

www.phoronix-test-suite.com

video-encoding-servers

AMD Ryzen 7 PRO 4750G testing with a ASRock X570 Phantom Gaming-ITX/TB3 (P2.80 BIOS) and AMD Renoir on Ubuntu 20.04 via the Phoronix Test Suite.

Automated Executive Summary

2 x EPYC 7742 had the most wins, coming in first place for 80% of the tests.

Based on the geometric mean of all complete results, the fastest (2 x EPYC 7742) was 2.464x the speed of the slowest (20210619-r7-01-ondemand). 2 x Xeon Platinum 8280 was 0.767x the speed of 2 x EPYC 7742, 2 x EPYC 7601 was 0.709x the speed of 2 x Xeon Platinum 8280, 20210619-r7-01-ondemand was 0.746x the speed of 2 x EPYC 7601.

Test Systems:

2 x Xeon Platinum 8280

Processor: 2 x Intel Xeon Platinum 8280 @ 4.00GHz (56 Cores / 112 Threads), Motherboard: GIGABYTE MD61-SC2-00 v01000100 (T15 BIOS), Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 386048MB, Disk: 280GB

INTEL SSDPED1D280GA, Graphics: ASPEED, Monitor: VE228, Network: 2 x Intel X722 for 1GbE + 2 x QLogic FastLinQ QL41000 10/25/40/50GbE

OS: Ubuntu 19.10, Kernel: 5.3.0-12-generic (x86_64), Desktop: GNOME Shell 3.34.0, Display Server: X Server 1.20.5, Display Driver: modesetting 1.20.5, Compiler: GCC 9.2.1 20190909, 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++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-offload-targets=nvptx-none,hsa --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=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_pstate powersave
Security Notes: l1tf: Not affected + mds: Not affected + meltdown: Not affected + 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 Enhanced IBRS IBPB: conditional RSB filling

2 x EPYC 7742

Processor: 2 x AMD EPYC 7742 64-Core @ 2.25GHz (128 Cores / 256 Threads), Motherboard: AMD DAYTONA_X (RDY1001C BIOS), Chipset: AMD Starship/Matisse, Memory: 516096MB, Disk: 280GB INTEL SSDPED1D280GA + 256GB Micron_1100_MTFD, Graphics: ASPEED, Monitor: VE228, Network: 2 x Mellanox MT27710

OS: Ubuntu 19.10, Kernel: 5.3.0-12-generic (x86_64), Desktop: GNOME Shell 3.34.0, Display Server: X Server 1.20.5, Display Driver: modesetting 1.20.5, Compiler: GCC 9.2.1 20190909, 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++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-offload-targets=nvptx-none,hsa --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=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq ondemand
Security Notes: l1tf: Not affected + mds: Not affected + meltdown: Not affected + 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 AMD retpoline IBPB: conditional IBRS_FW STIBP: conditional RSB filling

2 x EPYC 7601

Processor: 2 x AMD EPYC 7601 32-Core (64 Cores / 128 Threads), Motherboard: Dell 02MJ3T (1.2.5 BIOS), Chipset: AMD 17h, Memory: 516096MB, Disk: 280GB INTEL SSDPED1D280GA + 12 x 500GB Samsung SSD 860 + 120GB SSDSCKJB120G7R, Graphics: Matrox G200eW3, Monitor: VE228, Network: 2 x Broadcom BCM57416 NetXtreme-E Dual-Media 10G RDMA + 2 x Broadcom NetXtreme BCM5720 2-port PCIe

OS: Ubuntu 19.10, Kernel: 5.3.0-13-generic (x86_64), Desktop: GNOME Shell 3.34.0, Display Server: X Server 1.20.5, Display Driver: modesetting 1.20.5, Compiler: GCC 9.2.1 20190909, File-System: ext4, Screen Resolution: 1600x1200

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++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-offload-targets=nvptx-none,hsa --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=auto --with-tune=generic --without-cuda-driver -v
Security Notes: l1tf: Not affected + mds: Not affected + meltdown: Not affected + 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 AMD retpoline IBPB: conditional STIBP: disabled RSB filling

20210619-r7-01-ondemand

Processor: AMD Ryzen 7 PRO 4750G @ 3.60GHz (8 Cores / 16 Threads), Motherboard: ASRock X570 Phantom Gaming-ITX/TB3 (P2.80 BIOS), Chipset: AMD Renoir Root Complex, Memory: 16GB, Disk: 128GB TS128GMTE652T2, Graphics: AMD Renoir, Audio: AMD Device 1637, Network: Intel I211 + Intel Wi-Fi 6 AX200

OS: Ubuntu 20.04, Kernel: 5.4.0-74-generic (x86_64), Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution:

video-encoding-servers

1920x1080

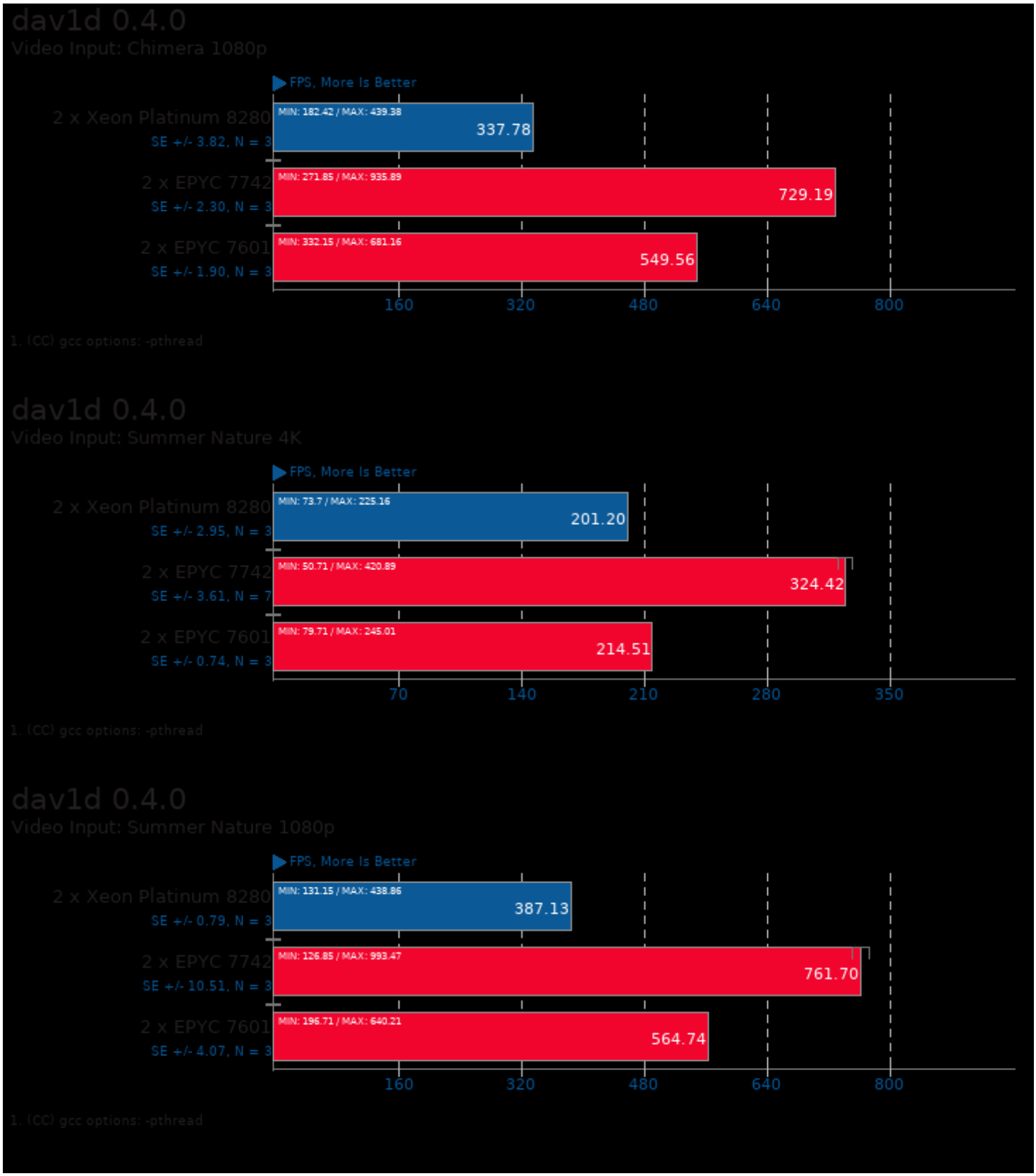
Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-9-HskZEa/gcc-9-9.3.0/debian/tmp-nvptx/usr,hsa --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=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq ondemand (Boost: Enabled) - CPU Microcode: 0x8600106
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + 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 AMD retpoline IBPB: conditional IBRS_FW STIBP: conditional RSB filling + srbds: Not affected + tsx_async_abort: Not affected

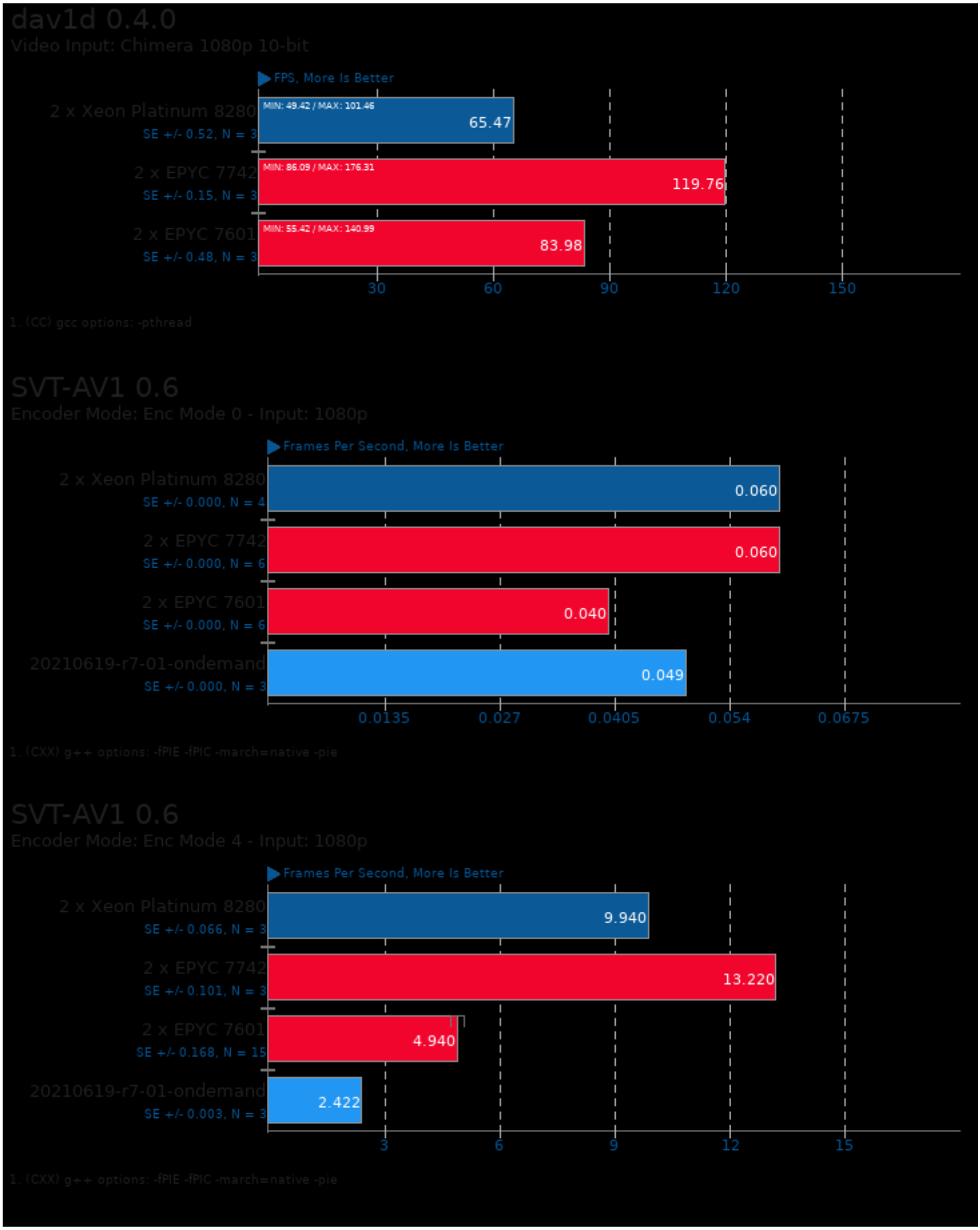
	2 x Xeon Platinum 8280	2 x EPYC 7742	2 x EPYC 7601	20210619-r7-01-on demand
dav1d - Chimera 1080p (FPS)	**337.78**	**729.19**	549.56	
Normalized	46.32%	100%	75.37%	
Standard Deviation	2%	0.5%	0.6%	
dav1d - Summer Nature 4K (FPS)	**201.20**	**324.42**	214.51	
Normalized	62.02%	100%	66.12%	
Standard Deviation	2.5%	2.9%	0.6%	
dav1d - S.N.1 (FPS)	**387.13**	**761.70**	564.74	
Normalized	50.82%	100%	74.14%	
Standard Deviation	0.4%	2.4%	1.2%	
dav1d - C.1.1.b (FPS)	**65.47**	**119.76**	83.98	
Normalized	54.67%	100%	70.12%	
Standard Deviation	1.4%	0.2%	1%	
SVT-AV1 - Enc Mode 0 - 1080p (FPS)	**0.06**	**0.06**	**0.04**	0.049
Normalized	100%	100%	66.67%	81.67%
Standard Deviation	0.9%	0%	0%	1.2%
SVT-AV1 - Enc Mode 4 - 1080p (FPS)	9.94	**13.22**	4.94	**2.422**
Normalized	75.19%	100%	37.37%	18.32%
Standard Deviation	1.2%	1.3%	13.2%	0.2%
SVT-AV1 - Enc Mode 8 - 1080p (FPS)	61.05	**101.91**	36.56	**26.037**
Normalized	59.91%	100%	35.87%	25.55%
Standard Deviation	0.9%	0.2%	3.8%	0.7%
SVT-AV1 - Enc Mode 0 - 1080p (FPS)	**0.06**	0.05	**0.04**	0.049
Normalized	100%	83.33%	66.67%	81.67%
Standard Deviation	0.9%	0%	0%	0%
SVT-AV1 - Enc Mode 4 - 1080p (FPS)	8.11	**10.42**	3.18	**1.711**
Normalized	77.83%	100%	30.52%	16.42%
Standard Deviation	2.5%	1.6%	5.6%	0.1%
SVT-AV1 - Enc Mode 8 - 1080p (FPS)	66.02	**106.57**	37.75	**24.189**
Normalized	61.95%	100%	35.42%	22.7%
Standard Deviation	1.7%	1.3%	1.8%	0.9%
SVT-HEVC - 1.8.b.Y.T.H.V.E (FPS)	**162.00**		86.35	**40.09**
Normalized	100%		53.3%	24.75%
Standard Deviation	0.6%		6.9%	1.4%
SVT-VP9 - 1.8.b.Y.T.V.V.E (FPS)	267.30	**344.53**	141.89	**92.42**
Normalized	77.58%	100%	41.18%	26.82%
Standard Deviation	2%	4.3%	10.5%	2.5%
VP9 libvpx Encoding - v.V.1.V.E (FPS)	**87.39**	**142.37**	128.27	90.66
Normalized	61.38%	100%	90.1%	63.68%

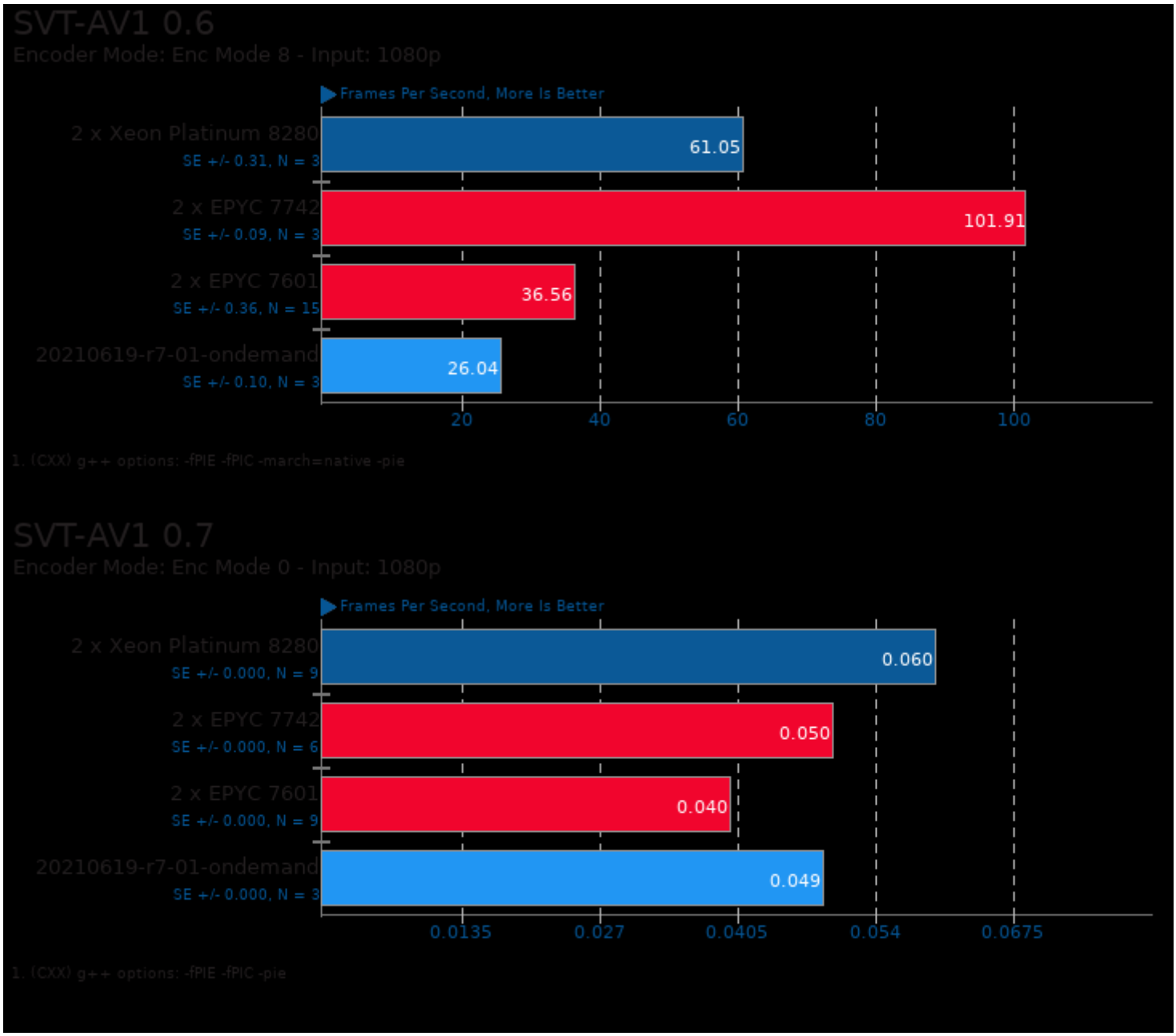
video-encoding-servers

Standard Deviation	2.8%	2.1%	4.4%	1.1%
x264 - H.2.V.E (FPS)	120.30	**151.60**	144.60	**83.98**
Normalized	79.35%	100%	95.38%	55.4%
Standard Deviation	4.1%	1.3%	1.3%	2.5%
x265 - H.2.1.V.E (FPS)	**35.20**	**49.22**	40.80	45.16
Normalized	71.52%	100%	82.89%	91.75%
Standard Deviation	0.3%	1.1%	2.1%	1.9%

video-encoding-servers

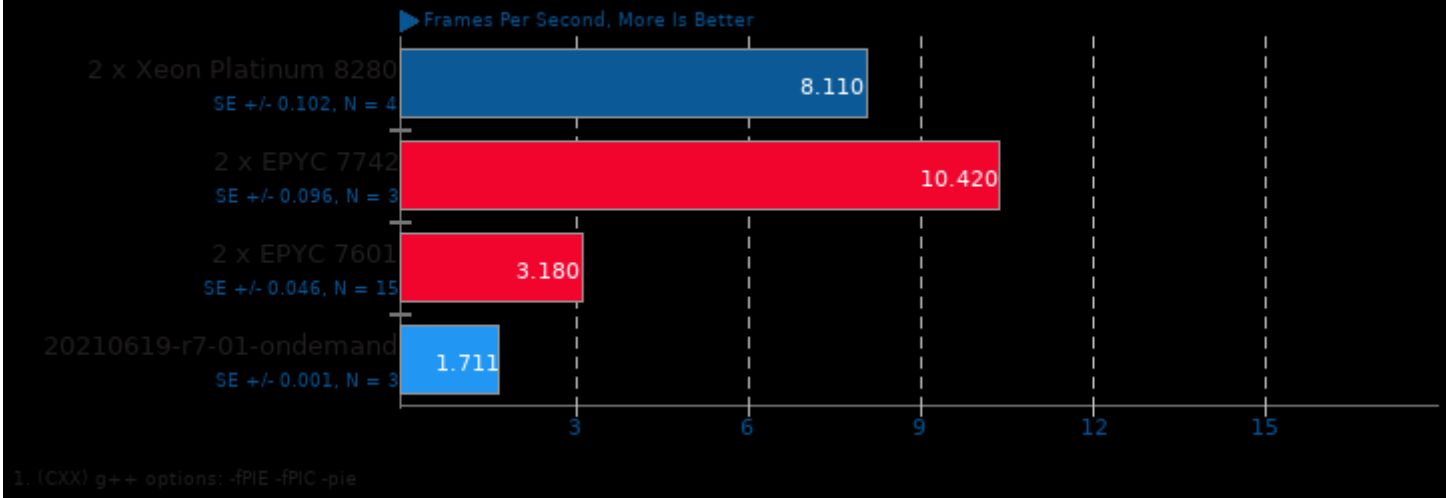



dav1d 0.4.0
Video Input: Chimera 1080p 10-bit
FPS, More Is Better
2 x Xeon Platinum 8280
SE +/- 0.52, N = 3
MIN: 49.42 / MAX: 101.46
65.47
2 x EPYC 7742
SE +/- 0.15, N = 3
MIN: 86.09 / MAX: 176.31
119.76
2 x EPYC 7601
SE +/- 0.48, N = 3
MIN: 55.42 / MAX: 140.99
83.98
30
60
90
120
150
1. (CC) gcc options: -pthread
SVT-AV1 0.6
Encoder Mode: Enc Mode 0 - Input: 1080p
Frames Per Second, More Is Better
2 x Xeon Platinum 8280
SE +/- 0.000, N = 4
0.060
2 x EPYC 7742
SE +/- 0.000, N = 6
0.060
2 x EPYC 7601
SE +/- 0.000, N = 6
0.040
20210619-r7-01-ondemand
SE +/- 0.000, N = 3
0.049
0.0135
0.027
0.0405
0.054
0.0675
1. (CXX) g++ options: -fPIE -fPIC -march=native -pie
SVT-AV1 0.6
Encoder Mode: Enc Mode 4 - Input: 1080p
Frames Per Second, More Is Better
2 x Xeon Platinum 8280
SE +/- 0.066, N = 3
9.940
2 x EPYC 7742
SE +/- 0.101, N = 3
13.220
2 x EPYC 7601
SE +/- 0.168, N = 15
4.940
20210619-r7-01-ondemand
SE +/- 0.003, N = 3
2.422
3
6
9
12
15
1. (CXX) g++ options: -fPIE -fPIC -march=native -pie


SVT-AV1 0.6
Encoder Mode: Enc Mode 8 - Input: 1080p
Frames Per Second, More Is Better
2 x Xeon Platinum 8280
SE +/- 0.31, N = 3
61.05
2 x EPYC 7742
SE +/- 0.09, N = 3
101.91
2 x EPYC 7601
SE +/- 0.36, N = 15
36.56
20210619-r7-01-ondemand
SE +/- 0.10, N = 3
26.04
20
40
60
80
100
1. (CXX) g++ options: -fPIE -fPIC -march=native -pie
SVT-AV1 0.7
Encoder Mode: Enc Mode 0 - Input: 1080p
Frames Per Second, More Is Better
2 x Xeon Platinum 8280
SE +/- 0.000, N = 9
0.060
2 x EPYC 7742
SE +/- 0.000, N = 6
0.050
2 x EPYC 7601
SE +/- 0.000, N = 9
0.040
20210619-r7-01-ondemand
SE +/- 0.000, N = 3
0.049
0.0135
0.027
0.0405
0.054
0.0675
1. (CXX) g++ options: -fPIE -fPIC -pie

SVT-AV1 0.7

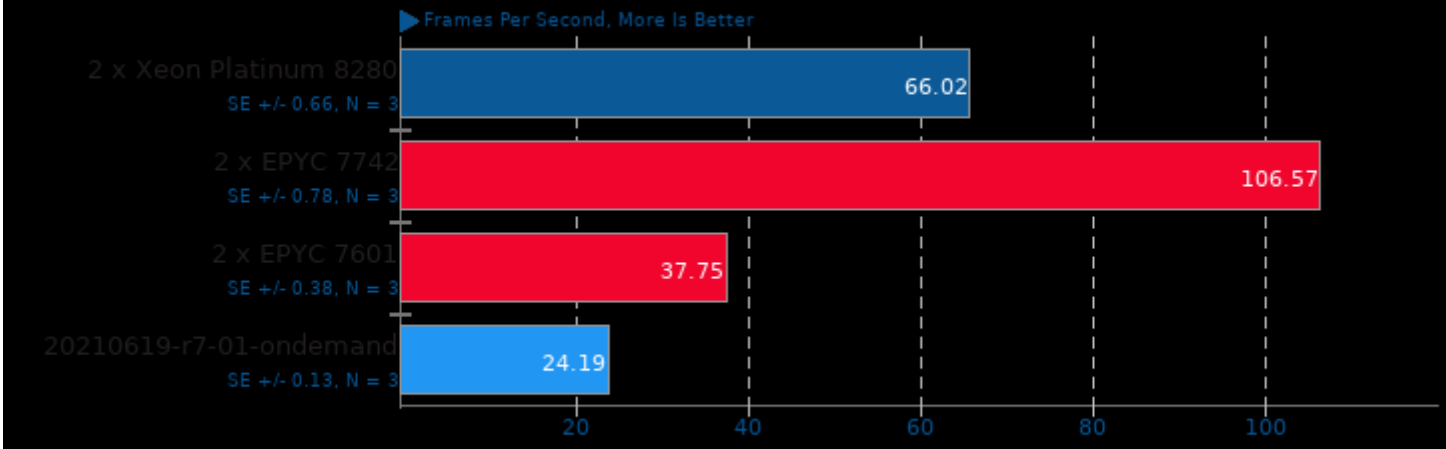
Encoder Mode: Enc Mode 4 - Input: 1080p



1. (CXX) g++ options: -fPIE -fPIC -pie

SVT-AV1 0.7

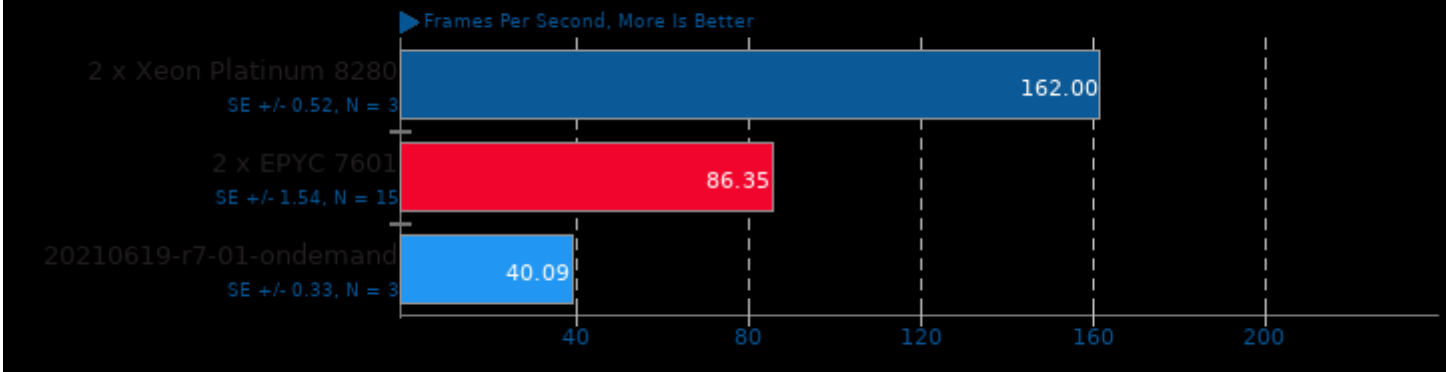
Encoder Mode: Enc Mode 8 - Input: 1080p



1. (CXX) g++ options: -fPIE -fPIC -pie

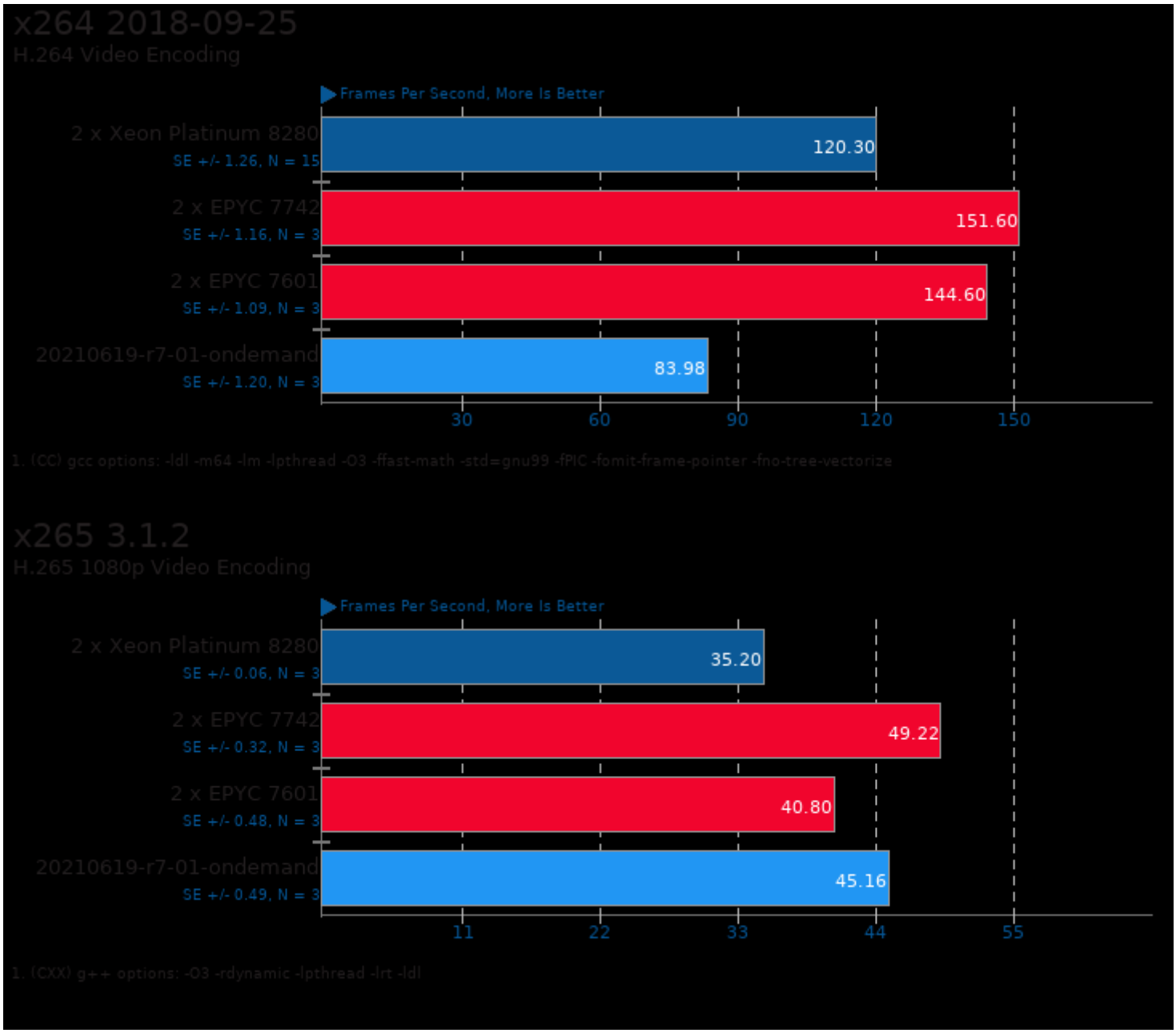
SVT-HEVC 1.4.1

1080p 8-bit YUV To HEVC Video Encode

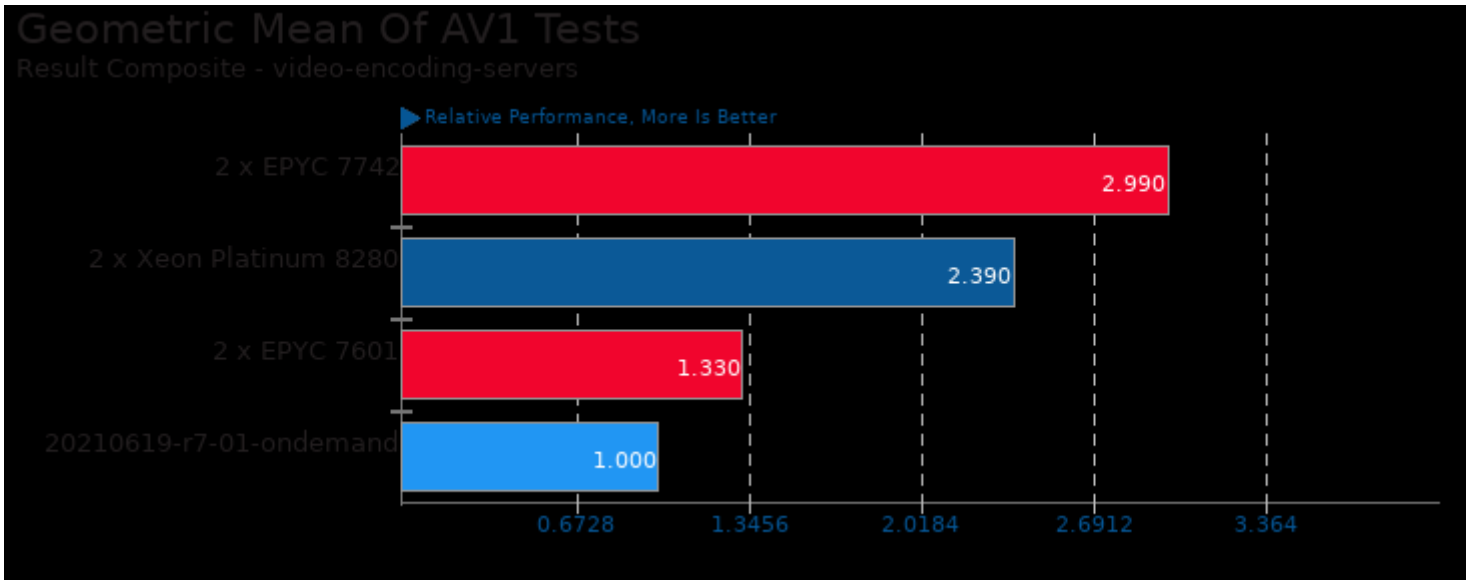


1. (CC) gcc options: -fPIE -fPIC -O3 -O2 -pie -rdynamic -lpthread -lrt

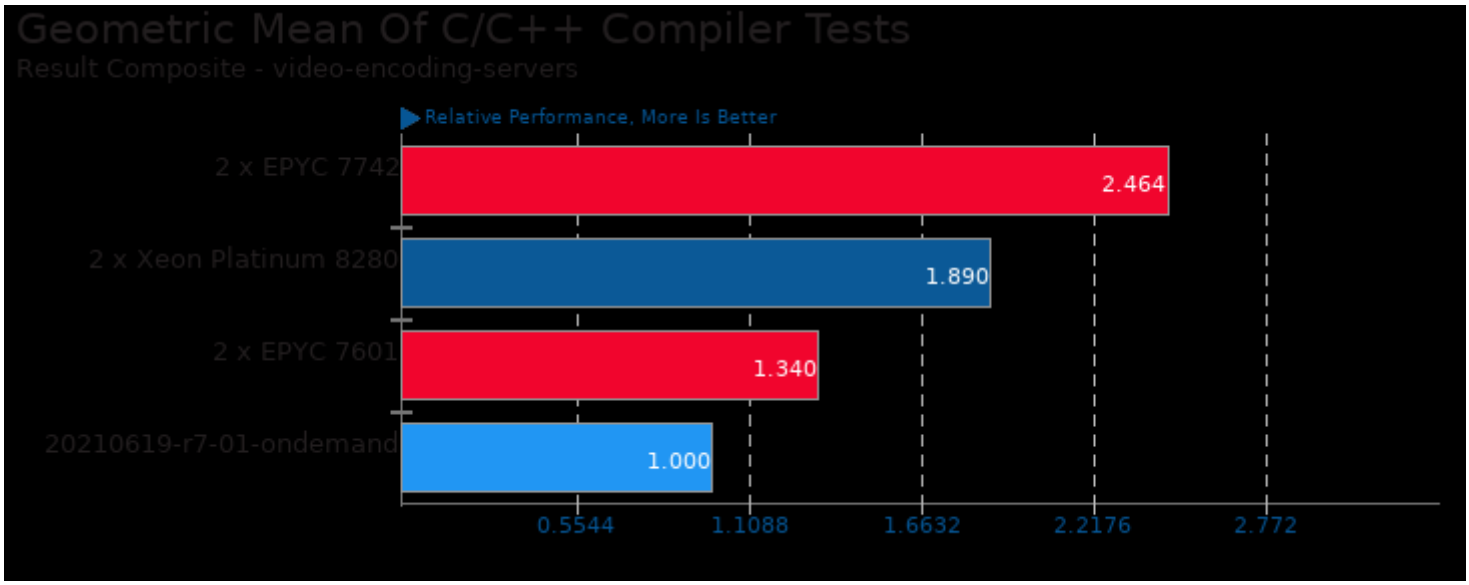

SVT-VP9 2019-09-09
1080p 8-bit YUV To VP9 Video Encode
Frames Per Second, More Is Better
2 x Xeon Platinum 8280
SE +/- 3.15, N = 3
267.30
2 x EPYC 7742
SE +/- 3.85, N = 15
344.53
2 x EPYC 7601
SE +/- 3.84, N = 15
141.89
20210619-r7-01-ondemand
SE +/- 1.15, N = 4
92.42
70
140
210
280
350
1. (CC) gcc options: -fPIE -fPIC -flto -O3 -O2 -pie -rdynamic -lpthread -lrt -lm
VP9 libvpx Encoding 1.8.1
vpxenc VP9 1080p Video Encode
Frames Per Second, More Is Better
2 x Xeon Platinum 8280
SE +/- 1.09, N = 5
87.39
2 x EPYC 7742
SE +/- 1.76, N = 3
142.37
2 x EPYC 7601
SE +/- 1.62, N = 12
128.27
20210619-r7-01-ondemand
SE +/- 0.55, N = 3
90.66
30
60
90
120
150
1. (CXX) g++ options: -m64 -lm -lpthread -O3 -fPIC -U_FORTIFY_SOURCE -std=c++11


x264 2018-09-25
H.264 Video Encoding
Frames Per Second, More Is Better
2 x Xeon Platinum 8280
SE +/- 1.26, N = 15
120.30
2 x EPYC 7742
SE +/- 1.16, N = 3
151.60
2 x EPYC 7601
SE +/- 1.09, N = 3
144.60
20210619-r7-01-ondemand
SE +/- 1.20, N = 3
83.98
30
60
90
120
150
1. (CC) gcc options: -ldl -m64 -lm -lpthread -O3 -ffast-math -std=gnu99 -fPIC -fomit-frame-pointer -fno-tree-vectorize
x265 3.1.2
H.265 1080p Video Encoding
Frames Per Second, More Is Better
2 x Xeon Platinum 8280
SE +/- 0.06, N = 3
35.20
2 x EPYC 7742
SE +/- 0.32, N = 3
49.22
2 x EPYC 7601
SE +/- 0.48, N = 3
40.80
20210619-r7-01-ondemand
SE +/- 0.49, N = 3
45.16
11
22
33
44
55
1. (CXX) g++ options: -O3 -rdynamic -lpthread -lrt -ldl

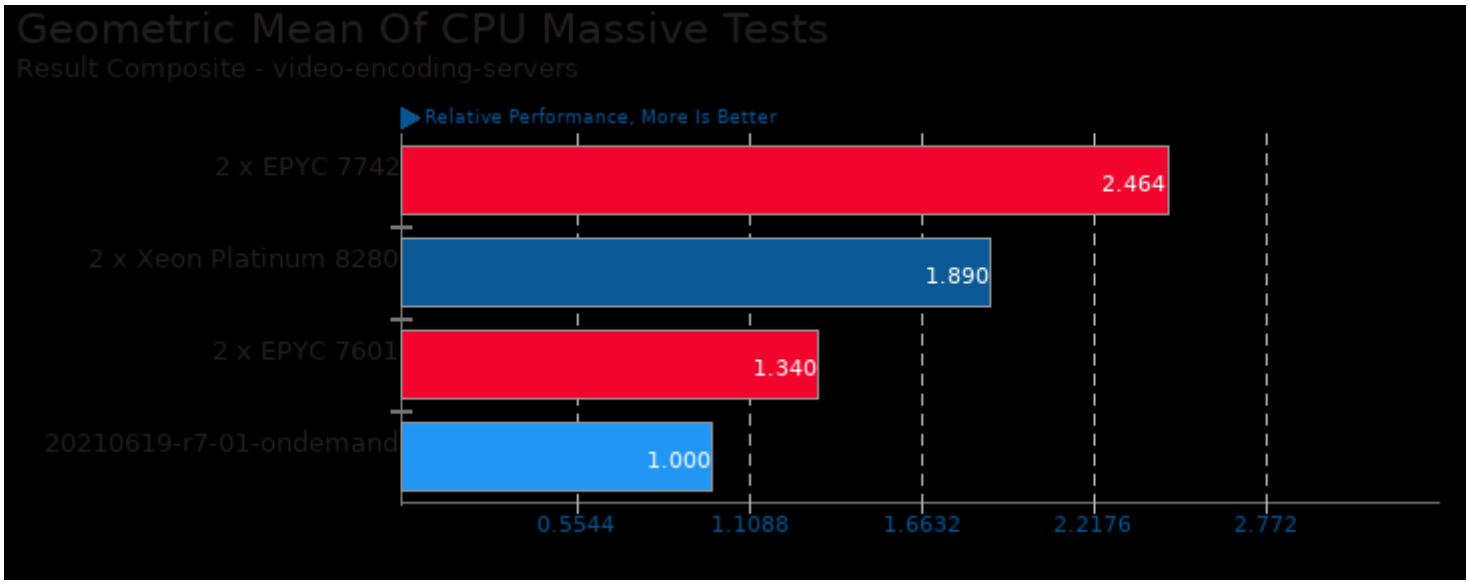
These geometric means are based upon test groupings / test suites for this result file.



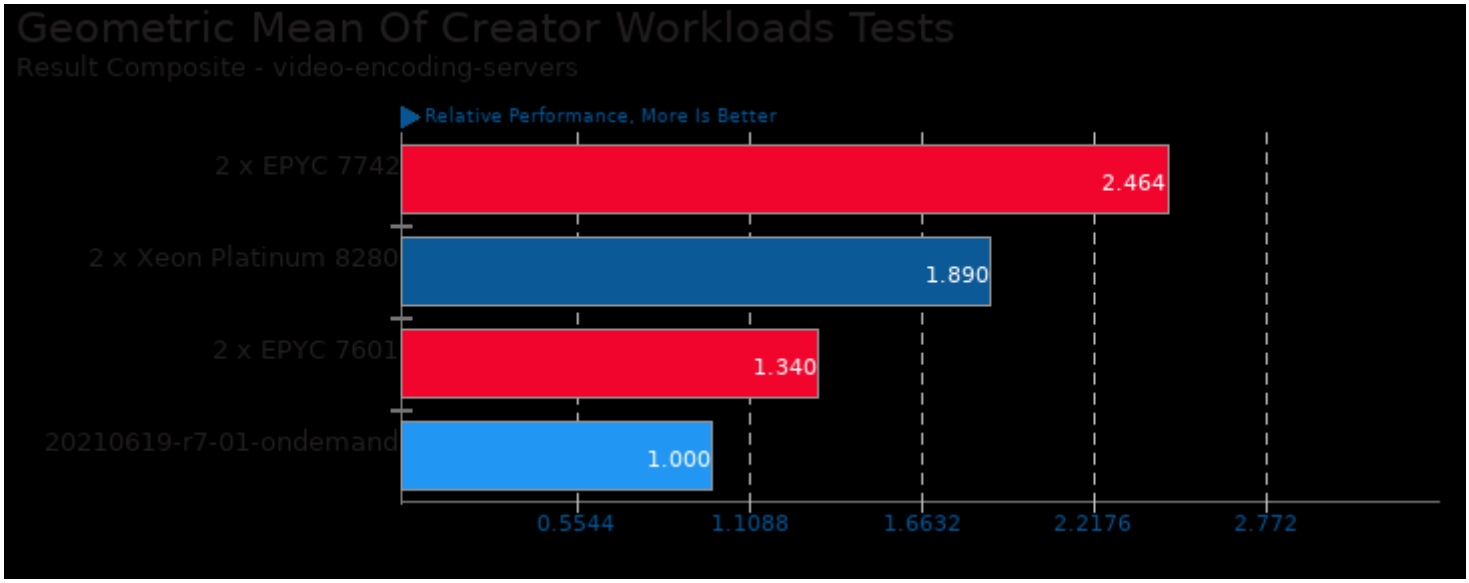
Geometric mean based upon tests: pts/dav1d and pts/svt-av1



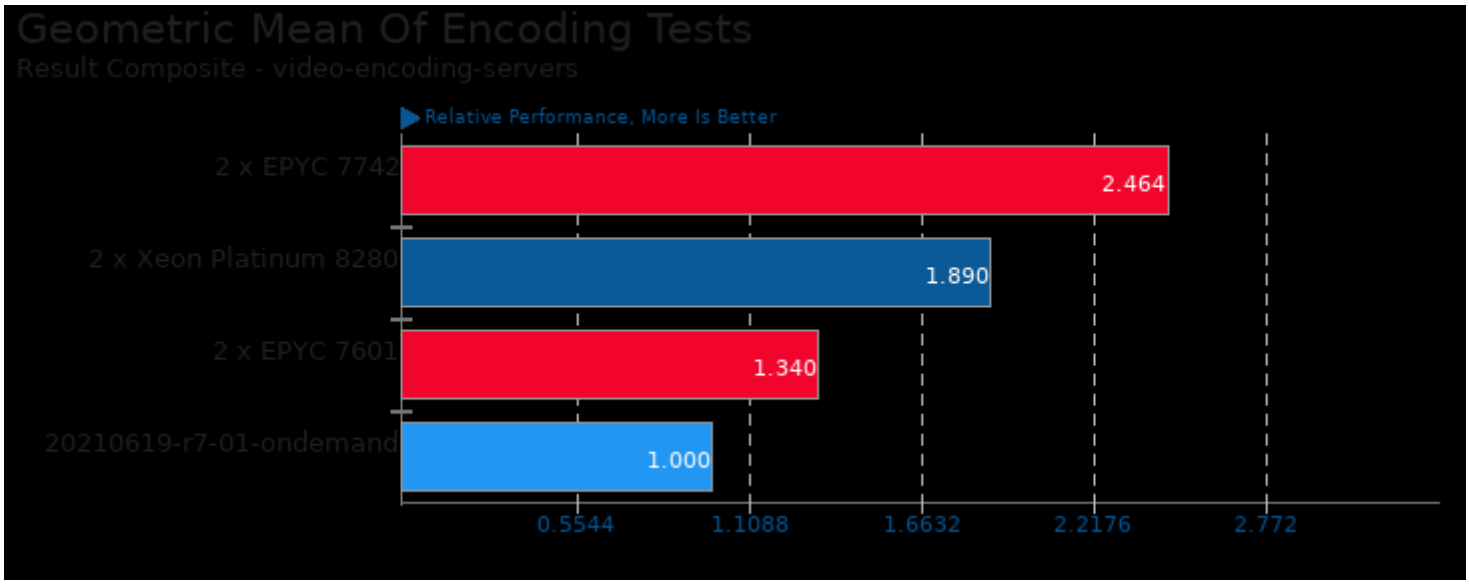
Geometric mean based upon tests: pts/vpxenc, pts/dav1d, pts/x264, pts/x265, pts/svt-av1 and pts/svt-vp9



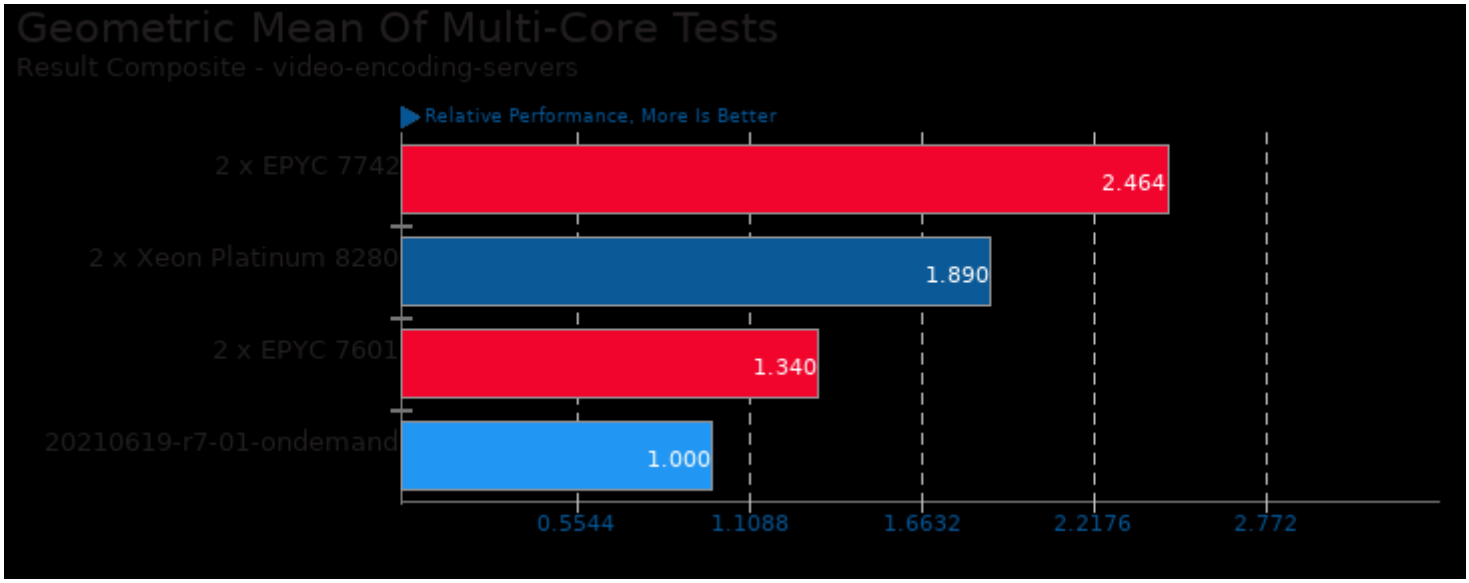
Geometric mean based upon tests: pts/dav1d, pts/svt-av1, pts/svt-hevc, pts/svt-vp9, pts/vpxenc, pts/x264 and pts/x265



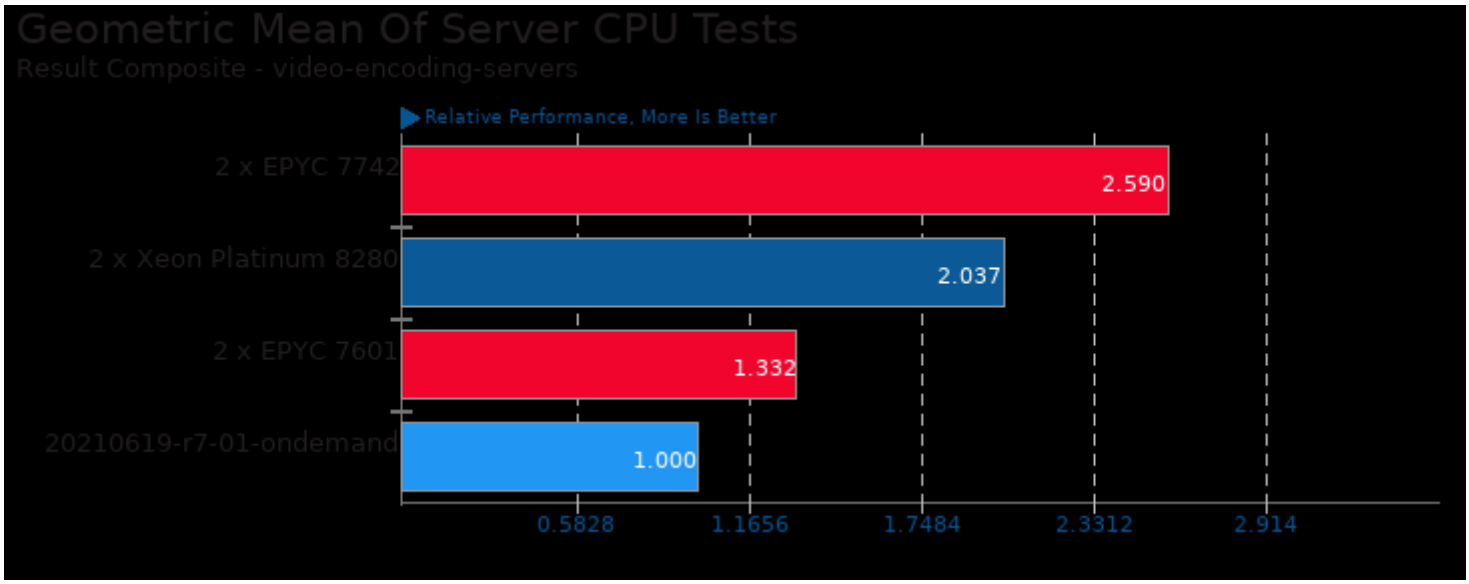
Geometric mean based upon tests: pts/svt-vp9, pts/svt-hevc, pts/x264, pts/x265, pts/vpxenc, pts/dav1d and pts/svt-av1



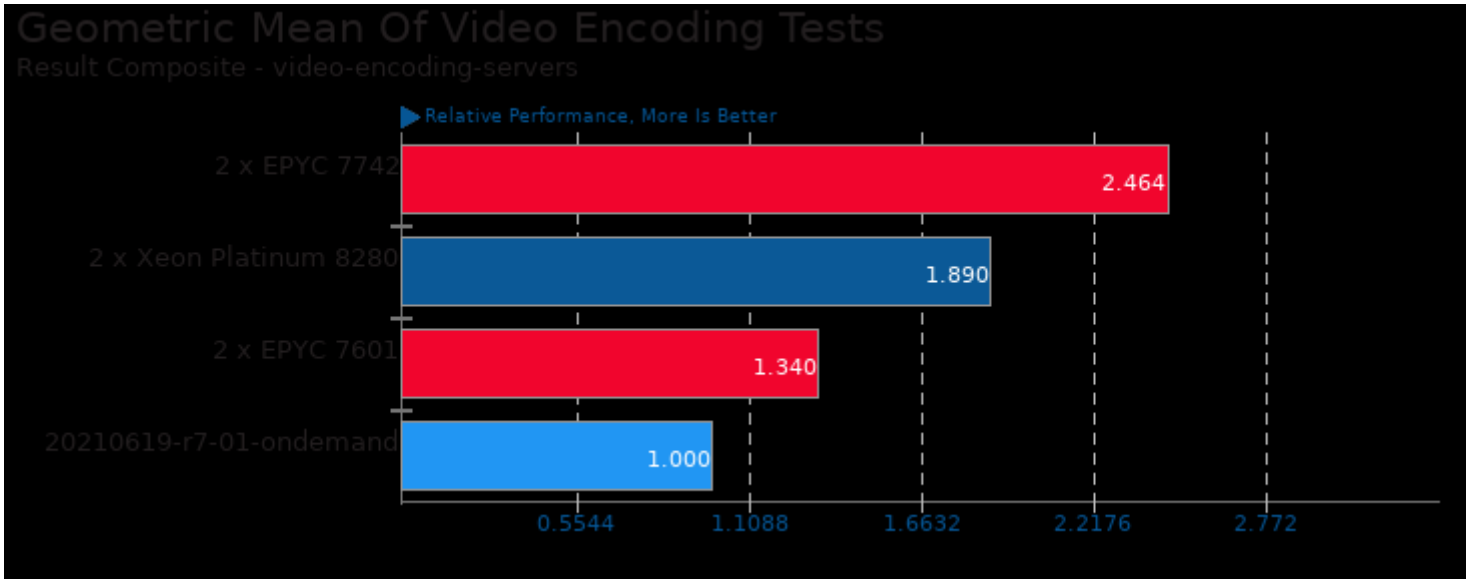
Geometric mean based upon tests: pts/svt-vp9, pts/svt-hevc, pts/x264, pts/x265, pts/vpxenc, pts/dav1d and pts/svt-av1



Geometric mean based upon tests: pts/svt-vp9, pts/svt-hevc, pts/x264, pts/x265, pts/vpxenc, pts/dav1d and pts/svt-av1



Geometric mean based upon tests: pts/svt-av1, pts/svt-hevc, pts/svt-vp9, pts/x264, pts/x265 and pts/dav1d



Geometric mean based upon tests: pts/svt-vp9, pts/svt-hevc, pts/x264, pts/x265, pts/vpxenc, pts/dav1d and pts/svt-av1

This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 15:23.