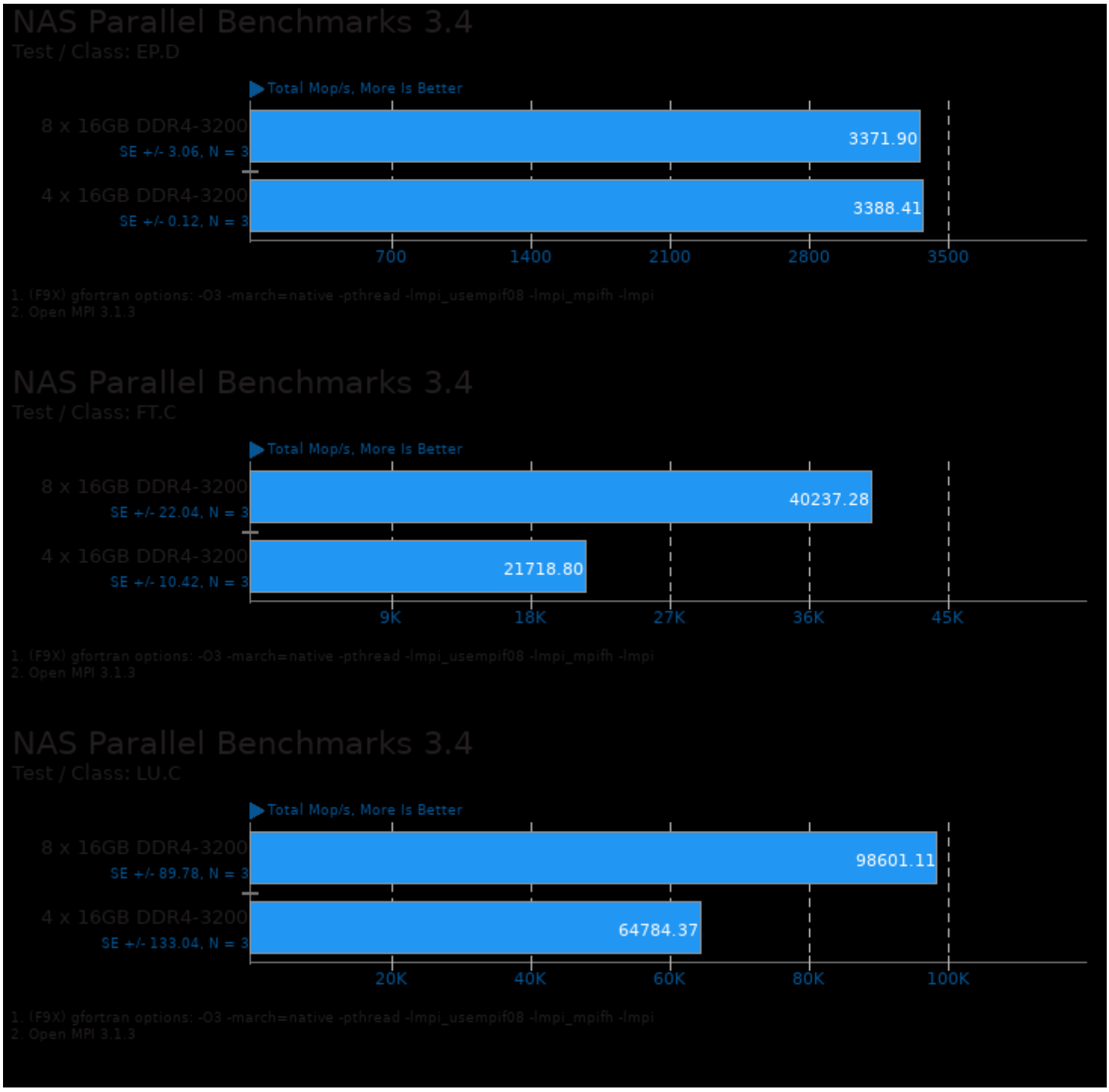


1. (CC) gcc options: -O2 -lm

EPYC 7642 Memory Channel Test



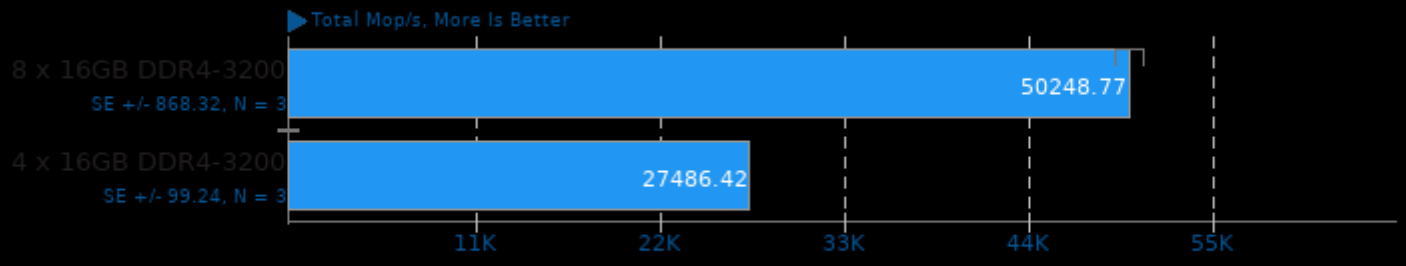
EPYC 7642 Memory Channel Test



EPYC 7642 Memory Channel Test

NAS Parallel Benchmarks 3.4

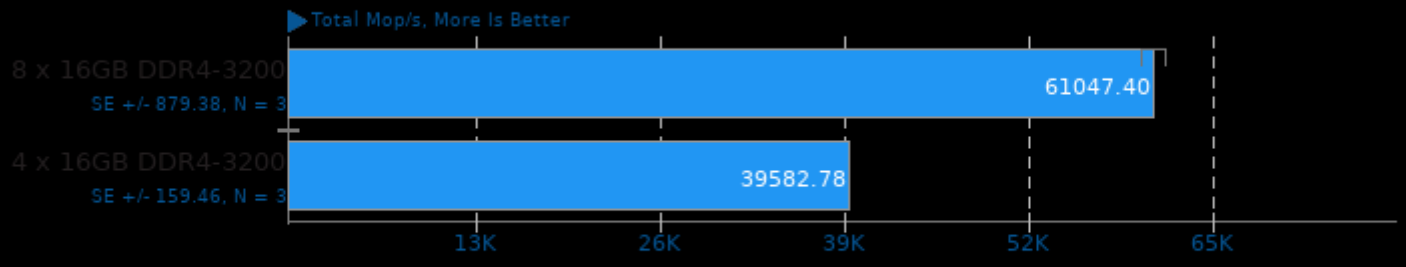
Test / Class: MG.C



1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi
2. Open MPI 3.1.3

NAS Parallel Benchmarks 3.4

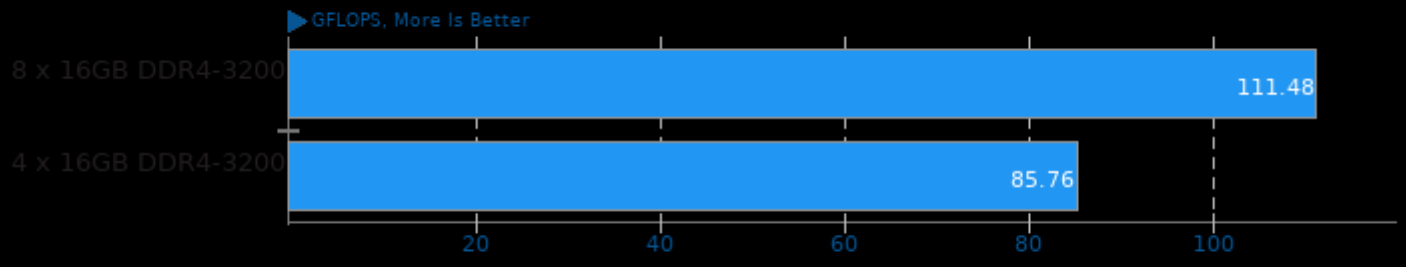
Test / Class: SP.B



1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi
2. Open MPI 3.1.3

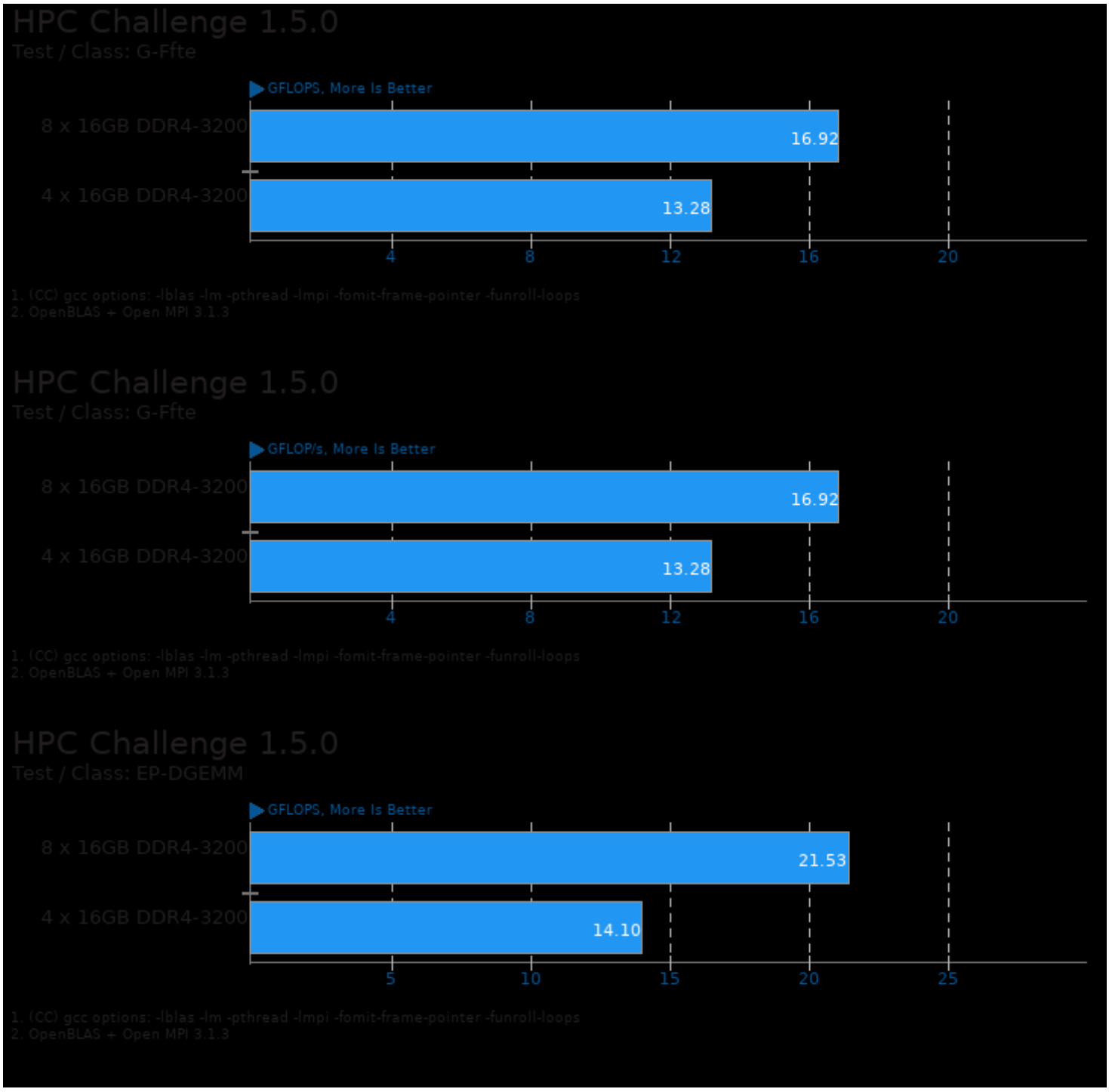
HPC Challenge 1.5.0

Test / Class: G-HPL

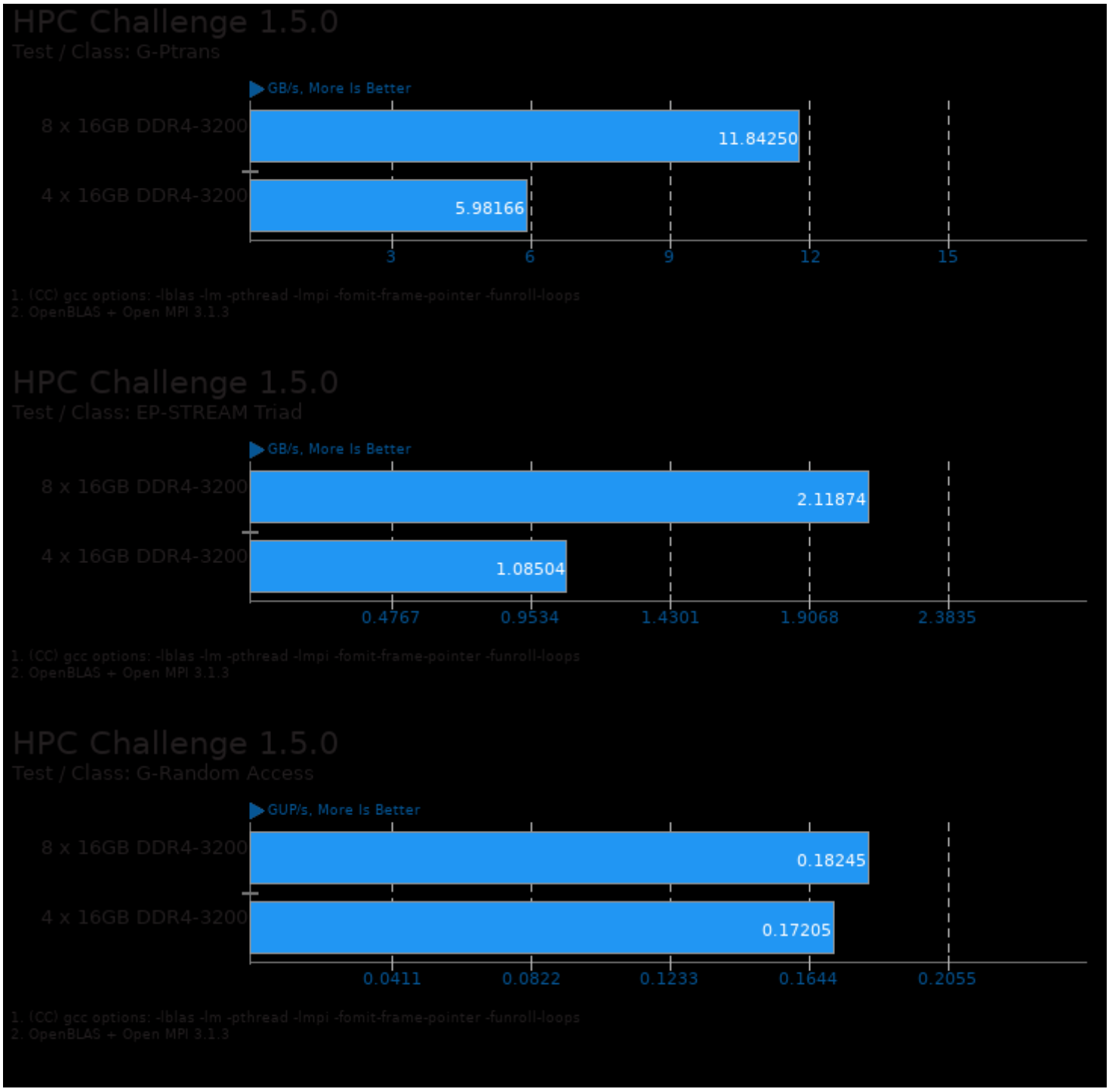


1. (CC) gcc options: -lblas -lm -pthread -lmpi -fomit-frame-pointer -funroll-loops
2. OpenBLAS + Open MPI 3.1.3

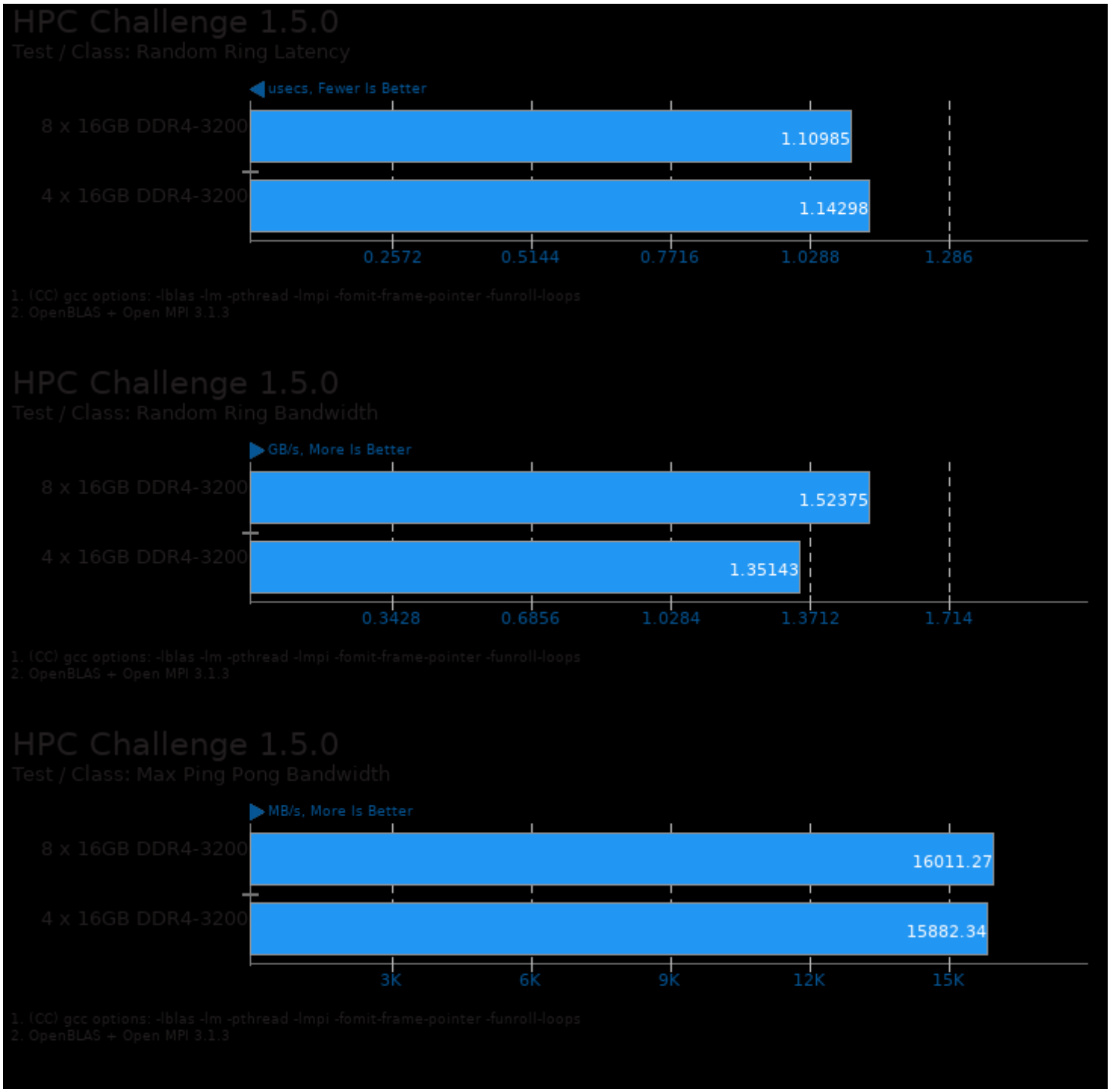
EPYC 7642 Memory Channel Test



EPYC 7642 Memory Channel Test



EPYC 7642 Memory Channel Test



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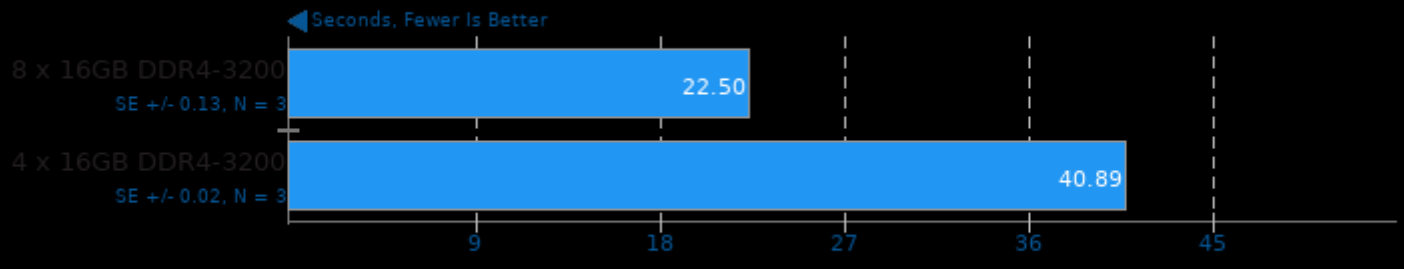
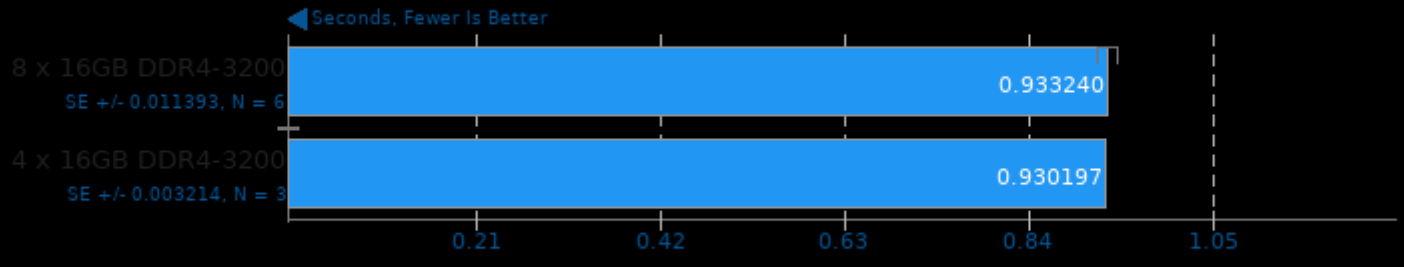
Parboil 2.5
Test: OpenMP LBM



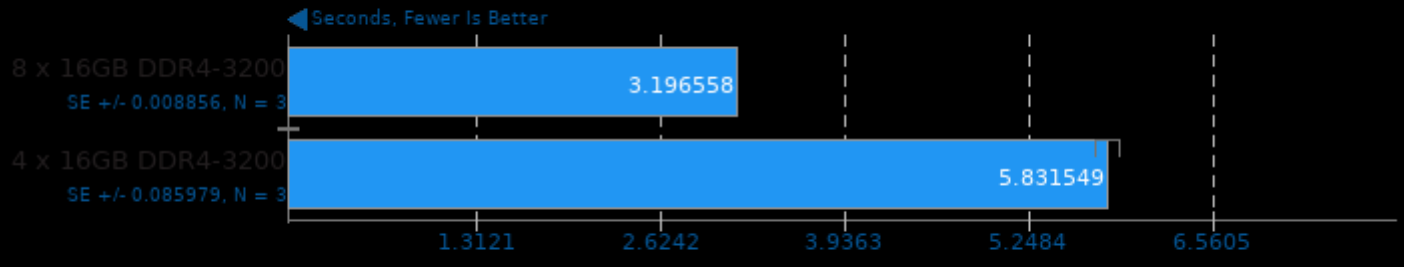
1. (CXX) g++ options: -lm -lpthread -lgomp -O3 -ffast-math -fopenmp

Parboil 2.5
Test: OpenMP CUTCP



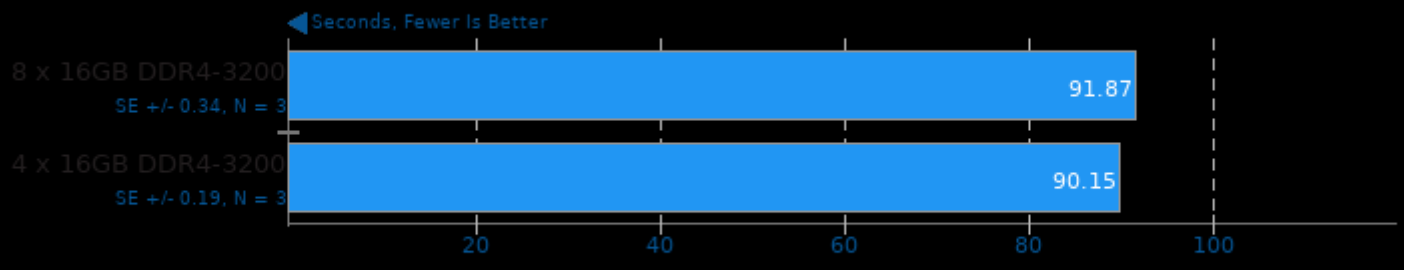
1. (CXX) g++ options: -lm -lpthread -lgomp -O3 -ffast-math -fopenmp

Parboil 2.5
Test: OpenMP Stencil



1. (CXX) g++ options: -lm -lpthread -lgomp -O3 -ffast-math -fopenmp

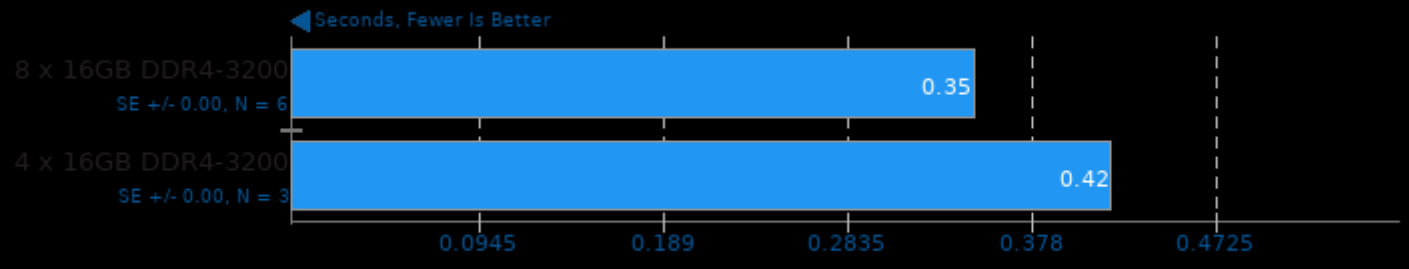
Parboil 2.5
Test: OpenMP MRI Gridding



1. (CXX) g++ options: -lm -lpthread -lgomp -O3 -ffast-math -fopenmp

CloverLeaf

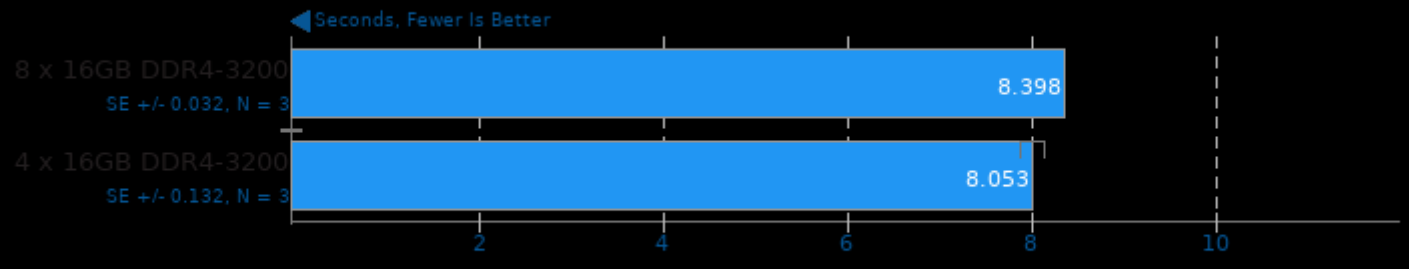
Lagrangian-Eulerian Hydrodynamics



1. (F9X) gfortran options: -O3 -march=native -funroll-loops -fopenmp

Rodinia 2.4

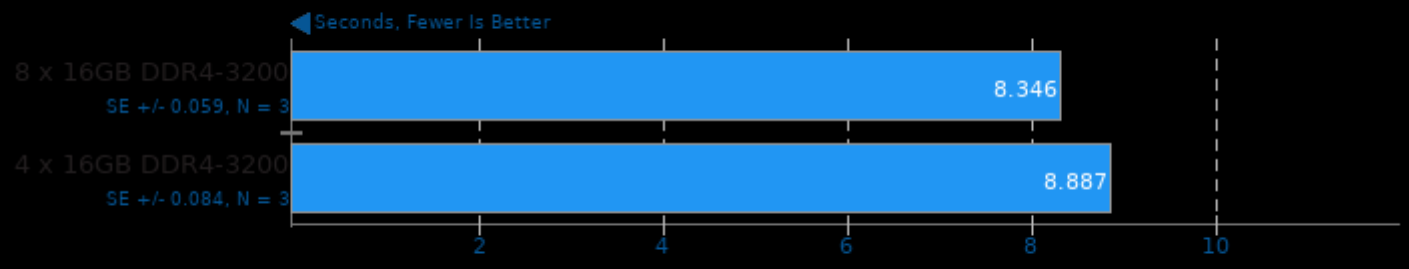
Test: OpenMP LavaMD



1. (CXX) g++ options: -O2 -lOpenCL

Rodinia 2.4

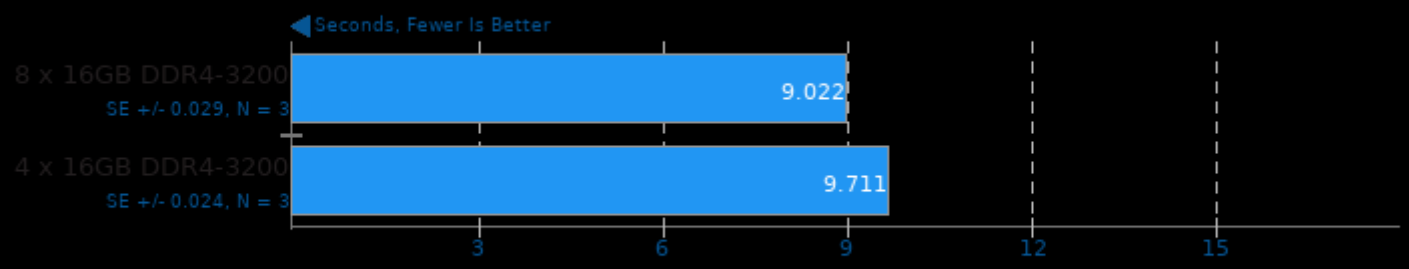
Test: OpenMP CFD Solver



1. (CXX) g++ options: -O2 -lOpenCL

Rodinia 2.4

Test: OpenMP Streamcluster



1. (CXX) g++ options: -O2 -lOpenCL

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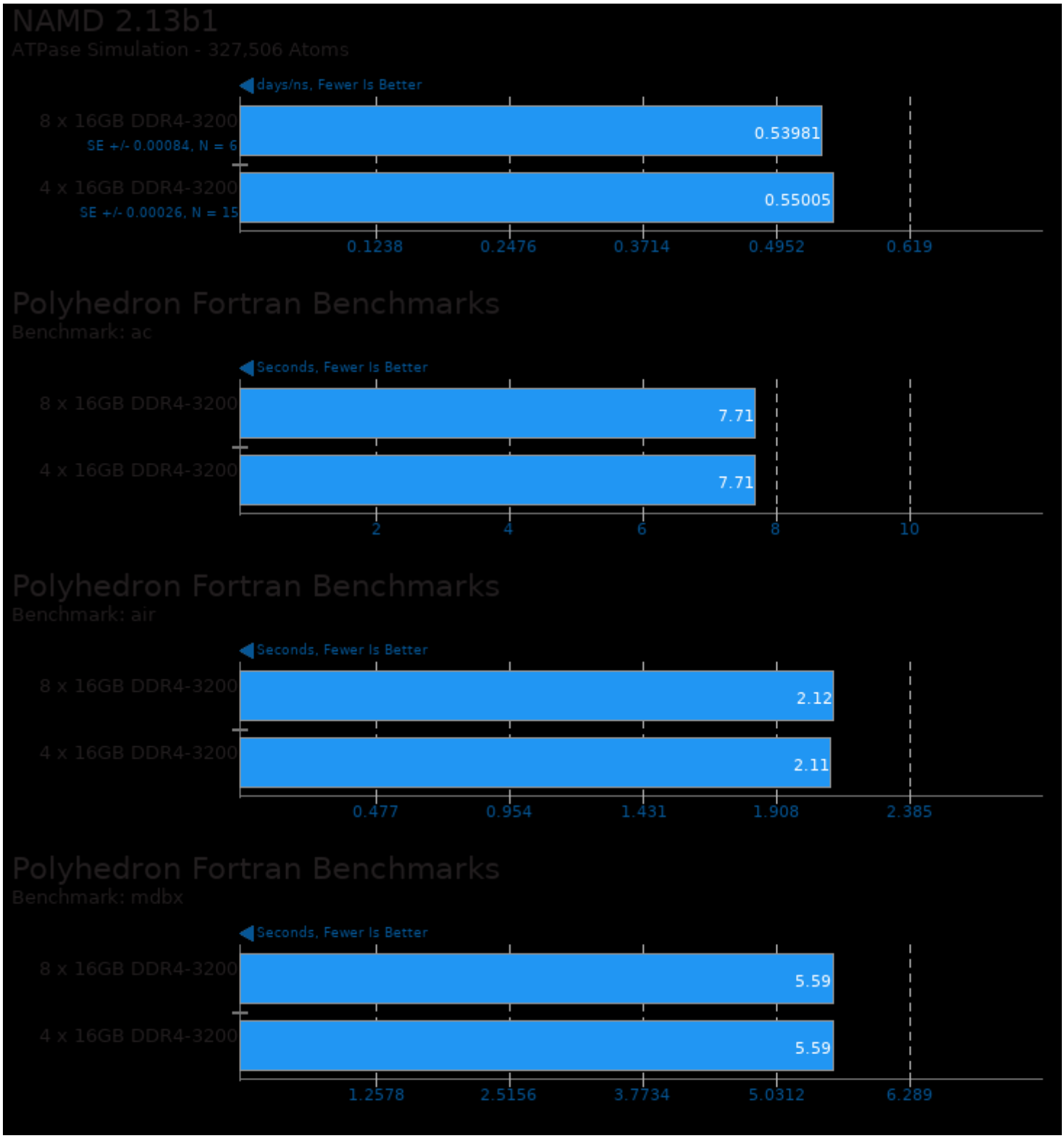
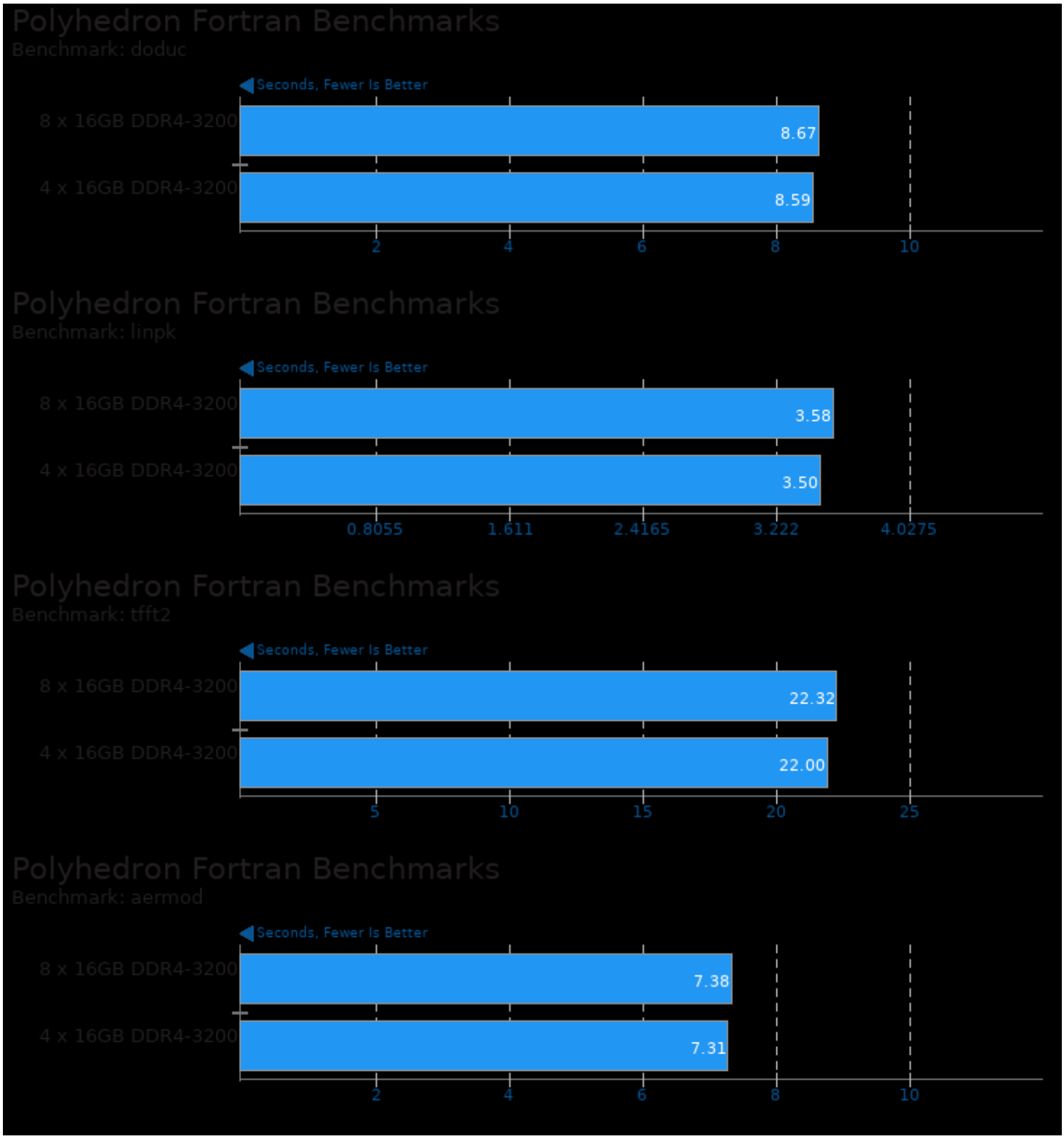
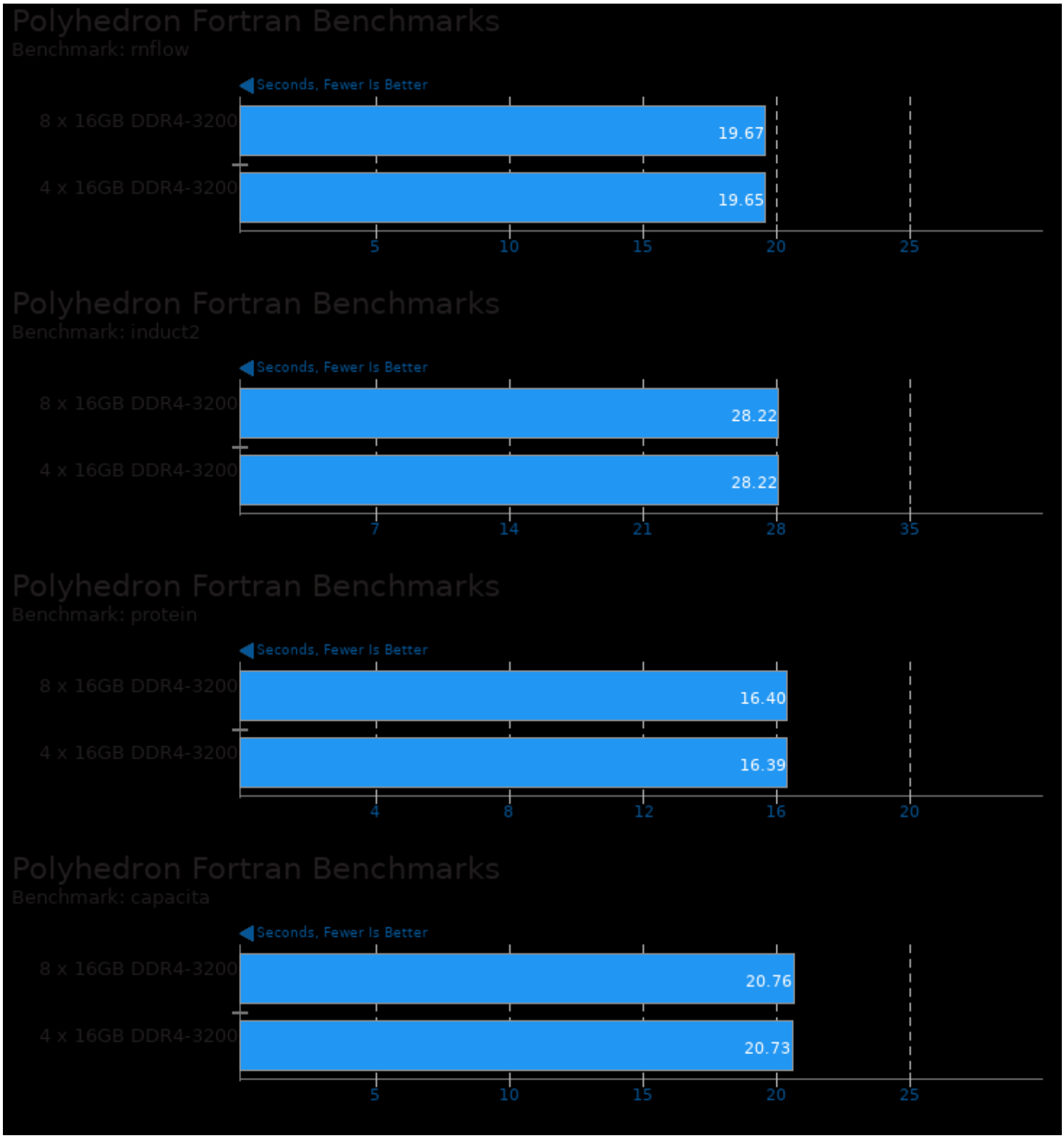


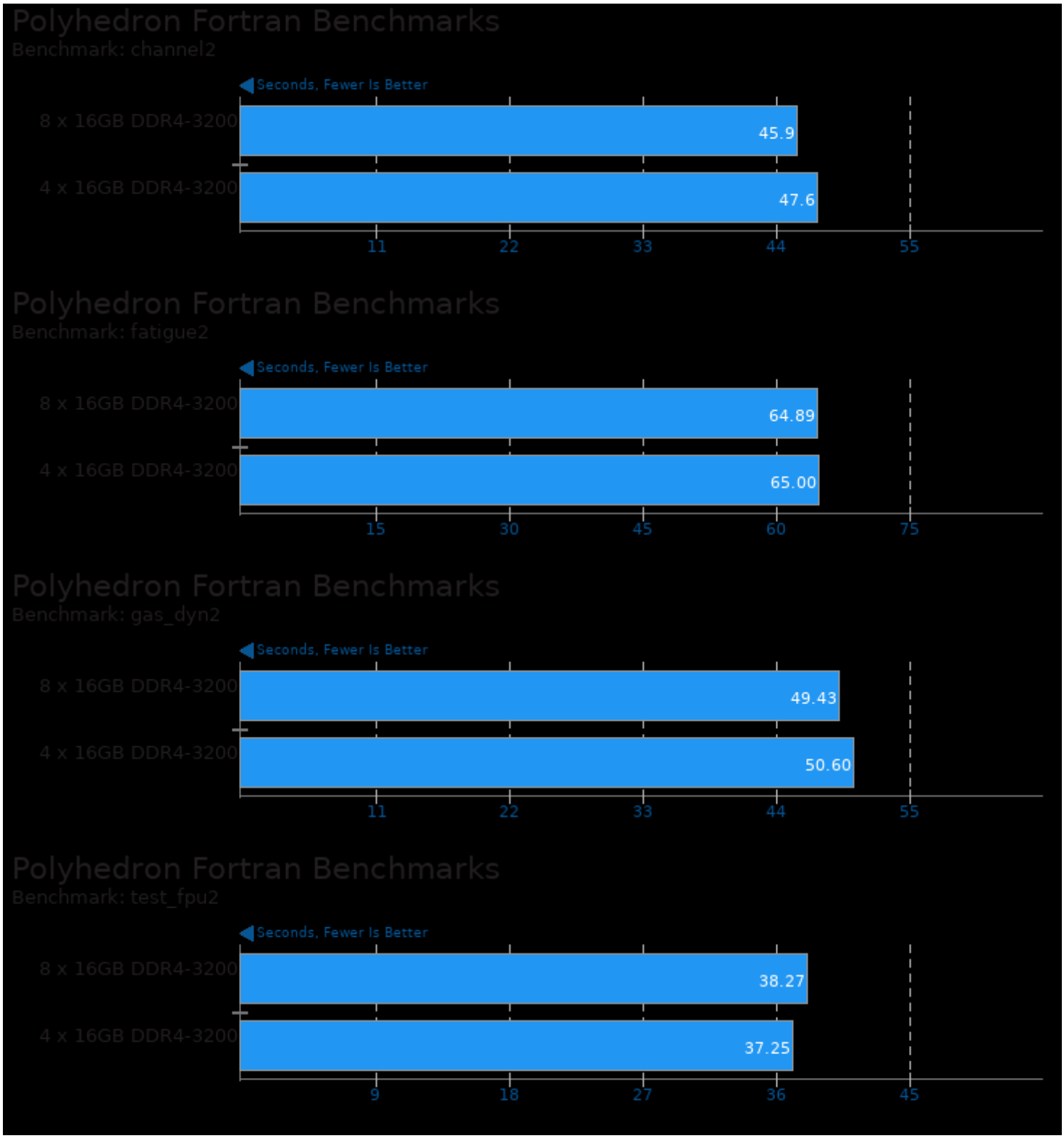
EPYC 7642 Memory Channel Test



EPYC 7642 Memory Channel Test



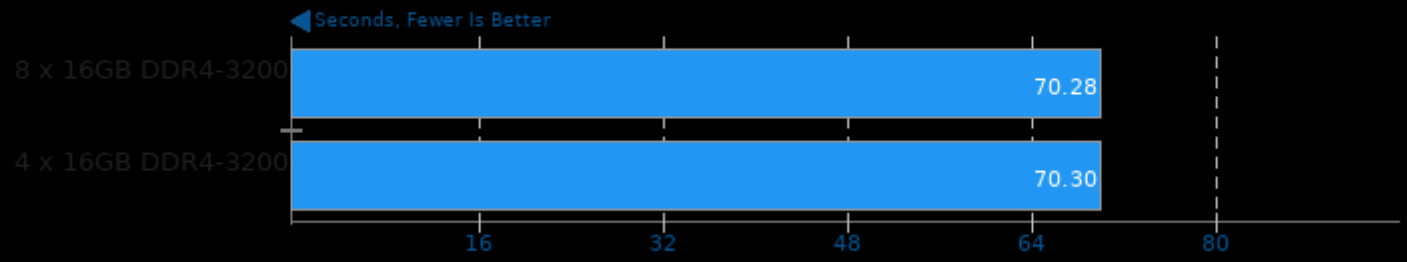
EPYC 7642 Memory Channel Test



EPYC 7642 Memory Channel Test

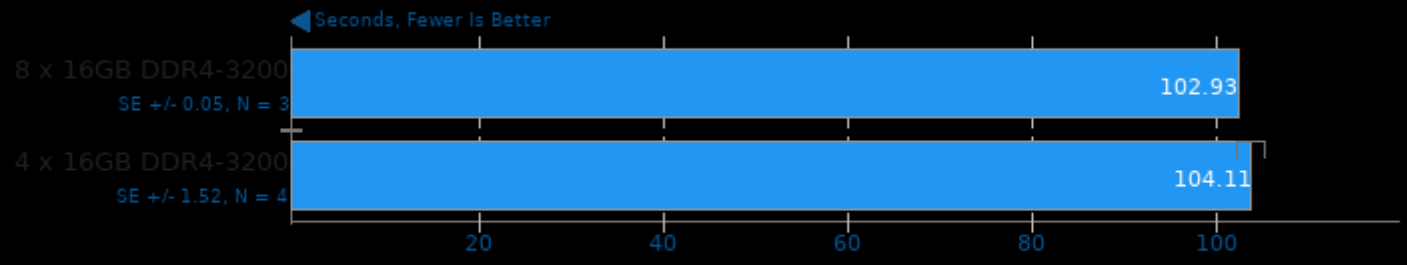
Polyhedron Fortran Benchmarks

Benchmark: mp_prop_design



Timed MrBayes Analysis 3.2.7

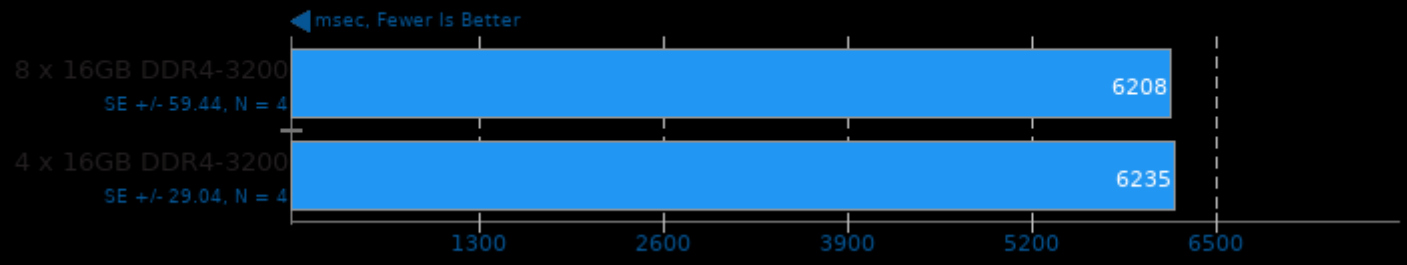
Primate Phylogeny Analysis



1. (CC) gcc options: -mmmx -msse -msse2 -msse3 -mssse3 -msse4.1 -msse4.2 -msse4a -msha -maes -mavx -mfma -mavx2 -mrdrnd -mbmi -mbmi2 -madx

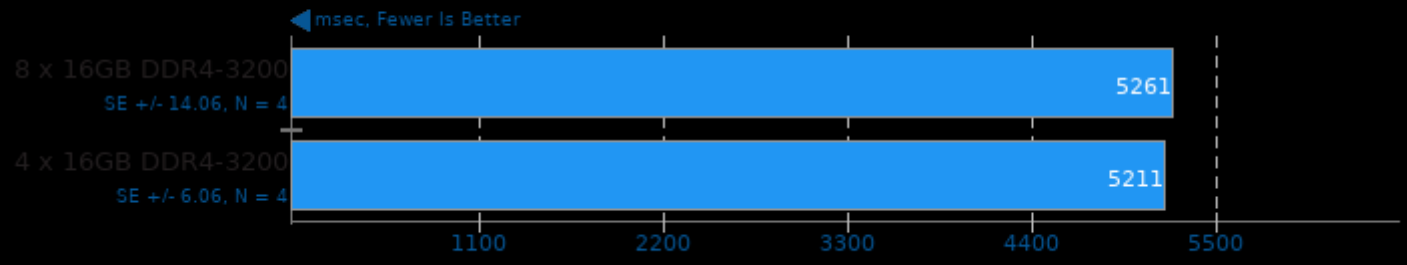
DaCapo Benchmark 9.12-MR1

Java Test: H2

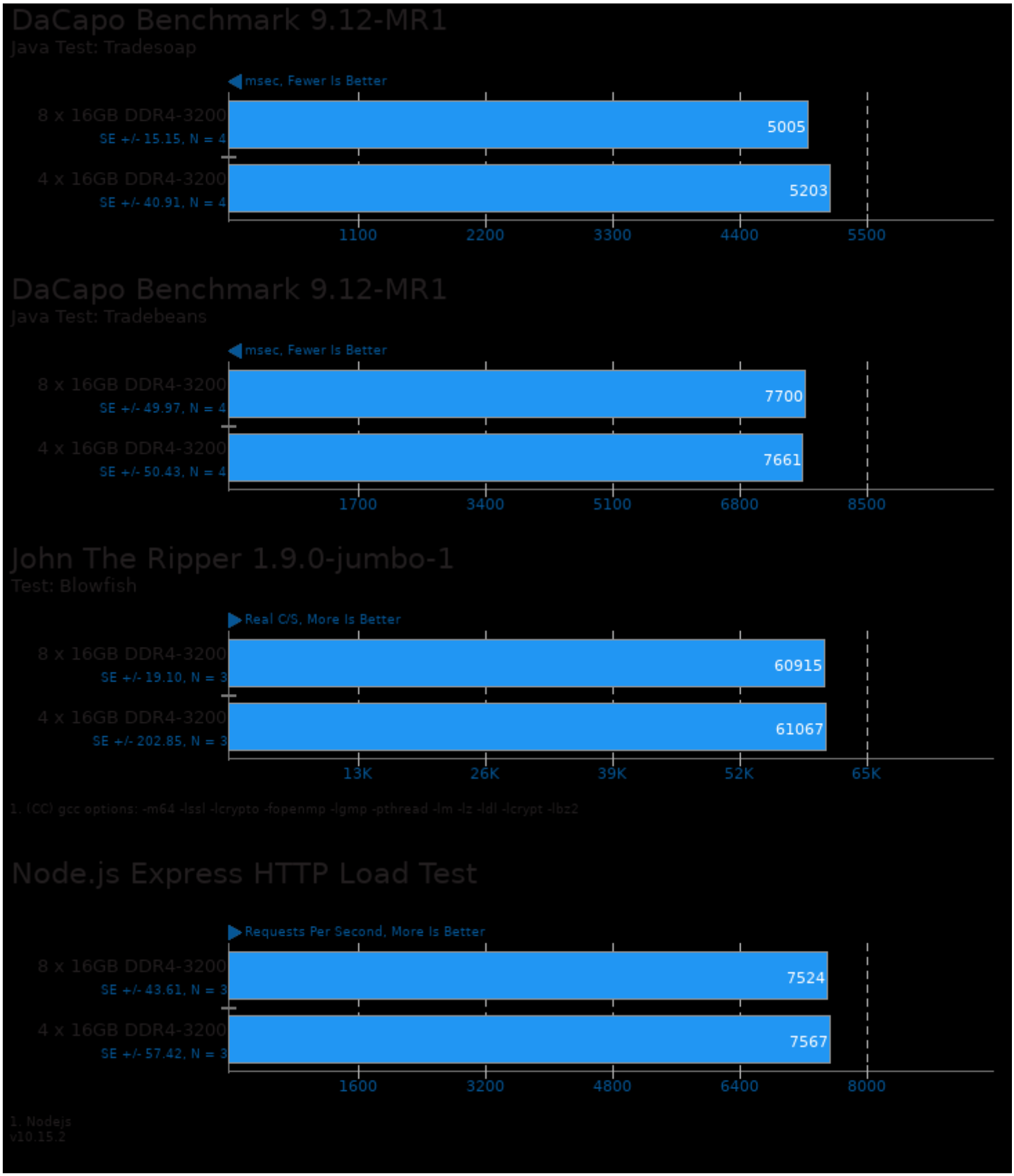


DaCapo Benchmark 9.12-MR1

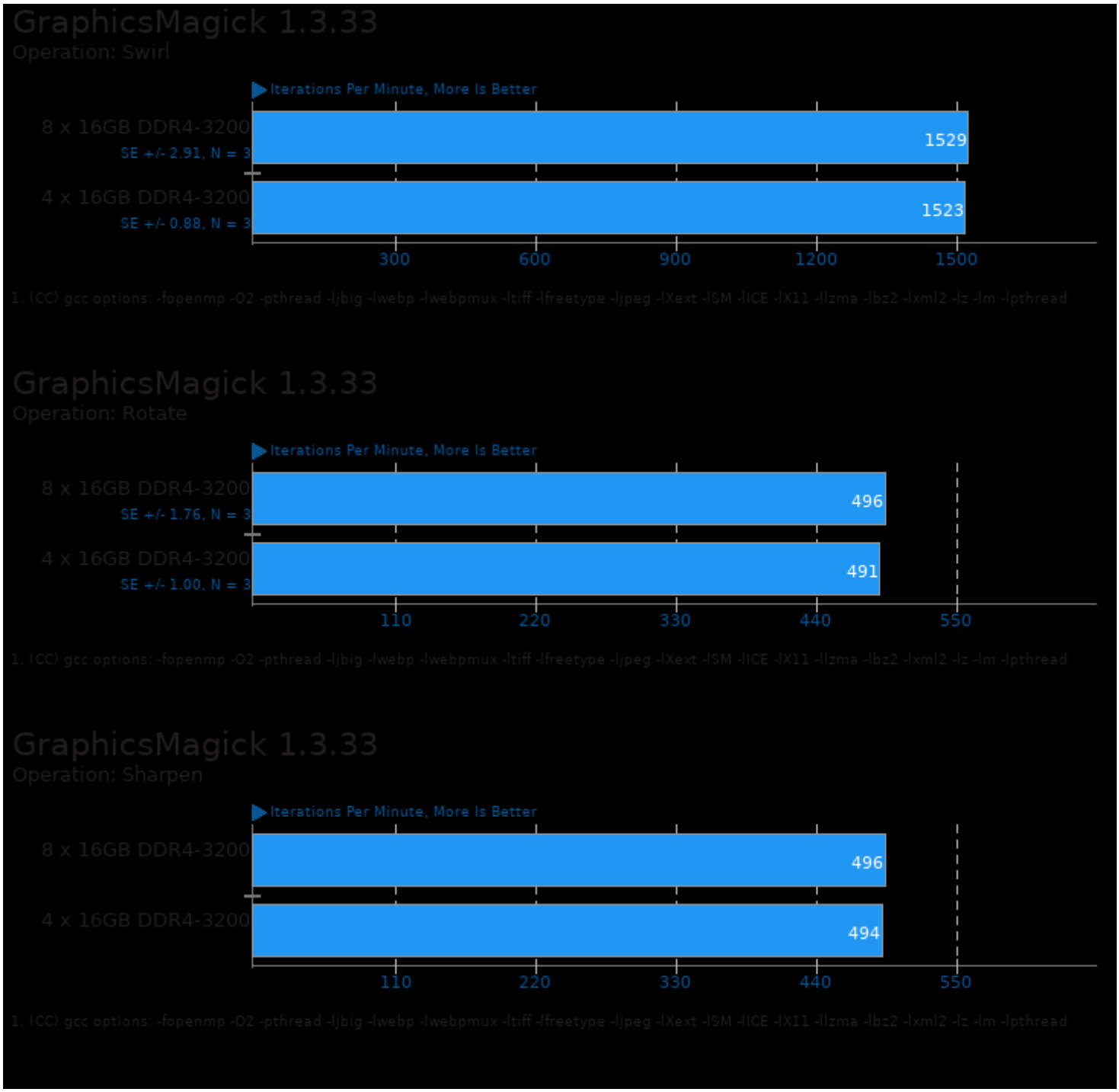
Java Test: Jython



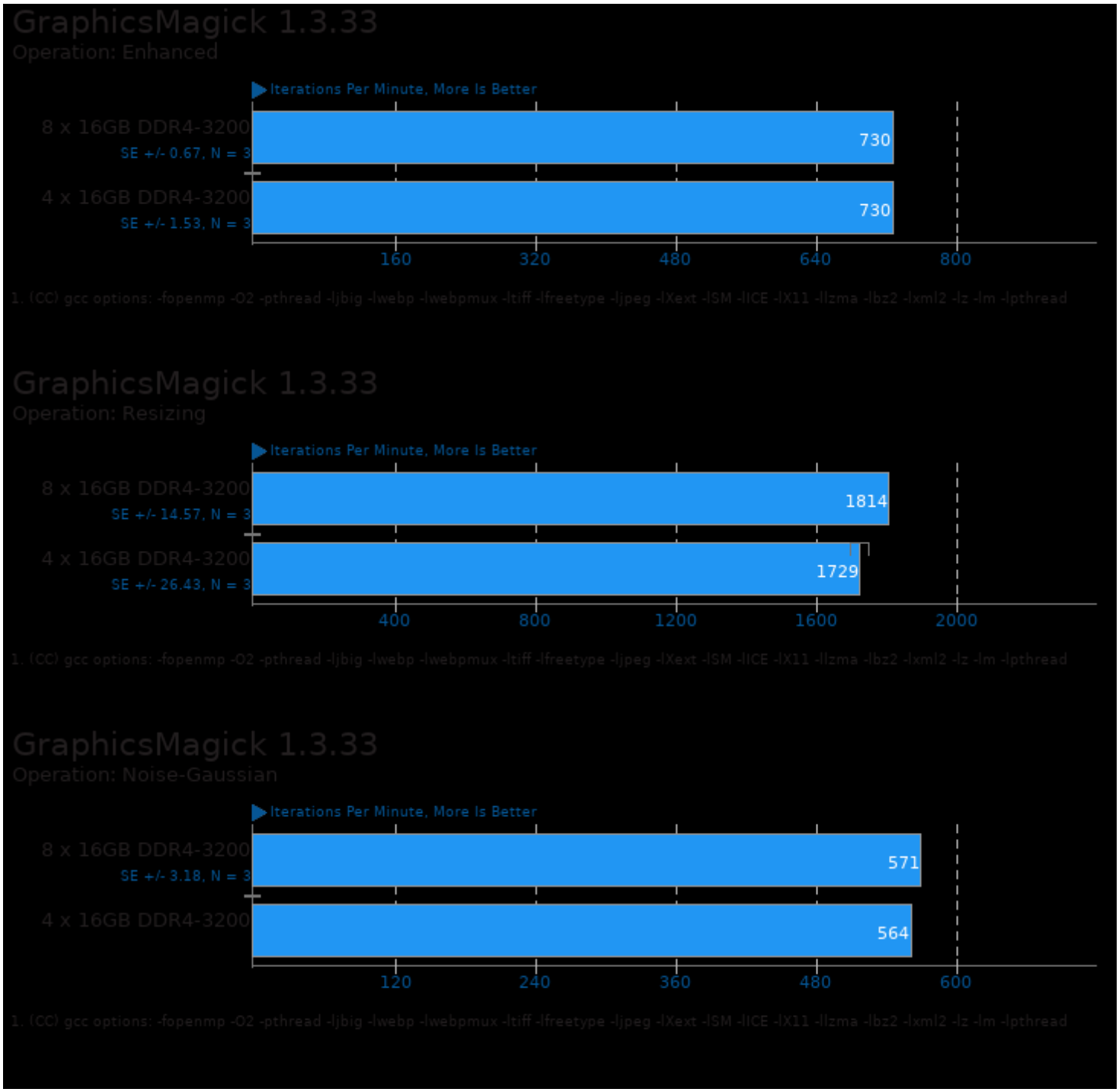
EPYC 7642 Memory Channel Test



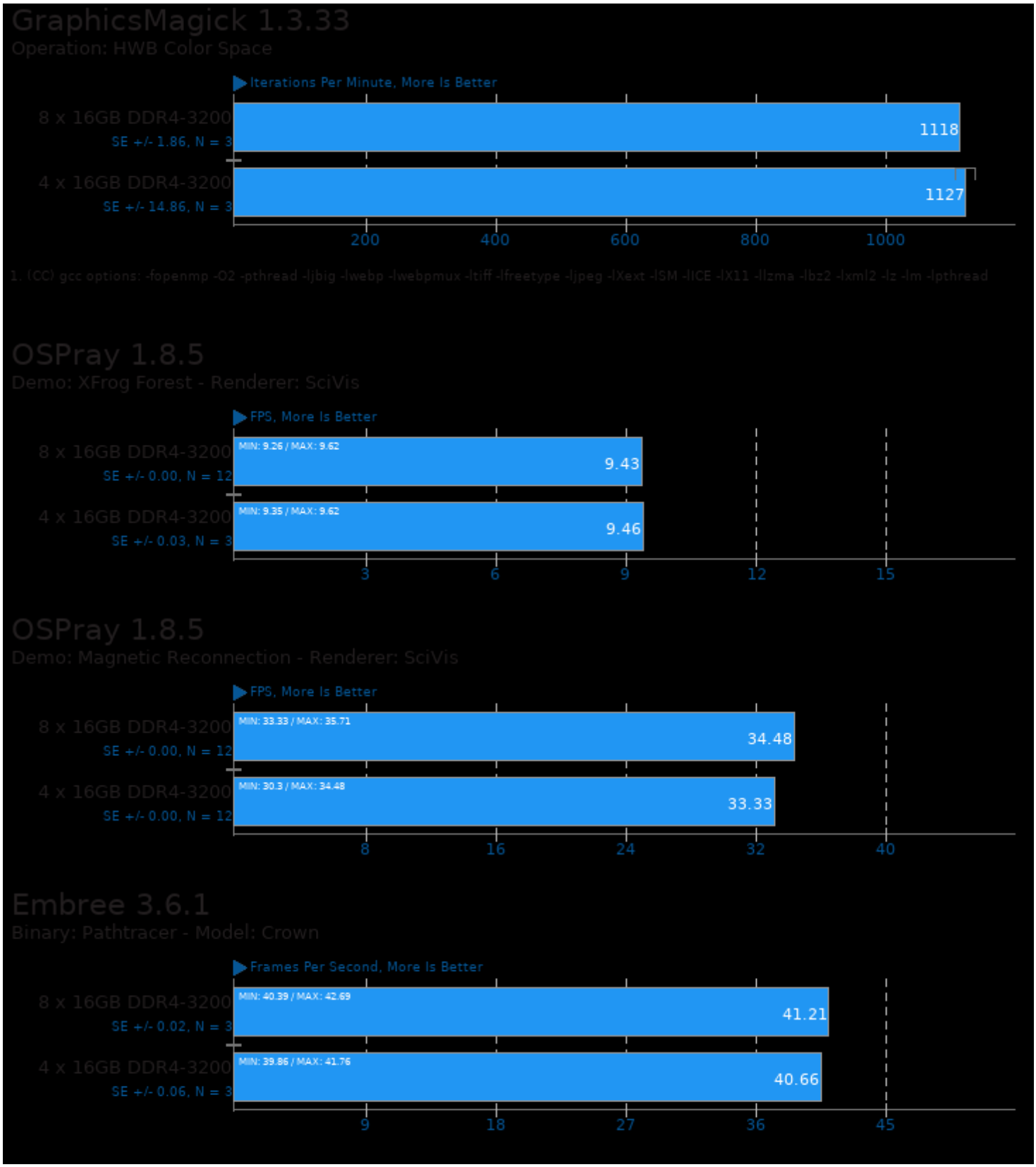
EPYC 7642 Memory Channel Test



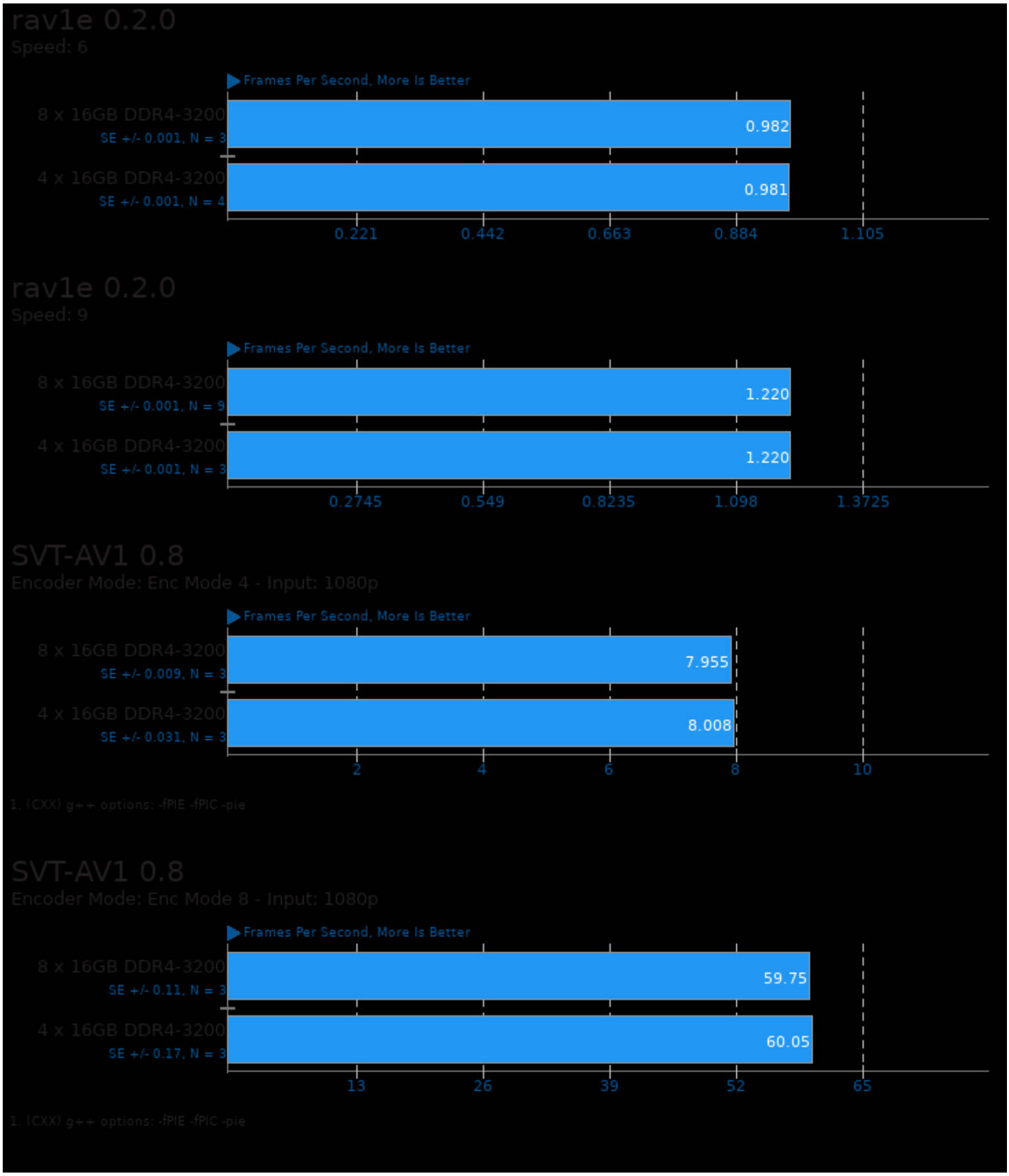
EPYC 7642 Memory Channel Test



EPYC 7642 Memory Channel Test



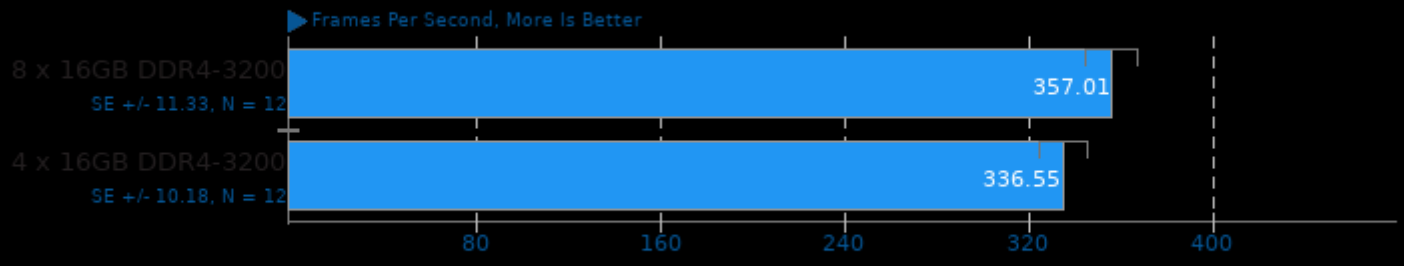
EPYC 7642 Memory Channel Test



EPYC 7642 Memory Channel Test

SVT-VP9 0.1

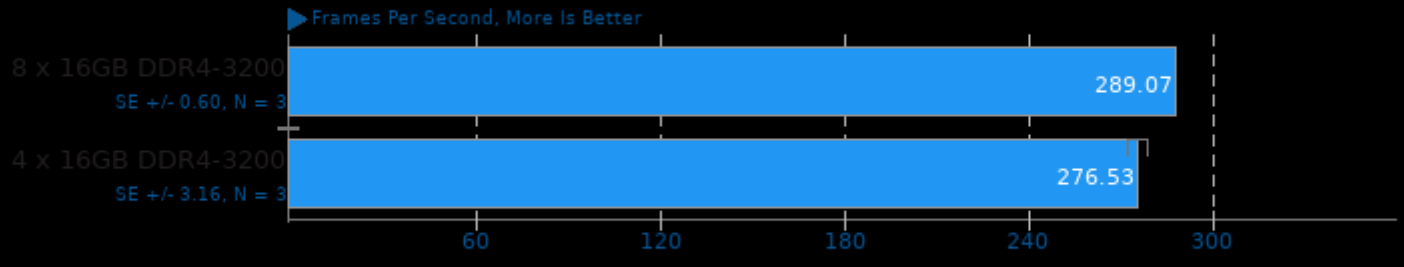
Tuning: PSNR/SSIM Optimized - Input: Bosphorus 1080p



1. (CC) gcc options: -fPIE -fPIC -fvisibility=hidden -O3 -pie -rdynamic -lpthread -lrt -lm

SVT-VP9 0.1

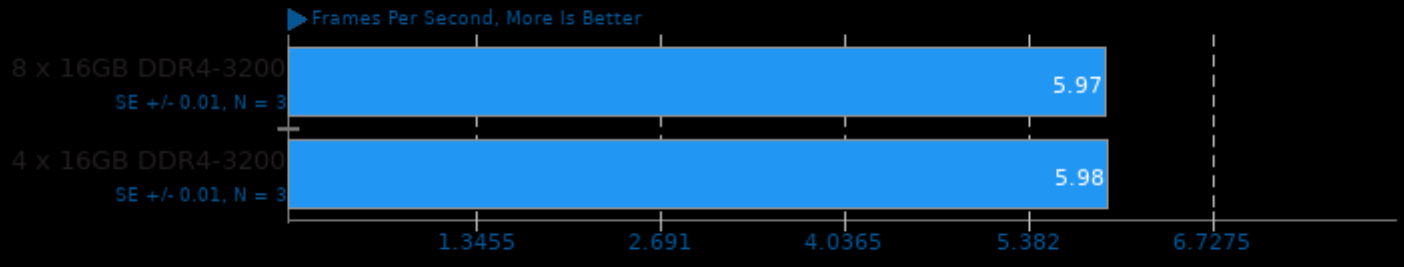
Tuning: Visual Quality Optimized - Input: Bosphorus 1080p



1. (CC) gcc options: -fPIE -fPIC -fvisibility=hidden -O3 -pie -rdynamic -lpthread -lrt -lm

VP9 libvpx Encoding 1.8.2

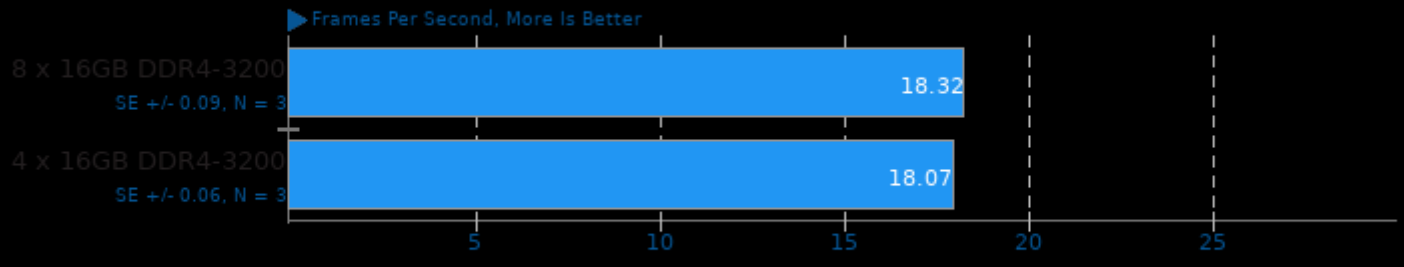
Speed: Speed 0



1. (CXX) g++ options: -m64 -lm -lpthread -O3 -fPIC -U_FORTIFY_SOURCE -std=c++11

VP9 libvpx Encoding 1.8.2

Speed: Speed 5

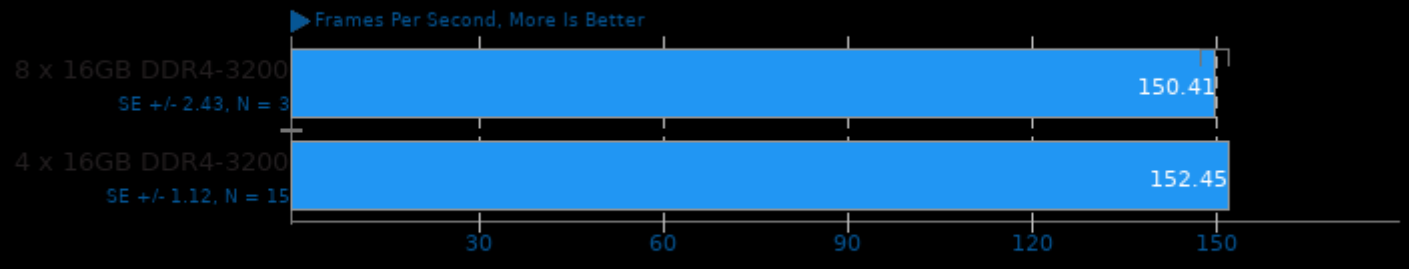


1. (CXX) g++ options: -m64 -lm -lpthread -O3 -fPIC -U_FORTIFY_SOURCE -std=c++11

EPYC 7642 Memory Channel Test

x264 2018-09-25

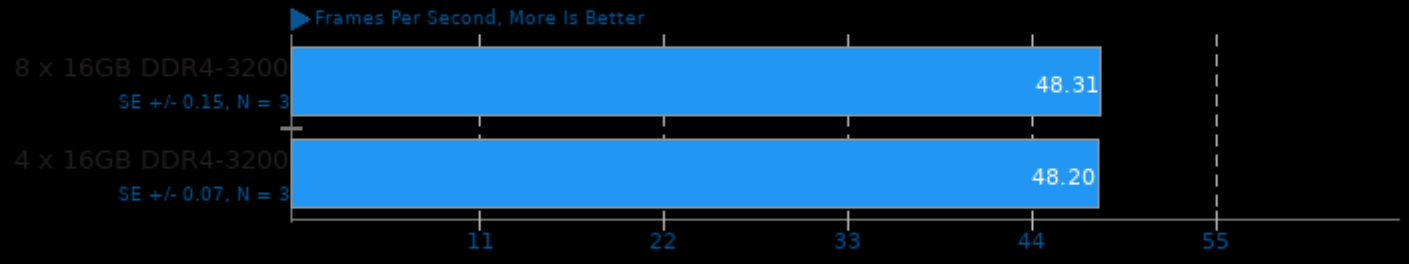
H.264 Video Encoding



1. (CC) gcc options: -ldl -m64 -lm -lpthread -O3 -ffast-math -std=gnu99 -fPIC -fomit-frame-pointer -fno-tree-vectorize

x265 3.1.2

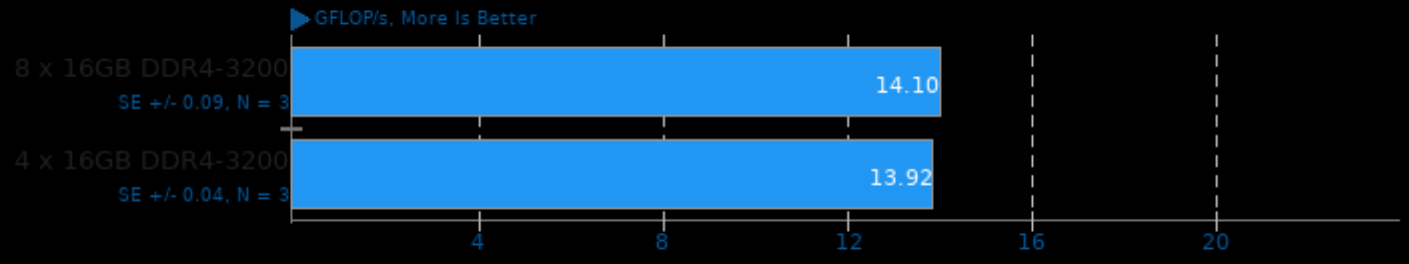
H.265 1080p Video Encoding



1. (CXX) g++ options: -O3 -rdynamic -lpthread -lrt -ldl -lnuma

ACES DGEMM 1.0

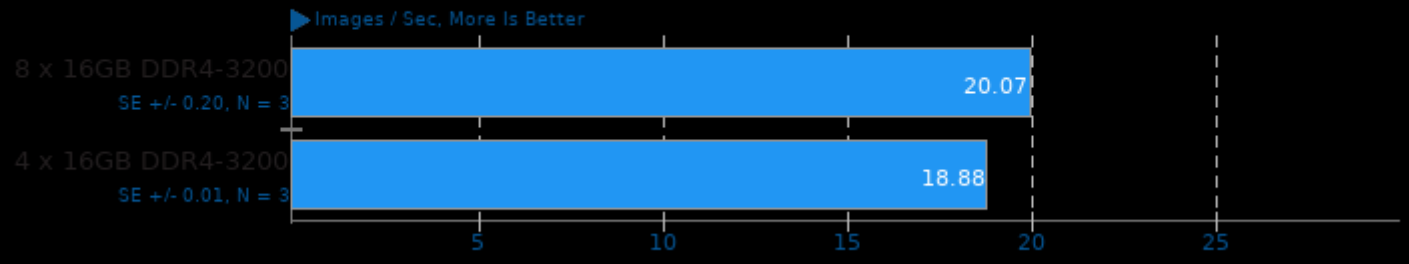
Sustained Floating-Point Rate



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

Intel Open Image Denoise 1.0.0

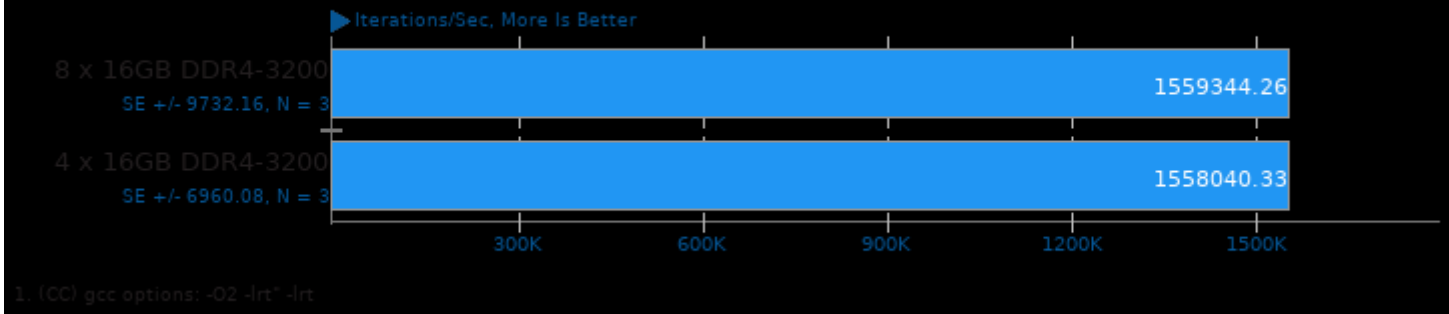
Scene: Memorial



EPYC 7642 Memory Channel Test

Coremark 1.0

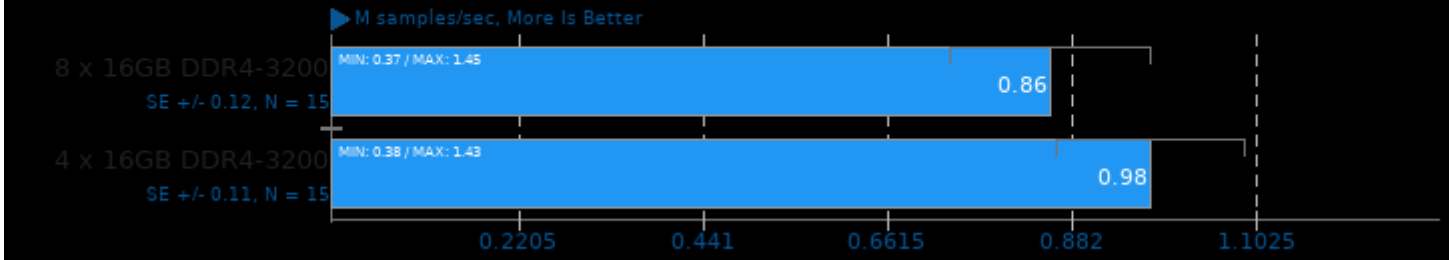
CoreMark Size 666 - Iterations Per Second



1. (CC) gcc options: -O2 -lrt" -lrt

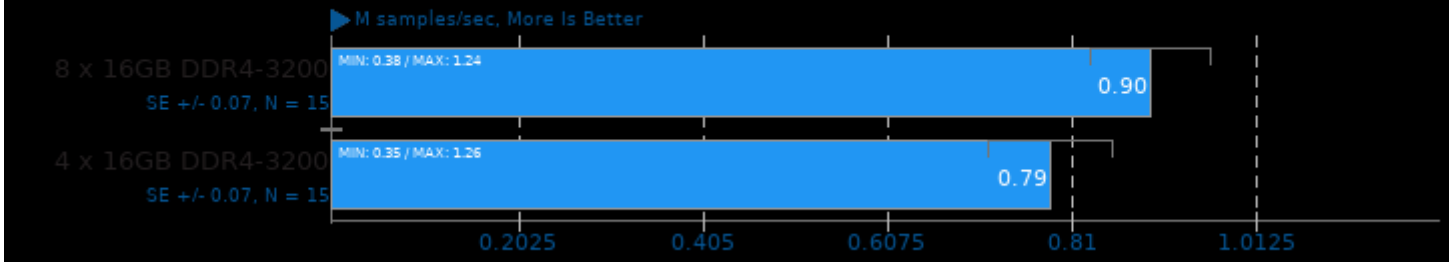
LuxCoreRender 2.2

Scene: DLSC



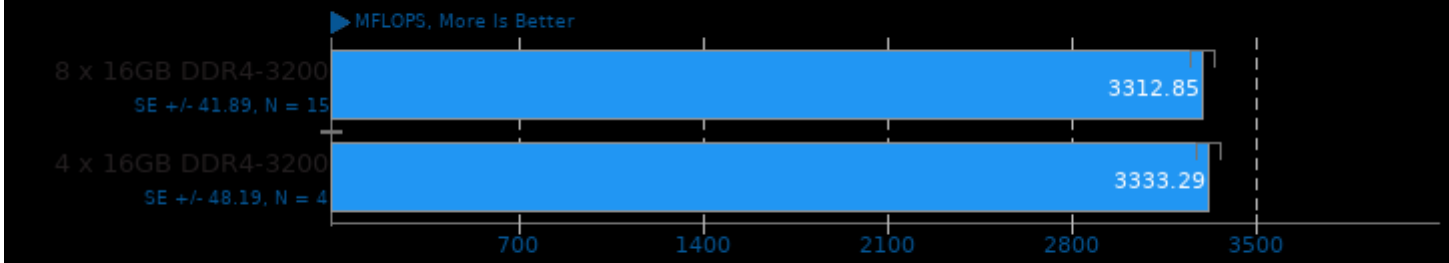
LuxCoreRender 2.2

Scene: Rainbow Colors and Prism



Himeno Benchmark 3.0

Poisson Pressure Solver

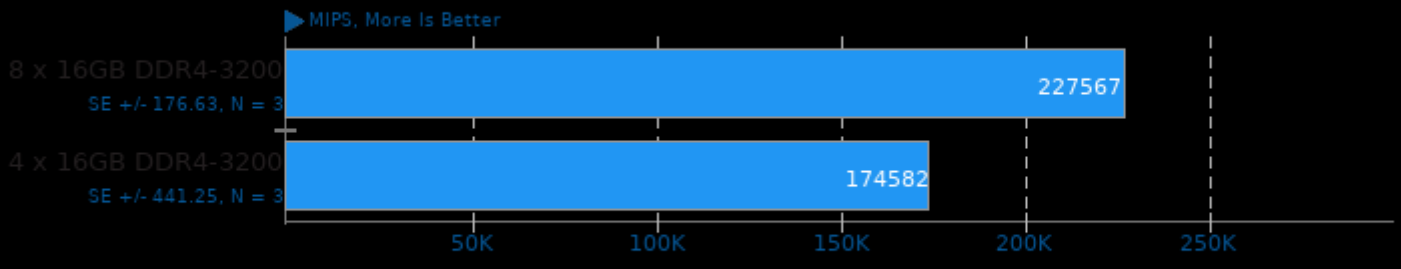


1. (CC) gcc options: -O3 -mavx2

EPYC 7642 Memory Channel Test

7-Zip Compression 16.02

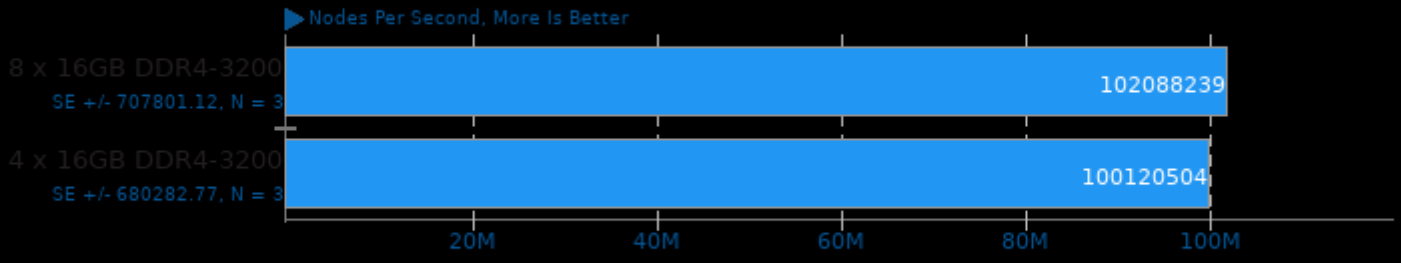
Compress Speed Test



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

Stockfish 9

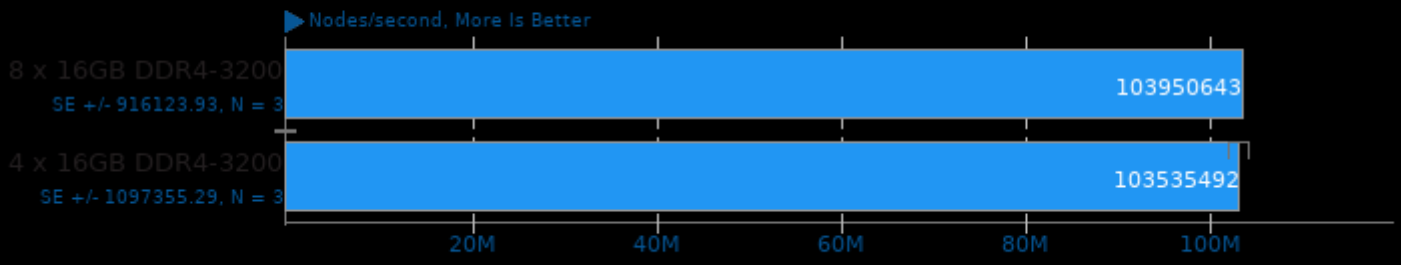
Total Time



1. (CXX) g++ options: -m64 -lpthread -fno-exceptions -std=c++11 -pedantic -O3 -msse -msse3 -mpopcnt -flto

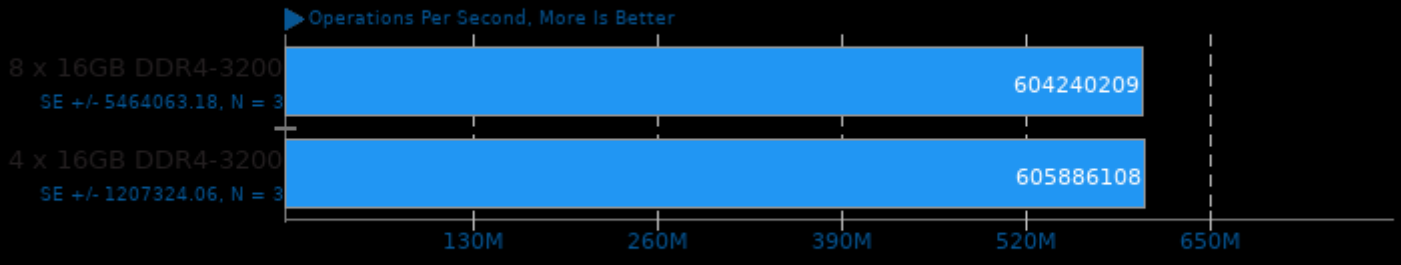
asmFish 2018-07-23

1024 Hash Memory, 26 Depth



Swet 1.5.16

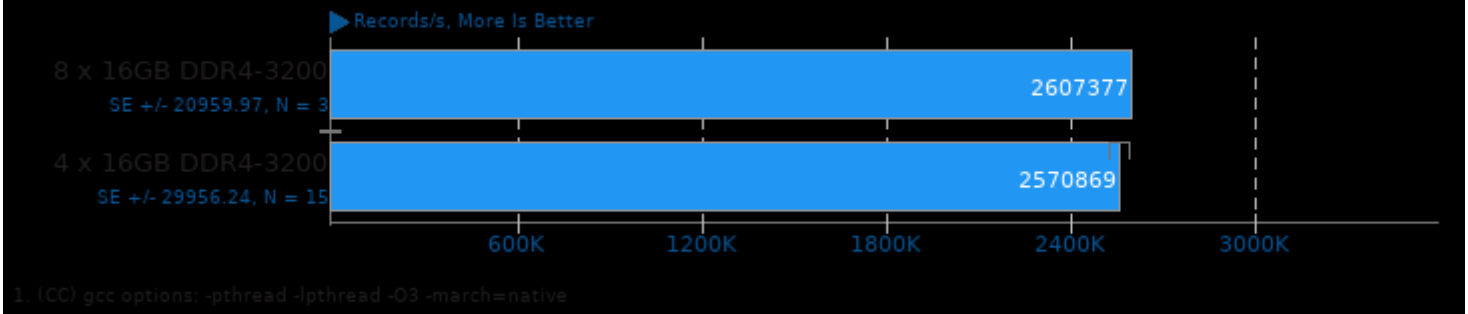
Average



1. (CC) gcc options: -lm -lpthread -lcurses -lrt

EPYC 7642 Memory Channel Test

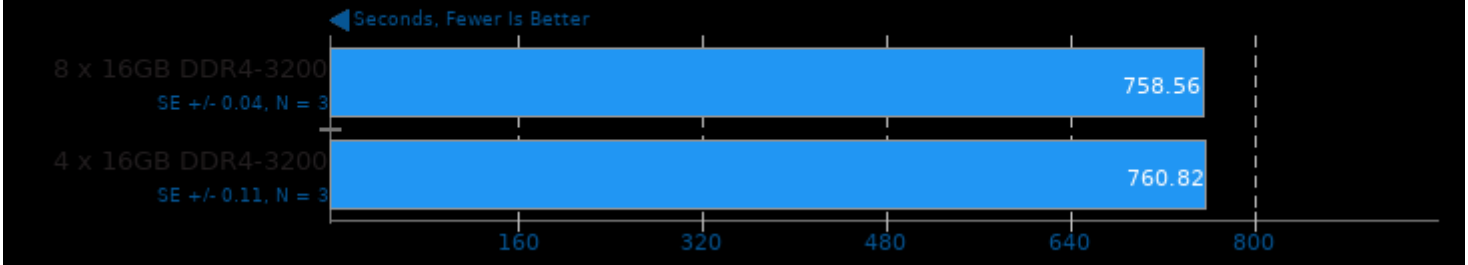
ebizzy 0.3



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

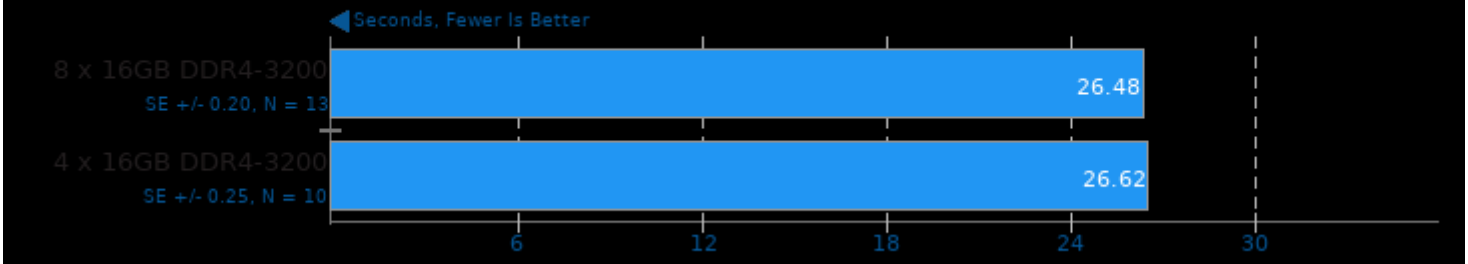
Timed GCC Compilation 8.2

Time To Compile



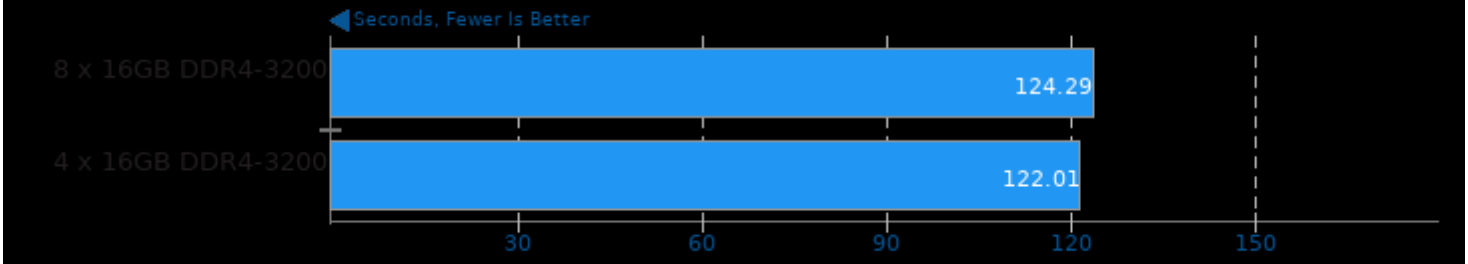
Timed Linux Kernel Compilation 5.4

Time To Compile



Timed LLVM Compilation 6.0.1

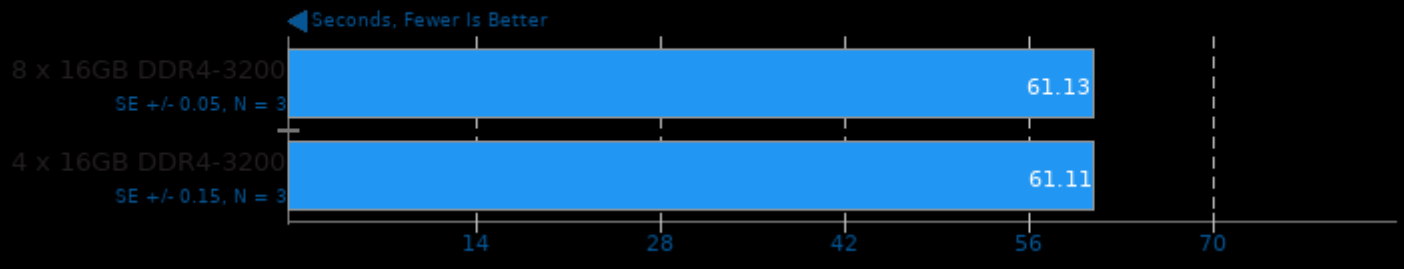
Time To Compile



EPYC 7642 Memory Channel Test

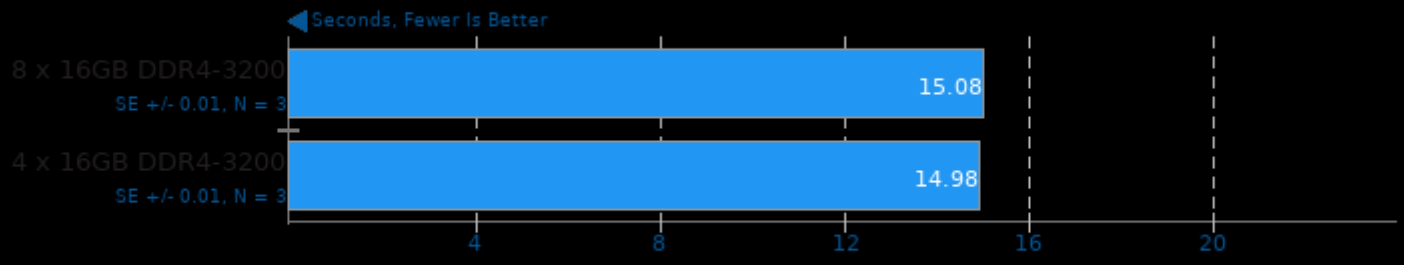
Build2 0.12

Time To Compile



C-Ray 1.1

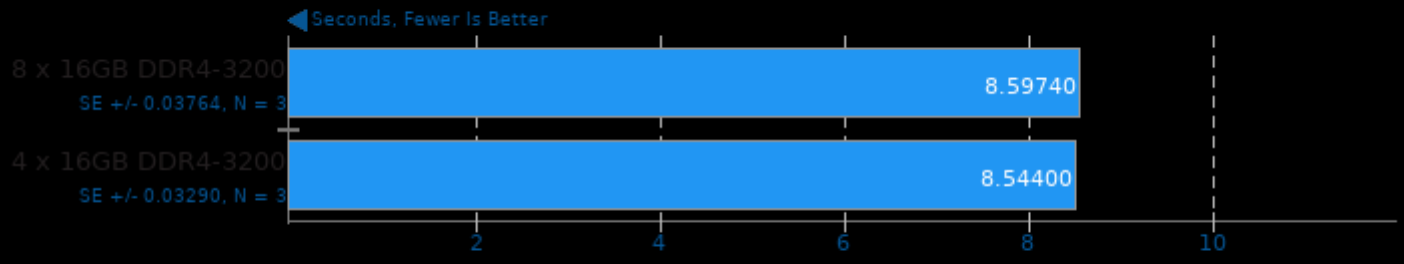
Total Time - 4K, 16 Rays Per Pixel



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

Tungsten Renderer 0.2.2

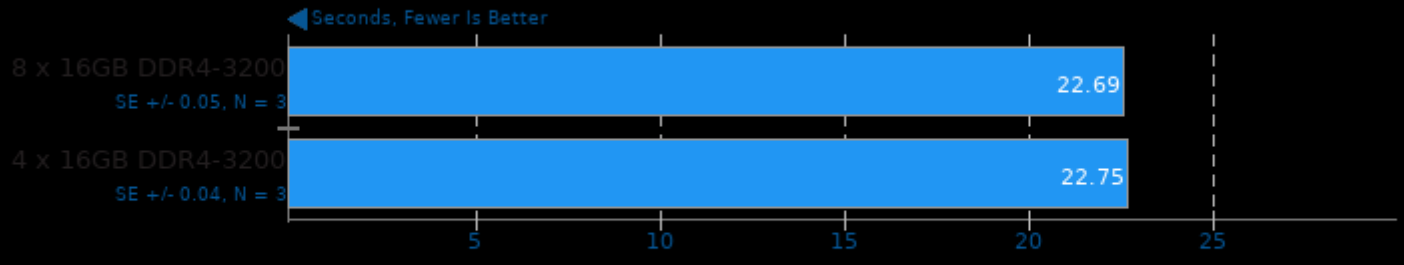
Scene: Hair



1. (CXX) g++ options: -std=c++0x -march=znver1 -msse2 -msse3 -mssse3 -msse4.1 -msse4.2 -msse4a -mfma -mbmi2 -mno-avx -mno-avx2 -mno-xop -m

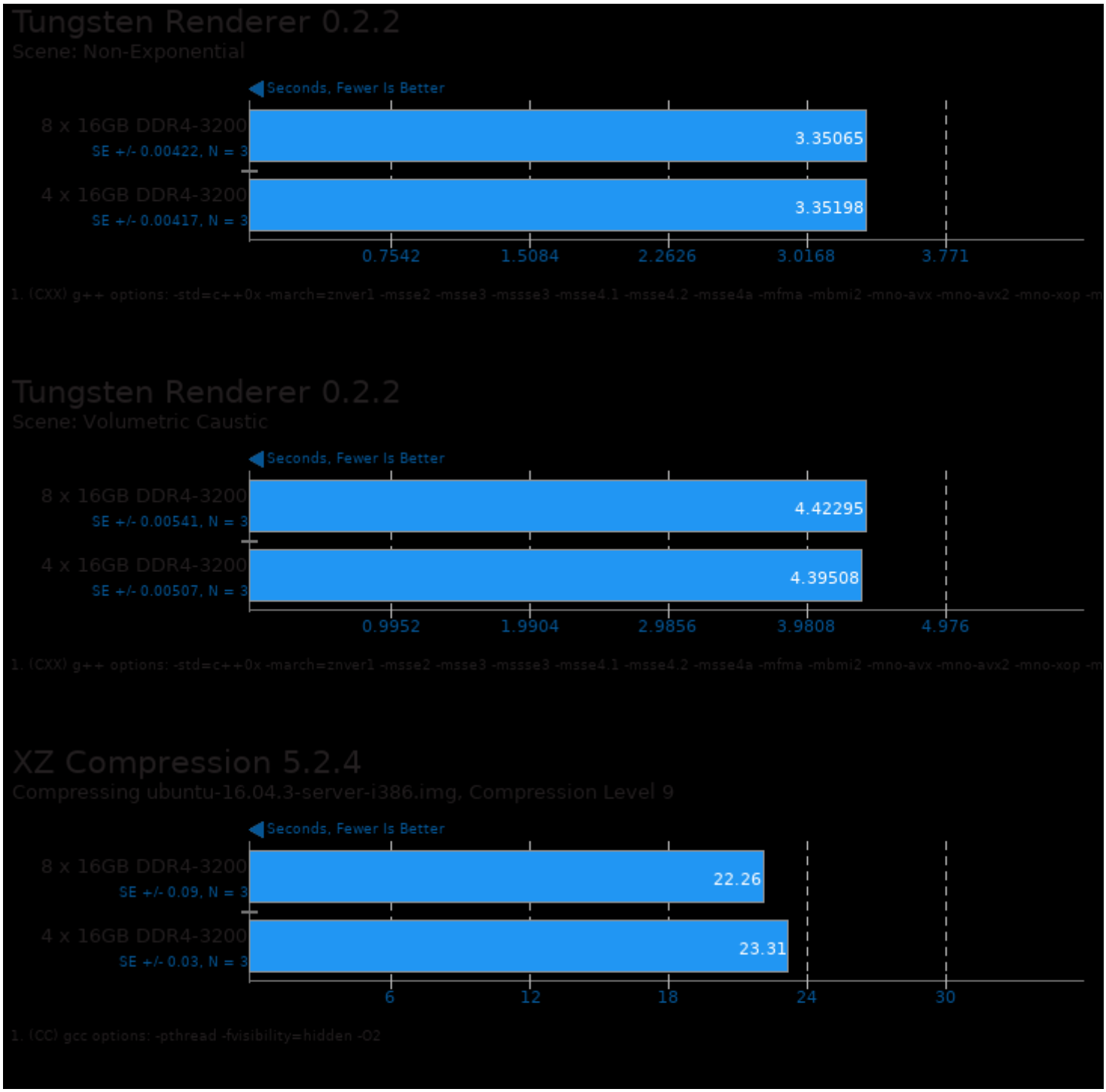
Tungsten Renderer 0.2.2

Scene: Water Caustic

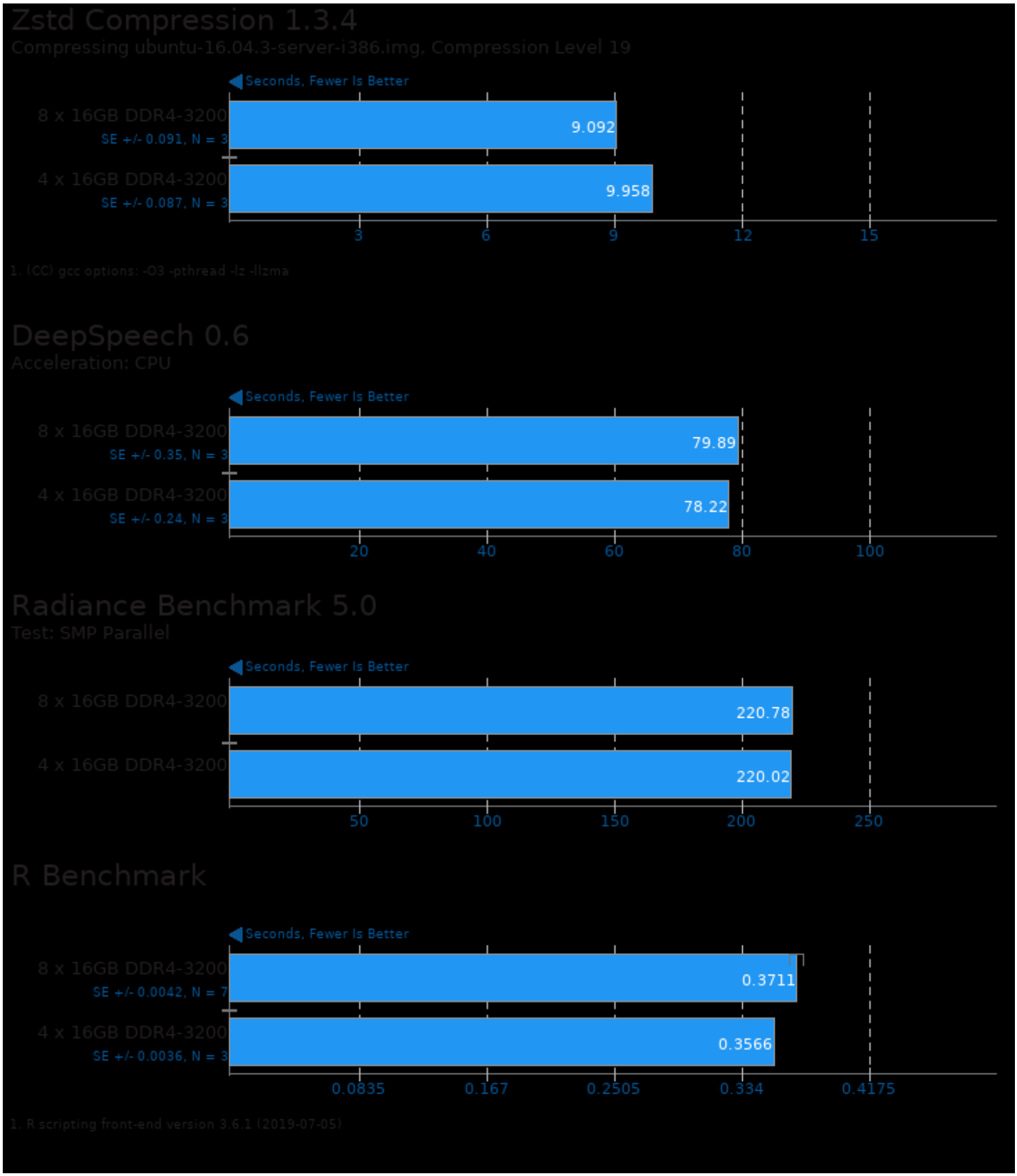


1. (CXX) g++ options: -std=c++0x -march=znver1 -msse2 -msse3 -mssse3 -msse4.1 -msse4.2 -msse4a -mfma -mbmi2 -mno-avx -mno-avx2 -mno-xop -m

EPYC 7642 Memory Channel Test



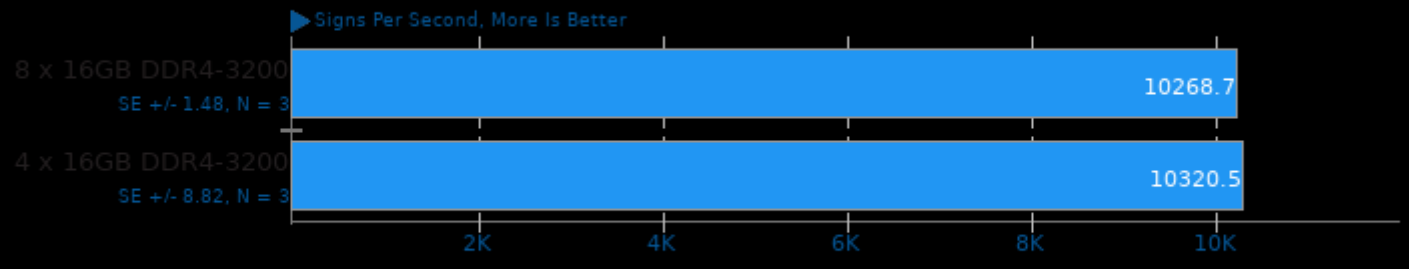
EPYC 7642 Memory Channel Test



EPYC 7642 Memory Channel Test

OpenSSL 1.1.1

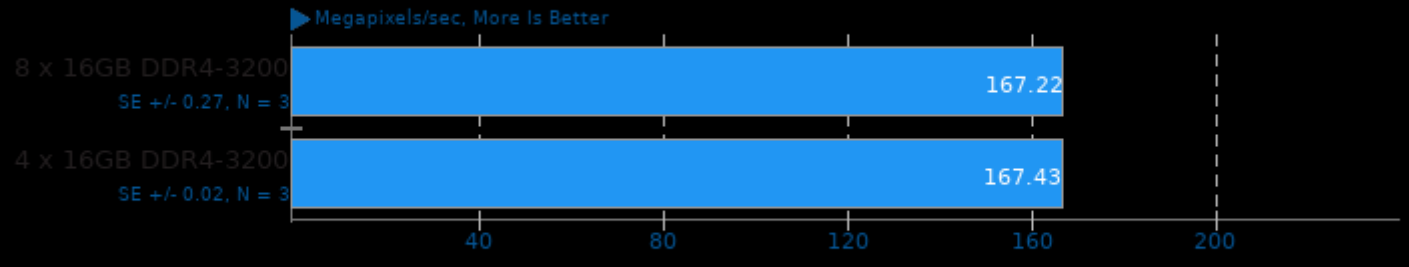
RSA 4096-bit Performance



1. (CC) gcc options: -pthread -m64 -O3 -lssl -lcrypto -ldl

libjpeg-turbo tjbench 2.0.2

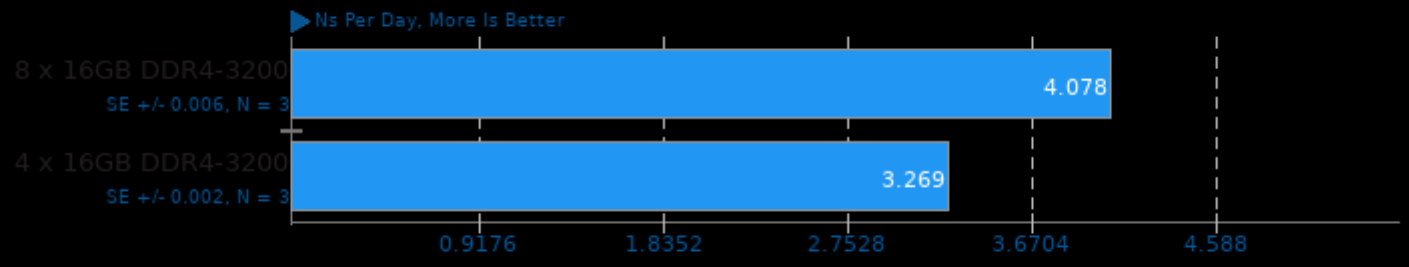
Test: Decompression Throughput



1. (CC) gcc options: -O3 -rdynamic

GROMACS 2019.4

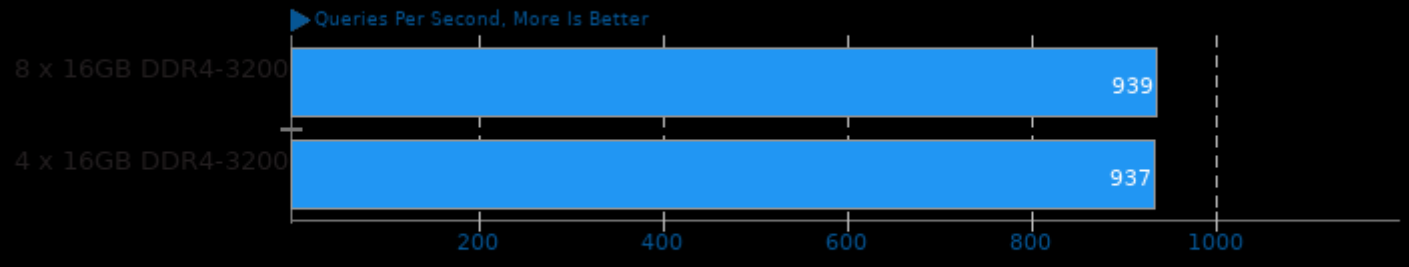
Water Benchmark



1. (CXX) g++ options: -mavx2 -mfma -std=c++11 -O3 -funroll-all-loops -pthread -lrt -lpthread -lm

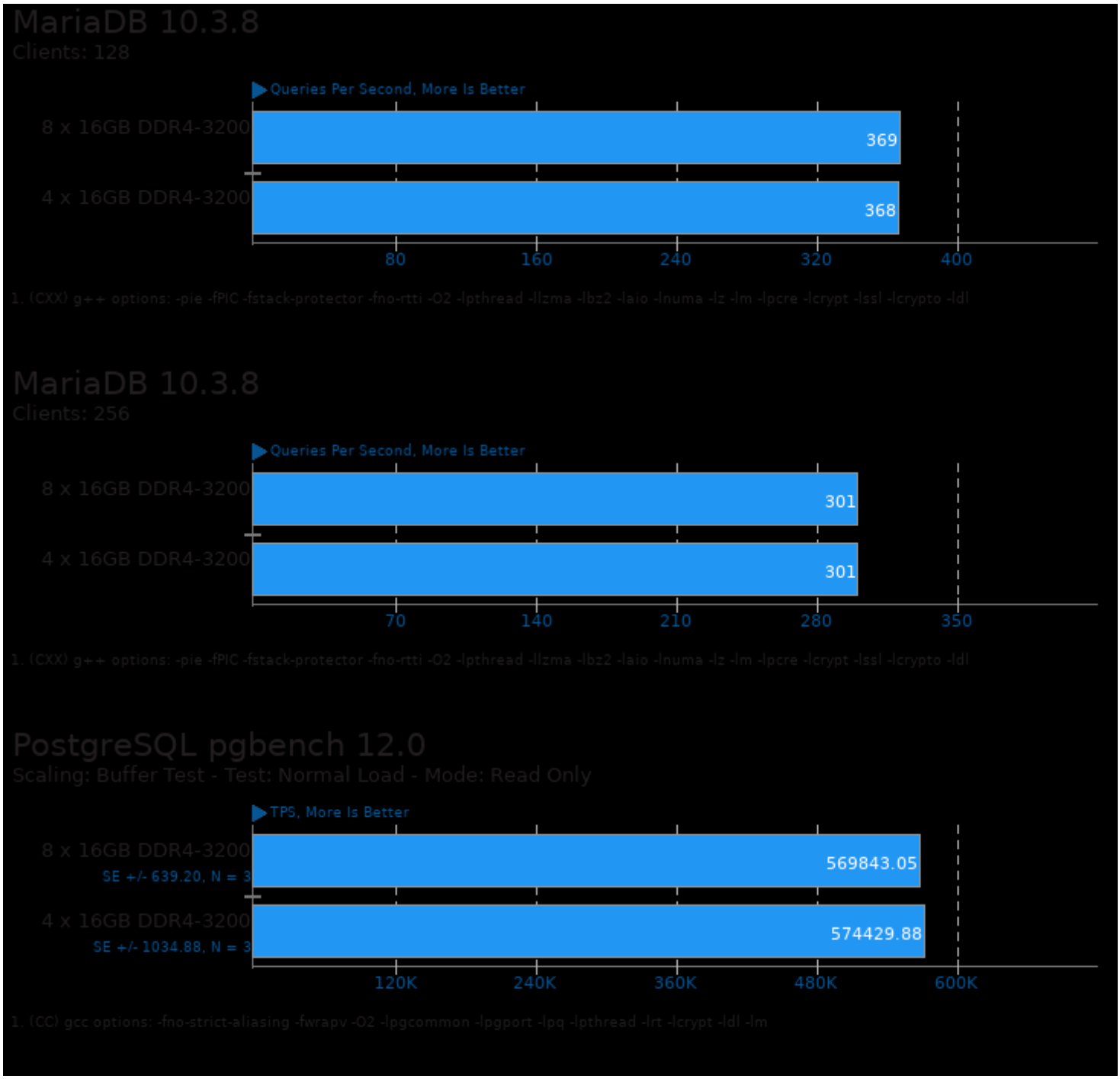
MariaDB 10.3.8

Clients: 64



1. (CXX) g++ options: -pie -fPIC -fstack-protector -fno-rtti -O2 -lpthread -llzma -lbz2 -laio -lnuma -lz -lm -lpcre -lcrypt -lssl -lcrypto -ldl

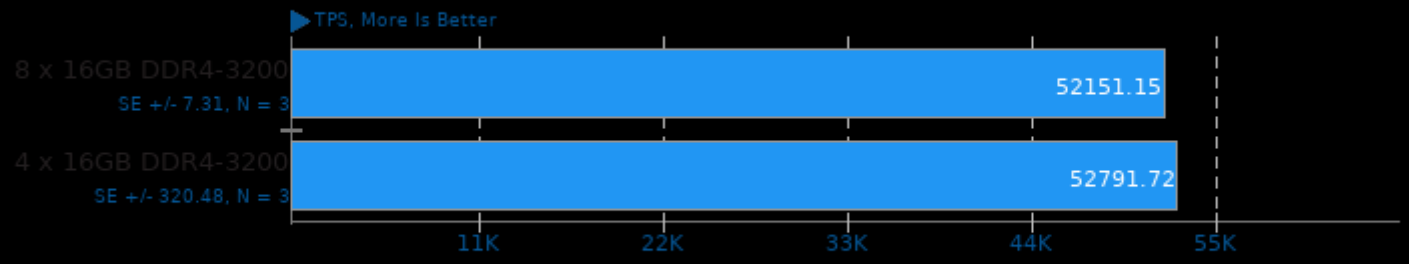
EPYC 7642 Memory Channel Test



EPYC 7642 Memory Channel Test

PostgreSQL pgbench 12.0

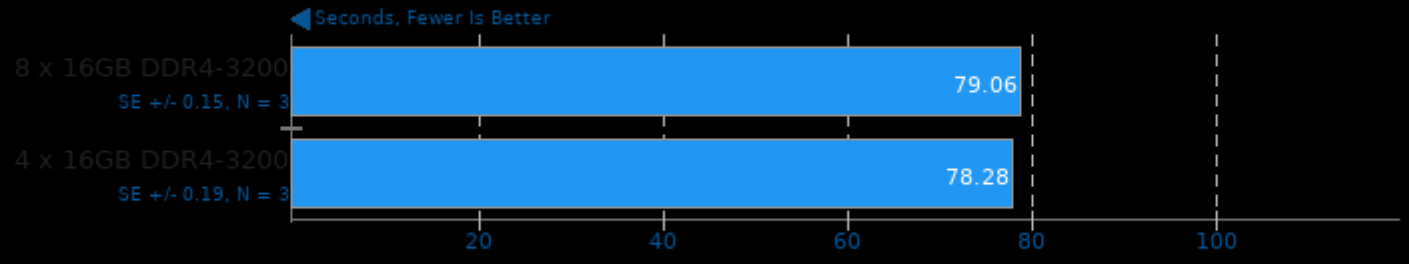
Scaling: Buffer Test - Test: Normal Load - Mode: Read Write



1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -lcrypt -ldl -lm

SQLite Speedtest 3.30

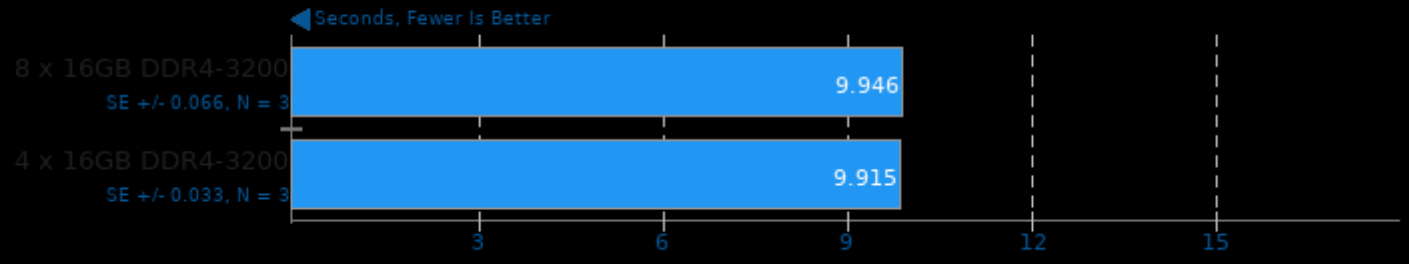
Timed Time - Size 1,000



1. (CC) gcc options: -O2 -ldl -lz -lpthread

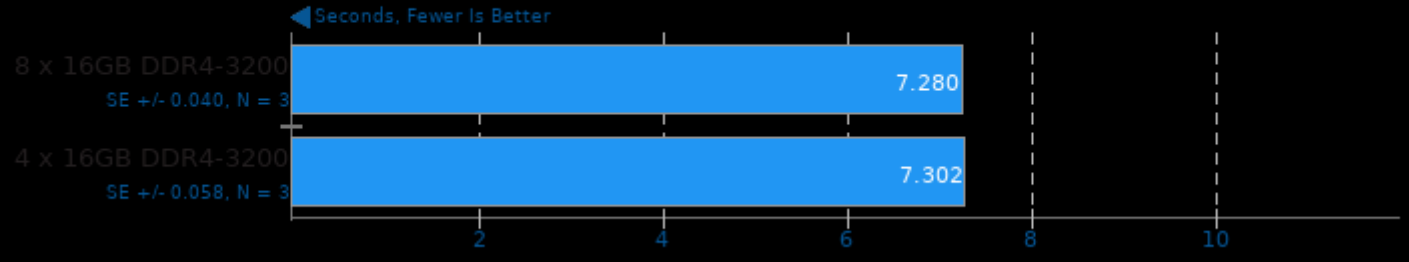
GEGL

Operation: Crop

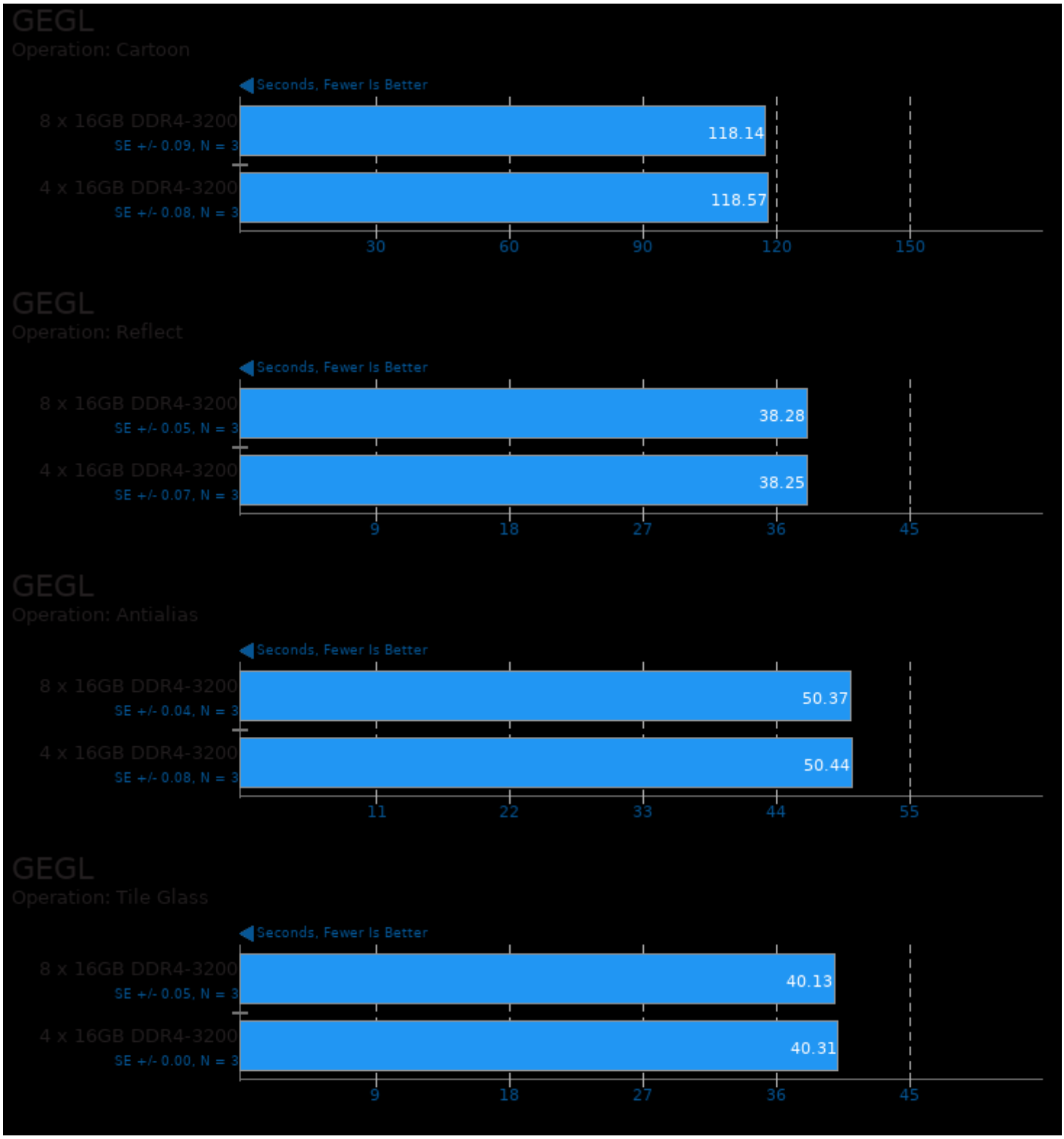


GEGL

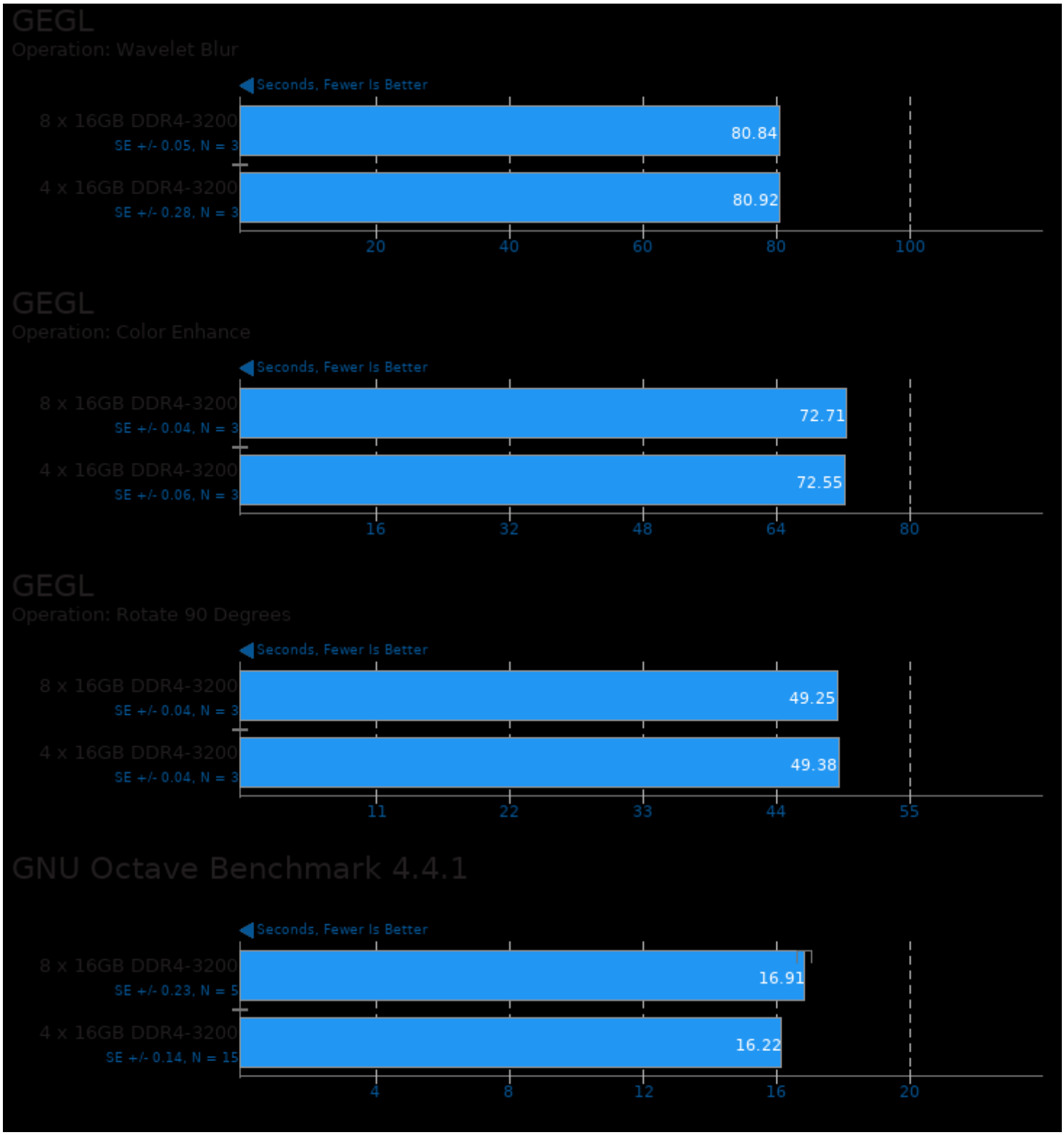
Operation: Scale



EPYC 7642 Memory Channel Test



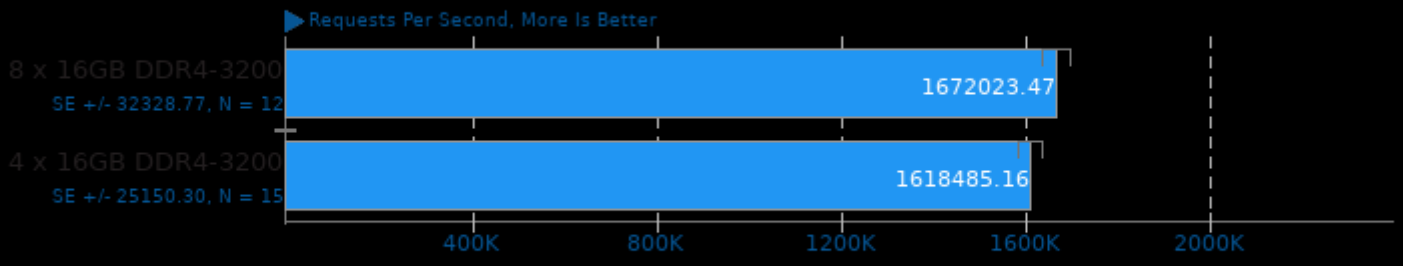
EPYC 7642 Memory Channel Test



EPYC 7642 Memory Channel Test

Redis 5.0.5

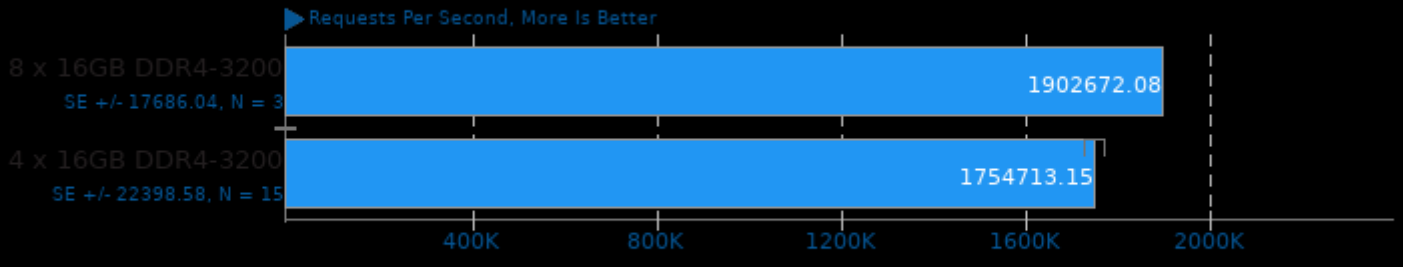
Test: SADD



1. (CXX) g++ options: -MM -MT -g3 -fvisibility=hidden -O3

Redis 5.0.5

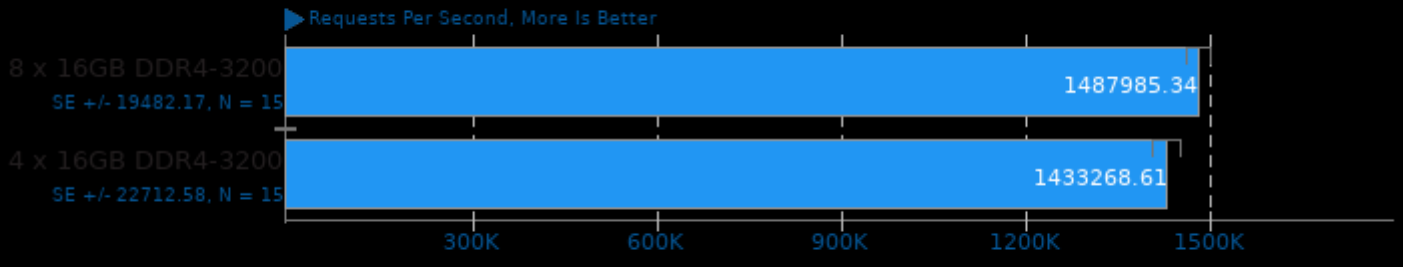
Test: GET



1. (CXX) g++ options: -MM -MT -g3 -fvisibility=hidden -O3

Redis 5.0.5

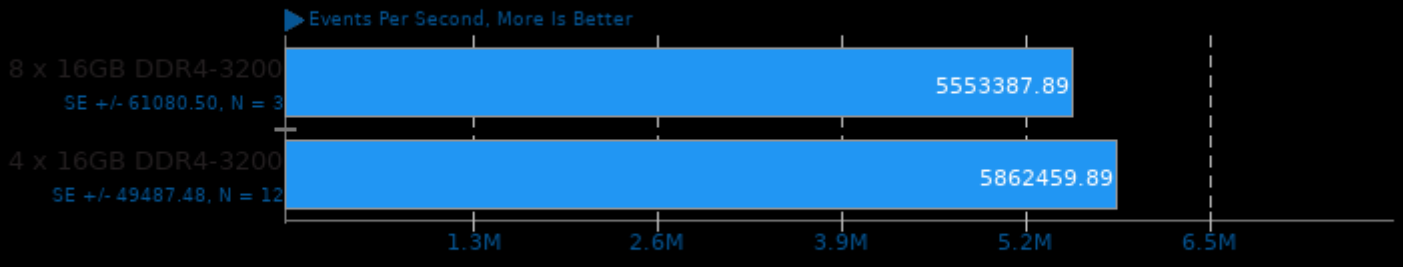
Test: SET



1. (CXX) g++ options: -MM -MT -g3 -fvisibility=hidden -O3

Sysbench 2018-07-28

Test: Memory

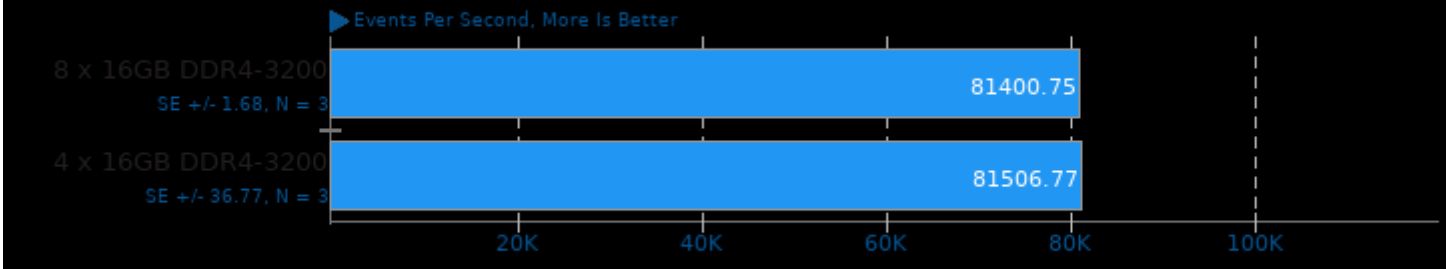


1. (CC) gcc options: -pthread -O3 -funroll-loops -ggdb3 -march=amdfam10 -rdynamic -ldl -laio -lm

EPYC 7642 Memory Channel Test

Sysbench 2018-07-28

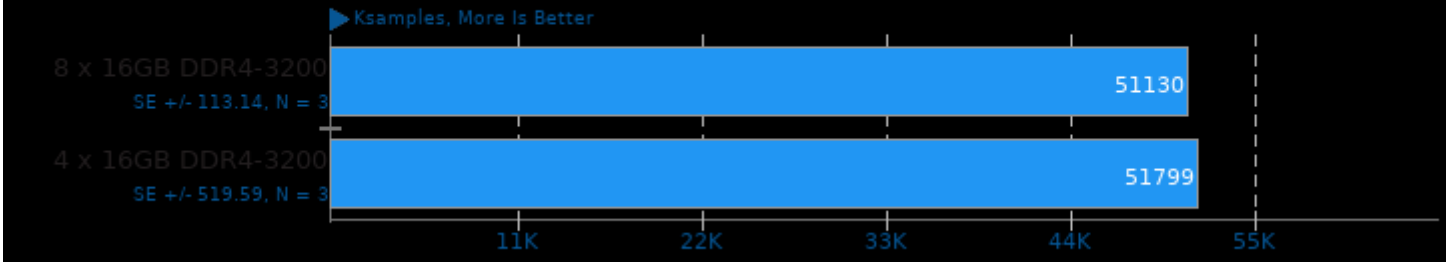
Test: CPU



1. (CC) gcc options: -pthread -O3 -funroll-loops -ggdb3 -march=amdfam10 -rdynamic -ldl -laio -lm

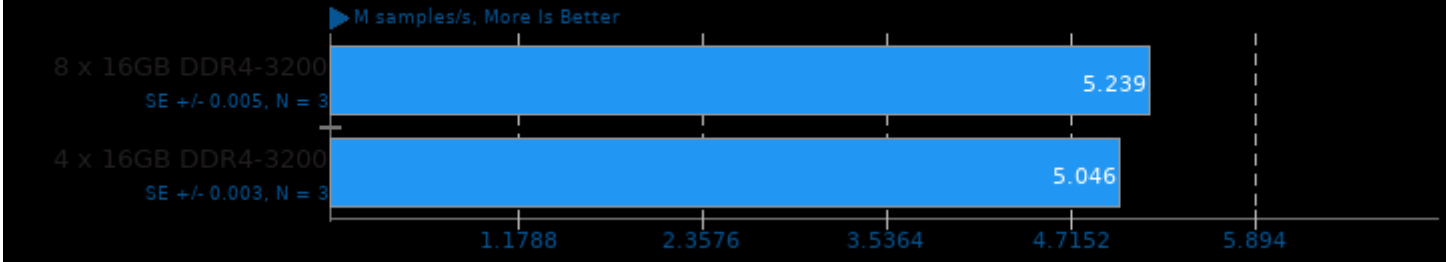
Chaos Group V-RAY 4.10.03

Mode: CPU



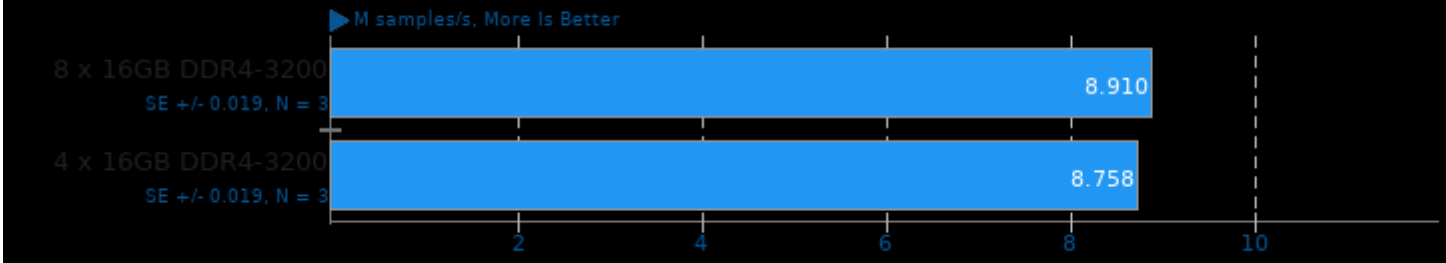
IndigoBench 4.0.64

Scene: Bedroom

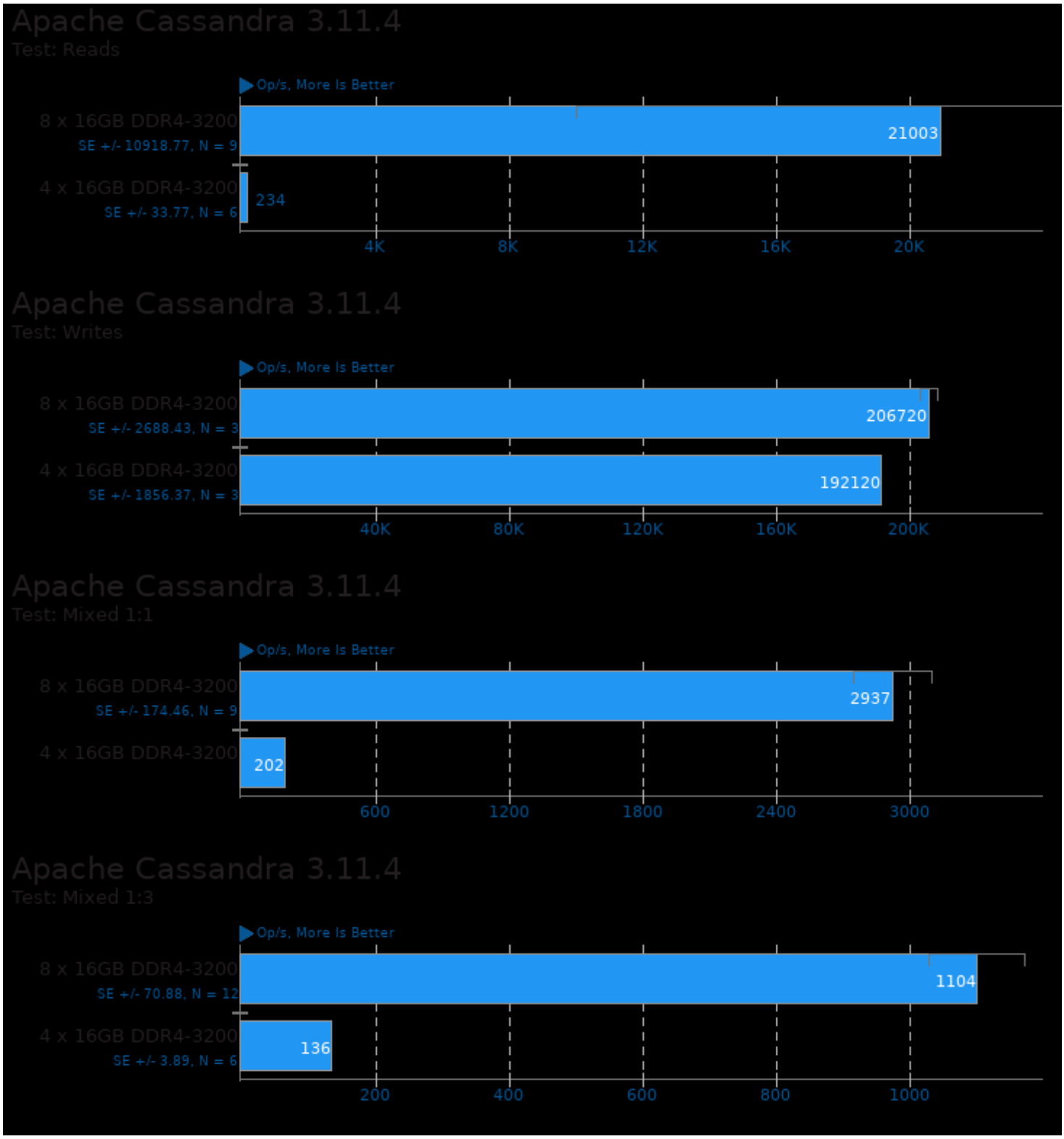


IndigoBench 4.0.64

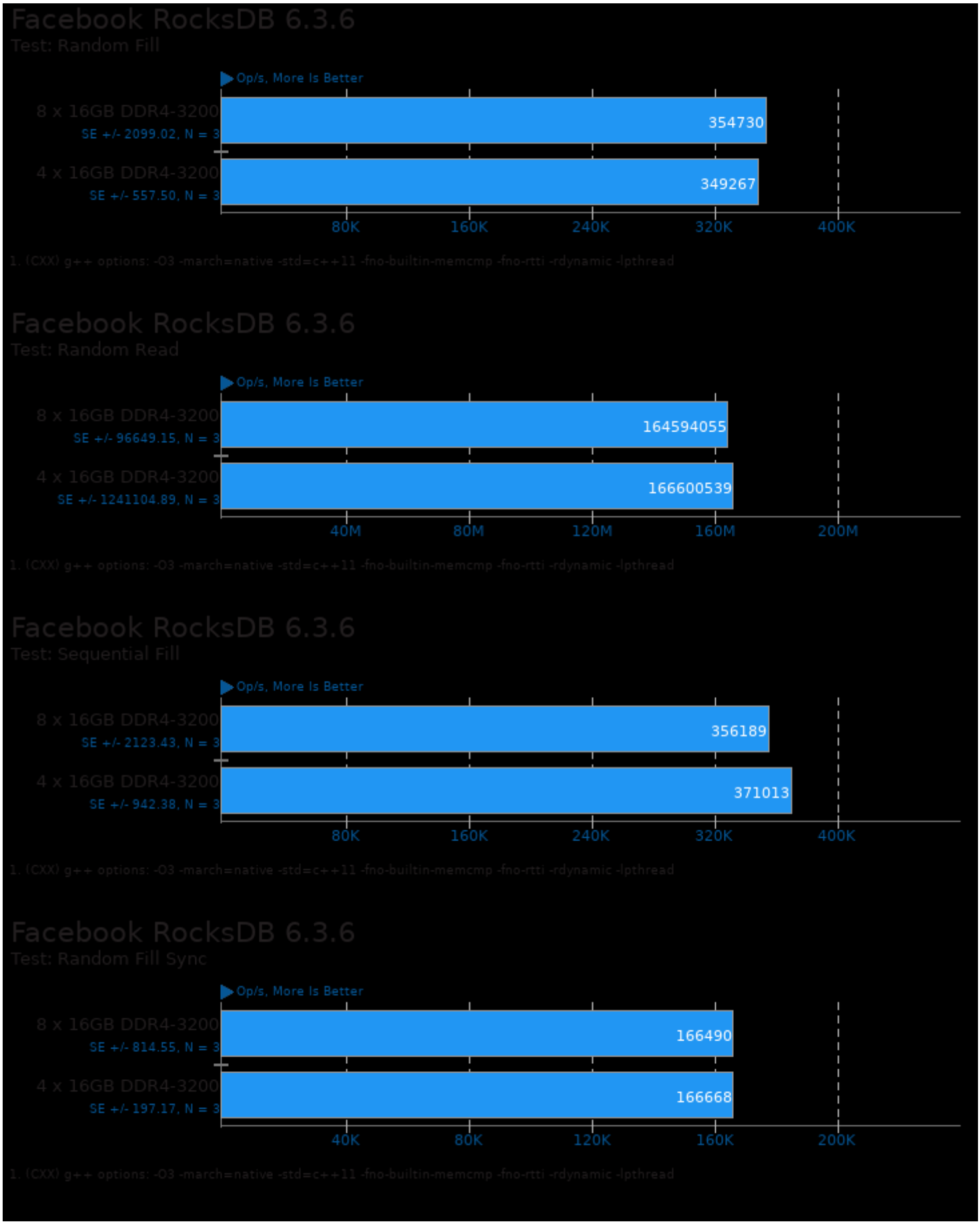
Scene: Supercar



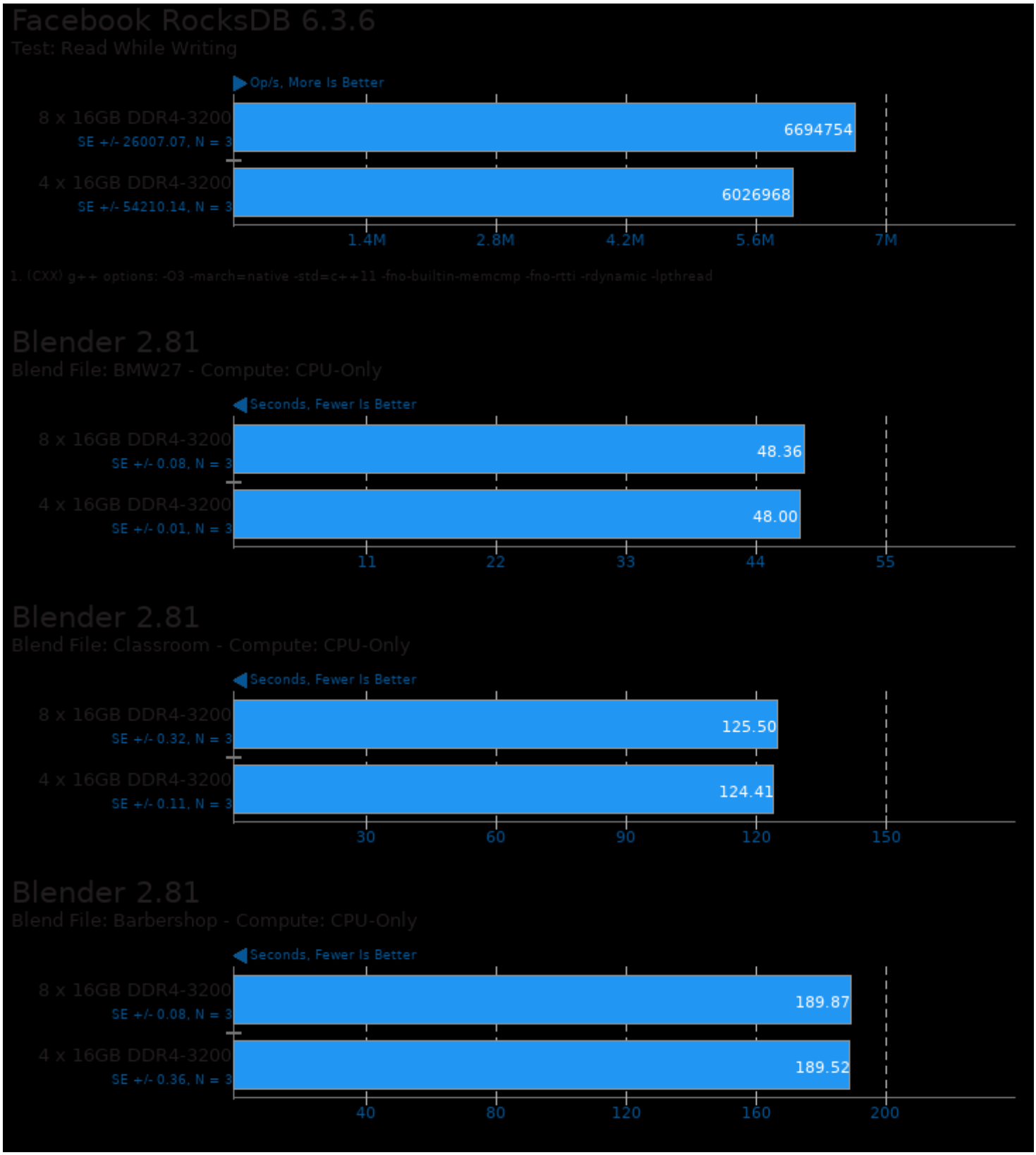
EPYC 7642 Memory Channel Test

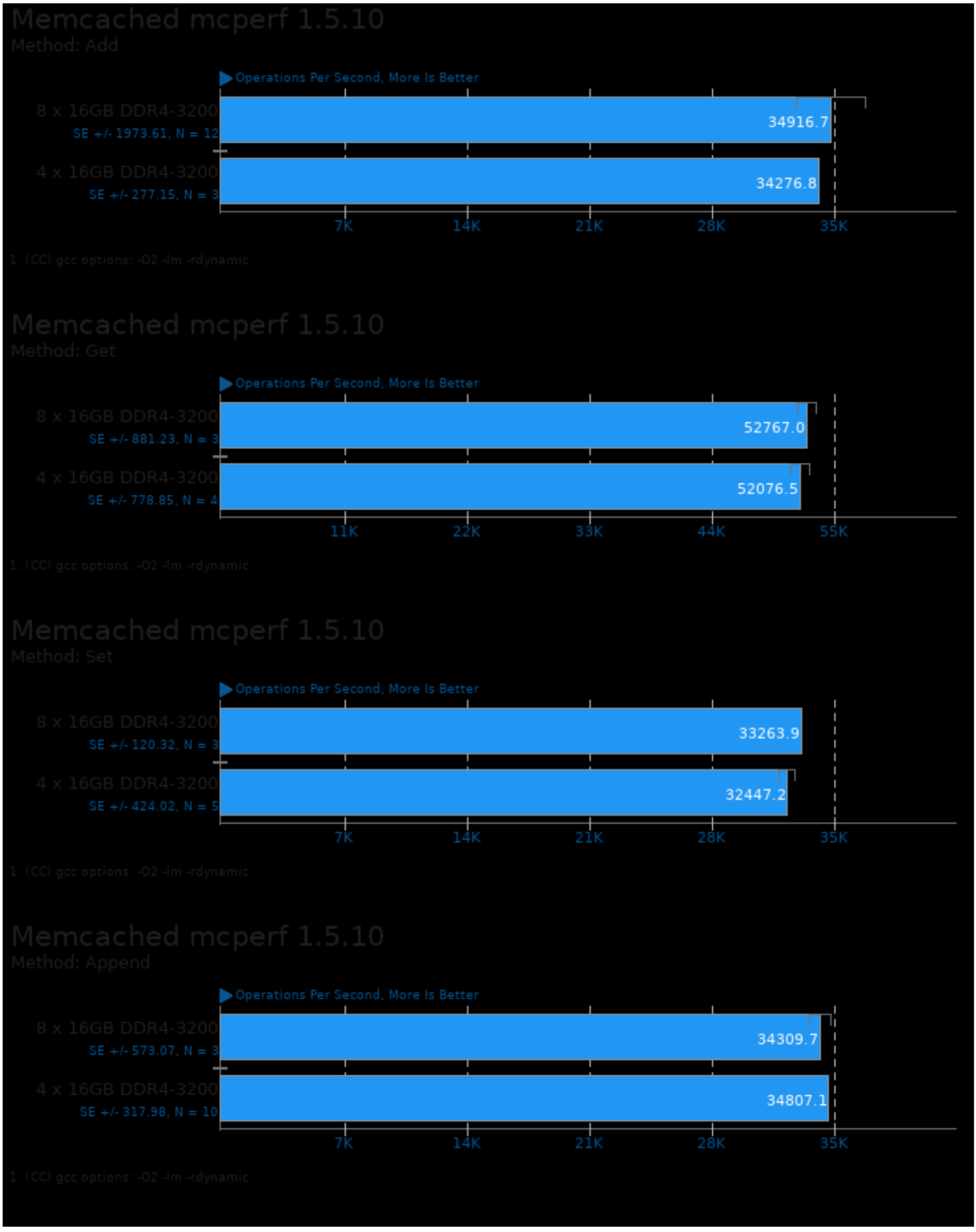


EPYC 7642 Memory Channel Test



EPYC 7642 Memory Channel Test

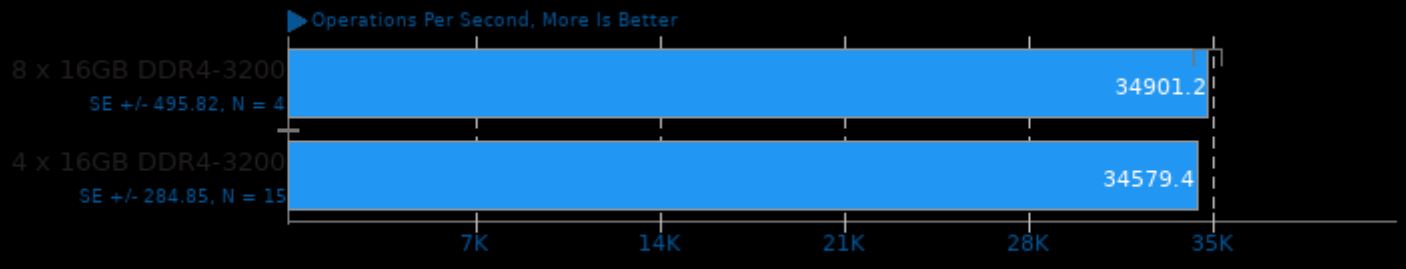



Memcached mcperf 1.5.10
Method: Add
Operations Per Second, More Is Better
8 x 16GB DDR4-3200
SE +/- 1973.61, N = 12
34916.7
4 x 16GB DDR4-3200
SE +/- 277.15, N = 3
34276.8
7K
14K
21K
28K
35K
1. (CC) gcc options: -O2 -lm -rdynamic
Memcached mcperf 1.5.10
Method: Get
Operations Per Second, More Is Better
8 x 16GB DDR4-3200
SE +/- 881.23, N = 3
52767.0
4 x 16GB DDR4-3200
SE +/- 778.85, N = 4
52076.5
11K
22K
33K
44K
55K
1. (CC) gcc options: -O2 -lm -rdynamic
Memcached mcperf 1.5.10
Method: Set
Operations Per Second, More Is Better
8 x 16GB DDR4-3200
SE +/- 120.32, N = 3
33263.9
4 x 16GB DDR4-3200
SE +/- 424.02, N = 5
32447.2
7K
14K
21K
28K
35K
1. (CC) gcc options: -O2 -lm -rdynamic
Memcached mcperf 1.5.10
Method: Append
Operations Per Second, More Is Better
8 x 16GB DDR4-3200
SE +/- 573.07, N = 3
34309.7
4 x 16GB DDR4-3200
SE +/- 317.98, N = 10
34807.1
7K
14K
21K
28K
35K
1. (CC) gcc options: -O2 -lm -rdynamic

EPYC 7642 Memory Channel Test

Memcached mcperf 1.5.10

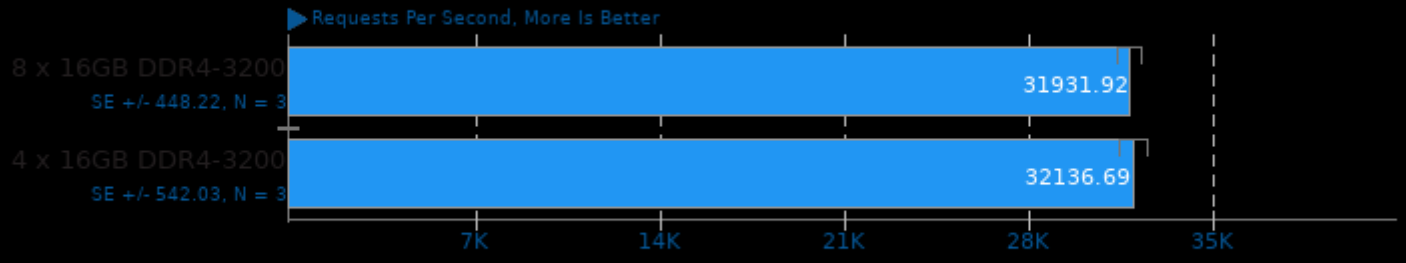
Method: Replace



1. (CC) gcc options: -O2 -lm -rdynamic

NGINX Benchmark 1.9.9

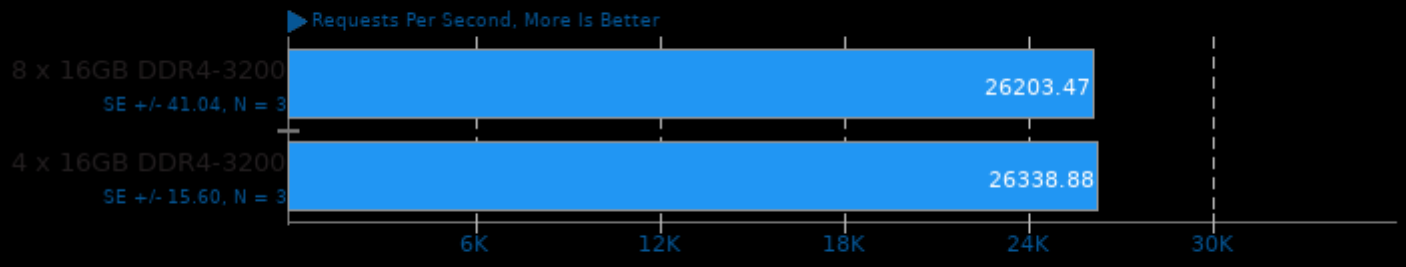
Static Web Page Serving



1. (CC) gcc options: -lpthread -lcrypt -lcrypto -lz -O3 -march=native

Apache Benchmark 2.4.29

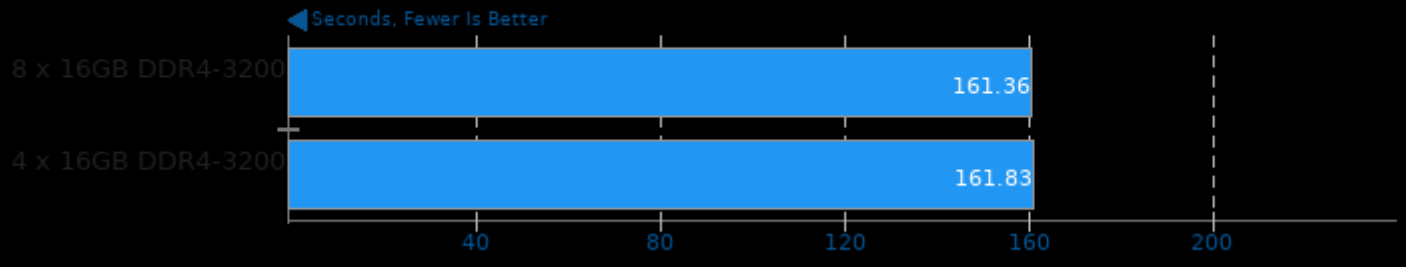
Static Web Page Serving



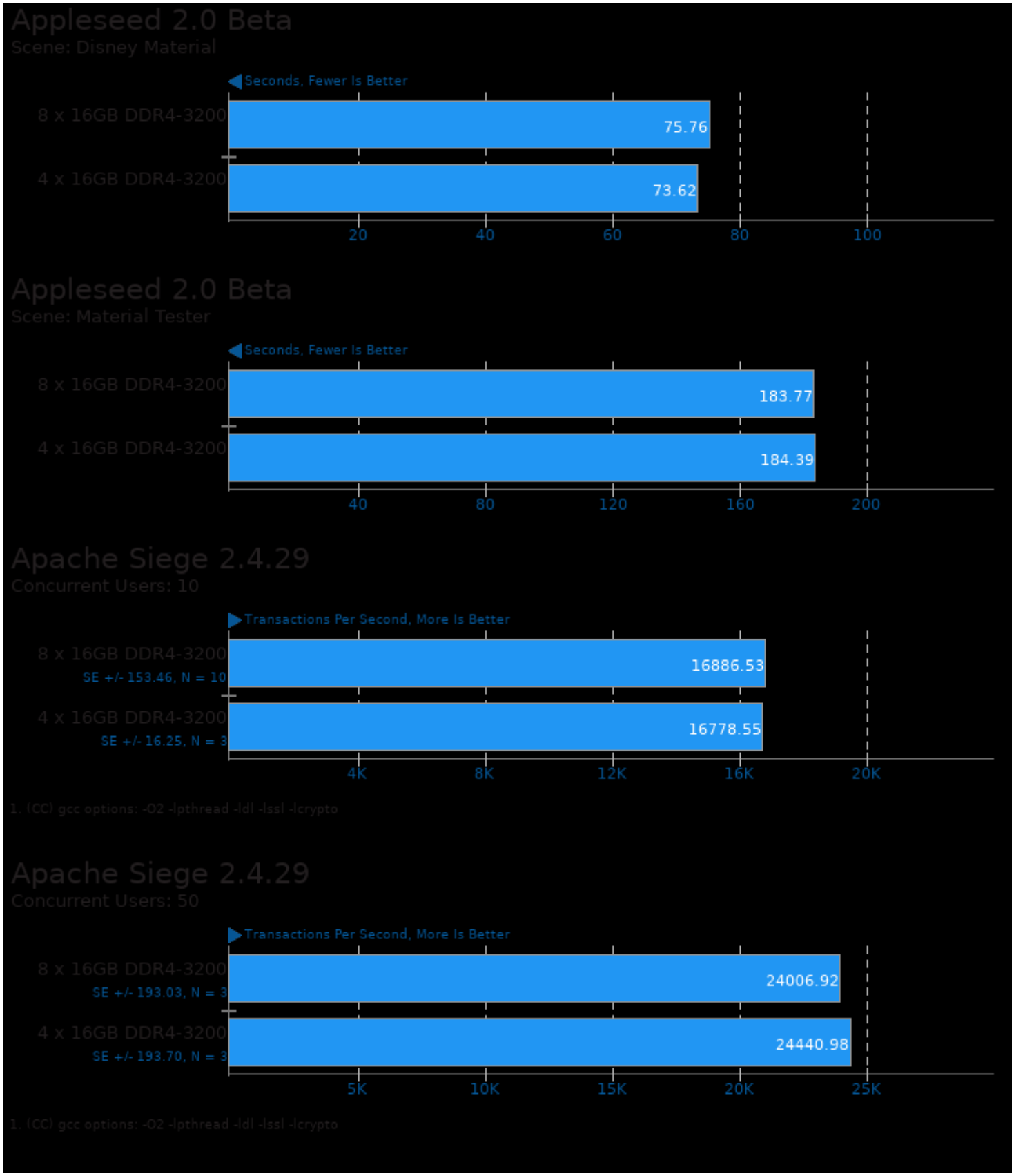
1. (CC) gcc options: -shared -fPIC -O2 -pthread

Appleseed 2.0 Beta

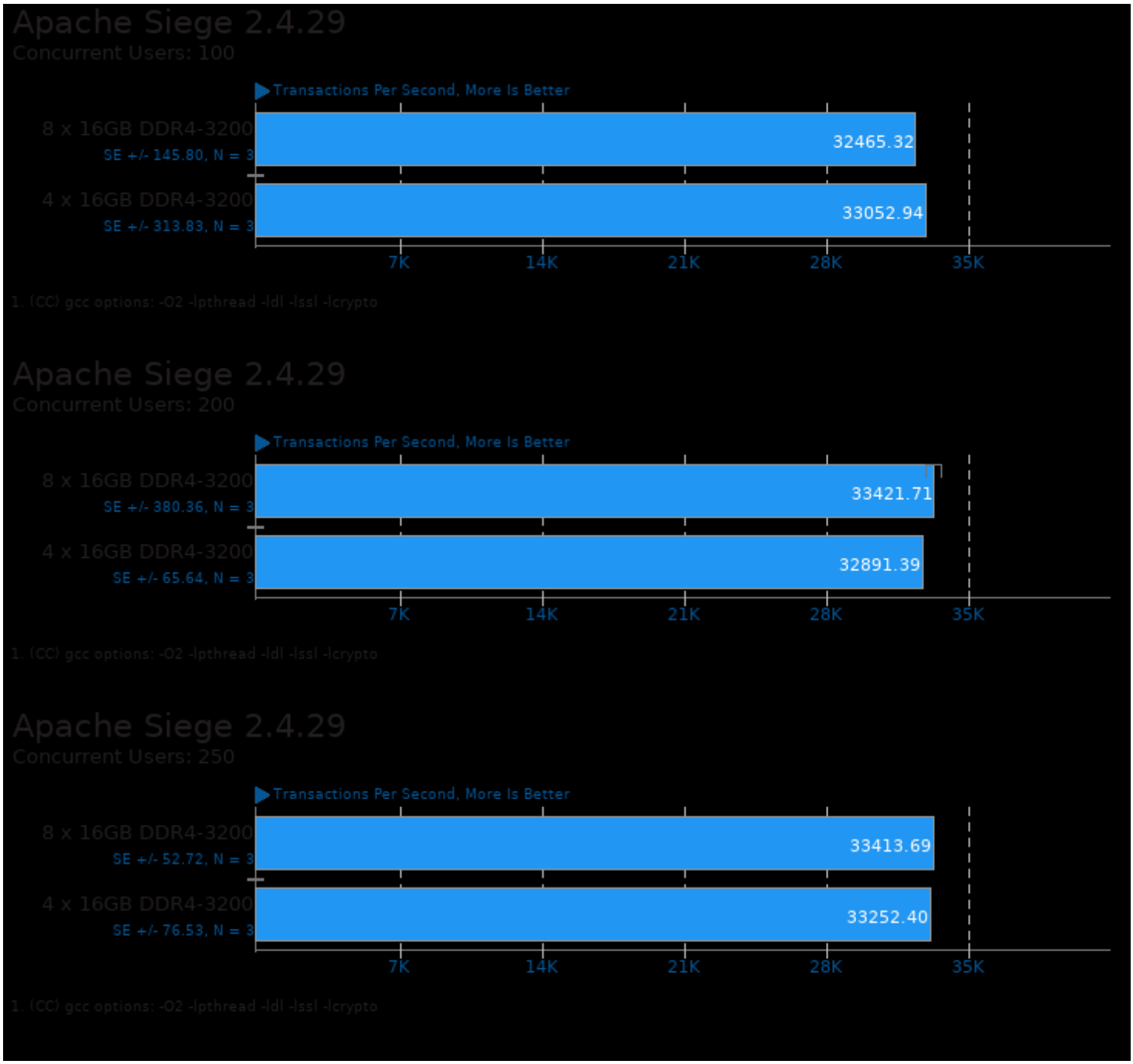
Scene: Emily



EPYC 7642 Memory Channel Test



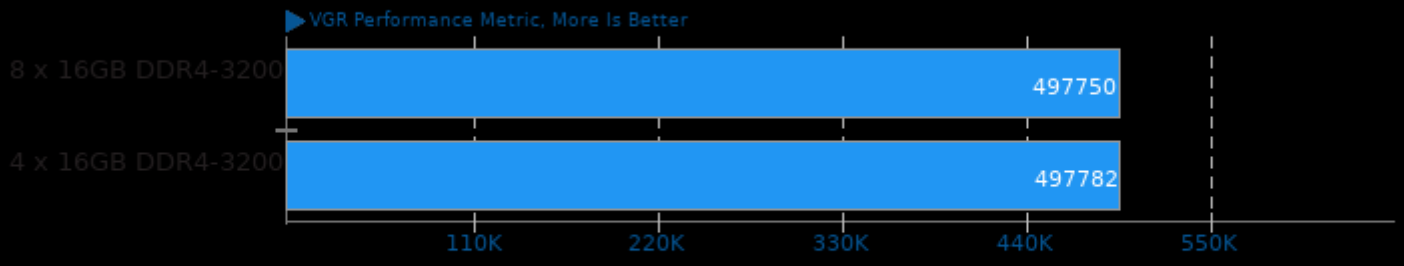
EPYC 7642 Memory Channel Test



EPYC 7642 Memory Channel Test

BRL-CAD 7.28.0

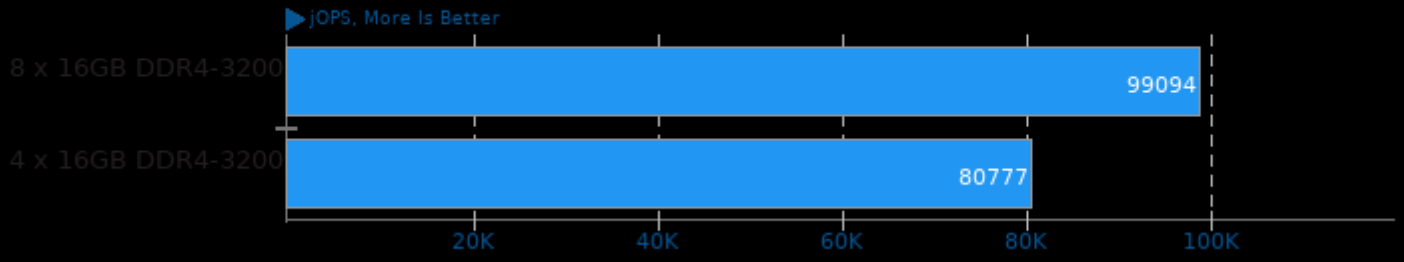
VGR Performance Metric



1. (CXX) g++ options: -std=c++98 -pipe -fno-strict-aliasing -fno-common -fexceptions -ftemplate-depth-128 -m64 -ggdb3 -O3 -fipa-pta -fstrength-reduce

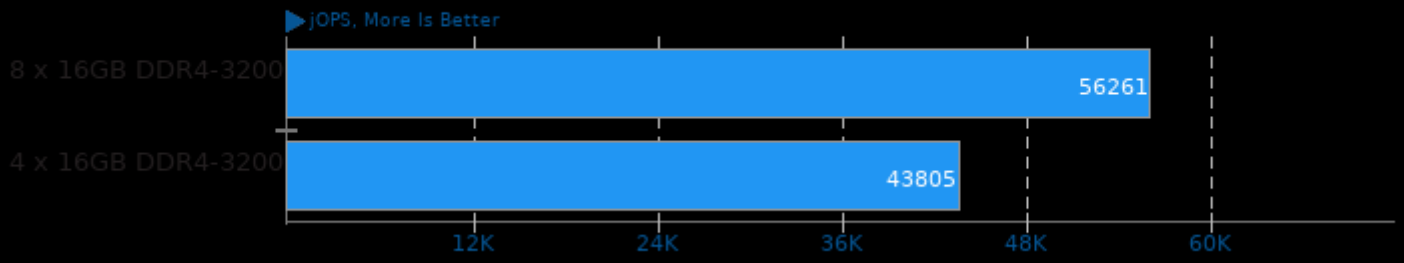
SPECjbb 2015

SPECjbb2015-Composite max-jOPS



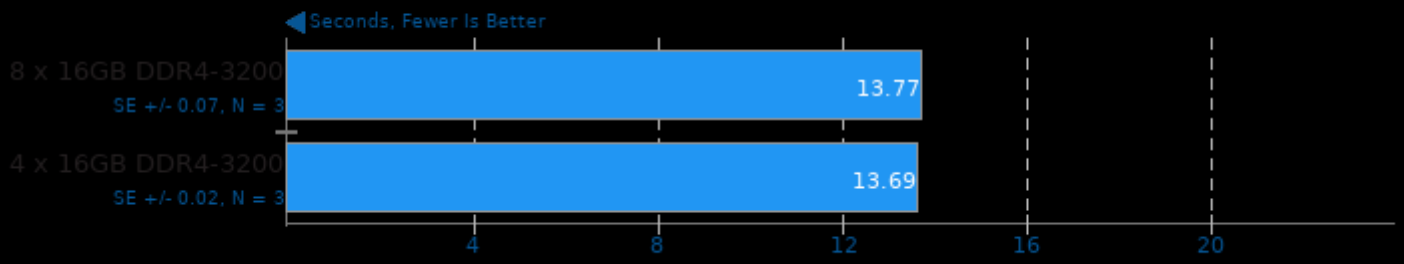
SPECjbb 2015

SPECjbb2015-Composite critical-jOPS

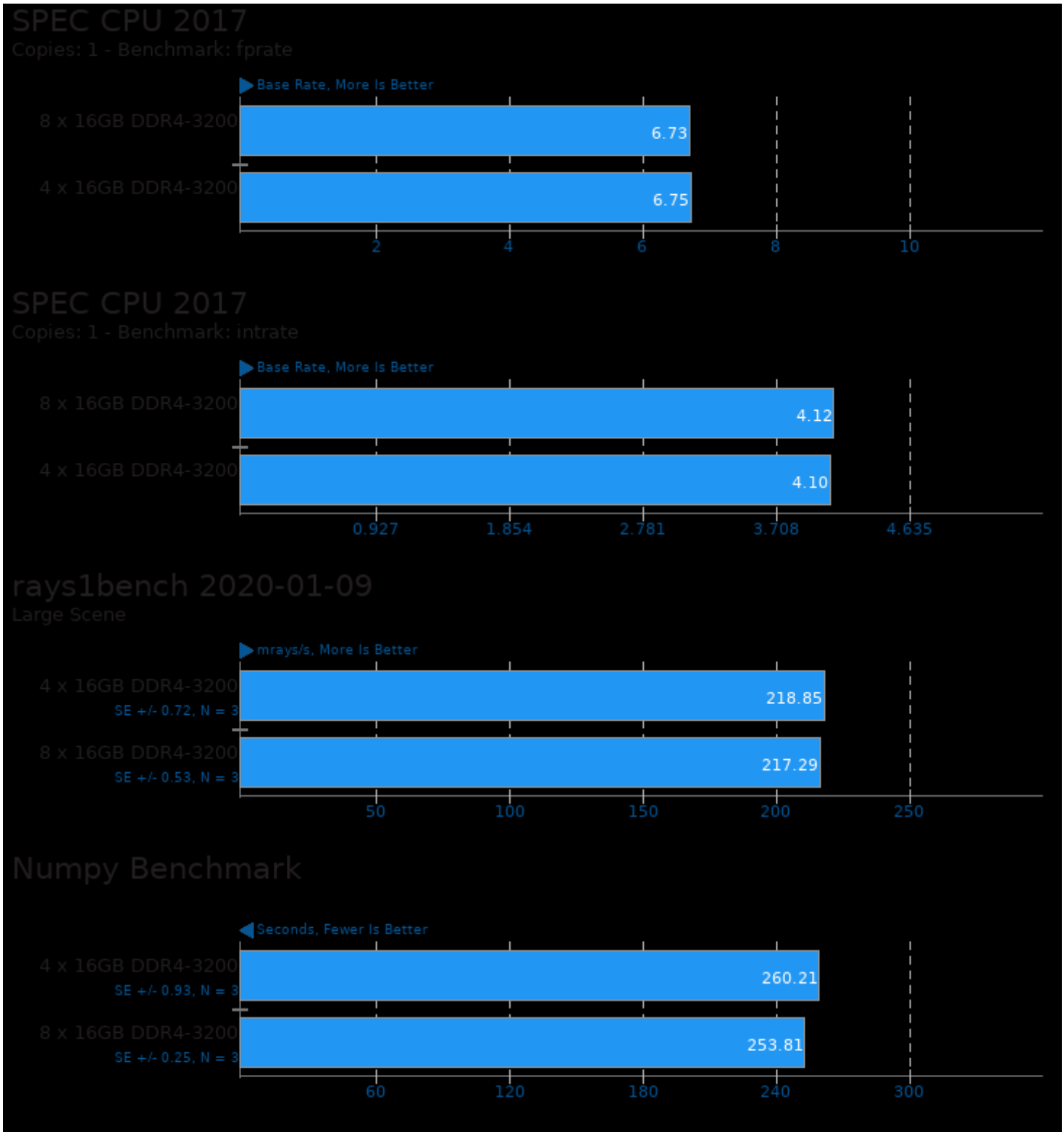


POV-Ray 3.7.0.7

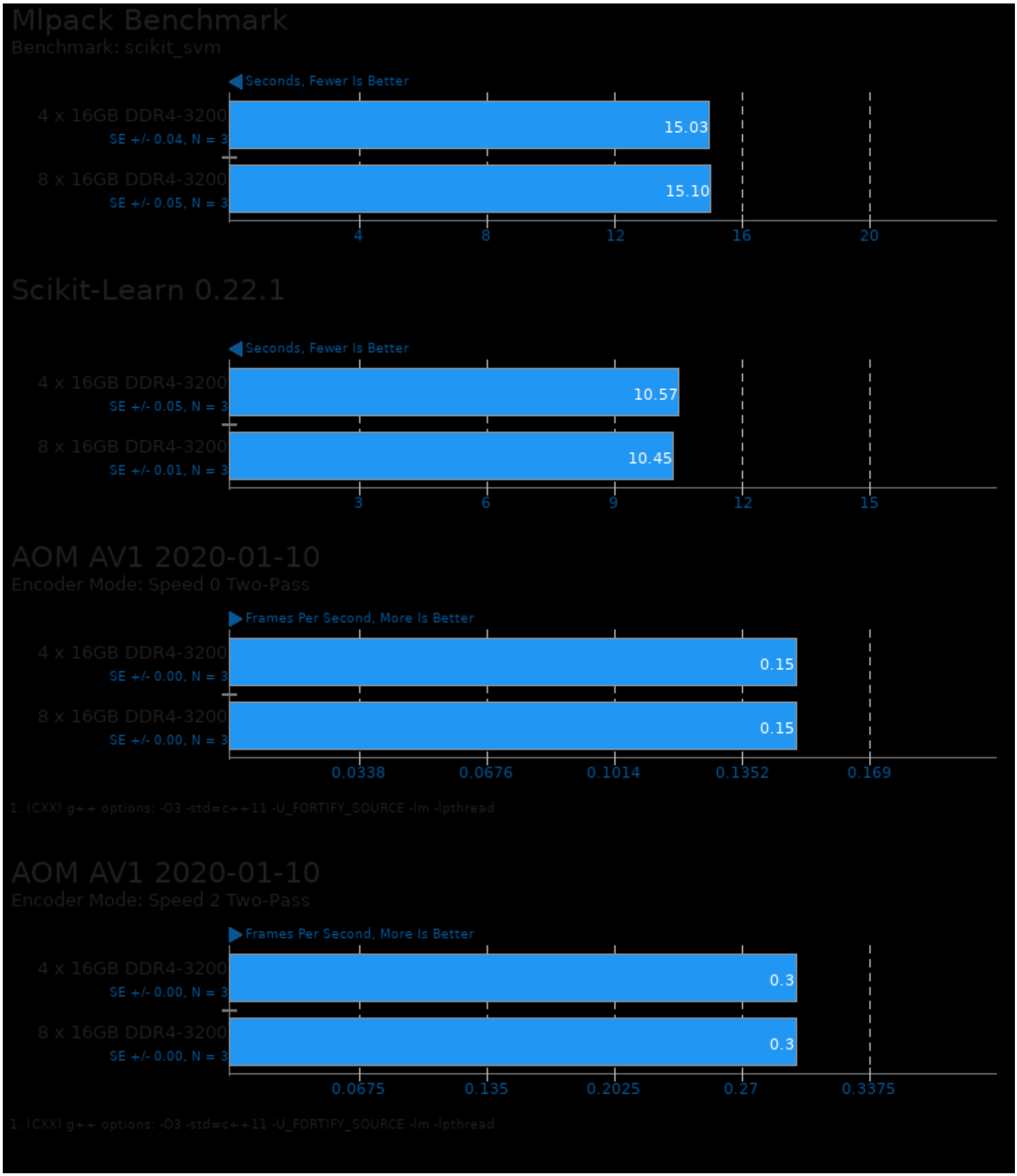
Trace Time



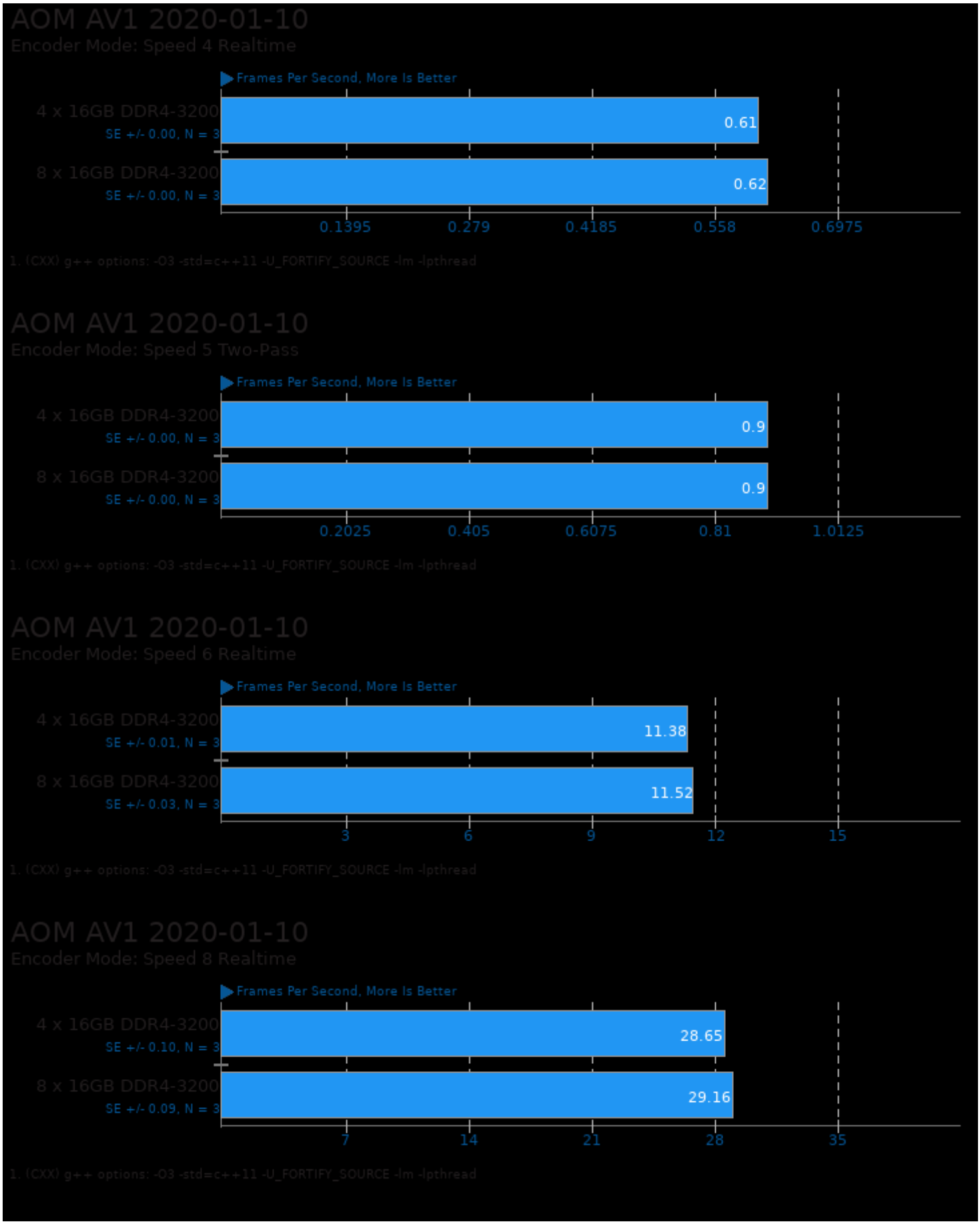
EPYC 7642 Memory Channel Test



EPYC 7642 Memory Channel Test



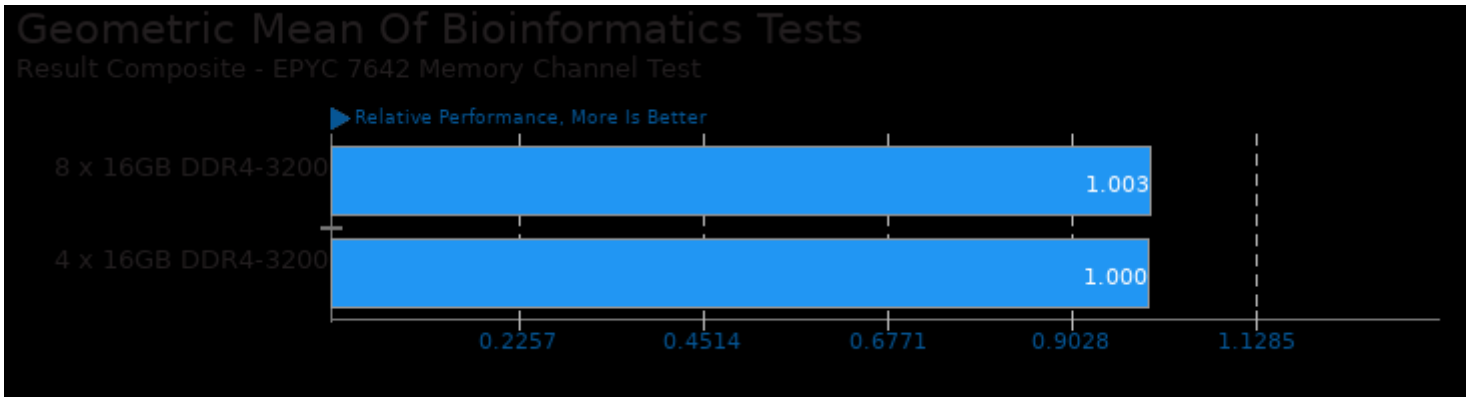
EPYC 7642 Memory Channel Test



EPYC 7642 Memory Channel Test

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

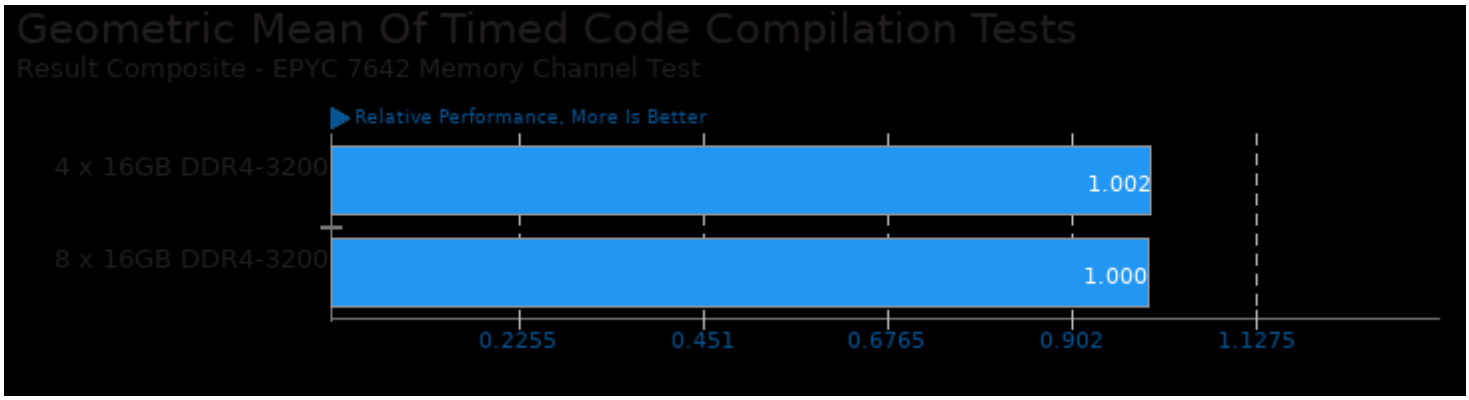
Geometric mean based upon tests: pts/aom-av1, pts/svt-av1 and pts/rav1e



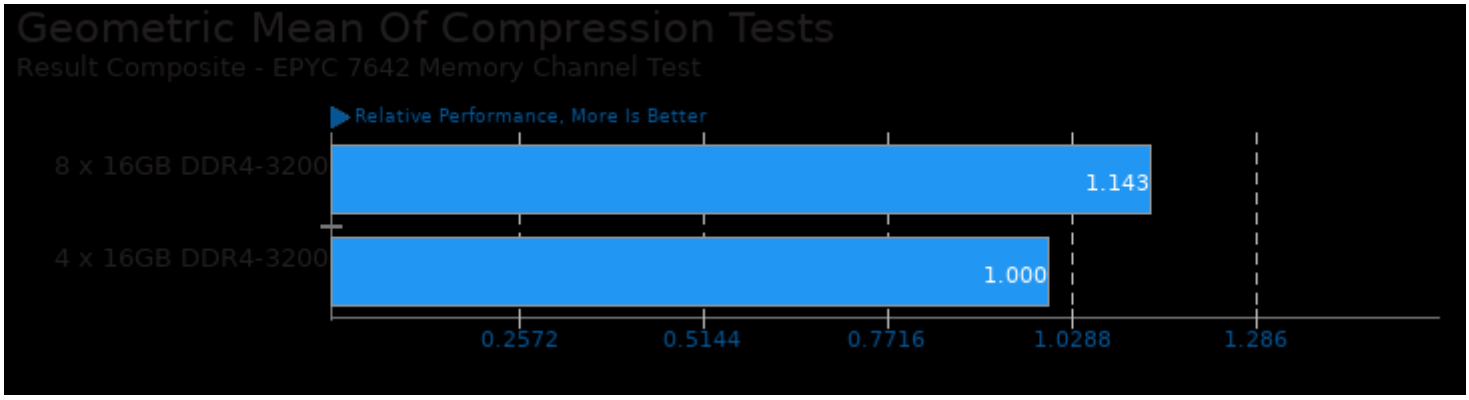
Geometric mean based upon tests: pts/himeno and pts/mrbayes

Geometric mean based upon tests: pts/stockfish and pts/asmfish

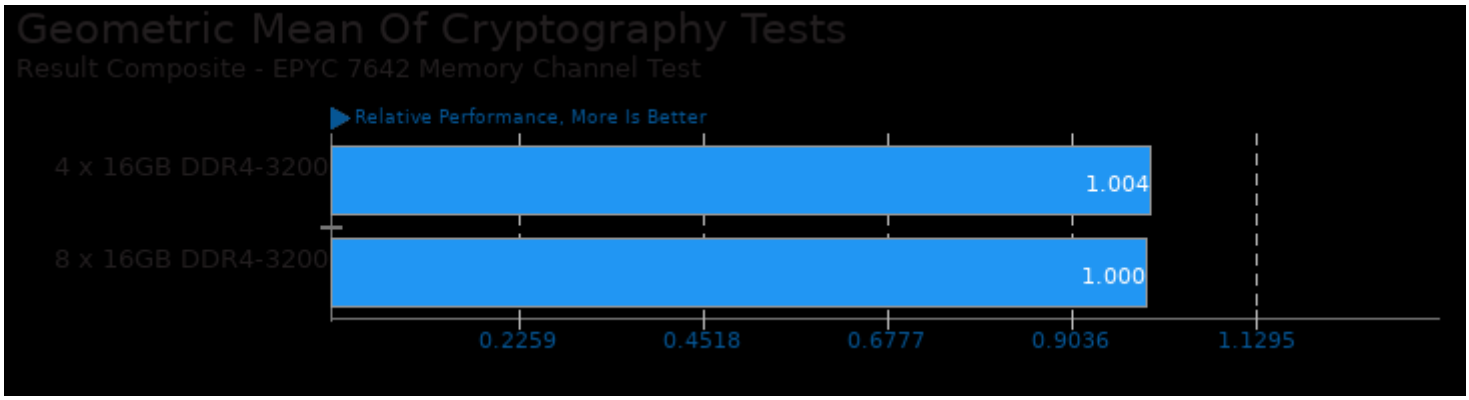
EPYC 7642 Memory Channel Test



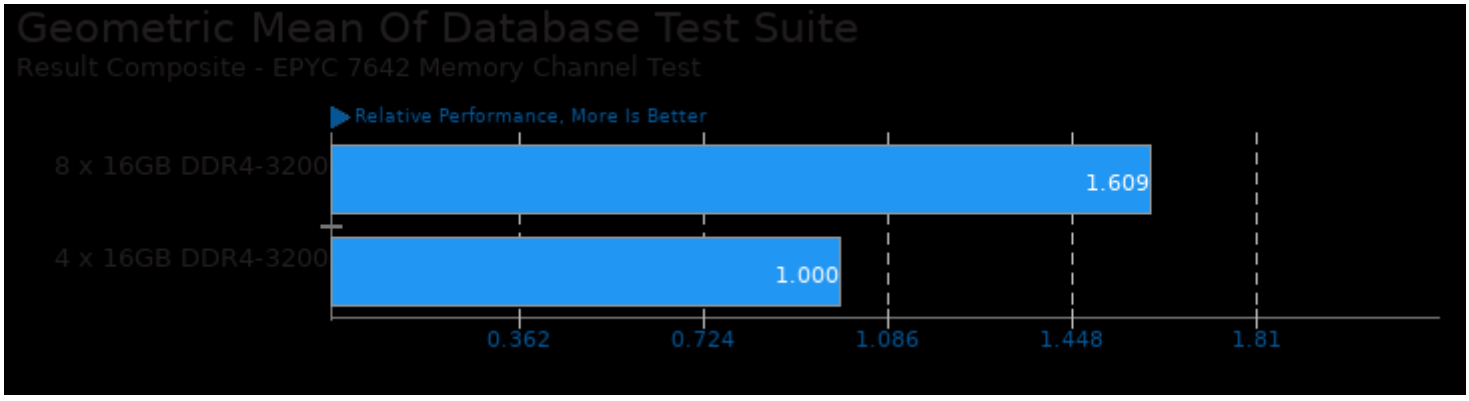
Geometric mean based upon tests: pts/build-linux-kernel, pts/build-gcc, pts/build-llvm and pts/build2



Geometric mean based upon tests: pts/compress-7zip, pts/compress-zstd and pts/compress-xz



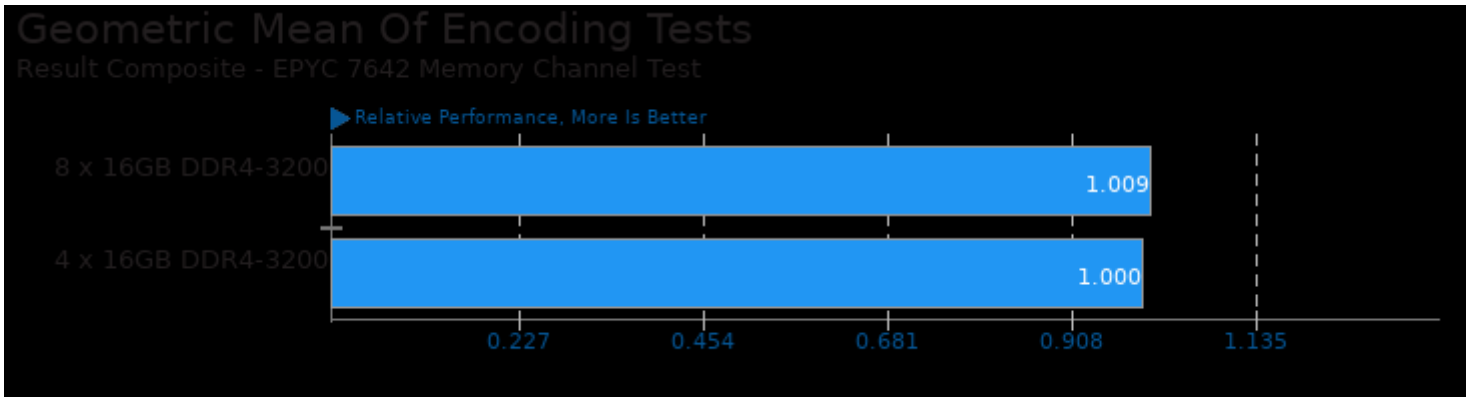
Geometric mean based upon tests: pts/openssl and pts/john-the-ripper



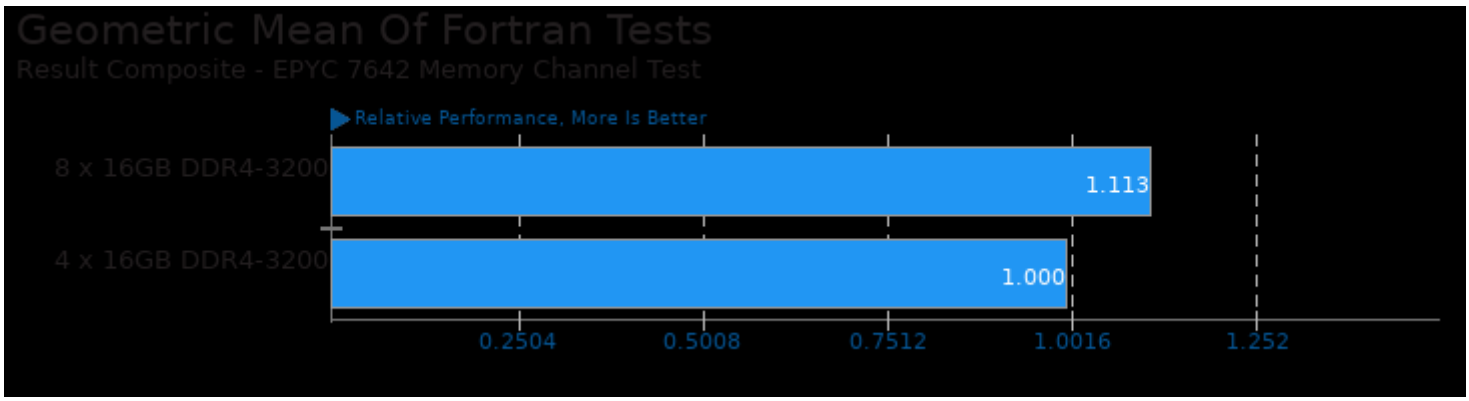
Geometric mean based upon tests: pts/sqlite, pts/sqlite-speedtest, pts/redis, pts/rocksdb, pts/cassandra, pts/pgbench

and pts/mysqlslap

Geometric mean based upon tests: pts/sqlite and pts/fio



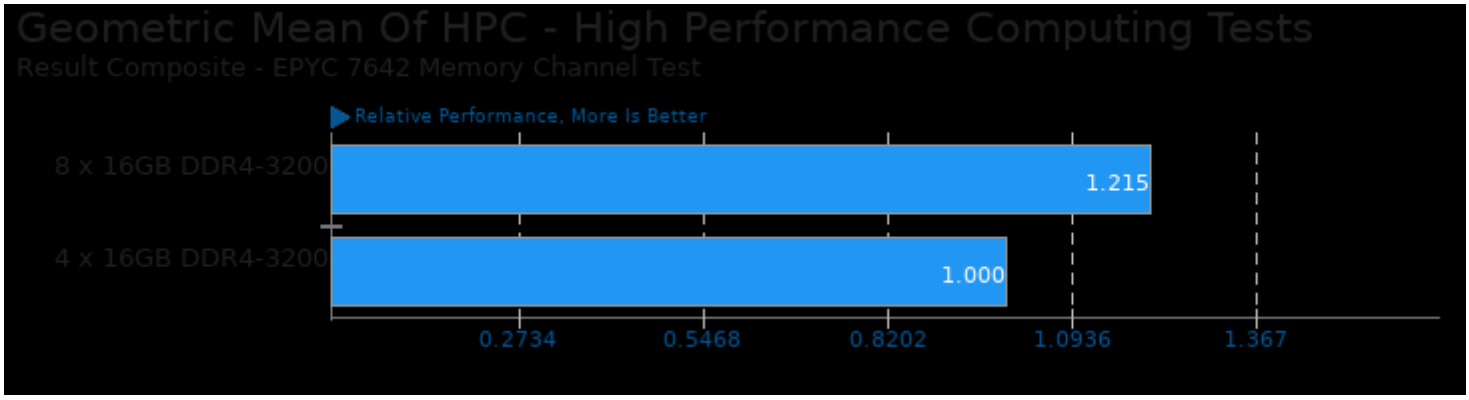
Geometric mean based upon tests: pts/svt-vp9, pts/x264, pts/x265, pts/vpxenc, pts/aom-av1, pts/svt-av1 and pts/rav1e



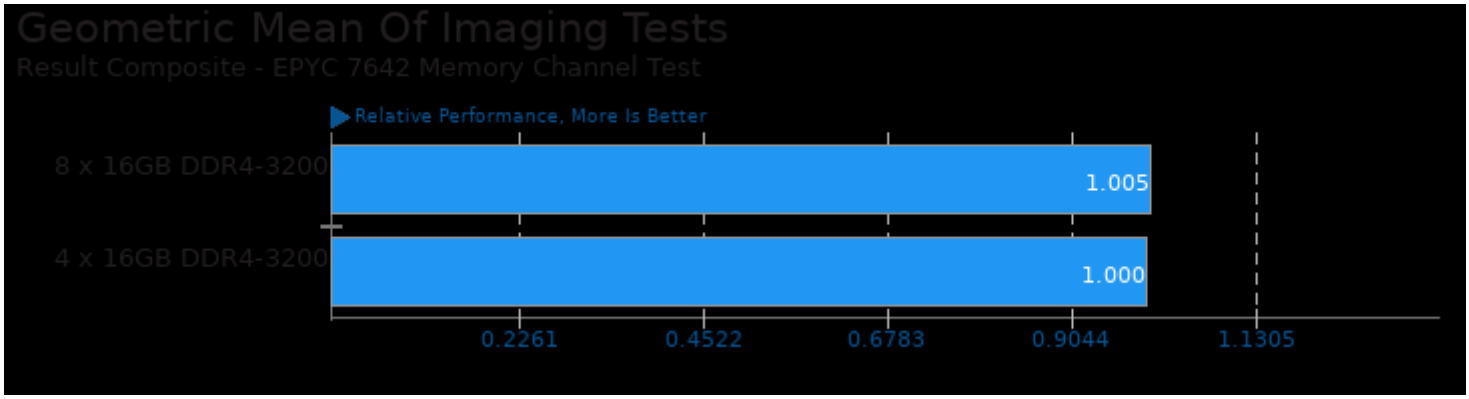
Geometric mean based upon tests: pts/hpcc, pts/cloverleaf and pts/polyhedron

EPYC 7642 Memory Channel Test

Geometric mean based upon tests: pts/blender and pts/oidn

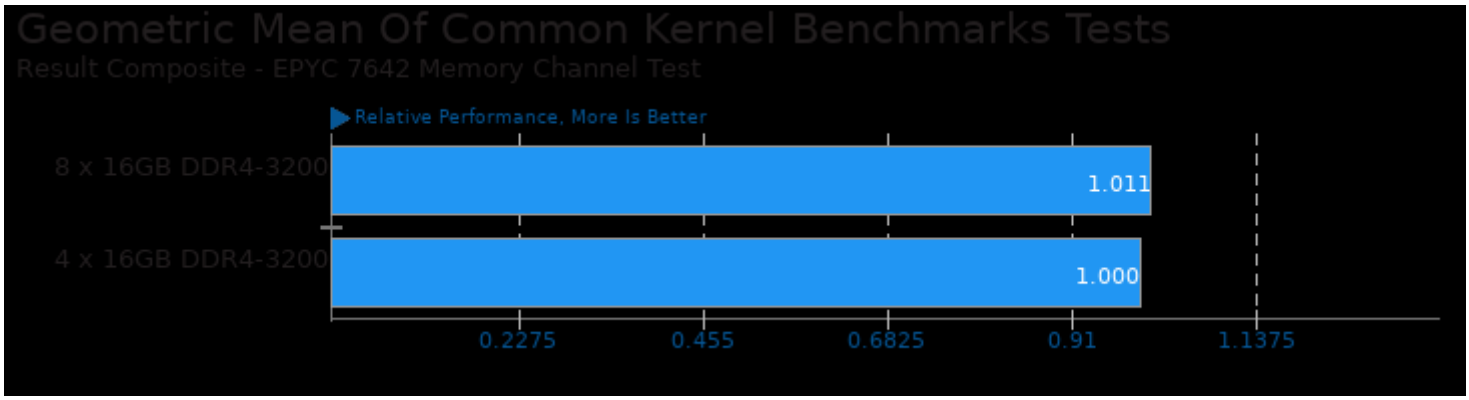


Geometric mean based upon tests: pts/npb, pts/rodinia, pts/parboil, pts/hpcc, system/octave-benchmark, pts/mt-dgemm, pts/namd, pts/gromacs, pts/cloverleaf, pts/himeno, pts/mrbayes, pts/rbenchmark, pts/numpy, pts/deepspeech, pts/scikit-learn and pts/mlpack

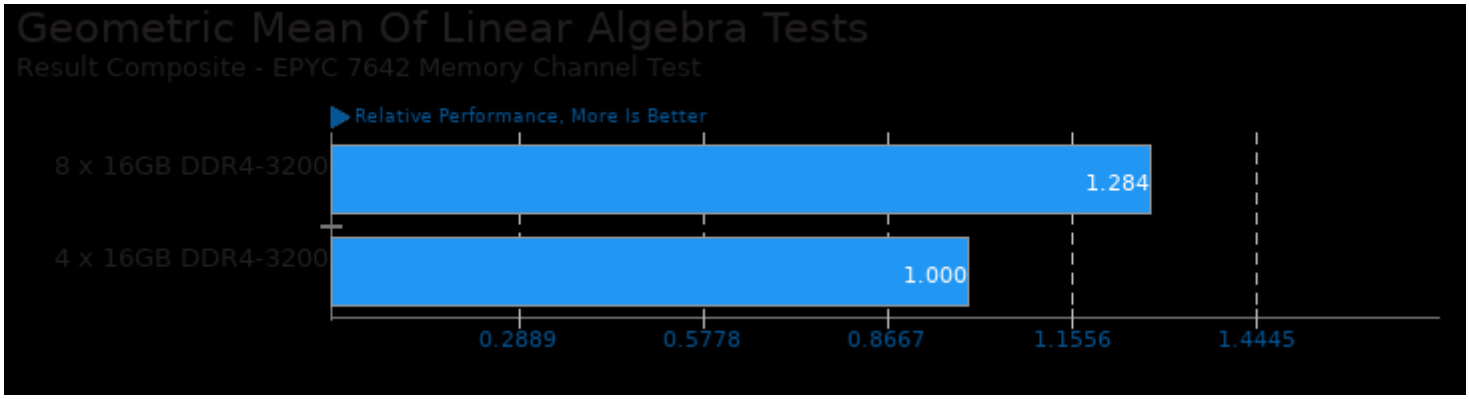


Geometric mean based upon tests: pts/graphics-magick, pts/tjbench and system/gegl

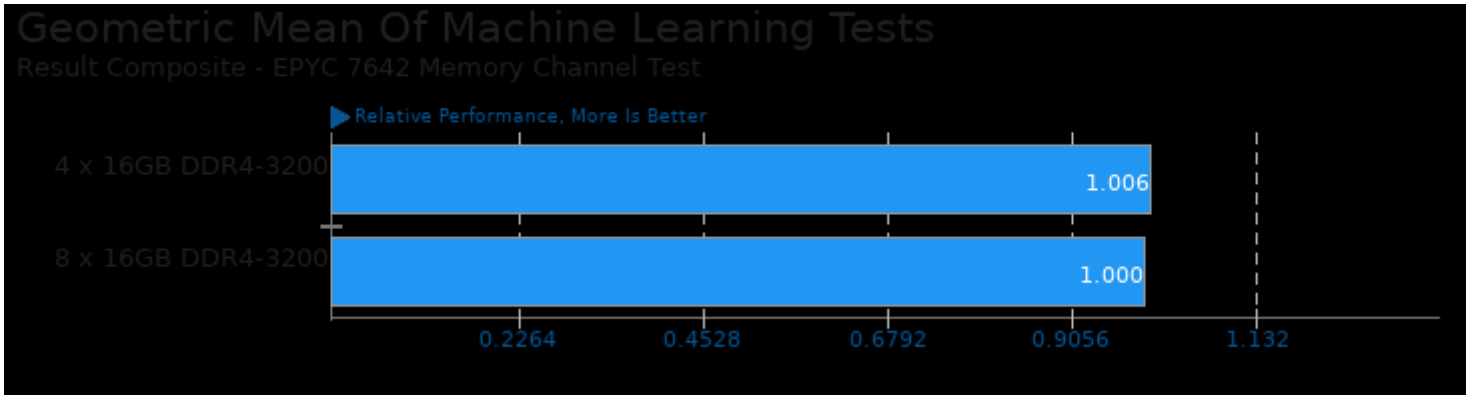
EPYC 7642 Memory Channel Test



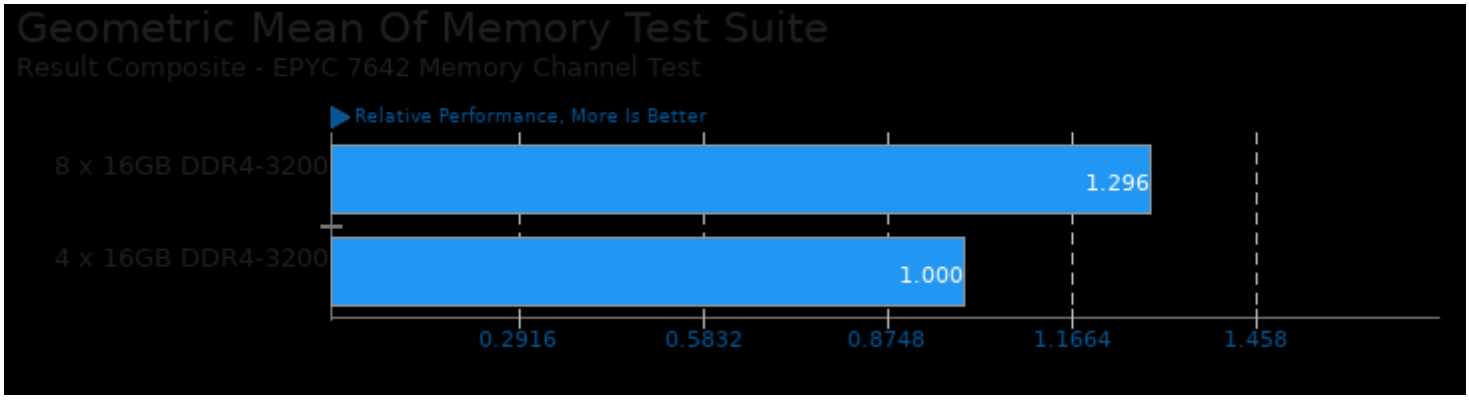
Geometric mean based upon tests: pts/apache, pts/sqlite-speedtest, pts/pgbench, pts/tinymembench, pts/mbw, pts/openssl and pts/rocksdb



Geometric mean based upon tests: pts/mt-dgemm and pts/hpcc

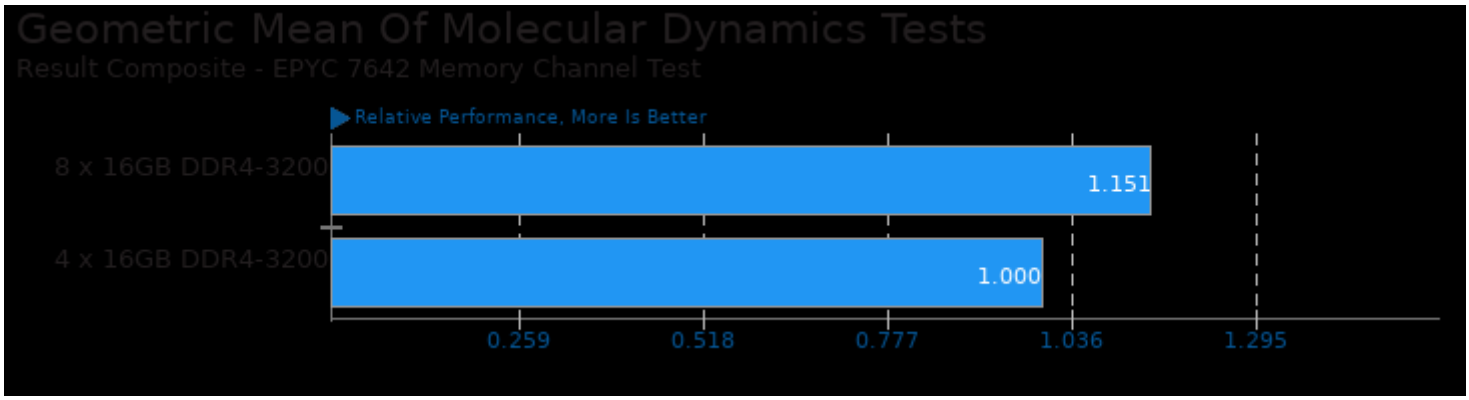


Geometric mean based upon tests: pts/rbenchmark, pts/numpy, pts/deepspeech, pts/scikit-learn and pts/mlpack

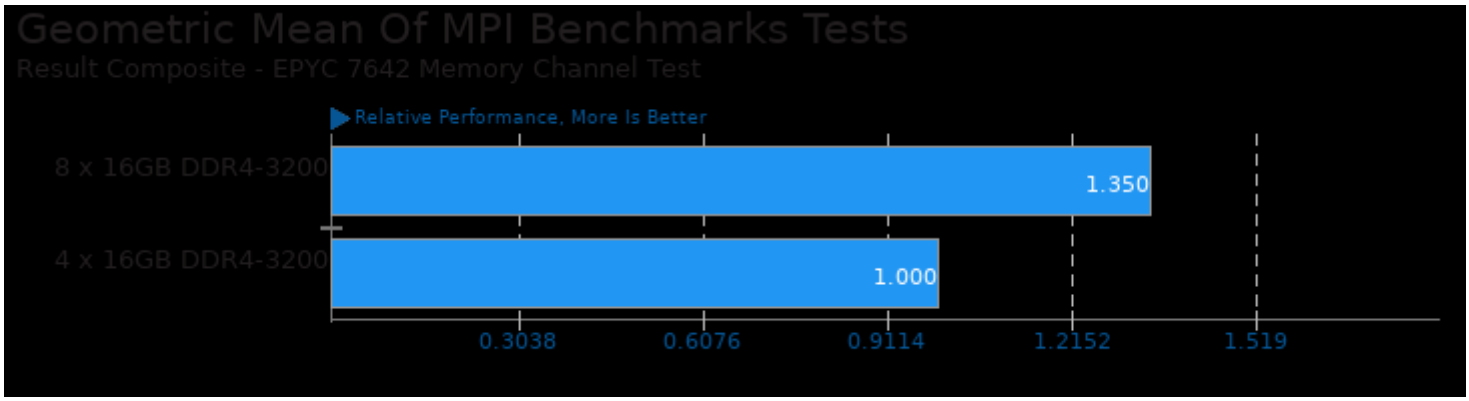


EPYC 7642 Memory Channel Test

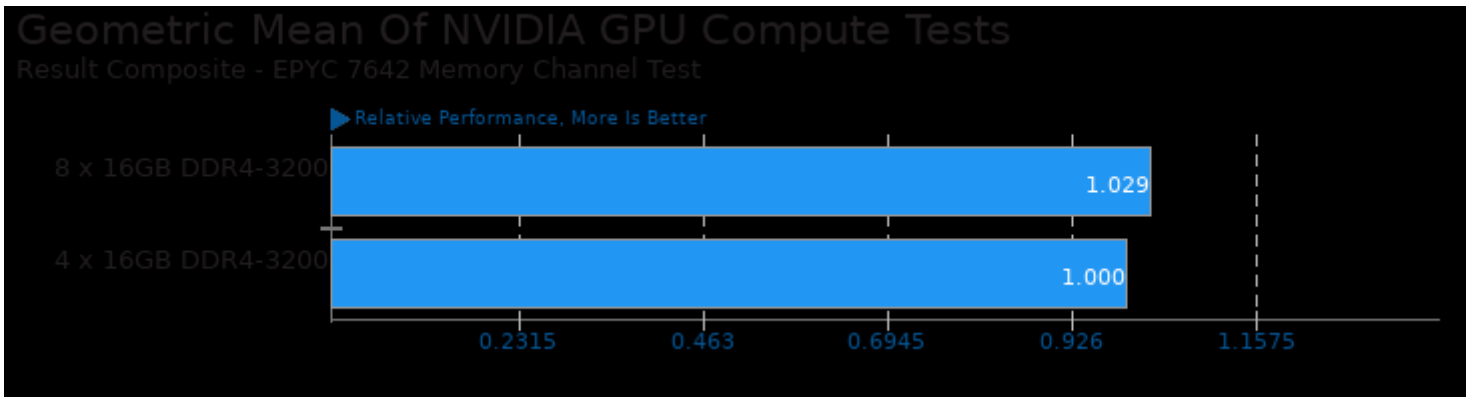
Geometric mean based upon tests: pts/ramspeed, pts/stream, pts/tinymembench and pts/mbw



Geometric mean based upon tests: pts/namd, pts/gromacs and pts/cloverleaf

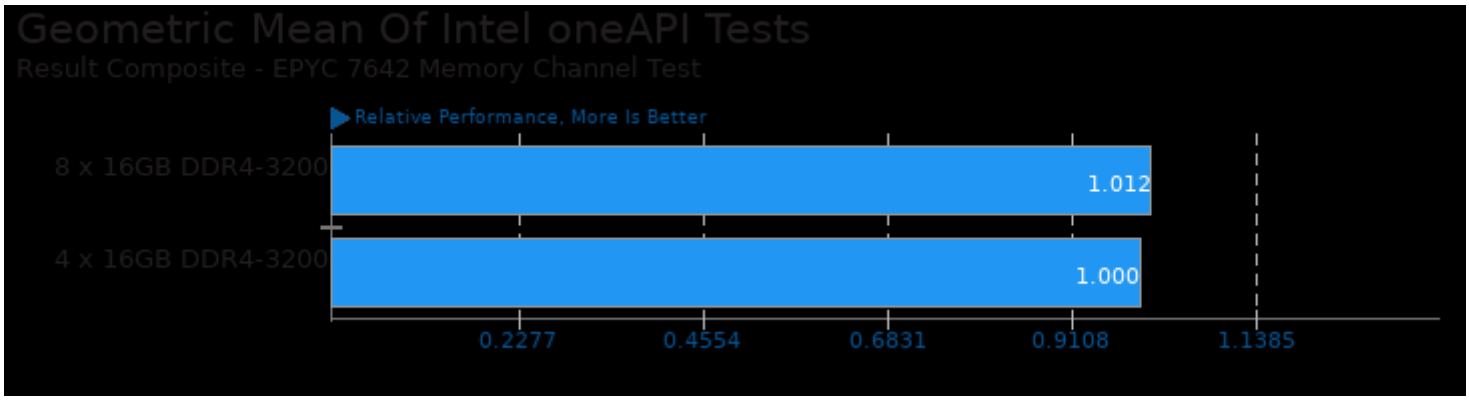


Geometric mean based upon tests: pts/hpcc, pts/gromacs, pts/mrbayes and pts/npb

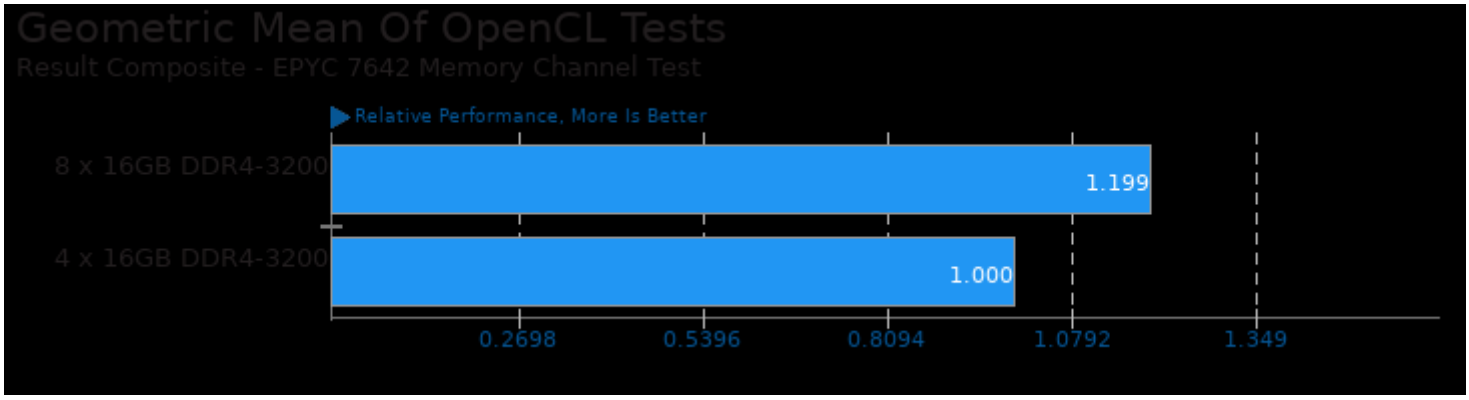


Geometric mean based upon tests: pts/gromacs, pts/luxcorerender, pts/rodinia, pts/indigobench, pts/v-ray and pts/blender

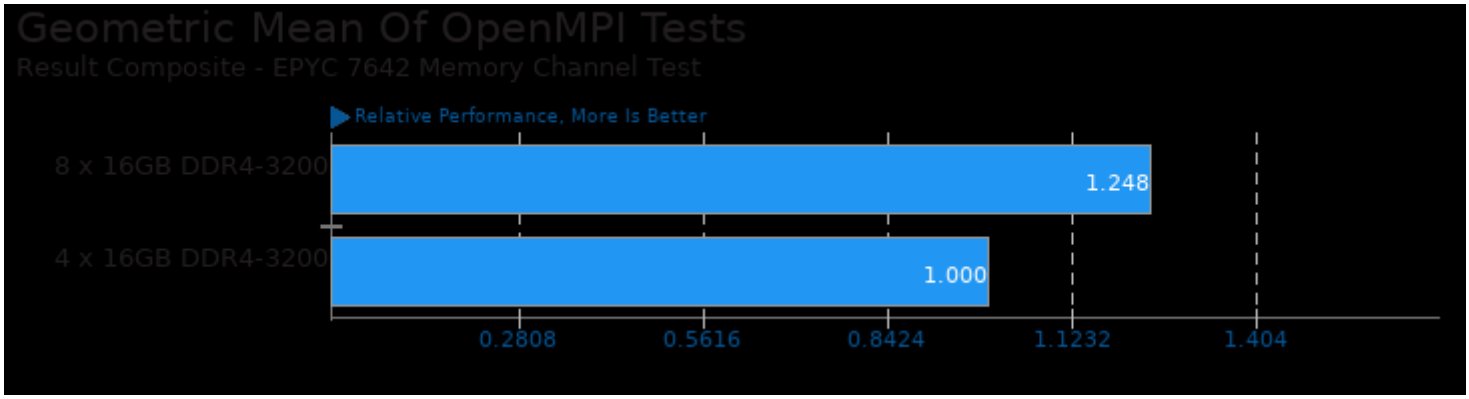
EPYC 7642 Memory Channel Test



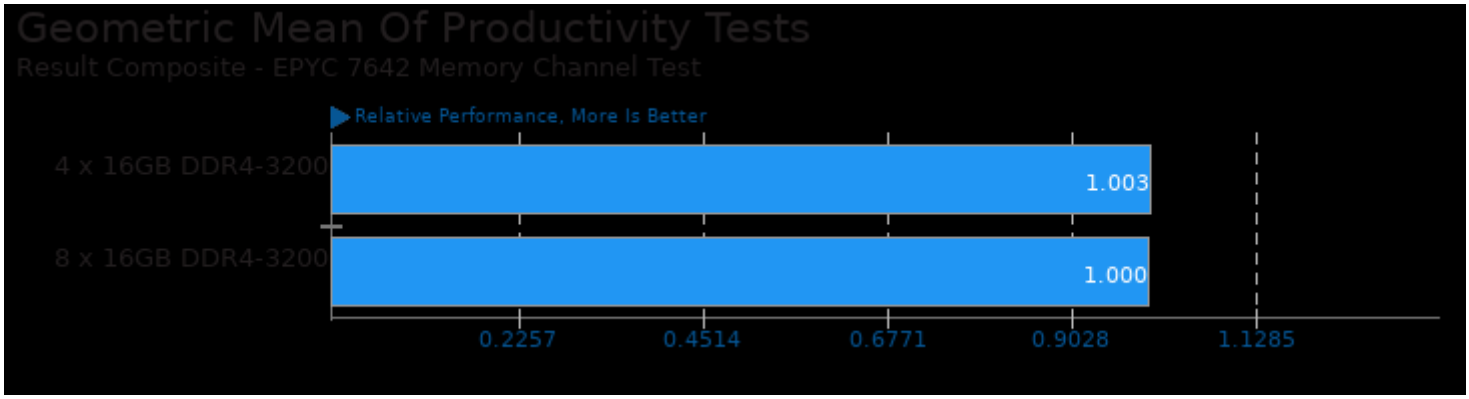
Geometric mean based upon tests: pts/embree, pts/oidn, pts/ospray and pts/tungsten



Geometric mean based upon tests: pts/rodinia and pts/parboil



Geometric mean based upon tests: pts/hpcc, pts/parboil, pts/cloverleaf, pts/rodinia and pts/mrbayes



Geometric mean based upon tests: system/octave-benchmark and system/gegl

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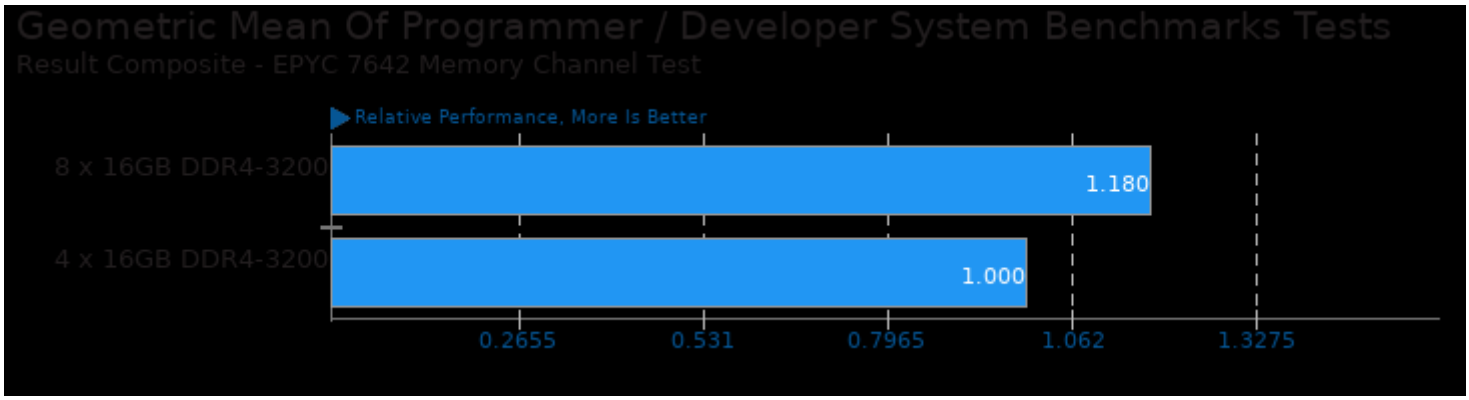
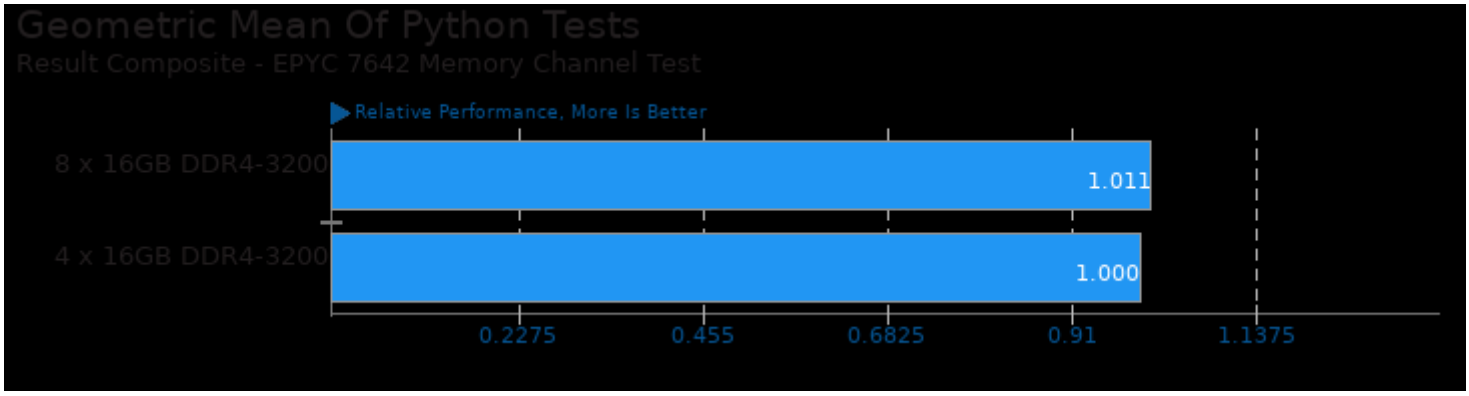
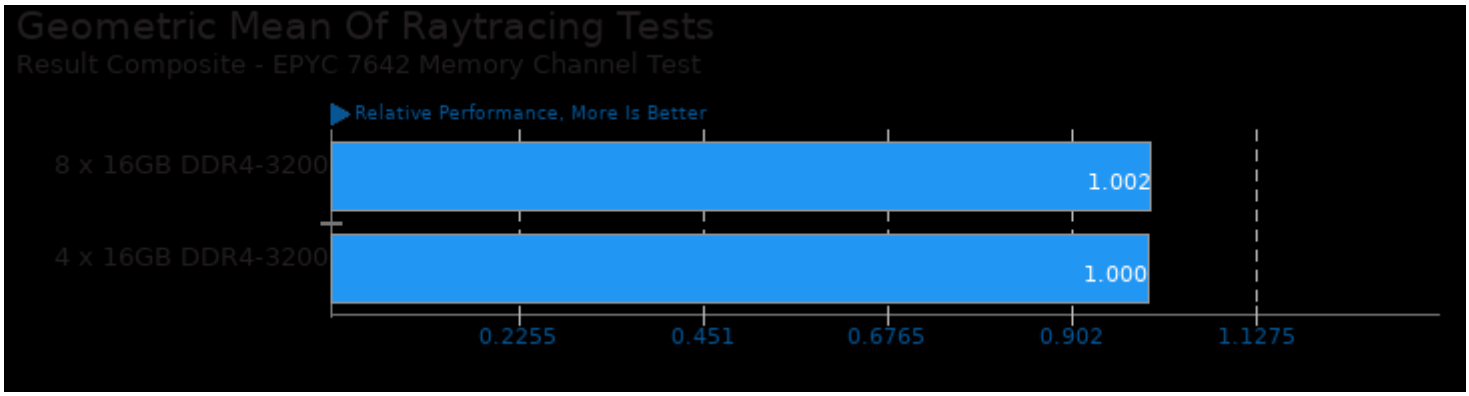


Geometric mean based upon tests: pts/sqlite-speedtest, pts/compress-zstd, pts/build-linux-kernel, pts/build-gcc, pts/build-llvm, pts/build2, pts/mt-dgemm and pts/hpcc



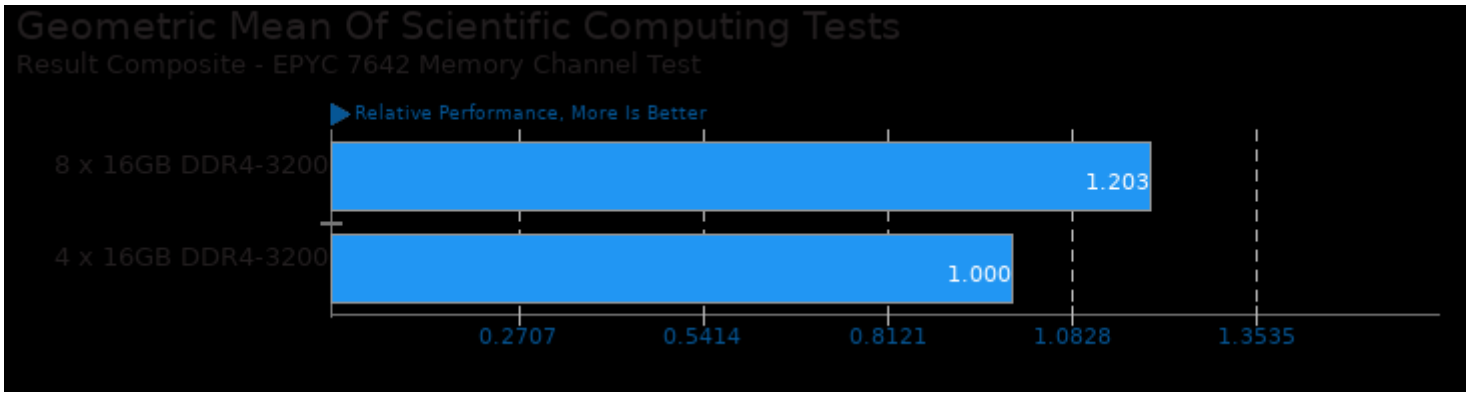
Geometric mean based upon tests: pts/numpy, pts/mlpack and pts/scikit-learn



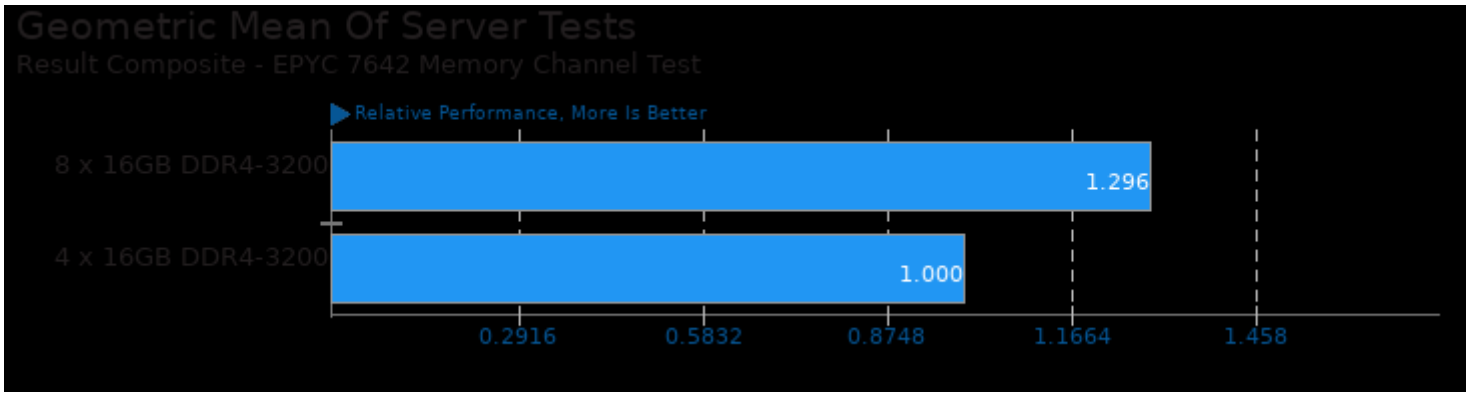
Geometric mean based upon tests: pts/ospray, pts/c-ray, pts/povray and pts/rays1bench

Geometric mean based upon tests: pts/ospray, pts/c-ray, pts/povray, pts/rays1bench, pts/blender, pts/tungsten,

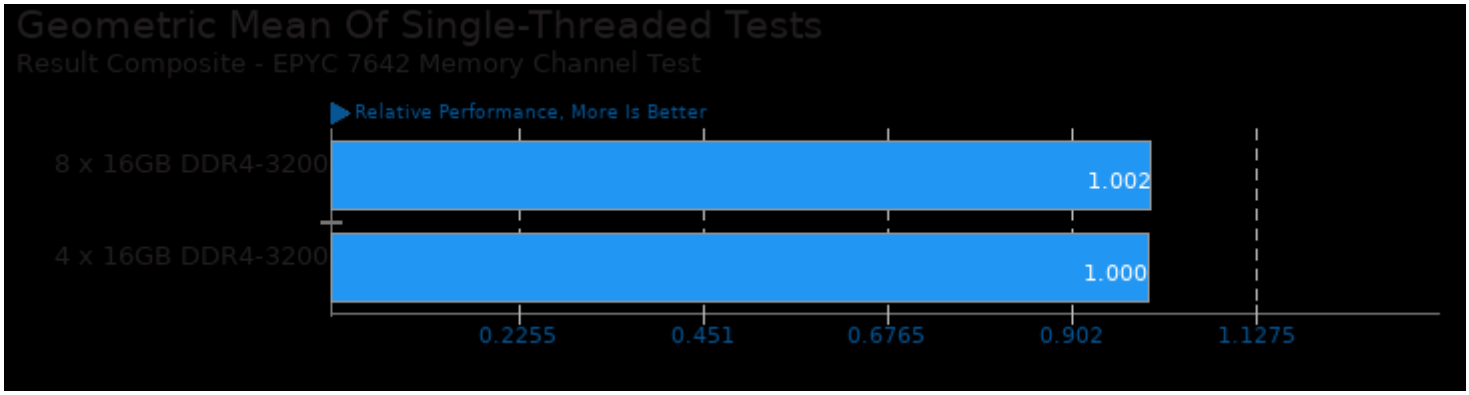
pts/appleseed, pts/radiance, pts/luxcorerender, pts/v-ray and pts/indigobench



Geometric mean based upon tests: system/octave-benchmark, pts/mt-dgemm, pts/hpcc, pts/namd, pts/gromacs, pts/cloverleaf, pts/himeno and pts/mrbayes



Geometric mean based upon tests: pts/apache, pts/nginx, pts/blogbench, pts/ebizzy, pts/apache-siege, pts/mysqlslap, pts/pgbench, pts/mcperf, pts/redis, pts/cassandra, pts/rocksdb, pts/node-express-loadtest, pts/openssl, pts/sqlite and pts/sqlite-speedtest



Geometric mean based upon tests: pts/polyhedron, pts/node-express-loadtest, pts/swet, pts/numpy, pts/deepspeech, pts/radiance, pts/rbenchmark, pts/tjbench, pts/redis and pts/nginx

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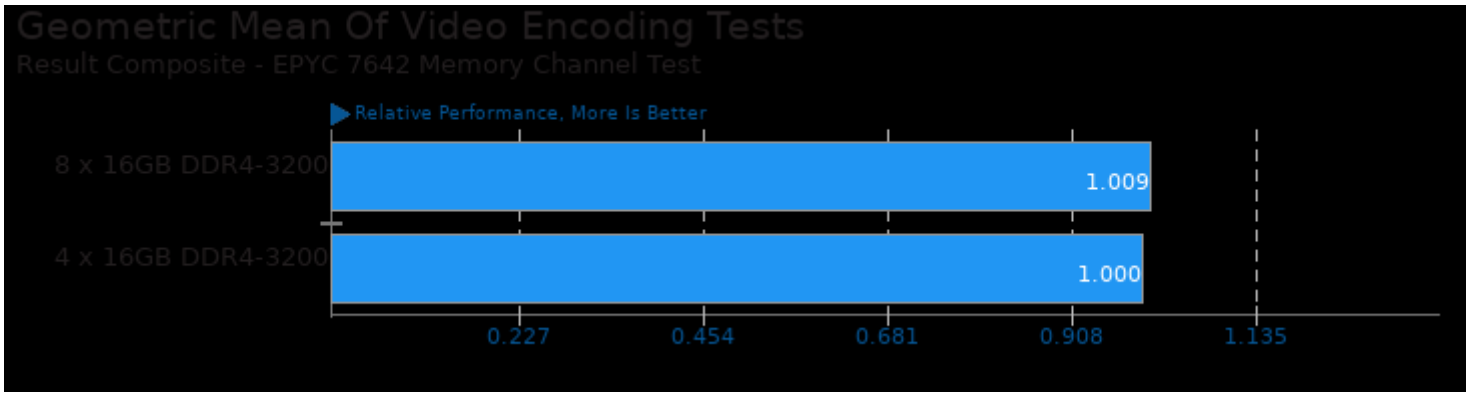
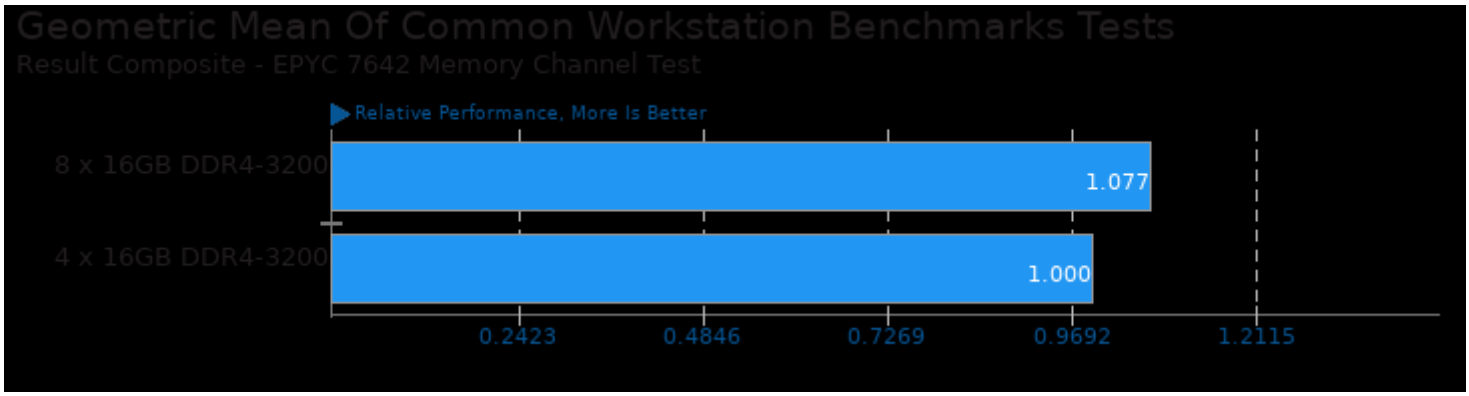


Geometric mean based upon tests: pts/svt-vp9, pts/x264, pts/x265, pts/vpxenc, pts/aom-av1, pts/svt-av1 and pts/rav1e



Geometric mean based upon tests: pts/blender, pts/rodinia, pts/parboil, pts/himeno, pts/brl-cad, pts/x265, pts/swet and pts/sysbench

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