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JS-E02_AX720_R32_3_1

ARMv8 rev 0 testing with a Jetson-AGX and NVIDIA Tegra Xavier on Ubuntu 18.04 via the Phoronix Test Suite.

Automated Executive Summary

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

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

Flexible IO Tester (Type: Sequential Write - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory) at 567.322x
Flexible IO Tester (Type: Sequential Write - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory) at 542.673x
Flexible IO Tester (Type: Sequential Write - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 8MB - Disk Target: Default Test Directory) at 94.257x
Flexible IO Tester (Type: Sequential Read - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 8MB - Disk Target: Default Test Directory) at 71.333x
Flexible IO Tester (Type: Sequential Write - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 8MB - Disk Target: Default Test Directory) at 50.5x
Flexible IO Tester (Type: Sequential Read - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 8MB - Disk Target: Default Test Directory) at 33.061x
Flexible IO Tester (Type: Sequential Read - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk

Target: Default Test Directory) at 11.824x
Flexible IO Tester (Type: Sequential Read - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory) at 11.809x
Stress-NG (Test: CPU Stress) at 1.017x
Stress-NG (Test: Forking) at 1.015x.

Test Systems:

eMMC

Processor: ARMv8 rev 0 @ 2.27GHz (8 Cores), Motherboard: Jetson-AGX, Memory: 16GB, Disk: 62GB Ultra USB 3.0 + 31GB HBG4a2, Graphics: NVIDIA TEGRA, Monitor: PHL 247E6, Network: 2 x Intel I210

OS: Ubuntu 18.04, Kernel: 4.9.140-tegra (aarch64), Desktop: Unity 7.5.0, Display Server: X Server 1.19.6, Display Driver: NVIDIA 1.0.0, Vulkan: 1.1.85, Compiler: GCC 7.5.0 + CUDA 10.0, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=aarch64-linux-gnu --disable-libquadmath --disable-libquadmath-support --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-fix-cortex-a53-843419 --enable-gnu-unique-object --enable-languages=c,ada,c++,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-nls --enable-plugin --enable-shared --enable-threads=posix --host=aarch64-linux-gnu --program-prefix=aarch64-linux-gnu- --target=aarch64-linux-gnu --with-default-libstdcxx-abi=new --with-gcc-major-version-only -v
Disk Notes: CFQ / data=ordered,relatime,rw
Processor Notes: Scaling Governor: tegra_cpufreq schedutil

USB3.0 Innodisk

USB2.0 Innodisk

SD Card innodisk

Processor: ARMv8 rev 0 @ 2.27GHz (8 Cores), Motherboard: Jetson-AGX, Memory: 16GB, Disk: 62GB Ultra USB 3.0 + 31GB HBG4a2, Graphics: NVIDIA Tegra Xavier, Monitor: PHL 247E6, Network: 2 x Intel I210

OS: Ubuntu 18.04, Kernel: 4.9.140-tegra (aarch64), Desktop: Unity 7.5.0, Display Server: X Server 1.19.6, Display Driver: NVIDIA 32.3.1, OpenGL: 4.6.0, Vulkan: 1.1.85, Compiler: GCC 7.5.0 + CUDA 10.0, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=aarch64-linux-gnu --disable-libquadmath --disable-libquadmath-support --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-fix-cortex-a53-843419 --enable-gnu-unique-object --enable-languages=c,ada,c++,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-nls --enable-plugin --enable-shared --enable-threads=posix --host=aarch64-linux-gnu --program-prefix=aarch64-linux-gnu- --target=aarch64-linux-gnu --with-default-libstdcxx-abi=new --with-gcc-major-version-only -v
Disk Notes: CFQ / data=ordered,relatime,rw
Processor Notes: Scaling Governor: tegra_cpufreq schedutil

mSATA Innodisk

Processor: ARMv8 rev 0 @ 2.27GHz (8 Cores), Motherboard: Jetson-AGX, Memory: 16GB, Disk: 63GB M.2 (S80) 3MG2-P + 31GB HBG4a2 + 15GB i-TF, Graphics: NVIDIA Tegra Xavier, Monitor: PHL 247E6, Network: 2 x Intel I210

OS: Ubuntu 18.04, Kernel: 4.9.140-tegra (aarch64), Desktop: Unity 7.5.0, Display Server: X Server 1.19.6, Display

Driver: NVIDIA 32.3.1, OpenGL: 4.6.0, Vulkan: 1.1.85, Compiler: GCC 7.5.0 + CUDA 10.0, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=aarch64-linux-gnu --disable-libquadmath --disable-libquadmath-support --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-fix-cortex-a53-843419 --enable-gnu-unique-object --enable-languages=c,ada,c++,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-nls --enable-plugin --enable-shared --enable-threads=posix --host=aarch64-linux-gnu --program-prefix=aarch64-linux-gnu- --target=aarch64-linux-gnu --with-default-libstdcxx-abi=new --with-gcc-major-version-only -v
Disk Notes: CFQ / data=ordered,relatime,rw
Processor Notes: Scaling Governor: tegra_cpufreq schedutil

Digifusion M.2 SSD

Micro AB USB2.0_inno

Type C Digifusion

Processor: ARMv8 rev 0 @ 2.27GHz (8 Cores), Motherboard: Jetson-AGX, Memory: 16GB, Disk: 256GB PLEXTOR PX-256M9PeGN + 31GB HBG4a2 + 15GB i-TF, Graphics: NVIDIA Tegra Xavier, Monitor: PHL 247E6, Network: 2 x Intel I210

OS: Ubuntu 18.04, Kernel: 4.9.140-tegra (aarch64), Desktop: Unity 7.5.0, Display Server: X Server 1.19.6, Display Driver: NVIDIA 32.3.1, OpenGL: 4.6.0, Vulkan: 1.1.85, Compiler: GCC 7.5.0 + CUDA 10.0, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=aarch64-linux-gnu --disable-libquadmath --disable-libquadmath-support --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-fix-cortex-a53-843419 --enable-gnu-unique-object --enable-languages=c,ada,c++,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-nls --enable-plugin --enable-shared --enable-threads=posix --host=aarch64-linux-gnu --program-prefix=aarch64-linux-gnu- --target=aarch64-linux-gnu --with-default-libstdcxx-abi=new --with-gcc-major-version-only -v
Disk Notes: none / data=ordered,relatime,rw
Processor Notes: Scaling Governor: tegra_cpufreq schedutil

Type C Digifusion run 2

Processor: ARMv8 rev 0 @ 2.27GHz (8 Cores), Motherboard: Jetson-AGX, Memory: 16GB, Disk: 256GB PLEXTOR PX-256M9PeGN + 256GB Generic + 31GB HBG4a2 + 15GB i-TF, Graphics: NVIDIA Tegra Xavier, Monitor: PHL 247E6, Network: 2 x Intel I210

OS: Ubuntu 18.04, Kernel: 4.9.140-tegra (aarch64), Desktop: Unity 7.5.0, Display Server: X Server 1.19.6, Display Driver: NVIDIA 32.3.1, OpenGL: 4.6.0, Vulkan: 1.1.85, Compiler: GCC 7.5.0 + CUDA 10.0, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=aarch64-linux-gnu --disable-libquadmath --disable-libquadmath-support --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-fix-cortex-a53-843419 --enable-gnu-unique-object --enable-languages=c,ada,c++,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-nls --enable-plugin --enable-shared --enable-threads=posix --host=aarch64-linux-gnu --program-prefix=aarch64-linux-gnu- --target=aarch64-linux-gnu --with-default-libstdcxx-abi=new --with-gcc-major-version-only -v
Disk Notes: none / data=ordered,relatime,rw
Processor Notes: Scaling Governor: tegra_cpufreq schedutil

Type C DIGFAST

Type C DIGFAST run 2

Processor: ARMv8 rev 0 @ 2.27GHz (8 Cores), Motherboard: Jetson-AGX, Memory: 16GB, Disk: 256GB PLEXTOR PX-256M9PeGN + 256GB Tech + 31GB HBG4a2 + 15GB i-TF, Graphics: NVIDIA Tegra Xavier, Monitor: PHL 247E6, Network: 2 x Intel I210

OS: Ubuntu 18.04, Kernel: 4.9.140-tegra (aarch64), Desktop: Unity 7.5.0, Display Server: X Server 1.19.6, Display

Driver: NVIDIA 32.3.1, OpenGL: 4.6.0, Vulkan: 1.1.85, Compiler: GCC 7.5.0 + CUDA 10.0, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=aarch64-linux-gnu --disable-libquadmath --disable-libquadmath-support --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-fix-cortex-a53-843419 --enable-gnu-unique-object --enable-languages=c,ada,c++,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-nls --enable-plugin --enable-shared --enable-threads=posix --host=aarch64-linux-gnu --program-prefix=aarch64-linux-gnu- --target=aarch64-linux-gnu --with-default-libstdcxx-abi=new --with-gcc-major-version-only -v
Disk Notes: none / data=ordered,relatime,rw
Processor Notes: Scaling Governor: tegra_cpufreq schedutil

Type c USB3.0

CPU Stress

CPU Stress run

LPDDR4

CPU-7 Zip

CUDA Test

RS-232UART

Type C NST-205C3-SG

Processor: ARMv8 rev 0 @ 2.27GHz (8 Cores), Motherboard: Jetson-AGX, Memory: 16GB, Disk: 256GB PLEXTOR PX-256M9PeGN + 62GB Dual Drive + 31GB HBG4a2 + 15GB i-TF, Graphics: NVIDIA Tegra Xavier, Monitor: PHL 247E6, Network: 2 x Intel I210

OS: Ubuntu 18.04, Kernel: 4.9.140-tegra (aarch64), Desktop: Unity 7.5.0, Display Server: X Server 1.19.6, Display Driver: NVIDIA 32.3.1, OpenGL: 4.6.0, Vulkan: 1.1.85, Compiler: GCC 7.5.0 + CUDA 10.0, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=aarch64-linux-gnu --disable-libquadmath --disable-libquadmath-support --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-fix-cortex-a53-843419 --enable-gnu-unique-object --enable-languages=c,ada,c++,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-nls --enable-plugin --enable-shared --enable-threads=posix --host=aarch64-linux-gnu --program-prefix=aarch64-linux-gnu- --target=aarch64-linux-gnu --with-default-libstdcxx-abi=new --with-gcc-major-version-only -v
Disk Notes: none / data=ordered,relatime,rw
Processor Notes: Scaling Governor: tegra_cpufreq schedutil

LAN 1

LAN 2

Processor: ARMv8 rev 0 @ 2.27GHz (8 Cores), Motherboard: Jetson-AGX, Memory: 16GB, Disk: 256GB PLEXTOR PX-256M9PeGN + 250GB SSD 970 EVO + 16GB USB Drive 3ME + 31GB HBG4a2 + 15GB i-TF, Graphics: NVIDIA Tegra Xavier, Monitor: EDIIG0219, Network: 2 x Intel I210

OS: Ubuntu 18.04, Kernel: 4.9.140-tegra (aarch64), Desktop: Unity 7.5.0, Display Server: X Server 1.19.6, Display Driver: NVIDIA 32.3.1, OpenGL: 4.6.0, Vulkan: 1.1.85, Compiler: GCC 7.5.0 + CUDA 10.0, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=aarch64-linux-gnu --disable-libquadmath --disable-libquadmath-support --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-fix-cortex-a53-843419 --enable-gnu-unique-object --enable-languages=c,ada,c++,go,d,fortran,objc,obj-c++

--enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-nls --enable-plugin --enable-shared --enable-threads=posix --host=aarch64-linux-gnu --program-prefix=aarch64-linux-gnu- --target=aarch64-linux-gnu --with-default-libstdcxx-abi=new --with-gcc-major-version-only -v
Processor Notes: Scaling Governor: tegra_cpufreq schedutil

LAN 3

Processor: ARMv8 rev 0 @ 2.27GHz (8 Cores), Motherboard: Jetson-AGX, Memory: 16GB, Disk: 256GB PLEXTOR PX-256M9PeGN + 16GB USB Drive 3ME + 31GB HBG4a2 + 15GB i-TF, Graphics: NVIDIA Tegra Xavier, Monitor: EDIIG0219, Network: 2 x Intel I210

OS: Ubuntu 18.04, Kernel: 4.9.140-tegra (aarch64), Desktop: Unity 7.5.0, Display Server: X Server 1.19.6, Display Driver: NVIDIA 32.3.1, OpenGL: 4.6.0, Vulkan: 1.1.85, Compiler: GCC 7.5.0 + CUDA 10.0, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=aarch64-linux-gnu --disable-libquadmath --disable-libquadmath-support --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-fix-cortex-a53-843419 --enable-gnu-unique-object --enable-languages=c,ada,c++,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-nls --enable-plugin --enable-shared --enable-threads=posix --host=aarch64-linux-gnu --program-prefix=aarch64-linux-gnu- --target=aarch64-linux-gnu --with-default-libstdcxx-abi=new --with-gcc-major-version-only -v
Processor Notes: Scaling Governor: tegra_cpufreq schedutil

	eMMC	USB3.0 Innodisk	USB2.0 Innodisk	SD Card innodisk	mSATA Innodisk	Digifusion M.2 SSD	Micro ABUSB2.0_inno	Type C Digifusion	Type C Digifusion run 2	Type C DIGFAST	Type C DIGFAST run 2	Type c USB3.0	CPU Stress	CPU Stress run	LPDDR4	CPU-7Zip	CUDA Test	RS-232 UART	Type C NST-205C3-SG	LAN 1	LAN 2	LAN 3
Flexible IO Tester - Seq Read - Linux AIO - No - Yes - 4KB (MB/s)	95.3	97.5	28.3	55.5	194	**333**	**28.2**	38.6	305	304	306	111							312			
Normalized	28.62%	29.28%	8.5%	16.67%	58.26%	100%	8.47%	11.59%	91.59%	91.29%	91.89%	33.33%							93.69%			
Standard Deviation	31.9%	0.7%	1.2%	0.1%	1%	0.6%	0.4%	0.3%	0.4%	0.4%	0.5%	0.9%							0.5%			

Flexible IO Tester - Seq Read - Linux AIO - No - Yes - 4KB (IOPS)	243 40	249 67	724 2	142 00	497 33	**853 33**	**721 7**	987 8	781 00	775 33	782 00	283 67	796 33
Normalized	28.5 2%	29.2 6%	8.49 %	16.6 4%	58.2 8%	100 %	8.46 %	11.5 8%	91.5 2%	90.8 6%	91.6 4%	33.2 4%	93.3 2%
Standard Deviation	32%	0.6%	1.1%		0.8%	0.6%	0.4%	0.2%	0.5%	0.7%	0.5%	0.7%	0.8%
Flexible IO Tester - Seq Read - Linux AIO - No - Yes - 8MB (MB/s)	306	121	53. 3	102	427	**173 9**	**52. 6**	63. 3	822	818	818	169	827
Normalized	17.6 %	6.96 %	3.06 %	5.87 %	24.5 5%	100 %	3.02 %	3.64 %	47.2 7%	47.0 4%	47.0 4%	9.72 %	47.5 6%
Standard Deviation			0.1%			0.8%	1.3%	0.2%	0.1%	0.1%	0.1%		0.1%
Flexible IO Tester - Seq Read - Linux AIO - No - Yes - 8MB (IOPS)	35	12	**3**	9	50	**214**	**3**	4	99	99	99	18	100
Normalized	16.3 6%	5.61 %	1.4%	4.21 %	23.3 6%	100 %	1.4%	1.87 %	46.2 6%	46.2 6%	46.2 6%	8.41 %	46.7 3%

JS-E02_AX720_R32_3_1

Flexible IO Tester - Seq Write - Linux AIO - No - Yes - 4KB (MB/s)	81.2	24.7	25.0	21.9	85.5	268	25.1	39.0	**0.621**	280	281	21.6	**337**
Normalized	24.09%	7.33%	7.42%	6.5%	25.37%	79.53%	7.45%	11.57%	0.18%	83.09%	83.38%	6.41%	100%
Standard Deviation	0.2%	0.4%	1.2%	1.3%	0.1%	2.1%	1.1%	0.1%	59.4%			11.6%	
Flexible IO Tester - Seq Write - Linux AIO - No - Yes - 4KB (IOPS)	20767	6320	6399	5594	21867	68300	6432	9990	**15221**	71700	72067	5566	**86233**
Normalized	24.08%	7.33%	7.42%	6.49%	25.36%	79.2%	7.46%	11.58%	0.18%	83.15%	83.57%	6.45%	100%
Standard Deviation	0.3%	0.4%	1.2%	1.4%	0.3%	3%	1.2%	0.1%	60.6%	0.1%	0.2%	11.3%	0.1%
Flexible IO Tester - Seq Write - Linux AIO - No - Yes - 8MB (MB/s)	135	39.0	49.3	66.3	103	281	49.3	63.7	**8.880**	300	301	56.1	**837**
Normalized	16.13%	4.66%	5.89%	7.92%	12.31%	33.57%	5.89%	7.61%	1.06%	35.84%	35.96%	6.7%	100%
Standard Deviation	0.9%	1.9%	0.7%	0.1%		0.7%	1.1%	0.1%	27.2%		1.3%	2.1%	0.2%

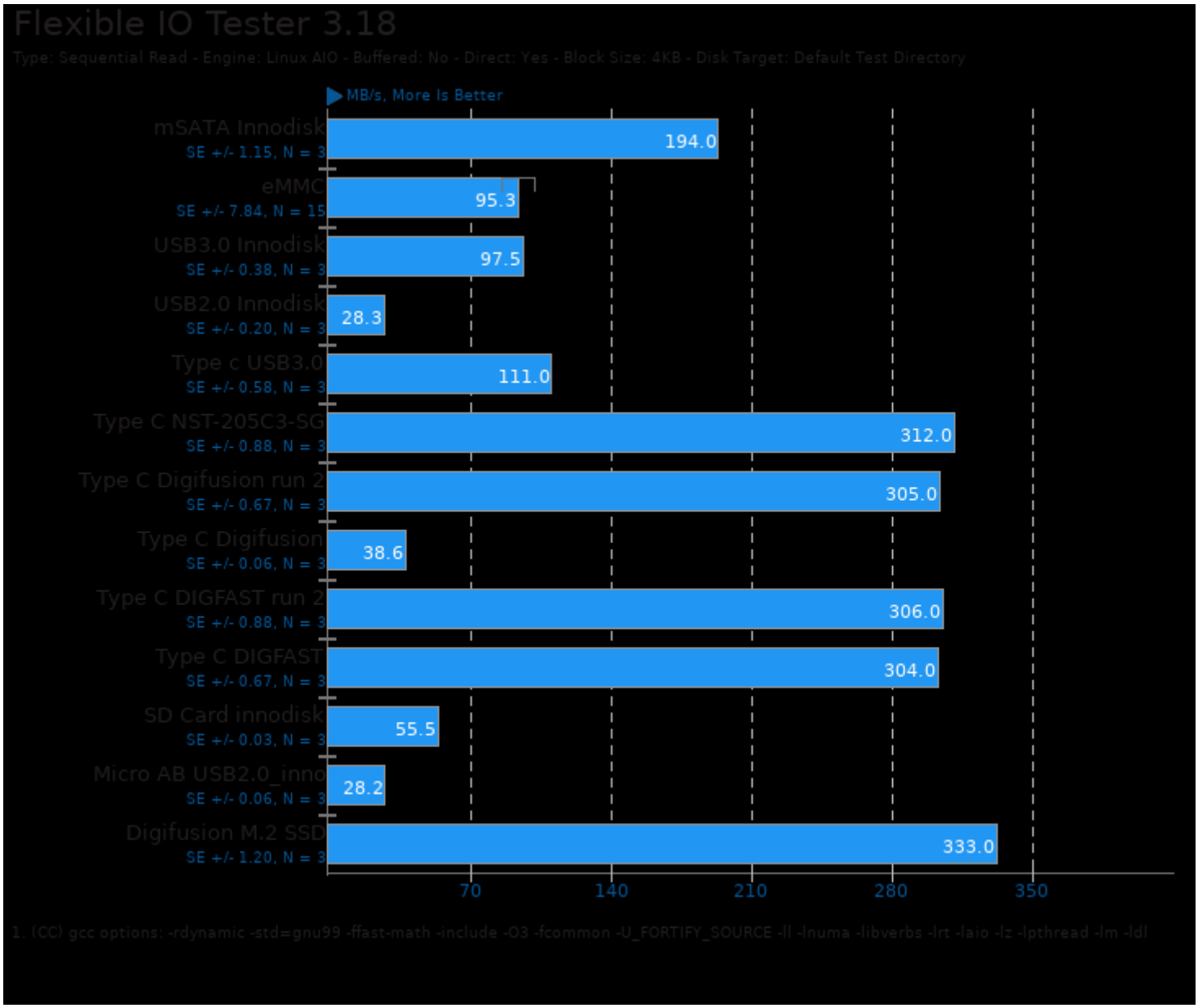
JS-E02_AX720_R32_3_1

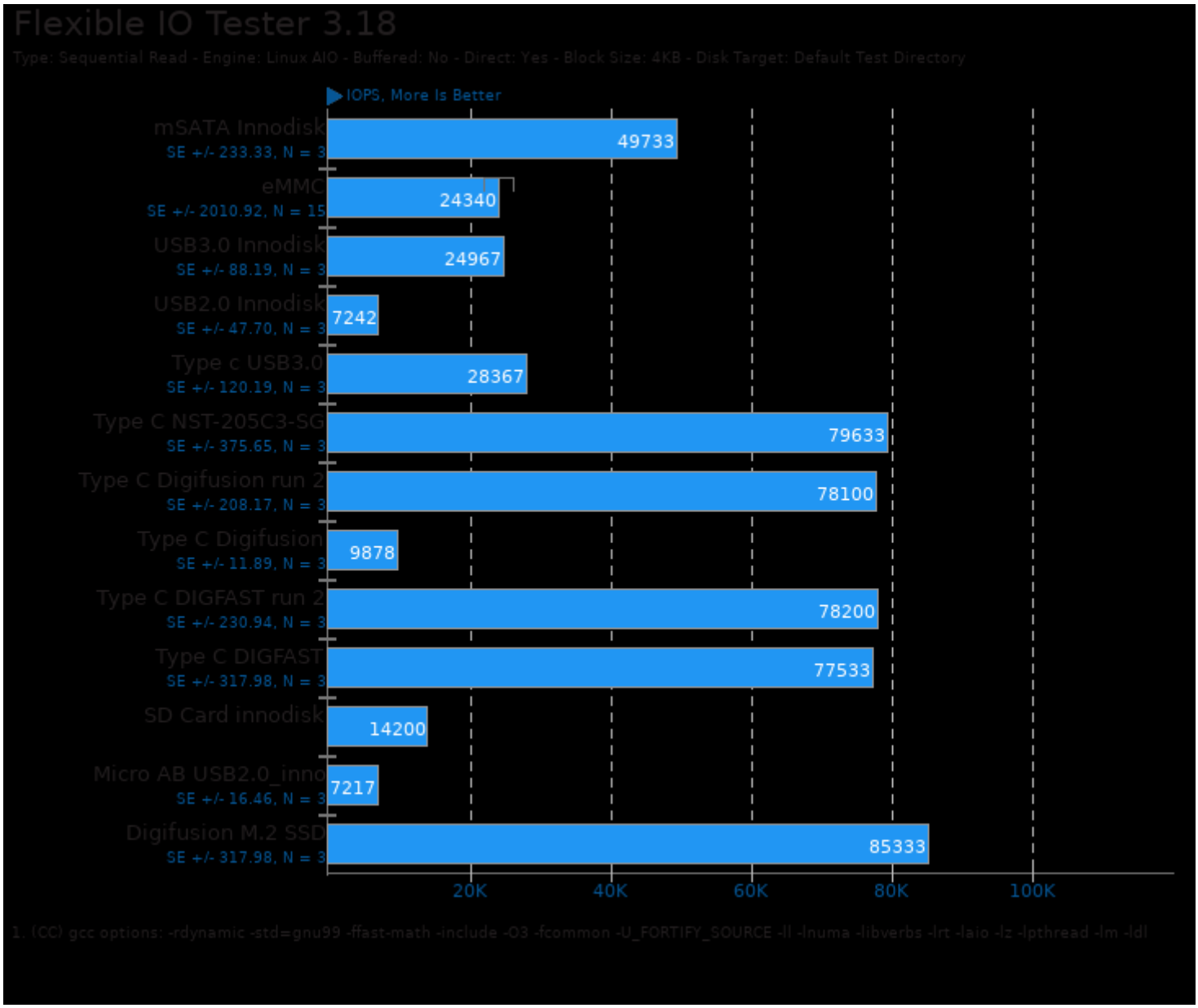
Flexible IO Tester - Seq Write - Linux AIO - No - Yes - 8MB (IOPS)	13	**2**	3	5	9	32	3	4		34	34	4									**101**
Normalized	12.8	1.98	2.97	4.95	8.91	31.6	2.97	3.96		33.6	33.6	3.96									100
Standard Deviation	7% 4.3%	%	%	%	%	8% 1.8%	%	%		6%	6% 1.7%	%									%
Stress-NG - Forking (Bogo Ops/s)													**7153**	**7051**							
Normalized													100	98.5							
Standard Deviation													% 0.5%	% 0.4%							
Stress-NG - CPU Stress (Bogo Ops/s)													**886.60**	**901.27**							
Normalized													98.3	100							
Standard Deviation													7% 2.9%	% 0.1%							
Stress-NG - Crypto (Bogo Ops/s)														1212							
Standard Deviation														1.7%							
Stress-NG - Matrix Math (Bogo														1401							
Standard Deviation														0.3%							

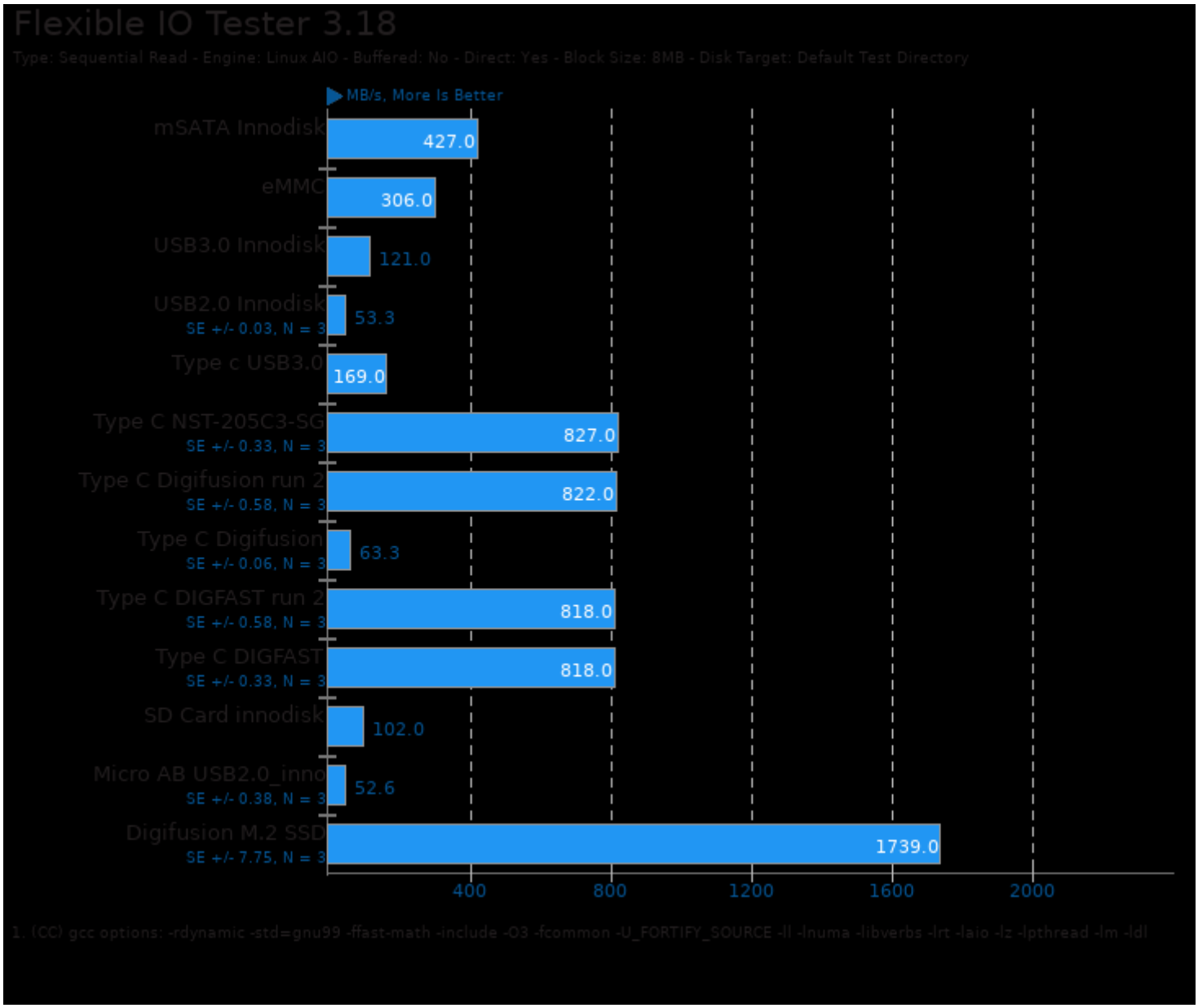
Stress-NG - Vector Math (Bogo Ops/s)	521	80	
Standard Deviation	0%		
Stress-NG - Memory Copying (Bogo Ops/s)	325	1	
Standard Deviation	0.3%		
Stress-NG - G.C.S.F (Bogo Ops/s)	226	721	
Standard Deviation	1.4%		
Stress-NG - G.Q.D.S (Bogo Ops/s)	48.	63	
Standard Deviation	16.8 %		
Stream - Copy (MB/s)	676	84	
Standard Deviation	0.8%		
Stream - Scale (MB/s)	677	63	
Standard Deviation	1%		
Stream - Triad (MB/s)	600	34	
Standard Deviation	0.5%		
Stream - Add (MB/s)	599	40	
Standard Deviation	0.4%		

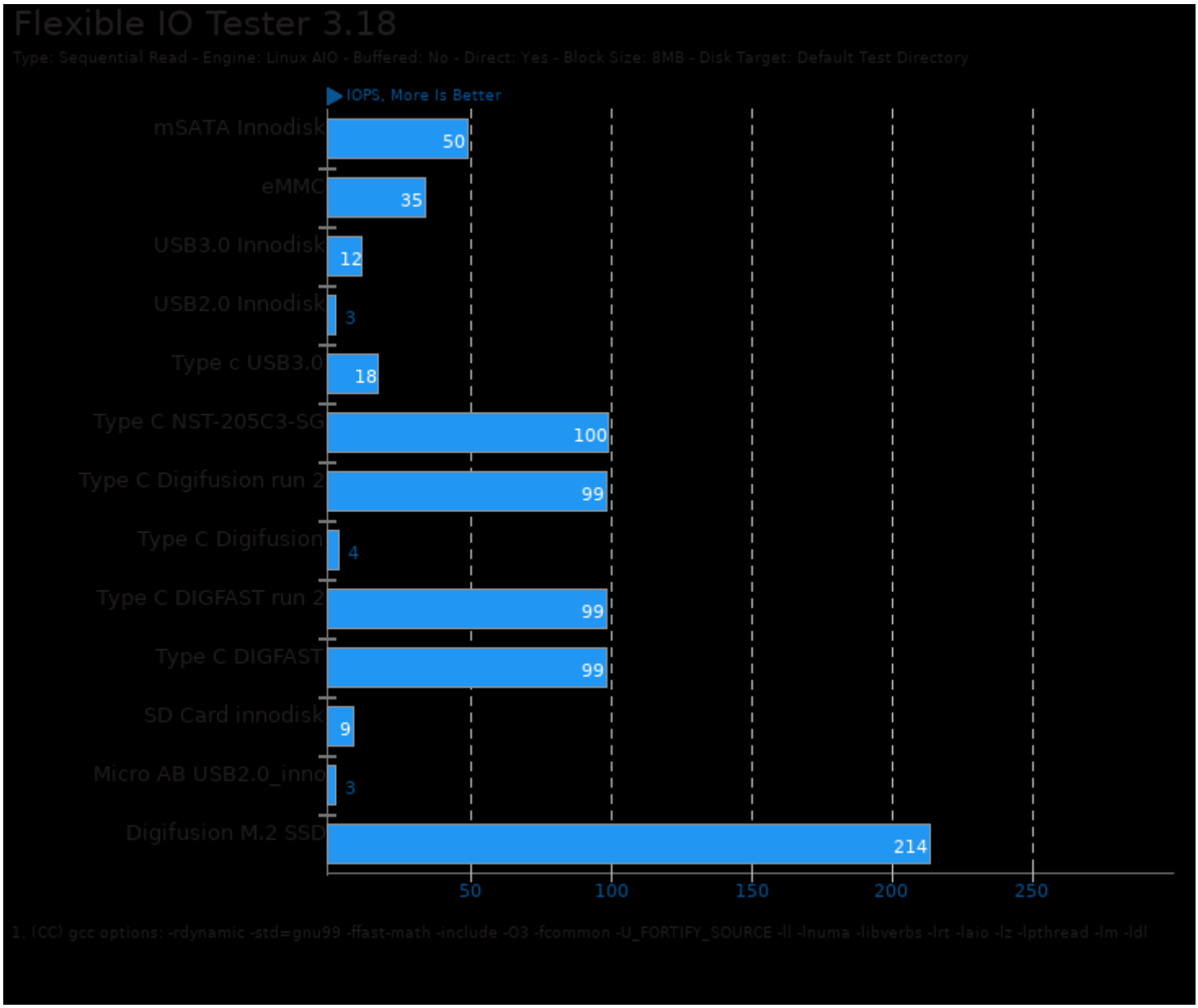
7-Zip Compression - C.S.T (MIPS)	200	
Standard Deviation	72	
	3%	
CUDA Mini-Nbody - Original ((NBody^2)/s)		46.883
Standard Deviation		0.1%
CUDA Mini-Nbody - Cache Blocking ((NBody^2)/s)		55.558
Standard Deviation		0.4%
CUDA Mini-Nbody - Loop Unrolling ((NBody		54.863
Standard Deviation		0%
CUDA Mini-Nbody - SOA Data Layout ((NBody^2)/s)		47.752
Standard Deviation		0.1%

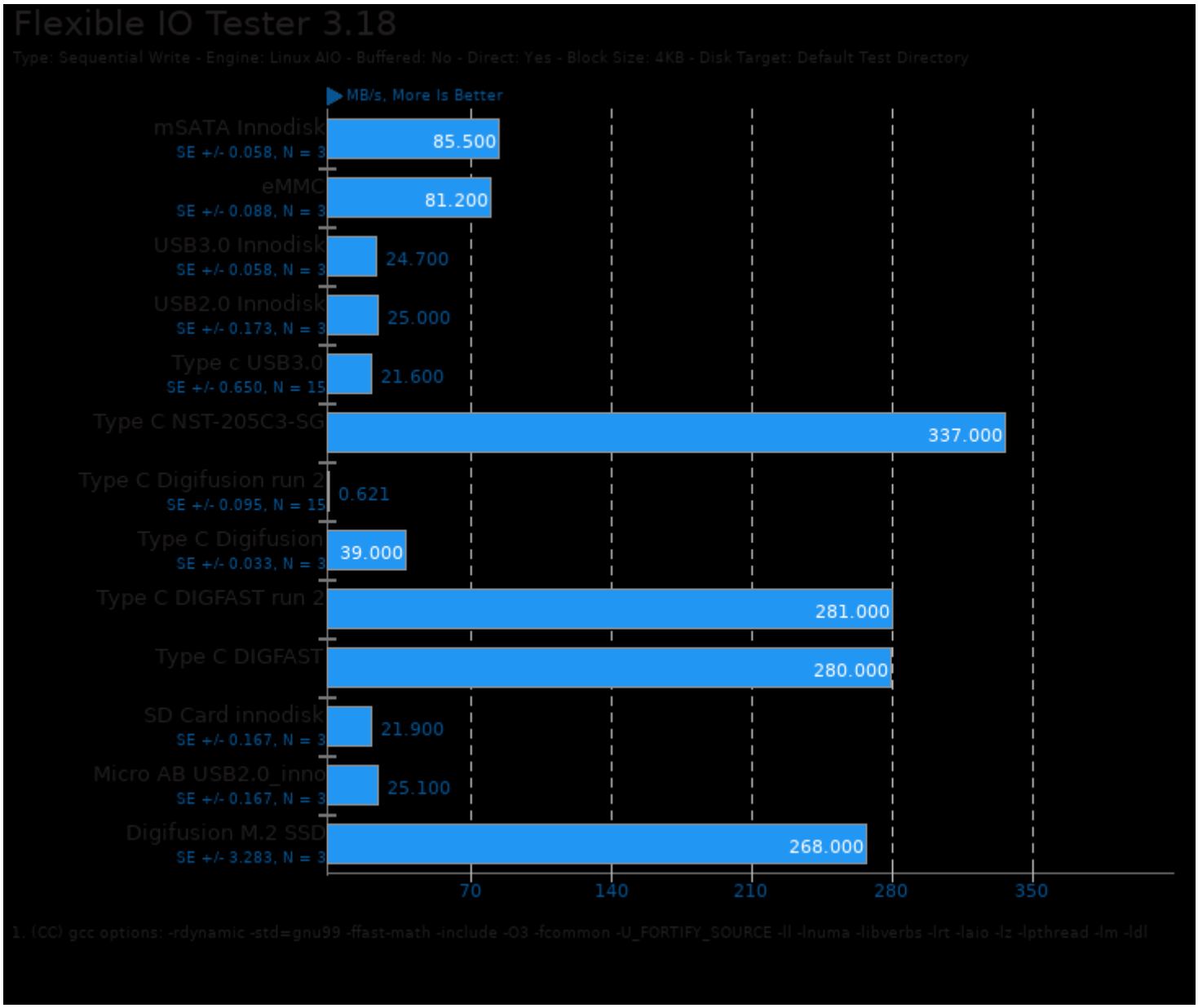
CUDA Mini-Nbody - F.D.T.Z ((NBody ^2)/s)	55.142		
Standard Deviation	0.1%		
iPerf - 192.168.1.2 - 5201 - 10 Seconds - UDP - 100Mbit Objective - 1 (Mbits/s)	100	100	100
iPerf - 192.168.1.2 - 5201 - 10 Seconds - UDP - 1000Mbit Objective - 1 (Mbits/s)	**951**	952	**956**
Normalized	99.48%	99.58%	100%
Standard Deviation	0.5%	0.5%	

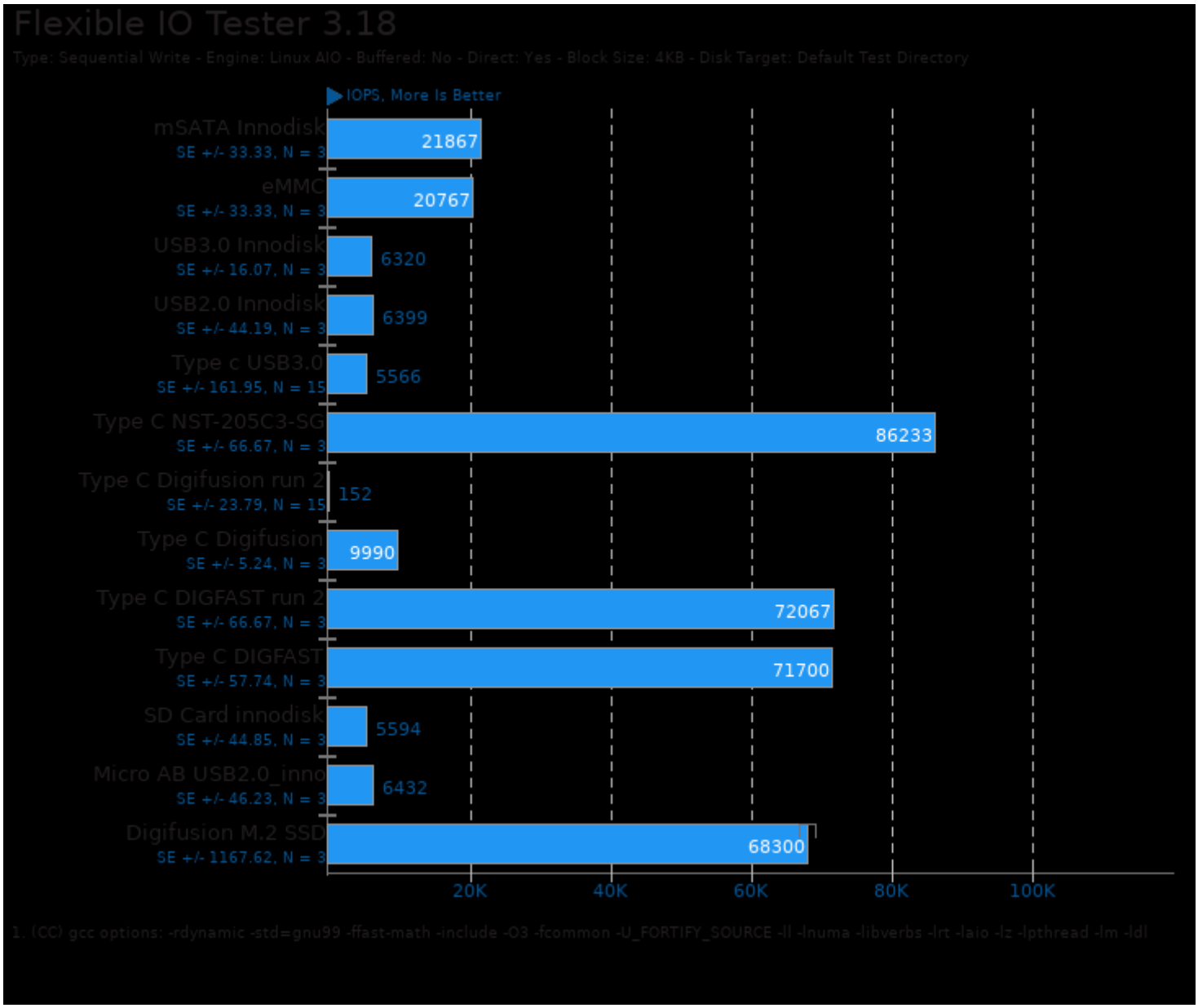

Flexible IO Tester 3.18
Type: Sequential Read - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
MB/s, More Is Better
mSATA Innodisk
SE +/- 1.15, N = 3
194.0
eMMC
SE +/- 7.84, N = 15
95.3
USB3.0 Innodisk
SE +/- 0.38, N = 3
97.5
USB2.0 Innodisk
SE +/- 0.20, N = 3
28.3
Type c USB3.0
SE +/- 0.58, N = 3
111.0
Type C NST-205C3-SG
SE +/- 0.88, N = 3
312.0
Type C Digifusion run 2
SE +/- 0.67, N = 3
305.0
Type C Digifusion
SE +/- 0.06, N = 3
38.6
Type C DIGFAST run 2
SE +/- 0.88, N = 3
306.0
Type C DIGFAST
SE +/- 0.67, N = 3
304.0
SD Card innodisk
SE +/- 0.03, N = 3
55.5
Micro AB USB2.0_inno
SE +/- 0.06, N = 3
28.2
Digifusion M.2 SSD
SE +/- 1.20, N = 3
333.0
70
140
210
280
350
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -ll -lnuma -libverbs -lrt -laio -lz -lpthread -lm -ldl

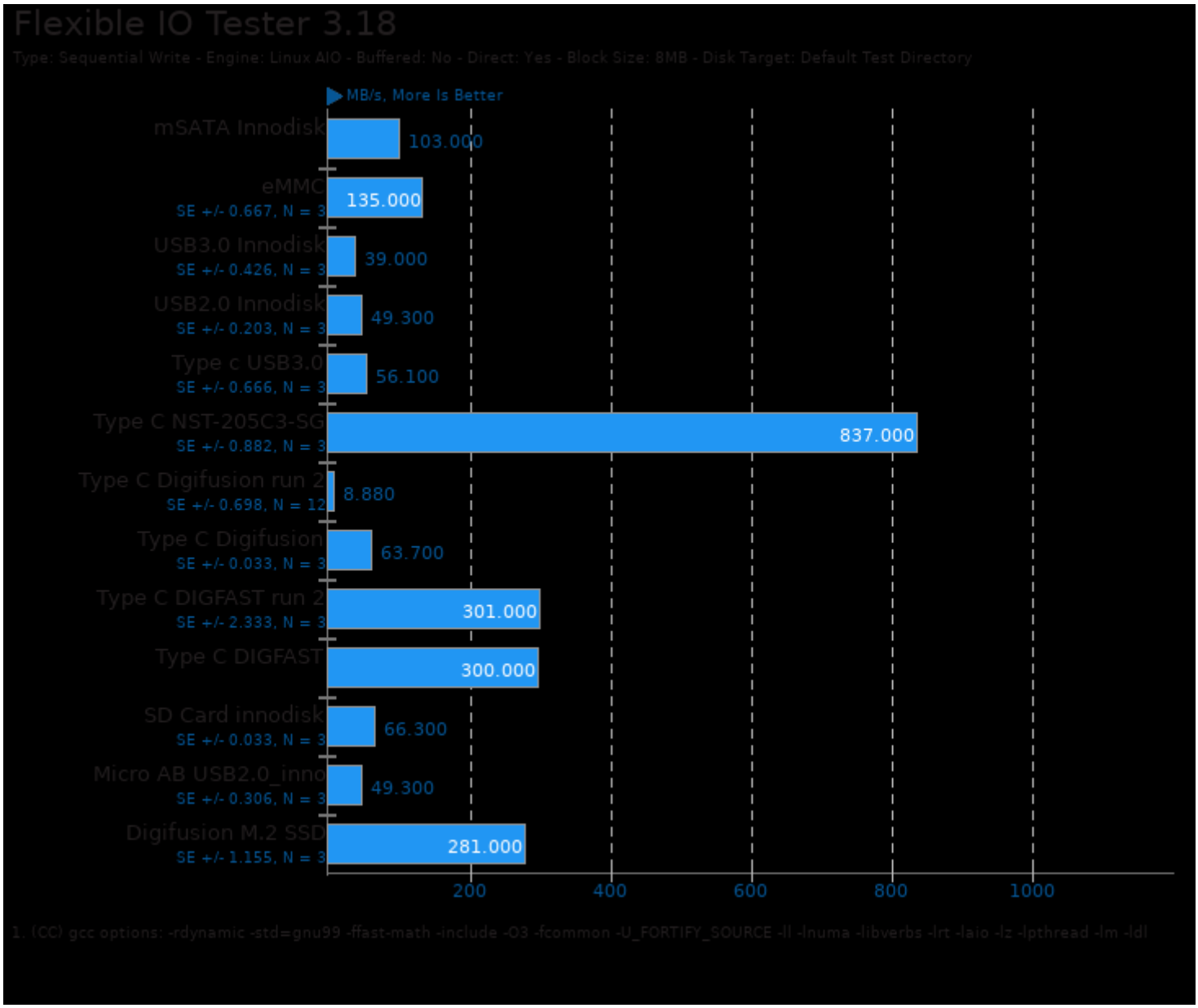

Flexible IO Tester 3.18
Type: Sequential Read - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
IOPS, More Is Better
mSATA Innodisk
SE +/- 233.33, N = 3
49733
eMMC
SE +/- 2010.92, N = 15
24340
USB3.0 Innodisk
SE +/- 88.19, N = 3
24967
USB2.0 Innodisk
SE +/- 47.70, N = 3
7242
Type c USB3.0
SE +/- 120.19, N = 3
28367
Type C NST-205C3-SG
SE +/- 375.65, N = 3
79633
Type C Digifusion run 2
SE +/- 208.17, N = 3
78100
Type C Digifusion
SE +/- 11.89, N = 3
9878
Type C DIGFAST run 2
SE +/- 230.94, N = 3
78200
Type C DIGFAST
SE +/- 317.98, N = 3
77533
SD Card innodisk
14200
Micro AB USB2.0_inno
SE +/- 16.46, N = 3
7217
Digifusion M.2 SSD
SE +/- 317.98, N = 3
85333
20K
40K
60K
80K
100K
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -ll -lnuma -libverbs -lrt -laio -lz -lpthread -lm -ldl

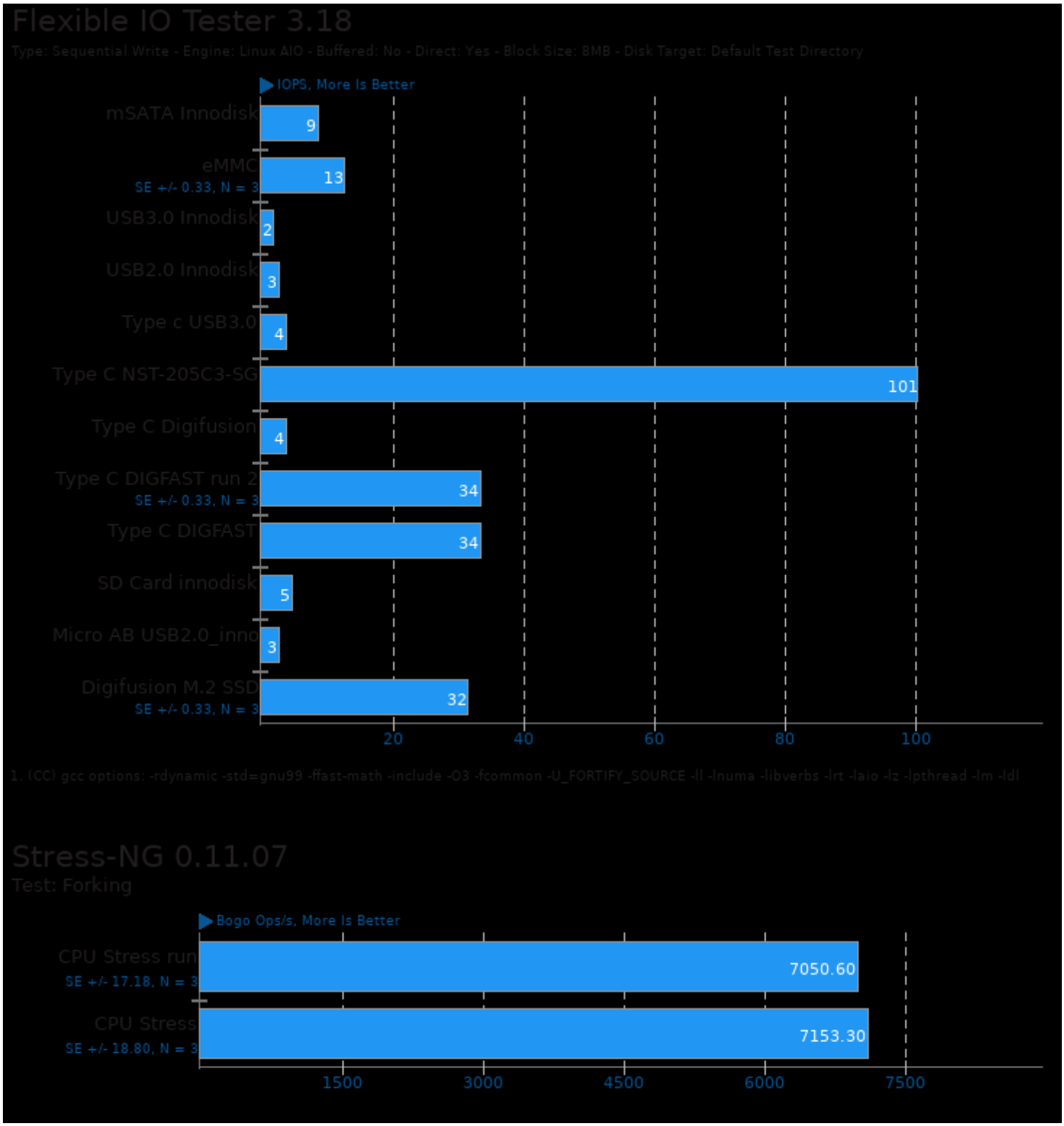

Flexible IO Tester 3.18
Type: Sequential Read - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 8MB - Disk Target: Default Test Directory
MB/s, More Is Better
mSATA Innodisk
427.0
eMMC
306.0
USB3.0 Innodisk
121.0
USB2.0 Innodisk
SE +/- 0.03, N = 3
53.3
Type c USB3.0
169.0
Type C NST-205C3-SG
SE +/- 0.33, N = 3
827.0
Type C Digifusion run 2
SE +/- 0.58, N = 3
822.0
Type C Digifusion
SE +/- 0.06, N = 3
63.3
Type C DIGFAST run 2
SE +/- 0.58, N = 3
818.0
Type C DIGFAST
SE +/- 0.33, N = 3
818.0
SD Card innodisk
102.0
Micro AB USB2.0_inno
SE +/- 0.38, N = 3
52.6
Digifusion M.2 SSD
SE +/- 7.75, N = 3
1739.0
400
800
1200
1600
2000
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -ll -lnuma -libverbs -lrt -laio -lz -lpthread -lm -ldl

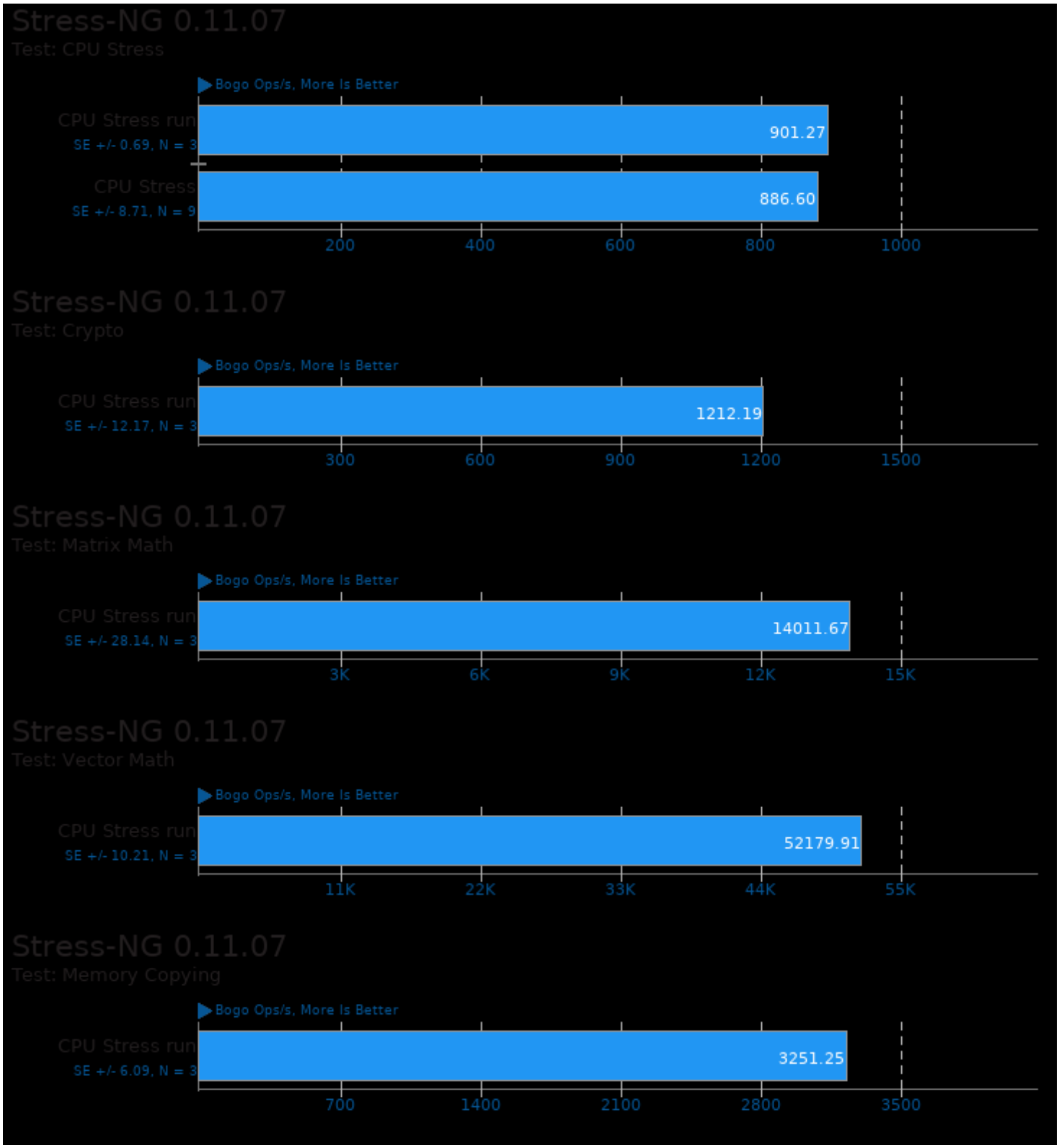

Flexible IO Tester 3.18
Type: Sequential Read - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 8MB - Disk Target: Default Test Directory
IOPS, More Is Better
mSATA Innodisk
50
eMMC
35
USB3.0 Innodisk
12
USB2.0 Innodisk
3
Type c USB3.0
18
Type C NST-205C3-SG
100
Type C Digifusion run 2
99
Type C Digifusion
4
Type C DIGFAST run 2
99
Type C DIGFAST
99
SD Card innodisk
9
Micro AB USB2.0_inno
3
Digifusion M.2 SSD
214
50
100
150
200
250
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -ll -lnuma -libverbs -lrt -laio -lz -lpthread -lm -ldl

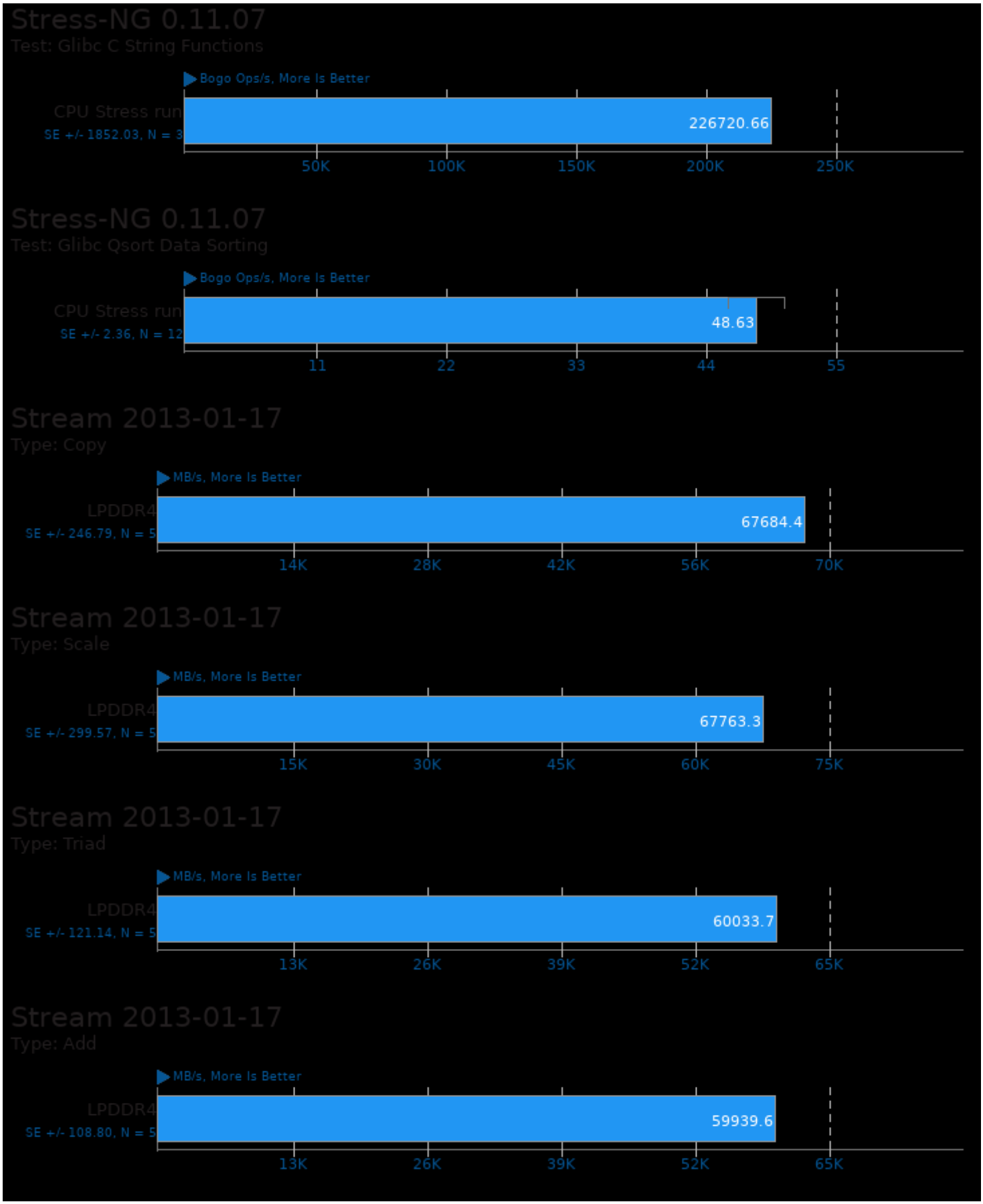

Flexible IO Tester 3.18
Type: Sequential Write - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
MB/s, More Is Better
mSATA Innodisk
SE +/- 0.058, N = 3
85.500
eMMC
SE +/- 0.088, N = 3
81.200
USB3.0 Innodisk
SE +/- 0.058, N = 3
24.700
USB2.0 Innodisk
SE +/- 0.173, N = 3
25.000
Type c USB3.0
SE +/- 0.650, N = 15
21.600
Type C NST-205C3-SG
337.000
Type C Digifusion run 2
SE +/- 0.095, N = 15
0.621
Type C Digifusion
SE +/- 0.033, N = 3
39.000
Type C DIGFAST run 2
281.000
Type C DIGFAST
280.000
SD Card innodisk
SE +/- 0.167, N = 3
21.900
Micro AB USB2.0_inno
SE +/- 0.167, N = 3
25.100
Digifusion M.2 SSD
SE +/- 3.283, N = 3
268.000
70
140
210
280
350
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -ll -lnuma -libverbs -lrt -laio -lz -lpthread -lm -ldl

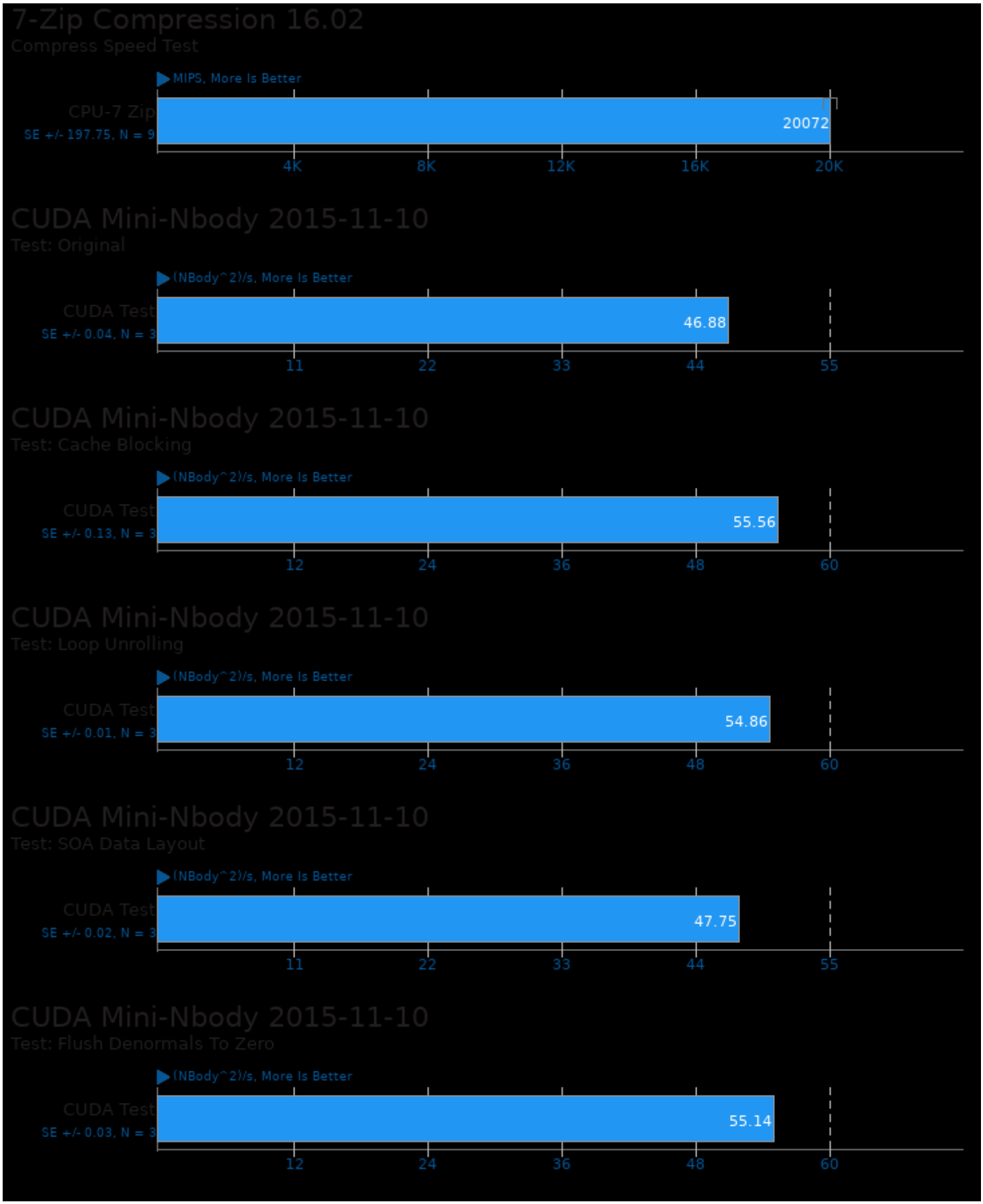

Flexible IO Tester 3.18
Type: Sequential Write - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
IOPS, More Is Better
mSATA Innodisk
SE +/- 33.33, N = 3
21867
eMMC
SE +/- 33.33, N = 3
20767
USB3.0 Innodisk
SE +/- 16.07, N = 3
6320
USB2.0 Innodisk
SE +/- 44.19, N = 3
6399
Type c USB3.0
SE +/- 161.95, N = 15
5566
Type C NST-205C3-SG
SE +/- 66.67, N = 3
86233
Type C Digifusion run 2
SE +/- 23.79, N = 15
152
Type C Digifusion
SE +/- 5.24, N = 3
9990
Type C DIGFAST run 2
SE +/- 66.67, N = 3
72067
Type C DIGFAST
SE +/- 57.74, N = 3
71700
SD Card innodisk
SE +/- 44.85, N = 3
5594
Micro AB USB2.0_inno
SE +/- 46.23, N = 3
6432
Digifusion M.2 SSD
SE +/- 1167.62, N = 3
68300
20K
40K
60K
80K
100K
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -ll -lnuma -libverbs -lrt -laio -lz -lpthread -lm -ldl

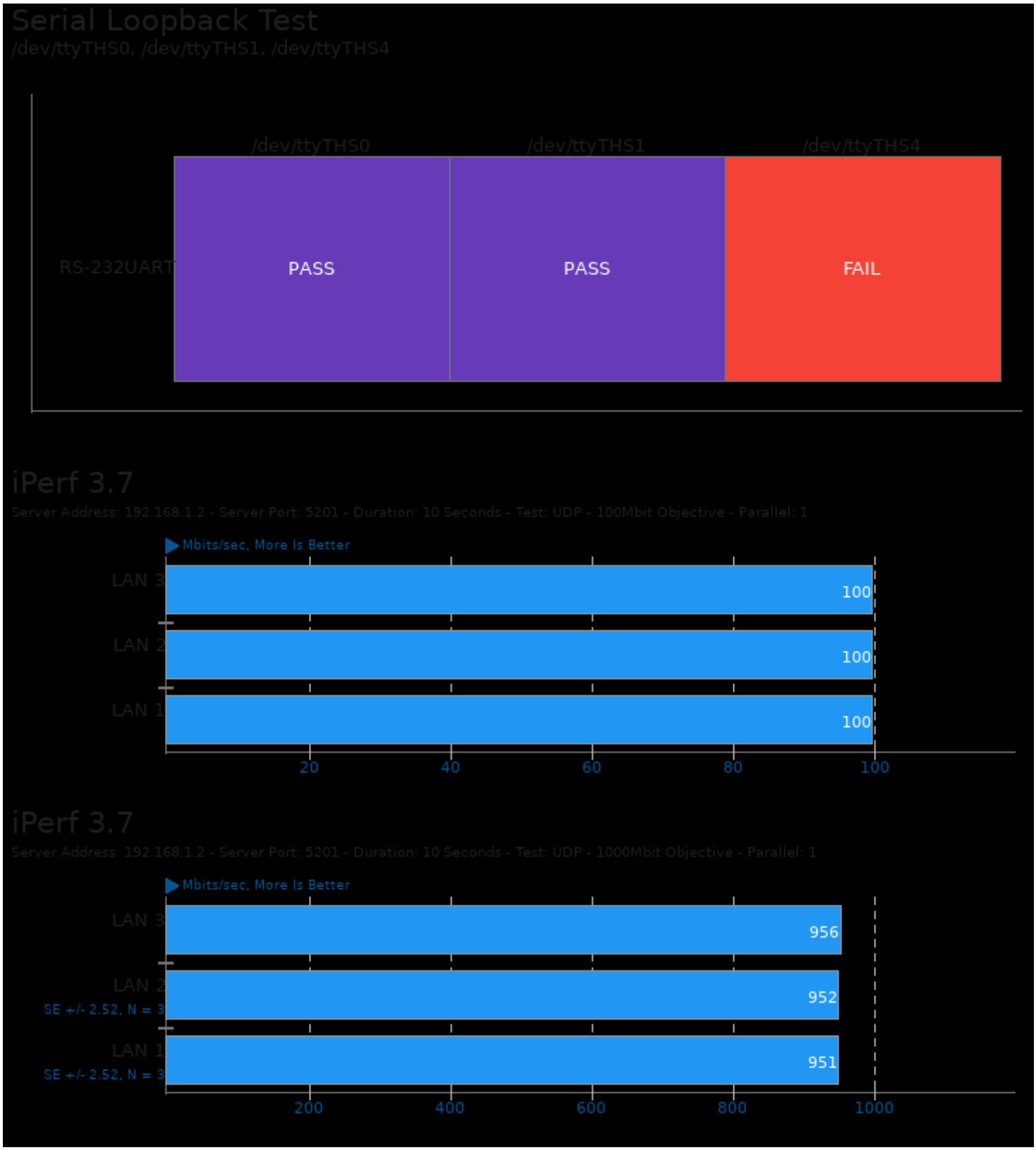

Flexible IO Tester 3.18
Type: Sequential Write - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 8MB - Disk Target: Default Test Directory
MB/s, More Is Better
mSATA Innodisk
103.000
eMMC
SE +/- 0.667, N = 3
135.000
USB3.0 Innodisk
SE +/- 0.426, N = 3
39.000
USB2.0 Innodisk
SE +/- 0.203, N = 3
49.300
Type c USB3.0
SE +/- 0.666, N = 3
56.100
Type C NST-205C3-SG
SE +/- 0.882, N = 3
837.000
Type C Digifusion run 2
SE +/- 0.698, N = 12
8.880
Type C Digifusion
SE +/- 0.033, N = 3
63.700
Type C DIGFAST run 2
SE +/- 2.333, N = 3
301.000
Type C DIGFAST
300.000
SD Card innodisk
SE +/- 0.033, N = 3
66.300
Micro AB USB2.0_inno
SE +/- 0.306, N = 3
49.300
Digifusion M.2 SSD
SE +/- 1.155, N = 3
281.000
200
400
600
800
1000
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -ll -lnuma -libverbs -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
mSATA Innodisk
9
eMMC
SE +/- 0.33, N = 3
13
USB3.0 Innodisk
2
USB2.0 Innodisk
3
Type c USB3.0
4
Type C NST-205C3-SG
101
Type C Digifusion
4
Type C DIGFAST run 2
SE +/- 0.33, N = 3
34
Type C DIGFAST
34
SD Card innodisk
5
Micro AB USB2.0_inno
3
Digifusion M.2 SSD
SE +/- 0.33, N = 3
32
20
40
60
80
100
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -ll -lnuma -libverbs -lrt -laio -lz -lpthread -lm -ldl
Stress-NG 0.11.07
Test: Forking
Bogo Ops/s, More Is Better
CPU Stress run
SE +/- 17.18, N = 3
7050.60
CPU Stress
SE +/- 18.80, N = 3
7153.30
1500
3000
4500
6000
7500


Stress-NG 0.11.07
Test: CPU Stress
Bogo Ops/s, More Is Better
CPU Stress run
SE +/- 0.69, N = 3
901.27
CPU Stress
SE +/- 8.71, N = 9
886.60
200
400
600
800
1000
Stress-NG 0.11.07
Test: Crypto
Bogo Ops/s, More Is Better
CPU Stress run
SE +/- 12.17, N = 3
1212.19
300
600
900
1200
1500
Stress-NG 0.11.07
Test: Matrix Math
Bogo Ops/s, More Is Better
CPU Stress run
SE +/- 28.14, N = 3
14011.67
3K
6K
9K
12K
15K
Stress-NG 0.11.07
Test: Vector Math
Bogo Ops/s, More Is Better
CPU Stress run
SE +/- 10.21, N = 3
52179.91
11K
22K
33K
44K
55K
Stress-NG 0.11.07
Test: Memory Copying
Bogo Ops/s, More Is Better
CPU Stress run
SE +/- 6.09, N = 3
3251.25
700
1400
2100
2800
3500


Stress-NG 0.11.07
Test: Glibc C String Functions
Bogo Ops/s, More Is Better
CPU Stress run
SE +/- 1852.03, N = 3
226720.66
50K
100K
150K
200K
250K
Stress-NG 0.11.07
Test: Glibc Qsort Data Sorting
Bogo Ops/s, More Is Better
CPU Stress run
SE +/- 2.36, N = 12
48.63
11
22
33
44
55
Stream 2013-01-17
Type: Copy
MB/s, More Is Better
LPDDR4
SE +/- 246.79, N = 5
67684.4
14K
28K
42K
56K
70K
Stream 2013-01-17
Type: Scale
MB/s, More Is Better
LPDDR4
SE +/- 299.57, N = 5
67763.3
15K
30K
45K
60K
75K
Stream 2013-01-17
Type: Triad
MB/s, More Is Better
LPDDR4
SE +/- 121.14, N = 5
60033.7
13K
26K
39K
52K
65K
Stream 2013-01-17
Type: Add
MB/s, More Is Better
LPDDR4
SE +/- 108.80, N = 5
59939.6
13K
26K
39K
52K
65K


7-Zip Compression 16.02
Compress Speed Test
MIPS, More Is Better
CPU-7 Zip
SE +/- 197.75, N = 9
20072
4K
8K
12K
16K
20K
CUDA Mini-Nbody 2015-11-10
Test: Original
(NBody^2)/s, More Is Better
CUDA Test
SE +/- 0.04, N = 3
46.88
11
22
33
44
55
CUDA Mini-Nbody 2015-11-10
Test: Cache Blocking
(NBody^2)/s, More Is Better
CUDA Test
SE +/- 0.13, N = 3
55.56
12
24
36
48
60
CUDA Mini-Nbody 2015-11-10
Test: Loop Unrolling
(NBody^2)/s, More Is Better
CUDA Test
SE +/- 0.01, N = 3
54.86
12
24
36
48
60
CUDA Mini-Nbody 2015-11-10
Test: SOA Data Layout
(NBody^2)/s, More Is Better
CUDA Test
SE +/- 0.02, N = 3
47.75
11
22
33
44
55
CUDA Mini-Nbody 2015-11-10
Test: Flush Denormals To Zero
(NBody^2)/s, More Is Better
CUDA Test
SE +/- 0.03, N = 3
55.14
12
24
36
48
60



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