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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 ATA_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
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 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 - 4KB (IOPS)	**578 33**	637 0	647 4	634 6			635 7	**620 4**	636 3	634 2		648 4	633 4	647 6	577 33	
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%	
GLmark2 - 3840 x 2160 (Score)					**54**	**317 4**										
Normalized					1.7%	100%										
GLmark2 - 800 x 600 (Score)					**169 4**	**923 6**										
Normalized					18.34%	100%										
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%		
GLmark2 - 2560 x 1440 (Score)					**125**	**524 8**										
Normalized					2.38%	100%										

EGX_Edge_RTX2080

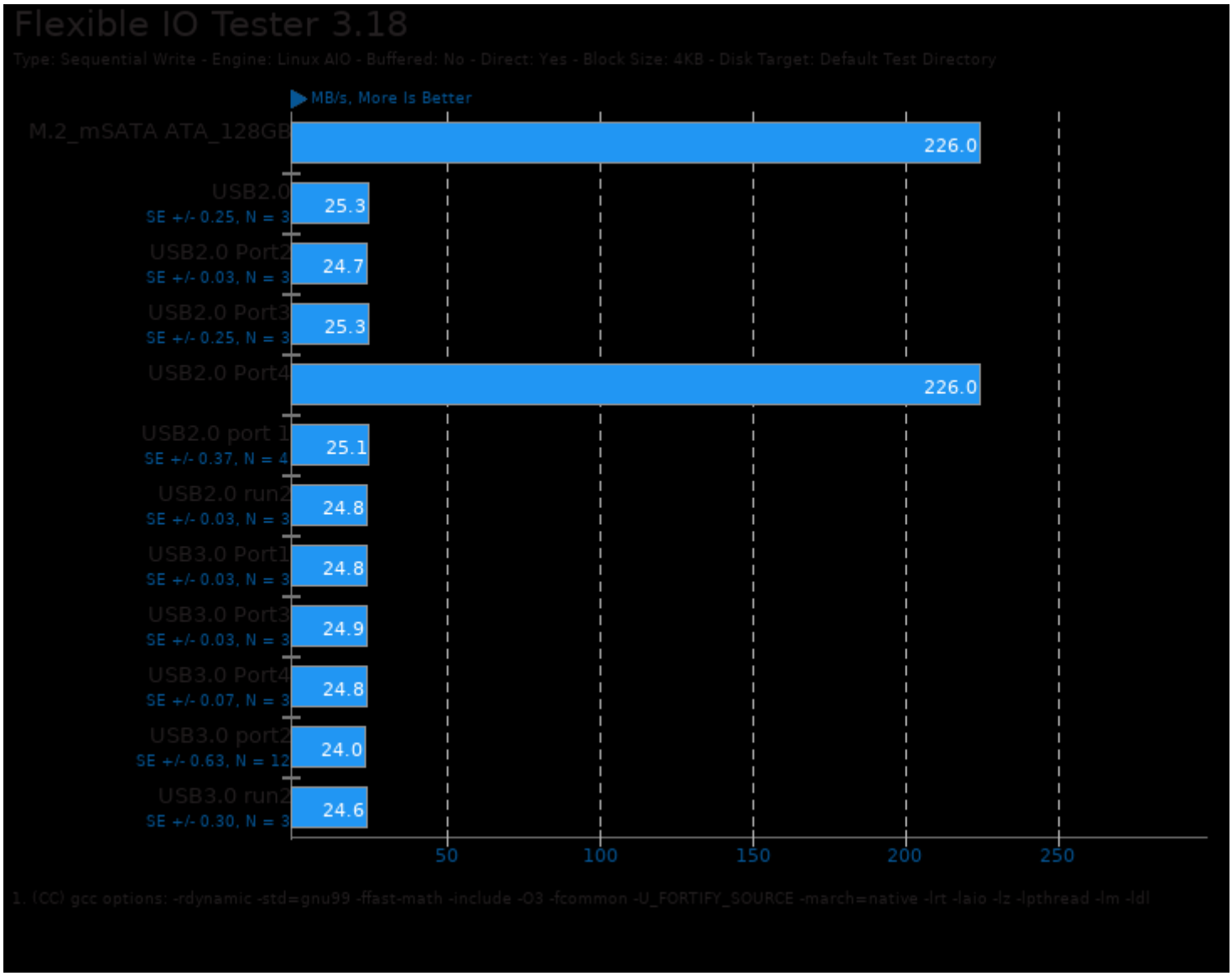
GLmark2 - 1920 x 1200 (Score)				189	6425											
Normalized				2.94%	100%											
GLmark2 - 1920 x 1080 (Score)				213	6741											
Normalized				3.16%	100%											
GLmark2 - 1600 x 1200 (Score)				223	6778											
Normalized				3.29%	100%											
GLmark2 - 1280 x 1024 (Score)				337	7613											
Normalized				4.43%	100%											
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%
GLmark2 - 1024 x 768 (Score)				678	8494											
Normalized				7.98%	100%											

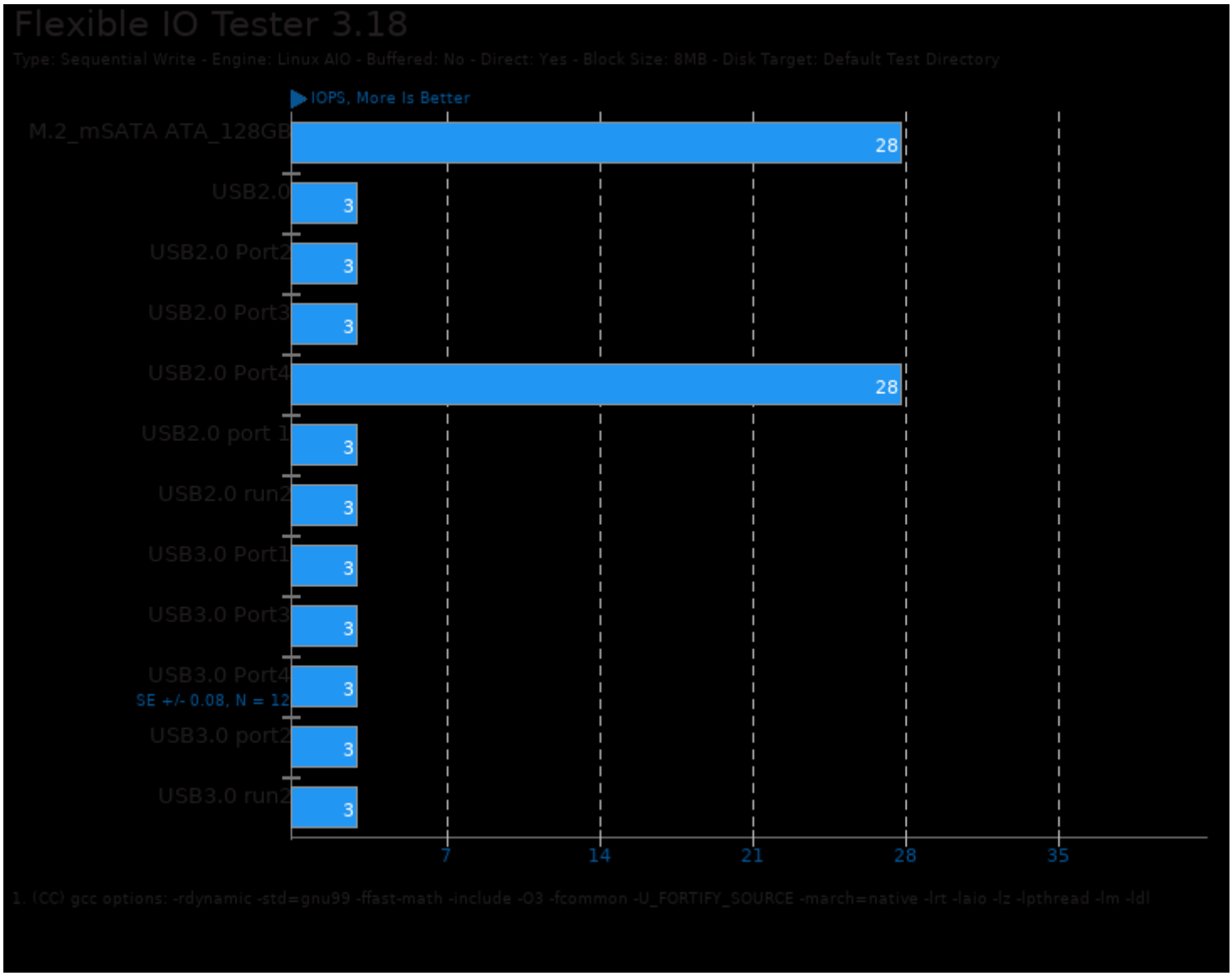
EGX_Edge_RTX2080

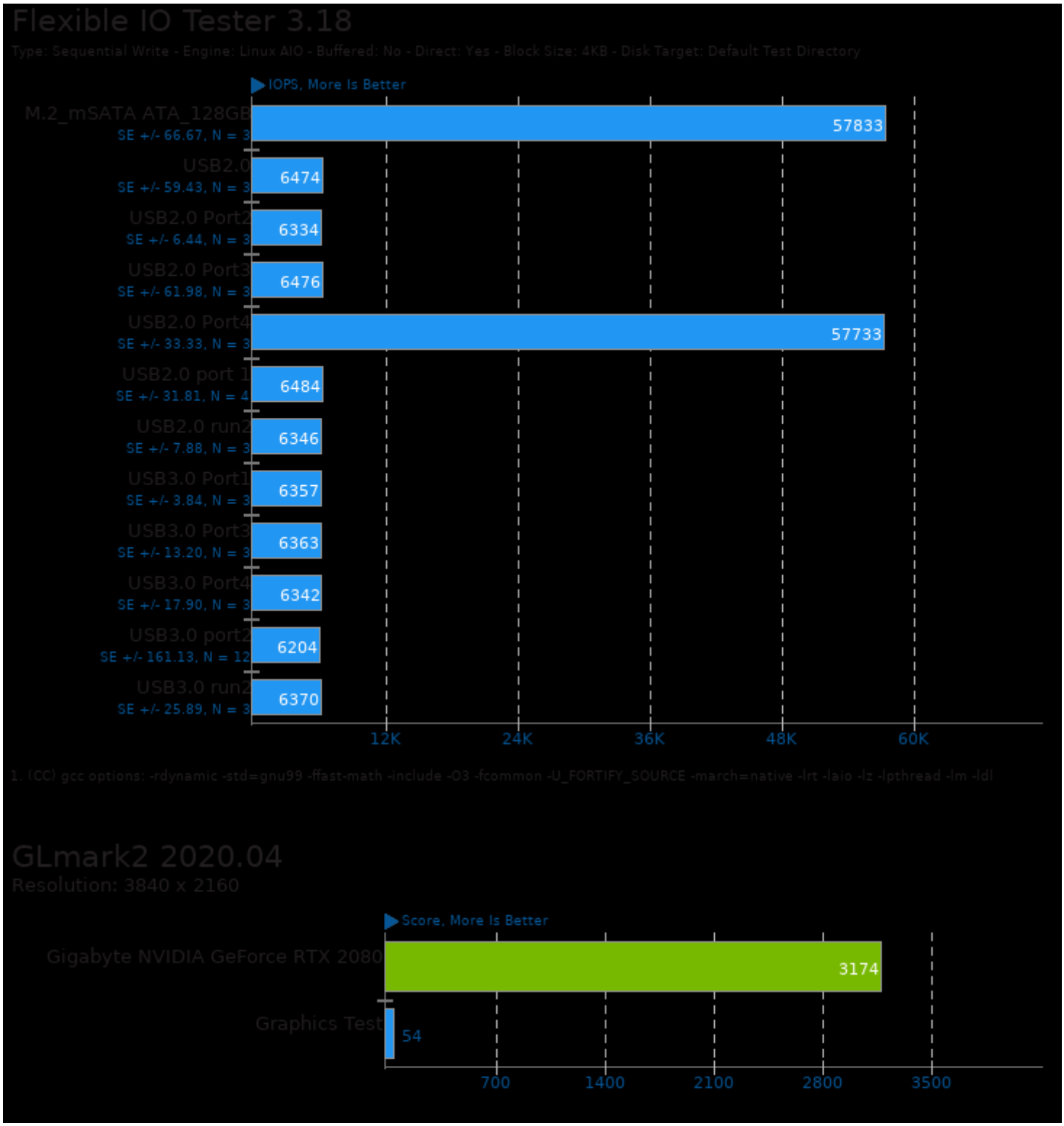
Flexible IO Tester - Seq Read - Linux AIO - No - Yes - 4KB (IOPS)	802 00	221 67	**677 0**	717 2		231 00	224 00	226 00	226 00	721 1	721 7	721 8	**811 67**
Normalized	98.81 %	27.31 %	8.34 %	8.84 %		28.46 %	27.6 %	27.84 %	27.84 %	8.88 %	8.89 %	8.89 %	100%
Standard Deviation		0.7%	1.6%				3.1%	2.3%	2.3%	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%	
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%	
Stream - Add					115 30								
Standard Deviation					0%								
Stream - Triad (MB/s)					115 39								
Standard Deviation					0%								
Stream - Scale (MB/s)					100 27								
Standard Deviation					0%								

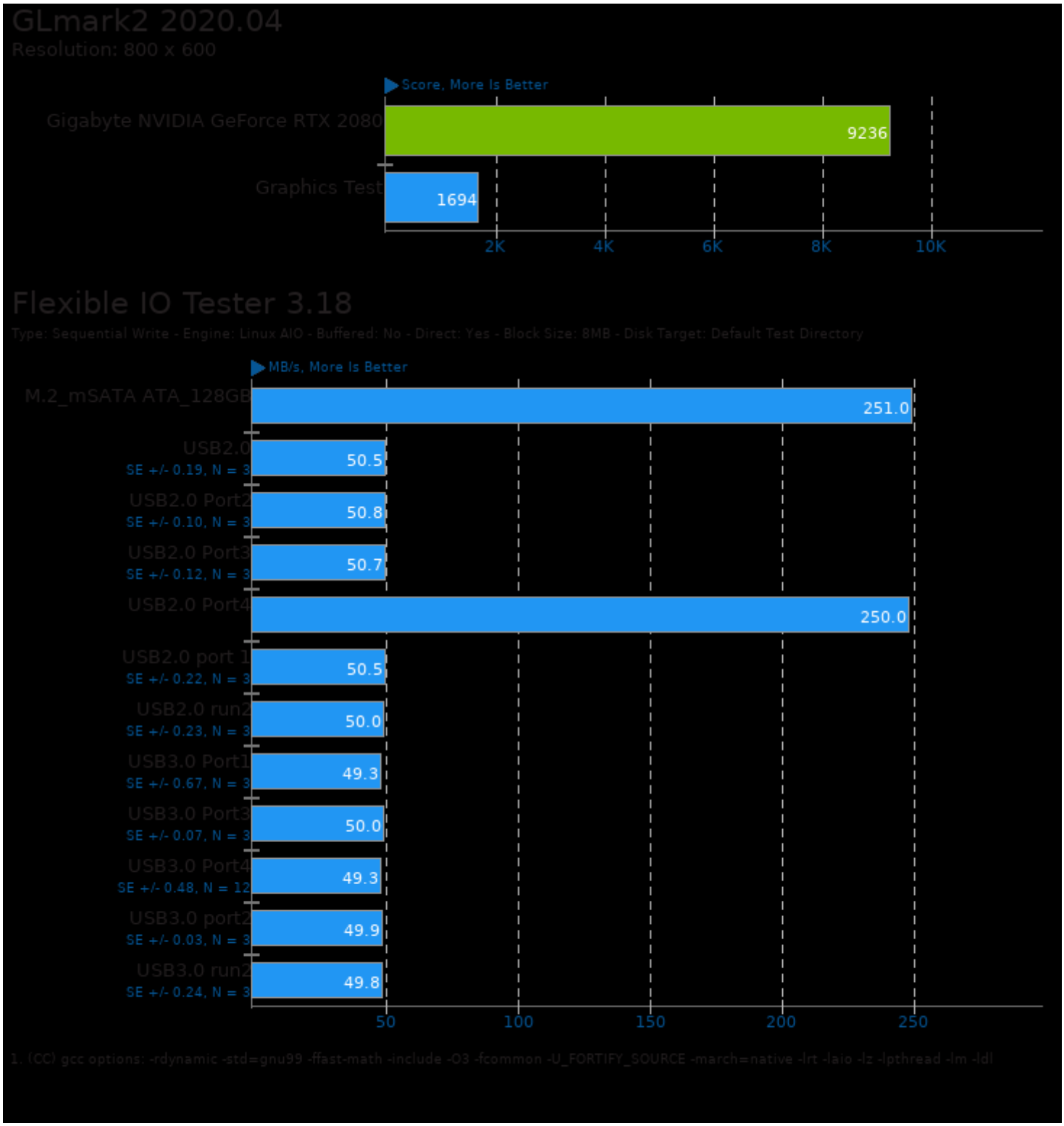
Stream - Copy (MB/s)		135 95
Standard Deviation		0%
Stress-NG - G.Q.D.S (Bogo Ops/s)	41.4 7	
Standard Deviation	0.5%	
Stress-NG - G.C.S.F (Bogo Ops/s)	331 121	
Standard Deviation	1%	
Stress-NG - Memory Copying (Bogo Ops/s)	751. 45	
Standard Deviation	0.2%	
Stress-NG - Vector Math (Bogo Ops/s)	145 52	
Standard Deviation	0.1%	
Stress-NG - Matrix Math (Bogo Ops/s)	114 69	
Standard Deviation	1.2%	
Stress-NG - CPU Stress (Bogo Ops/s)	127 2	
Standard Deviation	0.2%	

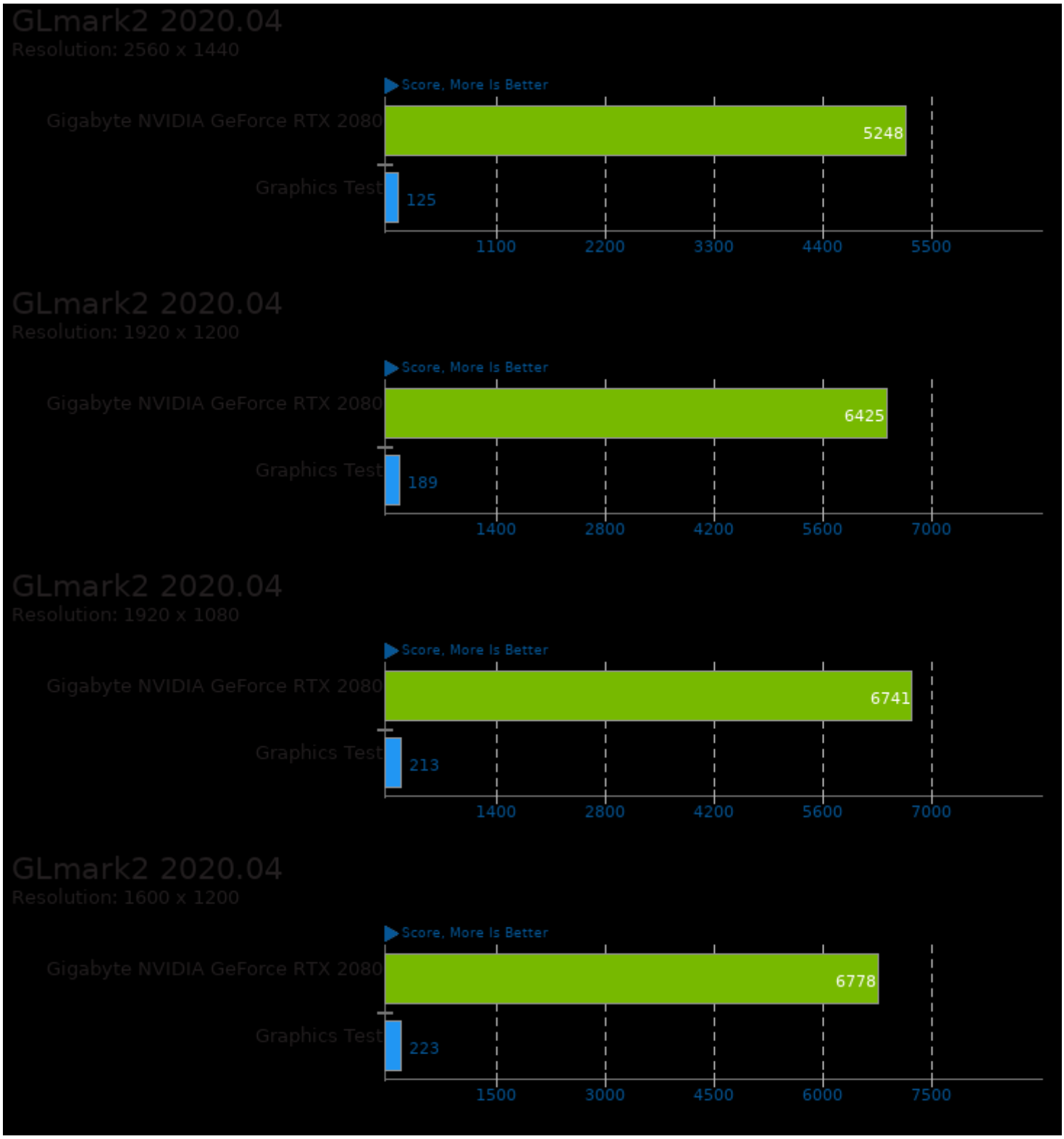
Stress-NG	214
- Forking (Bogo Ops/s)	68
Standard Deviation	0.8%
Stress-NG	663.
- Crypto (Bogo Ops/s)	16
Standard Deviation	2.2%

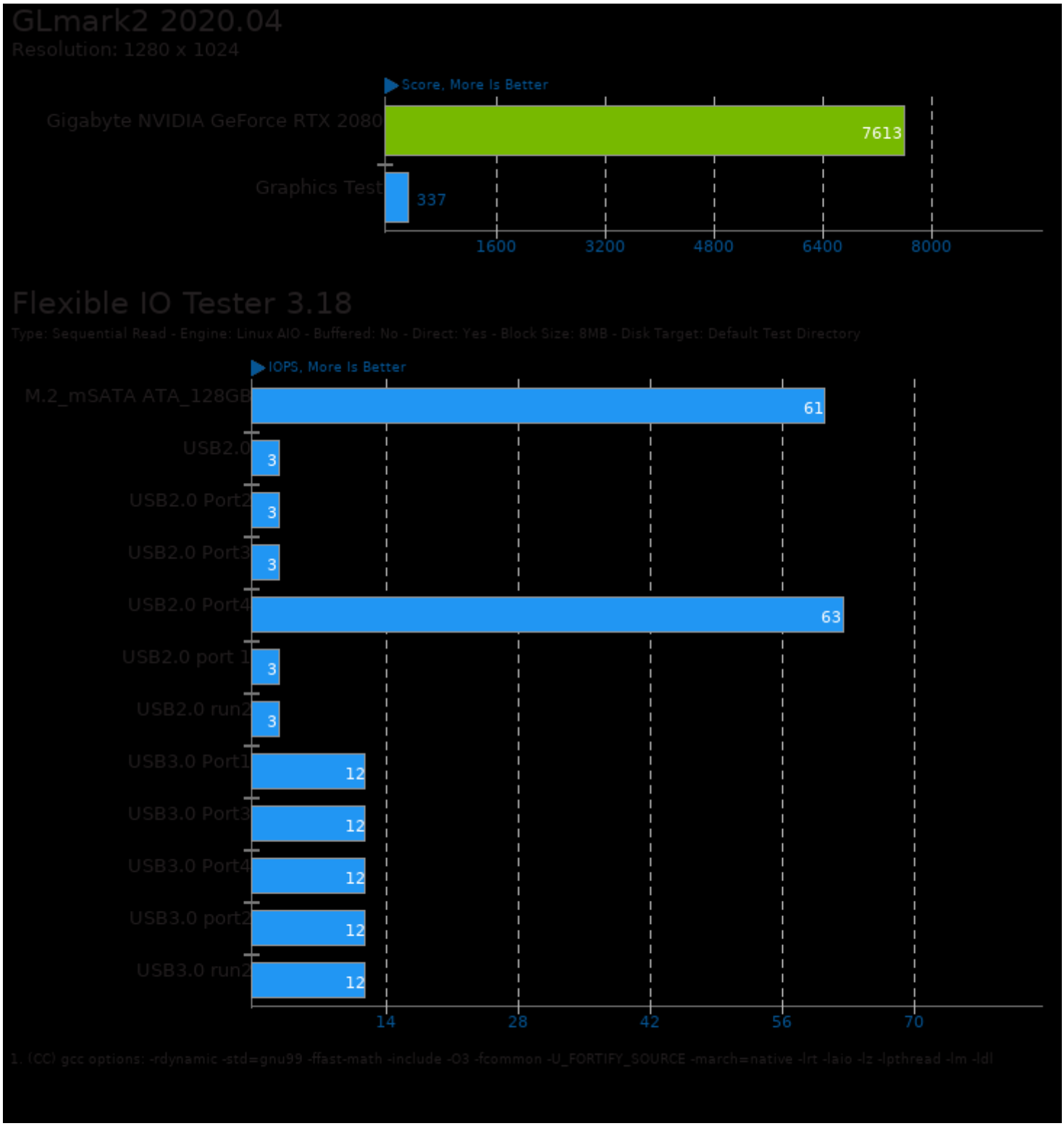

Flexible IO Tester 3.18
Type: Sequential Write - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
MB/s, More Is Better
M.2_mSATA ATA_128GB
226.0
USB2.0
SE +/- 0.25, N = 3
25.3
USB2.0 Port2
SE +/- 0.03, N = 3
24.7
USB2.0 Port3
SE +/- 0.25, N = 3
25.3
USB2.0 Port4
226.0
USB2.0 port 1
SE +/- 0.37, N = 4
25.1
USB2.0 run2
SE +/- 0.03, N = 3
24.8
USB3.0 Port1
SE +/- 0.03, N = 3
24.8
USB3.0 Port3
SE +/- 0.03, N = 3
24.9
USB3.0 Port4
SE +/- 0.07, N = 3
24.8
USB3.0 port2
SE +/- 0.63, N = 12
24.0
USB3.0 run2
SE +/- 0.30, N = 3
24.6
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

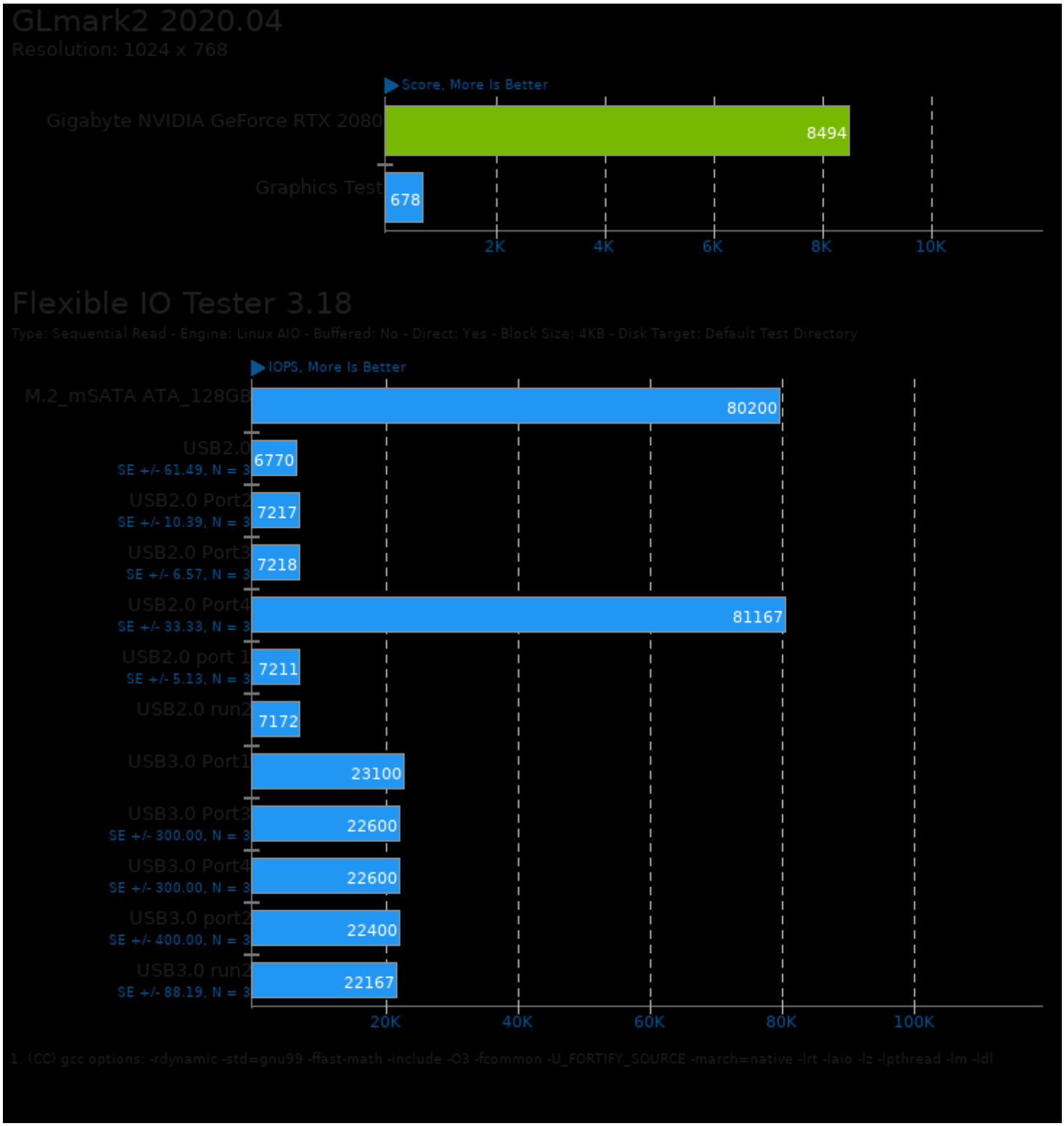

Flexible IO Tester 3.18
Type: Sequential Write - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 8MB - Disk Target: Default Test Directory
IOPS, More Is Better
M.2_mSATA ATA_128GB
USB2.0
USB2.0 Port2
USB2.0 Port3
USB2.0 Port4
USB2.0 port 1
USB2.0 run2
USB3.0 Port1
USB3.0 Port3
USB3.0 Port4
USB3.0 port2
USB3.0 run2
28
3
3
3
28
3
3
3
3
3
3
SE +/- 0.08, N = 12
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

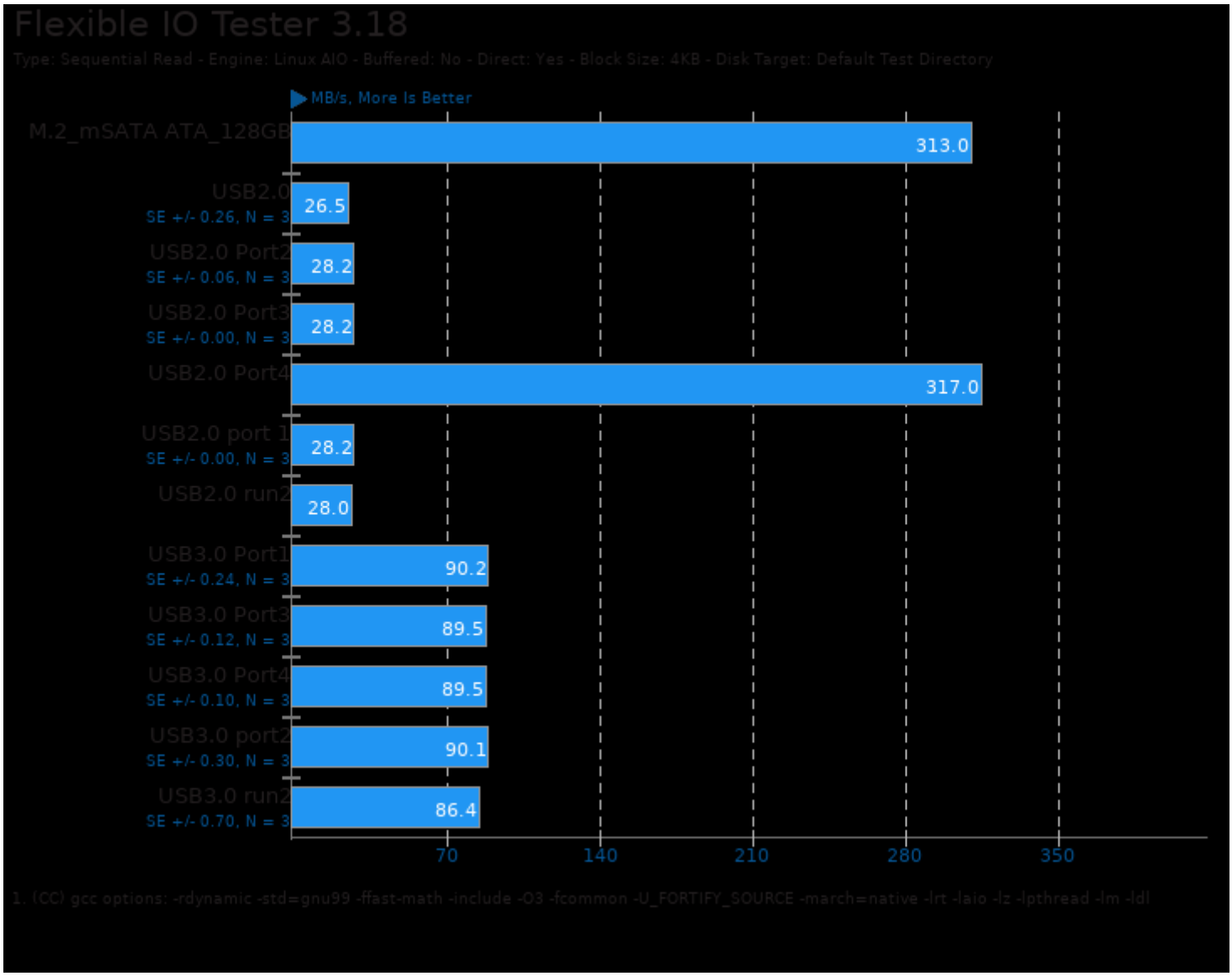

Flexible IO Tester 3.18
Type: Sequential Write - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
IOPS, More Is Better
M.2_mSATA ATA_128GB
SE +/- 66.67, N = 3
57833
USB2.0
SE +/- 59.43, N = 3
6474
USB2.0 Port2
SE +/- 6.44, N = 3
6334
USB2.0 Port3
SE +/- 61.98, N = 3
6476
USB2.0 Port4
SE +/- 33.33, N = 3
57733
USB2.0 port 1
SE +/- 31.81, N = 4
6484
USB2.0 run2
SE +/- 7.88, N = 3
6346
USB3.0 Port1
SE +/- 3.84, N = 3
6357
USB3.0 Port3
SE +/- 13.20, N = 3
6363
USB3.0 Port4
SE +/- 17.90, N = 3
6342
USB3.0 port2
SE +/- 161.13, N = 12
6204
USB3.0 run2
SE +/- 25.89, N = 3
6370
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
GLmark2 2020.04
Resolution: 3840 x 2160
Score, More Is Better
Gigabyte NVIDIA GeForce RTX 2080
3174
Graphics Test
54
700
1400
2100
2800
3500

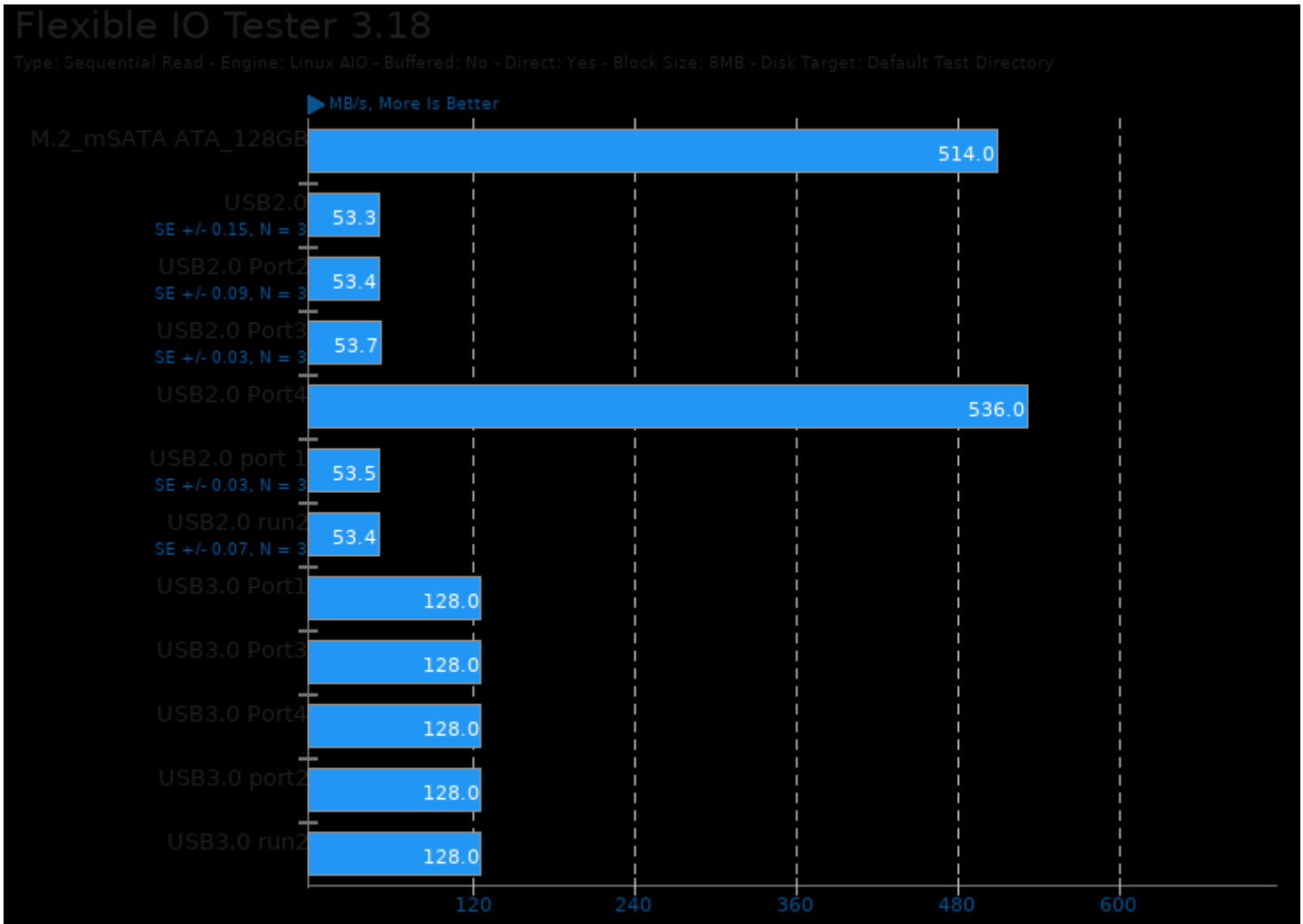

GLmark2 2020.04
Resolution: 800 x 600
Score, More Is Better
Gigabyte NVIDIA GeForce RTX 2080
9236
Graphics Test
1694
2K
4K
6K
8K
10K
Flexible IO Tester 3.18
Type: Sequential Write - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 8MB - Disk Target: Default Test Directory
MB/s, More Is Better
M.2_mSATA ATA_128GB
251.0
USB2.0
SE +/- 0.19, N = 3
50.5
USB2.0 Port2
SE +/- 0.10, N = 3
50.8
USB2.0 Port3
SE +/- 0.12, N = 3
50.7
USB2.0 Port4
250.0
USB2.0 port 1
SE +/- 0.22, N = 3
50.5
USB2.0 run2
SE +/- 0.23, N = 3
50.0
USB3.0 Port1
SE +/- 0.67, N = 3
49.3
USB3.0 Port3
SE +/- 0.07, N = 3
50.0
USB3.0 Port4
SE +/- 0.48, N = 12
49.3
USB3.0 port2
SE +/- 0.03, N = 3
49.9
USB3.0 run2
SE +/- 0.24, N = 3
49.8
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

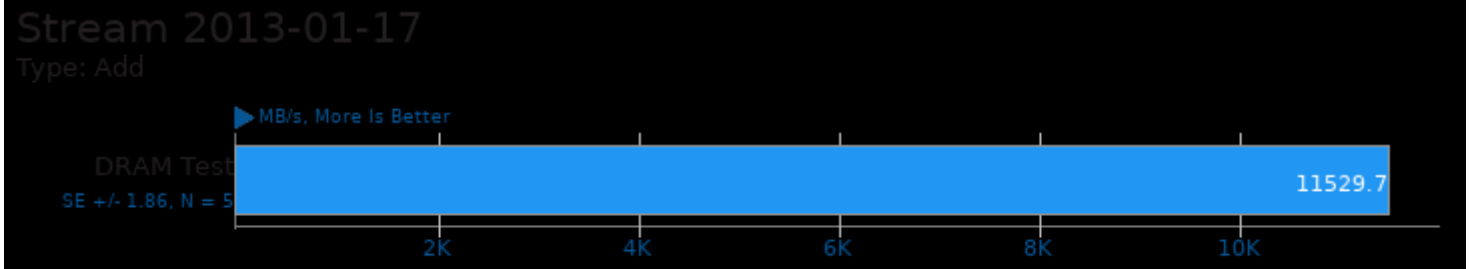

GLmark2 2020.04
Resolution: 2560 x 1440
Score, More Is Better
Gigabyte NVIDIA GeForce RTX 2080
5248
Graphics Test
125
1100
2200
3300
4400
5500
GLmark2 2020.04
Resolution: 1920 x 1200
Score, More Is Better
Gigabyte NVIDIA GeForce RTX 2080
6425
Graphics Test
189
1400
2800
4200
5600
7000
GLmark2 2020.04
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

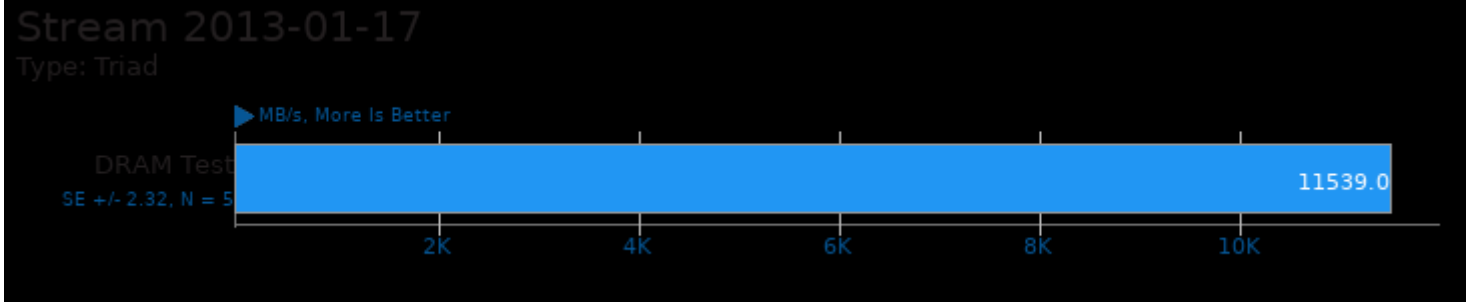

GLmark2 2020.04
Resolution: 1280 x 1024
Score, More Is Better
Gigabyte NVIDIA GeForce RTX 2080
7613
Graphics Test
337
1600
3200
4800
6400
8000
Flexible IO Tester 3.18
Type: Sequential Read - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 8MB - Disk Target: Default Test Directory
IOPS, More Is Better
M.2_mSATA ATA_128GB
61
USB2.0
3
USB2.0 Port2
3
USB2.0 Port3
3
USB2.0 Port4
63
USB2.0 port 1
3
USB2.0 run2
3
USB3.0 Port1
12
USB3.0 Port3
12
USB3.0 Port4
12
USB3.0 port2
12
USB3.0 run2
12
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

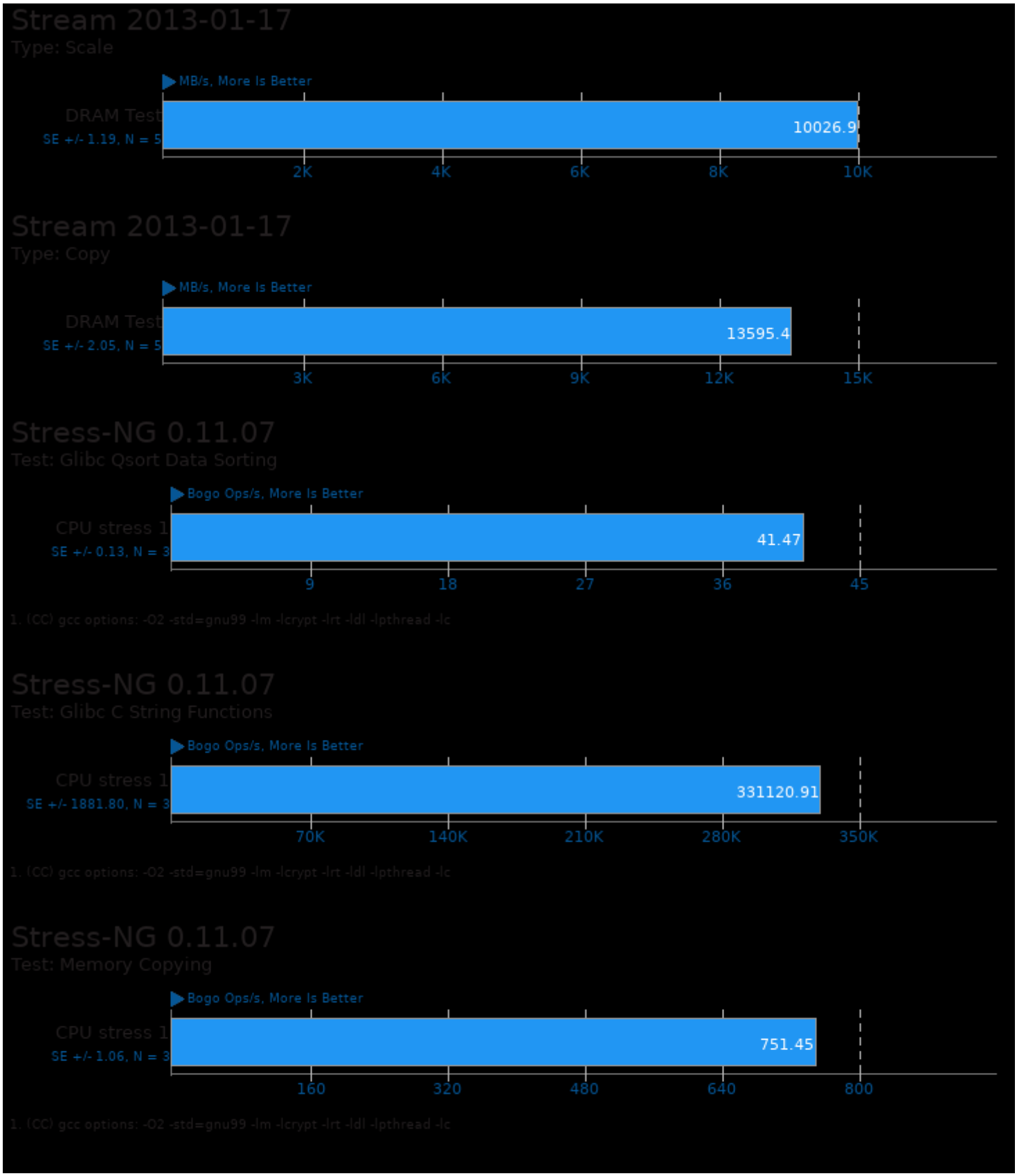

GLmark2 2020.04
Resolution: 1024 x 768
Score, More Is Better
Gigabyte NVIDIA GeForce RTX 2080
8494
Graphics Test
678
2K
4K
6K
8K
10K
Flexible IO Tester 3.18
Type: Sequential Read - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
IOPS, More Is Better
M.2_mSATA ATA_128GB
80200
USB2.0
SE +/- 61.49, N = 3
6770
USB2.0 Port2
SE +/- 10.39, N = 3
7217
USB2.0 Port3
SE +/- 6.57, N = 3
7218
USB2.0 Port4
SE +/- 33.33, N = 3
81167
USB2.0 port 1
SE +/- 5.13, N = 3
7211
USB2.0 run2
7172
USB3.0 Port1
23100
USB3.0 Port3
SE +/- 300.00, N = 3
22600
USB3.0 Port4
SE +/- 300.00, N = 3
22600
USB3.0 port2
SE +/- 400.00, N = 3
22400
USB3.0 run2
SE +/- 88.19, N = 3
22167
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

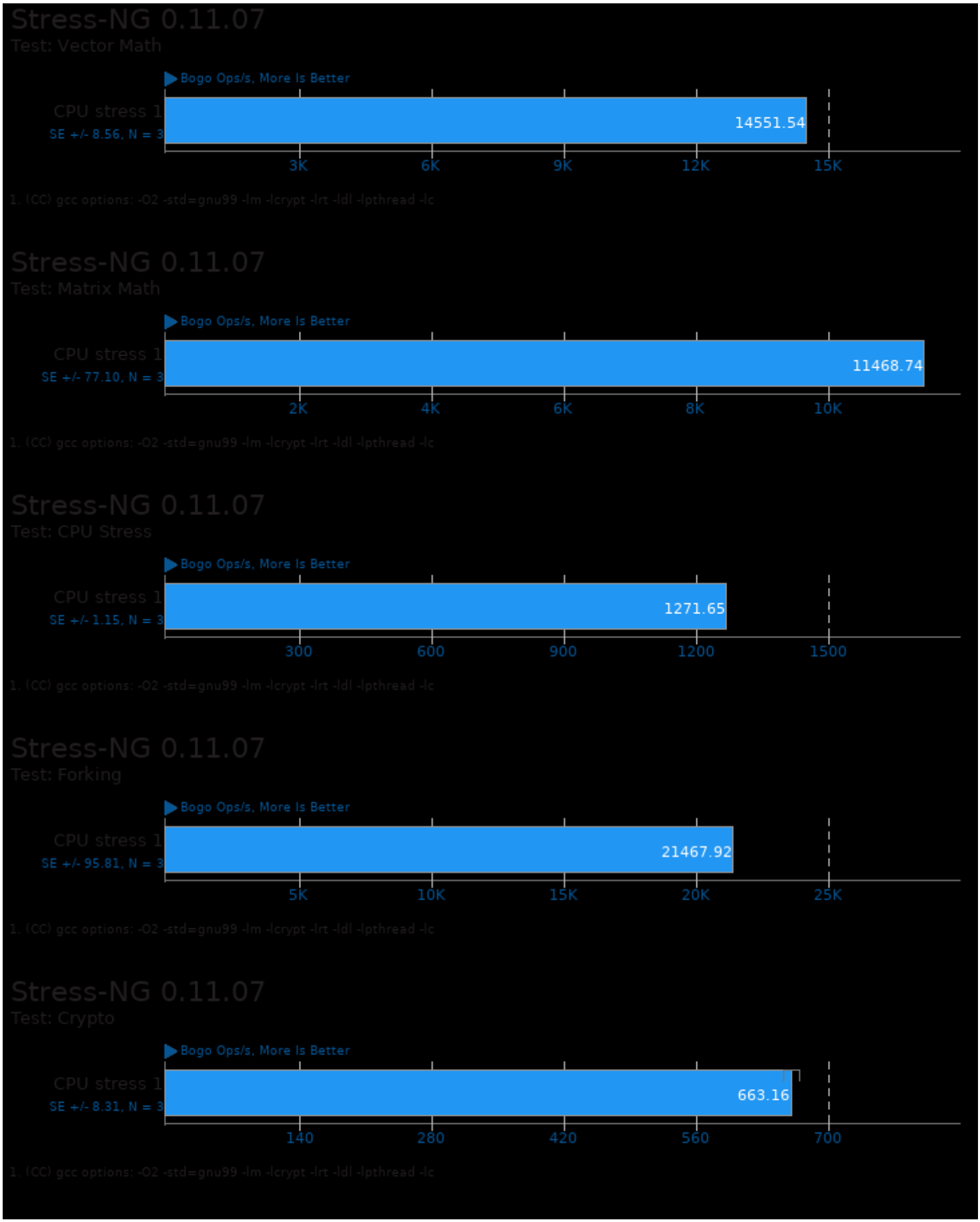

Flexible IO Tester 3.18
Type: Sequential Read - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
MB/s, More Is Better
M.2_mSATA ATA_128GB
313.0
USB2.0
SE +/- 0.26, N = 3
26.5
USB2.0 Port2
SE +/- 0.06, N = 3
28.2
USB2.0 Port3
SE +/- 0.00, N = 3
28.2
USB2.0 Port4
317.0
USB2.0 port 1
SE +/- 0.00, N = 3
28.2
USB2.0 run2
28.0
USB3.0 Port1
SE +/- 0.24, N = 3
90.2
USB3.0 Port3
SE +/- 0.12, N = 3
89.5
USB3.0 Port4
SE +/- 0.10, N = 3
89.5
USB3.0 port2
SE +/- 0.30, N = 3
90.1
USB3.0 run2
SE +/- 0.70, N = 3
86.4
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


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
M.2_mSATA ATA_128GB
514.0
USB2.0
SE +/- 0.15, N = 3
53.3
USB2.0 Port2
SE +/- 0.09, N = 3
53.4
USB2.0 Port3
SE +/- 0.03, N = 3
53.7
USB2.0 Port4
536.0
USB2.0 port 1
SE +/- 0.03, N = 3
53.5
USB2.0 run2
SE +/- 0.07, N = 3
53.4
USB3.0 Port1
128.0
USB3.0 Port3
128.0
USB3.0 Port4
128.0
USB3.0 port2
128.0
USB3.0 run2
128.0
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


Stream 2013-01-17
Type: Add
MB/s, More Is Better
DRAM Test
SE +/- 1.86, N = 5
11529.7
2K
4K
6K
8K
10K


Stream 2013-01-17
Type: Triad
MB/s, More Is Better
DRAM Test
SE +/- 2.32, N = 5
11539.0
2K
4K
6K
8K
10K


Stream 2013-01-17
Type: Scale
MB/s, More Is Better
DRAM Test
SE +/- 1.19, N = 5
10026.9
2K
4K
6K
8K
10K
Stream 2013-01-17
Type: Copy
MB/s, More Is Better
DRAM Test
SE +/- 2.05, N = 5
13595.4
3K
6K
9K
12K
15K
Stress-NG 0.11.07
Test: Glibc Qsort Data Sorting
Bogo Ops/s, More Is Better
CPU stress 1
SE +/- 0.13, N = 3
41.47
9
18
27
36
45
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -ldl -lpthread -lc
Stress-NG 0.11.07
Test: Glibc C String Functions
Bogo Ops/s, More Is Better
CPU stress 1
SE +/- 1881.80, N = 3
331120.91
70K
140K
210K
280K
350K
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -ldl -lpthread -lc
Stress-NG 0.11.07
Test: Memory Copying
Bogo Ops/s, More Is Better
CPU stress 1
SE +/- 1.06, N = 3
751.45
160
320
480
640
800
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -ldl -lpthread -lc



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07:38.