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EGX_Edge_RTX2080

Intel Core i3-9100E testing with a GIGABYTE MH310AP-SI (F1 BIOS) and Gigabyte Intel UHD 630 8GB on Ubuntu 18.04 via the Phoronix Test Suite.

Automated Executive Summary

M.2_mSATA ATA_128GB had the most wins, coming in first place for 50% of the tests.

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

GLmark2 (Resolution: 3840 x 2160) at 58.778x
GLmark2 (Resolution: 2560 x 1440) at 41.984x
GLmark2 (Resolution: 1920 x 1200) at 33.995x
GLmark2 (Resolution: 1920 x 1080) at 31.648x
GLmark2 (Resolution: 1600 x 1200) at 30.395x
GLmark2 (Resolution: 1280 x 1024) at 22.591x
Flexible IO Tester (Type: Sequential Read - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 8MB - Disk Target: Default Test Directory) at 21x
GLmark2 (Resolution: 1024 x 768) at 12.528x
Flexible IO Tester (Type: Sequential Read - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory) at 11.989x
Flexible IO Tester (Type: Sequential Read - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk

Target: Default Test Directory) at 11.962x.

Test Systems:

M.2_mSATA ATA_128GB

USB3.0

Processor: Intel Core i3-9100E @ 3.10GHz (4 Cores), Motherboard: GIGABYTE MH310AP-SI (F1 BIOS), Chipset: Intel Cannon Lake PCH, Memory: 1 x 8192 MB DDR4-2400MT/s GSLG42F-18----------, Disk: 128GB SATA Flash + 62GB Ultra USB 3.0, Graphics: NVIDIA GeForce RTX 2080 8GB (1515/7000MHz), Audio: Realtek ALC887-VD, Monitor: Acer KG281K, Network: Intel I219-V + 3 x Intel I211

OS: Ubuntu 18.04, Kernel: 5.4.0-51-generic (x86_64), Desktop: GNOME Shell 3.28.4, Display Server: X Server 1.20.8, Display Driver: NVIDIA 450.66, OpenGL: 4.6.0, Compiler: GCC 7.5.0 + CUDA 10.1, File-System: ext4, Screen Resolution: 1920x1080

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++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --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 --with-tune=generic --without-cuda-driver -v
Disk Notes: MQ-DEADLINE / errors=remount-ro,relatime,rw
Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0xd6
Security Notes: itlb_multihit: KVM: Mitigation of Split huge pages + l1tf: Mitigation of PTE Inversion; VMX: conditional cache flushes SMT disabled + mds: Mitigation of Clear buffers; SMT disabled + meltdown: Mitigation of PTI + 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 generic retpoline IBPB: conditional IBRS_FW STIBP: disabled RSB filling + srbds: Mitigation of Microcode + tsx_async_abort: Not affected

USB3.0 run2

USB2.0

Processor: Intel Core i3-9100E @ 3.10GHz (4 Cores), Motherboard: GIGABYTE MH310AP-SI (F1 BIOS), Chipset: Intel Cannon Lake PCH, Memory: 1 x 8192 MB DDR4-2400MT/s GSLG42F-18----------, Disk: 128GB SATA Flash + 16GB USB Drive 3ME, Graphics: NVIDIA GeForce RTX 2080 8GB (1515/7000MHz), Audio: Realtek ALC887-VD, Monitor: Acer KG281K, Network: Intel I219-V + 3 x Intel I211

OS: Ubuntu 18.04, Kernel: 5.4.0-51-generic (x86_64), Desktop: GNOME Shell 3.28.4, Display Server: X Server 1.20.8, Display Driver: NVIDIA 450.66, OpenGL: 4.6.0, Compiler: GCC 7.5.0 + CUDA 10.1, File-System: ext4, Screen Resolution: 1920x1080

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++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --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 --with-tune=generic --without-cuda-driver -v
Disk Notes: MQ-DEADLINE / errors=remount-ro,relatime,rw
Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0xd6
Security Notes: itlb_multihit: KVM: Mitigation of Split huge pages + l1tf: Mitigation of PTE Inversion; VMX: conditional cache flushes SMT disabled + mds: Mitigation of Clear buffers; SMT disabled + meltdown: Mitigation of PTI + 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 generic retpoline IBPB: conditional IBRS_FW STIBP: disabled RSB filling + srbds: Mitigation of Microcode + tsx_async_abort: Not affected

USB2.0 run2

Processor: Intel Core i3-9100E @ 3.10GHz (4 Cores), Motherboard: GIGABYTE MH310AP-SI (F1 BIOS), Chipset: Intel Cannon Lake PCH, Memory: 1 x 8192 MB DDR4-2400MT/s GSLG42F-18----------, Disk: 128GB SATA Flash + 16GB USB Drive 3ME, Graphics: NVIDIA GeForce RTX 2080 8GB (420/405MHz), Audio: Realtek ALC887-VD, Monitor: Acer KG281K, Network: Intel I219-V + 3 x Intel I211

OS: Ubuntu 18.04, Kernel: 5.4.0-51-generic (x86_64), Desktop: GNOME Shell 3.28.4, Display Server: X Server 1.20.8, Display Driver: NVIDIA 450.66, OpenGL: 4.6.0, Compiler: GCC 7.5.0 + CUDA 10.1, File-System: ext4, Screen Resolution: 1920x1080

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++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --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 --with-tune=generic --without-cuda-driver -v
Disk Notes: MQ-DEADLINE / errors=remount-ro,relatime,rw
Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0xd6
Security Notes: itlb_multihit: KVM: Mitigation of Split huge pages + l1tf: Mitigation of PTE Inversion; VMX: conditional cache flushes SMT disabled + mds: Mitigation of Clear buffers; SMT disabled + meltdown: Mitigation of PTI + 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 generic retpoline IBPB: conditional IBRS_FW STIBP: disabled RSB filling + srbds: Mitigation of Microcode + tsx_async_abort: Not affected

Graphics Test

Processor: Intel Core i3-9100E @ 3.10GHz (4 Cores), Motherboard: GIGABYTE MH310AP-SI (F1 BIOS), Chipset: Intel Cannon Lake PCH, Memory: 1 x 8192 MB DDR4-2400MT/s GSLG42F-18----------, Disk: 128GB SATA Flash, Graphics: Gigabyte Intel UHD 630 8GB (1515/7000MHz), Audio: Realtek ALC887-VD, Monitor: Acer KG281K, Network: Intel I219-V + 3 x Intel I211

OS: Ubuntu 18.04, Kernel: 5.4.0-51-generic (x86_64), Desktop: GNOME Shell 3.28.4, Display Server: X Server 1.20.8, Display Driver: NVIDIA 450.66, OpenGL: 4.6 Mesa 20.0.8, Compiler: GCC 7.5.0 + CUDA 10.1, File-System: ext4, Screen Resolution: 3840x2160

Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0xd6
Graphics Notes: SNA
Python Notes: Python 2.7.17 + Python 3.6.9
Security Notes: itlb_multihit: KVM: Mitigation of Split huge pages + l1tf: Mitigation of PTE Inversion; VMX: conditional cache flushes SMT disabled + mds: Mitigation of Clear buffers; SMT disabled + meltdown: Mitigation of PTI + 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 generic retpoline IBPB: conditional IBRS_FW STIBP: disabled RSB filling + srbds: Mitigation of Microcode + tsx_async_abort: Not affected

Gigabyte NVIDIA GeForce RTX 2080

Processor: Intel Core i3-9100E @ 3.10GHz (4 Cores), Motherboard: GIGABYTE MH310AP-SI (F1 BIOS), Chipset: Intel Cannon Lake PCH, Memory: 1 x 8192 MB DDR4-2400MT/s GSLG42F-18----------, Disk: 128GB SATA Flash, Graphics: Gigabyte NVIDIA GeForce RTX 2080 8GB (1515/7000MHz), Audio: Realtek ALC887-VD, Monitor: Acer KG281K, Network: Intel I219-V + 3 x Intel I211

OS: Ubuntu 18.04, Kernel: 5.4.0-51-generic (x86_64), Desktop: GNOME Shell 3.28.4, Display Server: X Server 1.20.8, Display Driver: NVIDIA 450.66, OpenGL: 4.6.0, Compiler: GCC 7.5.0 + CUDA 10.1, File-System: ext4, Screen Resolution: 3840x2160

Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0xd6
Python Notes: Python 2.7.17 + Python 3.6.9
Security Notes: itlb_multihit: KVM: Mitigation of Split huge pages + l1tf: Mitigation of PTE Inversion; VMX: conditional cache flushes SMT disabled + mds: Mitigation of Clear buffers; SMT disabled + meltdown: Mitigation of PTI + 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 generic retpoline IBPB: conditional IBRS_FW STIBP: disabled RSB filling + srbds: Mitigation of Microcode + tsx_async_abort: Not affected

CPU stress

CPU stress 1

DRAM Test

Processor: Intel Core i3-9100E @ 3.10GHz (4 Cores), Motherboard: GIGABYTE MH310AP-SI (F1 BIOS), Chipset: Intel Cannon Lake PCH, Memory: 1 x 8192 MB DDR4-2400MT/s GSLG42F-18----------, Disk: 128GB SATA Flash, Graphics: Gigabyte NVIDIA GeForce RTX 2080 8GB (1515/7000MHz), Audio: Realtek ALC887-VD, Monitor: Acer KG281K, Network: Intel I219-V + 3 x Intel I211

OS: Ubuntu 18.04, Kernel: 5.4.0-51-generic (x86_64), Desktop: GNOME Shell 3.28.4, Display Server: X Server 1.20.8, Display Driver: NVIDIA 450.66, OpenGL: 4.6.0, Compiler: GCC 7.5.0 + CUDA 10.1, File-System: ext4, Screen Resolution: 1920x1080

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++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --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 --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0xd6
Security Notes: itlb_multihit: KVM: Mitigation of Split huge pages + l1tf: Mitigation of PTE Inversion; VMX: conditional cache flushes SMT disabled + mds: Mitigation of Clear buffers; SMT disabled + meltdown: Mitigation of PTI + 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 generic retpoline IBPB: conditional IBRS_FW STIBP: disabled RSB filling + srbds: Mitigation of Microcode + tsx_async_abort: Not affected

USB3.0 Port1

Processor: Intel Core i3-9100E @ 3.10GHz (4 Cores), Motherboard: GIGABYTE MH310AP-SI (F1 BIOS), Chipset: Intel Cannon Lake PCH, Memory: 1 x 8192 MB DDR4-2400MT/s GSLG42F-18----------, Disk: 128GB SATA Flash + 16GB USB Drive 3ME, Graphics: Gigabyte Intel UHD 630 8GB (1515/7000MHz), Audio: Realtek ALC887-VD, Monitor: Acer KG281K, Network: Intel I219-V + 3 x Intel I211

OS: Ubuntu 18.04, Kernel: 5.4.0-51-generic (x86_64), Desktop: GNOME Shell 3.28.4, Display Server: X Server 1.20.8, Display Driver: NVIDIA 450.66, OpenGL: 4.6 Mesa 20.0.8, Compiler: GCC 7.5.0 + CUDA 10.1, File-System: ext4, Screen Resolution: 1920x1080

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++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --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 --with-tune=generic --without-cuda-driver -v
Disk Notes: MQ-DEADLINE / errors=remount-ro,relatime,rw
Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0xd6
Security Notes: itlb_multihit: KVM: Mitigation of Split huge pages + l1tf: Mitigation of PTE Inversion; VMX: conditional cache flushes SMT disabled + mds: Mitigation of Clear buffers; SMT disabled + meltdown: Mitigation of PTI + 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 generic retpoline IBPB: conditional IBRS_FW STIBP: disabled RSB filling + srbds: Mitigation of Microcode + tsx_async_abort: Not affected

USB3.0 port2

USB3.0 Port3

Processor: Intel Core i3-9100E @ 3.10GHz (4 Cores), Motherboard: GIGABYTE MH310AP-SI (F1 BIOS), Chipset: Intel Cannon Lake PCH, Memory: 1 x 8192 MB DDR4-2400MT/s GSLG42F-18----------, Disk: 128GB SATA Flash + 16GB USB Drive 3ME, Graphics: Gigabyte Intel UHD 630 8GB (435/405MHz), Audio: Realtek ALC887-VD, Monitor: Acer KG281K, Network: Intel I219-V + 3 x Intel I211

OS: Ubuntu 18.04, Kernel: 5.4.0-51-generic (x86_64), Desktop: GNOME Shell 3.28.4, Display Server: X Server 1.20.8,

Display Driver: NVIDIA 450.66, OpenGL: 4.6 Mesa 20.0.8, Compiler: GCC 7.5.0 + CUDA 10.1, File-System: ext4, Screen Resolution: 1920x1080

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++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --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 --with-tune=generic --without-cuda-driver -v
Disk Notes: MQ-DEADLINE / errors=remount-ro,relatime,rw
Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0xd6
Security Notes: itlb_multihit: KVM: Mitigation of Split huge pages + l1tf: Mitigation of PTE Inversion; VMX: conditional cache flushes SMT disabled + mds: Mitigation of Clear buffers; SMT disabled + meltdown: Mitigation of PTI + 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 generic retpoline IBPB: conditional IBRS_FW STIBP: disabled RSB filling + srbds: Mitigation of Microcode + tsx_async_abort: Not affected

USB3.0 Port4

Processor: Intel Core i3-9100E @ 3.10GHz (4 Cores), Motherboard: GIGABYTE MH310AP-SI (F1 BIOS), Chipset: Intel Cannon Lake PCH, Memory: 1 x 8192 MB DDR4-2400MT/s GSLG42F-18----------, Disk: 128GB SATA Flash + 16GB USB Drive 3ME, Graphics: Gigabyte Intel UHD 630 8GB (1515/7000MHz), Audio: Realtek ALC887-VD, Monitor: Acer KG281K, Network: Intel I219-V + 3 x Intel I211

OS: Ubuntu 18.04, Kernel: 5.4.0-51-generic (x86_64), Desktop: GNOME Shell 3.28.4, Display Server: X Server 1.20.8, Display Driver: NVIDIA 450.66, OpenGL: 4.6 Mesa 20.0.8, Compiler: GCC 7.5.0 + CUDA 10.1, File-System: ext4, Screen Resolution: 1920x1080

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++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --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 --with-tune=generic --without-cuda-driver -v
Disk Notes: MQ-DEADLINE / errors=remount-ro,relatime,rw
Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0xd6
Security Notes: itlb_multihit: KVM: Mitigation of Split huge pages + l1tf: Mitigation of PTE Inversion; VMX: conditional cache flushes SMT disabled + mds: Mitigation of Clear buffers; SMT disabled + meltdown: Mitigation of PTI + 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 generic retpoline IBPB: conditional IBRS_FW STIBP: disabled RSB filling + srbds: Mitigation of Microcode + tsx_async_abort: Not affected

USB2.0 Port1

USB2.0 port 1

Processor: Intel Core i3-9100E @ 3.10GHz (4 Cores), Motherboard: GIGABYTE MH310AP-SI (F1 BIOS), Chipset: Intel Cannon Lake PCH, Memory: 1 x 8192 MB DDR4-2400MT/s GSLG42F-18----------, Disk: 128GB SATA Flash + 16GB USB Drive 3ME, Graphics: Gigabyte Intel UHD 630 8GB (435/405MHz), Audio: Realtek ALC887-VD, Monitor: Acer KG281K, Network: Intel I219-V + 3 x Intel I211

OS: Ubuntu 18.04, Kernel: 5.4.0-51-generic (x86_64), Desktop: GNOME Shell 3.28.4, Display Server: X Server 1.20.8, Display Driver: NVIDIA 450.66, OpenGL: 4.6 Mesa 20.0.8, Compiler: GCC 7.5.0 + CUDA 10.1, File-System: ext4, Screen Resolution: 1920x1080

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++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --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 --with-tune=generic --without-cuda-driver -v
Disk Notes: MQ-DEADLINE / errors=remount-ro,relatime,rw
Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0xd6
Security Notes: itlb_multihit: KVM: Mitigation of Split huge pages + l1tf: Mitigation of PTE Inversion; VMX: conditional cache flushes SMT disabled + mds: Mitigation of Clear buffers; SMT disabled + meltdown: Mitigation of PTI + 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 generic retpoline IBPB: conditional IBRS_FW STIBP: disabled RSB filling + srbds: Mitigation of Microcode + tsx_async_abort: Not affected

USB2.0 Port2

USB2.0 Port3

USB2.0 Port4

Processor: Intel Core i3-9100E @ 3.10GHz (4 Cores), Motherboard: GIGABYTE MH310AP-SI (F1 BIOS), Chipset: Intel Cannon Lake PCH, Memory: 1 x 8192 MB DDR4-2400MT/s GSLG42F-18----------, Disk: 128GB SATA Flash + 16GB USB Drive 3ME, Graphics: Gigabyte Intel UHD 630 8GB (1515/7000MHz), Audio: Realtek ALC887-VD, Monitor: Acer KG281K, Network: Intel I219-V + 3 x Intel I211

OS: Ubuntu 18.04, Kernel: 5.4.0-51-generic (x86_64), Desktop: GNOME Shell 3.28.4, Display Server: X Server 1.20.8, Display Driver: NVIDIA 450.66, OpenGL: 4.6 Mesa 20.0.8, Compiler: GCC 7.5.0 + CUDA 10.1, File-System: ext4, Screen Resolution: 1920x1080

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++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --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 --with-tune=generic --without-cuda-driver -v
Disk Notes: MQ-DEADLINE / errors=remount-ro,relatime,rw
Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0xd6
Security Notes: itlb_multihit: KVM: Mitigation of Split huge pages + l1tf: Mitigation of PTE Inversion; VMX: conditional cache flushes SMT disabled + mds: Mitigation of Clear buffers; SMT disabled + meltdown: Mitigation of PTI + 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 generic retpoline IBPB: conditional IBRS_FW STIBP: disabled RSB filling + srbds: Mitigation of Microcode + tsx_async_abort: Not affected

	M.2_mSATA_SATA_128GB	USB 3.0	USB 3.0 run2	USB 2.0	USB 2.0 run2	Graphics Test	Gigabyte NVIDIA GeForce RTX 208	CPU stress	CPU stress 1	DRAM Test	USB 3.0 Port 1	USB 3.0 port 2	USB 3.0 Port 3	USB 3.0 Port 4	USB 2.0 Port 1	USB 2.0 port 1	USB 2.0 Port 2	USB 2.0 Port 3	USB 2.0 Port 4
Stream - Copy (MB/s)										135									
										95									
Standard Deviation										0%									
GLmark2 - 3840 x 2160 (Score)						54	3174												
Normalized						1.7%	100%												

EGX_Edge_RTX2080

GLmark2 - 800 x 600 (Score)	1694	9236
Normalized	18.34%	100%
GLmark2 - 2560 x 1440 (Score)	125	5248
Normalized	2.38%	100%
GLmark2 - 1920 x 1200 (Score)	189	6425
Normalized	2.94%	100%
GLmark2 - 1920 x 1080 (Score)	213	6741
Normalized	3.16%	100%
GLmark2 - 1600 x 1200 (Score)	223	6778
Normalized	3.29%	100%
GLmark2 - 1280 x 1024 (Score)	337	7613
Normalized	4.43%	100%
GLmark2 - 1024 x 768 (Score)	678	8494
Normalized	7.98%	100%

EGX_Edge_RTX2080

Flexible IO Tester - Seq Write - Linux AIO - No - Yes - 8MB (IOPS)	**28**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**28**			
Normalized	100%	10.71%	10.71%	10.71%	10.71%	10.71%	10.71%	10.71%	10.71%	10.71%	10.71%	100%			
Standard Deviation								9.9%							
Flexible IO Tester - Seq Write - Linux AIO - No - Yes - 8MB (MB/s)	**251**	49.8	50.5	50.0	**49.3**	49.9	50.0	**49.3**	50.5	50.8	50.7	250			
Normalized	100%	19.84%	20.12%	19.92%	19.64%	19.88%	19.92%	19.64%	20.12%	20.24%	20.2%	99.6%			
Standard Deviation		0.8%	0.6%	0.8%	2.3%	0.1%	0.2%	3.4%	0.7%	0.3%	0.4%				
Flexible IO Tester - Seq Write - Linux AIO - No - Yes - 4KB (IOPS)	**578330**	6370	6474	6346	6357	**6204**	6363	6342	6484	6334	6476	57733			
Normalized	100%	11.01%	11.19%	10.97%	10.99%	10.73%	11%	10.97%	11.21%	10.95%	11.2%	99.83%			
Standard Deviation	0.2%	0.7%	1.6%	0.2%	0.1%	9%	0.4%	0.5%	1%	0.2%	1.7%	0.1%			
Flexible IO Tester - Seq Write - Linux AIO - No - Yes - 4KB (MB/s)	**226**	24.6	25.3	24.8	24.8	**24.0**	24.9	24.8	25.1	24.7	25.3	**226**			
Normalized	100%	10.88%	11.19%	10.97%	10.97%	10.62%	11.02%	10.97%	11.11%	10.93%	11.19%	100%			
Standard Deviation		2.1%	1.7%	0.2%	0.2%	9%	0.2%	0.5%	2.9%	0.2%	1.7%				

EGX_Edge_RTX2080

Flexible IO Tester - Seq Read - Linux AIO - No - Yes - 8MB (IOPS)	61	12	3	3			12	12	12	12	3	3	3	63
Normalized	96.83%	19.05%	4.76%	4.76%			19.05%	19.05%	19.05%	19.05%	4.76%	4.76%	4.76%	100%
Flexible IO Tester - Seq Read - Linux AIO - No - Yes - 8MB (MB/s)	514	128	53.3	53.4			128	128	128	128	53.5	53.4	53.7	536
Normalized	95.9%	23.88%	9.94%	9.96%			23.88%	23.88%	23.88%	23.88%	9.98%	9.96%	10.02%	100%
Standard Deviation			0.5%	0.2%							0.1%	0.3%	0.1%	
Flexible IO Tester - Seq Read - Linux AIO - No - Yes - 4KB (IOPS)	80200	22167	67770	71702			23100	22400	22600	22600	72101	72107	72108	81167
Normalized	98.81%	27.31%	8.34%	8.84%			28.46%	27.6%	27.84%	27.84%	8.88%	8.89%	8.89%	100%
Standard Deviation		0.7%	1.6%					3.1%	2.3%	2.3%	0.1%	0.2%	0.2%	0.1%
Flexible IO Tester - Seq Read - Linux AIO - No - Yes - 4KB (MB/s)	313	86.4	26.5	28			90.2	90.1	89.5	89.5	28.2	28.2	28.2	317
Normalized	98.74%	27.26%	8.36%	8.83%			28.45%	28.42%	28.23%	28.23%	8.9%	8.9%	8.9%	100%
Standard Deviation		1.4%	1.7%				0.5%	0.6%	0.2%	0.2%	0%	0.4%	0%	
Stress-NG - Crypto (Bogo Ops/s)					663.16									
Standard Deviation					2.2%									

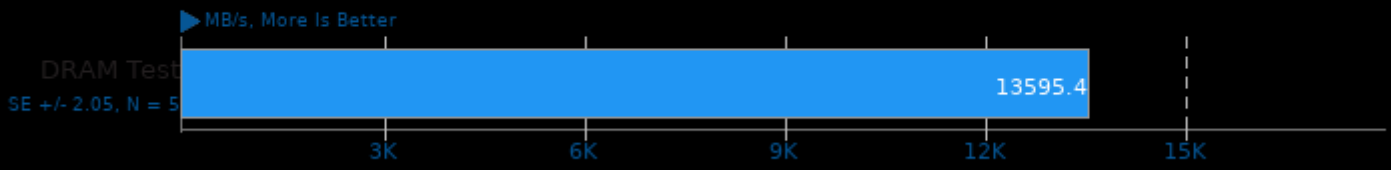
Stress-NG	127			
- CPU Stress (Bogo Ops/s)	2			
Standard Deviation	0.2%			
Stress-NG - G.Q.D.S (Bogo Ops/s)	41.4			
Standard Deviation	7	0.5%		
Stress-NG - Forking (Bogo Ops/s)	214			
Standard Deviation	68	0.8%		
Stress-NG - G.C.S.F (Bogo Ops/s)	331			
Standard Deviation	121	1%		
Stress-NG - Memory Copying (Bogo Ops/s)	751.			
Standard Deviation	45	0.2%		
Stress-NG - Vector Math (Bogo Ops/s)	145			
Standard Deviation	52	0.1%		
Stress-NG - Matrix Math (Bogo Ops/s)	114			
Standard Deviation	69	1.2%		
Stream - Add			115	
Standard Deviation			30	0%

Stream - Triad (MB/s)	115
Standard Deviation	39
Stream - Scale (MB/s)	0%
Standard Deviation	100
	27
	0%

EGX_Edge_RTX2080

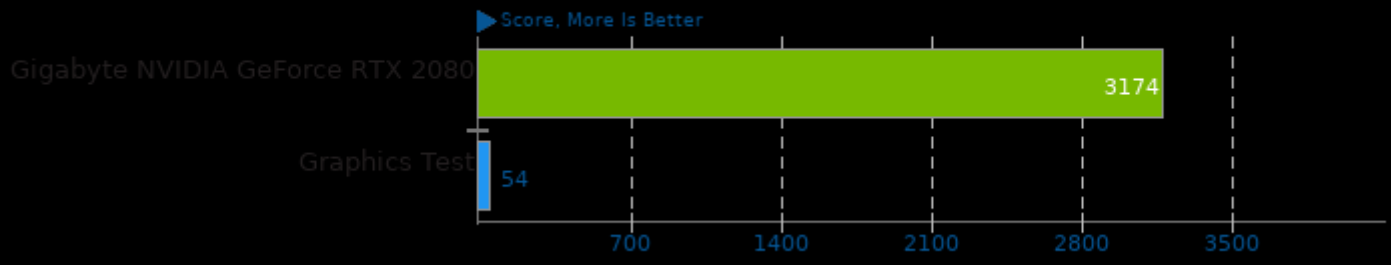
Stream 2013-01-17

Type: Copy



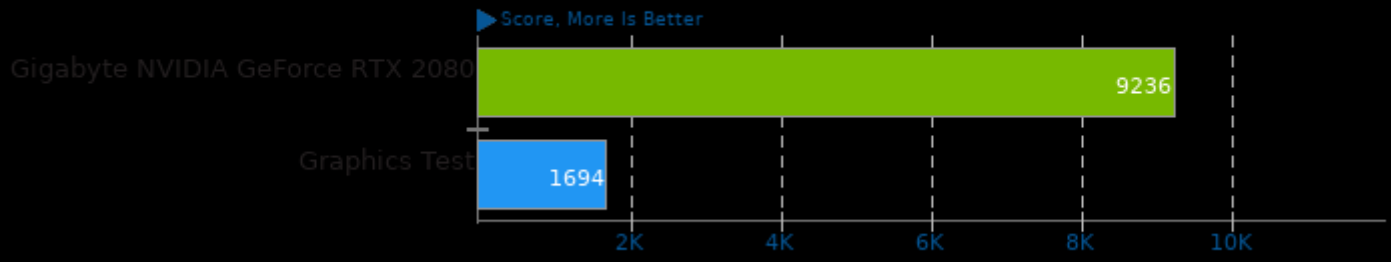
GLmark2 2020.04

Resolution: 3840 x 2160



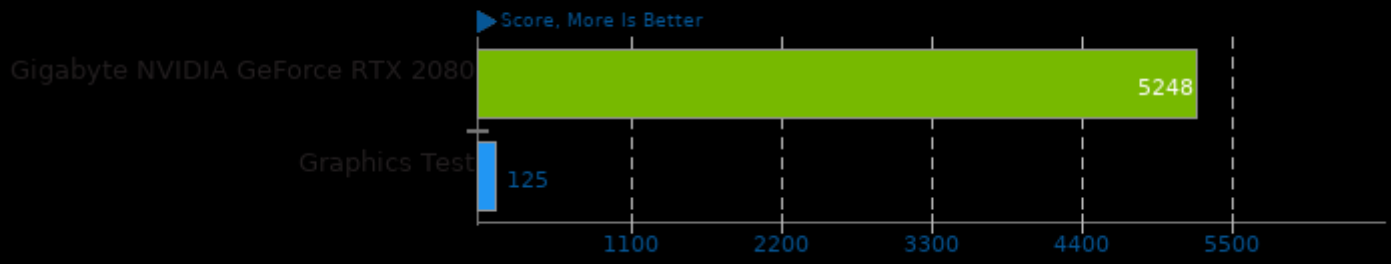
GLmark2 2020.04

Resolution: 800 x 600



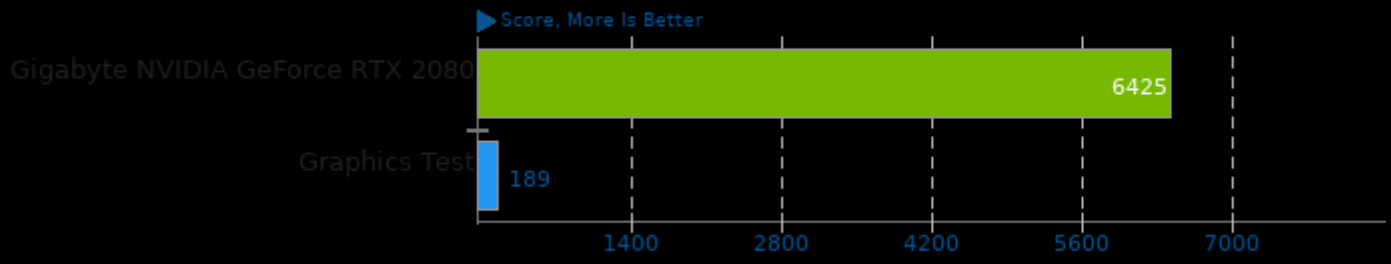
GLmark2 2020.04

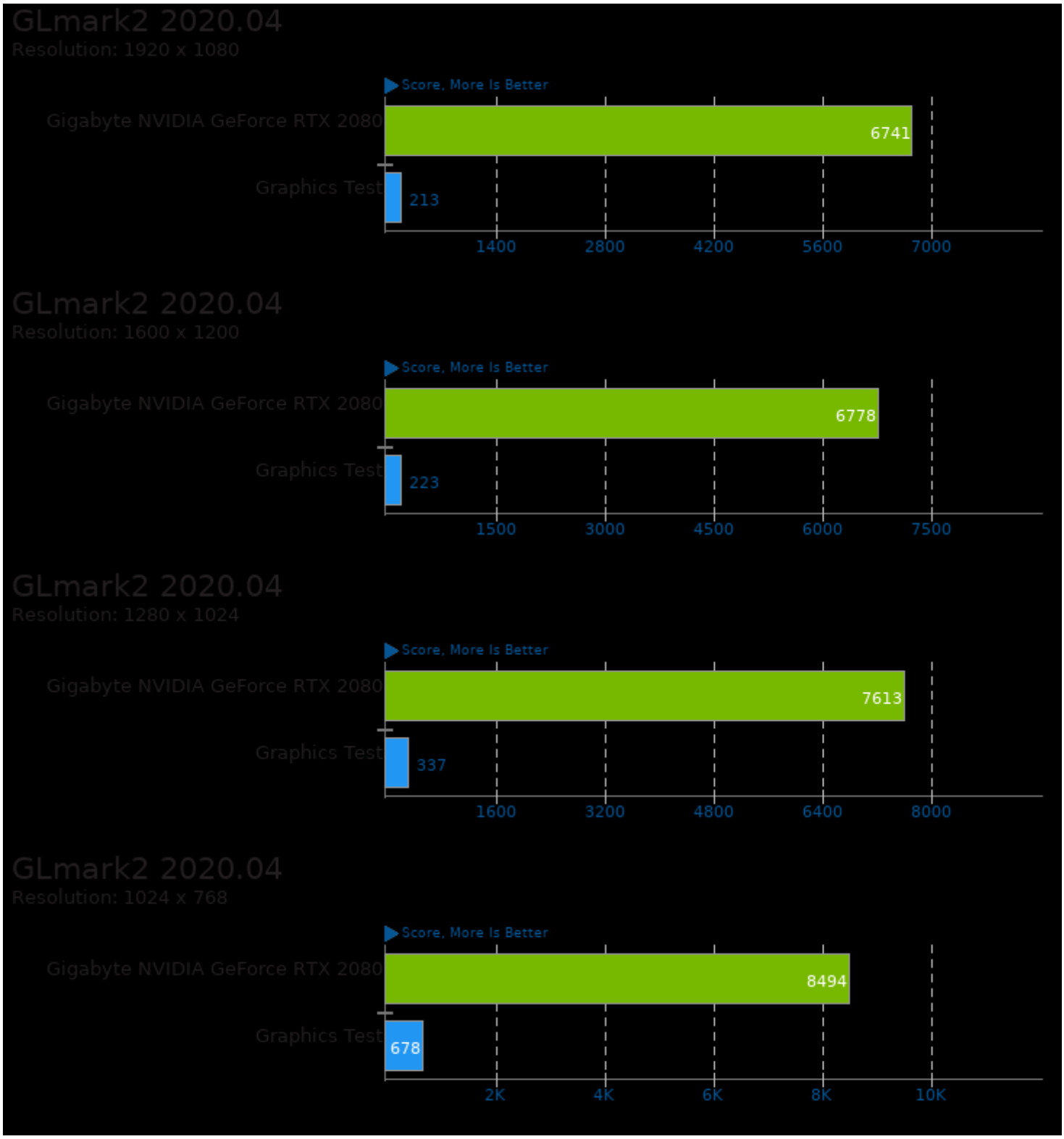
Resolution: 2560 x 1440

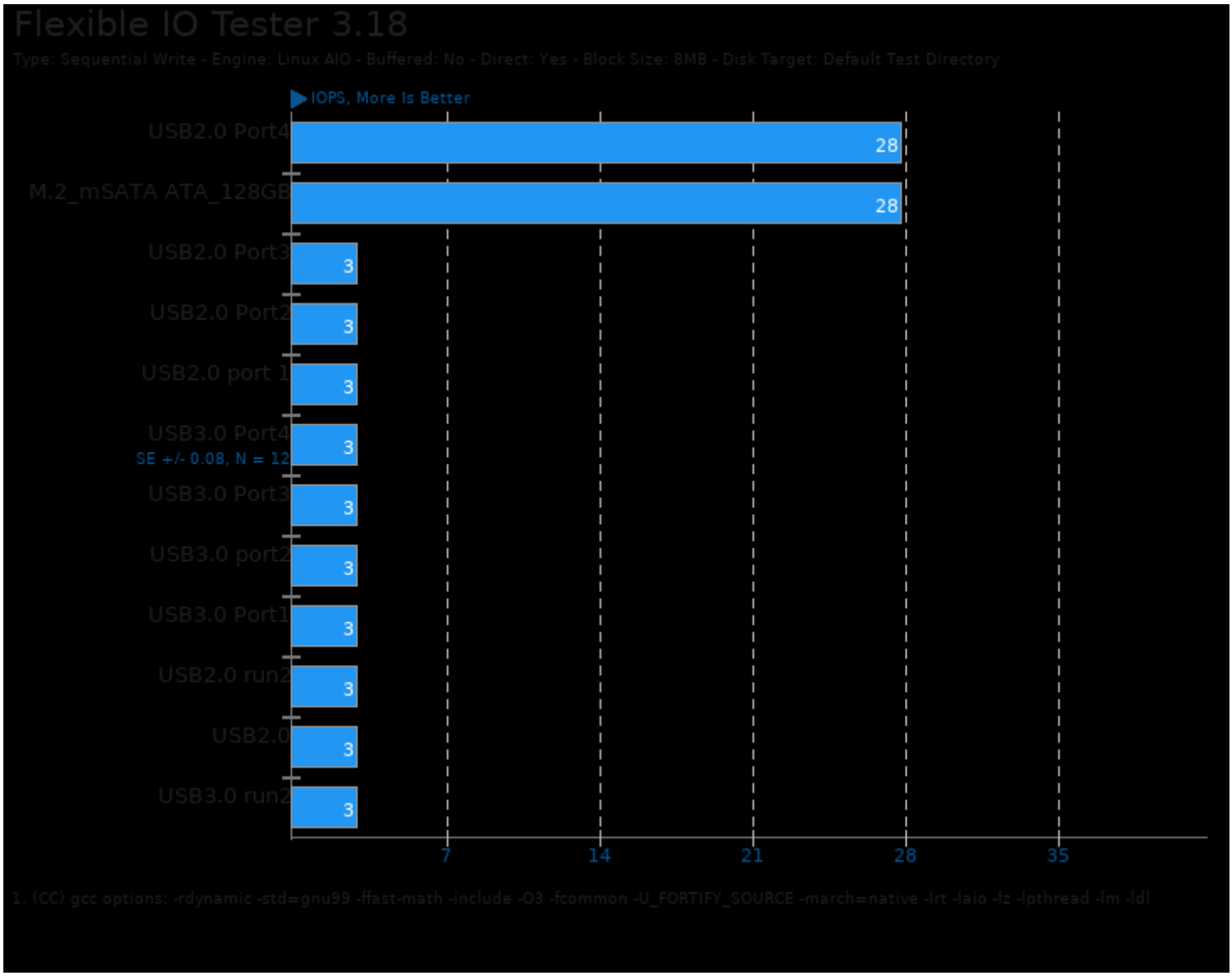


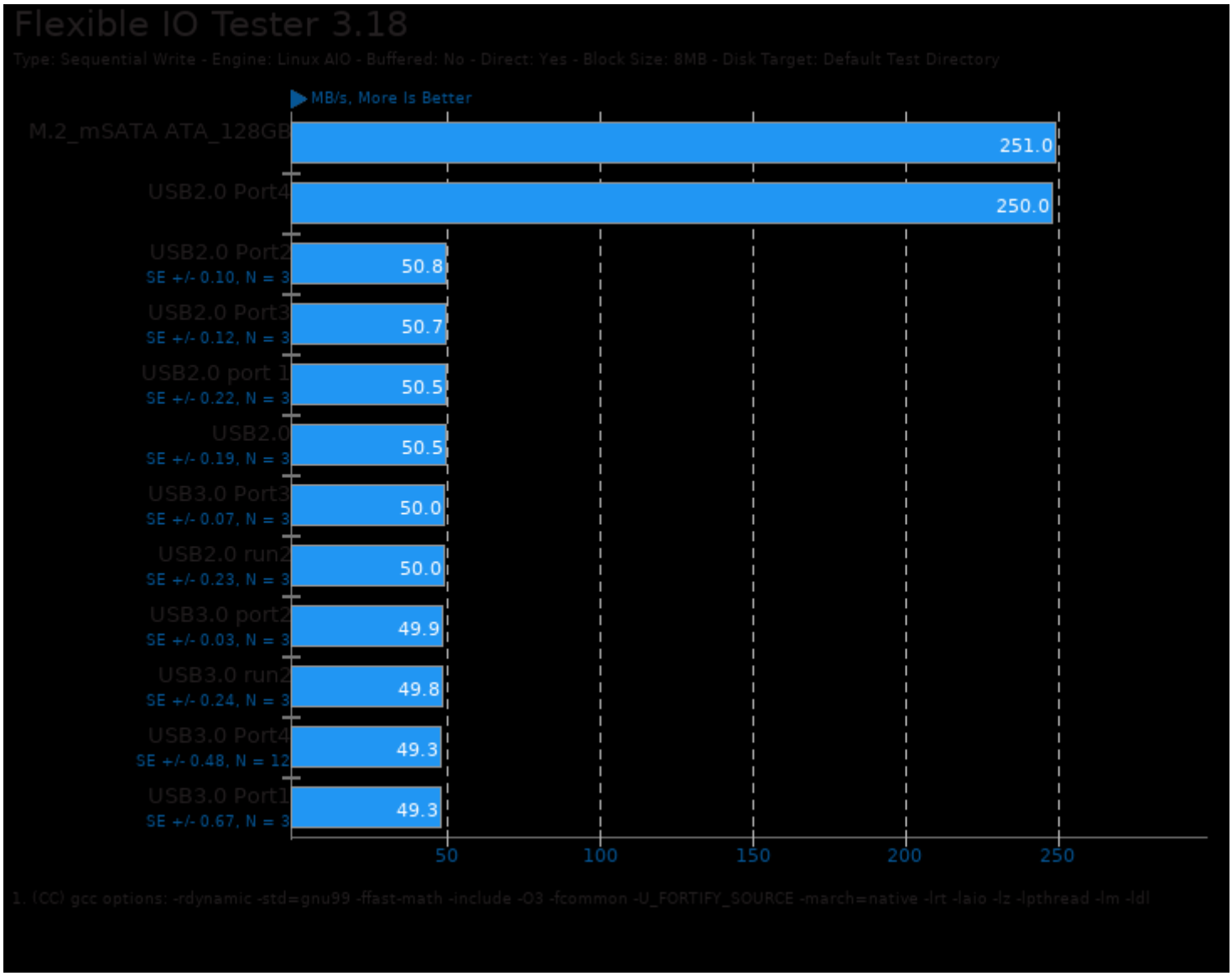
GLmark2 2020.04

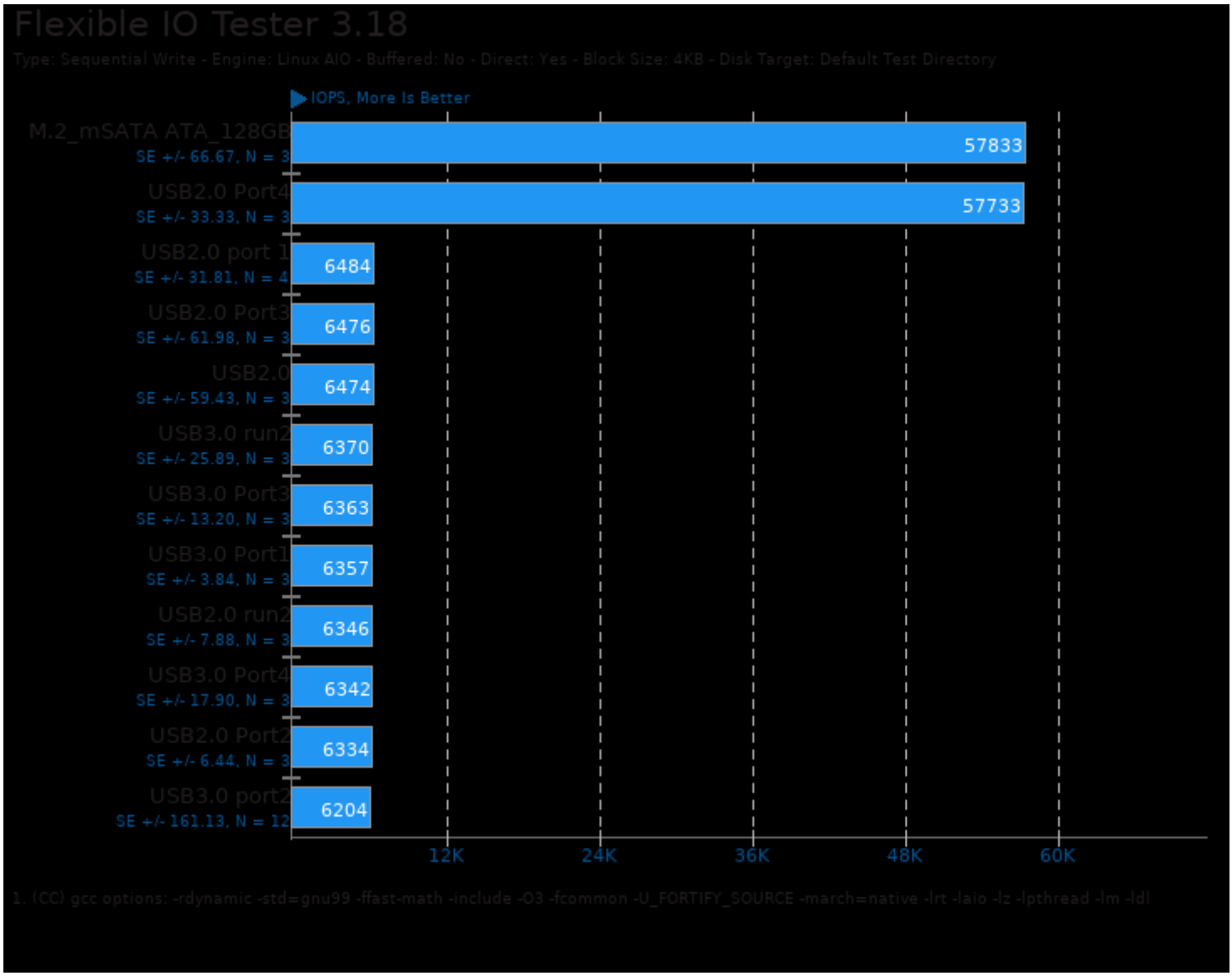
Resolution: 1920 x 1200

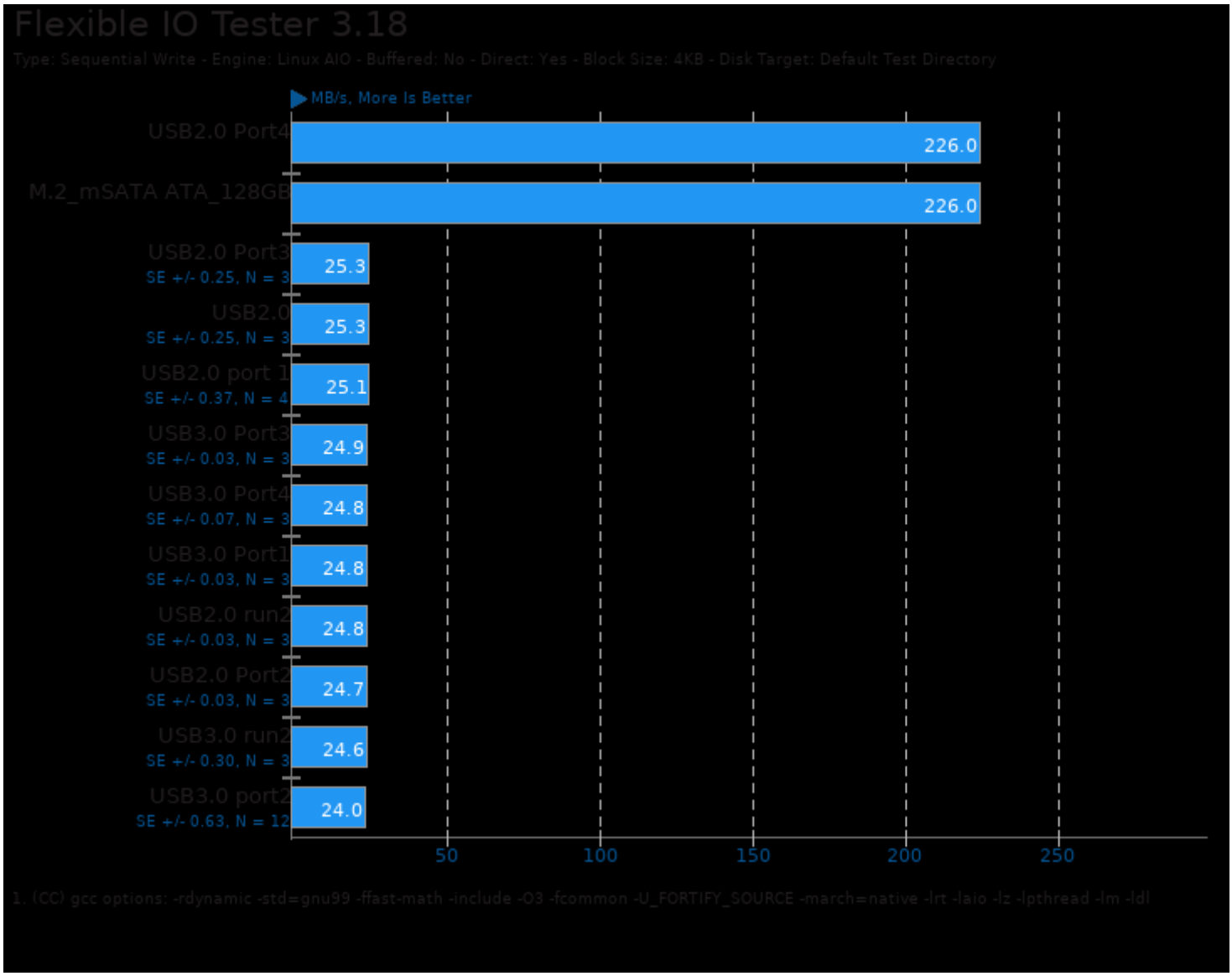


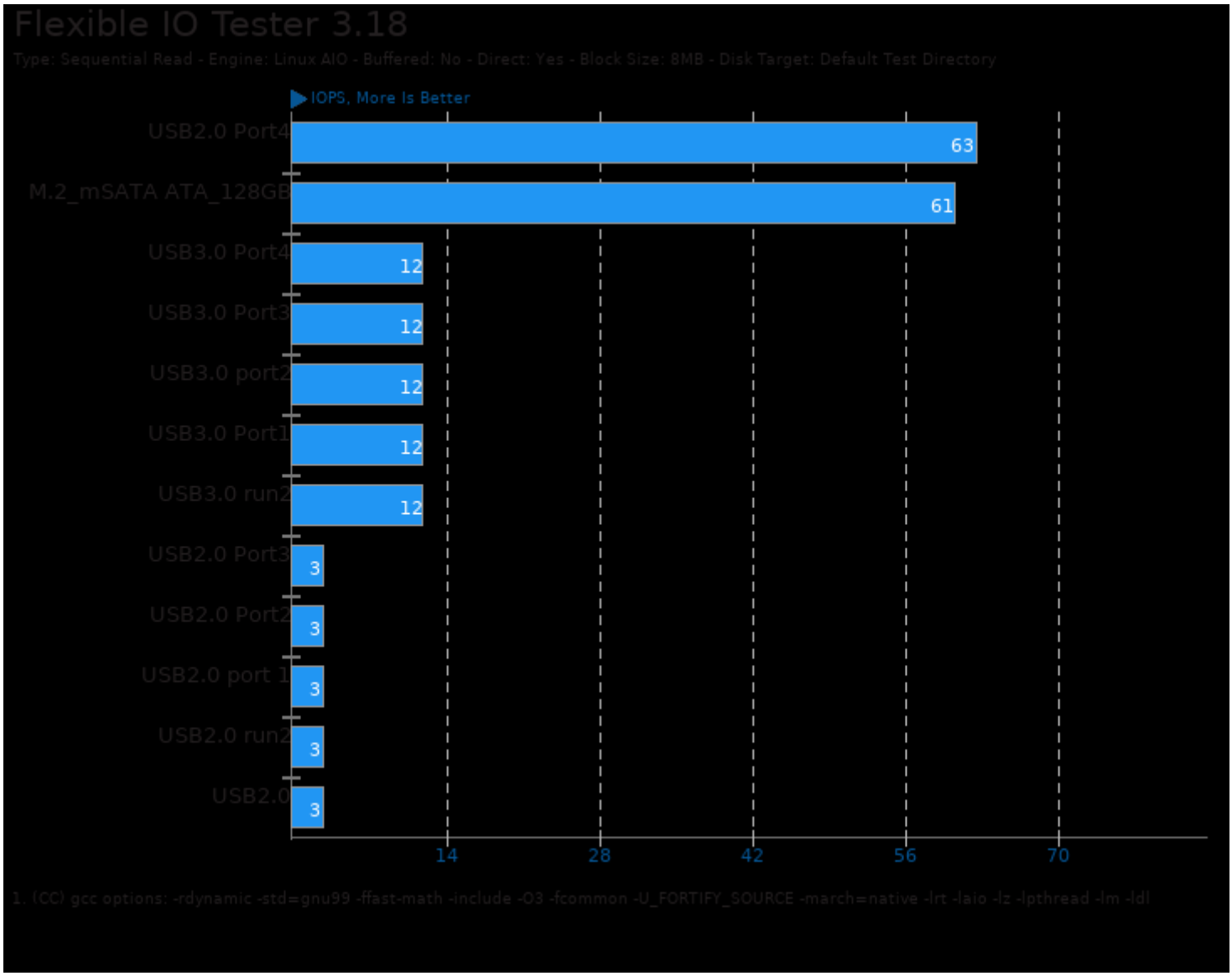

GLmark2 2020.04
Resolution: 1920 x 1080
Score, More Is Better
Gigabyte NVIDIA GeForce RTX 2080
6741
Graphics Test
213
1400
2800
4200
5600
7000
GLmark2 2020.04
Resolution: 1600 x 1200
Score, More Is Better
Gigabyte NVIDIA GeForce RTX 2080
6778
Graphics Test
223
1500
3000
4500
6000
7500
GLmark2 2020.04
Resolution: 1280 x 1024
Score, More Is Better
Gigabyte NVIDIA GeForce RTX 2080
7613
Graphics Test
337
1600
3200
4800
6400
8000
GLmark2 2020.04
Resolution: 1024 x 768
Score, More Is Better
Gigabyte NVIDIA GeForce RTX 2080
8494
Graphics Test
678
2K
4K
6K
8K
10K

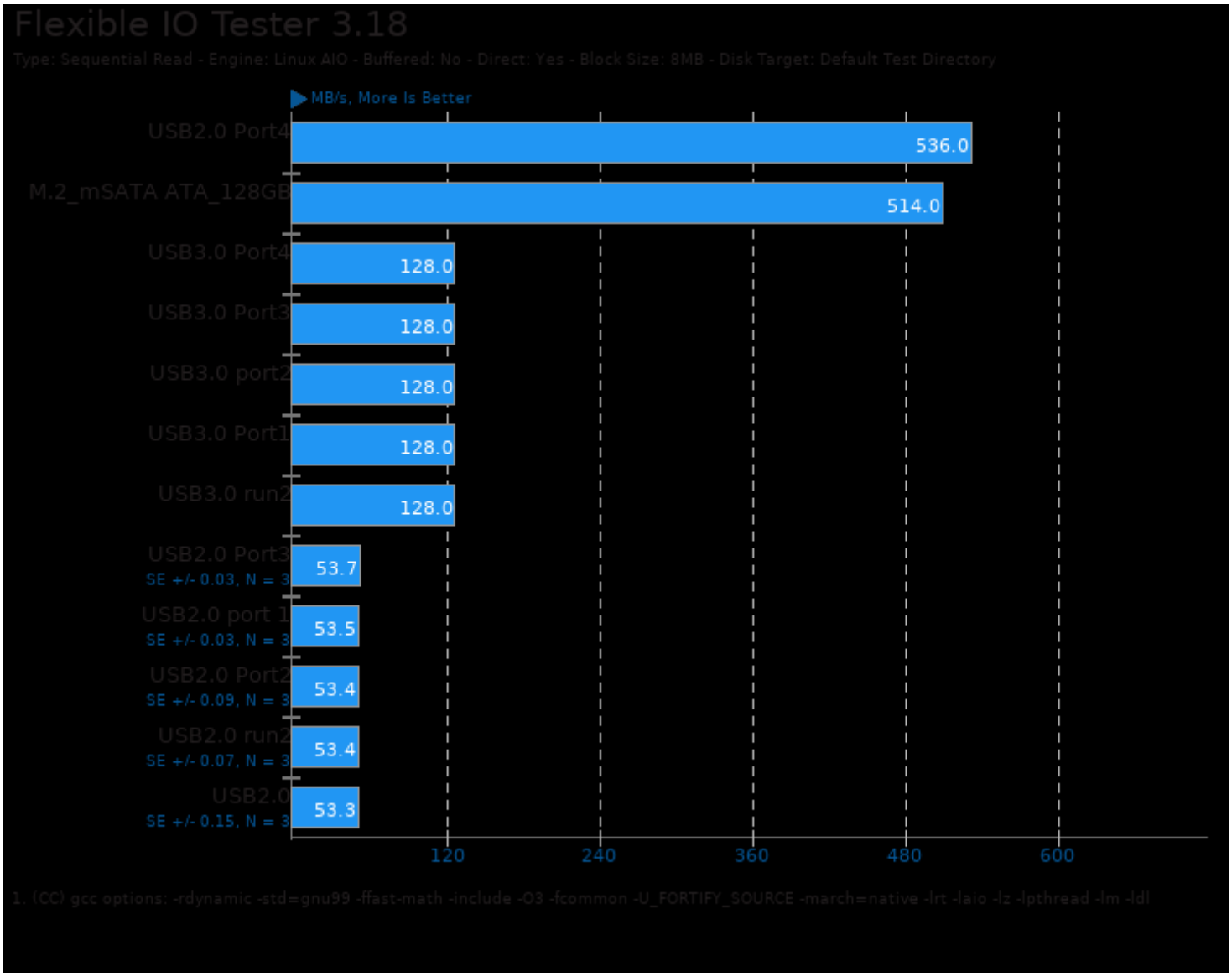

Flexible IO Tester 3.18
Type: Sequential Write - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 8MB - Disk Target: Default Test Directory
IOPS, More Is Better
USB2.0 Port4
M.2_mSATA ATA_128GB
USB2.0 Port3
USB2.0 Port2
USB2.0 port 1
USB3.0 Port4
SE +/- 0.08, N = 12
USB3.0 Port3
USB3.0 port2
USB3.0 Port1
USB2.0 run2
USB2.0
USB3.0 run2
28
28
3
3
3
3
3
3
3
3
3
7
14
21
28
35
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lrt -laio -lz -lpthread -lm -ldl

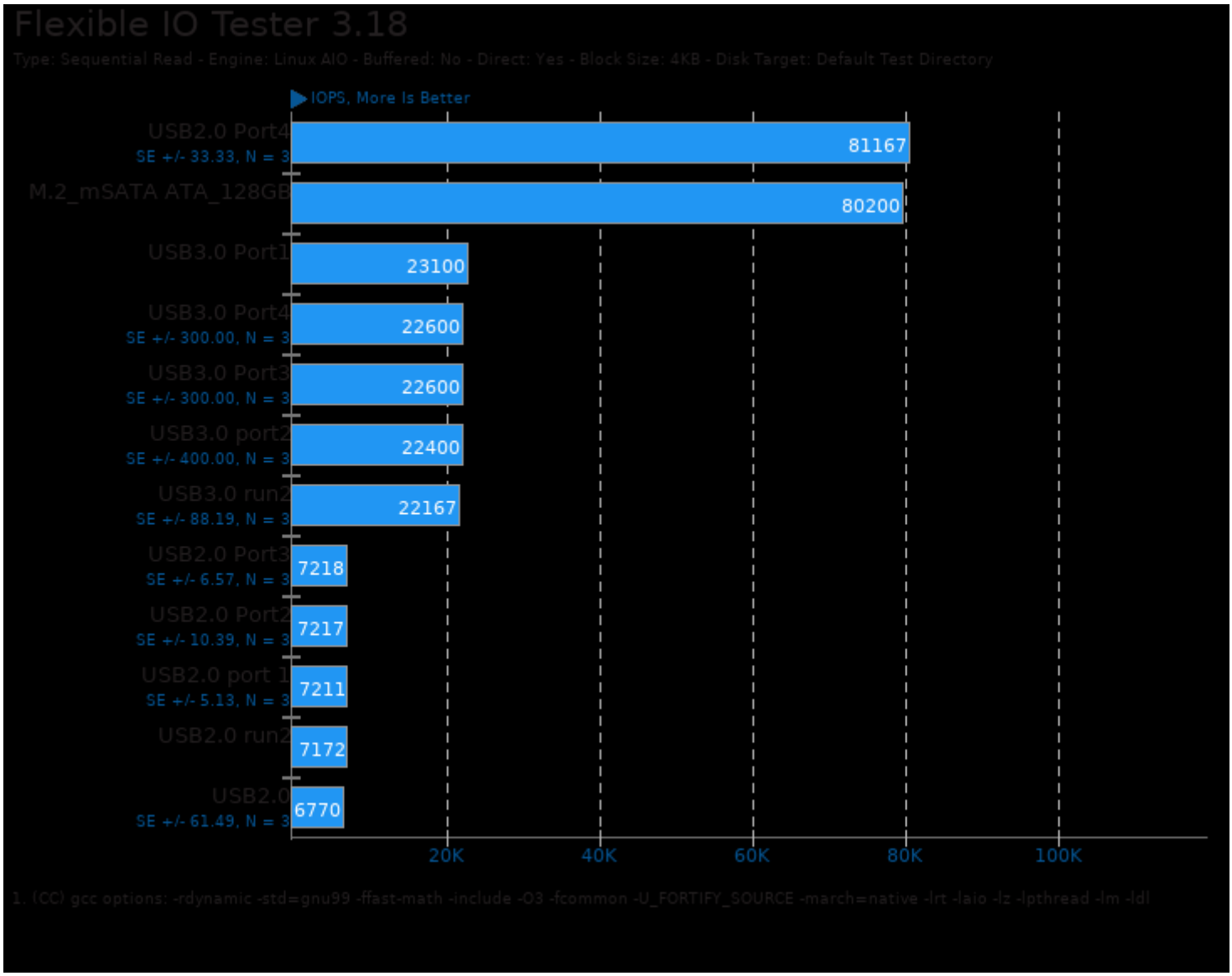

Flexible IO Tester 3.18
Type: Sequential Write - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 8MB - Disk Target: Default Test Directory
MB/s, More Is Better
M.2_mSATA ATA_128GB
251.0
USB2.0 Port4
250.0
USB2.0 Port2
SE +/- 0.10, N = 3
50.8
USB2.0 Port3
SE +/- 0.12, N = 3
50.7
USB2.0 port 1
SE +/- 0.22, N = 3
50.5
USB2.0
SE +/- 0.19, N = 3
50.5
USB3.0 Port3
SE +/- 0.07, N = 3
50.0
USB2.0 run2
SE +/- 0.23, N = 3
50.0
USB3.0 port2
SE +/- 0.03, N = 3
49.9
USB3.0 run2
SE +/- 0.24, N = 3
49.8
USB3.0 Port4
SE +/- 0.48, N = 12
49.3
USB3.0 Port1
SE +/- 0.67, N = 3
49.3
50
100
150
200
250
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lrt -laio -lz -lpthread -lm -ldl

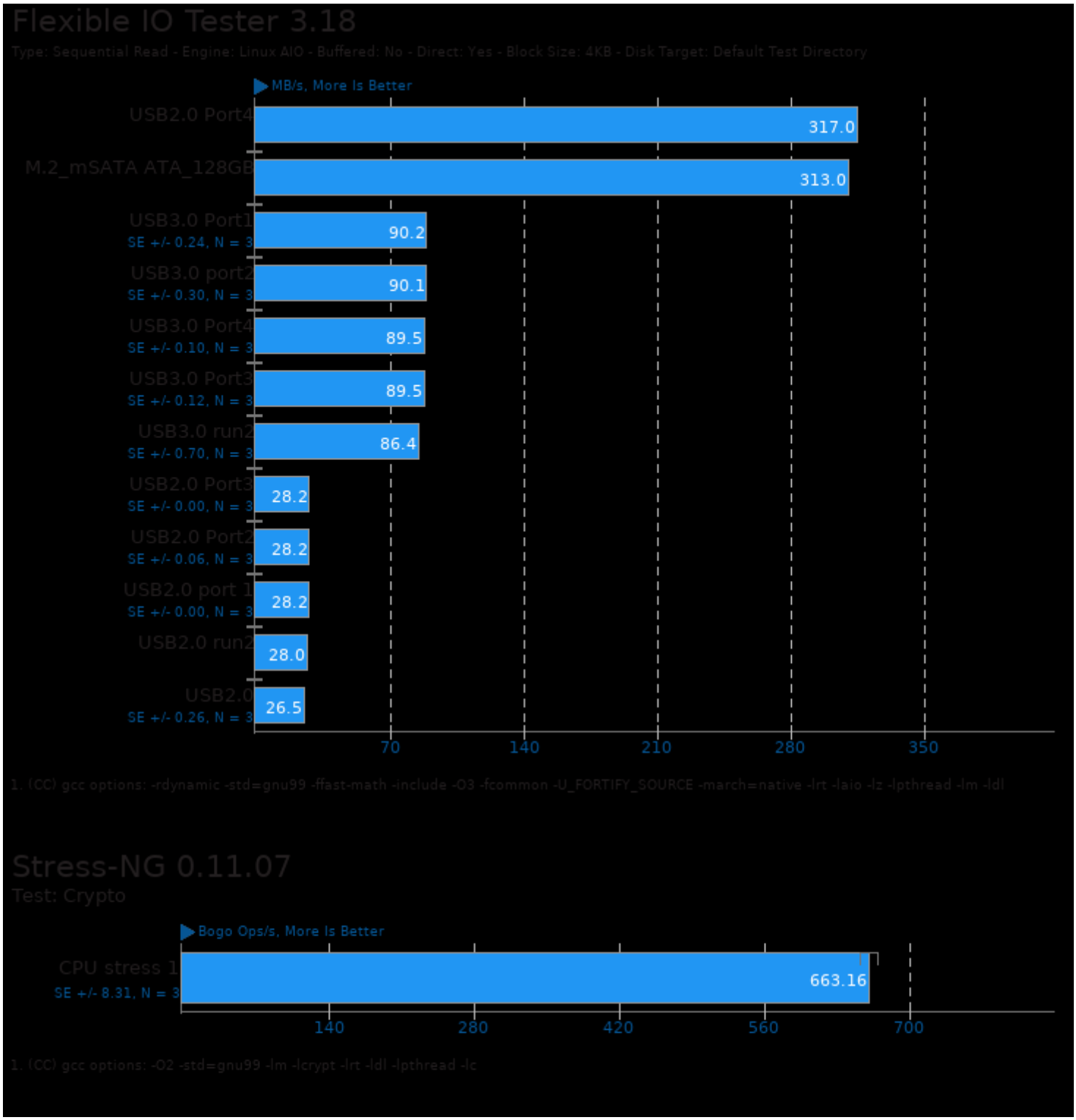

Flexible IO Tester 3.18
Type: Sequential Write - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
IOPS, More Is Better
M.2_mSATA ATA_128GB
SE +/- 66.67, N = 3
57833
USB2.0 Port4
SE +/- 33.33, N = 3
57733
USB2.0 port 1
SE +/- 31.81, N = 4
6484
USB2.0 Port3
SE +/- 61.98, N = 3
6476
USB2.0
SE +/- 59.43, N = 3
6474
USB3.0 run2
SE +/- 25.89, N = 3
6370
USB3.0 Port3
SE +/- 13.20, N = 3
6363
USB3.0 Port1
SE +/- 3.84, N = 3
6357
USB2.0 run2
SE +/- 7.88, N = 3
6346
USB3.0 Port4
SE +/- 17.90, N = 3
6342
USB2.0 Port2
SE +/- 6.44, N = 3
6334
USB3.0 port2
SE +/- 161.13, N = 12
6204
12K
24K
36K
48K
60K
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lrt -laio -lz -lpthread -lm -ldl


Flexible IO Tester 3.18
Type: Sequential Write - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
MB/s, More Is Better
USB2.0 Port4
226.0
M.2_mSATA ATA_128GB
226.0
USB2.0 Port3
SE +/- 0.25, N = 3
25.3
USB2.0
SE +/- 0.25, N = 3
25.3
USB2.0 port 1
SE +/- 0.37, N = 4
25.1
USB3.0 Port3
SE +/- 0.03, N = 3
24.9
USB3.0 Port4
SE +/- 0.07, N = 3
24.8
USB3.0 Port1
SE +/- 0.03, N = 3
24.8
USB2.0 run2
SE +/- 0.03, N = 3
24.8
USB2.0 Port2
SE +/- 0.03, N = 3
24.7
USB3.0 run2
SE +/- 0.30, N = 3
24.6
USB3.0 port2
SE +/- 0.63, N = 12
24.0
50
100
150
200
250
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lrt -laio -lz -lpthread -lm -ldl


Flexible IO Tester 3.18
Type: Sequential Read - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 8MB - Disk Target: Default Test Directory
IOPS, More Is Better
USB2.0 Port4
M.2_mSATA ATA_128GB
USB3.0 Port4
USB3.0 Port3
USB3.0 port2
USB3.0 Port1
USB3.0 run2
USB2.0 Port3
USB2.0 Port2
USB2.0 port 1
USB2.0 run2
USB2.0
63
61
12
12
12
12
12
3
3
3
3
3
14
28
42
56
70
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lrt -laio -lz -lpthread -lm -ldl

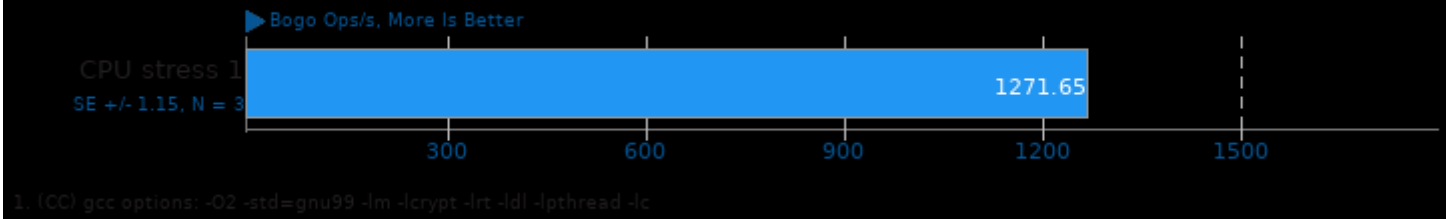

Flexible IO Tester 3.18
Type: Sequential Read - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 8MB - Disk Target: Default Test Directory
MB/s, More Is Better
USB2.0 Port4
536.0
M.2_mSATA ATA_128GB
514.0
USB3.0 Port4
128.0
USB3.0 Port3
128.0
USB3.0 port2
128.0
USB3.0 Port1
128.0
USB3.0 run2
128.0
USB2.0 Port3
53.7
SE +/- 0.03, N = 3
USB2.0 port 1
53.5
SE +/- 0.03, N = 3
USB2.0 Port2
53.4
SE +/- 0.09, N = 3
USB2.0 run2
53.4
SE +/- 0.07, N = 3
USB2.0
53.3
SE +/- 0.15, N = 3
120
240
360
480
600
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lrt -laio -lz -lpthread -lm -ldl


Flexible IO Tester 3.18
Type: Sequential Read - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
IOPS, More Is Better
USB2.0 Port4
SE +/- 33.33, N = 3
81167
M.2_mSATA ATA_128GB
80200
USB3.0 Port1
23100
USB3.0 Port4
SE +/- 300.00, N = 3
22600
USB3.0 Port3
SE +/- 300.00, N = 3
22600
USB3.0 port2
SE +/- 400.00, N = 3
22400
USB3.0 run2
SE +/- 88.19, N = 3
22167
USB2.0 Port3
SE +/- 6.57, N = 3
7218
USB2.0 Port2
SE +/- 10.39, N = 3
7217
USB2.0 port 1
SE +/- 5.13, N = 3
7211
USB2.0 run2
7172
USB2.0
SE +/- 61.49, N = 3
6770
20K
40K
60K
80K
100K
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lrt -laio -lz -lpthread -lm -ldl


Flexible IO Tester 3.18
Type: Sequential Read - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
MB/s, More Is Better
USB2.0 Port4
317.0
M.2_mSATA ATA_128GB
313.0
USB3.0 Port1
SE +/- 0.24, N = 3
90.2
USB3.0 port2
SE +/- 0.30, N = 3
90.1
USB3.0 Port4
SE +/- 0.10, N = 3
89.5
USB3.0 Port3
SE +/- 0.12, N = 3
89.5
USB3.0 run2
SE +/- 0.70, N = 3
86.4
USB2.0 Port3
SE +/- 0.00, N = 3
28.2
USB2.0 Port2
SE +/- 0.06, N = 3
28.2
USB2.0 port 1
SE +/- 0.00, N = 3
28.2
USB2.0 run2
28.0
USB2.0
SE +/- 0.26, N = 3
26.5
70
140
210
280
350
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lrt -laio -lz -lpthread -lm -ldl
Stress-NG 0.11.07
Test: Crypto
Bogo Ops/s, More Is Better
CPU stress 1
SE +/- 8.31, N = 3
663.16
140
280
420
560
700
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -ldl -lpthread -lc

Stress-NG 0.11.07

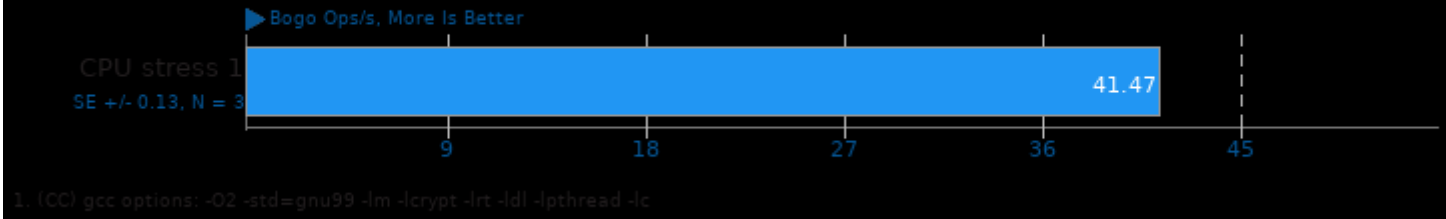
Test: CPU Stress



1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -ldl -lpthread -lc

Stress-NG 0.11.07

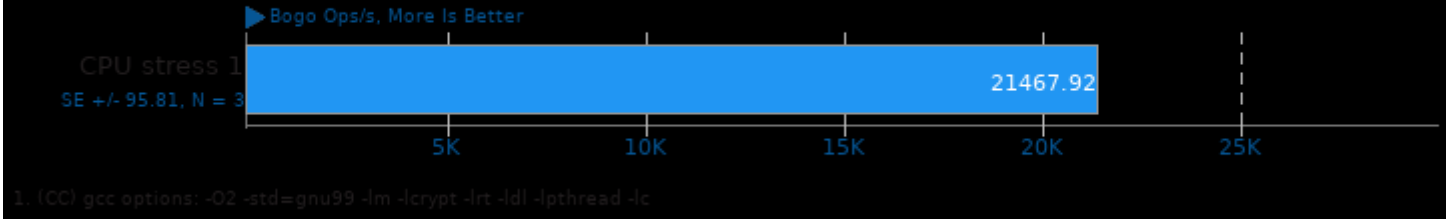
Test: Glibc Qsort Data Sorting



1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -ldl -lpthread -lc

Stress-NG 0.11.07

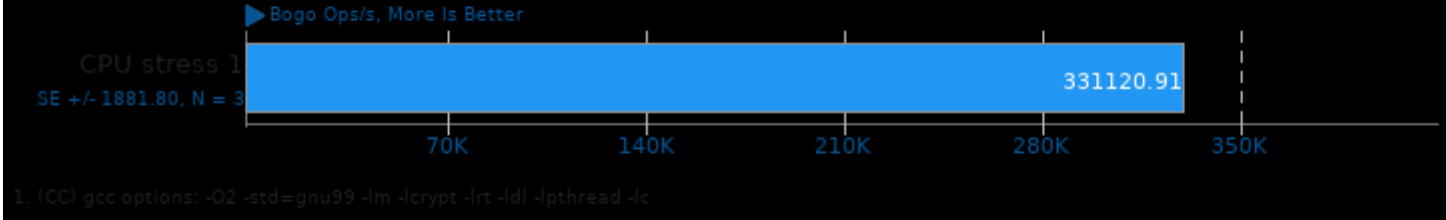
Test: Forking



1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -ldl -lpthread -lc

Stress-NG 0.11.07

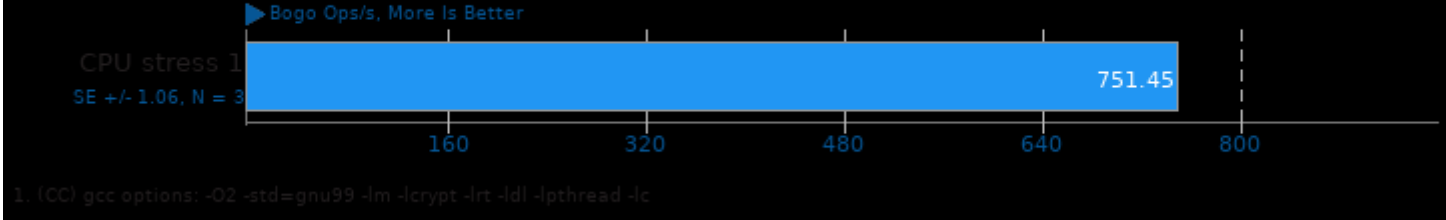
Test: Glibc C String Functions



1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -ldl -lpthread -lc

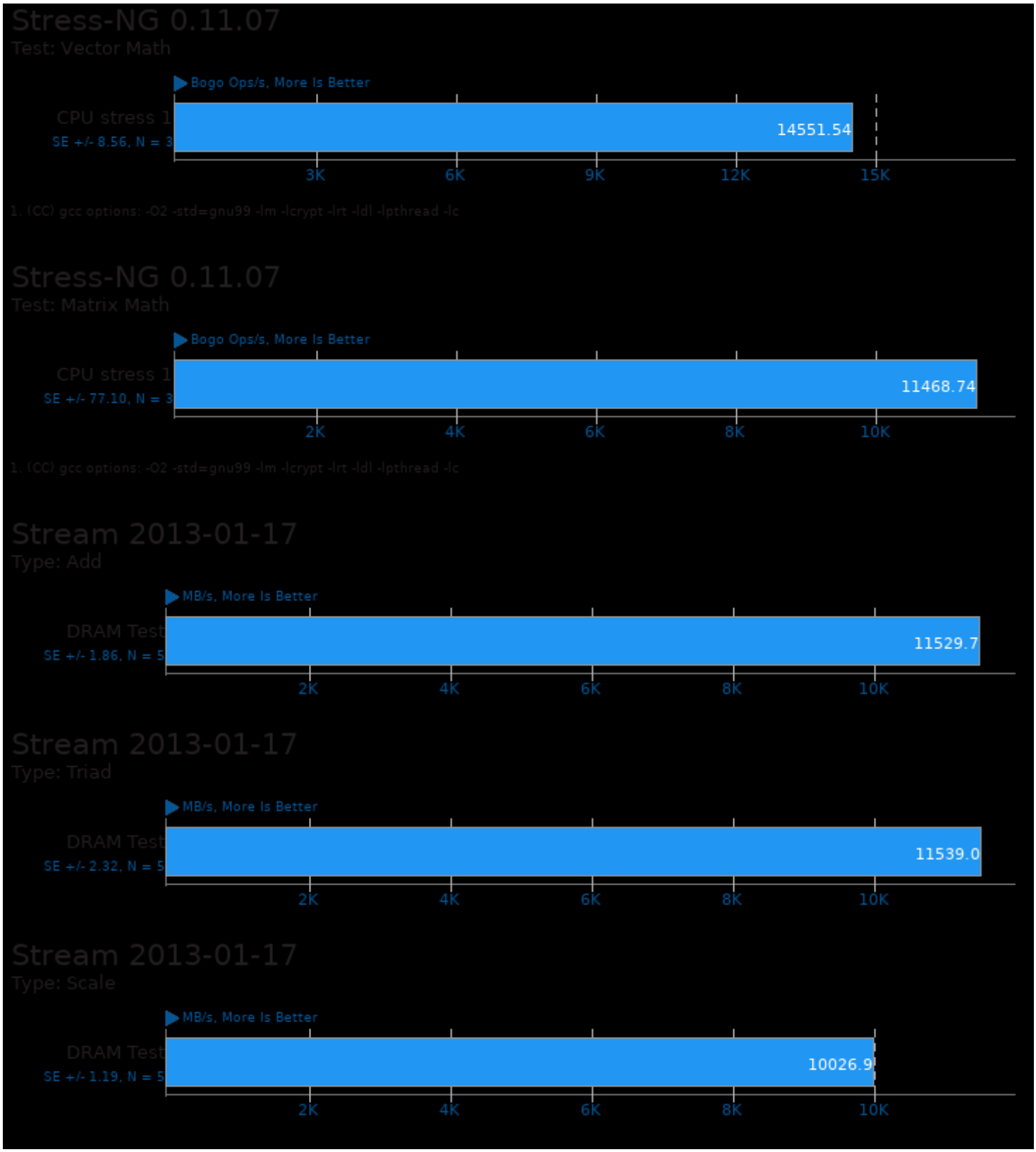
Stress-NG 0.11.07

Test: Memory Copying



1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -ldl -lpthread -lc

EGX_Edge_RTX2080



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