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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

	eMMC	eMMC_W	usb3.0	usb3.0_w	usb2.0	sd	sd_w	Memory	cpu	RS232_UART
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%			

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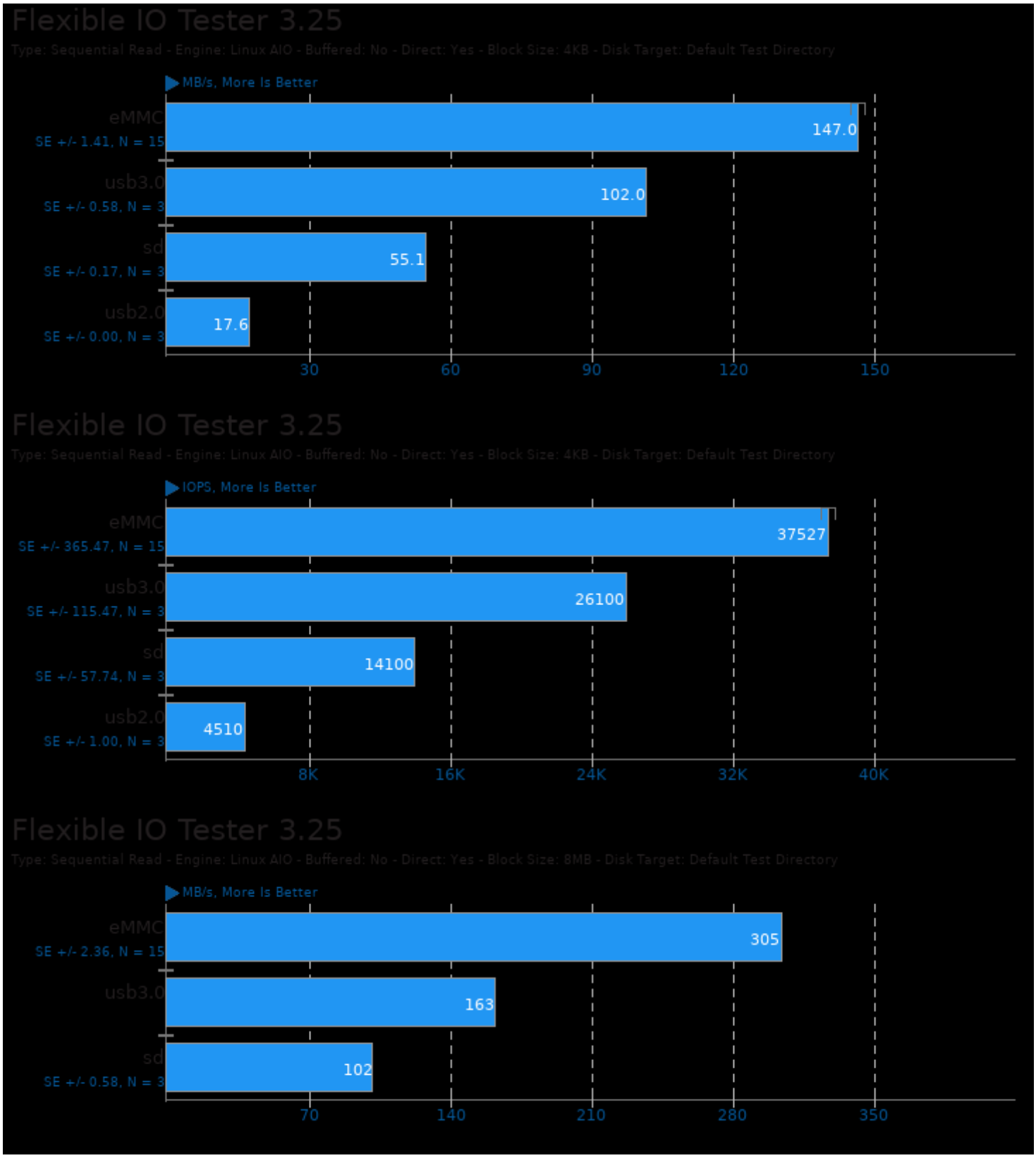
Flexible IO Tester - Seq Write - Linux AIO - No - Yes - 4KB (IOPS)	**17860**	4855	**3812**		
Normalized	100%	27.18%	21.34%		
Standard Deviation	6.6%	36.3%	2.6%		
Flexible IO Tester - Seq Write - Linux AIO - No - Yes - 8MB (MB/s)	**92.9**	**33.9**	57.6		
Normalized	100%	36.49%	62%		
Standard Deviation	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				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					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 Ops/s)					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	28.35
Standard Deviation	10.9%


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
usb3.0
SE +/- 0.58, N = 3
102.0
sd
SE +/- 0.17, N = 3
55.1
usb2.0
SE +/- 0.00, N = 3
17.6
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
usb3.0
SE +/- 115.47, N = 3
26100
sd
SE +/- 57.74, N = 3
14100
usb2.0
SE +/- 1.00, N = 3
4510
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
usb3.0
163
sd
SE +/- 0.58, N = 3
102
70
140
210
280
350

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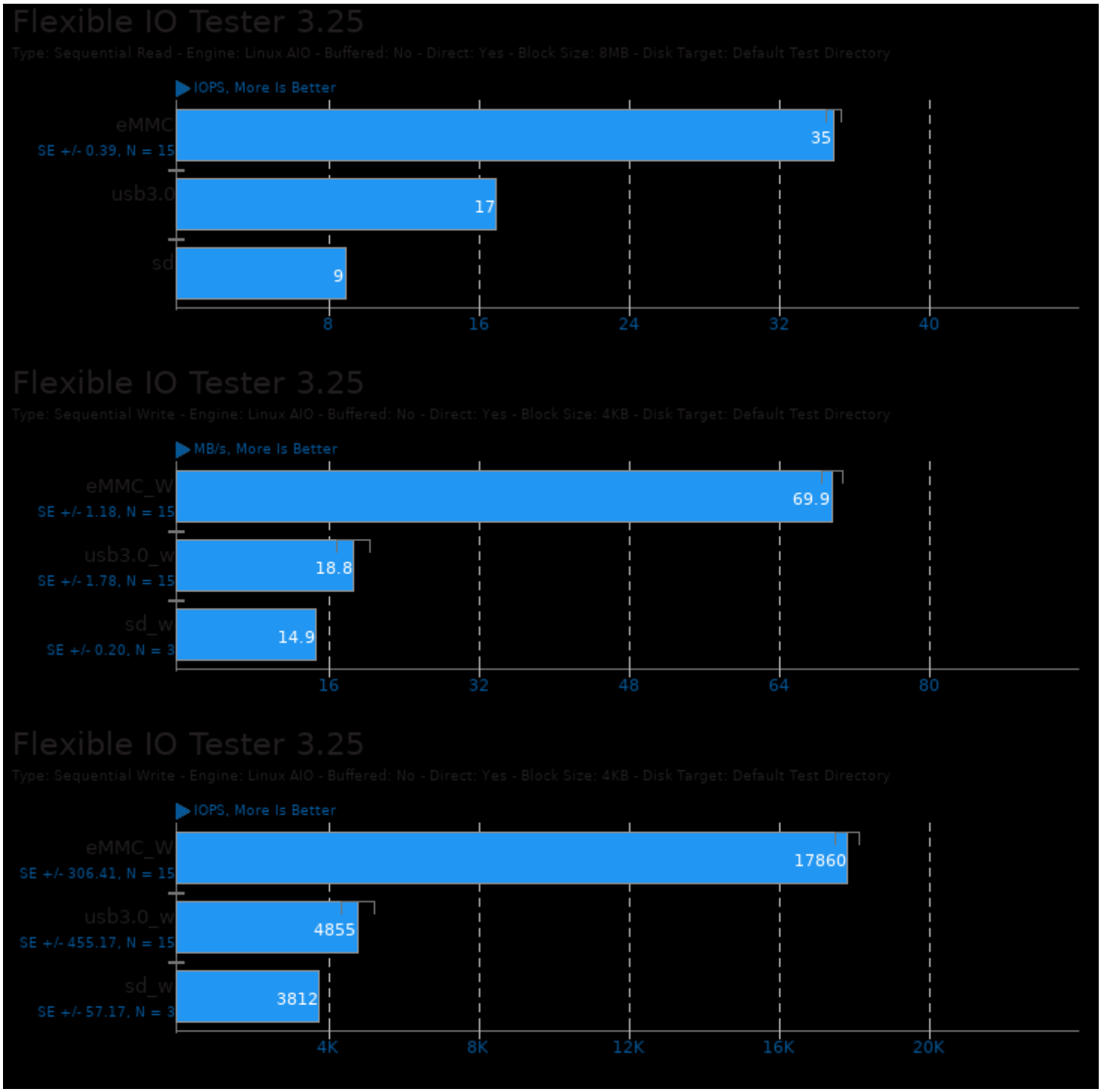
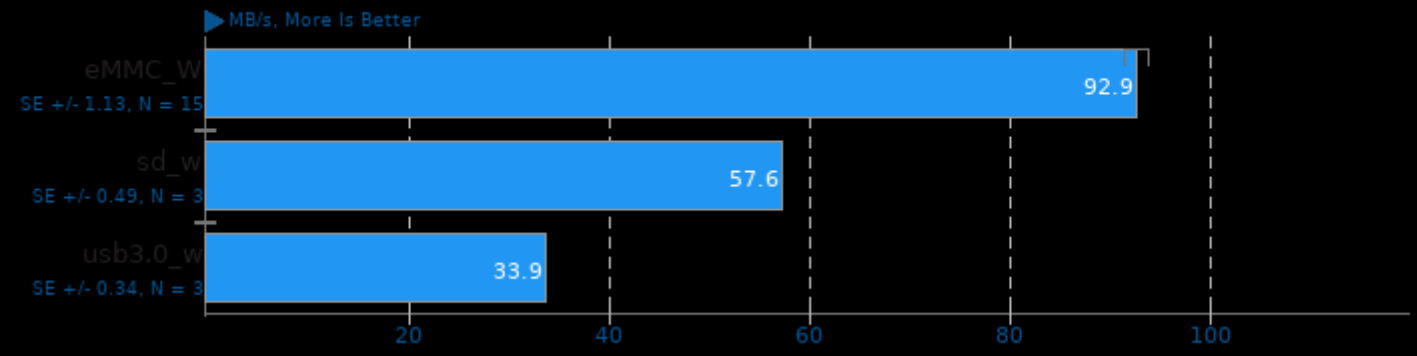


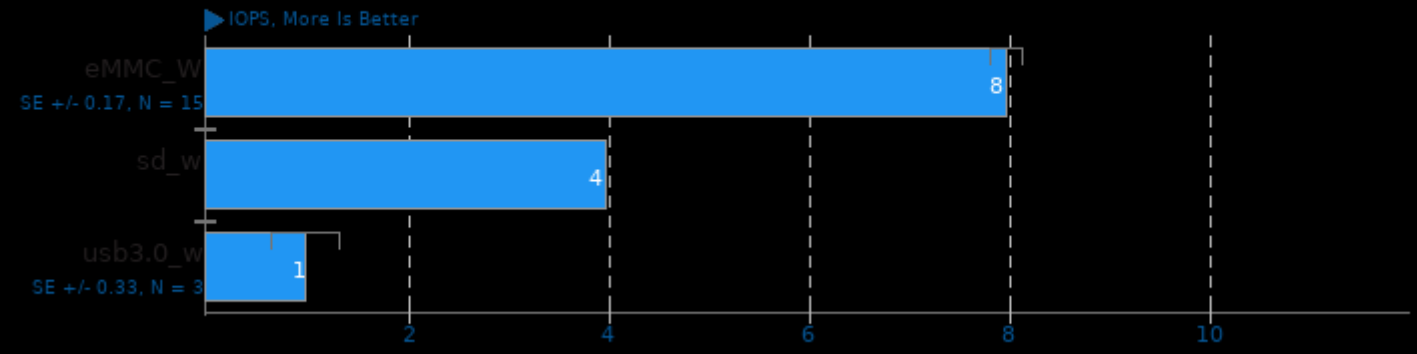
Flexible IO Tester 3.25

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



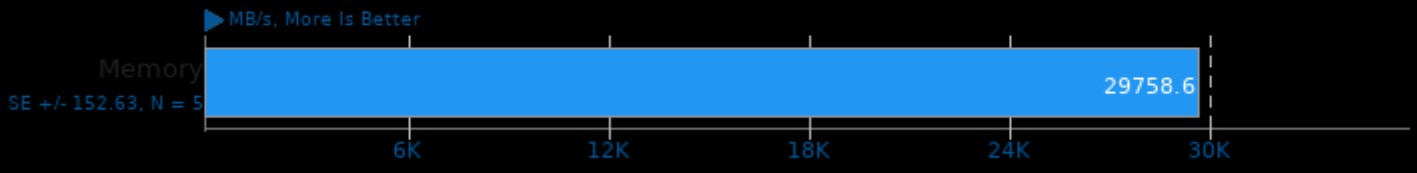
Flexible IO Tester 3.25

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



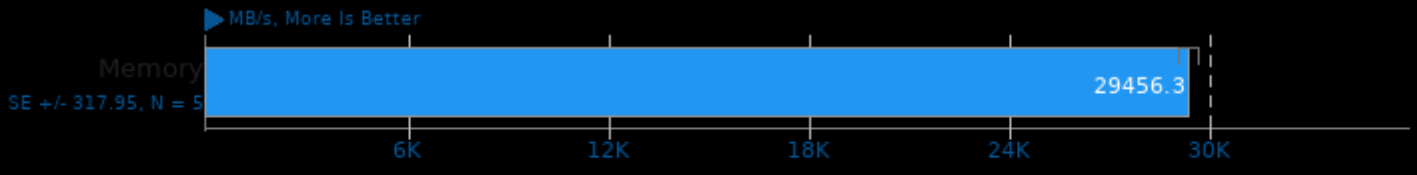
Stream 2013-01-17

Type: Copy



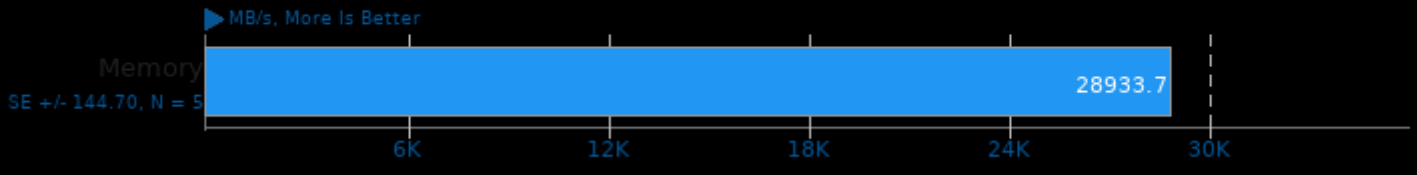
Stream 2013-01-17

Type: Scale



Stream 2013-01-17

Type: Triad



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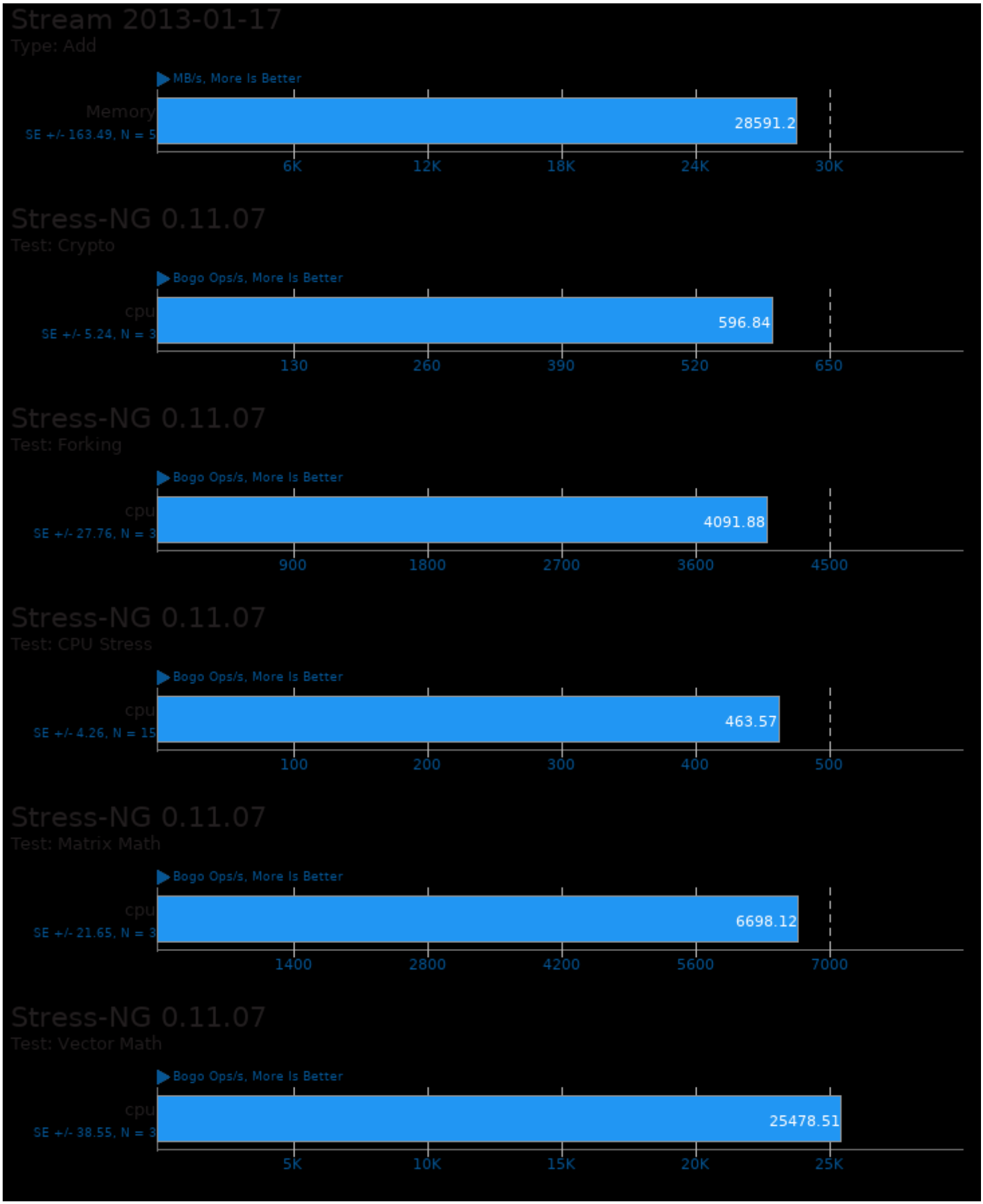

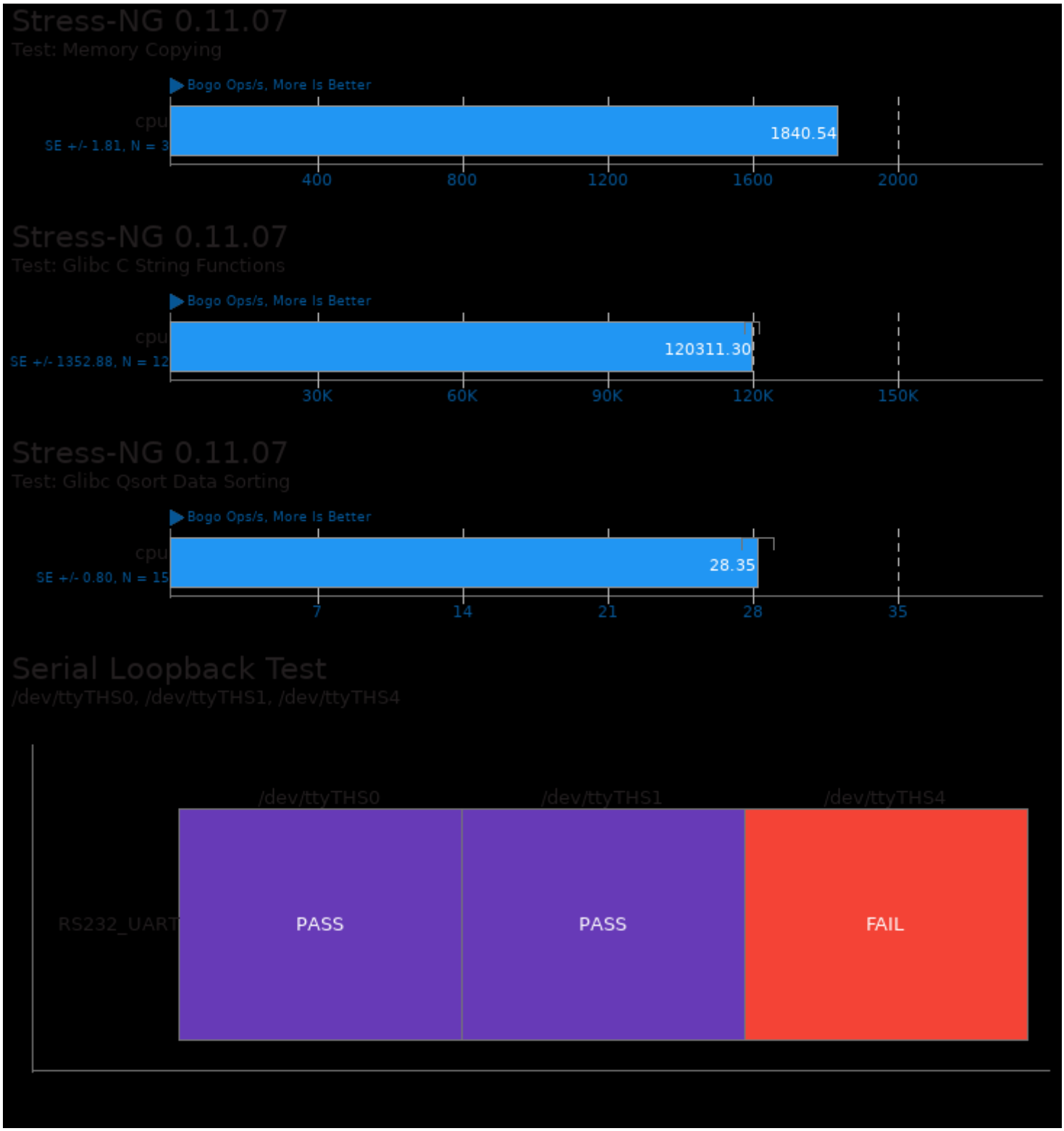

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