

www.phoronix-test-suite.com

memory-2990-ecc

AMD Ryzen Threadripper 2990WX 32-Core testing with a MSI MEG X399 CREATION (MS-7B92) v1.0 (1.10 BIOS) and ASUS AMD Radeon RX Vega 56/64 8176MB on Fedora 28 via the Phoronix Test Suite.

Automated Executive Summary

2990WX + GSkill 2933 128gb DFL 3.33A Agesa 1.1.0.2 had the most wins, coming in first place for 40% of the tests.

*Based on the geometric mean of all complete results, the fastest (2990WX + GSkill 2933 128gb DFL 3.33A Agesa 1.1.0.2) was 1.361x the speed of the slowest (2990WX + GSkill 2933 128gb BIOS 3.33). 2990WX + GSkill 2933 128gb AsRock Timings *CrayZeApe* was 0.998x the speed of 2990WX + GSkill 2933 128gb DFL 3.33A Agesa 1.1.0.2, 2990WX + GGSSkill 2933 128gb 3.30 REVERT Agesa was 0.955x the speed of 2990WX + GSkill 2933 128gb AsRock Timings *CrayZeApe*, 2990WX + GSKill 2933 128gb was 0.821x the speed of 2990WX + GGSSkill 2933 128gb 3.30 REVERT Agesa, 2990WX + GSkill 2933 128gb BIOS 3.33 was 0.939x the speed of 2990WX + GSKill 2933 128gb.*

Test Systems:

2990WX + GSKill 2933 128gb

Processor: AMD Ryzen Threadripper 2990X 32-Core @ 3.00GHz (32 Cores / 64 Threads), Motherboard: ASRock X399 Professional Gaming (L3.33 BIOS), Chipset: AMD Family 17h, Memory: 129024MB, Disk: 250GB Samsung SSD 850 + 8GB DataTraveler 2.0 + 480GB INTEL SSDPED1D480GA, Graphics: NV132 11264MB, Audio: NVIDIA GP104 HD Audio, Monitor: DP-3412UM + DP_FREESYNC, Network: Aquantia AQC107 NBase-T/IEEE + Intel Dual Band Wireless-AC 3168NGW

OS: Fedora 28, Kernel: 4.17.19-200.trlocal.fc28.x86_64 (x86_64), Desktop: GNOME Shell 3.28.3, Display Driver: modesetting 1.19.6, OpenGL: 4.3 Mesa 18.0.5, Compiler: GCC 8.1.1 20180712 + Clang 6.0.1, File-System: ext4, Screen Resolution: 2560x1440

Compiler Notes: --build=x86_64-redhat-linux --disable-libunwind-exceptions --enable-__cxa_atexit --enable-bootstrap --enable-cet --enable-checking=release --enable-gnu-indirect-function --enable-gnu-unique-object --enable-initfini-array --enable-languages=c,c++,fortran,objc,obj-c++,ada,go,lto --enable-libmpx --enable-multilib --enable-offload-targets=nvptx-none --enable-plugin --enable-shared --enable-threads=posix --mandir=/usr/share/man --with-arch_32=i686 --with-gcc-major-version-only --with-isl --with-linker-hash-style=gnu --with-tune=generic --without-cuda-driver
Processor Notes: Scaling Governor: acpi-cpufreq performance
Security Notes: SELinux + __user pointer sanitization + Full AMD retpoline IBPB Protection

2990WX + GSkill 2933 128gb BIOS 3.33

Processor: AMD Ryzen Threadripper 2990X 32-Core @ 3.00GHz (32 Cores / 64 Threads), Motherboard: ASRock X399 Professional Gaming (L3.33 BIOS), Chipset: AMD Family 17h, Memory: 129024MB, Disk: 8002GB Western Digital WD80EFZX-68U + 480GB INTEL SSDPED1D480GA, Graphics: AMD Radeon 8192MB, Audio: Realtek ALC1220, Monitor: DP-3412UM + DP_FREESYNC, Network: Aquantia AQC107 NBase-T/IEEE + Intel Dual Band Wireless-AC 3168NGW

OS: Fedora 28, Kernel: 4.18.11-200.fc28.x86_64 (x86_64), Desktop: GNOME Shell 3.28.3, Display Driver: modesetting 1.19.6, OpenGL: 4.5 Mesa 18.0.5 (LLVM 6.0.1), Compiler: GCC 8.1.1 20180712 + Clang 6.0.1, File-System: ext4, Screen Resolution: 1920x1200

Compiler Notes: --build=x86_64-redhat-linux --disable-libunwind-exceptions --enable-__cxa_atexit --enable-bootstrap --enable-cet --enable-checking=release --enable-gnu-indirect-function --enable-gnu-unique-object --enable-initfini-array --enable-languages=c,c++,fortran,objc,obj-c++,ada,go,lto --enable-libmpx --enable-multilib --enable-offload-targets=nvptx-none --enable-plugin --enable-shared --enable-threads=posix --mandir=/usr/share/man --with-arch_32=i686 --with-gcc-major-version-only --with-isl --with-linker-hash-style=gnu --with-tune=generic --without-cuda-driver
Processor Notes: Scaling Governor: acpi-cpufreq performance
Security Notes: SELinux + __user pointer sanitization + Full AMD retpoline IBPB Protection

2990WX + GGSSkill 2933 128gb 3.30 REVERT Agesa

Processor: AMD Ryzen Threadripper 2990X 32-Core @ 3.00GHz (32 Cores / 64 Threads), Motherboard: ASRock X399 Professional Gaming (P3.30 BIOS), Chipset: AMD Family 17h, Memory: 129024MB, Disk: 250GB Samsung SSD 850 + 32GB USB Flash Disk + 480GB INTEL SSDPED1D480GA + Samsung SSD 960 PRO 512GB, Graphics: AMD Radeon 8192MB, Audio: Realtek ALC1220, Monitor: DP-3412UM + DP_FREESYNC, Network: Aquantia AQC107 NBase-T/IEEE + Intel Dual Band Wireless-AC 3168NGW

OS: Fedora 28, Kernel: 4.18.11-200.fc28.x86_64 (x86_64), Desktop: GNOME Shell 3.28.3, Display Driver: modesetting 1.19.6, OpenGL: 4.5 Mesa 18.0.5 (LLVM 6.0.1), Compiler: GCC 8.1.1 20180712 + Clang 6.0.1, File-System: ext4, Screen Resolution: 1024x768

Compiler Notes: --build=x86_64-redhat-linux --disable-libunwind-exceptions --enable-__cxa_atexit --enable-bootstrap --enable-cet --enable-checking=release --enable-gnu-indirect-function --enable-gnu-unique-object --enable-initfini-array --enable-languages=c,c++,fortran,objc,obj-c++,ada,go,lto --enable-libmpx --enable-multilib --enable-offload-targets=nvptx-none --enable-plugin --enable-shared --enable-threads=posix --mandir=/usr/share/man --with-arch_32=i686 --with-gcc-major-version-only --with-isl --with-linker-hash-style=gnu --with-tune=generic --without-cuda-driver
Processor Notes: Scaling Governor: acpi-cpufreq performance
Security Notes: SELinux + __user pointer sanitization + Full AMD retpoline IBPB Protection

2990WX + GSkill 2933 128gb DFL 3.33A Agesa 1.1.0.2

Processor: AMD Ryzen Threadripper 2990X 32-Core @ 3.00GHz (32 Cores / 64 Threads), Motherboard: ASRock X399 Professional Gaming (L3.33A BIOS), Chipset: AMD Family 17h, Memory: 129024MB, Disk: 8002GB Western Digital WD80EFZX-68U + 32GB USB Flash Disk + 480GB INTEL SSDPED1D480GA, Graphics: AMD Radeon 8192MB, Audio: Realtek ALC1220, Monitor: DP-3412UM + DP_FREESYNC, Network: Aquantia AQC107 NBase-T/IEEE + Intel Dual Band Wireless-AC 3168NGW

OS: Fedora 28, Kernel: 4.17.18-200.fc28.x86_64 (x86_64), Desktop: GNOME Shell 3.28.3, Display Driver: modesetting 1.19.6, OpenGL: 4.5 Mesa 18.0.5 (LLVM 6.0.1), Compiler: GCC 8.1.1 20180712 + Clang 6.0.1, File-System: ext4, Screen Resolution: 1280x720

Compiler Notes: --build=x86_64-redhat-linux --disable-libunwind-exceptions --enable-__cxa_atexit --enable-bootstrap --enable-cet --enable-checking=release --enable-gnu-indirect-function --enable-gnu-unique-object --enable-initfini-array --enable-languages=c,c++,fortran,objc,obj-c++,ada,go,lto --enable-libmpx --enable-multilib --enable-offload-targets=nvptx-none --enable-plugin --enable-shared --enable-threads=posix --mandir=/usr/share/man --with-arch_32=i686 --with-gcc-major-version-only --with-isl --with-linker-hash-style=gnu --with-tune=generic --without-cuda-driver
Processor Notes: Scaling Governor: acpi-cpufreq performance
Security Notes: SELinux + __user pointer sanitization + Full AMD retpoline IBPB Protection

2990WX + GSkill 2933 128gb AsRock Timings *CrayZeApe*

Processor: AMD Ryzen Threadripper 2990WX 32-Core @ 3.00GHz (32 Cores / 64 Threads), Motherboard: MSI MEG X399 CREATION (MS-7B92) v1.0 (1.10 BIOS), Chipset: AMD Family 17h, Memory: 8 x 16384 MB DDR4-2933MT/s F4-2933C14-16GFX, Disk: 5 x 1024GB Samsung SSD 970 PRO 1TB, Graphics: ASUS AMD Radeon RX Vega 56/64 8176MB, Audio: Realtek ALC1220, Monitor: C24F390, Network: Intel I211 Gigabit Connection + Intel Wireless-AC 9260

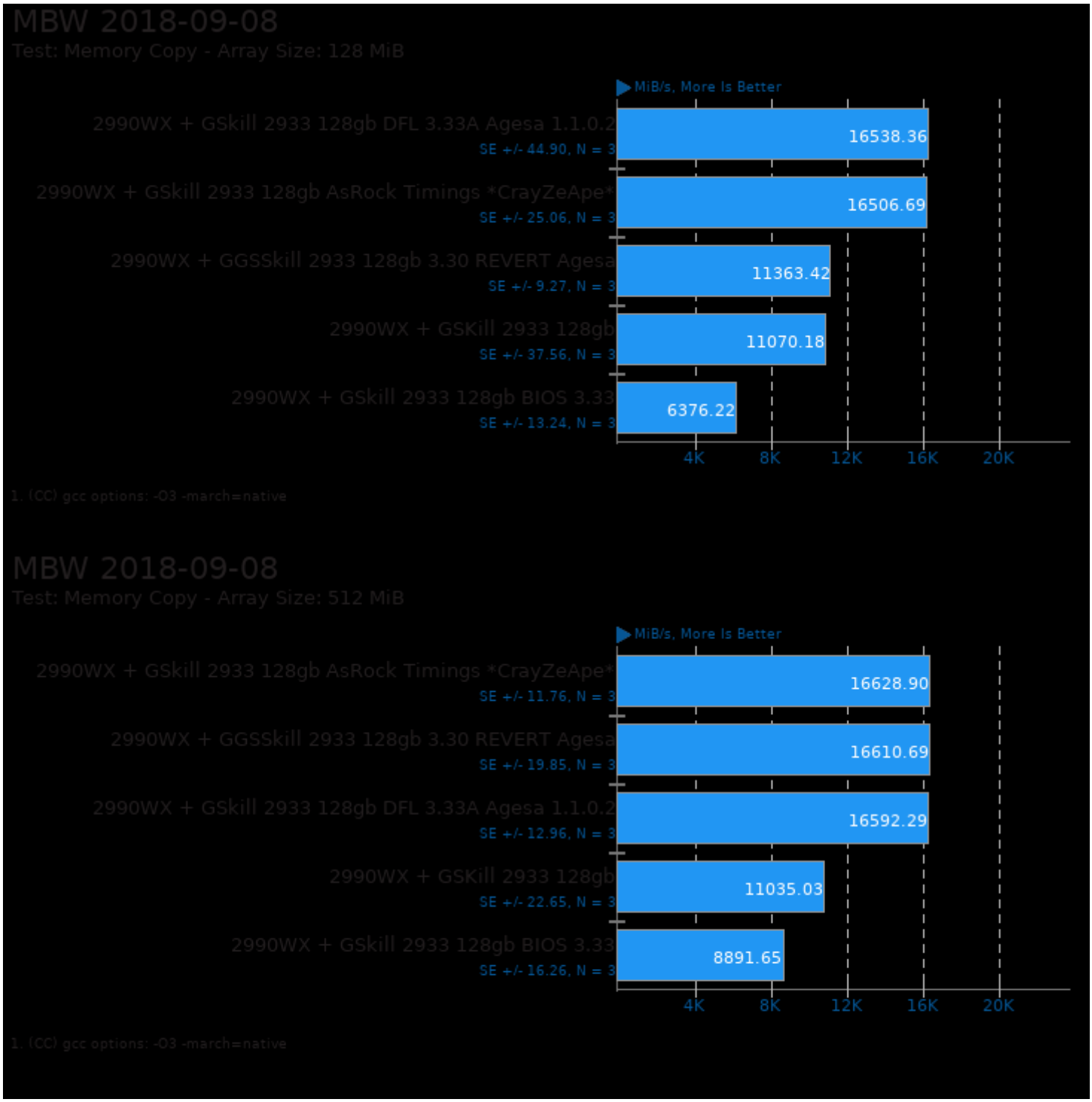
OS: Fedora 28, Kernel: 4.18.12-200.fc28.x86_64 (x86_64), Desktop: GNOME Shell 3.28.3, Compiler: GCC 8.1.1 20180712, File-System: ext4, Screen Resolution: 1920x1080

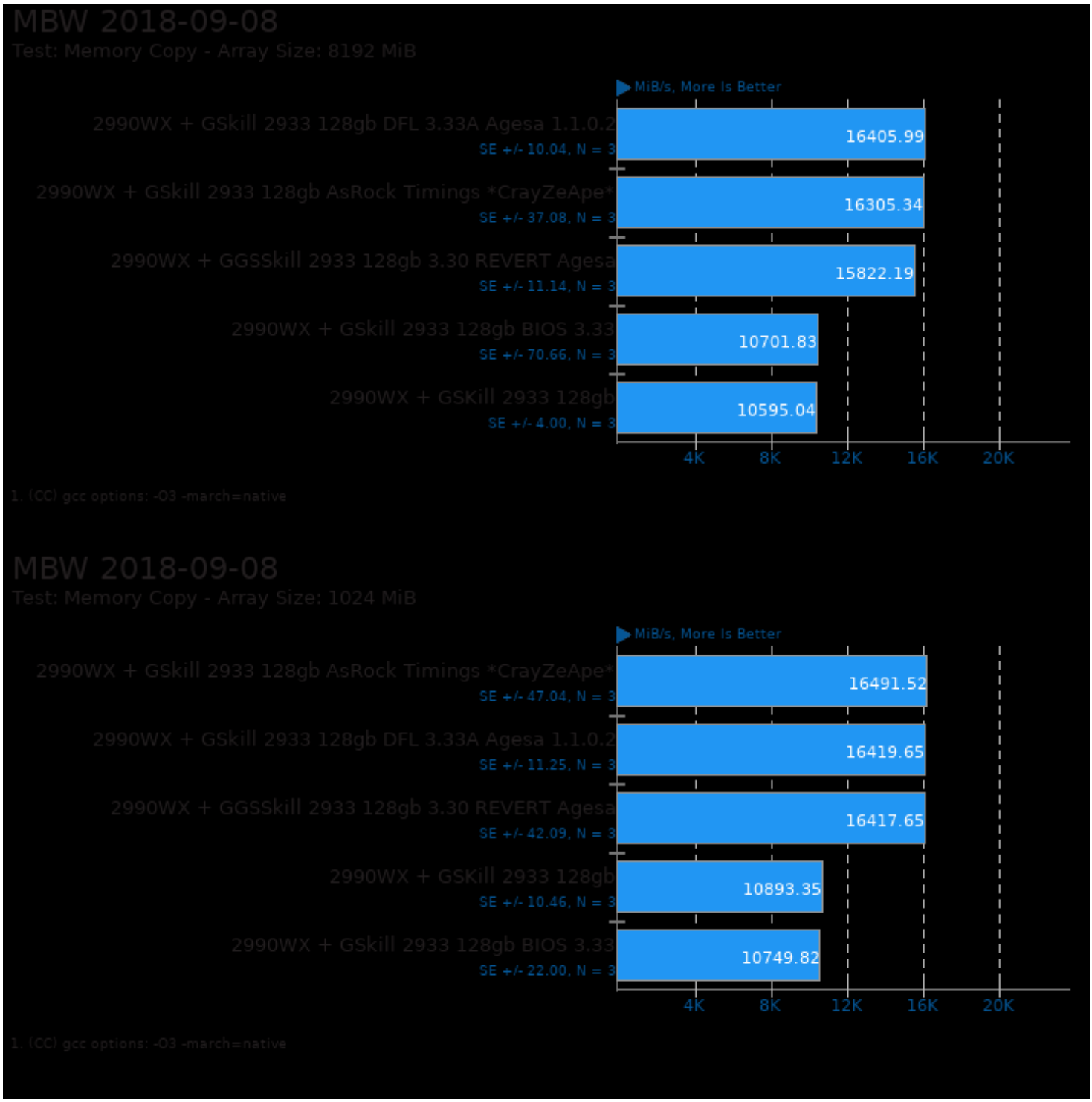
Compiler Notes: --build=x86_64-redhat-linux --disable-libunwind-exceptions --enable-__cxa_atexit --enable-bootstrap --enable-cet --enable-checking=release --enable-gnu-indirect-function --enable-gnu-unique-object --enable-initfini-array --enable-languages=c,c++,fortran,objc,obj-c++,ada,go,lto --enable-libmpx --enable-multilib --enable-offload-targets=nvptx-none --enable-plugin --enable-shared --enable-threads=posix --mandir=/usr/share/man --with-arch_32=i686 --with-gcc-major-version-only --with-isl --with-linker-hash-style=gnu --with-tune=generic --without-cuda-driver
Processor Notes: Scaling Governor: acpi-cpufreq ondemand
Security Notes: SELinux + __user pointer sanitization + Full AMD retpoline IBPB Protection

	2990WX + GSKill 2933 128gb	2990WX + GSkill 2933 128gb BIOS 3.33	2990WX + GGSSkill 2933 128gb 3.30 REVERT Agesa	2990WX + GSkill 2933 128gb DFL 3.33A Agesa 1.1.0.2	2990WX + GSkill 2933 128gb AsRock Timings *CrayZeApe*
MBW - Memory Copy - 128 MiB (MiB/s)	11070	**6376**	11363	**16538**	16507
Normalized	66.94%	38.55%	68.71%	100%	99.81%
Standard Deviation	0.6%	0.4%	0.1%	0.5%	0.3%
MBW - Memory Copy - 512 MiB (MiB/s)	11035	**8892**	16611	16592	**16629**
Normalized	66.36%	53.47%	99.89%	99.78%	100%
Standard Deviation	0.4%	0.3%	0.2%	0.1%	0.1%
MBW - Memory Copy - 8192 MiB (MiB/s)	**10595**	10702	15822	**16406**	16305
Normalized	64.58%	65.23%	96.44%	100%	99.39%
Standard Deviation	0.1%	1.1%	0.1%	0.1%	0.4%

memory-2990-ecc

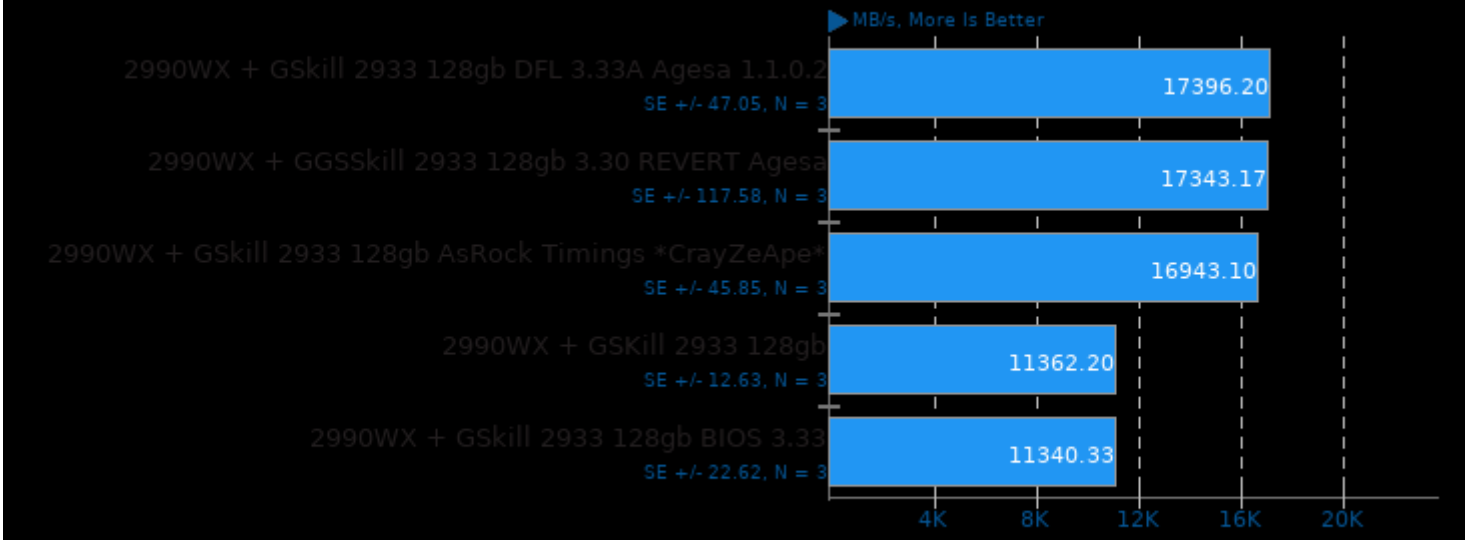
MBW - Memory Copy - 1024 MiB (MiB/s)	10893	10750	16418	16420	16492
Normalized	66.05%	65.18%	99.55%	99.56%	100%
Standard Deviation	0.2%	0.4%	0.4%	0.1%	0.5%
Tinymembench - Standard Memcpy (MB/s)	11362	11340	17343	17396	16943
Normalized	65.31%	65.19%	99.7%	100%	97.4%
Standard Deviation	0.2%	0.3%	1.2%	0.5%	0.5%
MBW - Memory Copy - 4096 MiB (MiB/s)	10898	10775	16082	16498	16454
Normalized	66.06%	65.31%	97.48%	100%	99.73%
Standard Deviation	0.9%	0.5%	3.2%	0.3%	0.3%
Tinymembench - Standard Memset (MB/s)	9855	10143	14271	14239	14245
Normalized	69.05%	71.07%	100%	99.77%	99.81%
Standard Deviation	0.6%	5.3%	0.5%	0.4%	0.4%
MBW - M.C.F.B.S - 8192 MiB (MiB/s)	6640	6841	8991	8994	9188
Normalized	72.26%	74.45%	97.85%	97.88%	100%
Standard Deviation	2.7%	0.9%	0.7%	1.1%	0.8%
MBW - M.C.F.B.S - 4096 MiB (MiB/s)	6724	6642	9050	9081	8875
Normalized	74.05%	73.14%	99.66%	100%	97.73%
Standard Deviation	0.1%	2.8%	0.1%	1.4%	2.9%
MBW - M.C.F.B.S - 512 MiB (MiB/s)	6877	6837	9155	9075	9062
Normalized	75.12%	74.68%	100%	99.13%	98.99%
Standard Deviation	1.7%	2.1%	0.7%	0.6%	0.2%
MBW - M.C.F.B.S - 1024 MiB (MiB/s)	6841	6845	9046	8917	8938
Normalized	75.63%	75.68%	100%	98.58%	98.8%
Standard Deviation	1%	0.4%	0.4%	2%	0.3%
MBW - M.C.F.B.S - 128 MiB (MiB/s)	6880	7098	8651	8866	8811
Normalized	77.6%	80.06%	97.58%	100%	99.38%
Standard Deviation	0.6%	0.8%	2.6%	2.4%	0.1%
Stream - Add (MB/s)	48706	46378	42752	45651	46295
Normalized	100%	95.22%	87.78%	93.73%	95.05%
Standard Deviation	2.7%	5.2%	15.2%	6.6%	6.1%
Stream - Triad (MB/s)	48929	46400	41584	46606	46501
Normalized	100%	94.83%	84.99%	95.25%	95.04%
Standard Deviation	2%	5.1%	14%	6.5%	4.9%
Stream - Scale (MB/s)	44238	42868	40183	40851	42263
Normalized	100%	96.9%	90.84%	92.35%	95.54%
Standard Deviation	4%	5.7%	17%	7.4%	5.4%
Stream - Copy (MB/s)	63904	59802	57452	62393	60089
Normalized	100%	93.58%	89.9%	97.63%	94.03%
Standard Deviation	3.3%	6.9%	10.9%	5.6%	6.1%


MBW 2018-09-08
Test: Memory Copy - Array Size: 128 MiB
MiB/s, More Is Better
2990WX + GSkill 2933 128gb DFL 3.33A Agesa 1.1.0.2
SE +/- 44.90, N = 3
16538.36
2990WX + GSkill 2933 128gb AsRock Timings *CrayZeApe*
SE +/- 25.06, N = 3
16506.69
2990WX + GGSSkill 2933 128gb 3.30 REVERT Agesa
SE +/- 9.27, N = 3
11363.42
2990WX + GSKill 2933 128gb
SE +/- 37.56, N = 3
11070.18
2990WX + GSkill 2933 128gb BIOS 3.33
SE +/- 13.24, N = 3
6376.22
4K
8K
12K
16K
20K
1. (CC) gcc options: -O3 -march=native
MBW 2018-09-08
Test: Memory Copy - Array Size: 512 MiB
MiB/s, More Is Better
2990WX + GSkill 2933 128gb AsRock Timings *CrayZeApe*
SE +/- 11.76, N = 3
16628.90
2990WX + GGSSkill 2933 128gb 3.30 REVERT Agesa
SE +/- 19.85, N = 3
16610.69
2990WX + GSkill 2933 128gb DFL 3.33A Agesa 1.1.0.2
SE +/- 12.96, N = 3
16592.29
2990WX + GSKill 2933 128gb
SE +/- 22.65, N = 3
11035.03
2990WX + GSkill 2933 128gb BIOS 3.33
SE +/- 16.26, N = 3
8891.65
4K
8K
12K
16K
20K
1. (CC) gcc options: -O3 -march=native


MBW 2018-09-08
Test: Memory Copy - Array Size: 8192 MiB
MiB/s, More Is Better
2990WX + GSkill 2933 128gb DFL 3.33A Agesa 1.1.0.2
SE +/- 10.04, N = 3
16405.99
2990WX + GSkill 2933 128gb AsRock Timings *CrayZeApe*
SE +/- 37.08, N = 3
16305.34
2990WX + GGSSkill 2933 128gb 3.30 REVERT Agesa
SE +/- 11.14, N = 3
15822.19
2990WX + GSkill 2933 128gb BIOS 3.33
SE +/- 70.66, N = 3
10701.83
2990WX + GSKill 2933 128gb
SE +/- 4.00, N = 3
10595.04
4K
8K
12K
16K
20K
1. (CC) gcc options: -O3 -march=native
MBW 2018-09-08
Test: Memory Copy - Array Size: 1024 MiB
MiB/s, More Is Better
2990WX + GSkill 2933 128gb AsRock Timings *CrayZeApe*
SE +/- 47.04, N = 3
16491.52
2990WX + GSkill 2933 128gb DFL 3.33A Agesa 1.1.0.2
SE +/- 11.25, N = 3
16419.65
2990WX + GGSSkill 2933 128gb 3.30 REVERT Agesa
SE +/- 42.09, N = 3
16417.65
2990WX + GSKill 2933 128gb
SE +/- 10.46, N = 3
10893.35
2990WX + GSkill 2933 128gb BIOS 3.33
SE +/- 22.00, N = 3
10749.82
4K
8K
12K
16K
20K
1. (CC) gcc options: -O3 -march=native

Tinymembench 2018-05-28

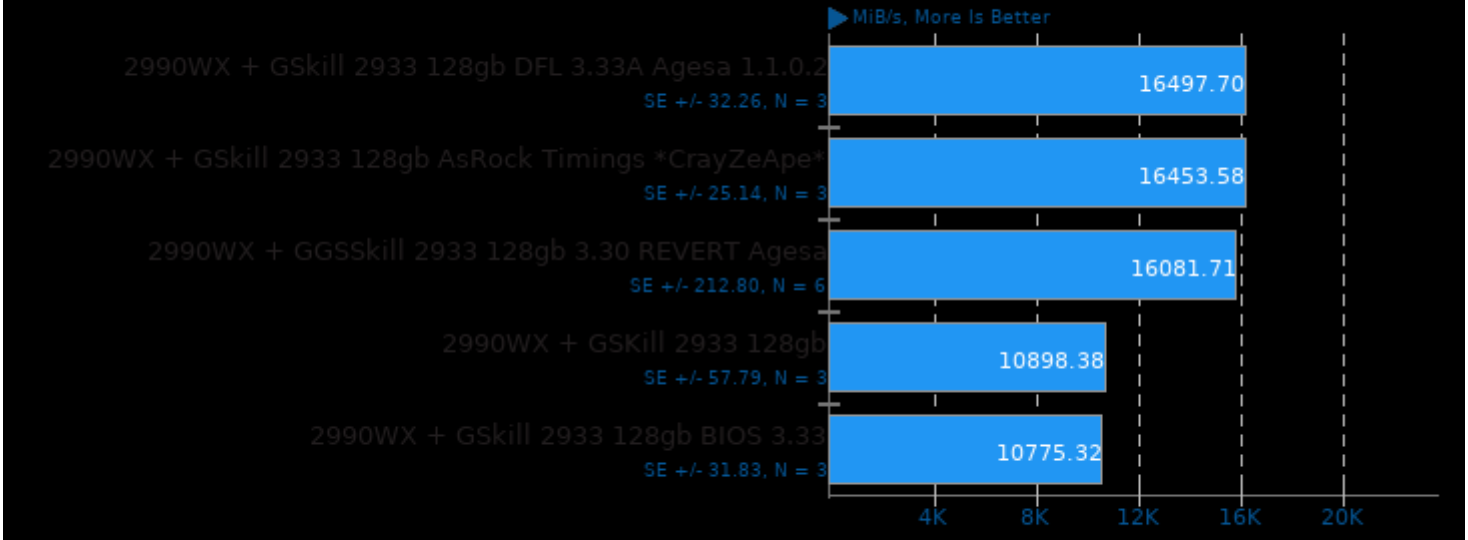
Standard Memcpy



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

MBW 2018-09-08

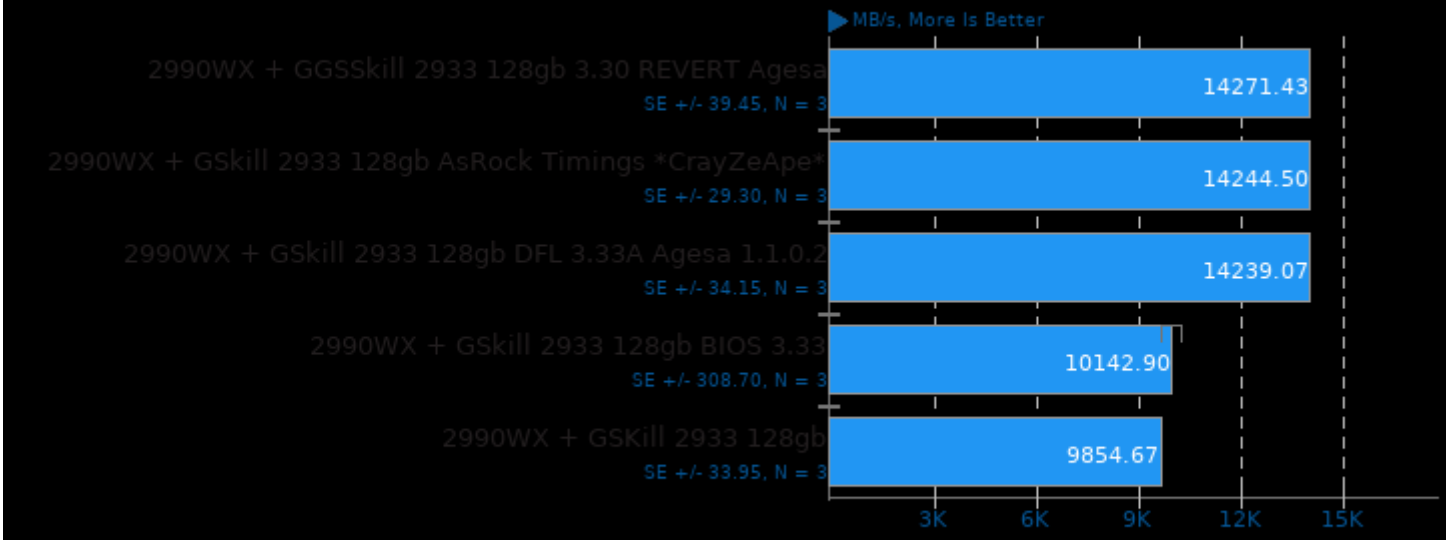
Test: Memory Copy - Array Size: 4096 MiB



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

Tinymembench 2018-05-28

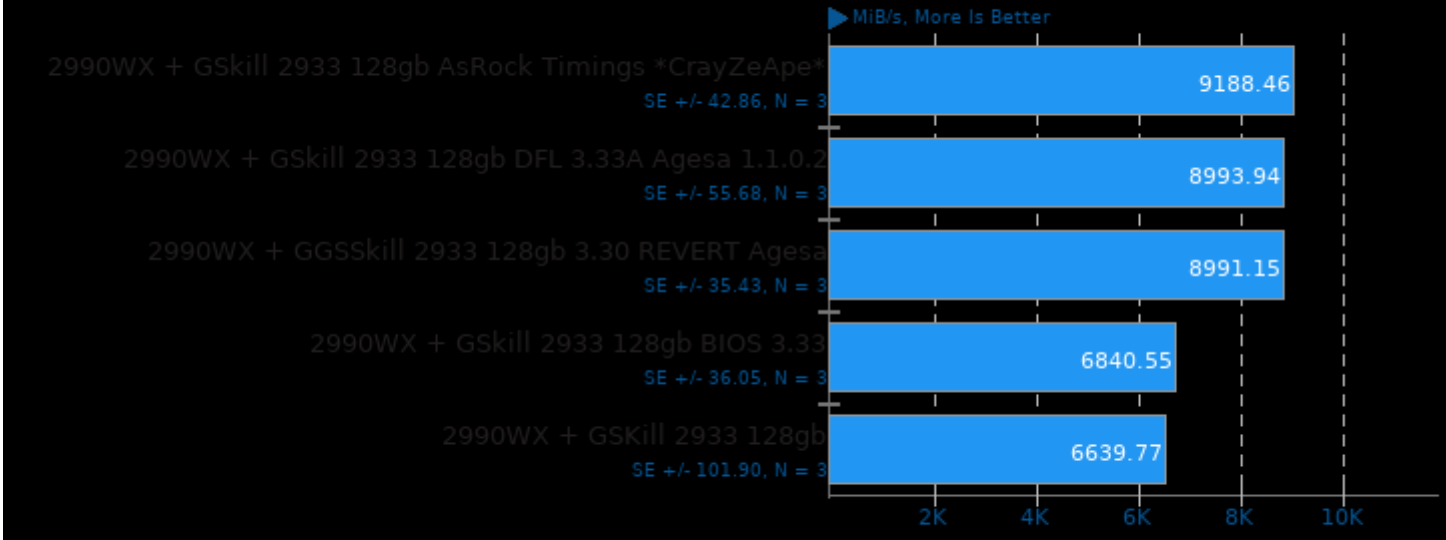
Standard Memset



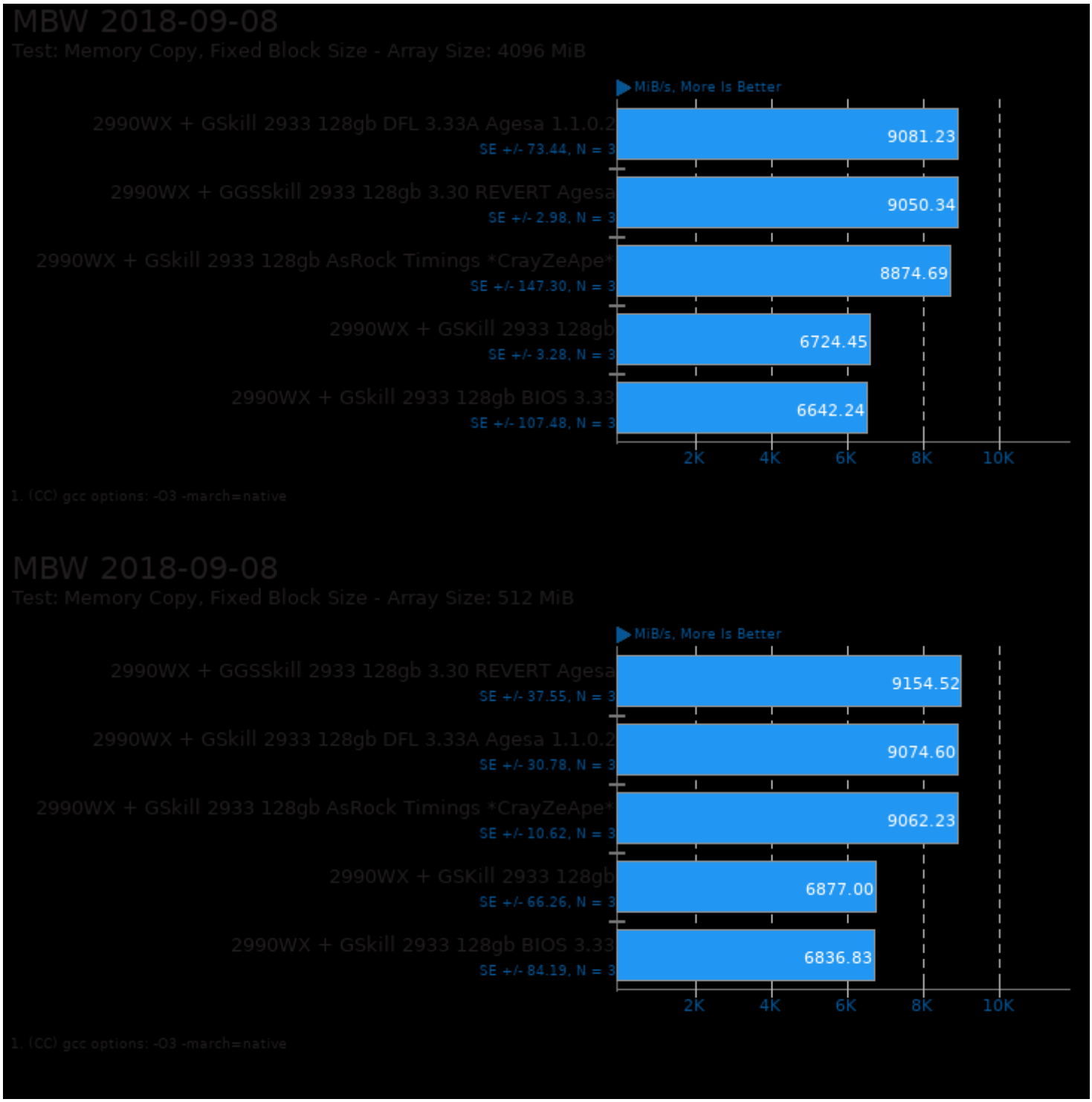
1. (CC) gcc options: -O2 -lm

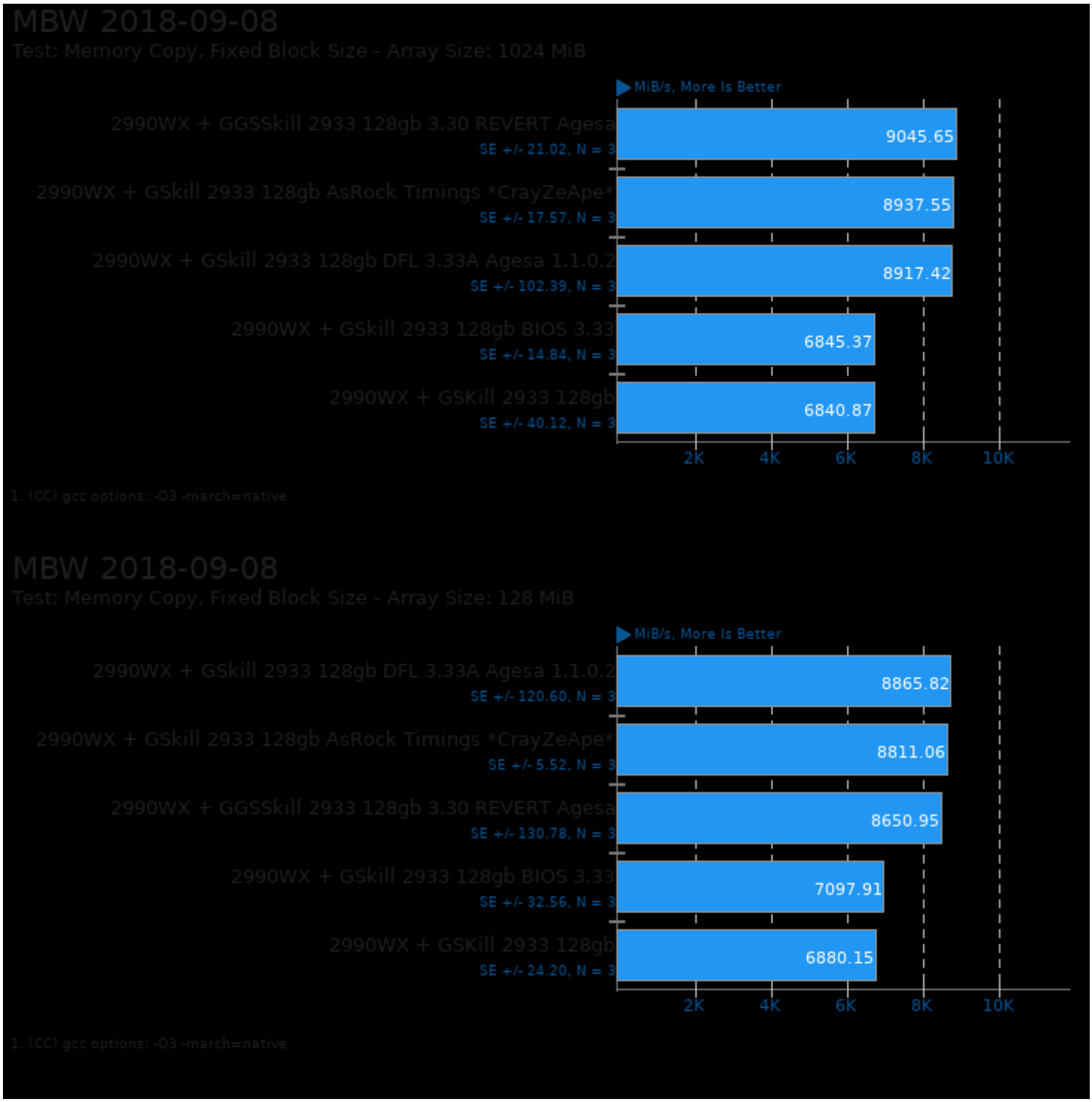
MBW 2018-09-08

Test: Memory Copy, Fixed Block Size - Array Size: 8192 MiB

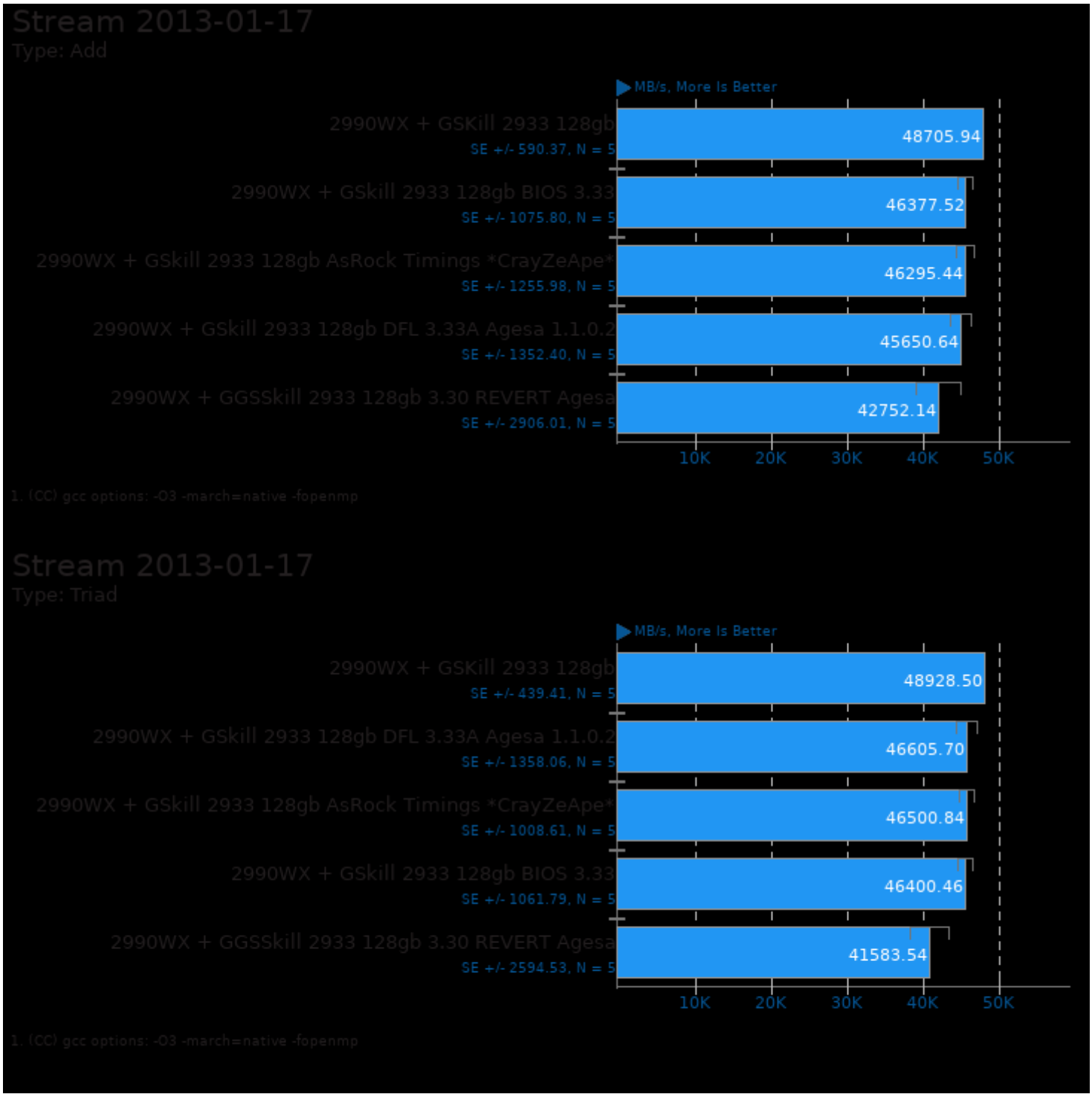


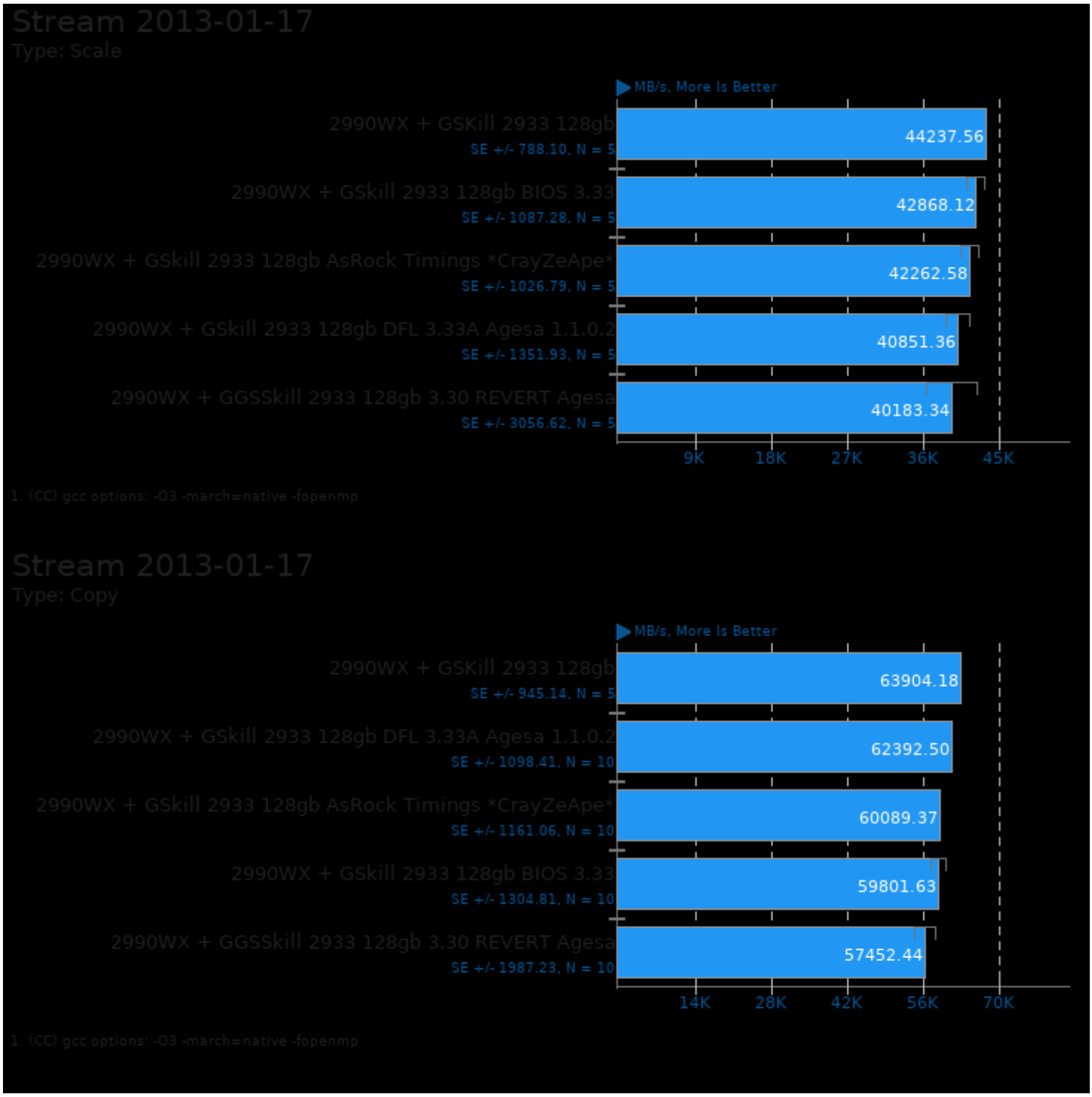
1. (CC) gcc options: -O3 -march=native


MBW 2018-09-08
Test: Memory Copy, Fixed Block Size - Array Size: 4096 MiB
MiB/s, More Is Better
2990WX + GSkill 2933 128gb DFL 3.33A Agesa 1.1.0.2
SE +/- 73.44, N = 3
9081.23
2990WX + GGSSkill 2933 128gb 3.30 REVERT Agesa
SE +/- 2.98, N = 3
9050.34
2990WX + GSkill 2933 128gb AsRock Timings *CrayZeApe*
SE +/- 147.30, N = 3
8874.69
2990WX + GSKill 2933 128gb
SE +/- 3.28, N = 3
6724.45
2990WX + GSkill 2933 128gb BIOS 3.33
SE +/- 107.48, N = 3
6642.24
2K
4K
6K
8K
10K
1. (CC) gcc options: -O3 -march=native
MBW 2018-09-08
Test: Memory Copy, Fixed Block Size - Array Size: 512 MiB
MiB/s, More Is Better
2990WX + GGSSkill 2933 128gb 3.30 REVERT Agesa
SE +/- 37.55, N = 3
9154.52
2990WX + GSkill 2933 128gb DFL 3.33A Agesa 1.1.0.2
SE +/- 30.78, N = 3
9074.60
2990WX + GSkill 2933 128gb AsRock Timings *CrayZeApe*
SE +/- 10.62, N = 3
9062.23
2990WX + GSKill 2933 128gb
SE +/- 66.26, N = 3
6877.00
2990WX + GSkill 2933 128gb BIOS 3.33
SE +/- 84.19, N = 3
6836.83
2K
4K
6K
8K
10K
1. (CC) gcc options: -O3 -march=native

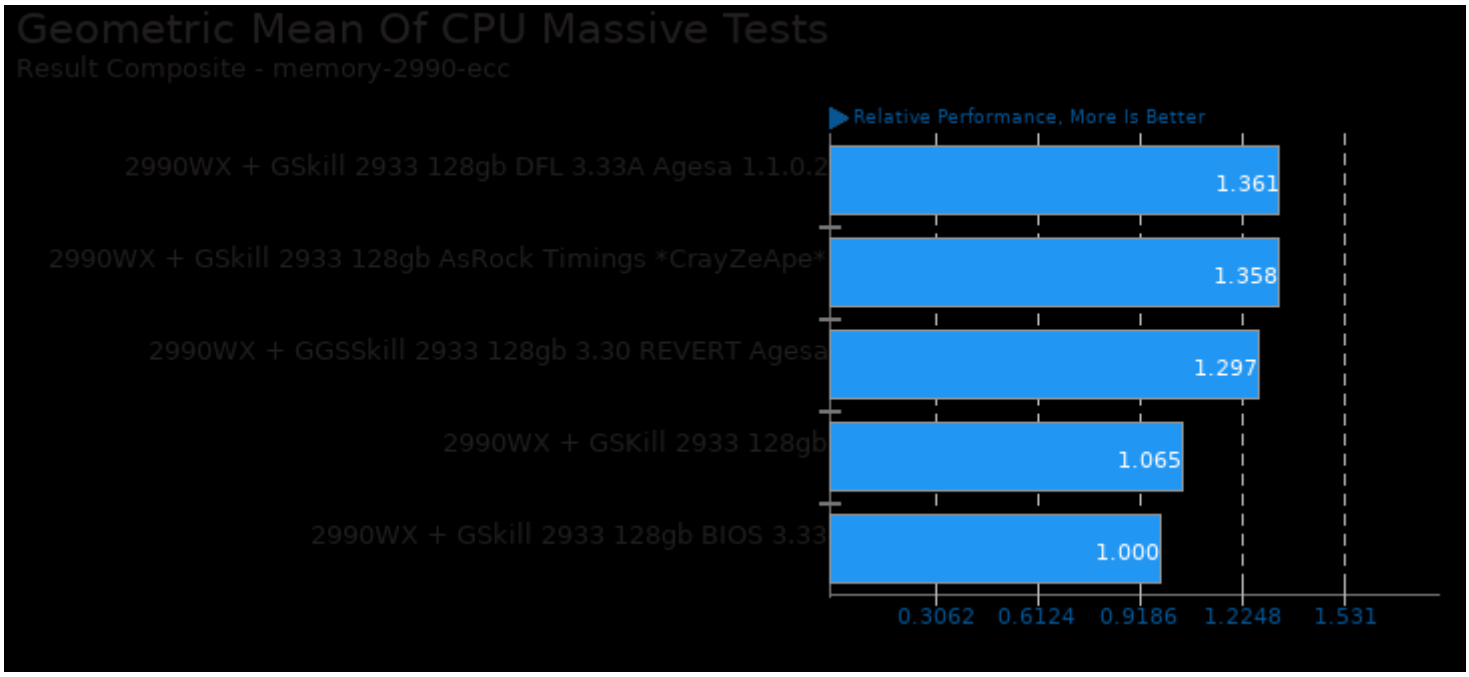

MBW 2018-09-08
Test: Memory Copy, Fixed Block Size - Array Size: 1024 MiB
MiB/s, More Is Better
2990WX + GGSSkill 2933 128gb 3.30 REVERT Agesa
SE +/- 21.02, N = 3
9045.65
2990WX + GSkill 2933 128gb AsRock Timings *CrayZeApe*
SE +/- 17.57, N = 3
8937.55
2990WX + GSkill 2933 128gb DFL 3.33A Agesa 1.1.0.2
SE +/- 102.39, N = 3
8917.42
2990WX + GSkill 2933 128gb BIOS 3.33
SE +/- 14.84, N = 3
6845.37
2990WX + GSKill 2933 128gb
SE +/- 40.12, N = 3
6840.87
2K
4K
6K
8K
10K
1. (CC) gcc options: -O3 -march=native
MBW 2018-09-08
Test: Memory Copy, Fixed Block Size - Array Size: 128 MiB
MiB/s, More Is Better
2990WX + GSkill 2933 128gb DFL 3.33A Agesa 1.1.0.2
SE +/- 120.60, N = 3
8865.82
2990WX + GSkill 2933 128gb AsRock Timings *CrayZeApe*
SE +/- 5.52, N = 3
8811.06
2990WX + GGSSkill 2933 128gb 3.30 REVERT Agesa
SE +/- 130.78, N = 3
8650.95
2990WX + GSkill 2933 128gb BIOS 3.33
SE +/- 32.56, N = 3
7097.91
2990WX + GSKill 2933 128gb
SE +/- 24.20, N = 3
6880.15
2K
4K
6K
8K
10K
1. (CC) gcc options: -O3 -march=native

memory-2990-ecc

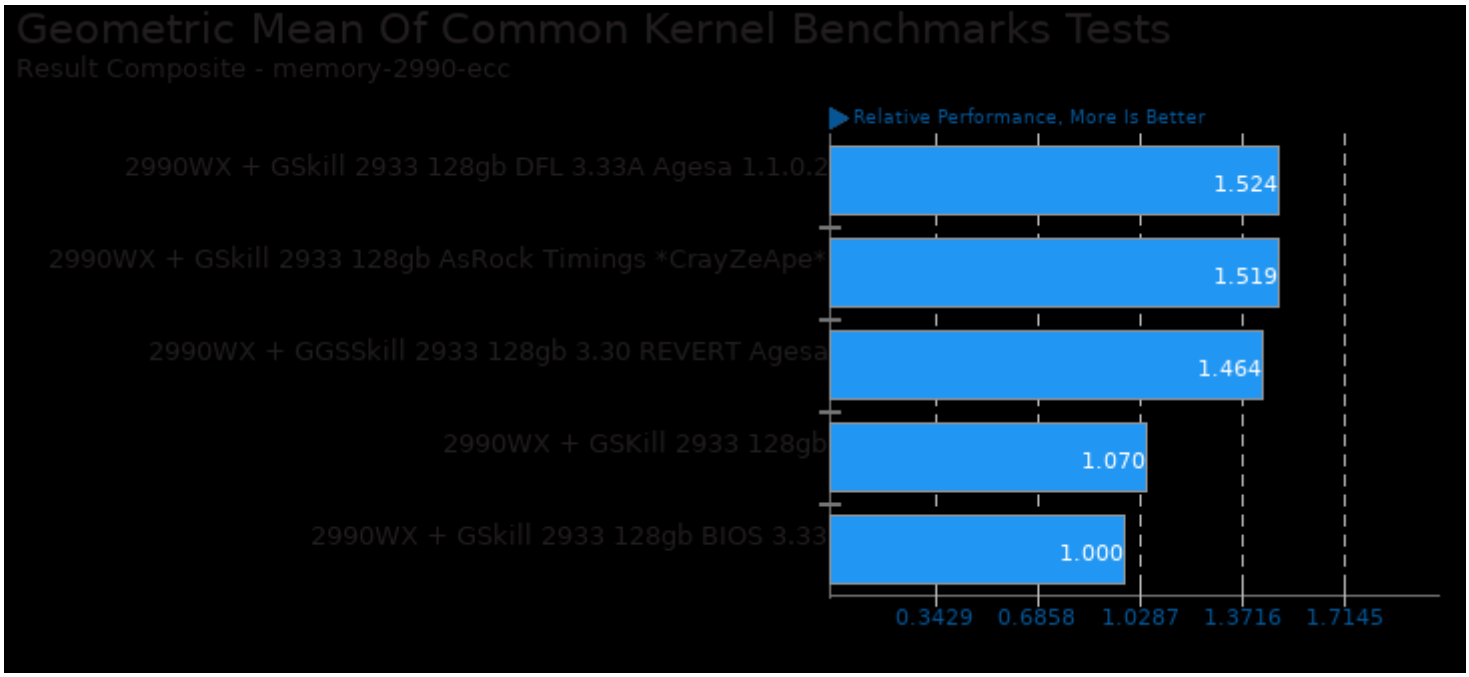



Stream 2013-01-17
Type: Scale
MB/s, More Is Better
2990WX + GSKill 2933 128gb
SE +/- 788.10, N = 5
44237.56
2990WX + GSkill 2933 128gb BIOS 3.33
SE +/- 1087.28, N = 5
42868.12
2990WX + GSkill 2933 128gb AsRock Timings *CrayZeApe*
SE +/- 1026.79, N = 5
42262.58
2990WX + GSkill 2933 128gb DFL 3.33A Agesa 1.1.0.2
SE +/- 1351.93, N = 5
40851.36
2990WX + GGSSkill 2933 128gb 3.30 REVERT Agesa
SE +/- 3056.62, N = 5
40183.34
9K
18K
27K
36K
45K
1. (CC) gcc options: -O3 -march=native -fopenmp
Stream 2013-01-17
Type: Copy
MB/s, More Is Better
2990WX + GSKill 2933 128gb
SE +/- 945.14, N = 5
63904.18
2990WX + GSkill 2933 128gb DFL 3.33A Agesa 1.1.0.2
SE +/- 1098.41, N = 10
62392.50
2990WX + GSkill 2933 128gb AsRock Timings *CrayZeApe*
SE +/- 1161.06, N = 10
60089.37
2990WX + GSkill 2933 128gb BIOS 3.33
SE +/- 1304.81, N = 10
59801.63
2990WX + GGSSkill 2933 128gb 3.30 REVERT Agesa
SE +/- 1987.23, N = 10
57452.44
14K
28K
42K
56K
70K
1. (CC) gcc options: -O3 -march=native -fopenmp

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

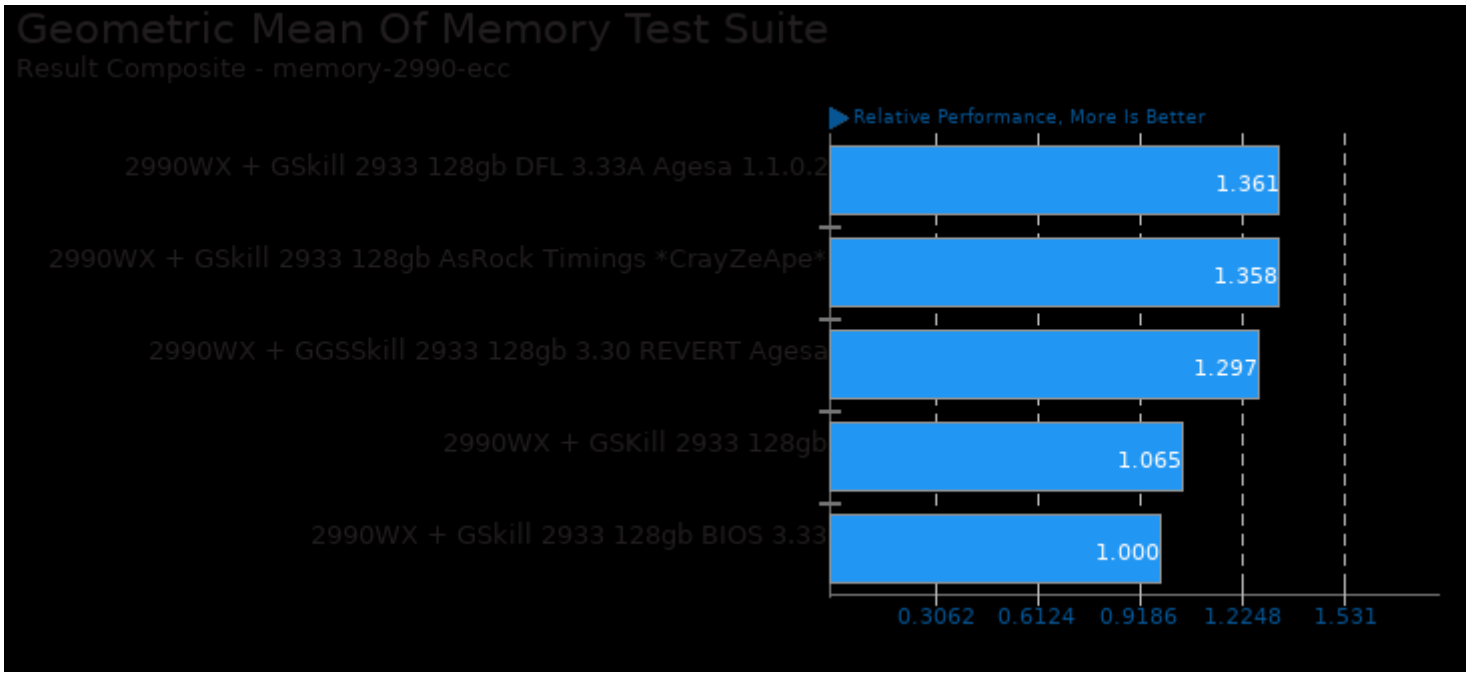


Geometric mean based upon tests: pts/mbw, pts/stream and pts/tinymembench



Geometric mean based upon tests: pts/tinymembench and pts/mbw

memory-2990-ecc



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

This file was automatically generated via the Phoronix Test Suite benchmarking software on Friday, 29 March 2024 02:04.