www.phoronix-test-suite.com

R32_4_4_Xavier-NX_AN110_Camera_IMX290_Dual_1

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

Test Systems:

eMMC

Processor: ARMv8 rev 0 @ 1.42GHz (6 Cores), Motherboard: NVIDIA Jetson Xavier NX Developer Kit, Memory: 8GB, Disk: 16GB Storage Media + 16GB DG4016, Graphics: NVIDIA TEGRA, Monitor: Acer KG241Q

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: 1.2.131, Compiler: GCC 7.5.0 + CUDA 10.2, 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

eMMC_W

Processor: ARMv8 rev 0 @ 1.42GHz (6 Cores), Motherboard: NVIDIA Jetson Xavier NX Developer Kit, Memory: 8GB, Disk: 16GB Storage Media + 16GB DG4016, Graphics: NVIDIA TEGRA, Monitor: Acer KG241Q

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, OpenGL: 4.6.0, Vulkan: 1.2.131, Compiler: GCC 7.5.0 + CUDA 10.2, 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
Disk Mount Options Notes: data=ordered,relatime,rw

usb3.0

usb3.0_w

usb2.0

Processor: ARMv8 rev 0 @ 1.42GHz (6 Cores), Motherboard: NVIDIA Jetson Xavier NX Developer Kit, Memory: 8GB, Disk: 16GB Storage Media + 16GB DG4016, Graphics: NVIDIA TEGRA, Monitor: Acer KG241Q

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, OpenGL: 4.6.0, Vulkan: 1.2.131, Compiler: GCC 7.5.0, 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

sd

sd_w

Memory

cpu

Processor: ARMv8 rev 0 @ 1.42GHz (6 Cores), Motherboard: NVIDIA Jetson Xavier NX Developer Kit, Memory: 8GB, Disk: 16GB DG4016 + 31GB SD32G, Graphics: NVIDIA Tegra Xavier, Monitor: Acer KG241Q

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 32.4.4, OpenGL: 4.6.0, Vulkan: 1.2.131, Compiler: GCC 7.5.0, 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

RS232_UART

Processor: ARMv8 rev 0 @ 1.42GHz (6 Cores), Motherboard: NVIDIA Jetson Xavier NX Developer Kit, Memory: 8GB, Disk: 16GB DG4016, Graphics: NVIDIA Tegra Xavier, Monitor: Acer KG241Q

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 32.4.4, OpenGL: 4.6.0, Vulkan: 1.2.131, Compiler: GCC 7.5.0, File-System: ext4, Screen Resolution: 1920x1080

Processor Notes: Scaling Governor: tegra_cpufreq schedutil

gpu

Lan

Processor: ARMv8 rev 0 @ 1.42GHz (6 Cores), Motherboard: NVIDIA Jetson Xavier NX Developer Kit, Memory: 8GB, Disk: 16GB DG4016, Graphics: NVIDIA Tegra Xavier, Monitor: LG Ultra HD

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 32.4.4, OpenGL: 4.6.0, Vulkan: 1.2.131, Compiler: GCC 7.5.0, File-System: ext4, Screen Resolution: 3840x2160

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

Wlan

Processor: ARMv8 rev 0 @ 1.42GHz (6 Cores), Motherboard: NVIDIA Jetson Xavier NX Developer Kit, Memory: 8GB, Disk: 16GB DG4016, Graphics: NVIDIA Tegra Xavier, Monitor: ASUS VN248, Network: Intel 8265 / 8275

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 32.4.4, OpenGL: 4.6.0, Vulkan: 1.2.131, Compiler: GCC 7.5.0, 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	eMMC_W	usb3.0	usb3.0_w	usb2.0	sd	sd_w	Memory	cpu	RS232_UART	gpu	Lan	Wlan

R32_4_4_Xavier-NX_AN110_Camera_IMX290_Dual_1

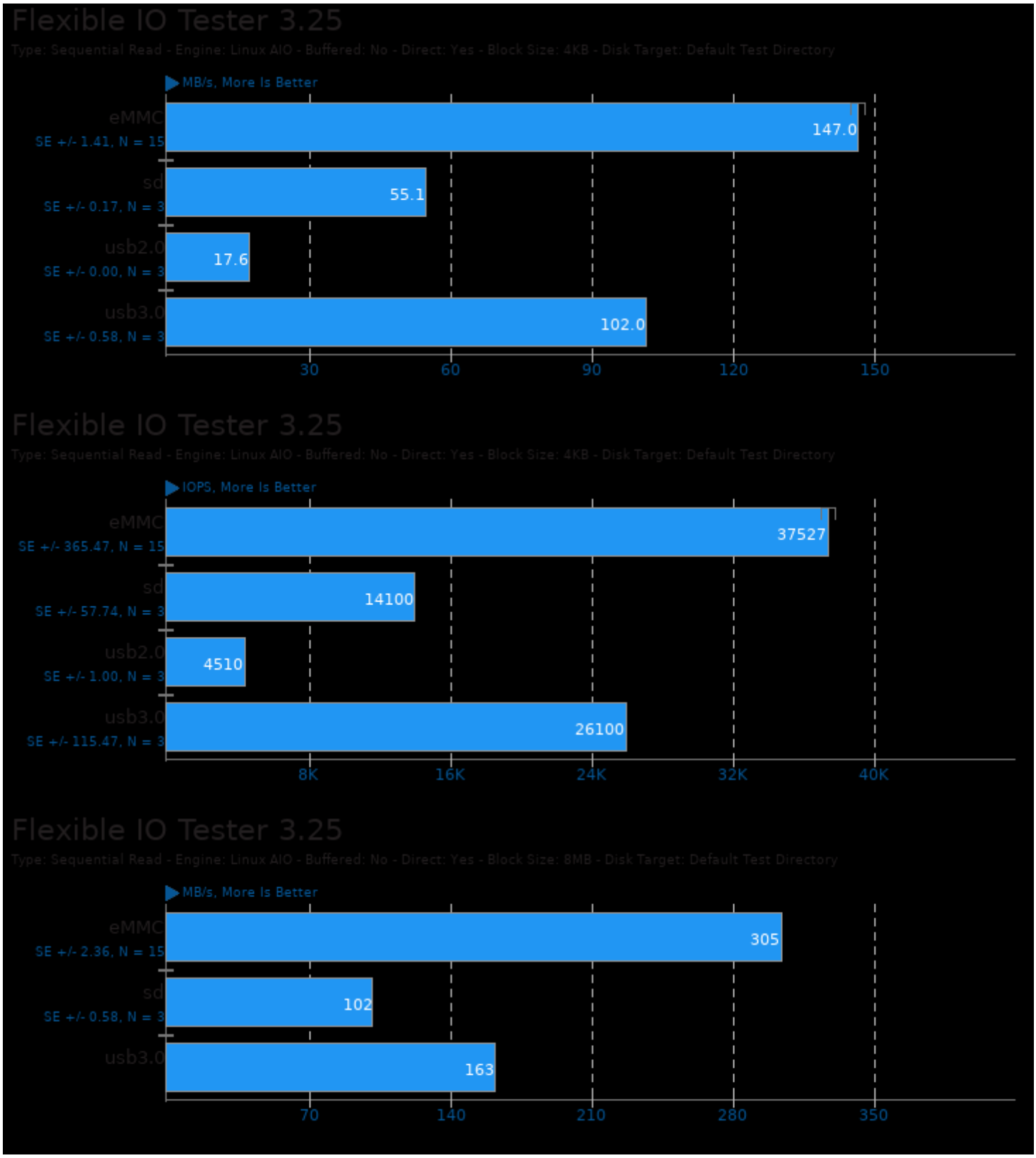
Flexible IO Tester - Seq Read - Linux AIO - No - Yes - 4KB (MB/s)	**147**	102	**17.6**	55.1
Normalized	100%	69.39%	11.97%	37.48%
Standard Deviation	3.7%	1%	0%	0.5%
Flexible IO Tester - Seq Read - Linux AIO - No - Yes - 4KB (IOPS)	**37527**	26100	**4510**	14100
Normalized	100%	69.55%	12.02%	37.57%
Standard Deviation	3.8%	0.8%	0%	0.7%
Flexible IO Tester - Seq Read - Linux AIO - No - Yes - 8MB (MB/s)	**305**	163		**102**
Normalized	100%	53.44%		33.44%
Standard Deviation	3%			1%
Flexible IO Tester - Seq Read - Linux AIO - No - Yes - 8MB (IOPS)	**35**	17		**9**
Normalized	100%	48.57%		25.71%
Standard Deviation	4.4%			

Flexible IO Tester - Seq Write - Linux AIO - No - Yes - 4KB (MB/s)	**69.9**	18.8		**14.9**
Normalized	100%	26.9%		21.32%
Standard Deviation	6.5%	36.6%		2.3%
Flexible IO Tester - Seq Write - Linux AIO - No - Yes - 4KB (IOPS)	**17860**	4855		**3812**
Normalized	100%	27.18%		21.34%
Standard Deviation	6.6%	36.3%		2.6%

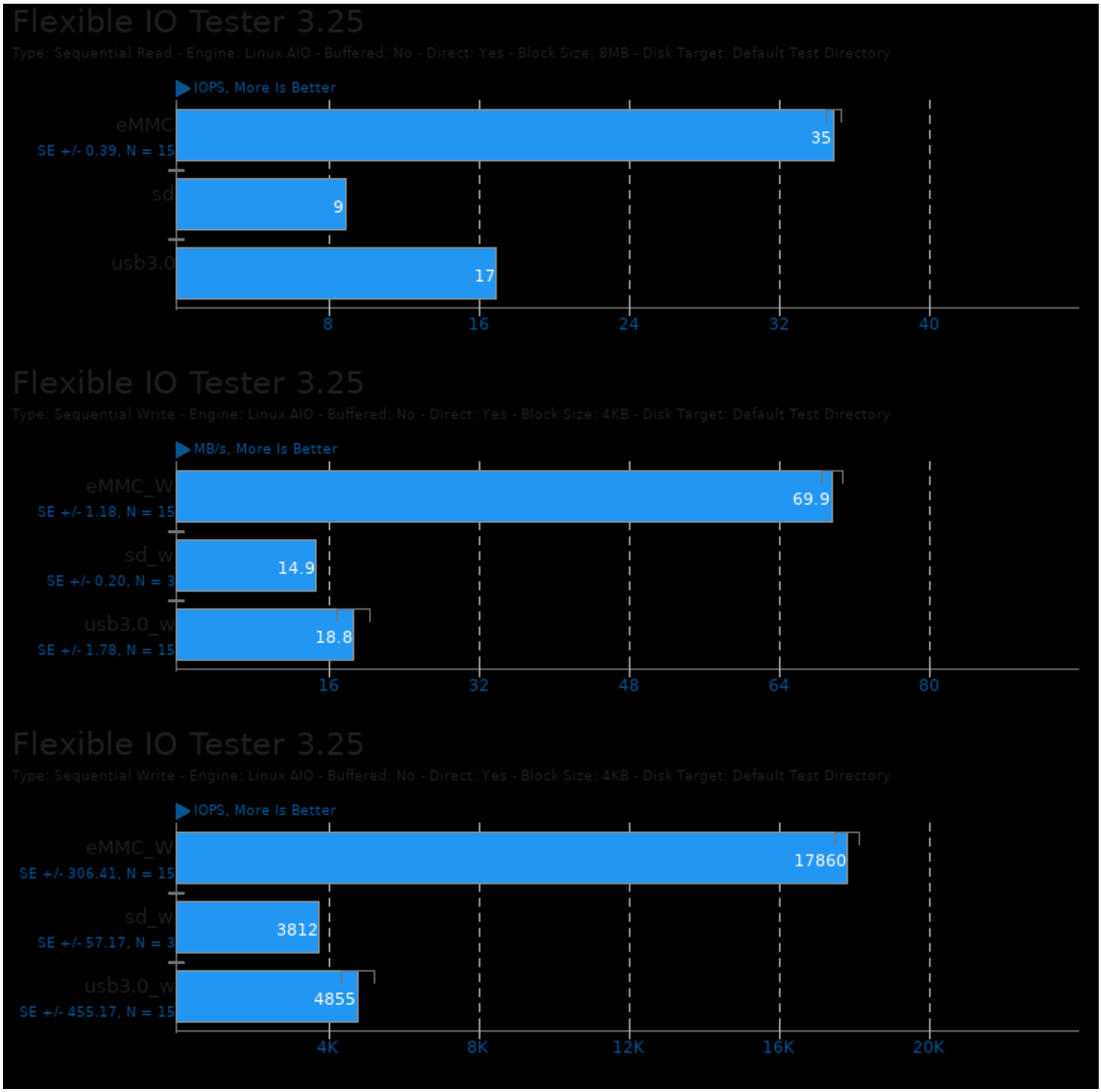
R32_4_4_Xavier-NX_AN110_Camera_IMX290_Dual_1

Flexible IO Tester - Seq Write - Linux AIO - No - Yes - 8MB (MB/s)	**92.9**	**33.9**	57.6			
Normalized	100%	36.49%	62%			
Standard Deviation	4.7%	1.7%	1.5%			
Flexible IO Tester - Seq Write - Linux AIO - No - Yes - 8MB (IOPS)	**8**	**1**	4			
Normalized	100%	12.5%	50%			
Standard Deviation	7.9%	43.3%				
Stream - Copy (MB/s)				29759		
Standard Deviation				1.1%		
Stream - Scale (MB/s)				29456		
Standard Deviation				2.4%		
Stream - Triad (MB/s)				28934		
Standard Deviation				1.1%		
Stream - Add (MB/s)				28591		
Standard Deviation				1.3%		
Stress-NG - Crypto (Bogo Ops/s)					596.84	
Standard Deviation					1.5%	
Stress-NG - Forking (Bogo Ops/s)					4092	
Standard Deviation					1.2%	
Stress-NG - CPU Stress (Bogo Ops/s)					463.57	
Standard Deviation					3.6%	
Stress-NG - Matrix Math (Bogo Ops/s)					6698	
Standard Deviation					0.6%	
Stress-NG - Vector Math (Bogo Ops/s)					25479	
Standard Deviation					0.3%	

Stress-NG - Memory Copying (Bogo	1841			
Standard Deviation	0.2%			
Stress-NG - G.C.S.F (Bogo Ops/s)	120311			
Standard Deviation	3.9%			
Stress-NG - G.Q.D.S (Bogo Ops/s)	28.35			
Standard Deviation	10.9%			
GLmark2 - 800 x 600 (Score)		4359		
GLmark2 - 1024 x 768 (Score)		3318		
GLmark2 - 1280 x 1024 (Score)		2320		
GLmark2 - 1600 x 1200 (Score)		1813		
GLmark2 - 1920 x 1080 (Score)		1787		
GLmark2 - 1920 x 1200 (Score)		1634		
GLmark2 - 2560 x 1440 (Score)		1137		
GLmark2 - 3840 x 2160 (Score)		551		
iPerf - 192.168.1.2 - 5201 - 10 Seconds - UDP - 100Mbit Objective - 1 (Mbits/s)			100	100
iPerf - 192.168.1.2 - 5201 - 10 Seconds - UDP - 1000Mbit Objective - 1 (Mbits/s)			**941**	**127**
Normalized			100%	13.5%
Standard Deviation			0.3%	6.5%

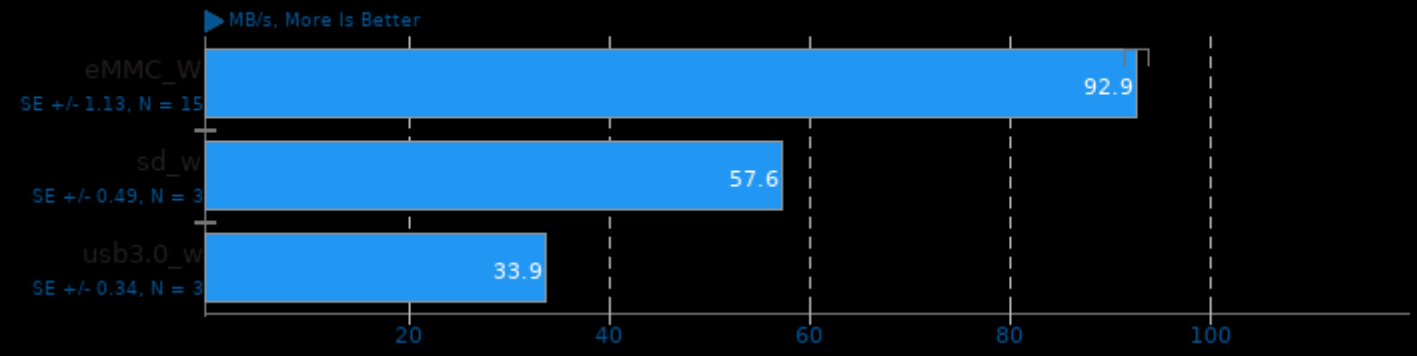

Flexible IO Tester 3.25
Type: Sequential Read - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
MB/s, More Is Better
eMMC
SE +/- 1.41, N = 15
147.0
sd
SE +/- 0.17, N = 3
55.1
usb2.0
SE +/- 0.00, N = 3
17.6
usb3.0
SE +/- 0.58, N = 3
102.0
30
60
90
120
150
Flexible IO Tester 3.25
Type: Sequential Read - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
IOPS, More Is Better
eMMC
SE +/- 365.47, N = 15
37527
sd
SE +/- 57.74, N = 3
14100
usb2.0
SE +/- 1.00, N = 3
4510
usb3.0
SE +/- 115.47, N = 3
26100
8K
16K
24K
32K
40K
Flexible IO Tester 3.25
Type: Sequential Read - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 8MB - Disk Target: Default Test Directory
MB/s, More Is Better
eMMC
SE +/- 2.36, N = 15
305
sd
SE +/- 0.58, N = 3
102
usb3.0
163
70
140
210
280
350

R32_4_4_Xavier-NX_AN110_Camera_IMX290_Dual_1



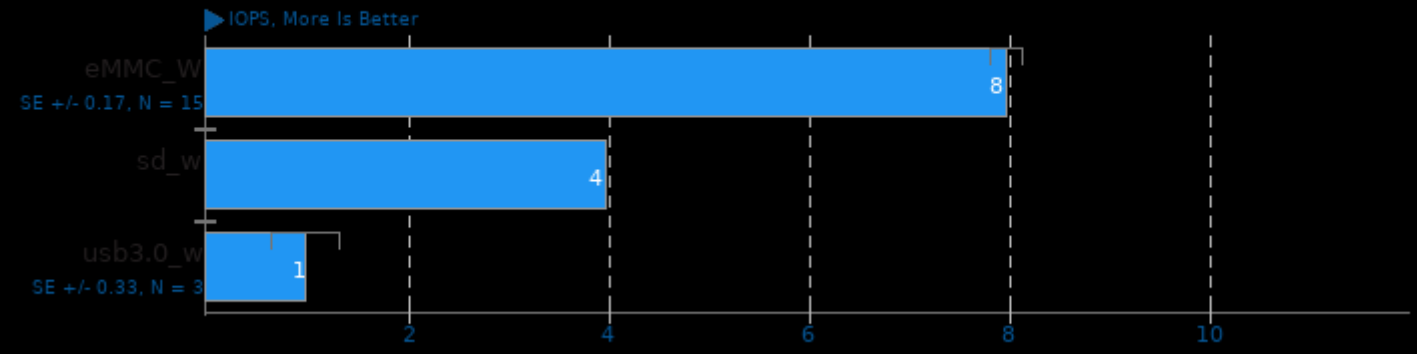
Flexible IO Tester 3.25

Type: Sequential Write - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 8MB - Disk Target: Default Test Directory



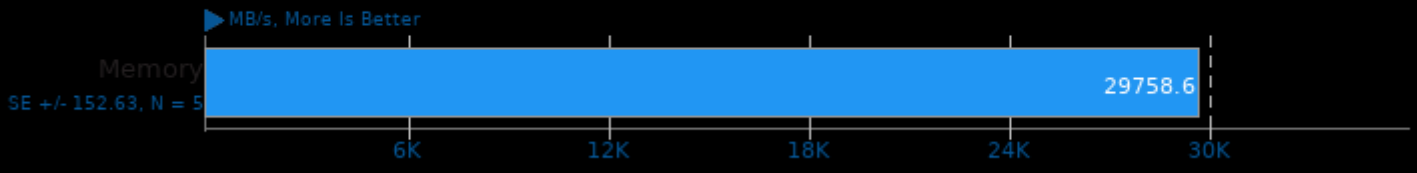
Flexible IO Tester 3.25

Type: Sequential Write - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 8MB - Disk Target: Default Test Directory



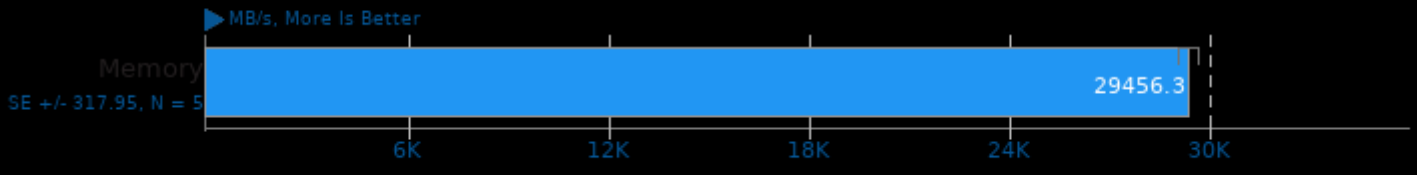
Stream 2013-01-17

Type: Copy



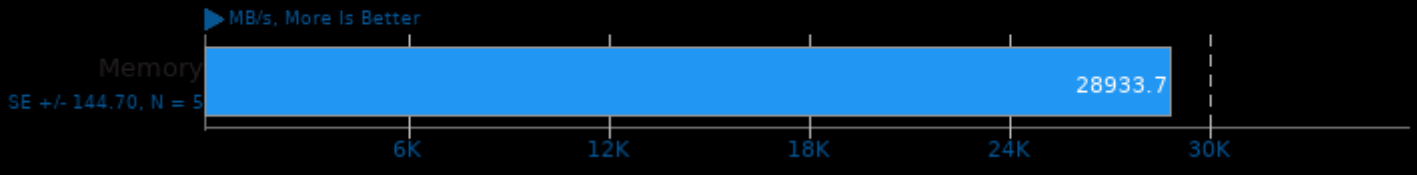
Stream 2013-01-17

Type: Scale

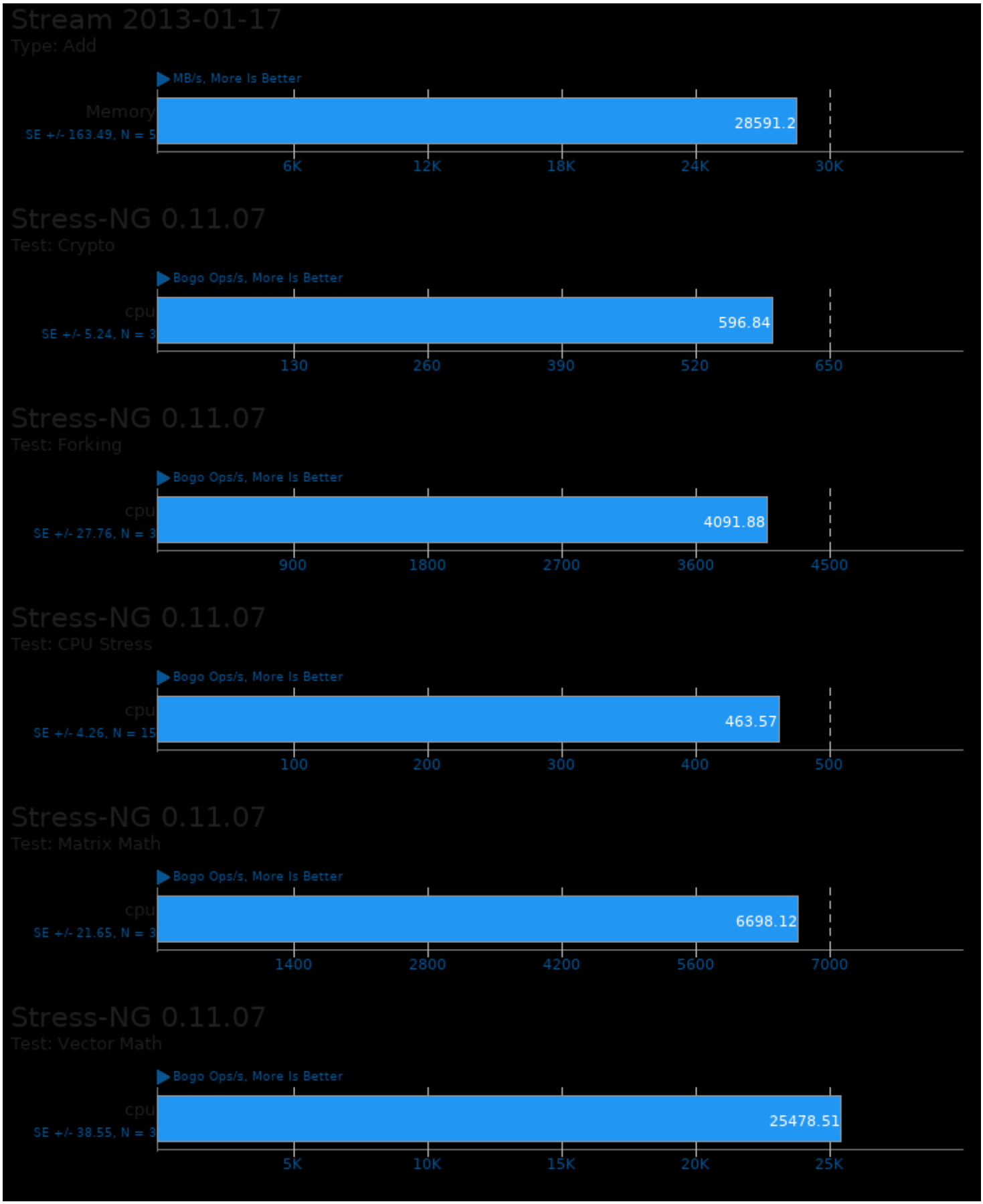


Stream 2013-01-17

Type: Triad



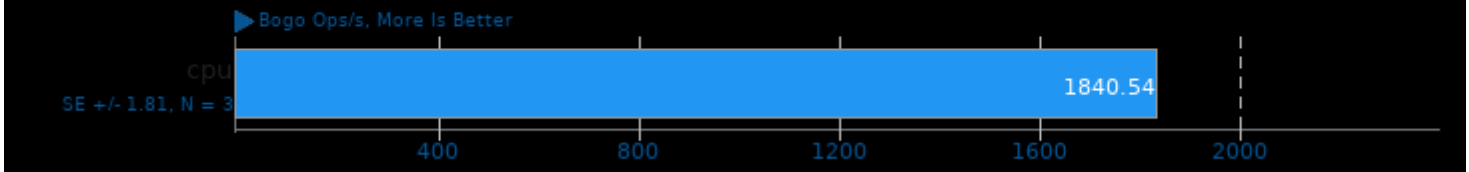
R32_4_4_Xavier-NX_AN110_Camera_IMX290_Dual_1



R32_4_4_Xavier-NX_AN110_Camera_IMX290_Dual_1

Stress-NG 0.11.07

Test: Memory Copying



Stress-NG 0.11.07

Test: Glibc C String Functions

Stress-NG 0.11.07

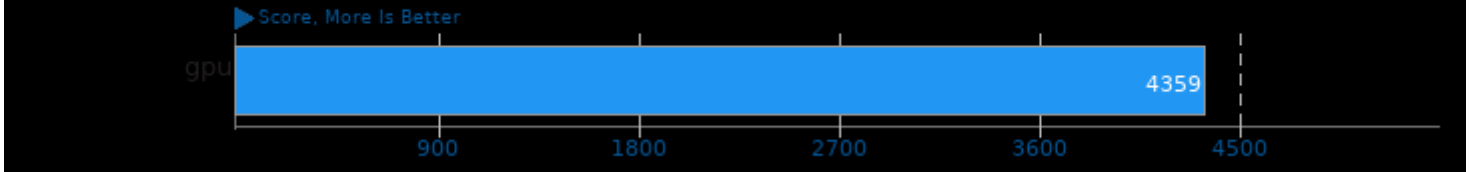
Test: Glibc Qsort Data Sorting

Serial Loopback Test

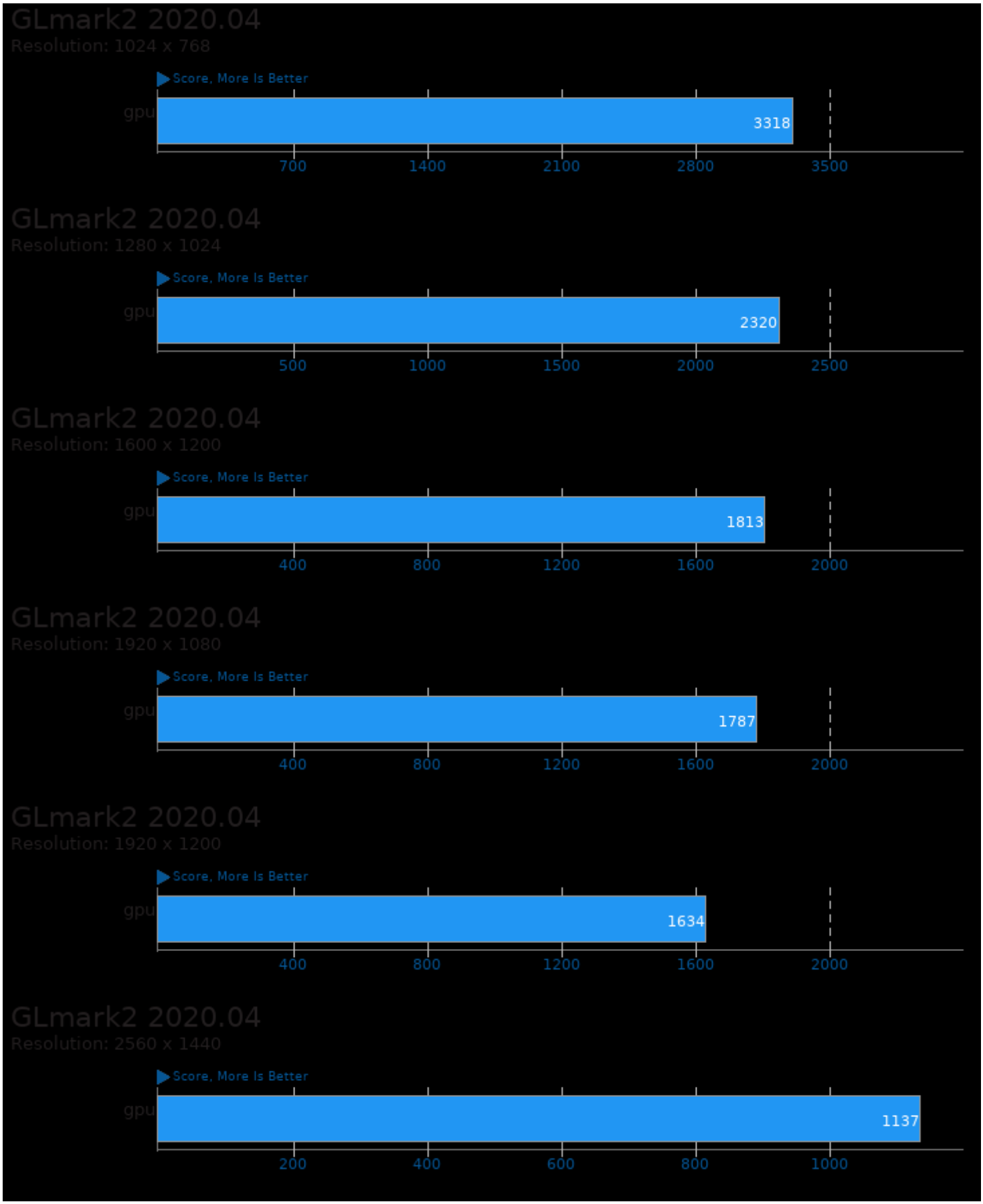
/dev/ttyTHS0, /dev/ttyTHS1, /dev/ttyTHS4

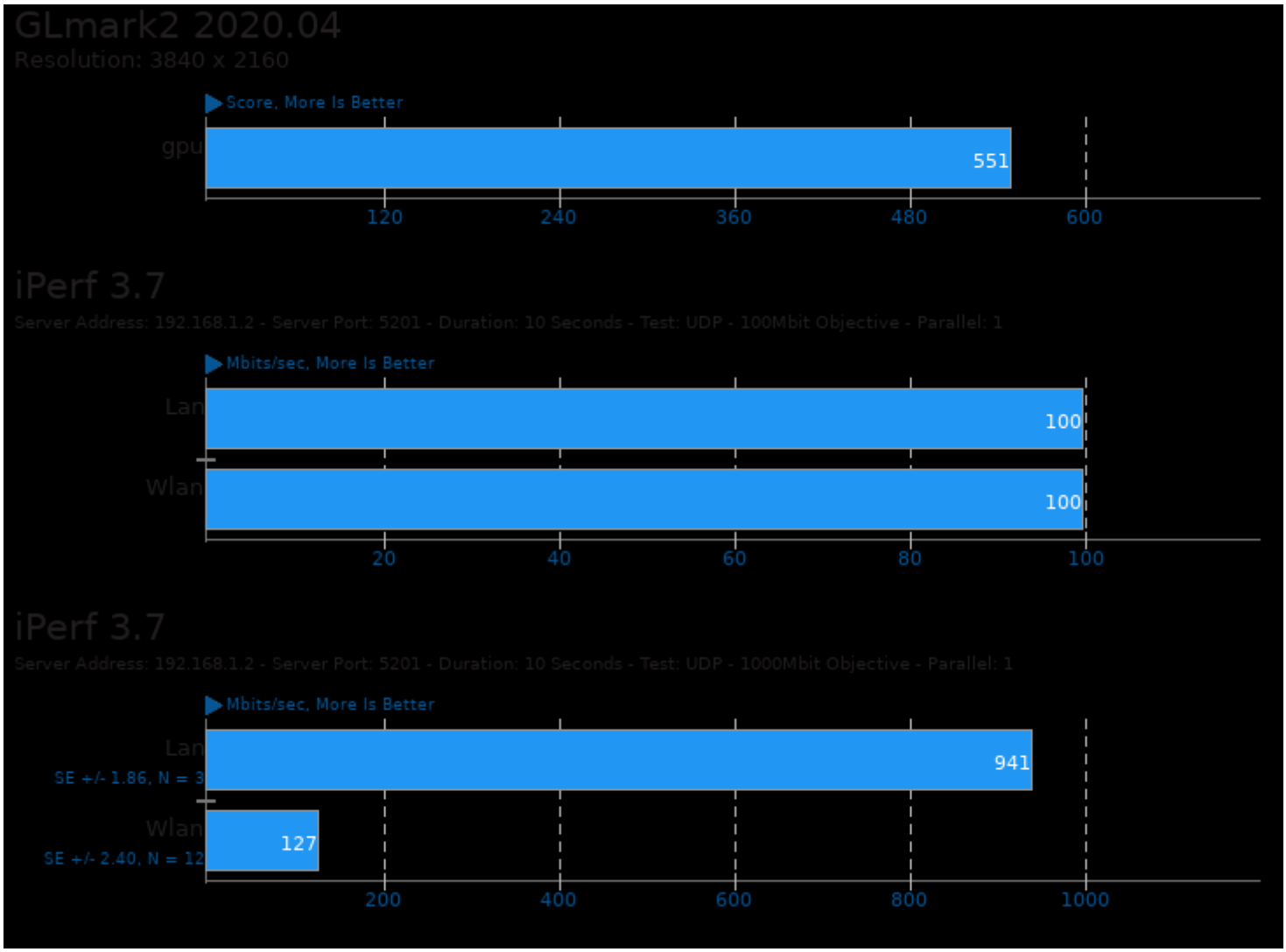
GLmark2 2020.04

Resolution: 800 x 600



R32_4_4_Xavier-NX_AN110_Camera_IMX290_Dual_1





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