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AMD EPYC 7F72 2P Linux 5.11 - Perf Governor

2 x AMD EPYC 7F72 24-Core testing looking at CPU freq invariance on 5.11 with patch. CPU power consumption monitoring via AMD_Energy interface at 1 second polling. Additional data with CPUFreq performance governor included.

Automated Executive Summary

CPUFreq Performance had the most wins, coming in first place for 51% of the tests.

Based on the geometric mean of all complete results, the fastest (CPUFreq Performance) was 1.021x the speed of the slowest (CPUFreq Schedutil).

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

Cpuminer-Opt (Algorithm: LBC, LBRY Credits) at 1.396x
dav1d (Video Input: Chimera 1080p 10-bit) at 1.364x
OSPray (Demo: Magnetic Reconnection - Renderer: Path Tracer) at 1.333x
x265 (Video Input: Bosphorus 1080p) at 1.26x
DaCapo Benchmark (Java Test: Tradebeans) at 1.197x
InfluxDB (Concurrent Streams: 4 - Batch Size: 10000 - Tags: 2,5000,1 - Points Per Series: 10000) at 1.177x
dav1d (Video Input: Summer Nature 4K) at 1.145x
DaCapo Benchmark (Java Test: Tradesoap) at 1.114x
Timed GDB GNU Debugger Compilation (Time To Compile) at 1.09x

IOR (Block Size: 2MB - Disk Target: Default Test Directory) at 1.089x.

Test Systems:

CPUFreq Schedutil

Processor: 2 x AMD EPYC 7F72 24-Core @ 3.20GHz (48 Cores / 96 Threads), Motherboard: Supermicro H11DSi-NT v2.00 (2.1 BIOS), Chipset: AMD Starship/Matisse, Memory: 16 x 8192 MB DDR4-3200MT/s HMA81GR7CJR8N-XN, Disk: 1000GB Western Digital WD_BLACK SN850 1TB, Graphics: ASPEED, Monitor: VE228, Network: 2 x Intel 10G X550T

OS: Ubuntu 20.10, Kernel: 5.11.0-rc4-max-boost-inv-patch (x86_64) 20210121, Desktop: GNOME Shell 3.38.1, Display Server: X Server 1.20.9, Display Driver: modesetting 1.20.9, Compiler: GCC 10.2.0, File-System: ext4, Screen Resolution: 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++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-10-JvwpWM/gcc-10-10.2.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-10-JvwpWM/gcc-10-10.2.0/debian/tmp-gcn/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
Disk Notes: NONE / errors=remount-ro,relatime,rw / Block Size: 4096
Processor Notes: Scaling Governor: acpi-cpufreq schedutil (Boost: Enabled) - CPU Microcode: 0x8301034
Java Notes: OpenJDK Runtime Environment (build 11.0.9.1+1-Ubuntu-0ubuntu1.20.10)
Python Notes: Python 3.8.6
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

CPUFreq Performance

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Disk Notes: NONE / errors=remount-ro,relatime,rw / Block Size: 4096
Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0x8301034
Java Notes: OpenJDK Runtime Environment (build 11.0.9.1+1-Ubuntu-0ubuntu1.20.10)
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	CPUFreq Schedutil	CPUFreq Performance
Algebraic Multi-Grid Benchmark (Figure Of Merit)	**1448718333**	**1444174667**
Normalized	100%	99.69%
Standard Deviation	0.1%	0.5%
Algebraic Multi-Grid Benchmark (Figure Of Merit/Watt)	**4631995**	**4634187**
Normalized	99.95%	100%
BlogBench - Read (Final Score)	**1103118**	**1086347**
Normalized	100%	98.48%
Standard Deviation	0.3%	2.2%
BlogBench - Read (Final Score/Watt)	**4753**	**4639**
Normalized	100%	97.61%
dav1d - Summer Nature 4K (FPS)	**317.45**	**363.33**
Normalized	87.37%	100%
Standard Deviation	0.3%	3.8%
dav1d - C.1.1.b (FPS)	**133.37**	**181.95**
Normalized	73.3%	100%
Standard Deviation	0.2%	0.2%
OSPray - M.R - SciVis (FPS)	**32.62**	**32.80**
Normalized	99.45%	100%
Standard Deviation	1.7%	1.8%
OSPray - M.R - Path Tracer (FPS)	**250**	**333.33**
Normalized	75%	100%
Standard Deviation		0%
OSPray - XFrog Forest - SciVis (FPS)	11.19	11.19
Standard Deviation	0.6%	0.6%
OSPray - XFrog Forest - Path Tracer (FPS/Watt)	0.01	0.01
OSPray - XFrog Forest - Path Tracer (FPS)	5.95	5.95
Standard Deviation	0%	0%
OSPray - NASA Streamlines - SciVis (FPS)	71.43	71.43
Standard Deviation	0%	0%
TTSIOD 3D Renderer - P.R.W.S.S.M (FPS/Watt)	**2.70**	**2.74**
Normalized	98.54%	100%
OSPray - NASA Streamlines - Path Tracer (FPS)	16.39	16.39
Standard Deviation	0%	0%
OSPray - San Miguel - SciVis (FPS)	**54.97**	**55.56**
Normalized	98.94%	100%
Standard Deviation	2.4%	0%
OSPray - San Miguel - Path Tracer (FPS)	**4.32**	**4.33**
Normalized	99.77%	100%
Standard Deviation	0.2%	0%
PlaidML - No - Inference - ResNet 50 - CPU (FPS)	**4.63**	**4.66**
Normalized	99.36%	100%
Standard Deviation	1%	1.5%
PlaidML - No - Inference - VGG16 - CPU (FPS)	**25.42**	**25.22**
Normalized	100%	99.21%
Standard Deviation	4.6%	3.6%
PlaidML - No - Inference - VGG19 - CPU (FPS)	**22.49**	**22.43**
Normalized	100%	99.73%
Standard Deviation	2.7%	3.5%
PlaidML - No - Inference - ResNet 50 - CPU (FPS/Watt)	0.03	0.03
TTSIOD 3D Renderer - P.R.W.S.S.M (FPS)	**655.225**	**665.448**
Normalized	98.46%	100%
Standard Deviation	0.9%	3.4%
dav1d - Summer Nature 4K (FPS/Watt)	**1.72**	**1.84**

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Normalized	93.48%	100%
dav1d - C.1.1.b (FPS/Watt)	**0.92**	**1.21**
Normalized	76.03%	100%
OSPray - M.R - SciVis (FPS/Watt)	**0.11**	**0.10**
Normalized	100%	90.91%
OSPray - M.R - Path Tracer (FPS/Watt)	**1.65**	**1.99**
Normalized	82.91%	100%
OSPray - XFrog Forest - SciVis (FPS/Watt)	0.03	0.03
OSPray - NASA Streamlines - SciVis (FPS/Watt)	0.30	0.30
OSPray - NASA Streamlines - Path Tracer (FPS/Watt)	0.05	0.05
OSPray - San Miguel - SciVis (FPS/Watt)	**0.32**	**0.33**
Normalized	96.97%	100%
OSPray - San Miguel - Path Tracer (FPS/Watt)	0.01	0.01
PlaidML - No - Inference - VGG16 - CPU (FPS/Watt)	0.09	0.09
PlaidML - No - Inference - VGG19 - CPU (FPS/Watt)	0.08	0.08
rav1e - 10 (FPS/Watt)	0.02	0.02
rav1e - 6 (FPS/Watt)	0.01	0.01
rav1e - 5 (FPS/Watt)	0.01	0.01
SVT-AV1 - Enc Mode 8 - 1080p (FPS)	**68.231**	**68.465**
Normalized	99.66%	100%
Standard Deviation	6%	3.7%
SVT-AV1 - Enc Mode 4 - 1080p (FPS)	**7.648**	**7.488**
Normalized	100%	97.91%
Standard Deviation	0.7%	0.8%
SVT-VP9 - V.Q.O - Bosphorus 1080p (FPS)	**323.81**	**309.61**
Normalized	100%	95.61%
Standard Deviation	5%	19.1%
SVT-VP9 - P.S.O - Bosphorus 1080p (FPS)	**371.48**	**363.18**
Normalized	100%	97.77%
Standard Deviation	1.4%	1.5%
SVT-AV1 - Enc Mode 8 - 1080p (FPS/Watt)	0.33	0.33
SVT-AV1 - Enc Mode 0 - 1080p (FPS)	0.091	0.091
Standard Deviation	2.4%	0.6%
x265 - Bosphorus 1080p (FPS)	**49.45**	**62.29**
Normalized	79.39%	100%
Standard Deviation	2.1%	4.6%
SVT-AV1 - Enc Mode 4 - 1080p (FPS/Watt)	0.03	0.03
SVT-VP9 - VMAF Optimized - Bosphorus 1080p (FPS)	**364.81**	**346.71**
Normalized	100%	95.04%
Standard Deviation	0.8%	2.9%
SVT-VP9 - V.Q.O - Bosphorus 1080p (FPS/Watt)	**1.74**	**1.68**
Normalized	100%	96.55%
SVT-VP9 - P.S.O - Bosphorus 1080p (FPS/Watt)	**2.11**	**2.07**
Normalized	100%	98.1%
x265 - Bosphorus 4K (FPS)	**19.74**	**20.75**
Normalized	95.13%	100%
Standard Deviation	1.2%	0.7%
SVT-VP9 - VMAF Optimized - Bosphorus 1080p (FPS/Watt)	**2.08**	**1.97**
Normalized	100%	94.71%
x265 - Bosphorus 1080p (FPS/Watt)	**0.29**	**0.31**
Normalized	93.55%	100%

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x265 - Bosphorus 4K (FPS/Watt)	0.08	0.08
rav1e - 10 (FPS)	**3.054**	**3.177**
Normalized	96.13%	100%
Standard Deviation	0.5%	1%
rav1e - 6 (FPS)	**1.408**	**1.446**
Normalized	97.37%	100%
Standard Deviation	0.4%	0.1%
rav1e - 5 (FPS)	**1.068**	**1.095**
Normalized	97.53%	100%
Standard Deviation	0.1%	0.5%
rav1e - 1 (FPS)	**0.372**	**0.375**
Normalized	99.2%	100%
Standard Deviation	0.5%	0%
simdjson - LargeRand (GB/s)	**0.36**	**0.37**
Normalized	97.3%	100%
Standard Deviation	1.6%	0%
simdjson - Kostya (GB/s)	0.57	0.57
Standard Deviation	0%	1%
simdjson - DistinctUserID (GB/s/Watt)	0.01	0.01
simdjson - PartialTweets (GB/s)	0.63	0.63
Standard Deviation	0%	0%
simdjson - DistinctUserID (GB/s)	0.65	0.65
Standard Deviation	0%	0.9%
High Performance Conjugate Gradient (GFLOP/s)	**30.8262**	**30.9260**
Normalized	99.68%	100%
Standard Deviation	0.7%	0.1%
High Performance Conjugate Gradient	**0.08**	**0.09**
Normalized	88.89%	100%
Intel Open Image Denoise - Memorial (Images / Sec)	**28.39**	**28.33**
Normalized	100%	99.79%
Standard Deviation	0.3%	1.4%
Intel Open Image Denoise - Memorial (Images /	0.08	0.08
ONNX Runtime - yolov4 - OpenMP CPU (Inferences/min/Watt)	**0.69**	**0.70**
Normalized	98.57%	100%
ONNX Runtime - super-resolution-10 - OpenMP CPU (Inferences/min/Watt)	**15.26**	**15.49**
Normalized	98.52%	100%
ONNX Runtime - yolov4 - OpenMP CPU	**181**	**185**
Normalized	97.84%	100%
Standard Deviation	1.8%	2.5%
ONNX Runtime - super-resolution-10 - OpenMP CPU (Inferences/min)	**4210**	**4190**
Normalized	100%	99.52%
Standard Deviation	1.8%	5.6%
Cpuminer-Opt - Q.S.2.P (kH/s)	**296995**	**420231**
Normalized	70.67%	100%
Standard Deviation	6.2%	15.7%
Cpuminer-Opt - x25x (kH/s)	**1542**	**1538**
Normalized	100%	99.72%
Standard Deviation	4.5%	2.5%
Cpuminer-Opt - Garlicoin (kH/s)	**9950**	**9964**
Normalized	99.85%	100%
Standard Deviation	3.9%	5.8%

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Cpuminer-Opt - Skeincoin (kH/s)	**364017**	**522948**
Normalized	69.61%	100%
Standard Deviation	5.3%	6.4%
Cpuminer-Opt - LBC, LBRY Credits (kH/s)	**139037**	**194087**
Normalized	71.64%	100%
Standard Deviation	1.7%	0.8%
Cpuminer-Opt - Q.S.2.P (kH/s/Watt)	**2358**	**2899**
Normalized	81.35%	100%
Cpuminer-Opt - x25x (kH/s/Watt)	**6.08**	**6.04**
Normalized	100%	99.34%
Cpuminer-Opt - Garlicoin (kH/s/Watt)	**59.91**	**57.99**
Normalized	100%	96.8%
Cpuminer-Opt - Skeincoin (kH/s/Watt)	**2898**	**3626**
Normalized	79.92%	100%
Cpuminer-Opt - LBC, LBRY Credits (kH/s/Watt)	**1092**	**1315**
Normalized	82.98%	100%
Chaos Group V-RAY - CPU (Ksamples/Watt)	**127.59**	**130.65**
Normalized	97.66%	100%
Chaos Group V-RAY - CPU (Ksamples)	**53460**	**55014**
Normalized	97.18%	100%
Standard Deviation	6.9%	1.6%
BYTE Unix Benchmark - Dhrystone 2 (LPS)	**38319340**	**38656226**
Normalized	99.13%	100%
Standard Deviation	1.5%	2.2%
BYTE Unix Benchmark - Dhrystone 2 (LPS/Watt)	**306193**	**307169**
Normalized	99.68%	100%
LuxCoreRender - DLSC (M samples/sec)	**7.80**	**7.89**
Normalized	98.86%	100%
Standard Deviation	2.2%	2%
LuxCoreRender - DLSC (M samples/sec/Watt)	0.02	0.02
LuxCoreRender - R.C.a.P (M samples/sec)	8.76	8.76
Standard Deviation	1.8%	0.9%
LuxCoreRender - R.C.a.P (M samples/sec/Watt)	0.02	0.02
IOR - 2MB (MB/s)	**475.25**	**517.33**
Normalized	91.87%	100%
Standard Deviation	0.8%	1.8%
IOR - 8MB (MB/s)	**520.72**	**539.63**
Normalized	96.5%	100%
Standard Deviation	0.9%	1.9%
IOR - 8MB (MB/s/Watt)	**2.49**	**2.55**
Normalized	97.65%	100%
Zstd Compression - 3 (MB/s/Watt)	**54.88**	**50.56**
Normalized	100%	92.13%
Zstd Compression - 3 (MB/s)	**8271**	**7770**
Normalized	100%	93.95%
Standard Deviation	1.4%	28.9%
LZ4 Compression - 1 - D.S (MB/s/Watt)	**81.34**	**81.46**
Normalized	99.85%	100%
LZ4 Compression - 1 - Compression Speed (MB/s)	**9757**	**9652**
Normalized	100%	98.92%
Standard Deviation	0.3%	1.3%
LZ4 Compression - 1 - D.S (MB/s)	**11305**	**11151**
Normalized	100%	98.63%
Standard Deviation	0.4%	1.7%

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LZ4 Compression - 3 - Compression Speed (MB/s)	**48.95**	**49.29**
Normalized	99.31%	100%
Standard Deviation	0.4%	2.3%
LZ4 Compression - 3 - D.S (MB/s)	**10666**	**10410**
Normalized	100%	97.6%
Standard Deviation	1%	1.3%
LZ4 Compression - 9 - Compression Speed (MB/s)	**47.76**	**48.02**
Normalized	99.46%	100%
Standard Deviation	0.5%	0.9%
LZ4 Compression - 9 - D.S (MB/s)	**10490**	**10555**
Normalized	99.38%	100%
Standard Deviation	0.5%	1.6%
IOR - 2MB (MB/s/Watt)	**2.43**	**2.64**
Normalized	92.05%	100%
LZ4 Compression - 3 - D.S (MB/s/Watt)	**80.07**	**79.05**
Normalized	100%	98.73%
LZ4 Compression - 9 - D.S (MB/s/Watt)	**78.46**	**80.12**
Normalized	97.93%	100%
QuantLib (MFLOPS)	**2157**	**2156**
Normalized	100%	99.96%
Standard Deviation	0.7%	1.3%
FFTE - N.2.3.C.F.R (MFLOPS)	**178738**	**180038**
Normalized	99.28%	100%
Standard Deviation	3.8%	3.5%
FFTW - Float + SSE - 2D FFT Size 4096 (Mflops)	**17015**	**17335**
Normalized	98.15%	100%
Standard Deviation	2.2%	3.5%
Himeno Benchmark - P.P.S (MFLOPS)	**4287**	**4136**
Normalized	100%	96.47%
Standard Deviation	1%	1.1%
QuantLib (MFLOPS/Watt)	**16.34**	**16.49**
Normalized	99.09%	100%
FFTE - N.2.3.C.F.R (MFLOPS/Watt)	**656.40**	**664.85**
Normalized	98.73%	100%
FFTW - Float + SSE - 2D FFT Size 4096 (Mflops/Watt)	**127.83**	**131.21**
Normalized	97.42%	100%
Himeno Benchmark - P.P.S (MFLOPS/Watt)	**31.94**	**31.13**
Normalized	100%	97.46%
ASKAP - tConvolve MPI - Gridding (Million Grid Points/sec)	**7454**	**7442**
Normalized	100%	99.84%
Standard Deviation	0.1%	0.2%
ASKAP - tConvolve MPI - Degridding (Million Grid Points/sec)	**11944**	**11493**
Normalized	100%	96.22%
Standard Deviation	0.1%	2.1%
ASKAP - tConvolve MPI - Degridding (Million Grid Points/sec/Watt)	**40.51**	**33.50**
Normalized	100%	82.7%
Etcpak - ETC1 (Mpx/s/Watt)	**2.10**	**2.11**
Normalized	99.53%	100%
Etcpak - ETC1 + Dithering (Mpx/s)	**245.595**	**245.453**
Normalized	100%	99.94%
Standard Deviation	0.1%	0.1%

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Etcpak - ETC1 + Dithering (Mpx/s/Watt)	**1.91**	**1.93**
Normalized	98.96%	100%
Etcpak - ETC1 (Mpx/s)	**267.587**	**267.136**
Normalized	100%	99.83%
Standard Deviation	0.2%	0.2%
Etcpak - ETC2 (Mpx/s)	**155.798**	**155.783**
Normalized	100%	99.99%
Standard Deviation	0%	0%
Etcpak - ETC2 (Mpx/s/Watt)	**1.21**	**1.22**
Normalized	99.18%	100%
LeelaChessZero - BLAS (Nodes/s/Watt)	9.72	9.72
LeelaChessZero - BLAS (Nodes/s)	**4061**	**4147**
Normalized	97.93%	100%
Standard Deviation	3.7%	0.7%
LeelaChessZero - Eigen (Nodes/s)	**4433**	**4450**
Normalized	99.62%	100%
Standard Deviation	1.4%	1%
Stockfish - Total Time (Nodes/s)	**97042601**	**96082114**
Normalized	100%	99.01%
Standard Deviation	1.4%	2.4%
TSCP - A.C.P (Nodes/s)	**1114562**	**1116255**
Normalized	99.85%	100%
Standard Deviation	0.2%	0.2%
LeelaChessZero - Eigen (Nodes/s/Watt)	**10.45**	**10.39**
Normalized	100%	99.43%
Stockfish - Total Time (Nodes/s/Watt)	**220990**	**218753**
Normalized	100%	98.99%
TSCP - A.C.P (Nodes/s/Watt)	**8993**	**9017**
Normalized	99.73%	100%
asmFish - 1.H.M.2.D (Nodes/s/Watt)	**259519**	**251626**
Normalized	100%	96.96%
asmFish - 1.H.M.2.D (Nodes/s)	**117632955**	**117370871**
Normalized	100%	99.78%
Standard Deviation	0.5%	2.4%
GROMACS - Water Benchmark (Ns/Day/Watt)	0.01	0.01
GROMACS - Water Benchmark (Ns/Day)	**5.261**	**5.255**
Normalized	100%	99.89%
Standard Deviation	0.7%	0.7%
LAMMPS Molecular Dynamics Simulator - Rhodopsin Protein (ns/day/Watt)	**0.13**	**0.14**
Normalized	92.86%	100%
LAMMPS Molecular Dynamics Simulator - Rhodopsin Protein (ns/day)	**23.787**	**24.639**
Normalized	96.54%	100%
Standard Deviation	2.4%	3%
LAMMPS Molecular Dynamics Simulator - 20k Atoms (ns/day)	**25.077**	**25.116**
Normalized	99.84%	100%
Standard Deviation	0.3%	0.2%
LAMMPS Molecular Dynamics Simulator - 20k Atoms (ns/day/Watt)	0.06	0.06
Swet - Average (Operations/sec)	**687480262**	**686132109**
Normalized	100%	99.8%
Standard Deviation	0.4%	0.9%

AMD EPYC 7F72 2P Linux 5.11 - Perf Governor

Swet - Average (Operations/sec/Watt)	**5408273**	**5450164**
Normalized	99.23%	100%
KeyDB (Ops/sec/Watt)	**1865**	**1762**
Normalized	100%	94.44%
KeyDB (Ops/sec)	**294214**	**303171**
Normalized	97.05%	100%
Standard Deviation	4%	6.6%
Hierarchical INTegration - FLOAT (QUIPs/Watt)	**2496421**	**2527557**
Normalized	98.77%	100%
Hierarchical INTegration - FLOAT (QUIPs)	**323144417**	**322775284**
Normalized	100%	99.89%
Standard Deviation	0.1%	0.1%
John The Ripper - MD5 (Real C/S)	**4612308**	**4762000**
Normalized	96.86%	100%
Standard Deviation	4.2%	0.3%
John The Ripper - MD5 (Real C/S/Watt)	**10085**	**10378**
Normalized	97.17%	100%
John The Ripper - Blowfish (Real C/S)	**72636**	**71757**
Normalized	100%	98.79%
Standard Deviation	0.2%	1.2%
John The Ripper - Blowfish (Real C/S/Watt)	**185.47**	**183.88**
Normalized	100%	99.14%
Redis - SET (Reqs/sec/Watt)	**11501**	**11684**
Normalized	98.43%	100%
Redis - GET (Reqs/sec/Watt)	**13846**	**14376**
Normalized	96.31%	100%
Redis - SET (Reqs/sec)	**1427348**	**1454741**
Normalized	98.12%	100%
Standard Deviation	3.6%	2.5%
Redis - GET (Reqs/sec)	**1711622**	**1782756**
Normalized	96.01%	100%
Standard Deviation	2.5%	6.3%
Redis - LPUSH (Reqs/sec/Watt)	**9780**	**10016**
Normalized	97.64%	100%
Redis - SADD (Reqs/sec/Watt)	**13036**	**12967**
Normalized	100%	99.47%
Redis - LPUSH (Reqs/sec)	**1217219**	**1251006**
Normalized	97.3%	100%
Standard Deviation	2%	1.6%
Redis - SADD (Reqs/sec)	**1611164**	**1610485**
Normalized	100%	99.96%
Standard Deviation	1.9%	4.3%
Numpy Benchmark (Score/Watt)	**2.43**	**2.46**
Normalized	98.78%	100%
AI Benchmark Alpha - D.I.S (Score)	**1720**	**1775**
Normalized	96.9%	100%
AI Benchmark Alpha - D.T.S (Score)	**1067**	**1133**
Normalized	94.17%	100%
AI Benchmark Alpha - Device AI Score (Score)	**2787**	**2908**
Normalized	95.84%	100%
AI Benchmark Alpha - Device AI Score (Score/Watt)	**12.98**	**11.59**
Normalized	100%	89.29%
Numpy Benchmark (Score)	**323.00**	**324.48**
Normalized	99.54%	100%

AMD EPYC 7F72 2P Linux 5.11 - Perf Governor

Standard Deviation	0.1%	0.1%
CLOMP - Static OMP Speedup (Speedup)	**47.8**	**47.4**
Normalized	100%	99.16%
Standard Deviation	1.7%	2%
CLOMP - Static OMP Speedup (Speedup/Watt)	0.31	0.31
NAS Parallel Benchmarks - EP.C (Mop/s/Watt)	**17.62**	**17.84**
Normalized	98.77%	100%
NAS Parallel Benchmarks - EP.D (Mop/s/Watt)	**10.24**	**10.29**
Normalized	99.51%	100%
NAS Parallel Benchmarks - LU.C (Mop/s/Watt)	**469.62**	**466.44**
Normalized	100%	99.32%
NAS Parallel Benchmarks - EP.C (Mop/s)	**3841**	**3857**
Normalized	99.59%	100%
Standard Deviation	0.4%	0.3%
NAS Parallel Benchmarks - EP.D (Mop/s)	**3863**	**3867**
Normalized	99.9%	100%
Standard Deviation	0.1%	0.1%
NAS Parallel Benchmarks - LU.C (Mop/s)	**154377**	**153771**
Normalized	100%	99.61%
Standard Deviation	0.7%	0.2%
InfluxDB - 64 - 10000 - 2,5000,1 - 10000 (val/sec)	**1256112**	**1360163**
Normalized	92.35%	100%
Standard Deviation	0.4%	1.2%
InfluxDB - 4 - 10000 - 2,5000,1 - 10000 (val/sec/Watt)	**4857**	**4964**
Normalized	97.86%	100%
InfluxDB - 64 - 10000 - 2,5000,1 - 10000 (val/sec/Watt)	**6672**	**6626**
Normalized	100%	99.31%
InfluxDB - 4 - 10000 - 2,5000,1 - 10000 (val/sec)	**812194**	**956189**
Normalized	84.94%	100%
Standard Deviation	0.3%	0.4%
BRL-CAD - V.P.M (VGR Performance Metric/Watt)	**1370**	**1355**
Normalized	100%	98.95%
BRL-CAD - V.P.M (VGR Performance Metric)	**636521**	**635725**
Normalized	100%	99.87%
Google SynthMark - VoiceMark_100 (Voices)	**714.914**	**714.181**
Normalized	100%	99.9%
Standard Deviation	0%	0.3%
Google SynthMark - VoiceMark_100 (Voices/Watt)	**5.54**	**5.57**
Normalized	99.46%	100%
LULESH (z/s)	**19771**	**19335**
Normalized	100%	97.79%
Standard Deviation	1.9%	2.1%
LULESH (z/s/Watt)	**80.77**	**78.80**
Normalized	100%	97.56%
NAMD - ATPase Simulation - 327,506 Atoms (days/ns)	**0.44472**	**0.44469**
Normalized	99.99%	100%
Standard Deviation	0%	0.3%
TensorFlow Lite - Mobilenet Float (us)	**39524**	**39982**
Normalized	100%	98.85%
Standard Deviation	1.7%	2%
TensorFlow Lite - Mobilenet Quant (us)	**41034**	**41180**
Normalized	100%	99.65%
Standard Deviation	2.4%	0.9%
TensorFlow Lite - NASNet Mobile (us)	**134044**	**132844**

Normalized	99.1%	100%
Standard Deviation	6.9%	6.3%
TensorFlow Lite - SqueezeNet (us)	**62195**	**61347**
Normalized	98.64%	100%
Standard Deviation	2.6%	2.3%
TensorFlow Lite - I.R.V (us)	**736285**	**737993**
Normalized	100%	99.77%
Standard Deviation	2.4%	0.5%
TensorFlow Lite - Inception V4 (us)	**810750**	**818887**
Normalized	100%	99.01%
Standard Deviation	0.2%	1%
FinanceBench - Bonds OpenMP (ms)	**56769**	**56094**
Normalized	98.81%	100%
Standard Deviation	1.8%	1.1%
FinanceBench - Repo OpenMP (ms)	**39407**	**39948**
Normalized	100%	98.64%
Standard Deviation	1.7%	2%
TNN - CPU - MobileNet v2 (ms)	**289.764**	**297.132**
Normalized	100%	97.52%
Standard Deviation	1.7%	0%
TNN - CPU - SqueezeNet v1.1 (ms)	**274.869**	**274.097**
Normalized	99.72%	100%
Standard Deviation	0.4%	0%
oneDNN - C.B.S.A - f32 - CPU (ms)	**0.863782**	**0.867545**
Normalized	100%	99.57%
Standard Deviation	0.5%	0.5%
oneDNN - D.B.s - f32 - CPU (ms)	**2.33290**	**2.30467**
Normalized	98.79%	100%
Standard Deviation	1.2%	4.3%
oneDNN - IP Shapes 1D - f32 - CPU (ms)	**1.55447**	**1.57963**
Normalized	100%	98.41%
Standard Deviation	1.7%	1.7%
oneDNN - IP Shapes 3D - f32 - CPU (ms)	**0.849248**	**0.813628**
Normalized	95.81%	100%
Standard Deviation	1.1%	1.5%
oneDNN - M.M.B.S.T - f32 - CPU (ms)	**0.521968**	**0.514604**
Normalized	98.59%	100%
Standard Deviation	1.8%	2.3%
oneDNN - R.N.N.T - f32 - CPU (ms)	**1123**	**1247**
Normalized	100%	90.05%
Standard Deviation	0.5%	11%
DaCapo Benchmark - H2 (msec)	**5217**	**4570**
Normalized	87.6%	100%
Standard Deviation	6.3%	6.9%
DaCapo Benchmark - Jython (msec)	**4778**	**4740**
Normalized	99.2%	100%
Standard Deviation	2.3%	1.1%
DaCapo Benchmark - Tradebeans (msec)	**5591**	**4671**
Normalized	83.54%	100%
Standard Deviation	5.3%	5%
DaCapo Benchmark - Tradesoap (msec)	**5148**	**4621**
Normalized	89.76%	100%
Standard Deviation	2.4%	2.1%

AMD EPYC 7F72 2P Linux 5.11 - Perf Governor

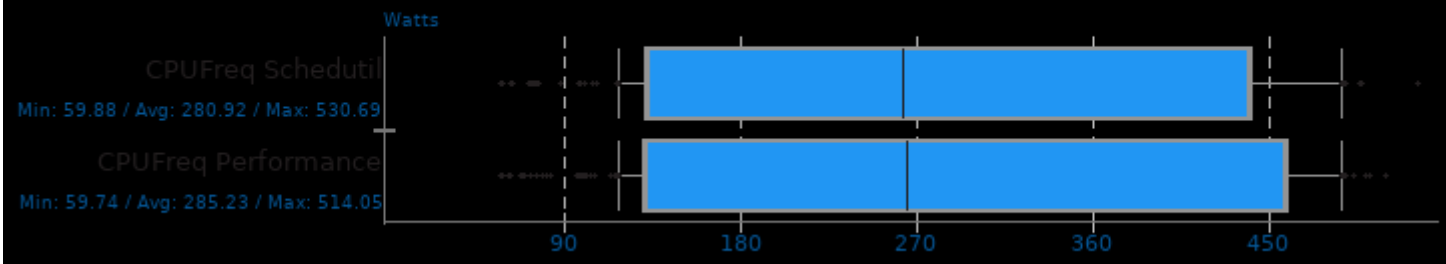
Timed Godot Game Engine Compilation - Time To Compile (sec)	**59.177**	**58.746**
Normalized	99.27%	100%
Standard Deviation	0.5%	0.8%
Timed GDB GNU Debugger Compilation - Time To Compile (sec)	**92.916**	**85.277**
Normalized	91.78%	100%
Standard Deviation	0.8%	0.3%
Timed Linux Kernel Compilation - Time To Compile	**25.752**	**25.414**
Normalized	98.69%	100%
Standard Deviation	2.4%	2.4%
Timed LLVM Compilation - Time To Compile (sec)	**208.786**	**208.043**
Normalized	99.64%	100%
Standard Deviation	0.7%	2.3%
Cython Benchmark - N-Queens (sec)	**26.604**	**26.895**
Normalized	100%	98.92%
Standard Deviation	1.4%	0.4%
Gcrypt Library (sec)	**232.542**	**232.760**
Normalized	100%	99.91%
Standard Deviation	0.6%	0.5%
GnuPG - 2.7.S.F.E (sec)	**77.179**	**77.022**
Normalized	99.8%	100%
Standard Deviation	0.5%	1%
OpenFOAM - Motorbike 30M (sec)	**18.30**	**18.29**
Normalized	99.95%	100%
Standard Deviation	0.8%	0.9%
OpenFOAM - Motorbike 60M (sec)	**128.28**	**128.81**
Normalized	100%	99.59%
Standard Deviation	0.1%	0.1%
Quantum ESPRESSO - AUSURF112 (sec)	**1171**	**1249**
Normalized	100%	93.75%
Standard Deviation	2.1%	4.6%
RELION - Basic - CPU (sec)	**348.294**	**348.338**
Normalized	100%	99.99%
Standard Deviation	2.6%	2.7%
ASTC Encoder - Thorough (sec)	**5.65**	**5.67**
Normalized	100%	99.65%
Standard Deviation	0.2%	0.2%
ASTC Encoder - Exhaustive (sec)	**40.97**	**41.07**
Normalized	100%	99.76%
Standard Deviation	0.1%	0.2%
Blender - Barbershop - CPU-Only (sec)	**156.83**	**158.07**
Normalized	100%	99.22%
Standard Deviation	0.1%	1%
Build2 - Time To Compile (sec)	**67.322**	**67.334**
Normalized	100%	99.98%
Standard Deviation	1.3%	0.8%
Dolfyn - C.F.D (sec)	**18.652**	**18.635**
Normalized	99.91%	100%
Standard Deviation	0.3%	0.3%
POV-Ray - Trace Time (sec)	**11.305**	**11.427**
Normalized	100%	98.93%
Standard Deviation	1%	0.2%
YafaRay - T.T.F.S.S (sec)	**87.143**	**87.331**
Normalized	100%	99.78%

AMD EPYC 7F72 2P Linux 5.11 - Perf Governor

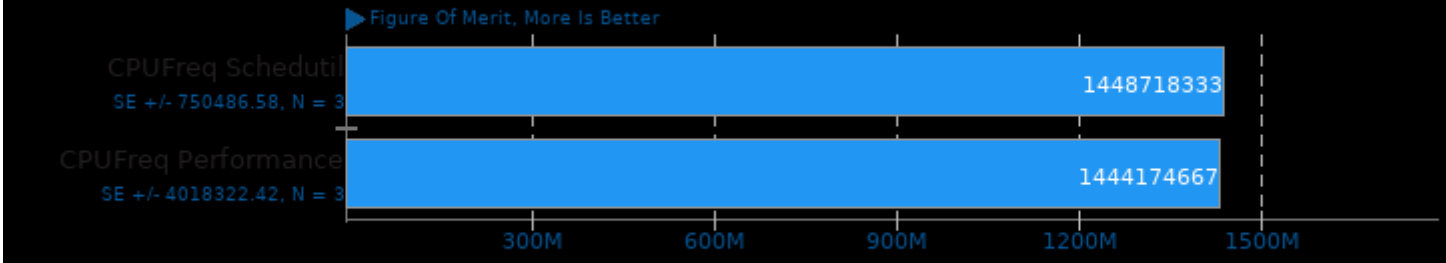
Standard Deviation	3.8%	3.1%
GPAW - Carbon Nanotube (sec)	**59.851**	**59.757**
Normalized	99.84%	100%
Standard Deviation	1.1%	0.9%
Timed MrBayes Analysis - P.P.A (sec)	**82.042**	**82.261**
Normalized	100%	99.73%
Standard Deviation	0.6%	0.6%
Nebular Empirical Analysis Tool (sec)	**24.633**	**25.037**
Normalized	100%	98.39%
Standard Deviation	7.8%	9.3%
Primesieve - 1.P.N.G (sec)	**4.535**	**4.489**
Normalized	98.99%	100%
Standard Deviation	1%	0.5%
Rodinia - OpenMP CFD Solver (sec)	**8.882**	**8.510**
Normalized	95.81%	100%
Standard Deviation	6.2%	1.4%
Rodinia - OpenMP LavaMD (sec)	**52.092**	**52.360**
Normalized	100%	99.49%
Standard Deviation	0.4%	0%
Rodinia - OpenMP Leukocyte (sec)	**52.684**	**51.290**
Normalized	97.35%	100%
Standard Deviation	2.3%	0.6%
Rodinia - O.S (sec)	**10.338**	**10.432**
Normalized	100%	99.1%
Standard Deviation	0.7%	0.8%
Rodinia - OpenMP HotSpot3D (sec)	**96.603**	**96.885**
Normalized	100%	99.71%
Standard Deviation	1%	1%
SQLite Speedtest - Timed Time - Size 1,000 (sec)	**70.540**	**69.883**
Normalized	99.07%	100%
Standard Deviation	0.3%	0.5%
Tachyon - Total Time (sec)	**18.0565**	**18.2004**
Normalized	100%	99.21%
Standard Deviation	0.6%	1.4%
Tungsten Renderer - Hair (sec)	**6.69036**	**6.69505**
Normalized	100%	99.93%
Standard Deviation	0.5%	2.2%
Tungsten Renderer - Water Caustic (sec)	**21.3329**	**21.4652**
Normalized	100%	99.38%
Standard Deviation	3.8%	2.1%
Tungsten Renderer - Volumetric Caustic (sec)	**5.26235**	**5.31183**
Normalized	100%	99.07%
Standard Deviation	1.8%	2.5%
QMCPACK - simple-H2O (Execution Time - sec)	**29.281**	**28.971**
Normalized	98.94%	100%
Standard Deviation	0.5%	0.4%

CPU Power Consumption Monitor

Phoronix Test Suite System Monitoring

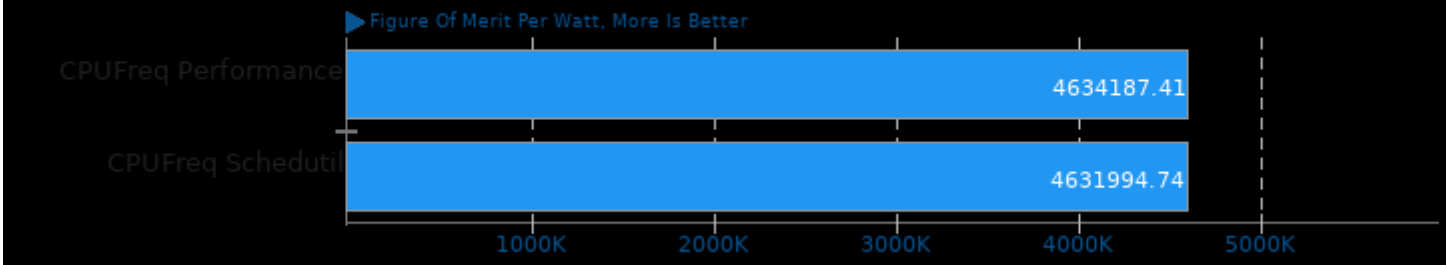


Algebraic Multi-Grid Benchmark 1.2



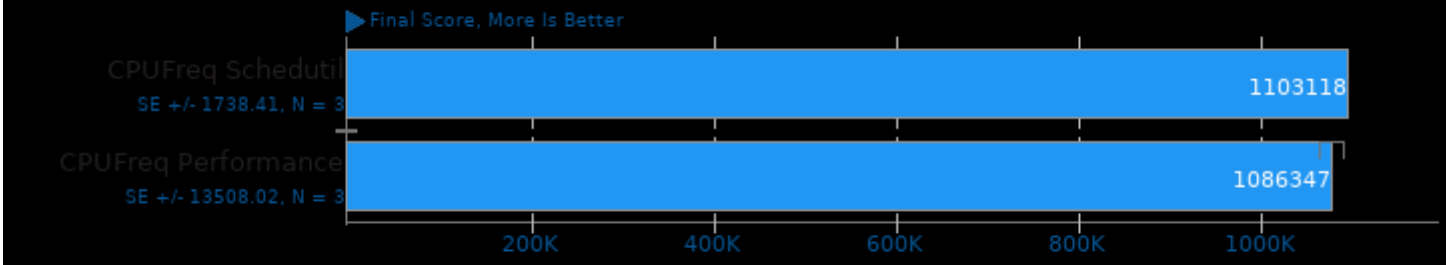
1. (CC) gcc options: -lparcsr_ls -lparcsr_mv -lseq_mv -lIJ_mv -lkrylov -lHYPRE_utilities -lm -fopenmp -pthread -lmpi

Algebraic Multi-Grid Benchmark 1.2



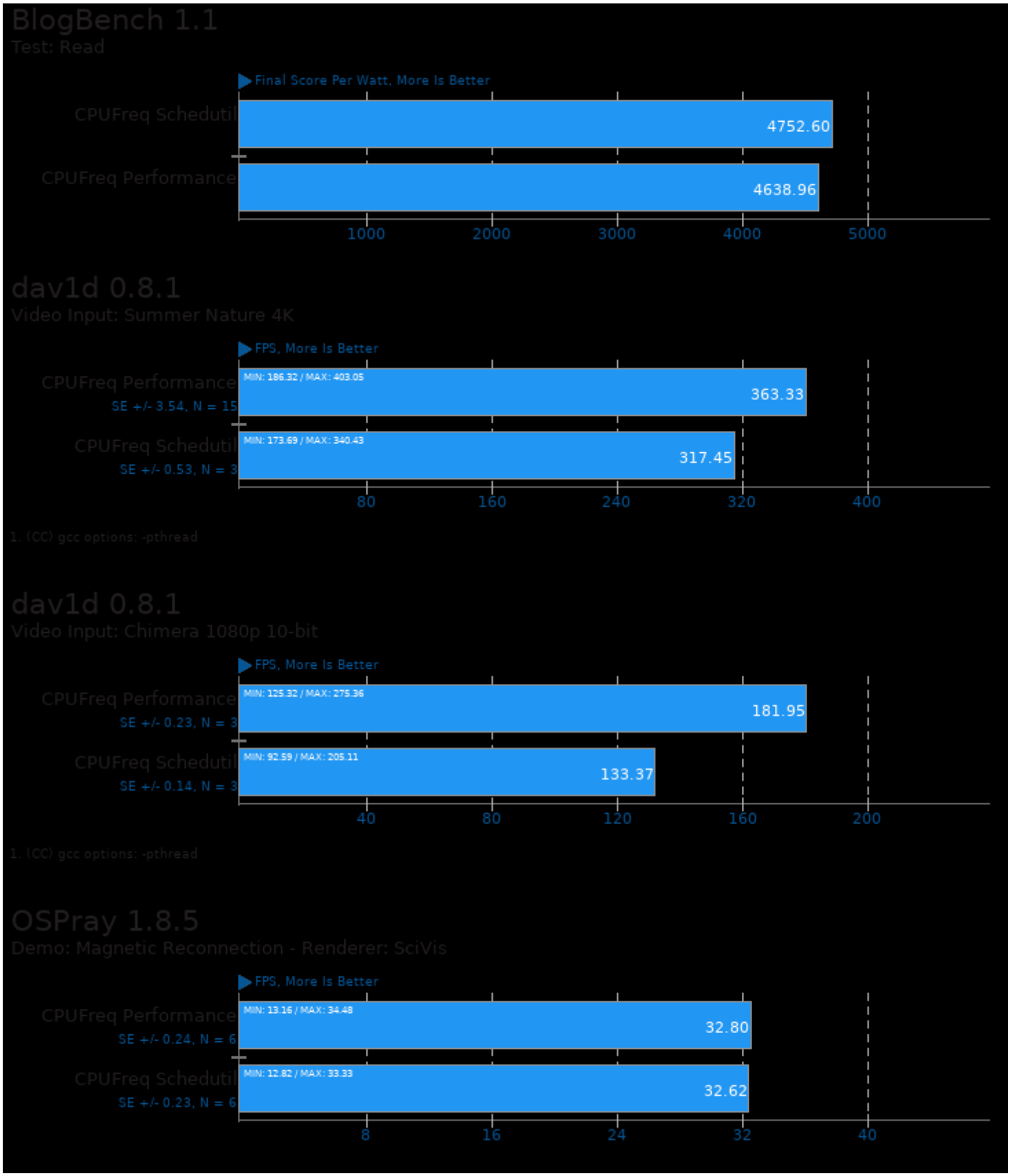
BlogBench 1.1

Test: Read

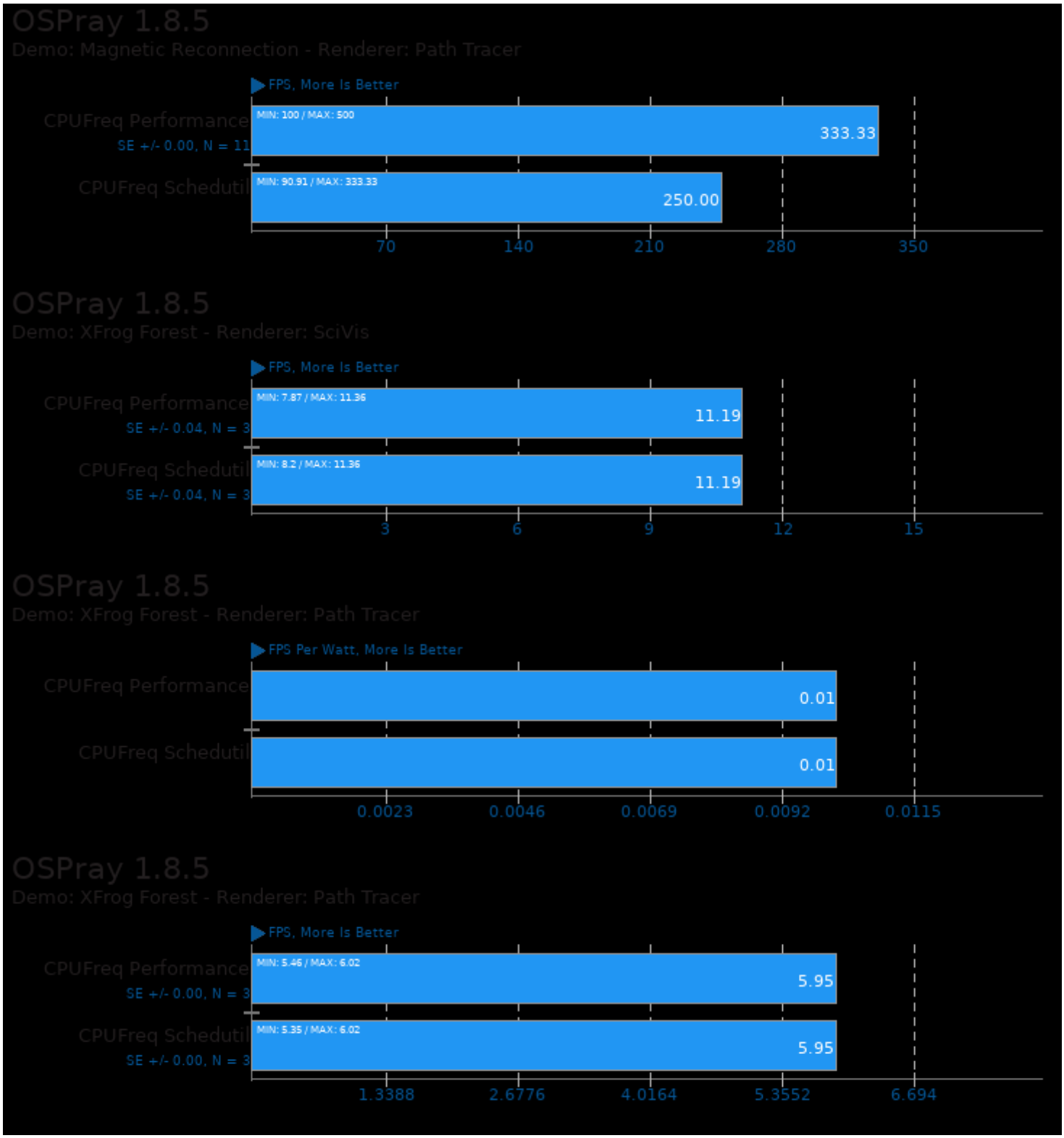


1. (CC) gcc options: -O2 -pthread

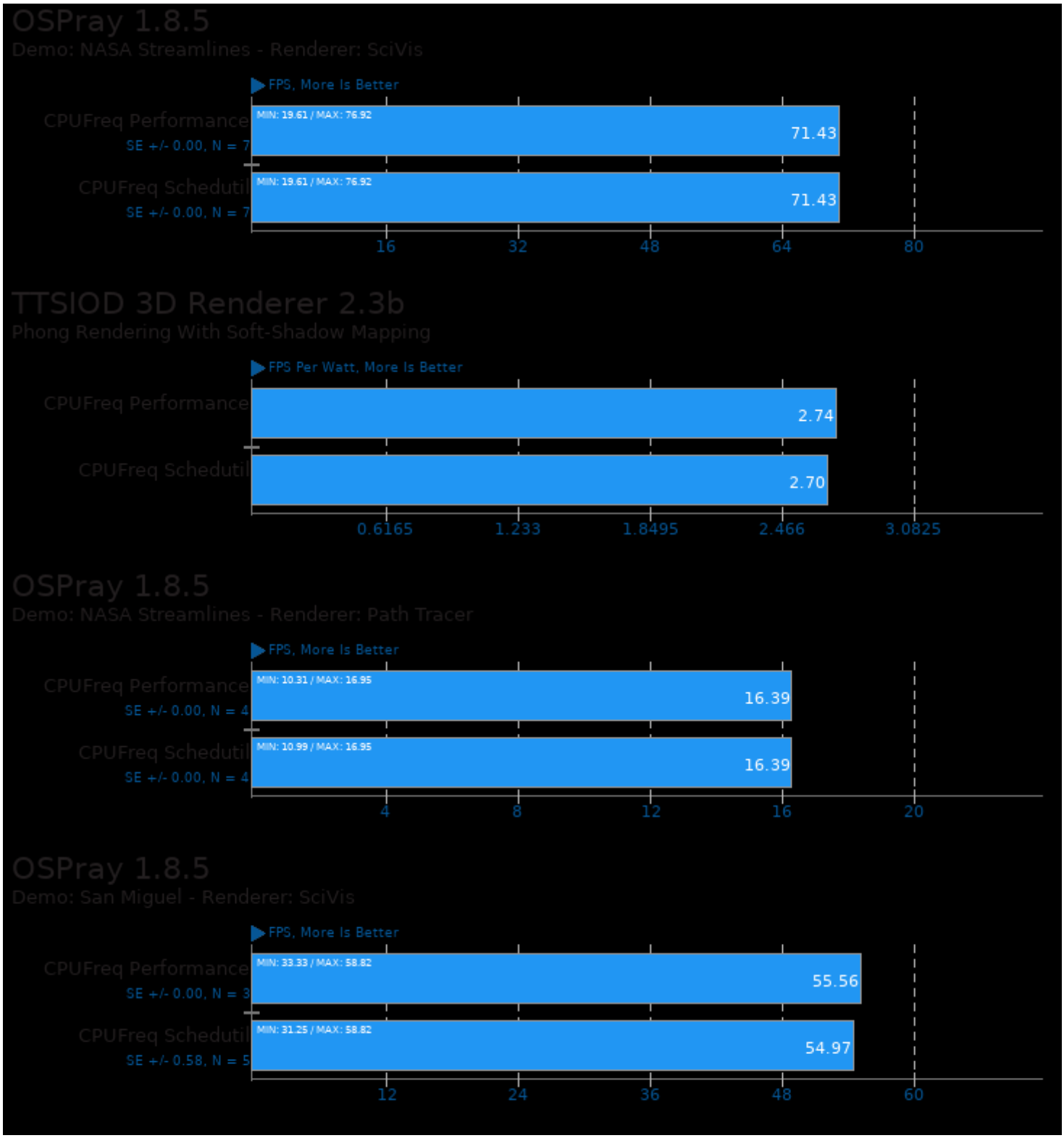
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



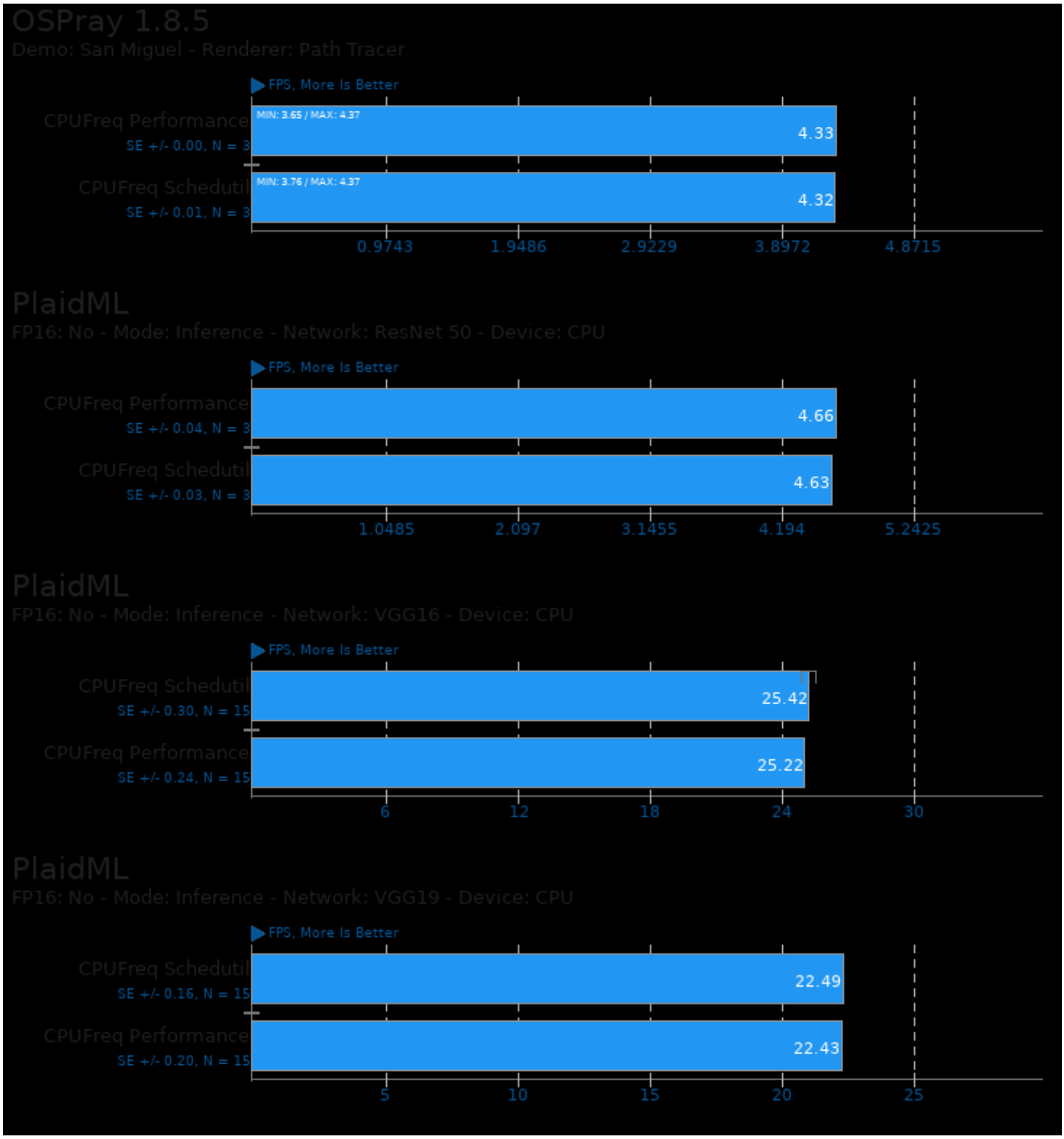
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



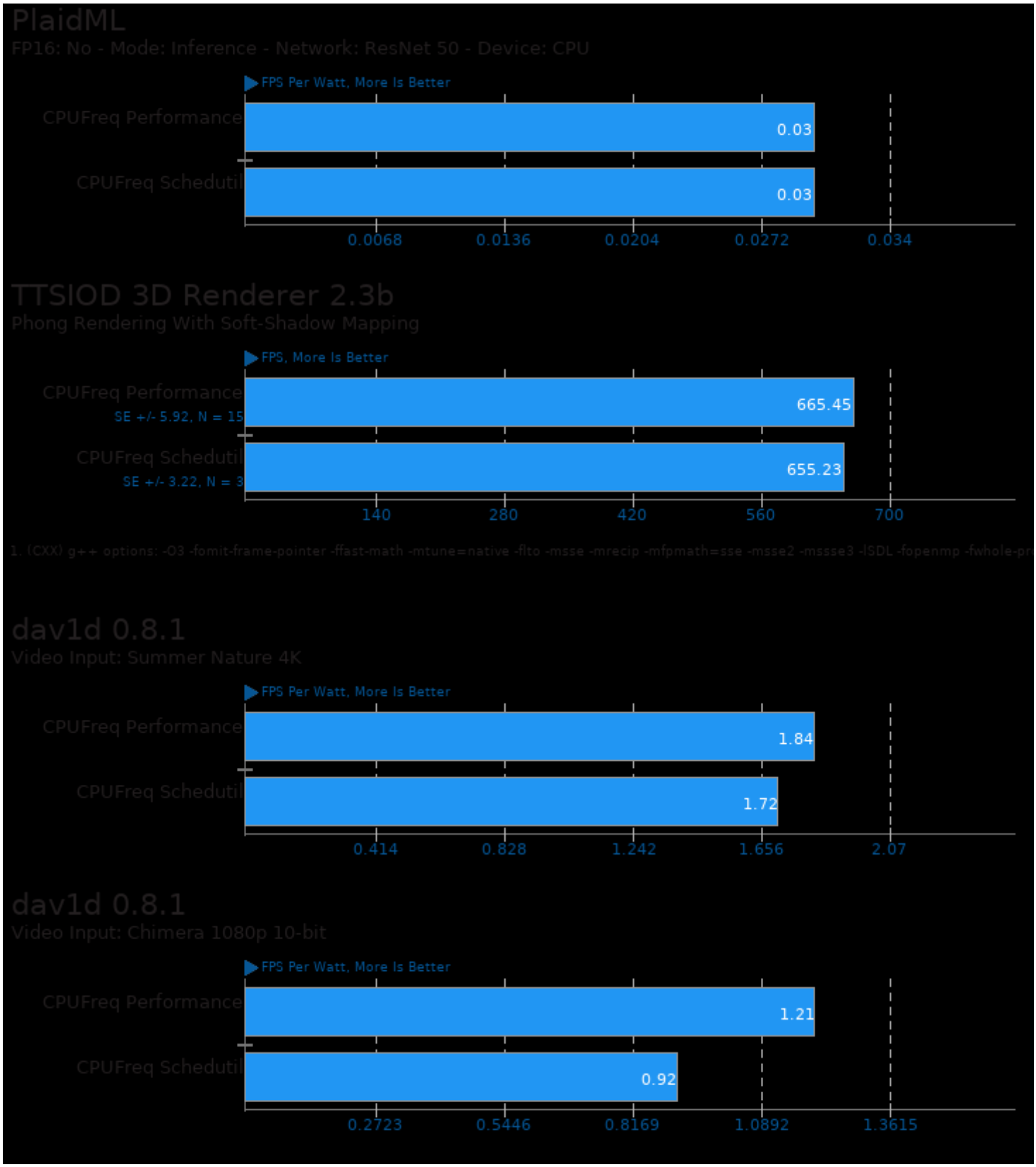
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



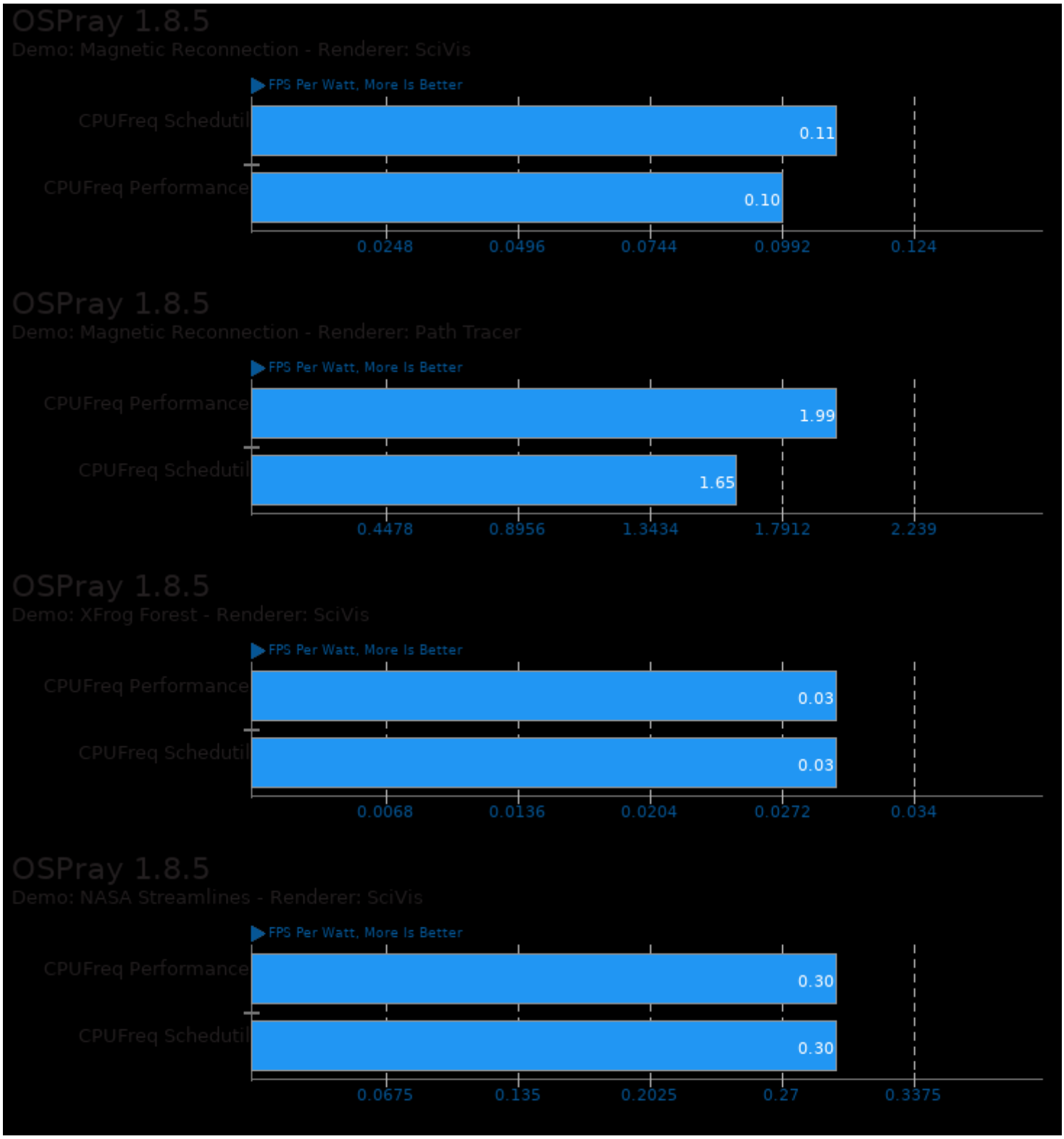
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



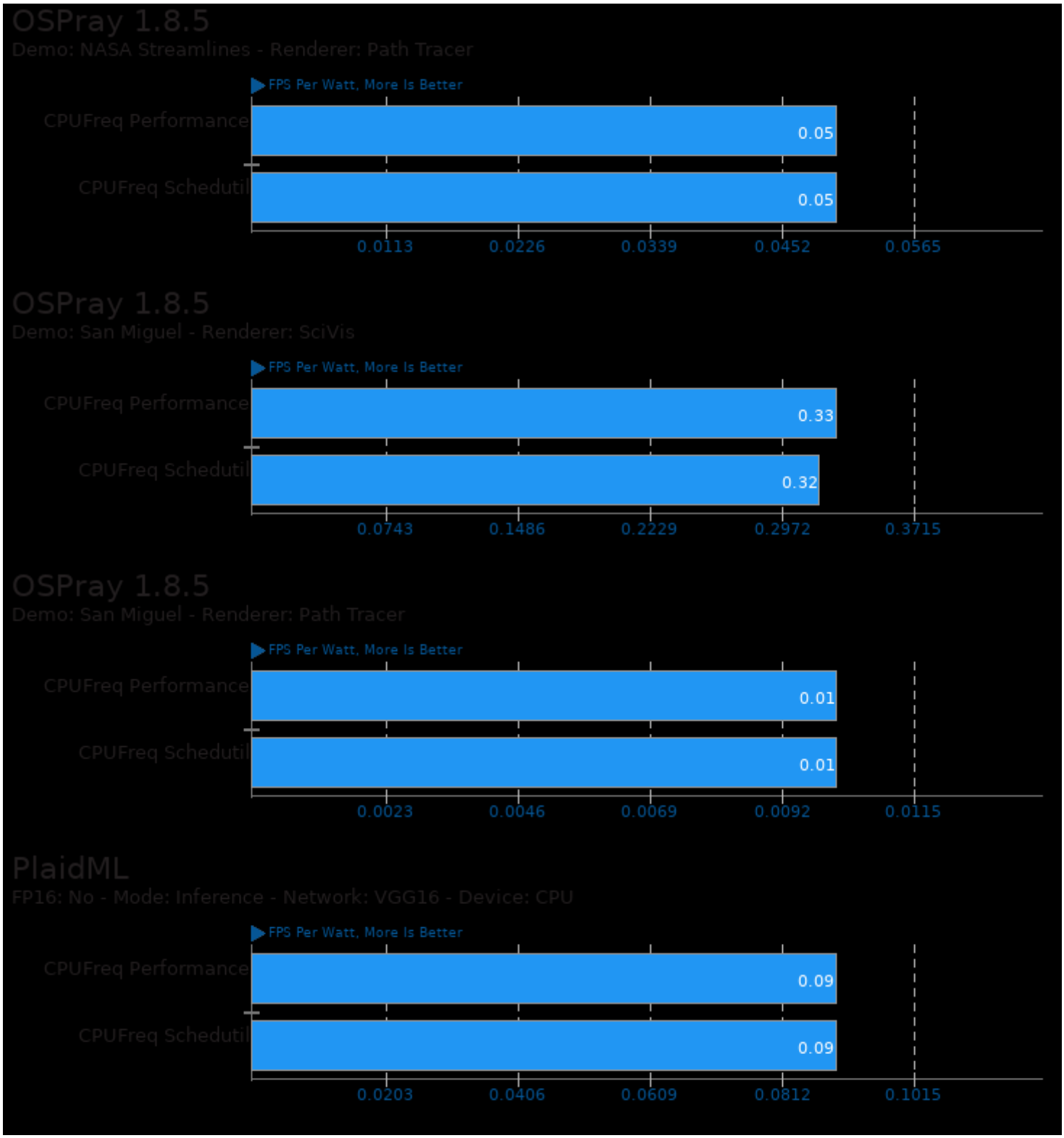
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



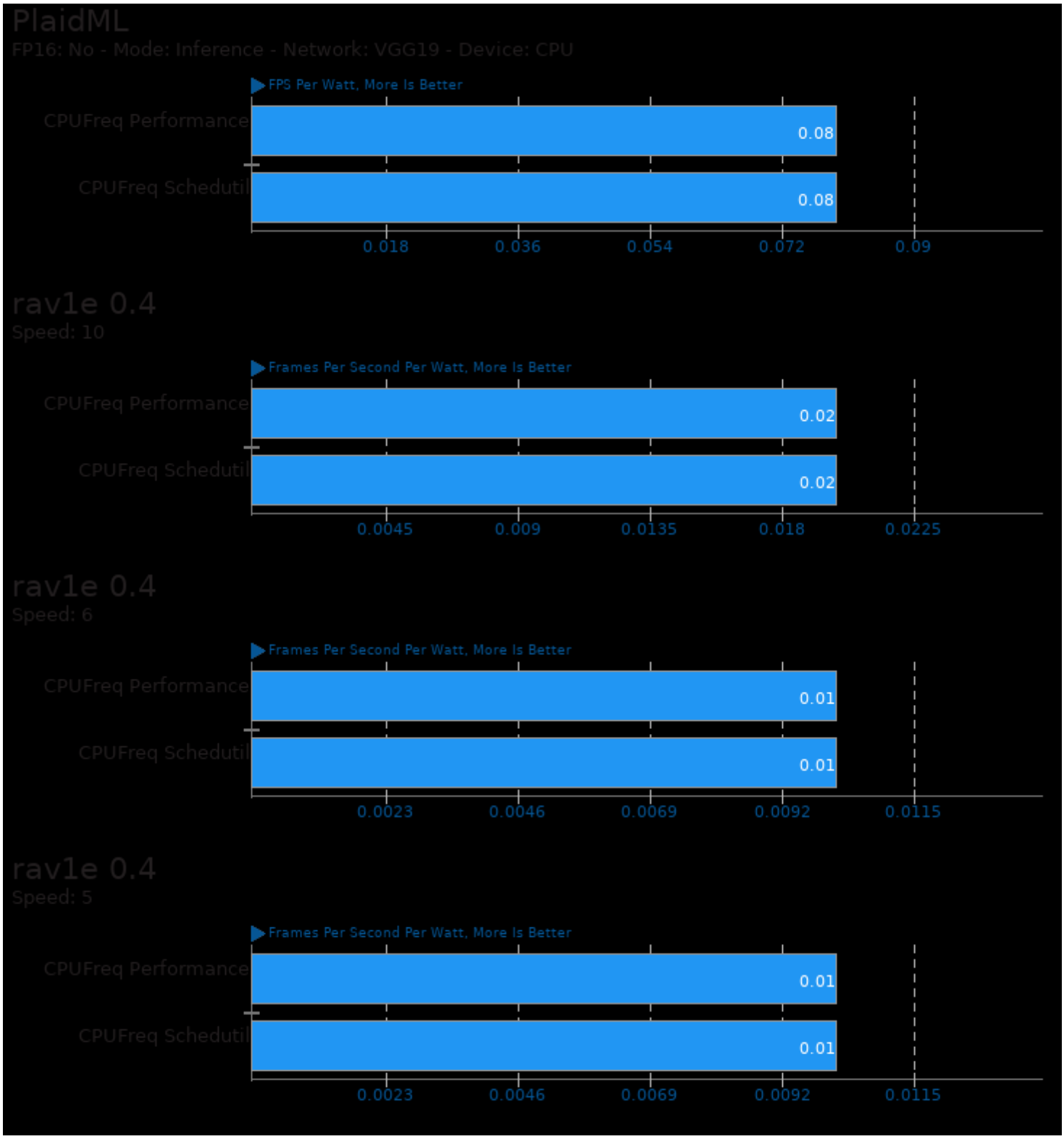
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



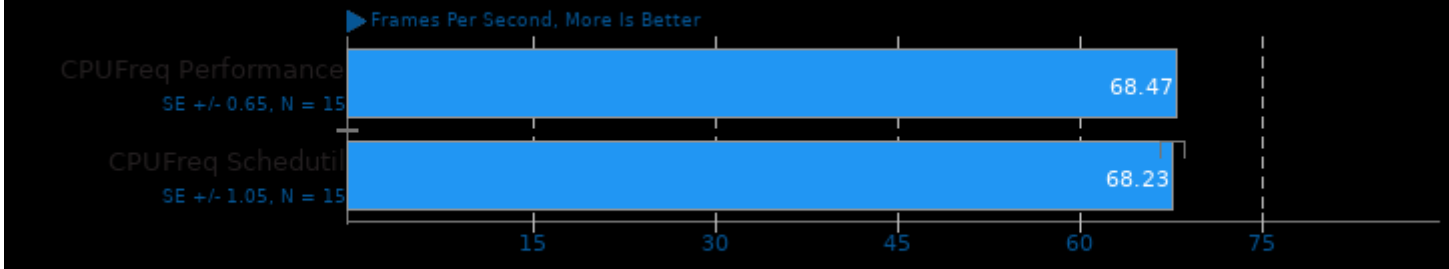
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



AMD EPYC 7F72 2P Linux 5.11 - Perf Governor

SVT-AV1 0.8

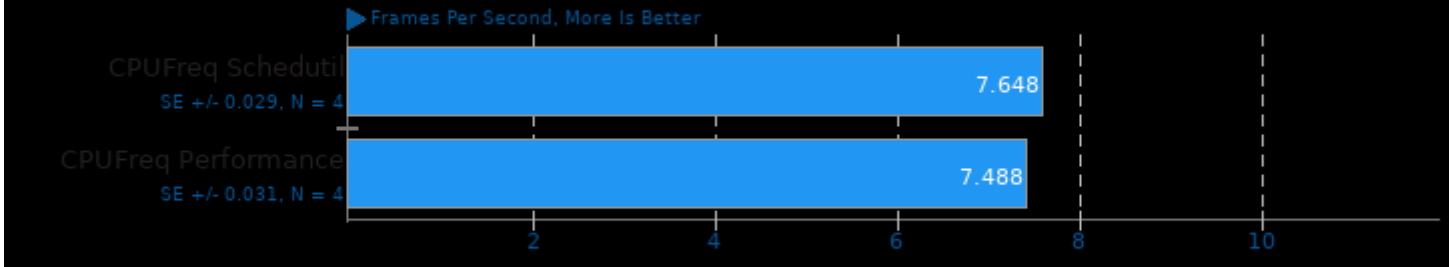
Encoder Mode: Enc Mode 8 - Input: 1080p



1. (CXX) g++ options: -O3 -fcommon -fPIE -fPIC -pie

SVT-AV1 0.8

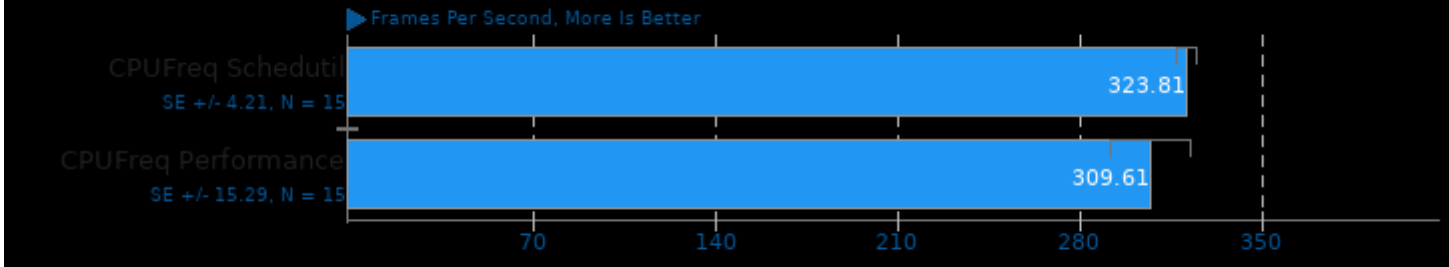
Encoder Mode: Enc Mode 4 - Input: 1080p



1. (CXX) g++ options: -O3 -fcommon -fPIE -fPIC -pie

SVT-VP9 0.1

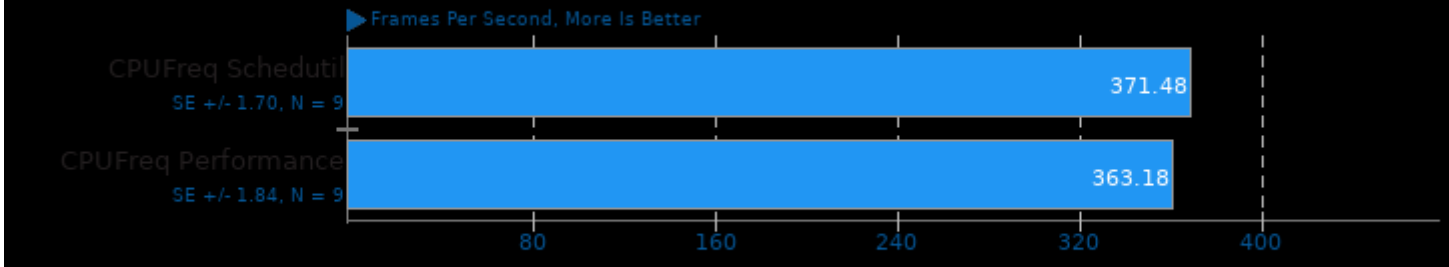
Tuning: Visual Quality Optimized - Input: Bosphorus 1080p



1. (CC) gcc options: -O3 -fcommon -fPIE -fPIC -fvisibility=hidden -pie -rdynamic -lpthread -lrt -lm

SVT-VP9 0.1

Tuning: PSNR/SSIM Optimized - Input: Bosphorus 1080p



1. (CC) gcc options: -O3 -fcommon -fPIE -fPIC -fvisibility=hidden -pie -rdynamic -lpthread -lrt -lm

AMD EPYC 7F72 2P Linux 5.11 - Perf Governor

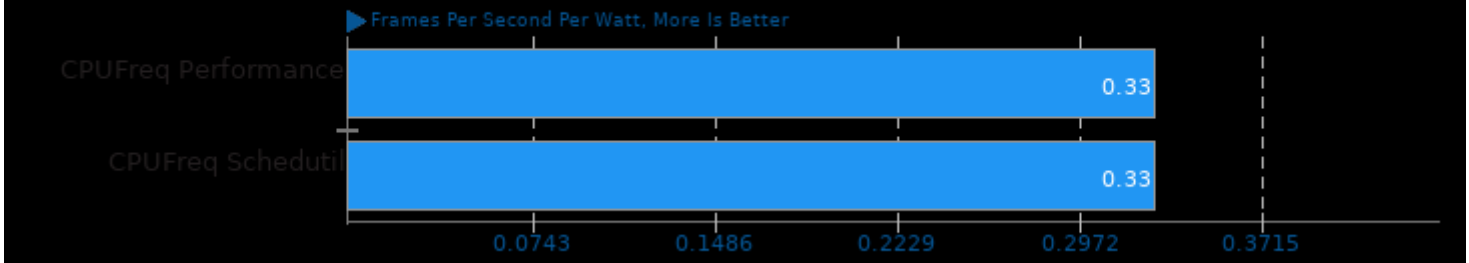
rav1e 0.4

Speed: 1



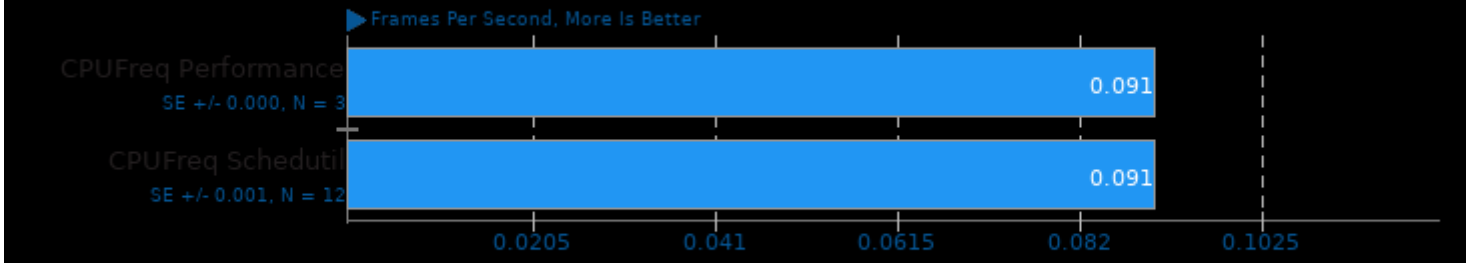
SVT-AV1 0.8

Encoder Mode: Enc Mode 8 - Input: 1080p



SVT-AV1 0.8

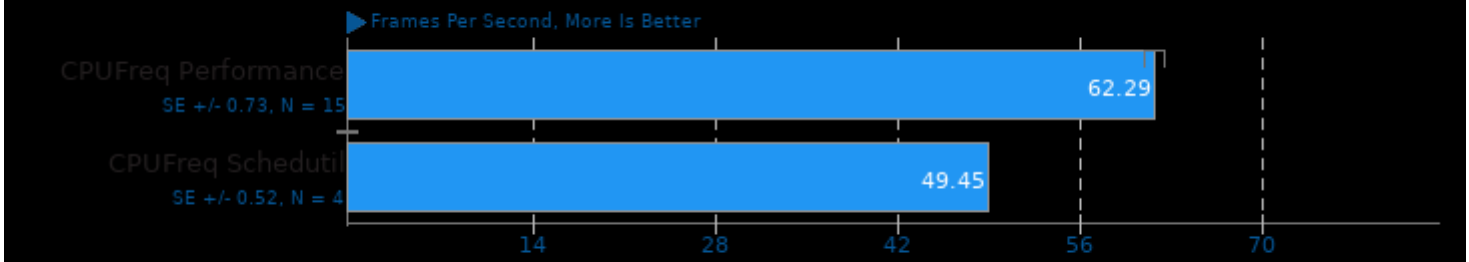
Encoder Mode: Enc Mode 0 - Input: 1080p



1. (CXX) g++ options: -O3 -fcommon -fPIE -fPIC -pie

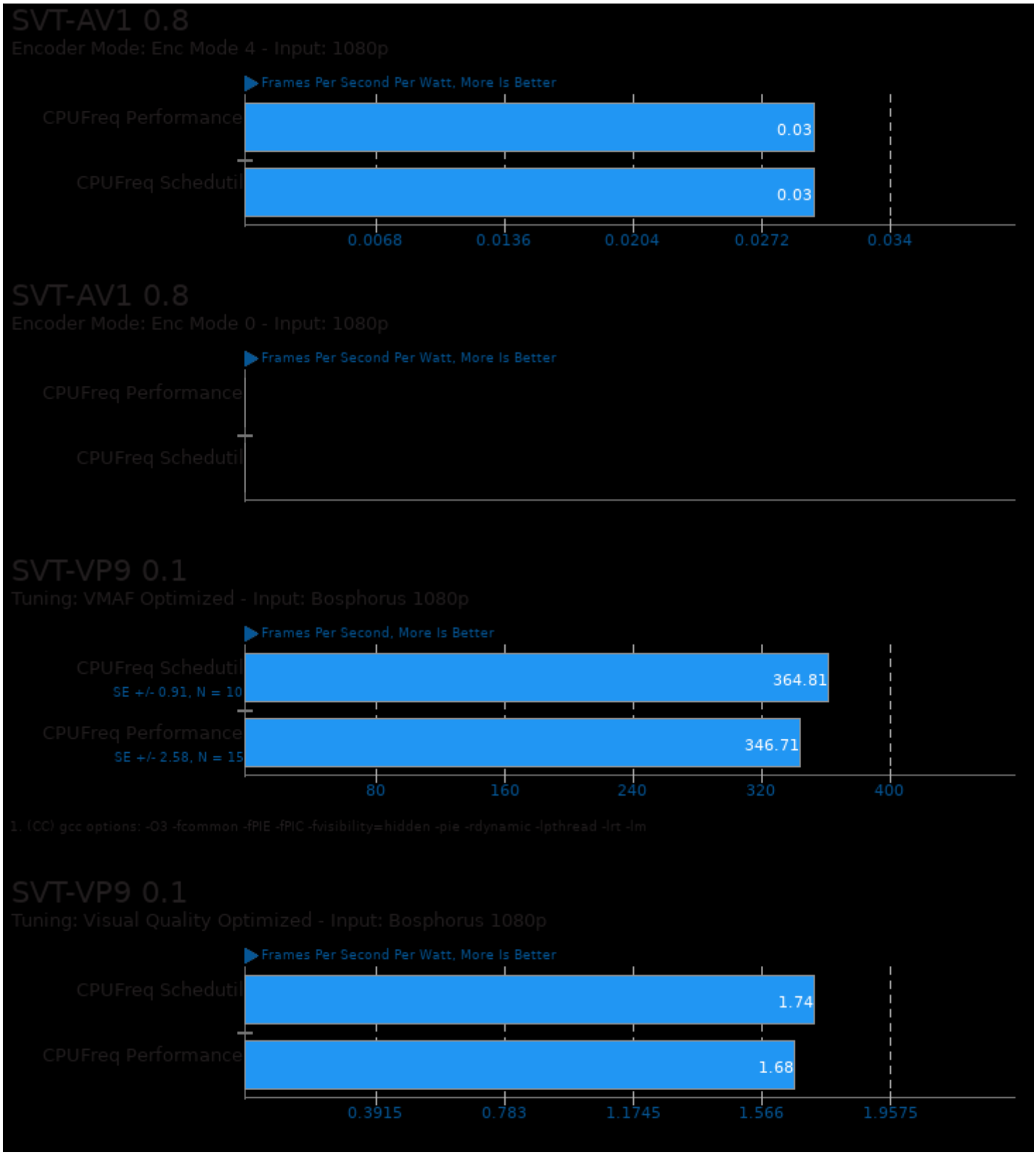
x265 3.4

Video Input: Bosphorus 1080p

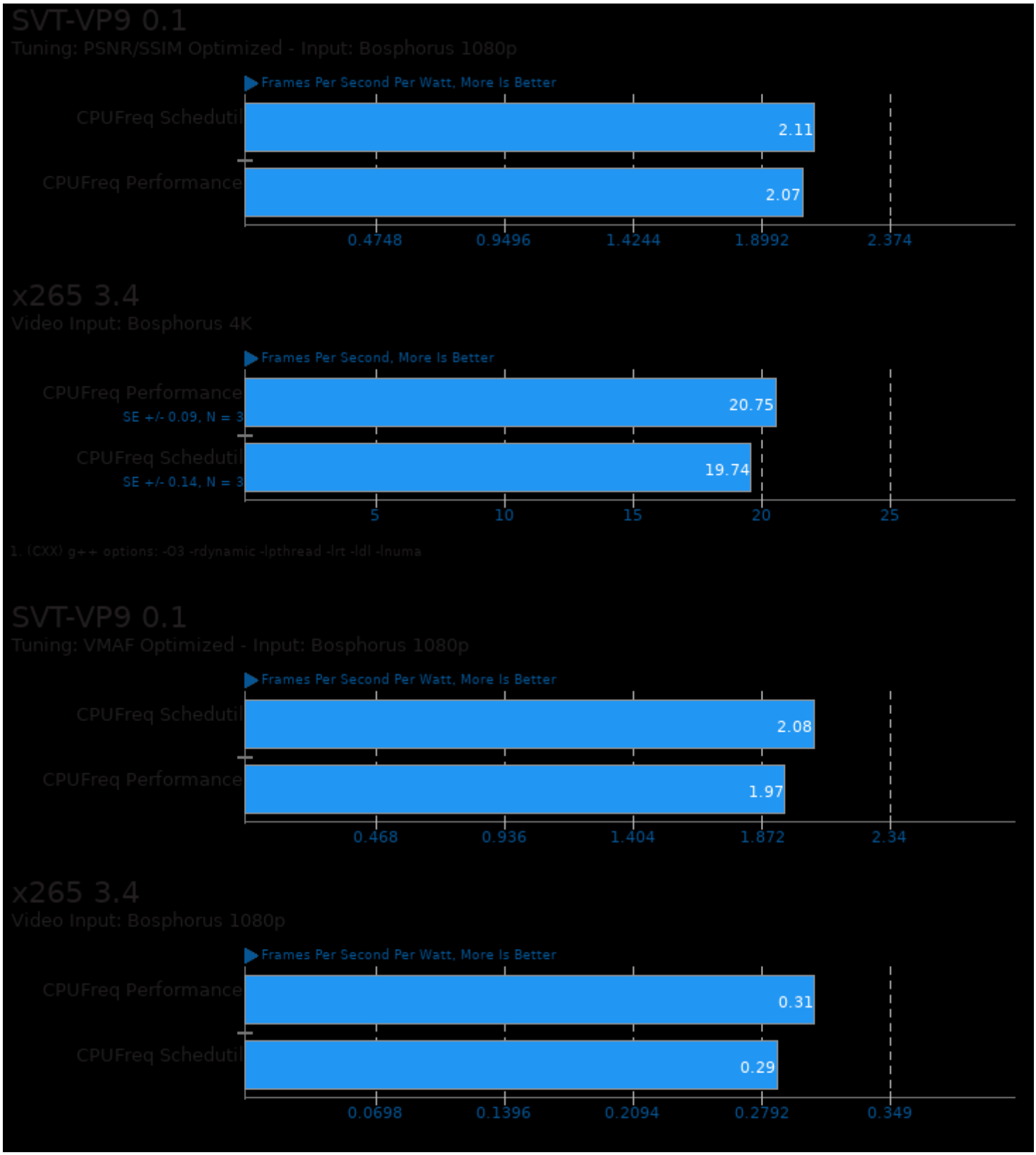


1. (CXX) g++ options: -O3 -rdynamic -lpthread -lrt -ldl -lnuma

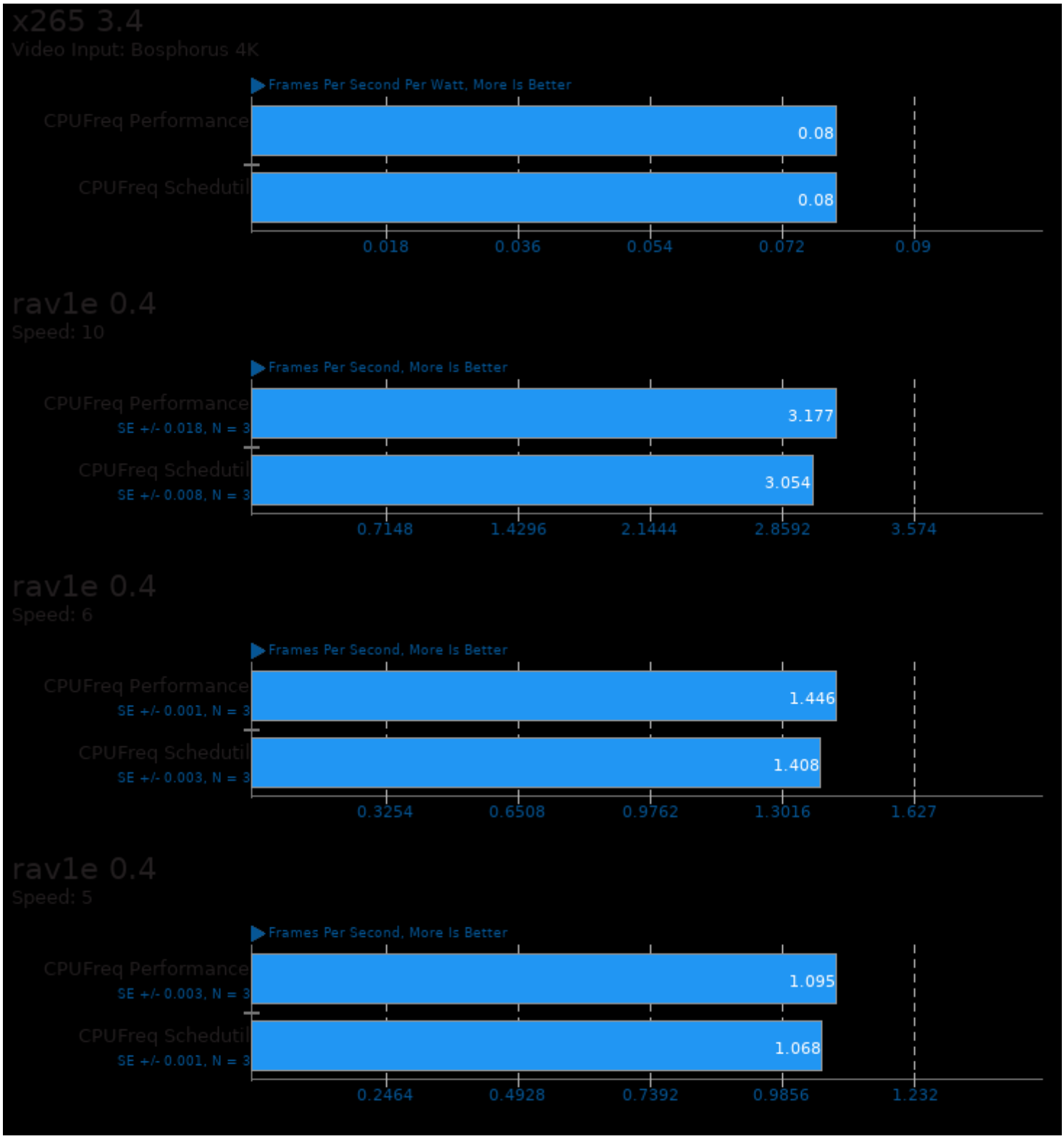
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



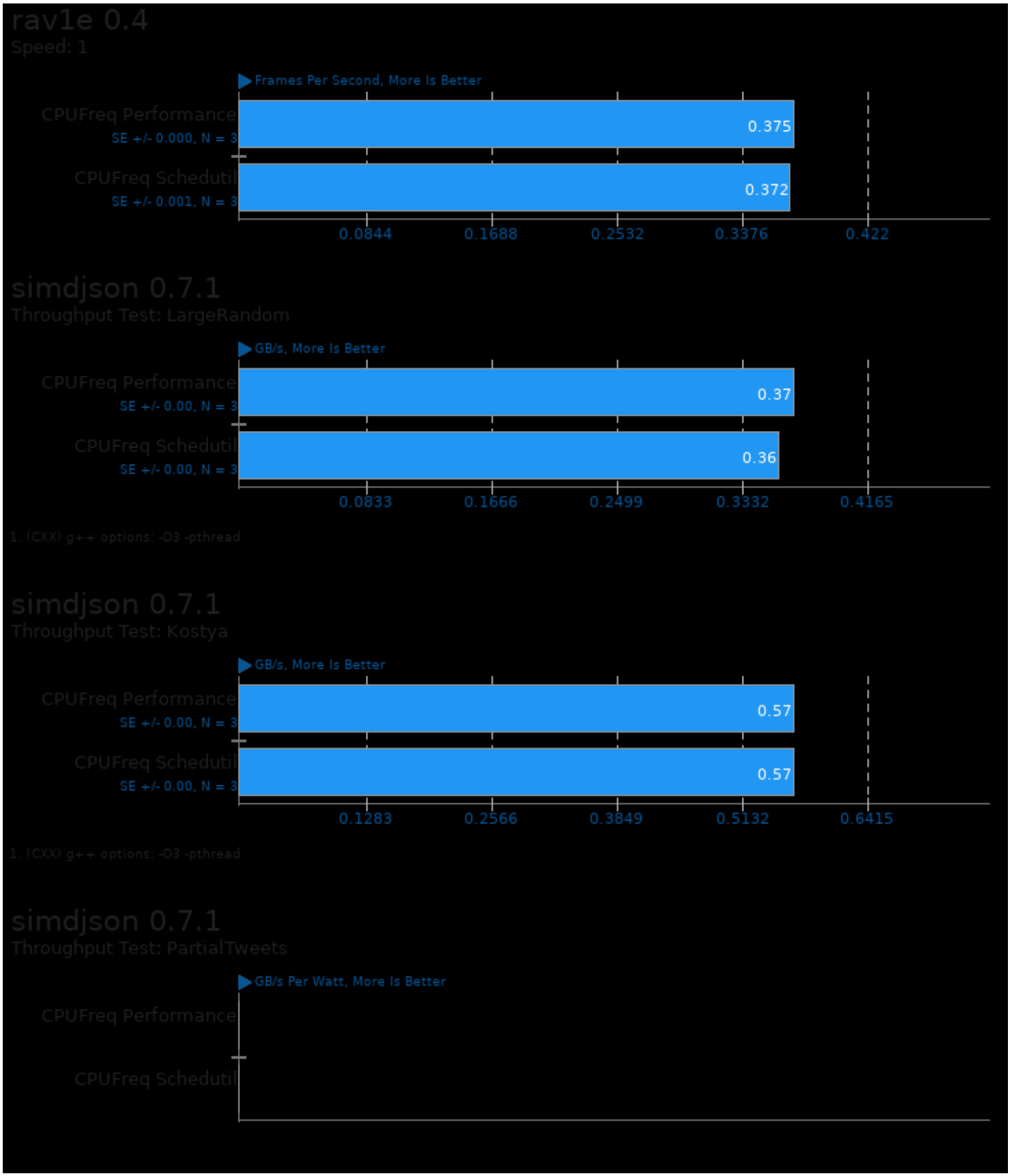
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



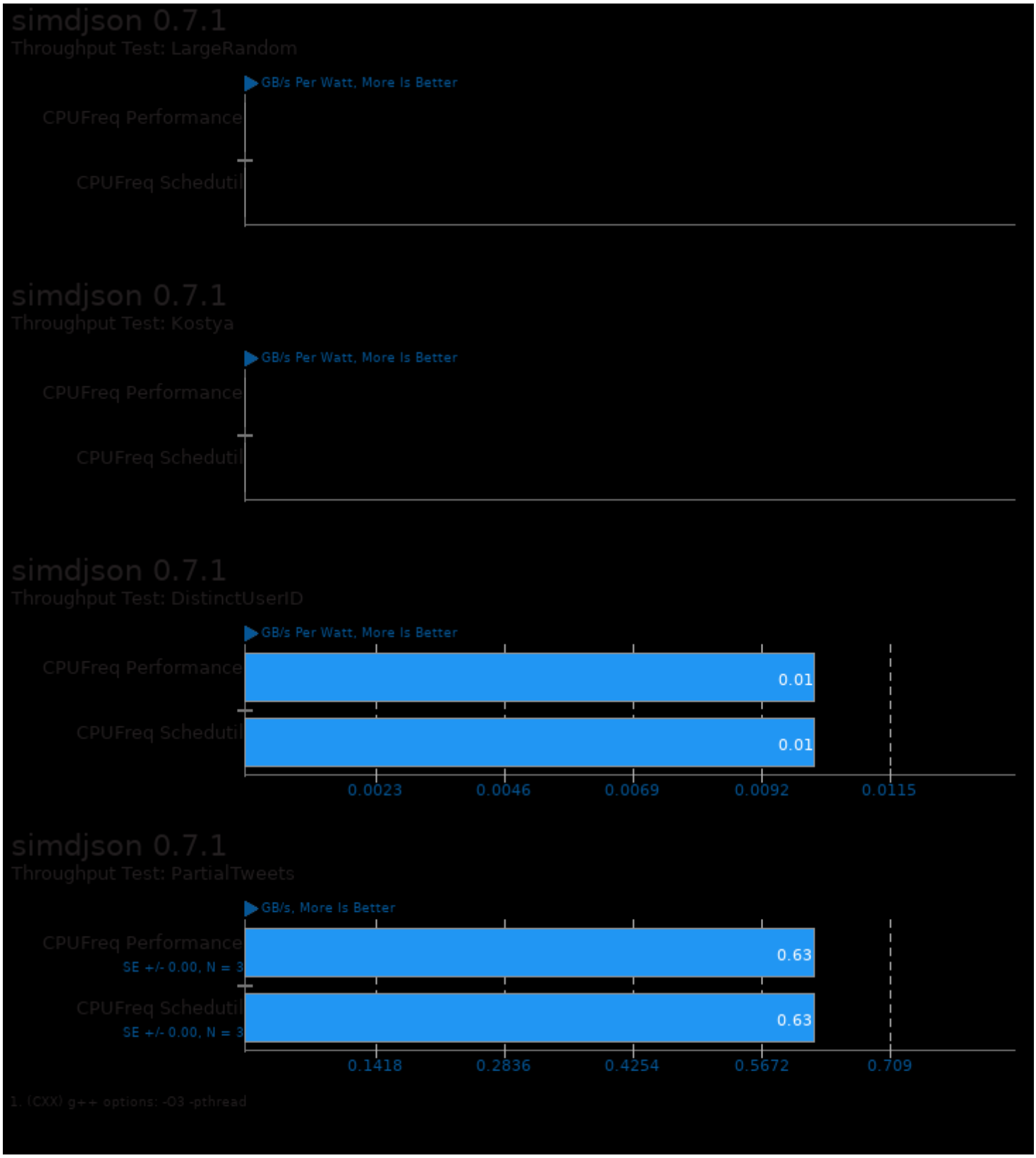
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



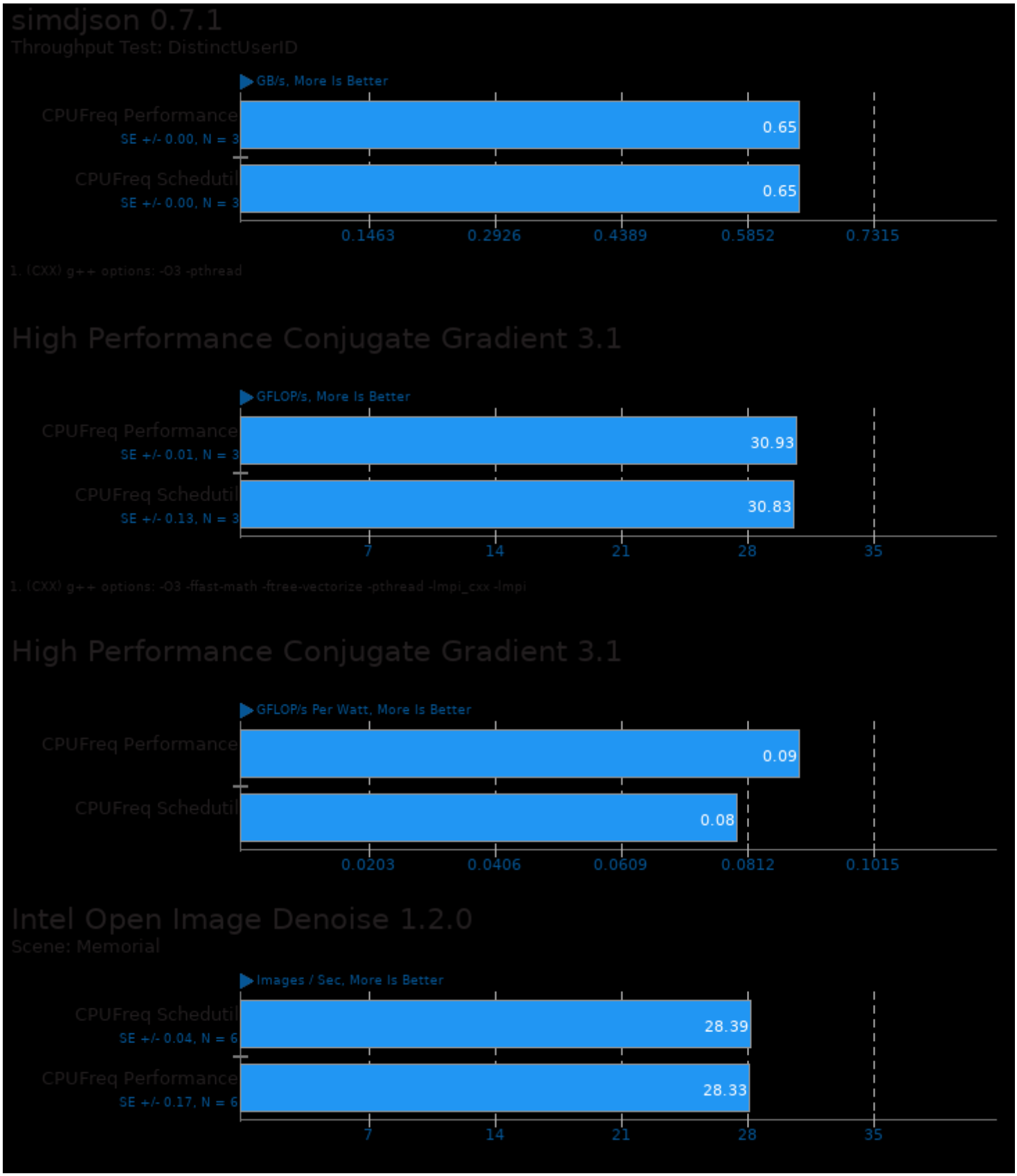
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



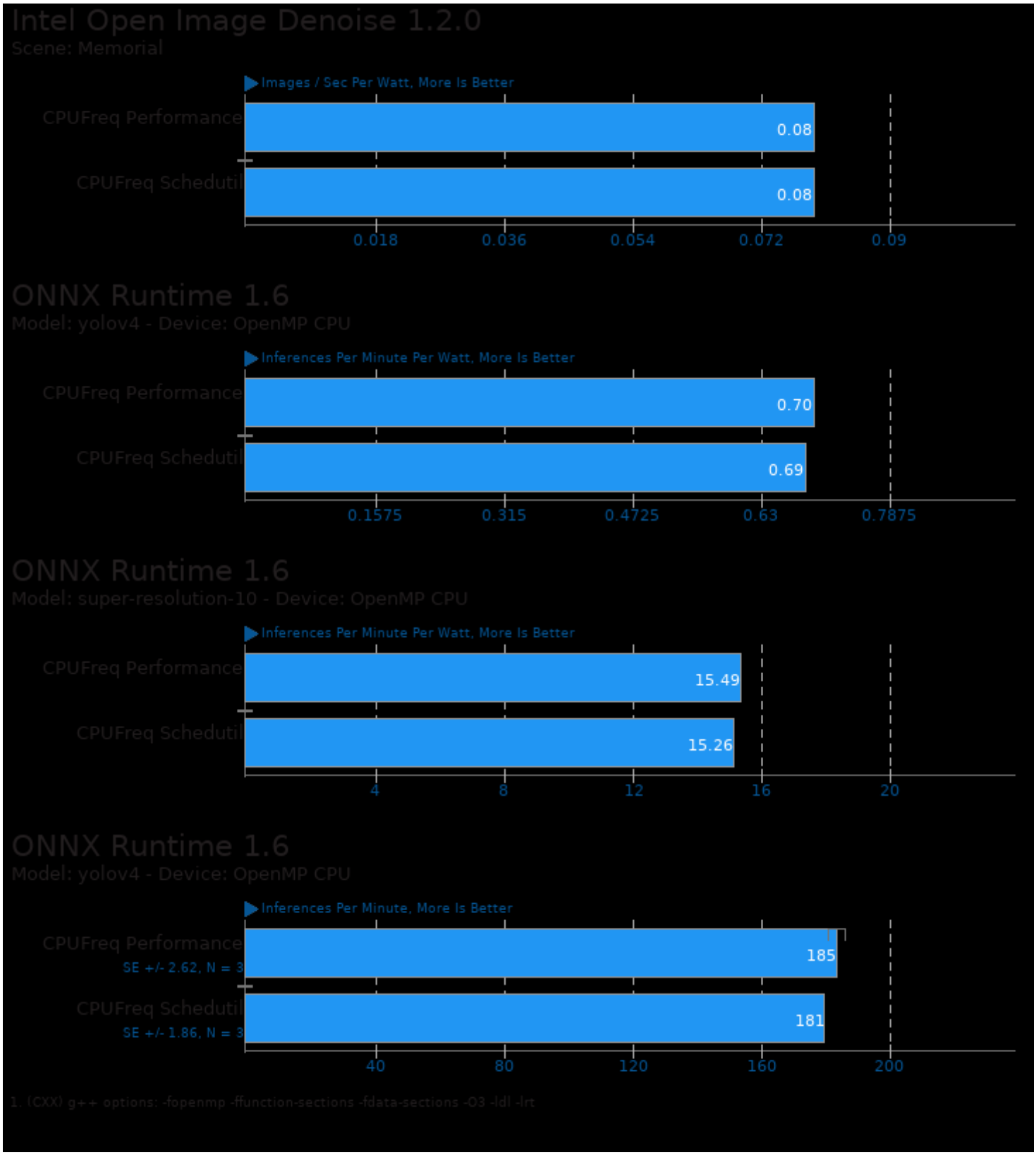
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



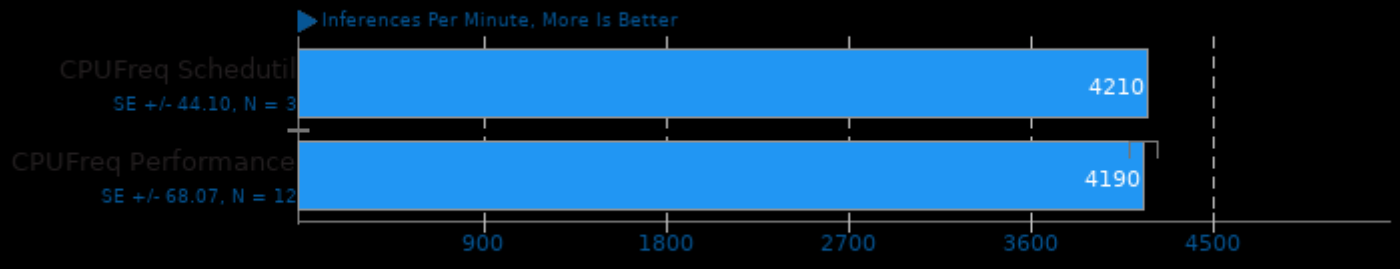
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



AMD EPYC 7F72 2P Linux 5.11 - Perf Governor

ONNX Runtime 1.6

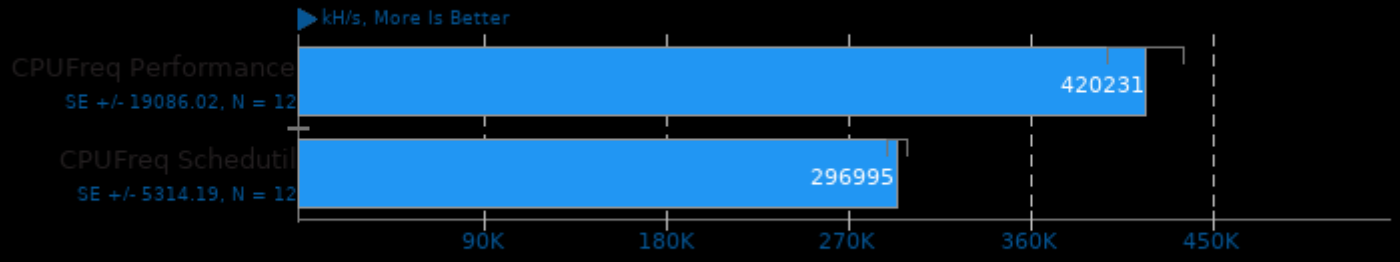
Model: super-resolution-10 - Device: OpenMP CPU



1. (CXX) g++ options: -fopenmp -ffunction-sections -fdata-sections -O3 -ldl -lrt

Cpuminer-Opt 3.15.5

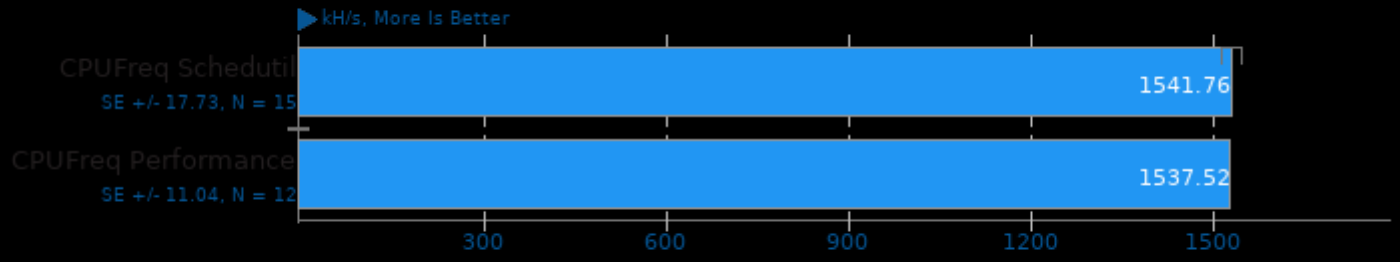
Algorithm: Quad SHA-256, Pyrite



1. (CXX) g++ options: -O2 -lcurl -lz -lpthread -lssl -lcrypto -lgmp

Cpuminer-Opt 3.15.5

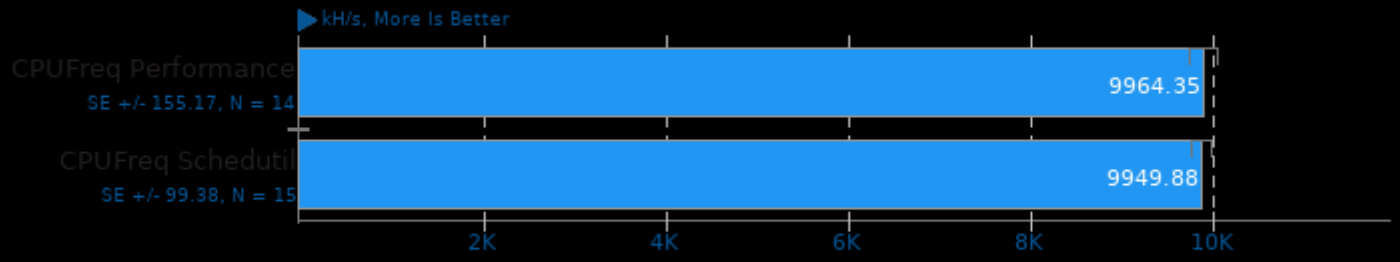
Algorithm: x25x



1. (CXX) g++ options: -O2 -lcurl -lz -lpthread -lssl -lcrypto -lgmp

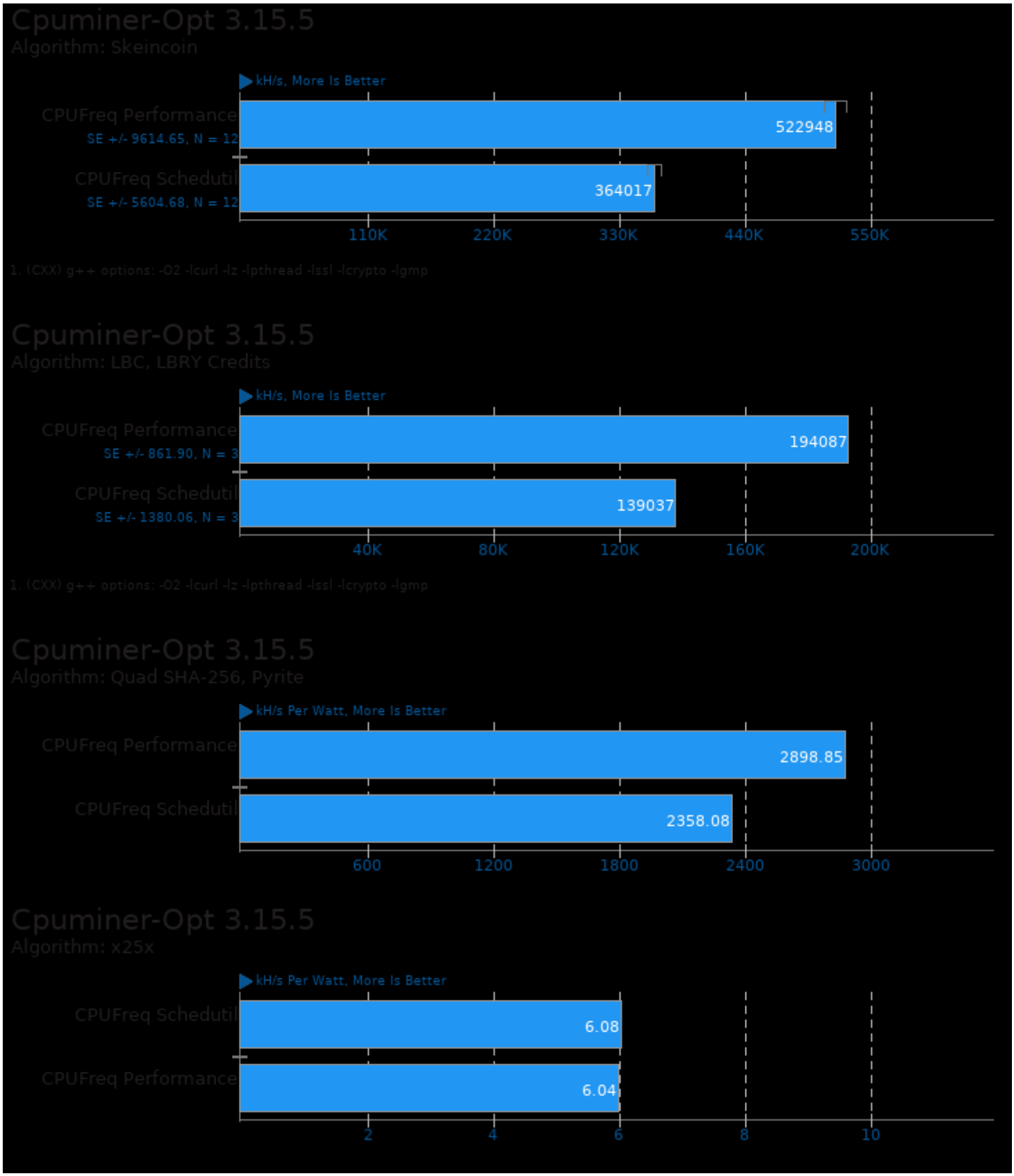
Cpuminer-Opt 3.15.5

Algorithm: Garlicoin

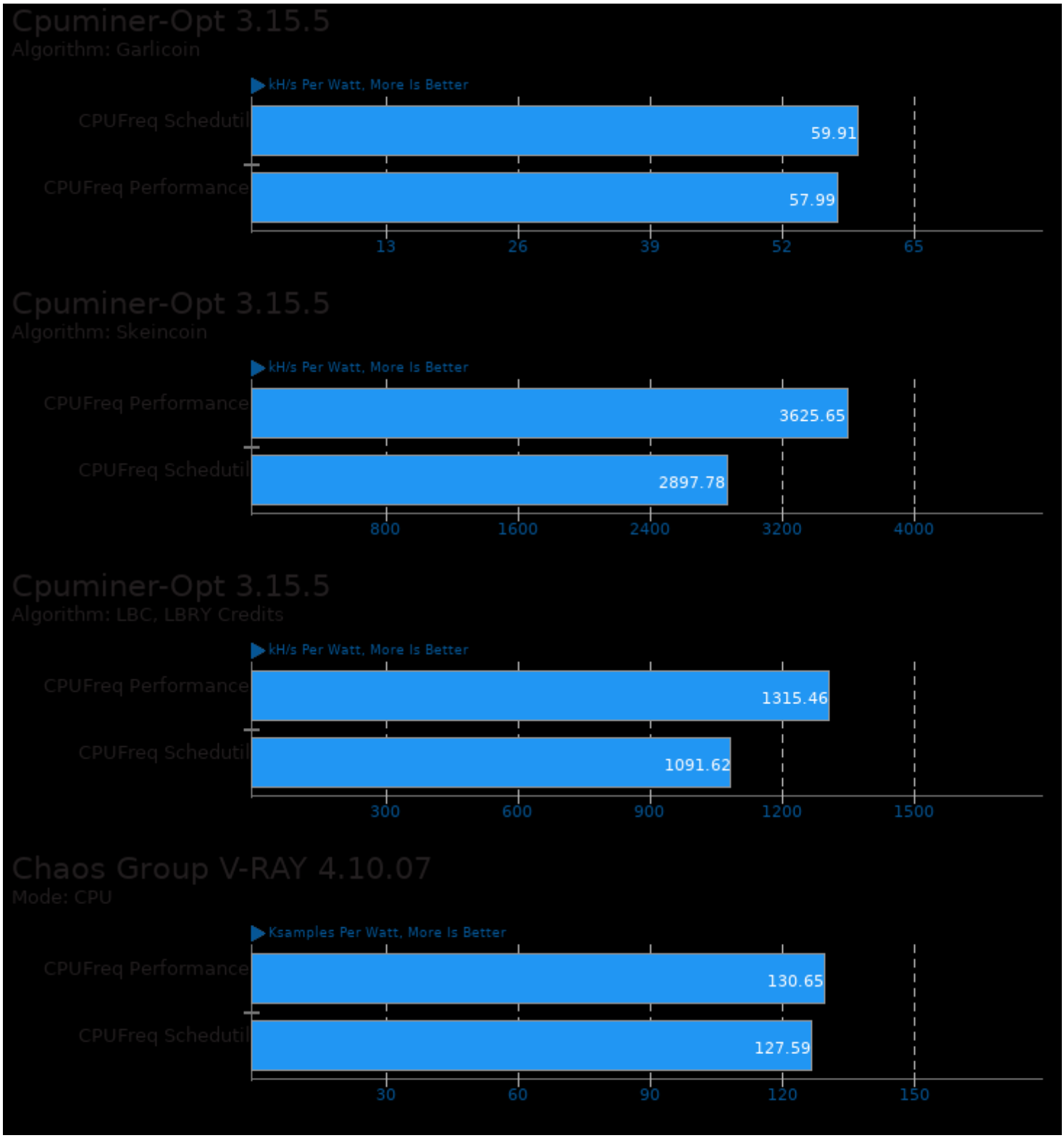


1. (CXX) g++ options: -O2 -lcurl -lz -lpthread -lssl -lcrypto -lgmp

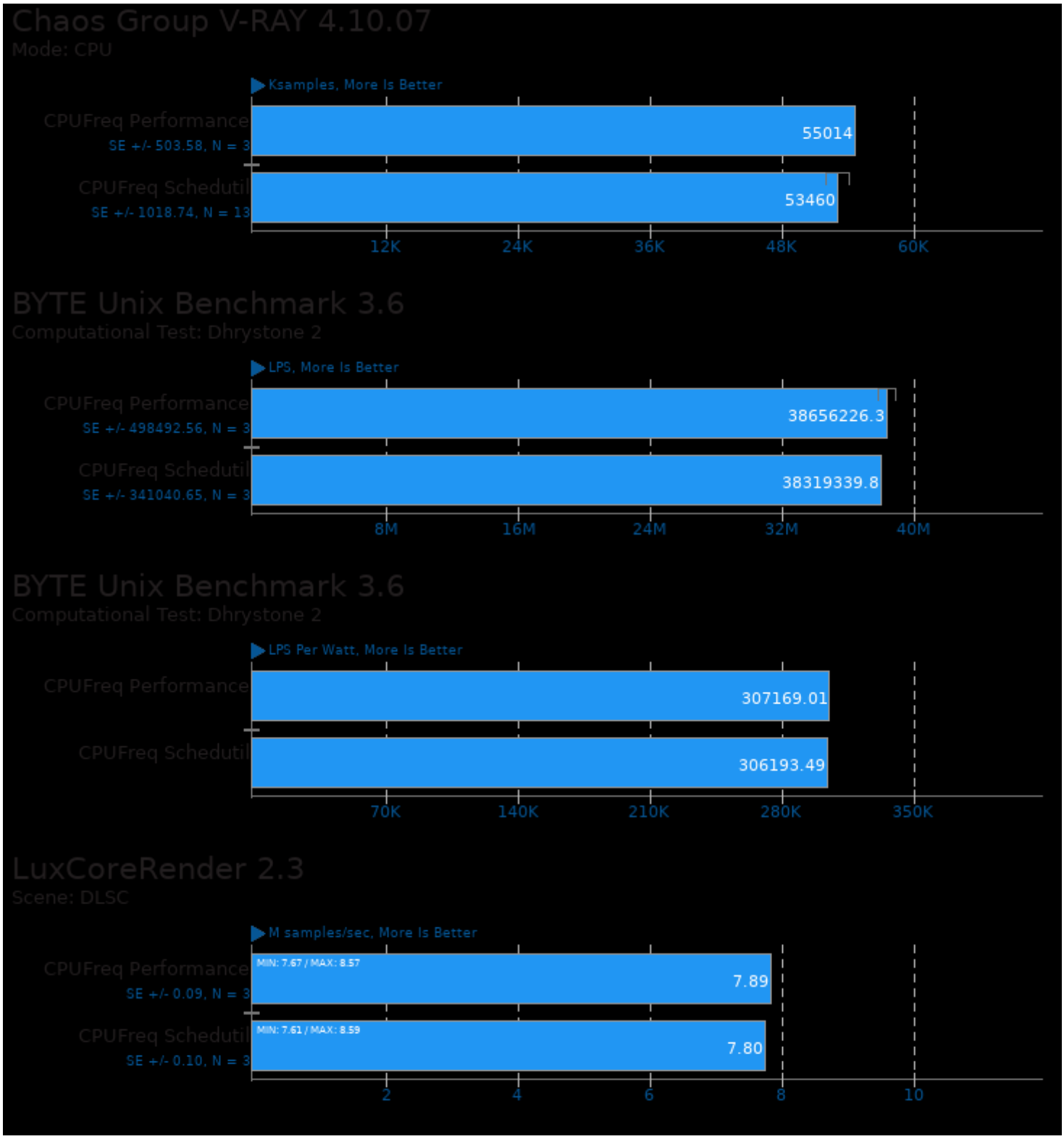
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



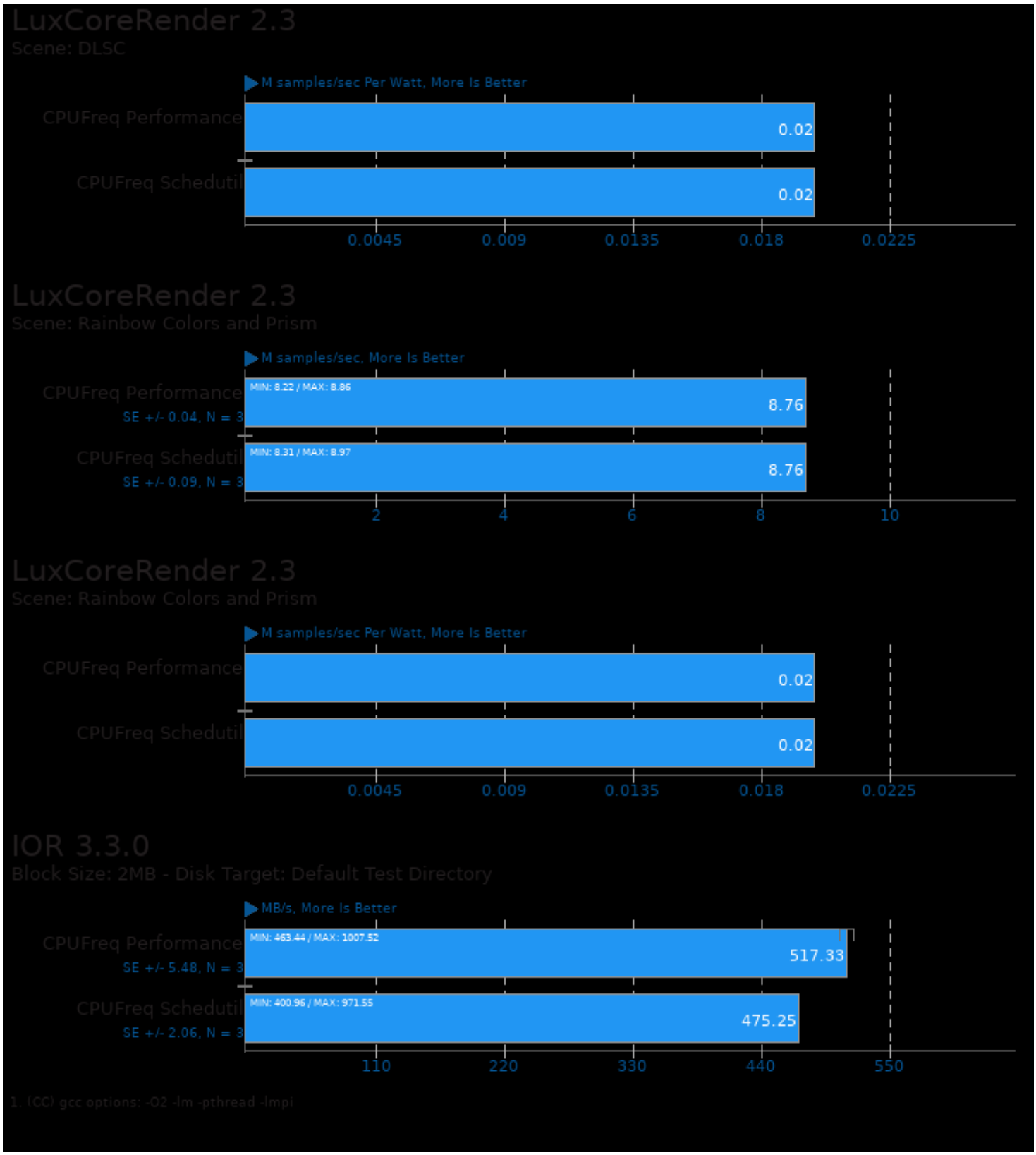
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



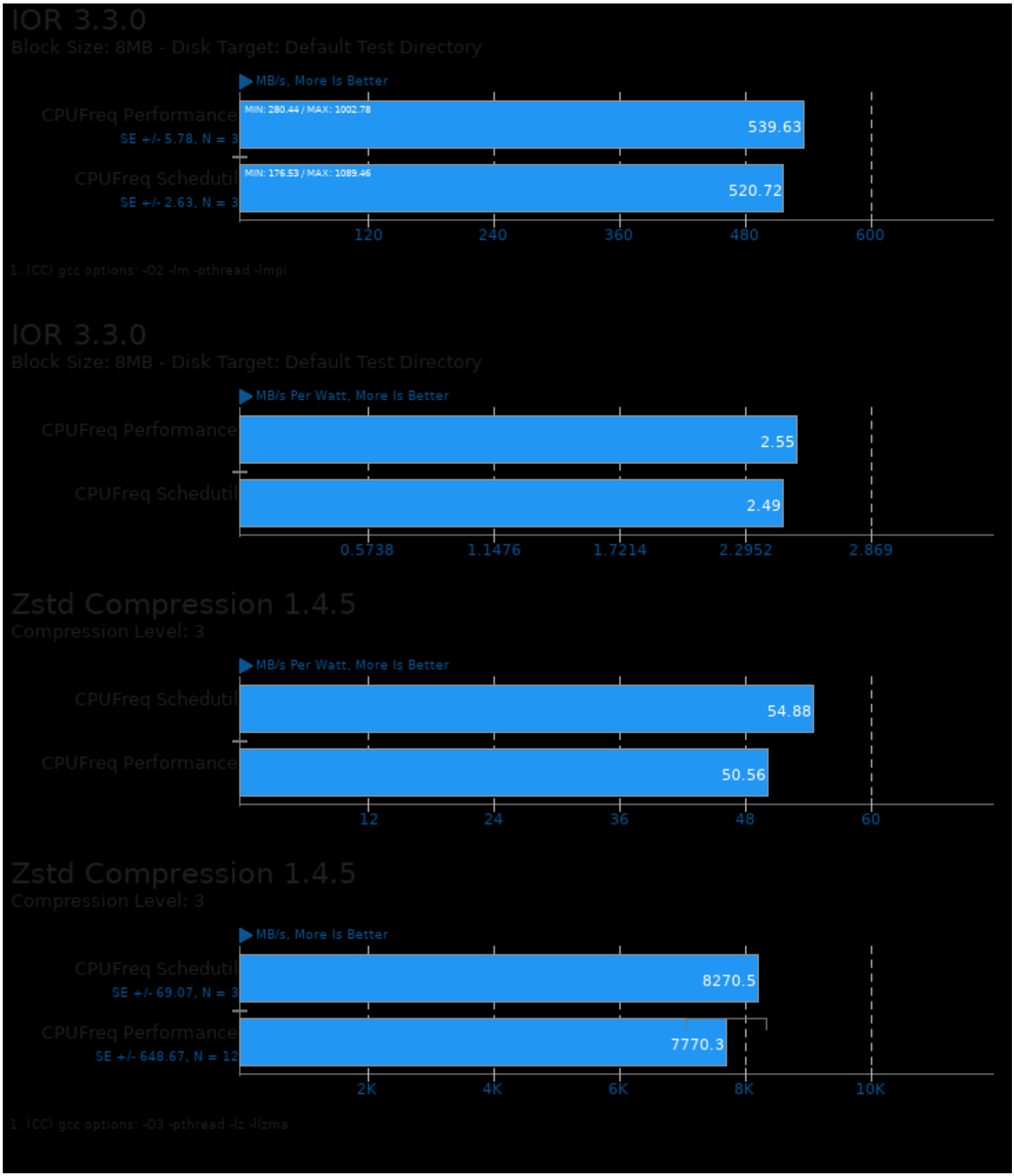
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



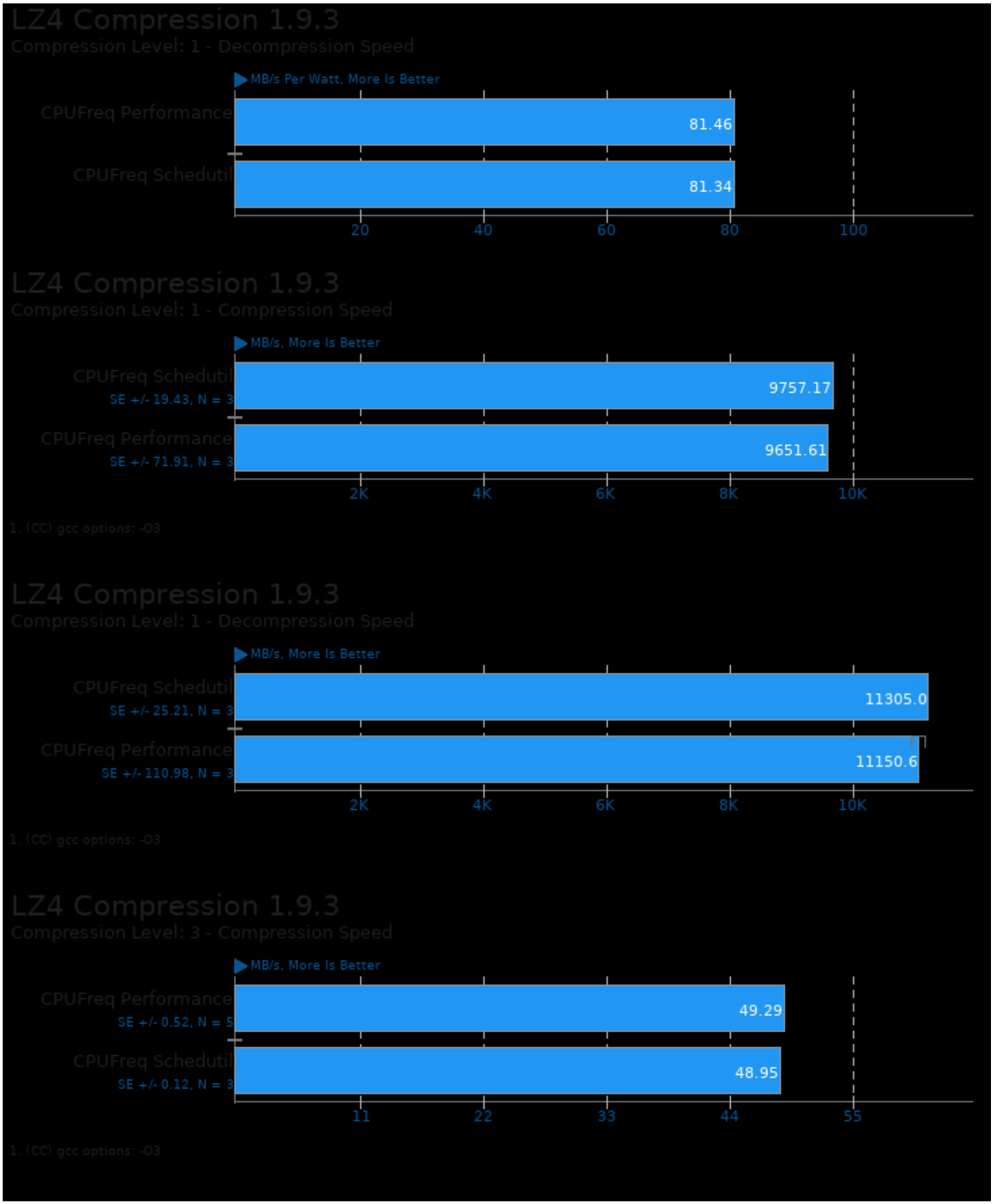
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



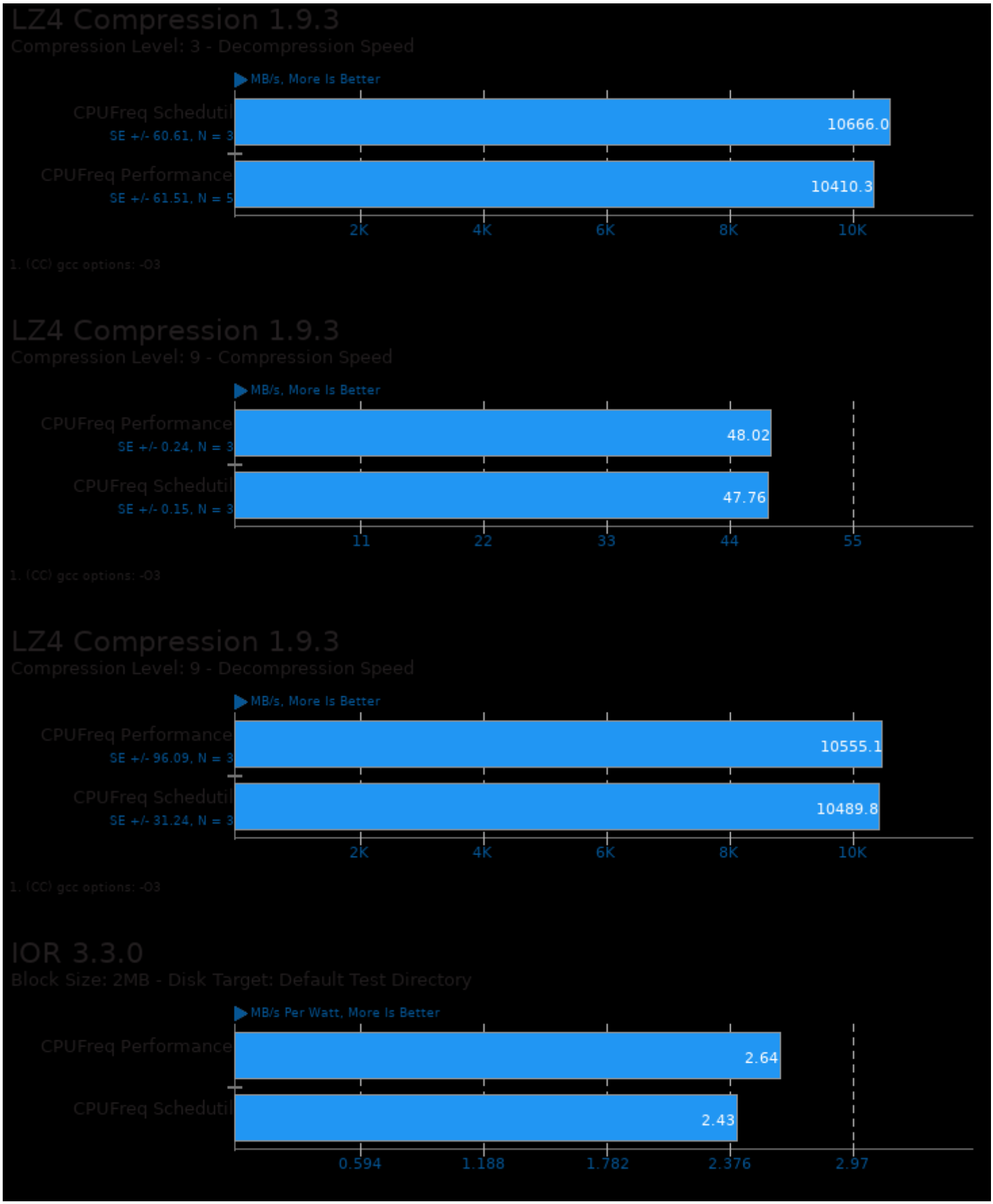
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



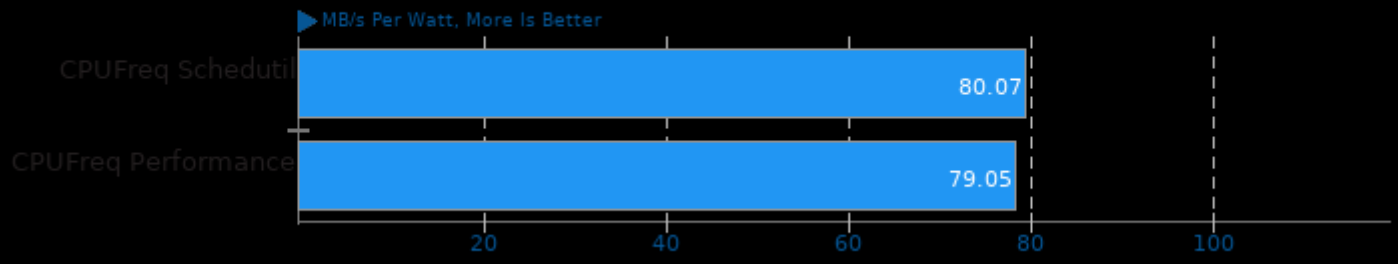
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



AMD EPYC 7F72 2P Linux 5.11 - Perf Governor

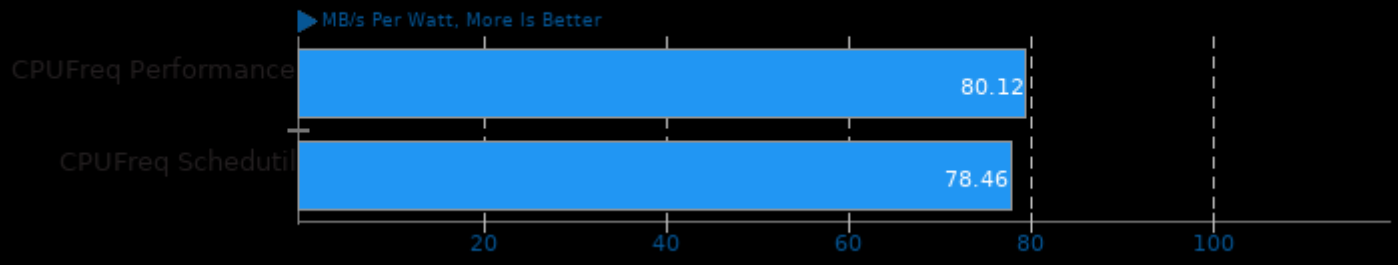
LZ4 Compression 1.9.3

Compression Level: 3 - Decompression Speed

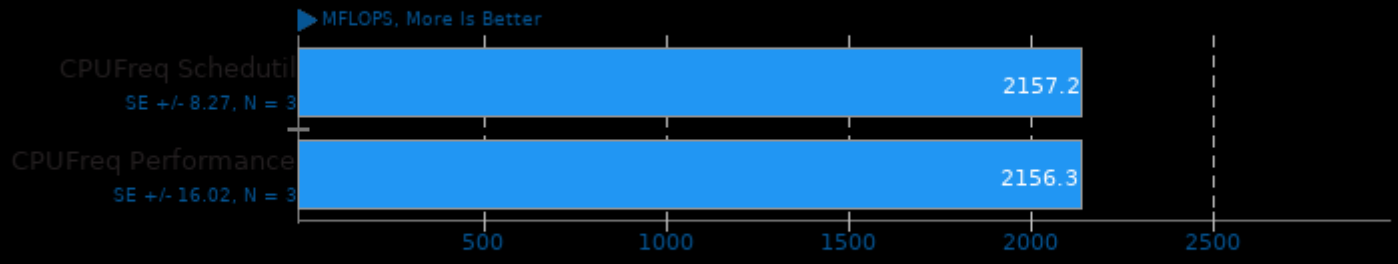


LZ4 Compression 1.9.3

Compression Level: 9 - Decompression Speed



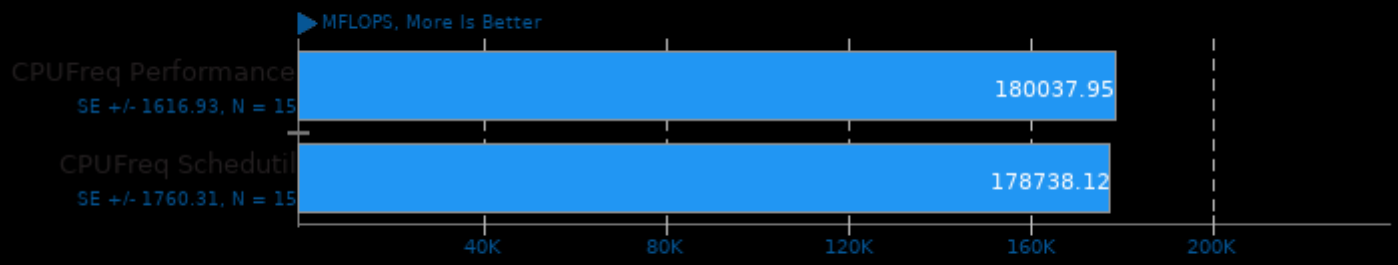
QuantLib 1.21



1. (CXX) g++ options: -O3 -march=native -rdynamic

FFTE 7.0

N=256, 3D Complex FFT Routine

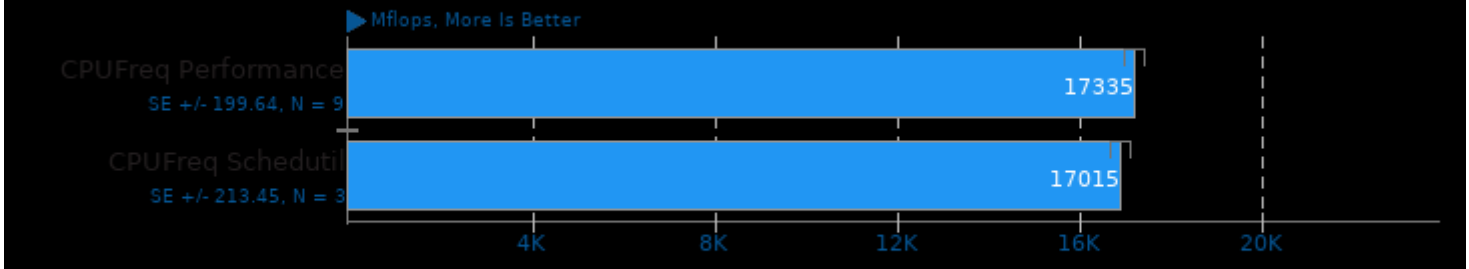


1. (F9X) gfortran options: -O3 -fomit-frame-pointer -fopenmp

AMD EPYC 7F72 2P Linux 5.11 - Perf Governor

FFTW 3.3.6

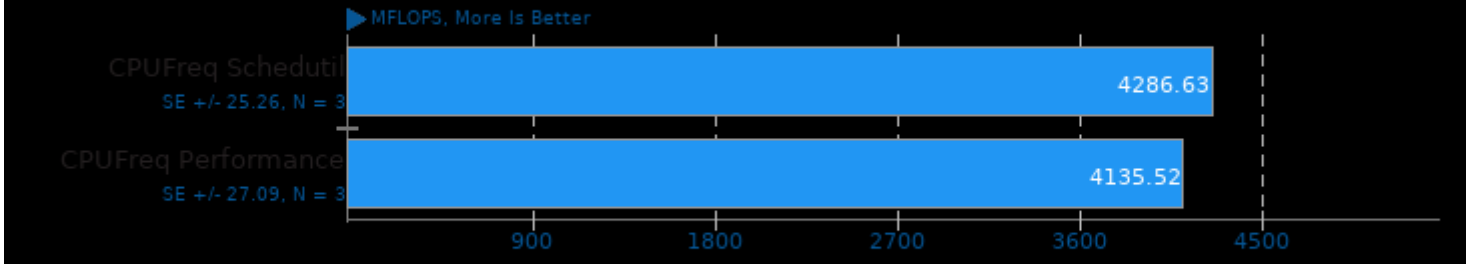
Build: Float + SSE - Size: 2D FFT Size 4096



1. (CC) gcc options: -pthread -O3 -fomit-frame-pointer -mtune=native -malign-double -fstrict-aliasing -fno-schedule-insns -ffast-math -lm

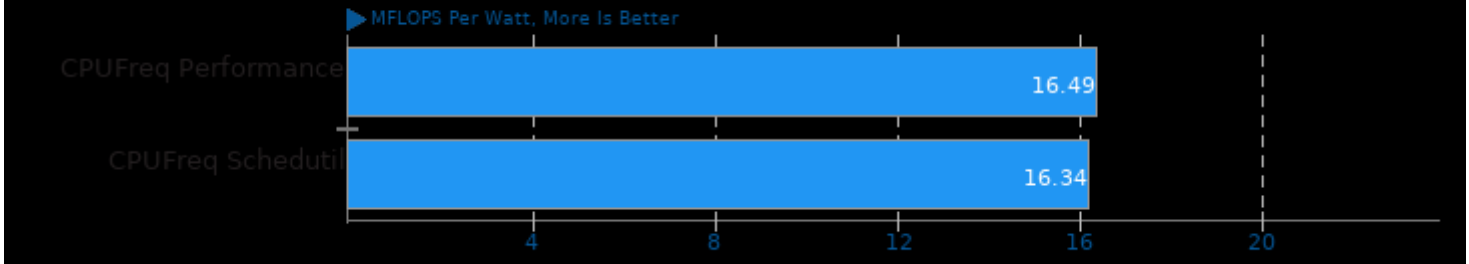
Himeno Benchmark 3.0

Poisson Pressure Solver



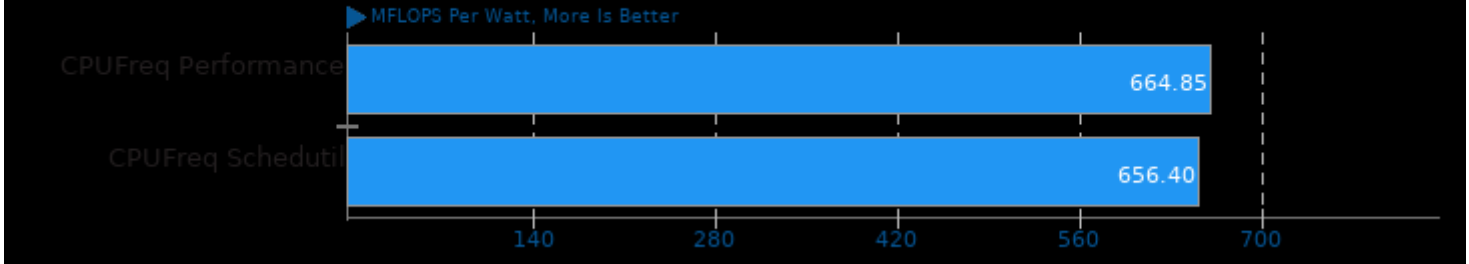
1. (CC) gcc options: -O3 -mavx2

QuantLib 1.21



FFTE 7.0

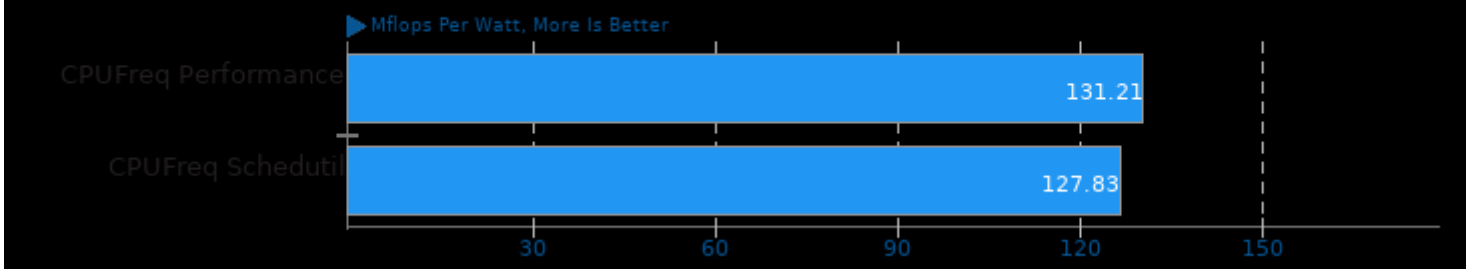
N=256, 3D Complex FFT Routine



AMD EPYC 7F72 2P Linux 5.11 - Perf Governor

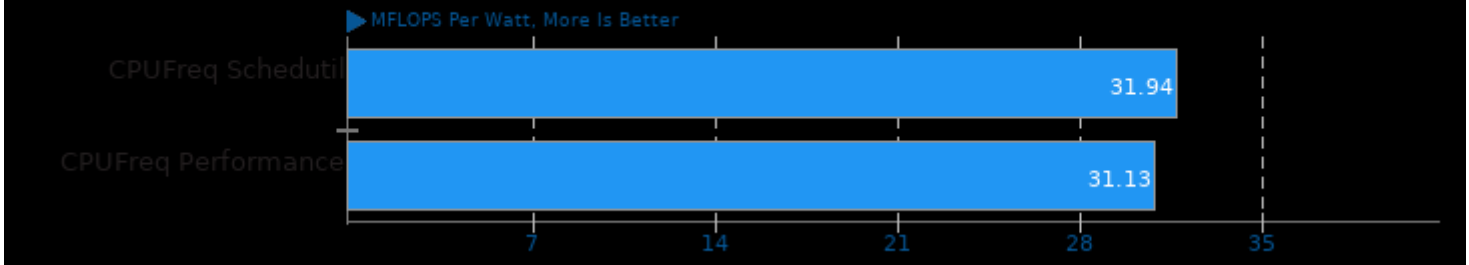
FFTW 3.3.6

Build: Float + SSE - Size: 2D FFT Size 4096



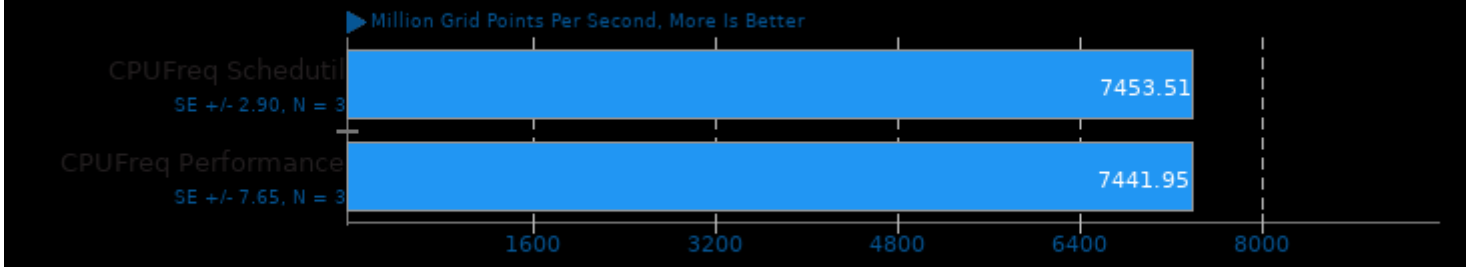
Himeno Benchmark 3.0

Poisson Pressure Solver



ASKAP 2018-11-10

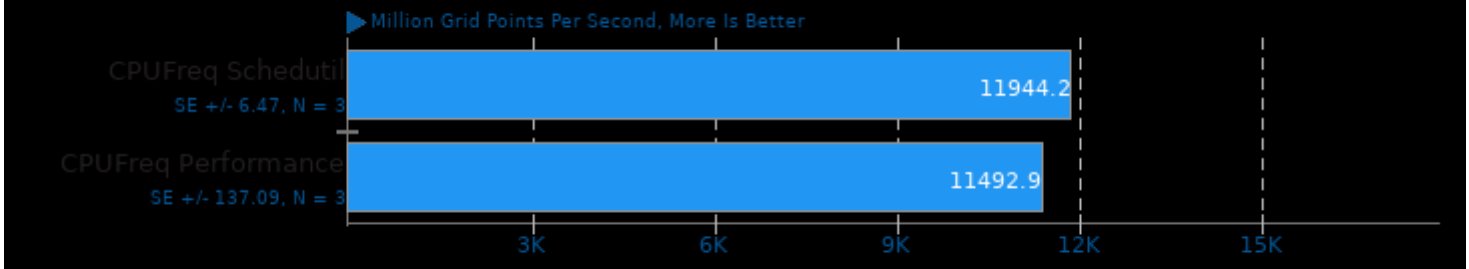
Test: tConvolve MPI - Gridding



1. (CXX) g++ options: -lpthread

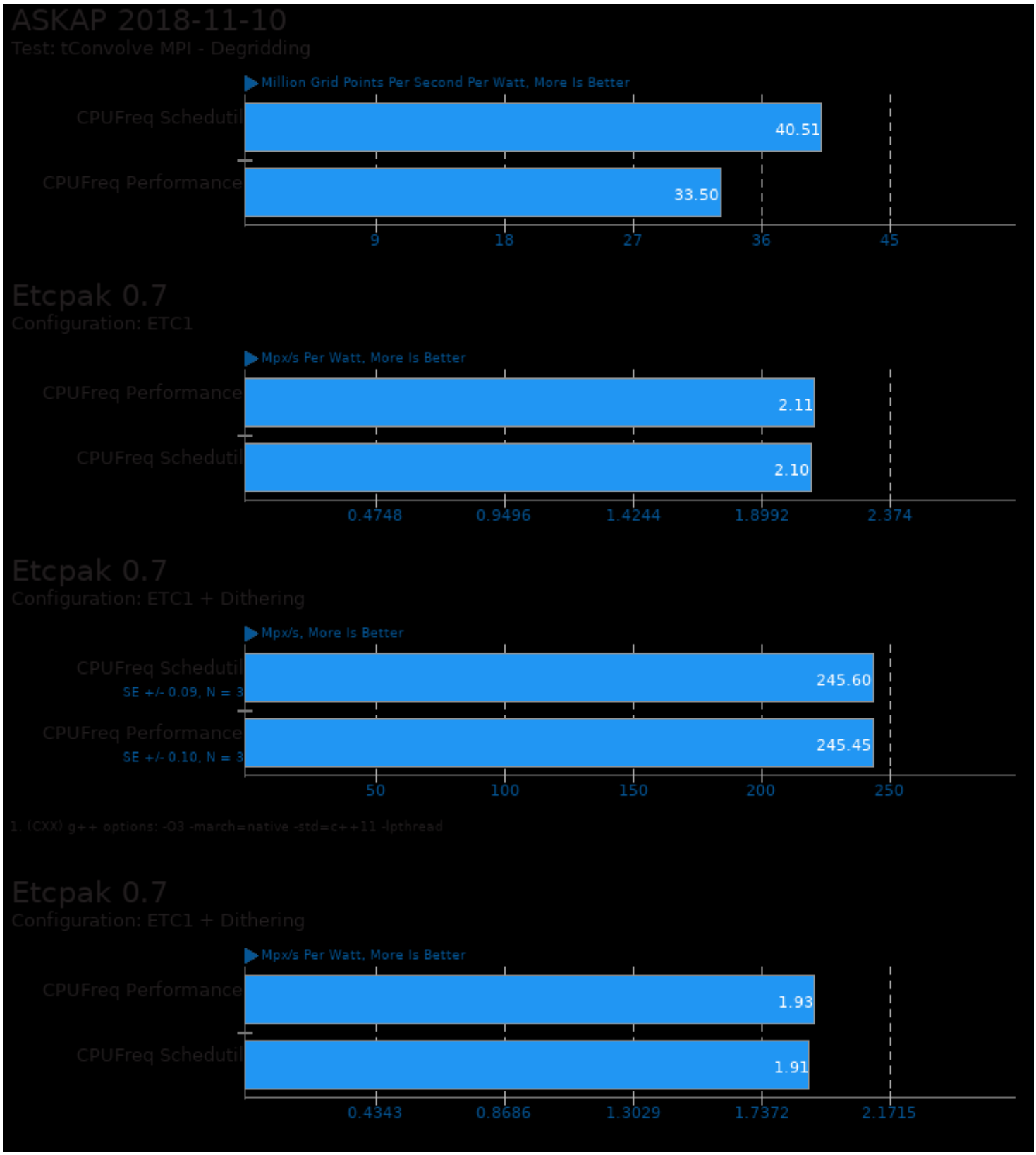
ASKAP 2018-11-10

Test: tConvolve MPI - Degridding

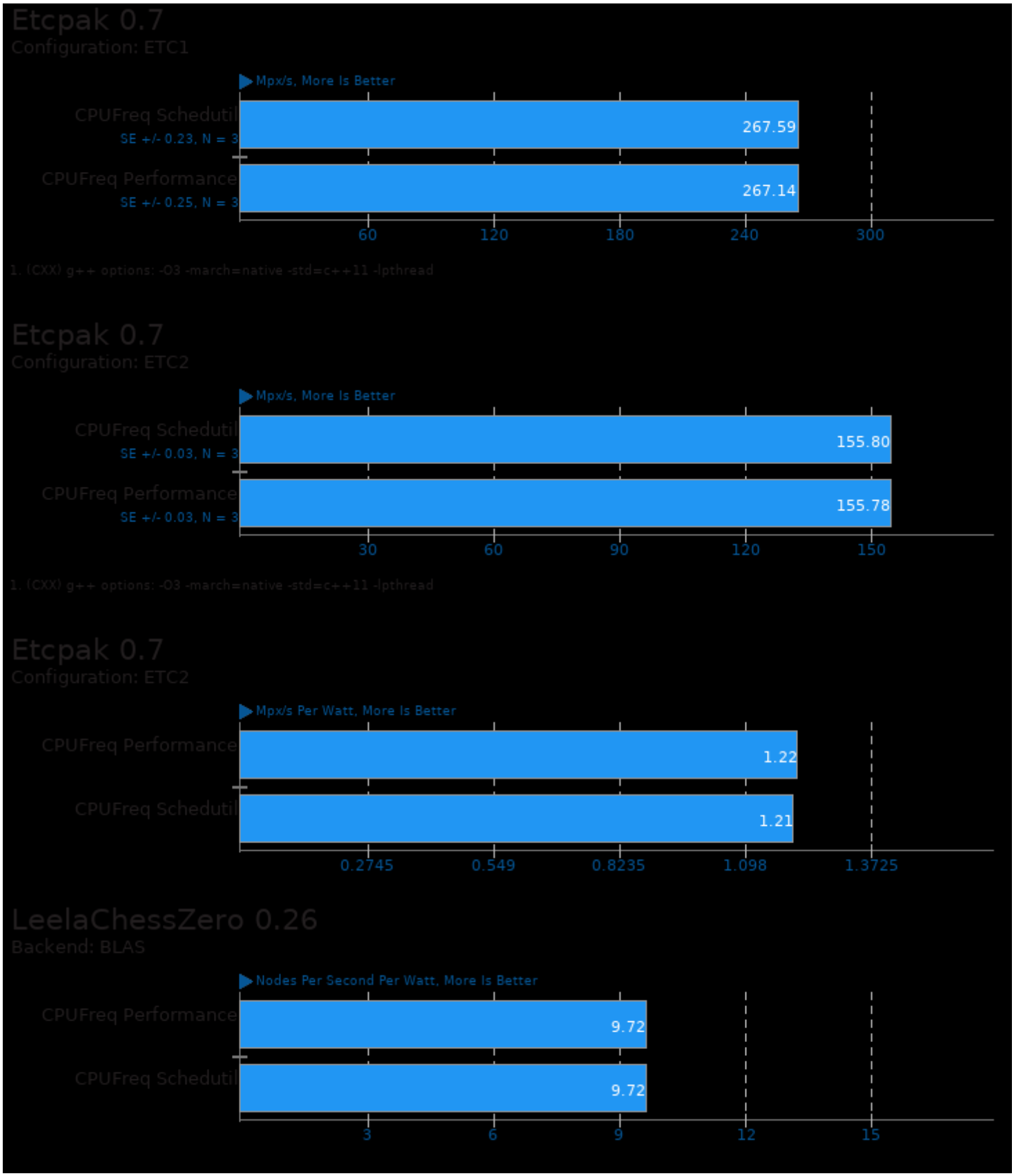


1. (CXX) g++ options: -lpthread

AMD EPYC 7F72 2P Linux 5.11 - Perf Governor

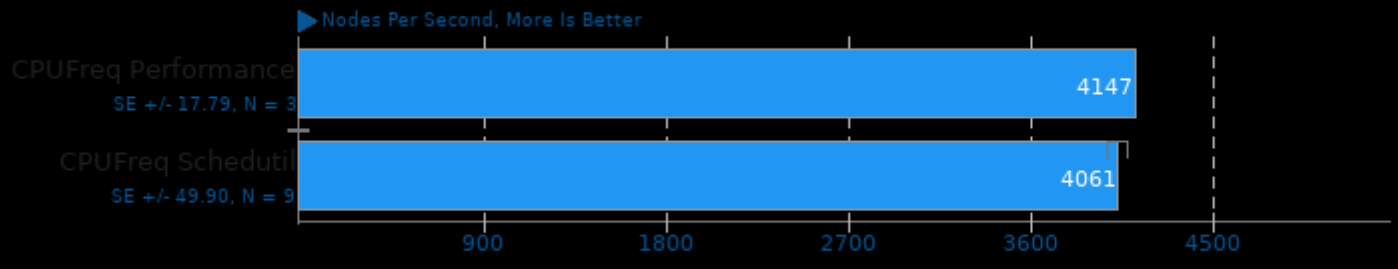


AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



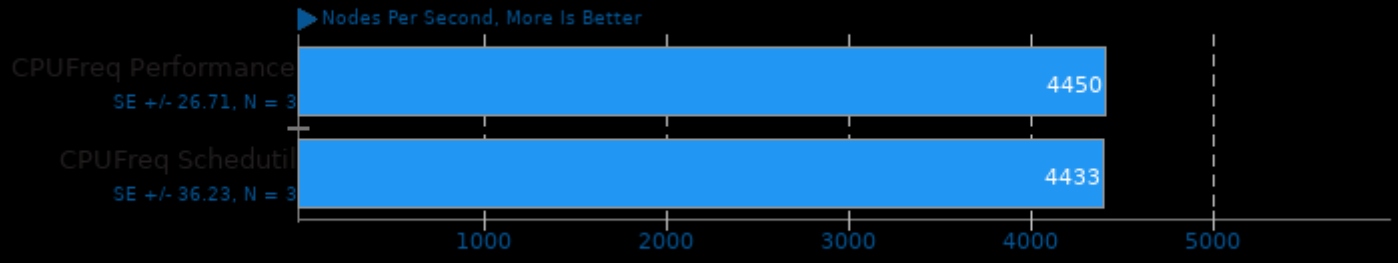
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor

LeelaChessZero 0.26
Backend: BLAS



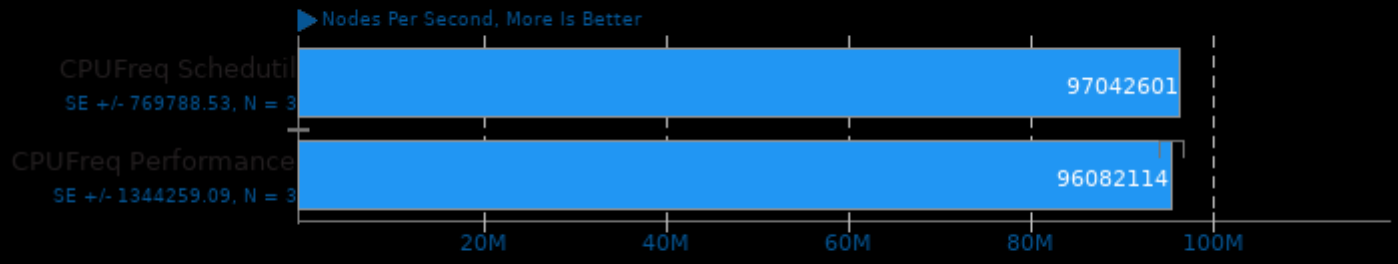
1. (CXX) g++ options: -flto -pthread

LeelaChessZero 0.26
Backend: Eigen



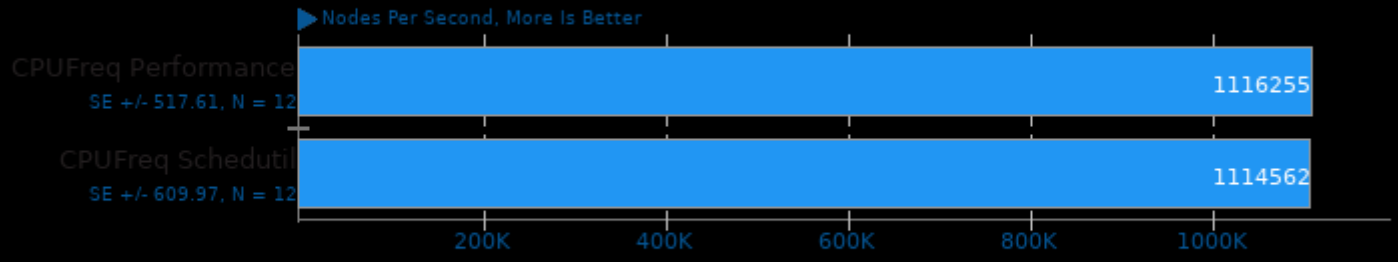
1. (CXX) g++ options: -flto -pthread

Stockfish 12
Total Time



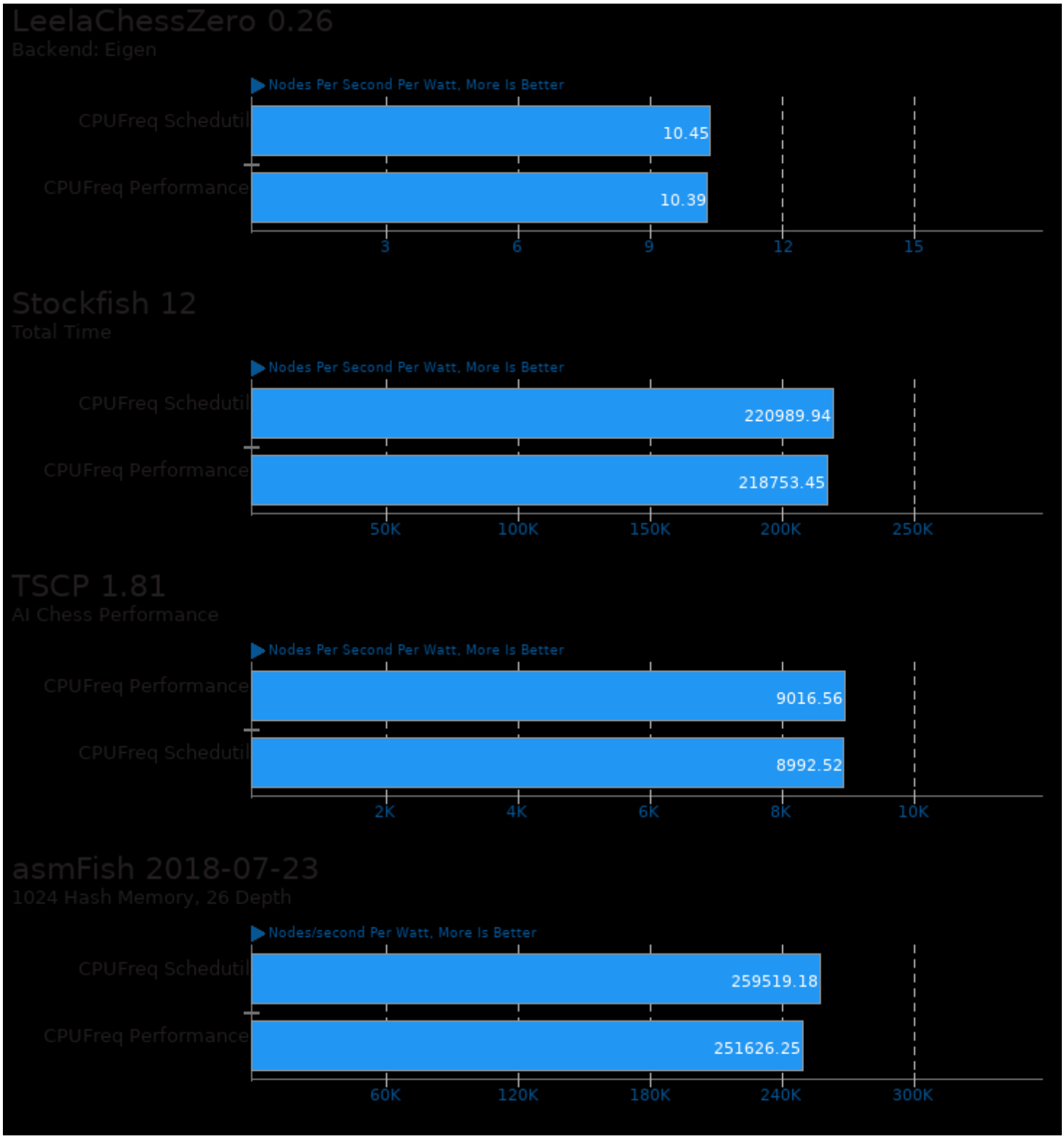
1. (CXX) g++ options: -m64 -lpthread -fno-exceptions -std=c++17 -pedantic -O3 -msse -msse3 -mpopcnt -msse4.1 -mssse3 -msse2 -flto -flto=jobserver

TSCP 1.81
AI Chess Performance

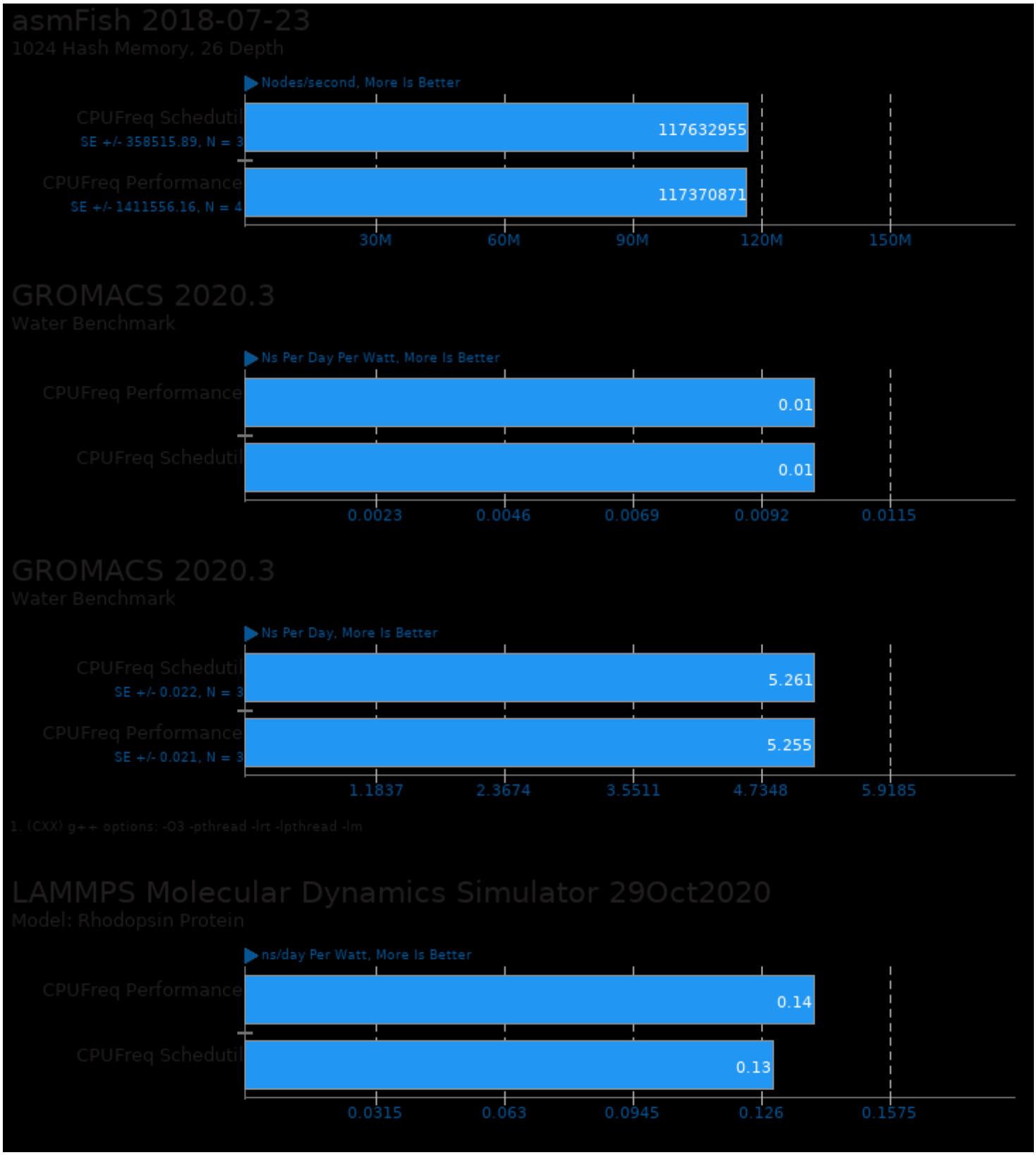


1. (CC) gcc options: -O3 -march=native

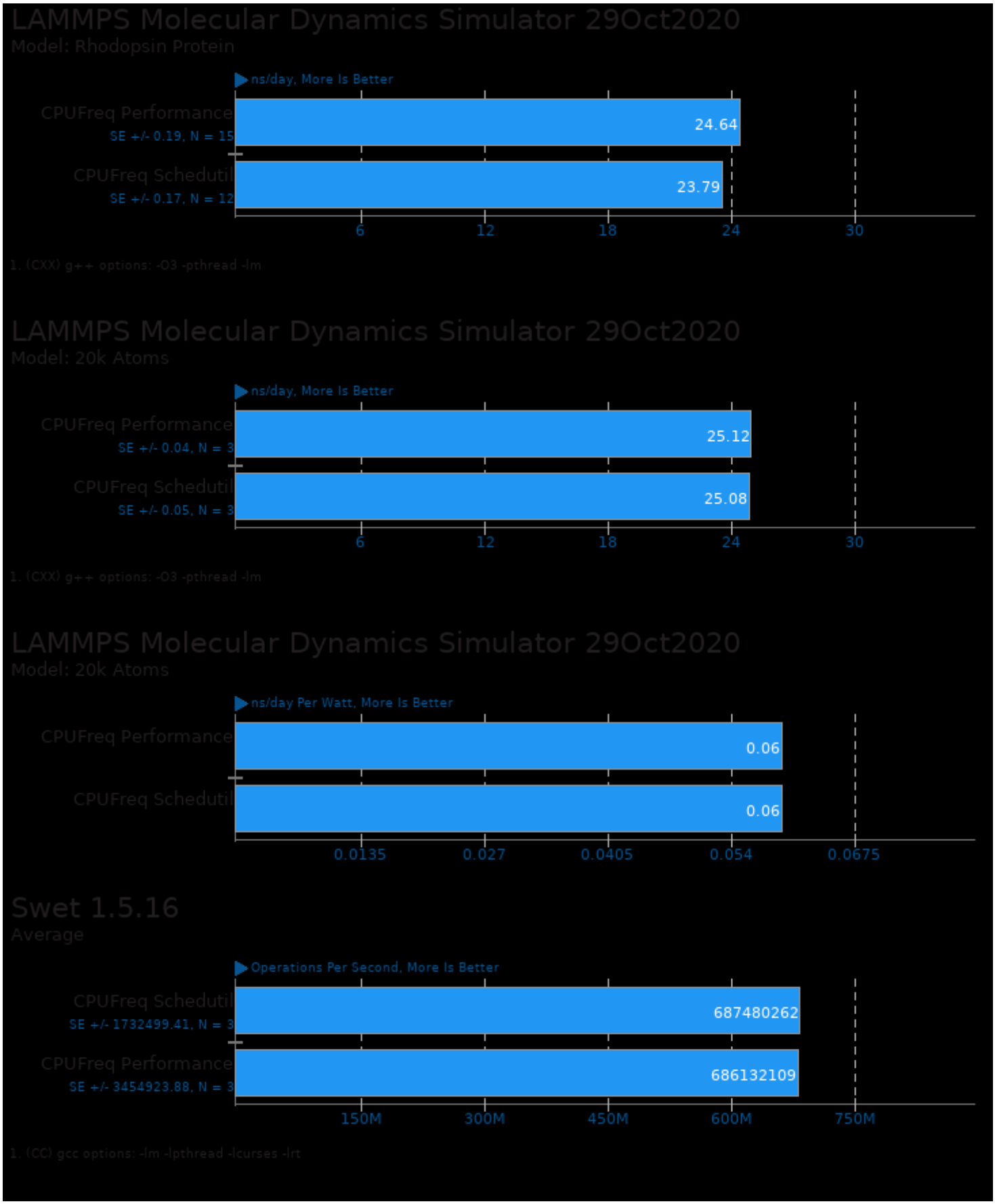
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



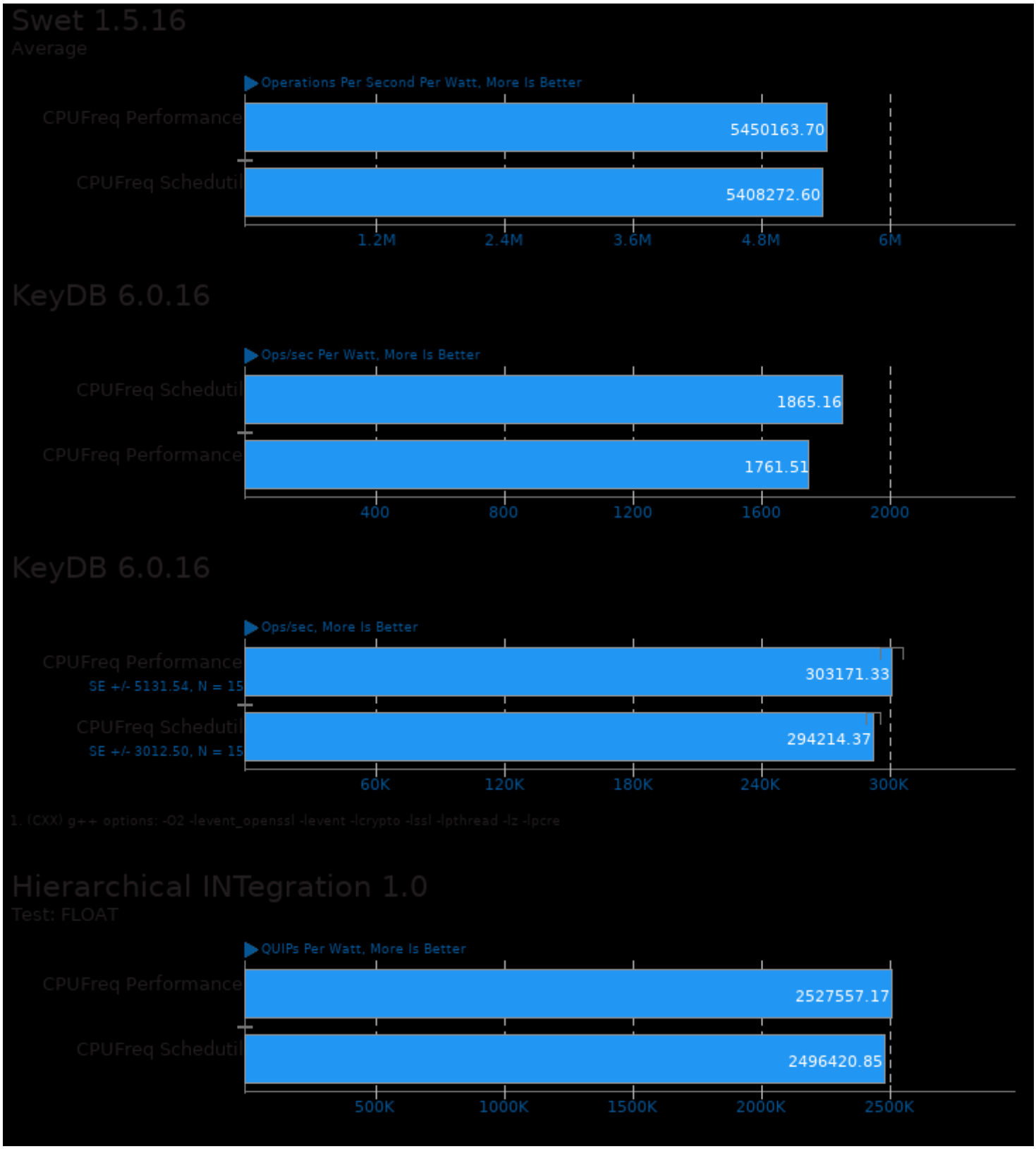
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



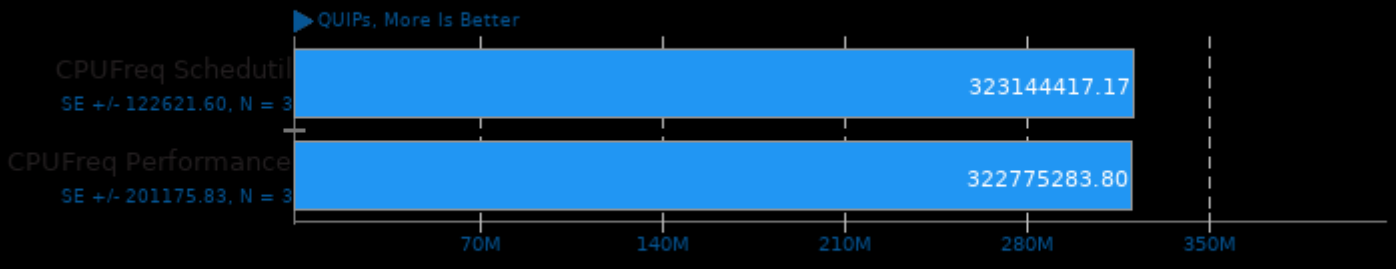
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



AMD EPYC 7F72 2P Linux 5.11 - Perf Governor

Hierarchical INTegration 1.0

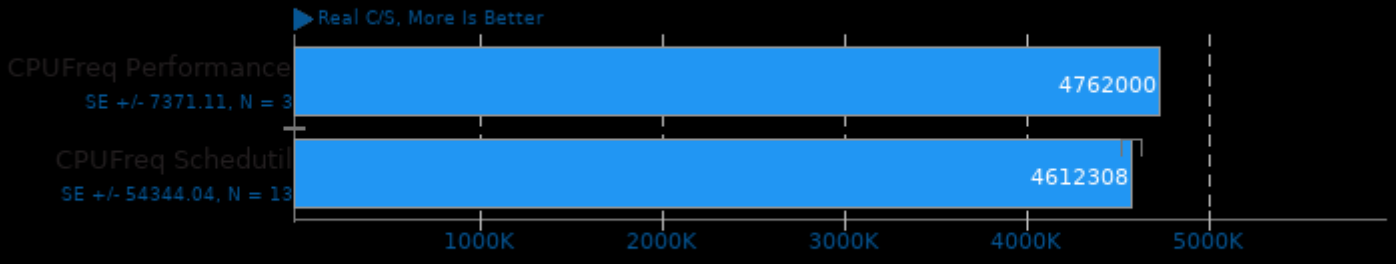
Test: FLOAT



1. (CC) gcc options: -O3 -march=native -lm

John The Ripper 1.9.0-jumbo-1

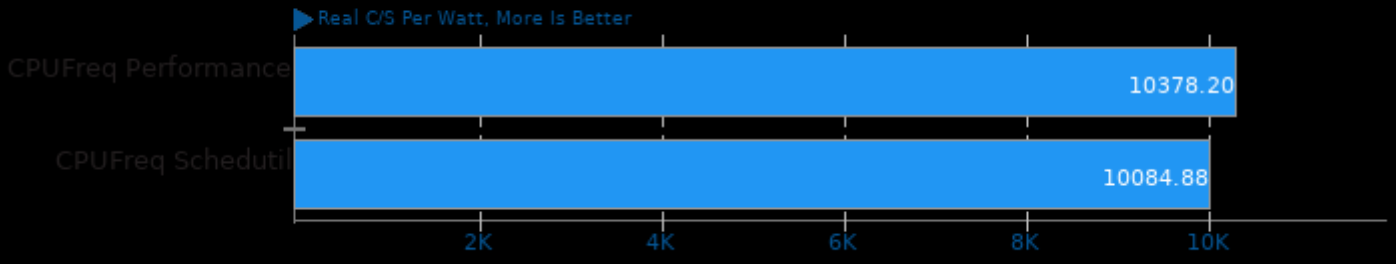
Test: MD5



1. (CC) gcc options: -m64 -lssl -lcrypto -fopenmp -lgmp -pthread -lm -lz -ldl -lcrypt -lbz2

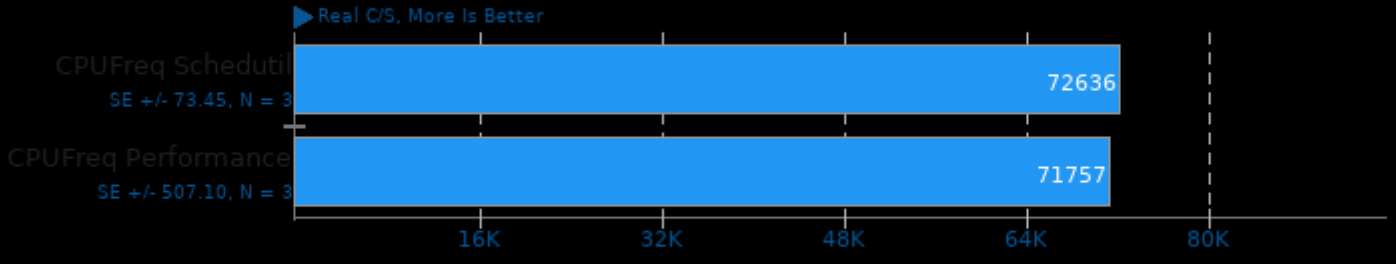
John The Ripper 1.9.0-jumbo-1

Test: MD5



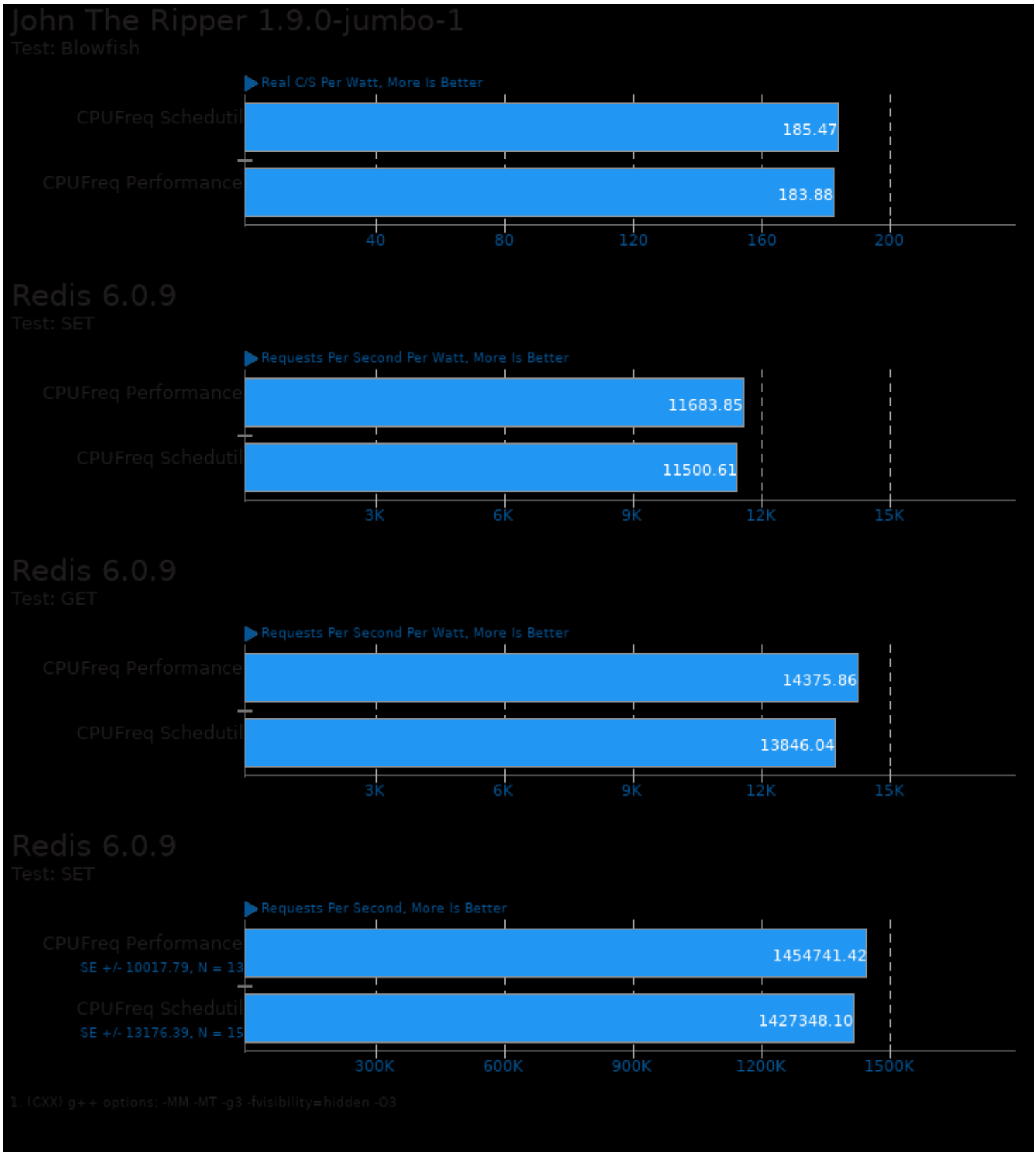
John The Ripper 1.9.0-jumbo-1

Test: Blowfish

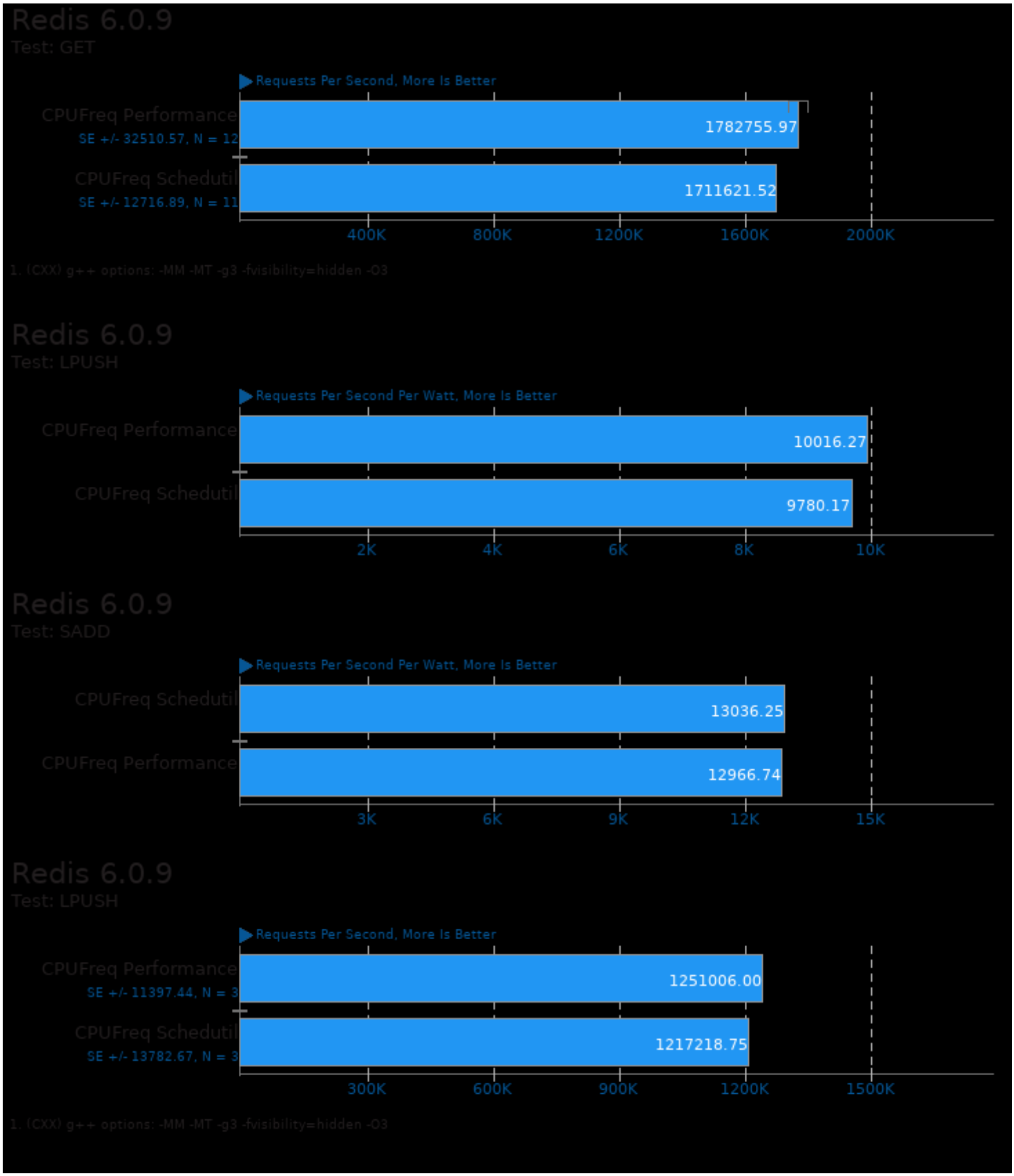


1. (CC) gcc options: -m64 -lssl -lcrypto -fopenmp -lgmp -pthread -lm -lz -ldl -lcrypt -lbz2

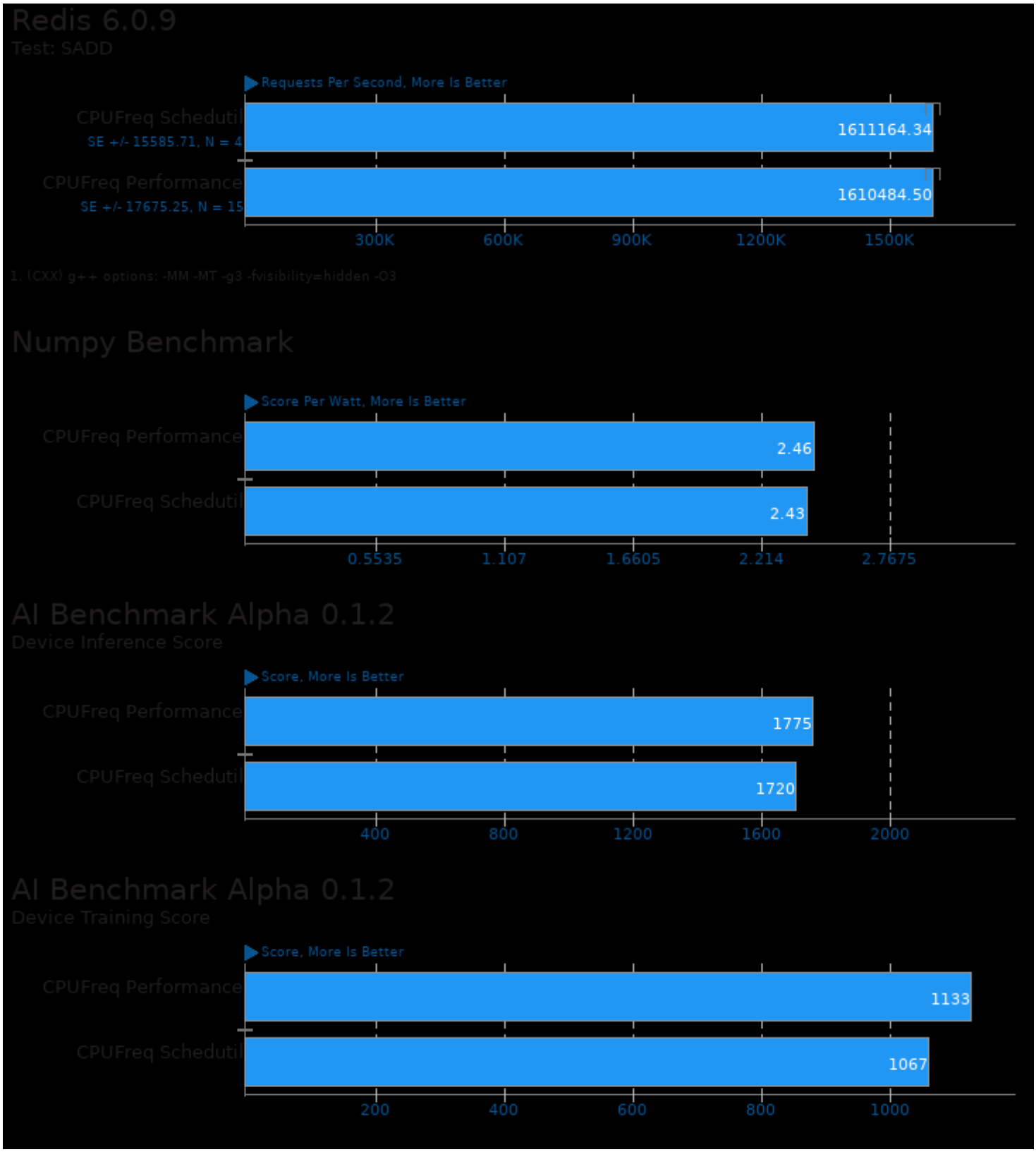
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



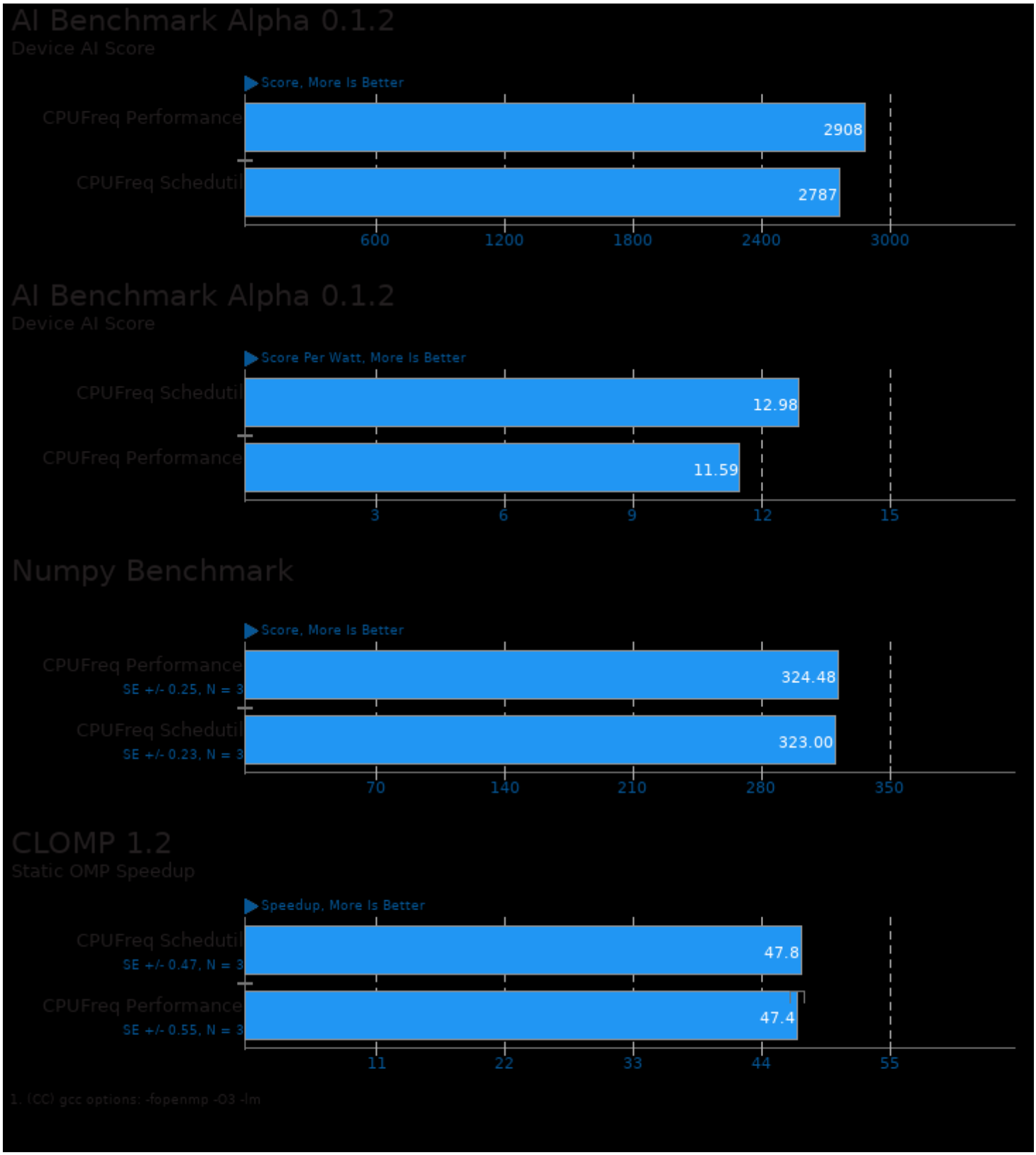
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



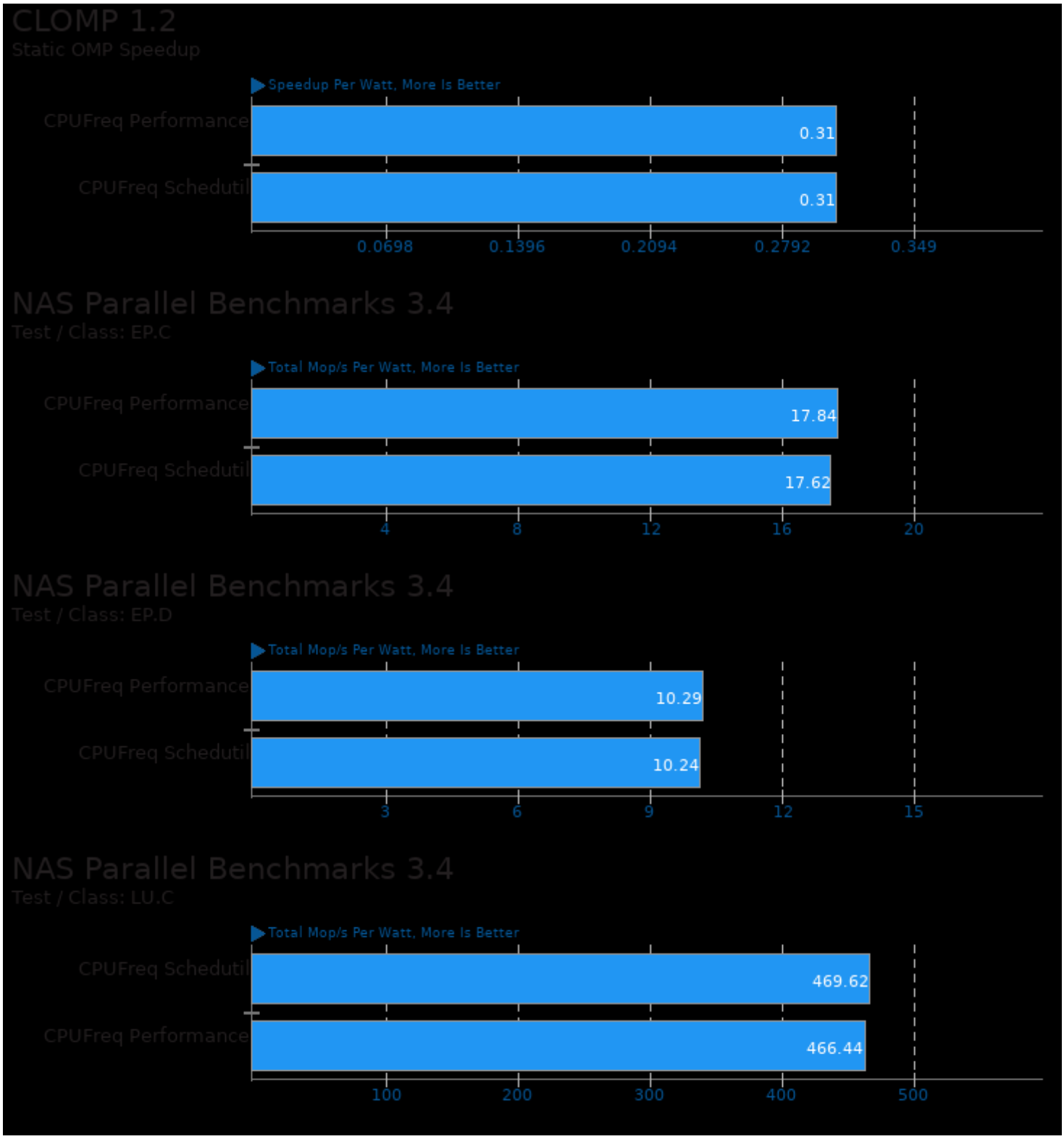
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



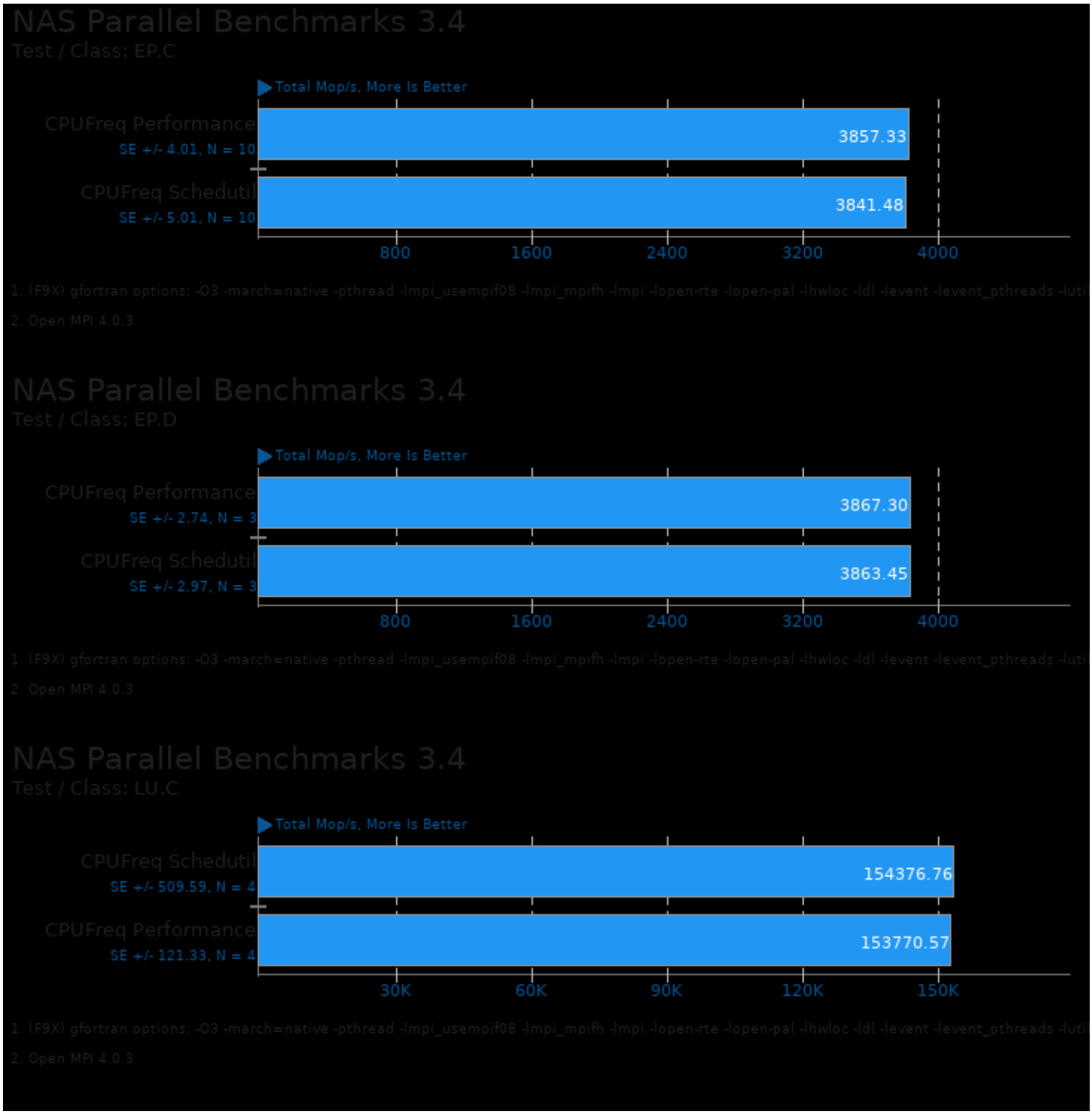
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



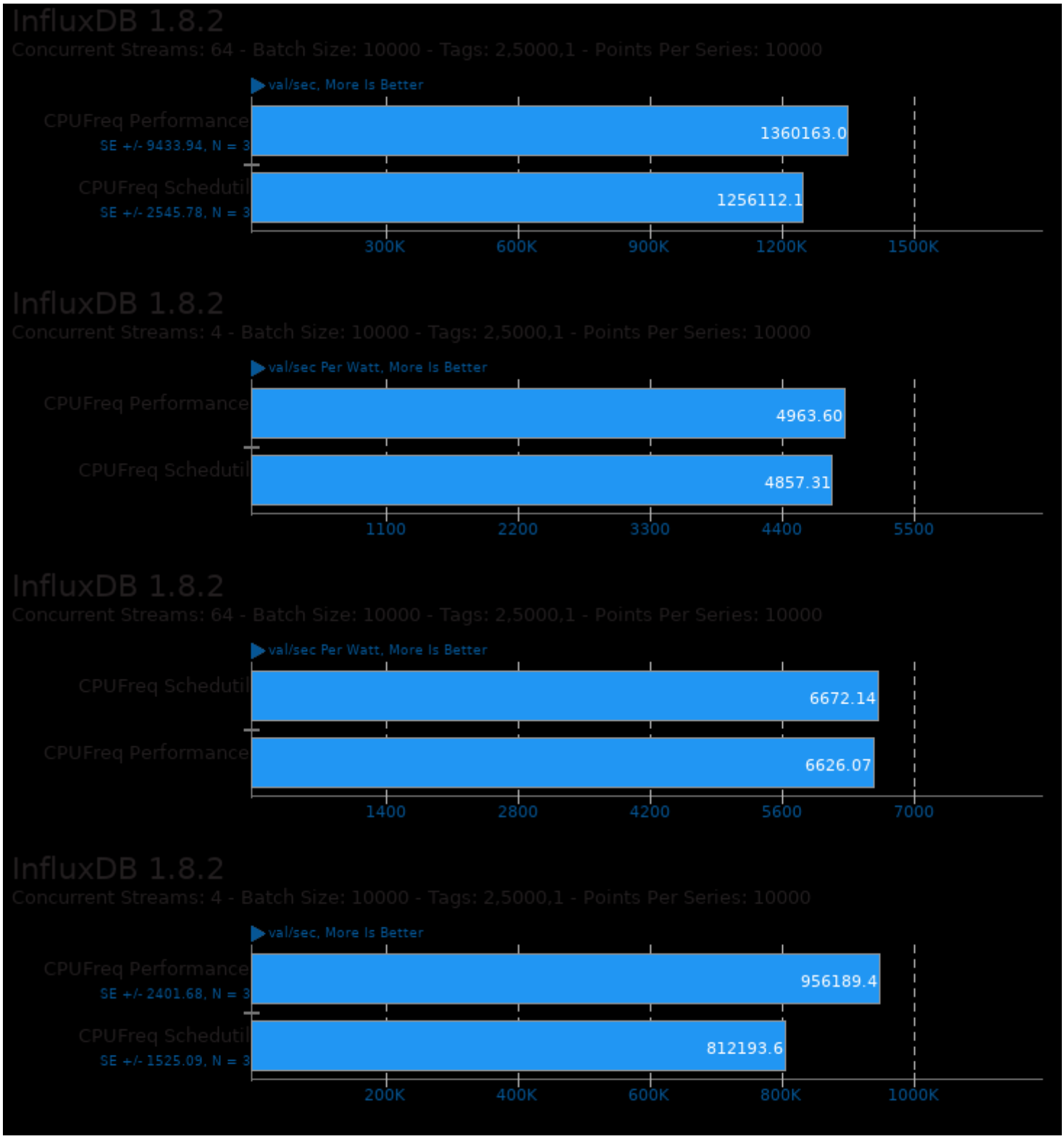
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



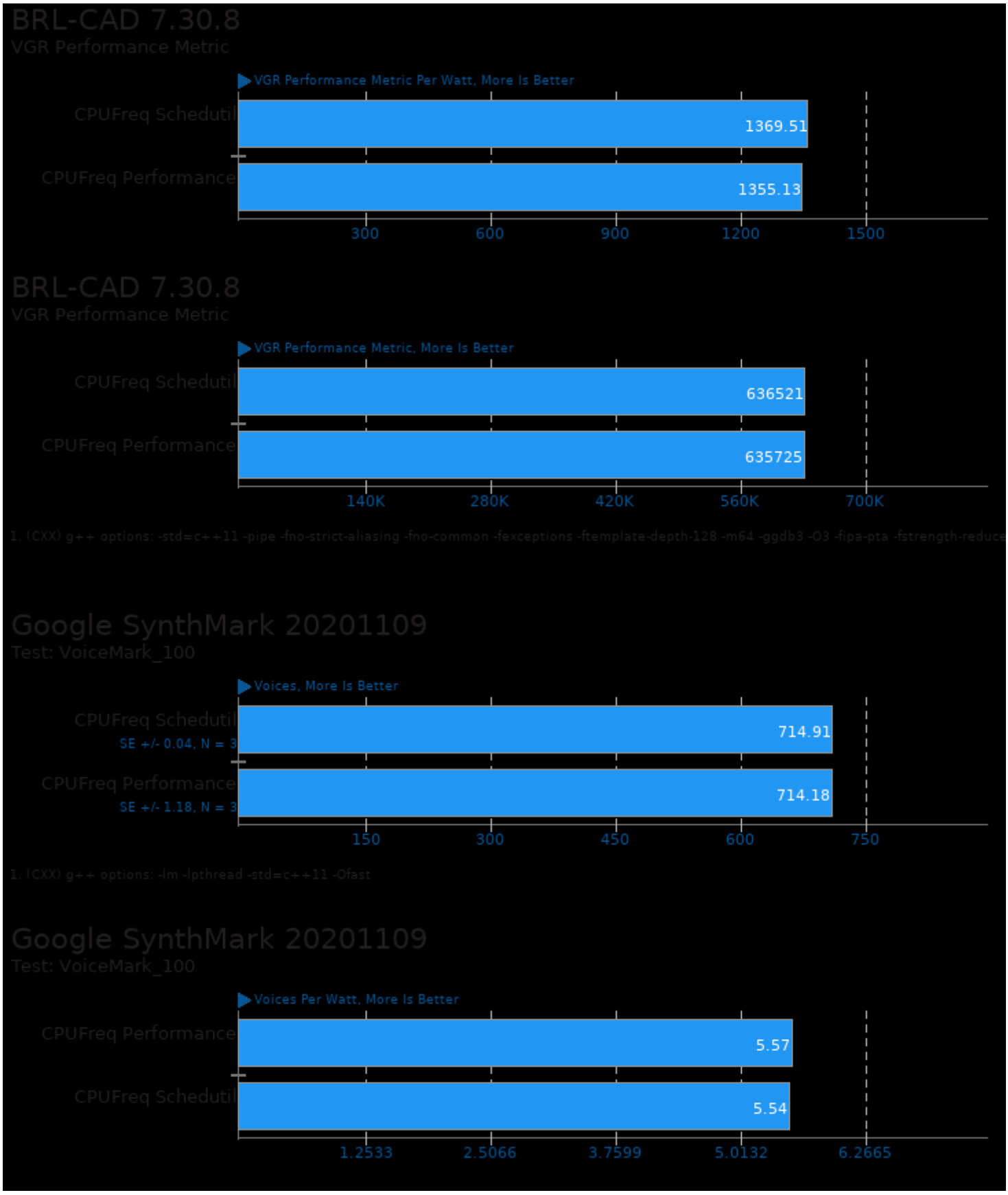
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



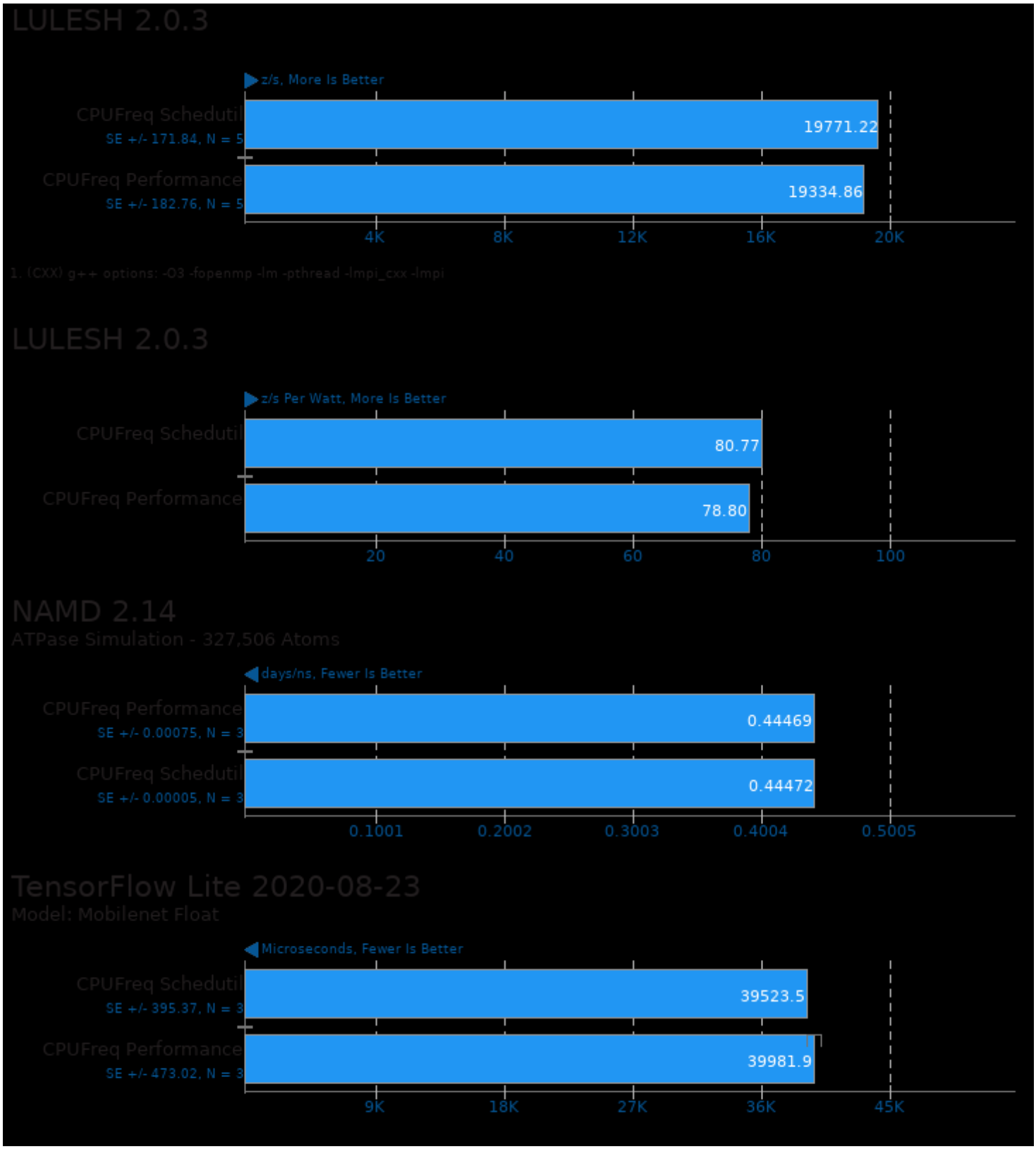
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



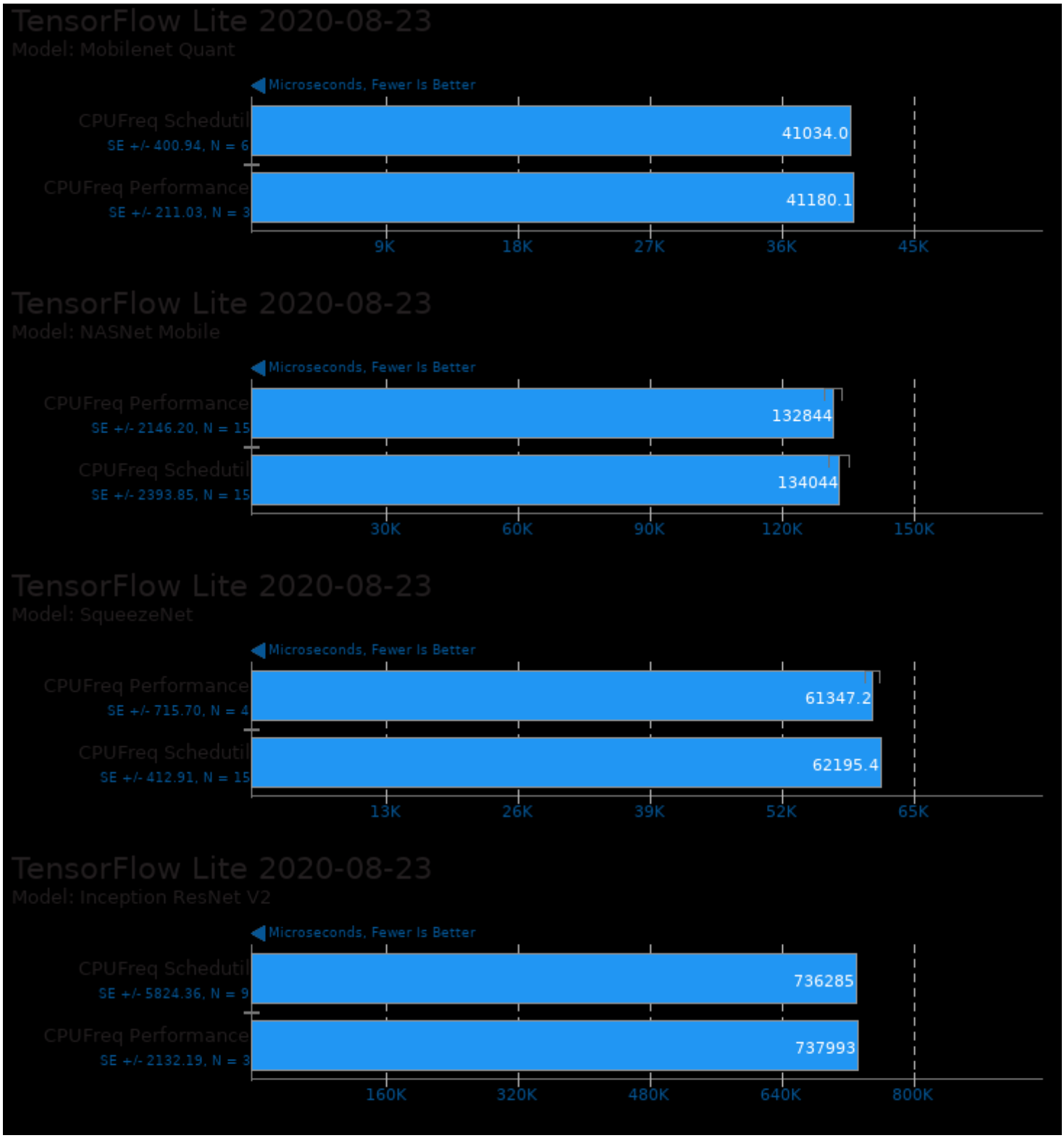
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



AMD EPYC 7F72 2P Linux 5.11 - Perf Governor

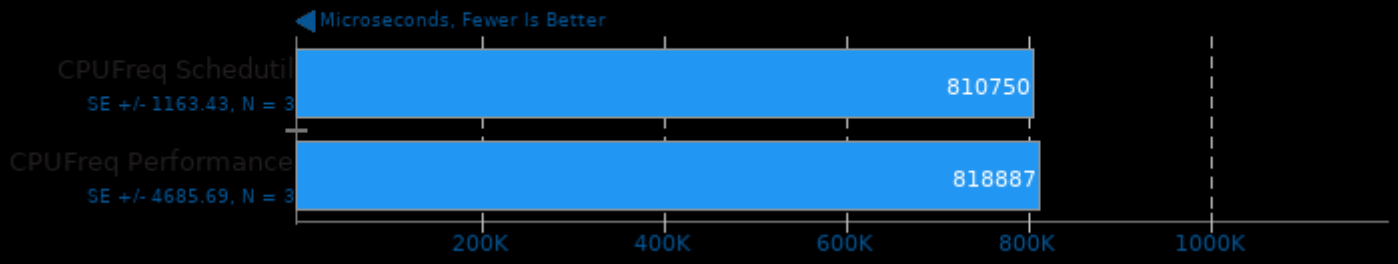


AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



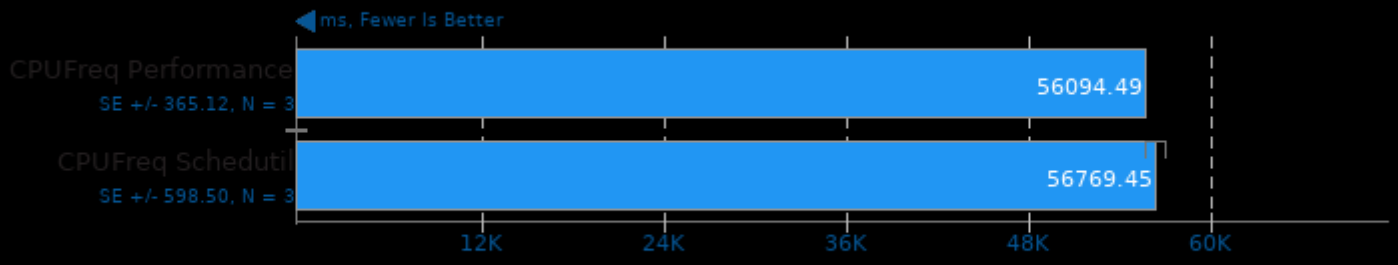
TensorFlow Lite 2020-08-23

Model: Inception V4



FinanceBench 2016-07-25

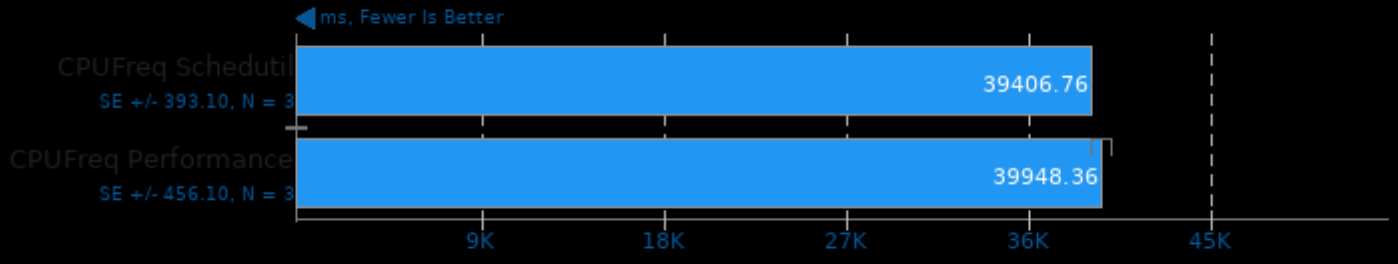
Benchmark: Bonds OpenMP



1. (CXX) g++ options: -O3 -march=native -fopenmp

FinanceBench 2016-07-25

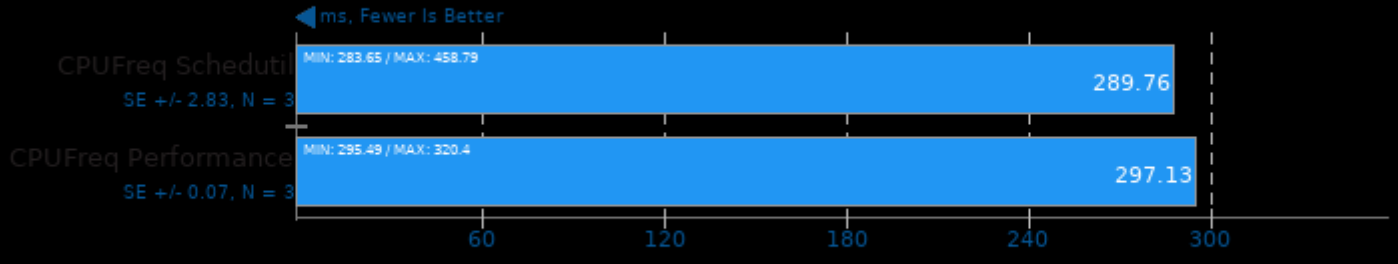
Benchmark: Repo OpenMP



1. (CXX) g++ options: -O3 -march=native -fopenmp

TNN 0.2.3

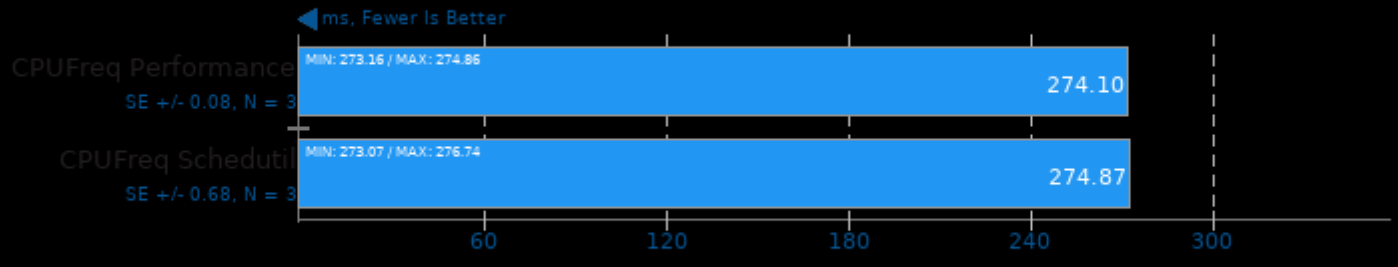
Target: CPU - Model: MobileNet v2



1. (CXX) g++ options: -fopenmp -pthread -fvisibility=hidden -O3 -rdynamic -ldl

TNN 0.2.3

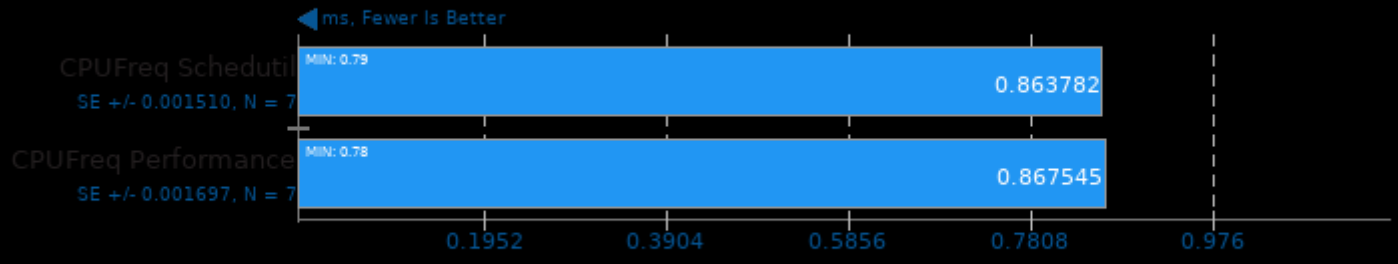
Target: CPU - Model: SqueezeNet v1.1



1. (CXX) g++ options: -fopenmp -pthread -fvisibility=hidden -O3 -rdynamic -ldl

oneDNN 2.0

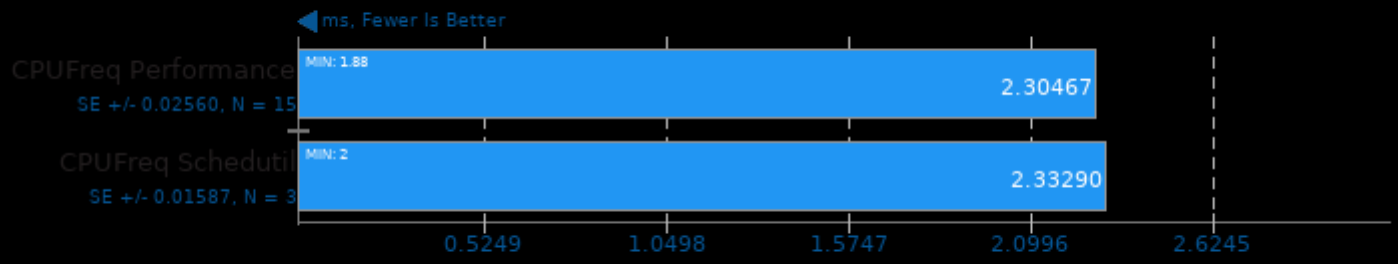
Harness: Convolution Batch Shapes Auto - Data Type: f32 - Engine: CPU



1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread

oneDNN 2.0

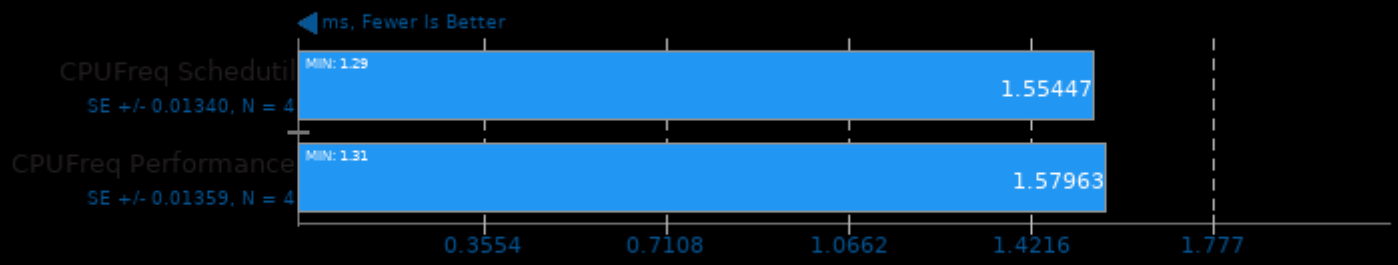
Harness: Deconvolution Batch shapes_1d - Data Type: f32 - Engine: CPU



1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread

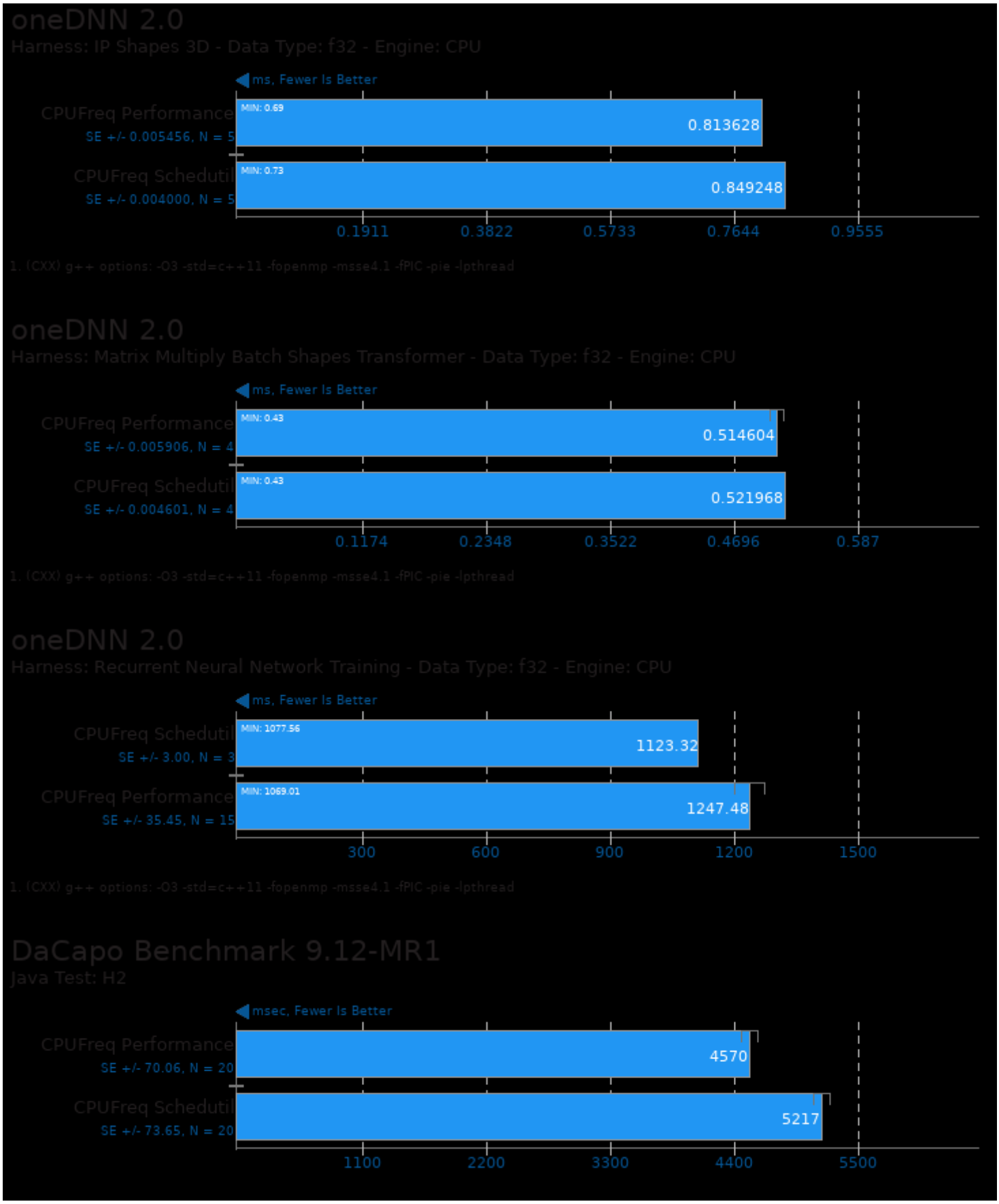
oneDNN 2.0

Harness: IP Shapes 1D - Data Type: f32 - Engine: CPU

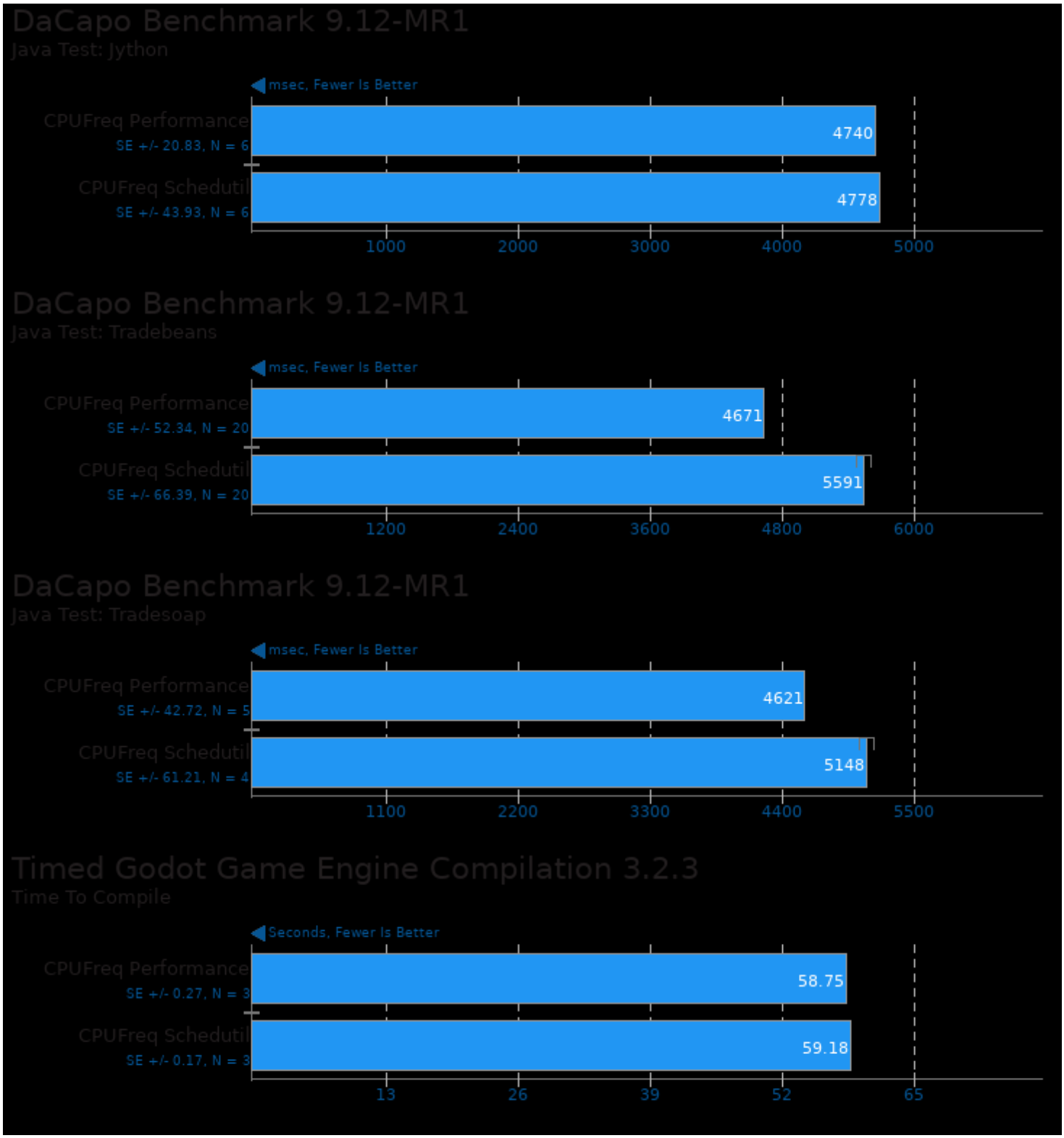


1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread

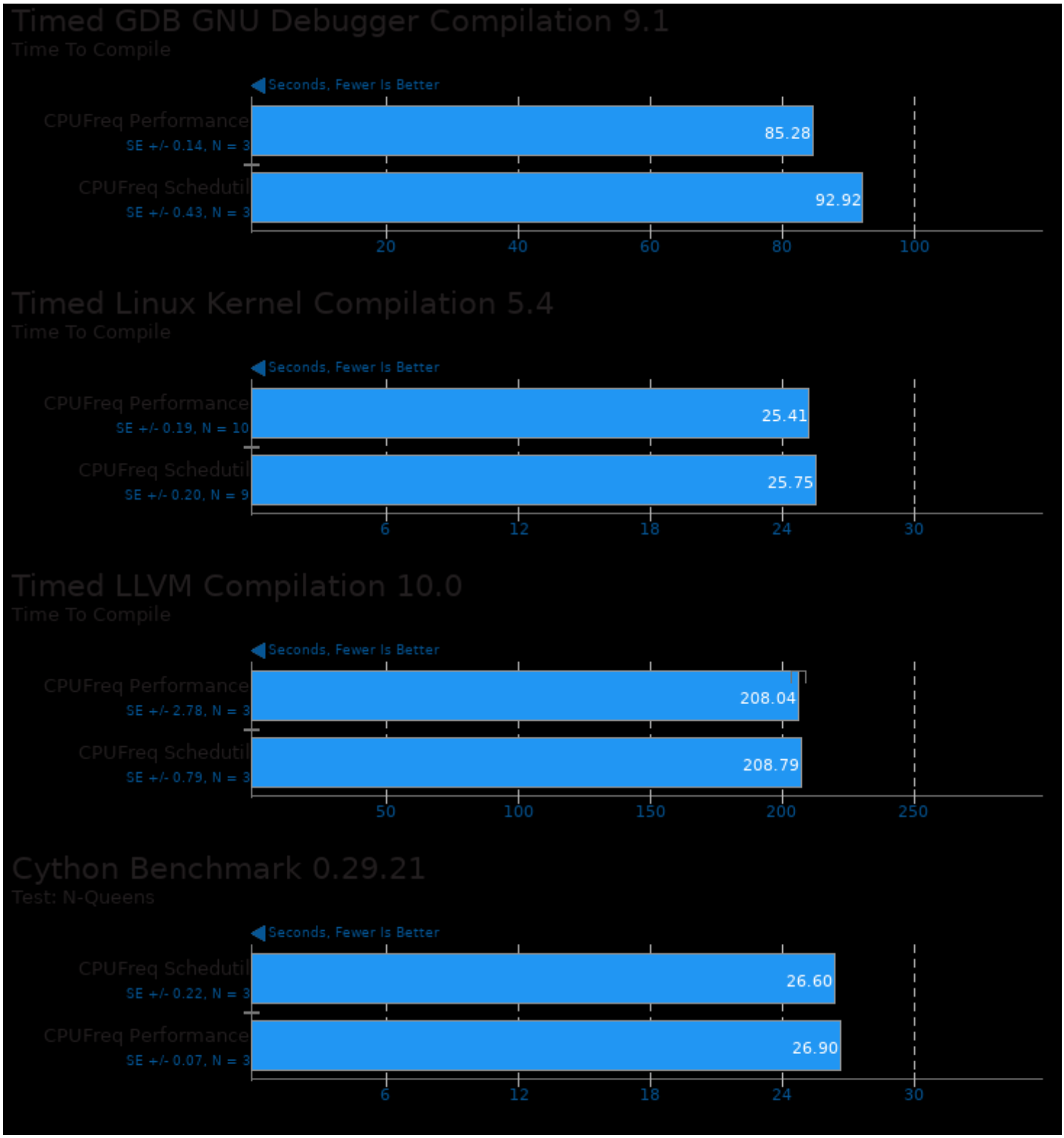
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



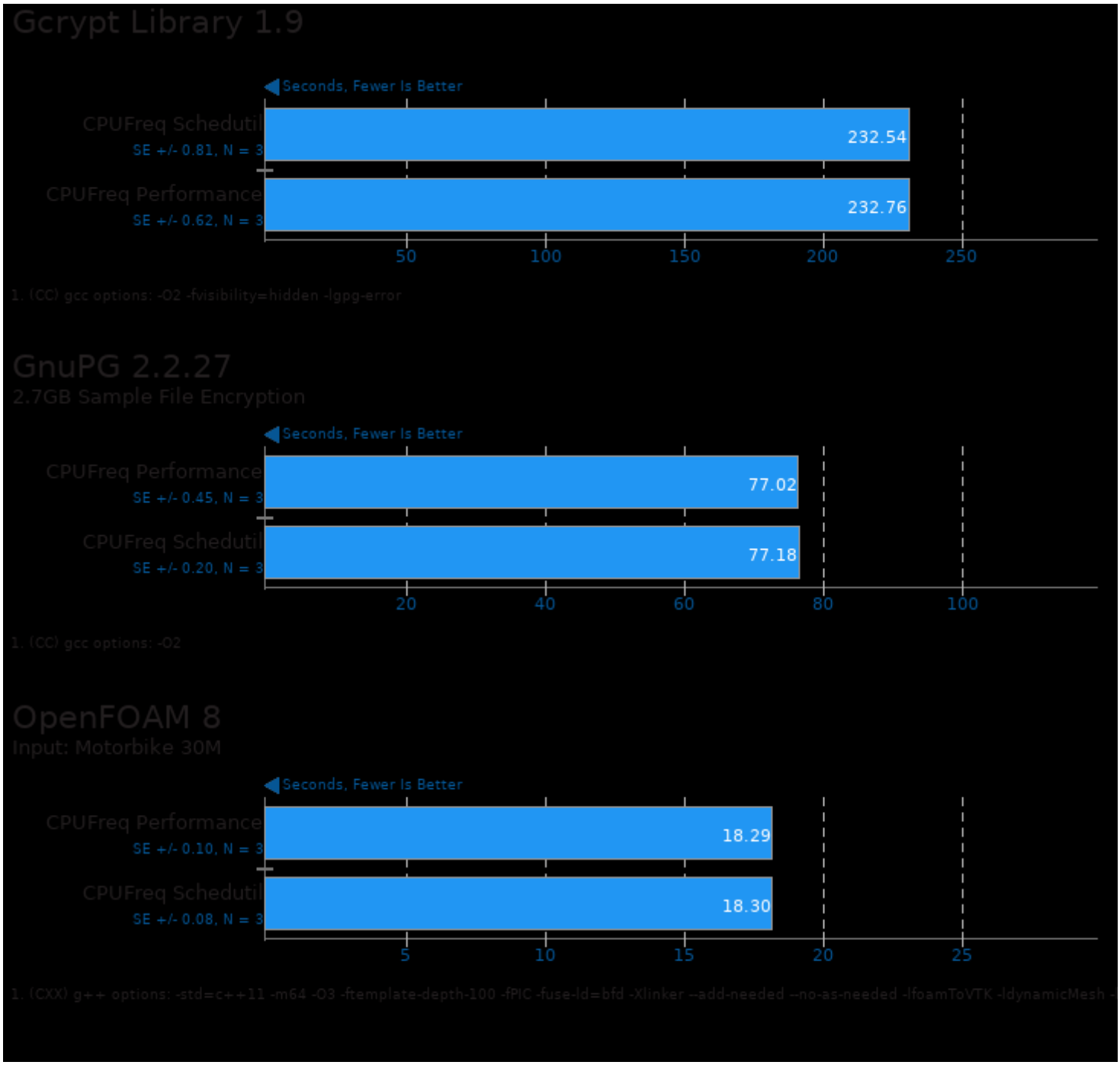
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



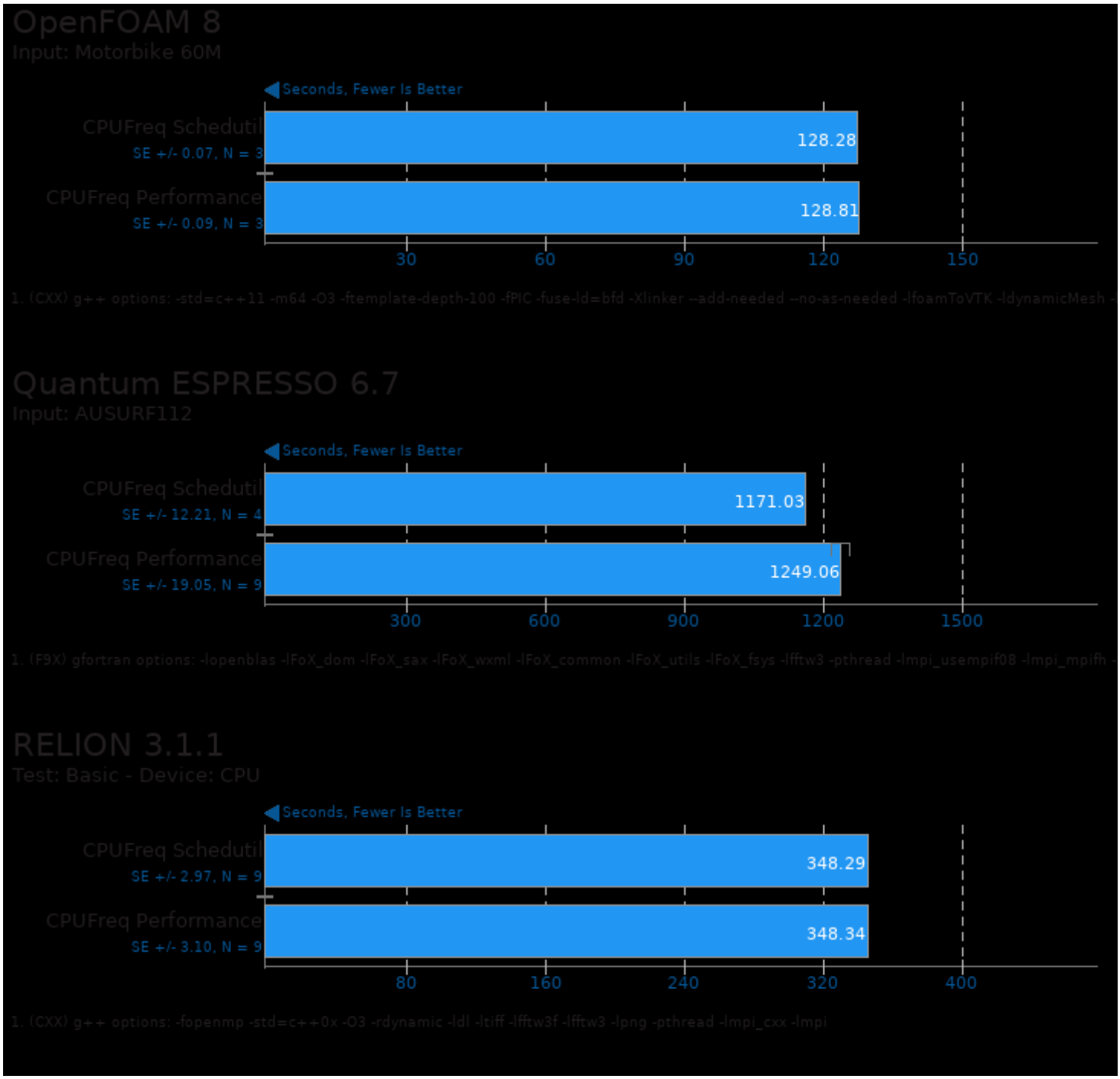
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



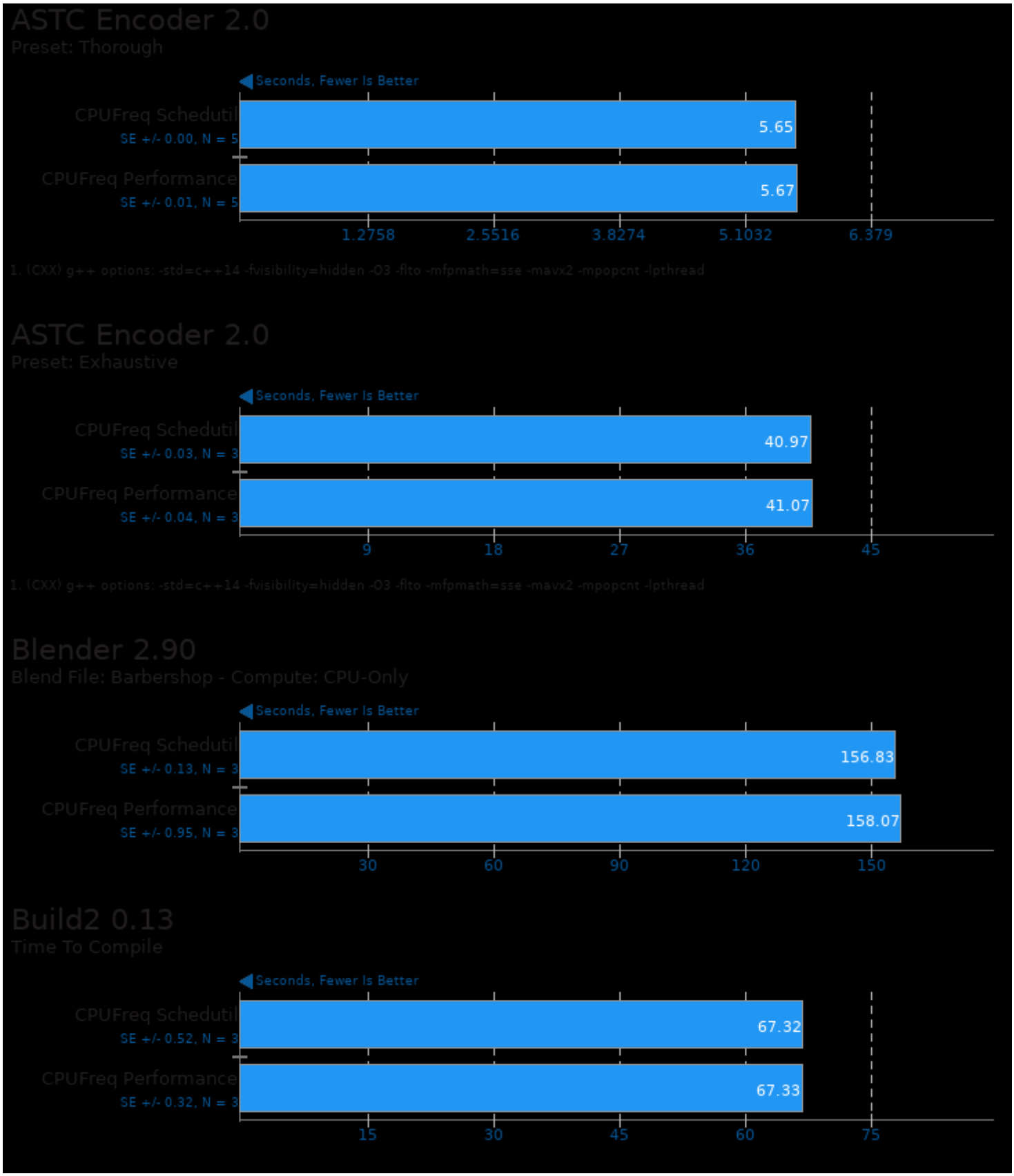
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



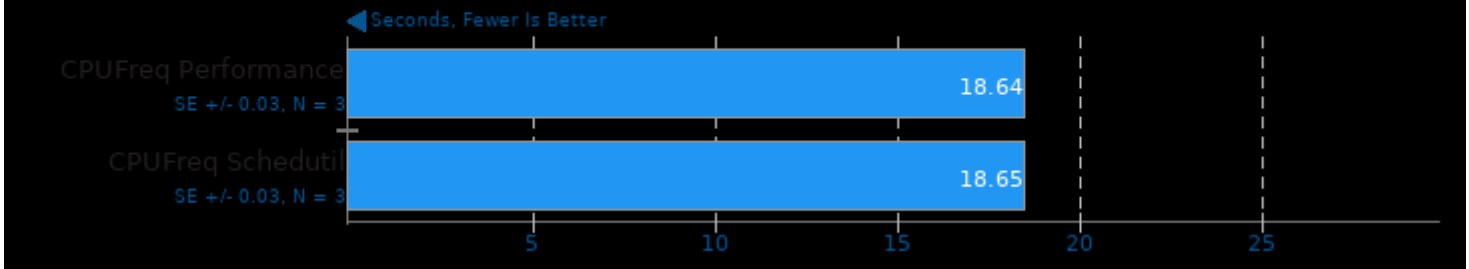
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



AMD EPYC 7F72 2P Linux 5.11 - Perf Governor

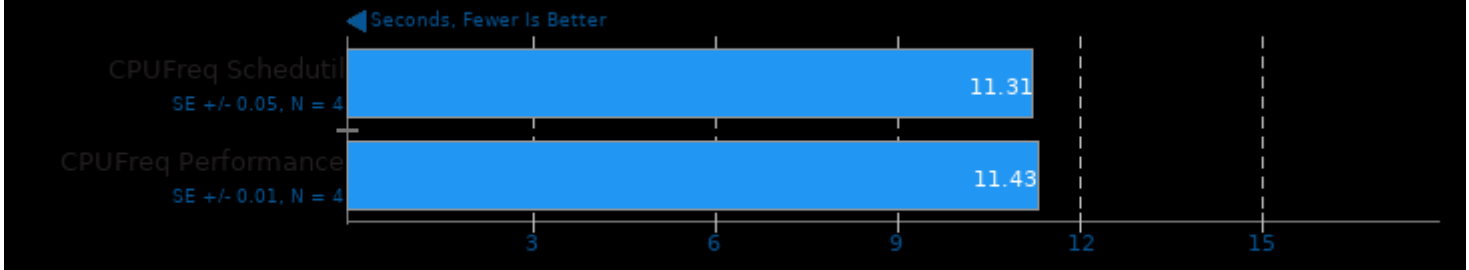
Dolfyn 0.527

Computational Fluid Dynamics



POV-Ray 3.7.0.7

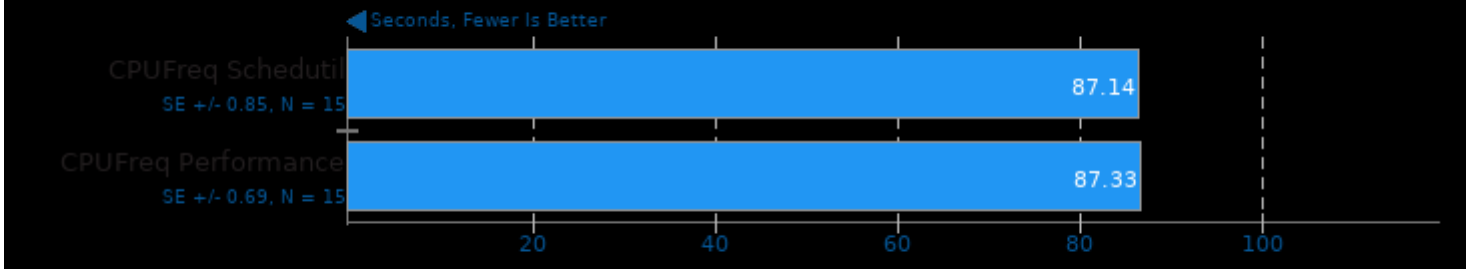
Trace Time



1. (CXX) g++ options: -pipe -O3 -ffast-math -march=native -pthread -lSDL -lSM -lICE -lX11 -lIlmImf -lIlmImf-2_5 -lImath-2_5 -lHalf-2_5 -lIex-2_5 -lIexMath-2

YafaRay 3.4.1

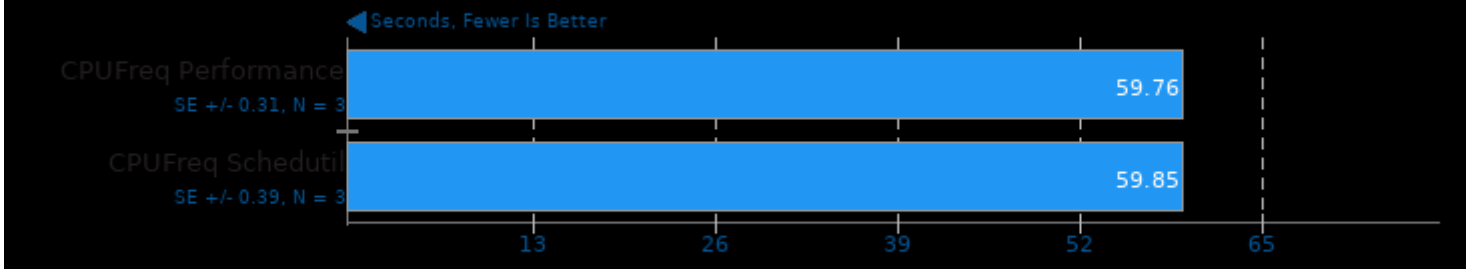
Total Time For Sample Scene



1. (CXX) g++ options: -std=c++11 -O3 -ffast-math -rdynamic -ldl -lImath -lIlmImf -lIex -lHalf -lz -lIlmThread -lxml2 -lfreetype -lpthread

GPAW 20.1

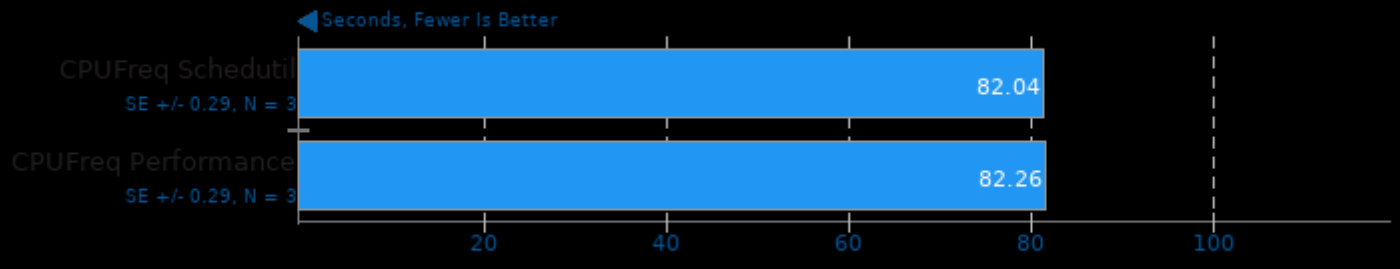
Input: Carbon Nanotube



1. (CC) gcc options: -pthread -shared -fwrapv -O2 -lxc -lblas -lmpi

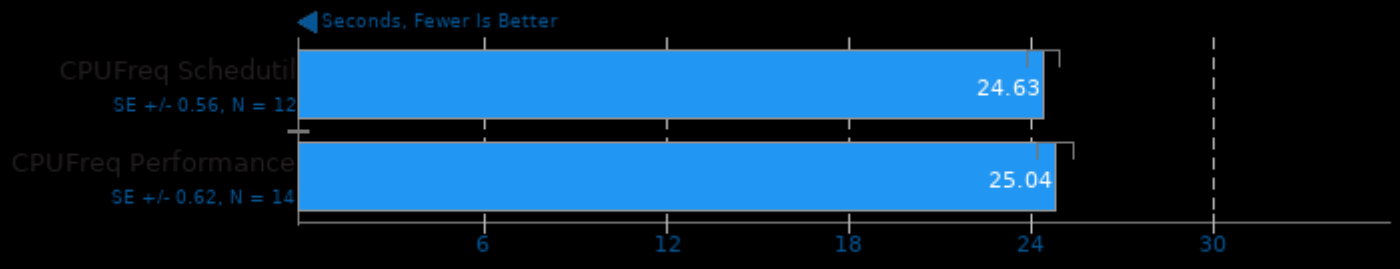
Timed MrBayes Analysis 3.2.7

Primate Phylogeny Analysis



1. (CC) gcc options: -mmmx -msse -msse2 -msse3 -mssse3 -msse4.1 -msse4.2 -msse4a -msha -maes -mavx -mfma -mavx2 -mrdrnd -mbmi -mbmi2 -madx

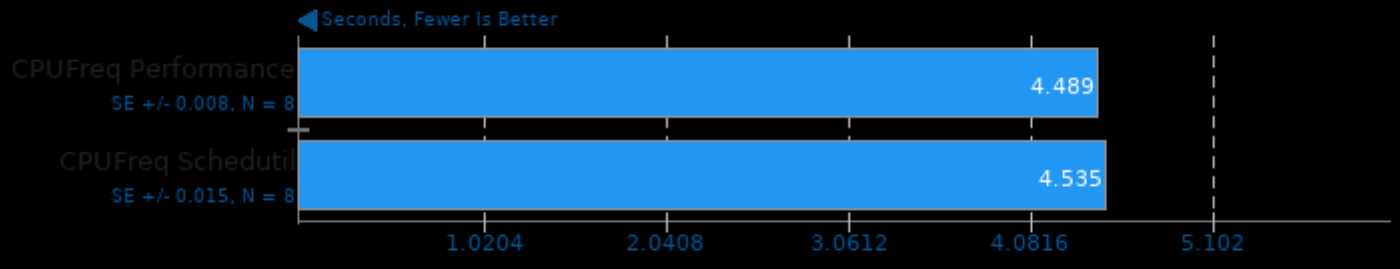
Nebular Empirical Analysis Tool 2020-02-29



1. (F9X) gfortran options: -cpp -ffree-line-length-0 -Jsource/ -fopenmp -O3 -fno-backtrace

Primesieve 7.4

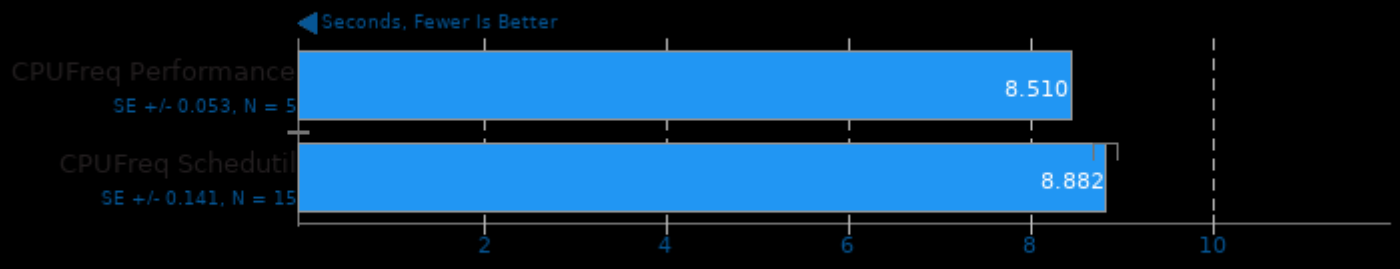
1e12 Prime Number Generation



1. (CXX) g++ options: -O3 -lpthread

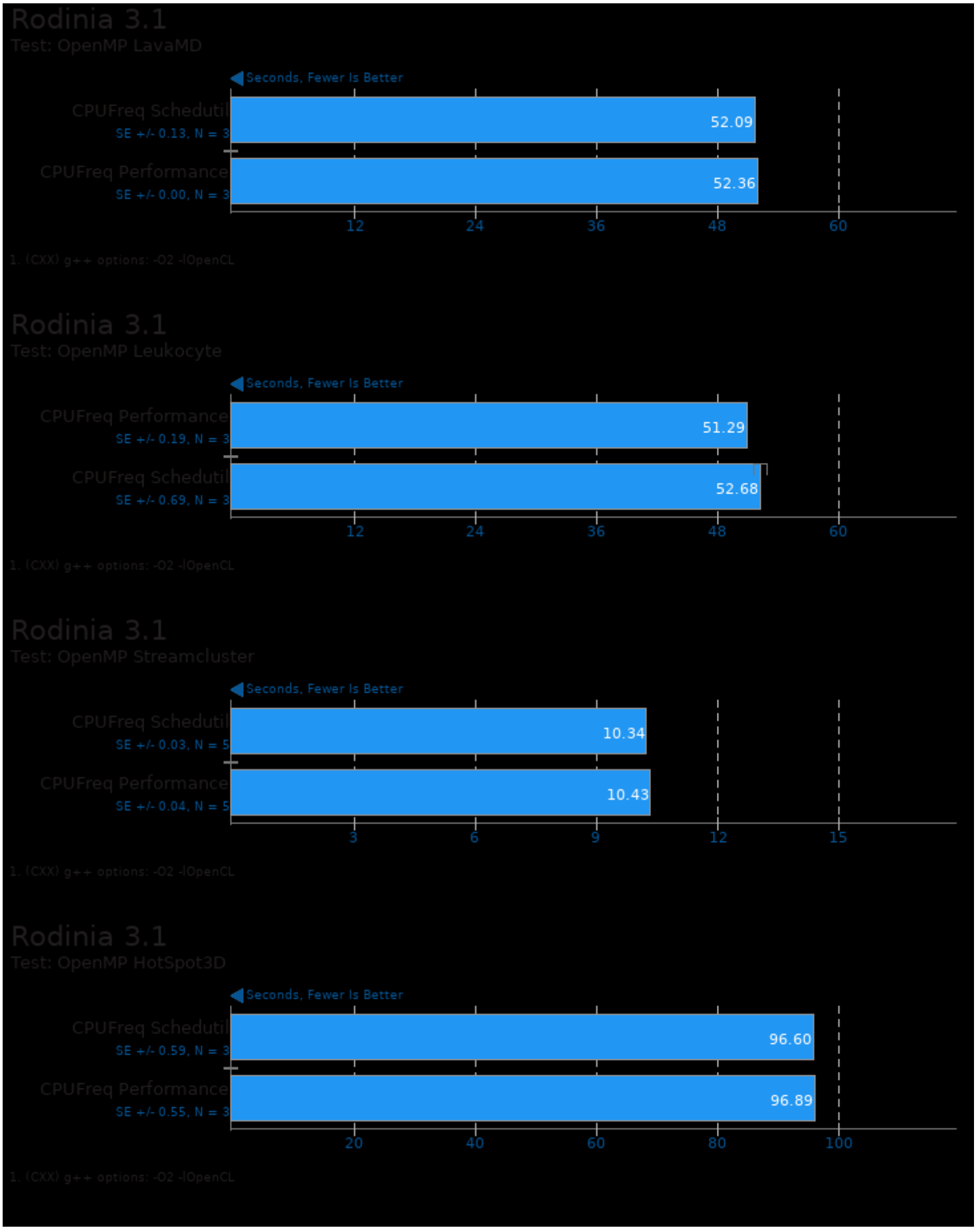
Rodinia 3.1

Test: OpenMP CFD Solver

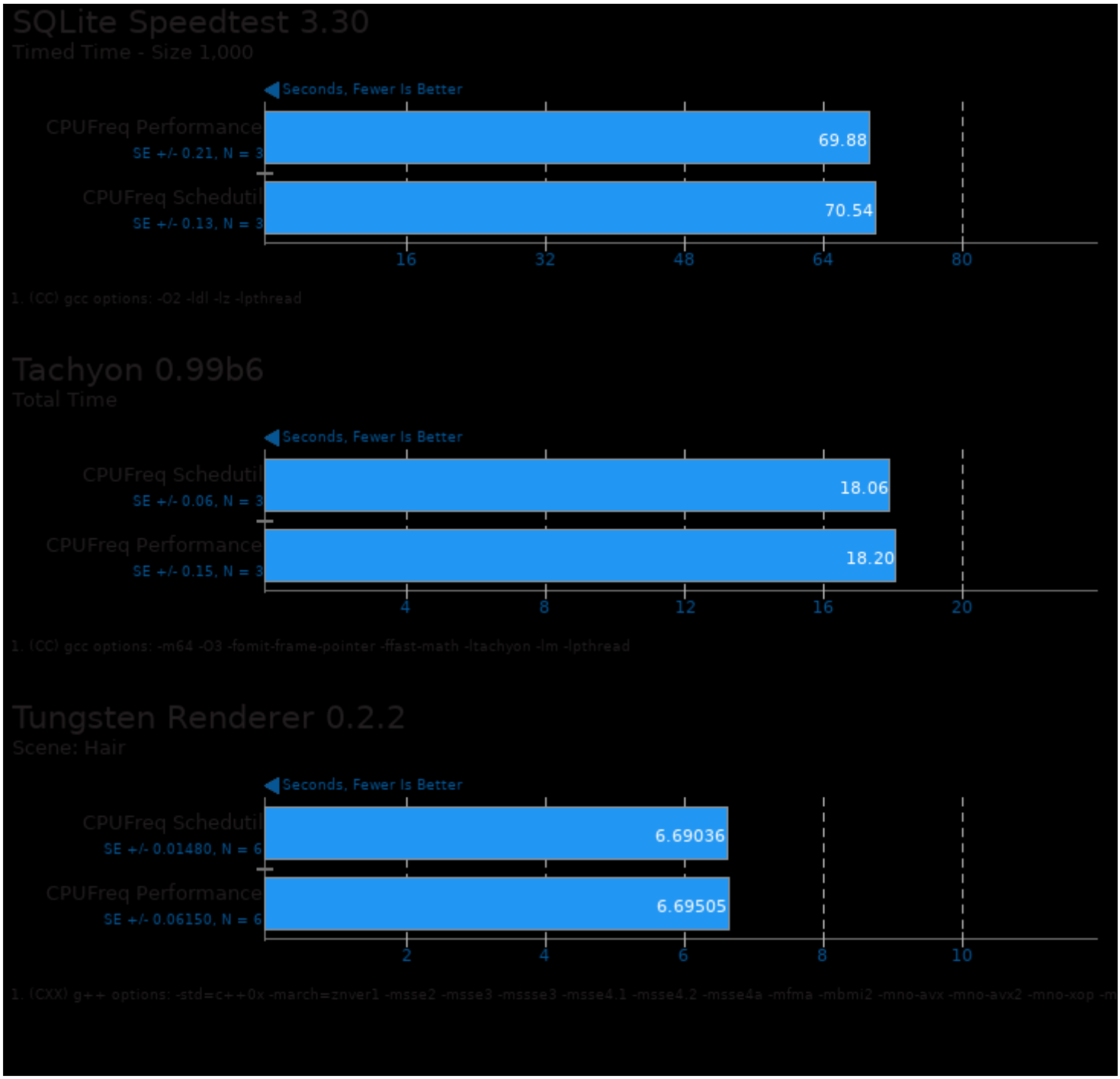


1. (CXX) g++ options: -O2 -lOpenCL

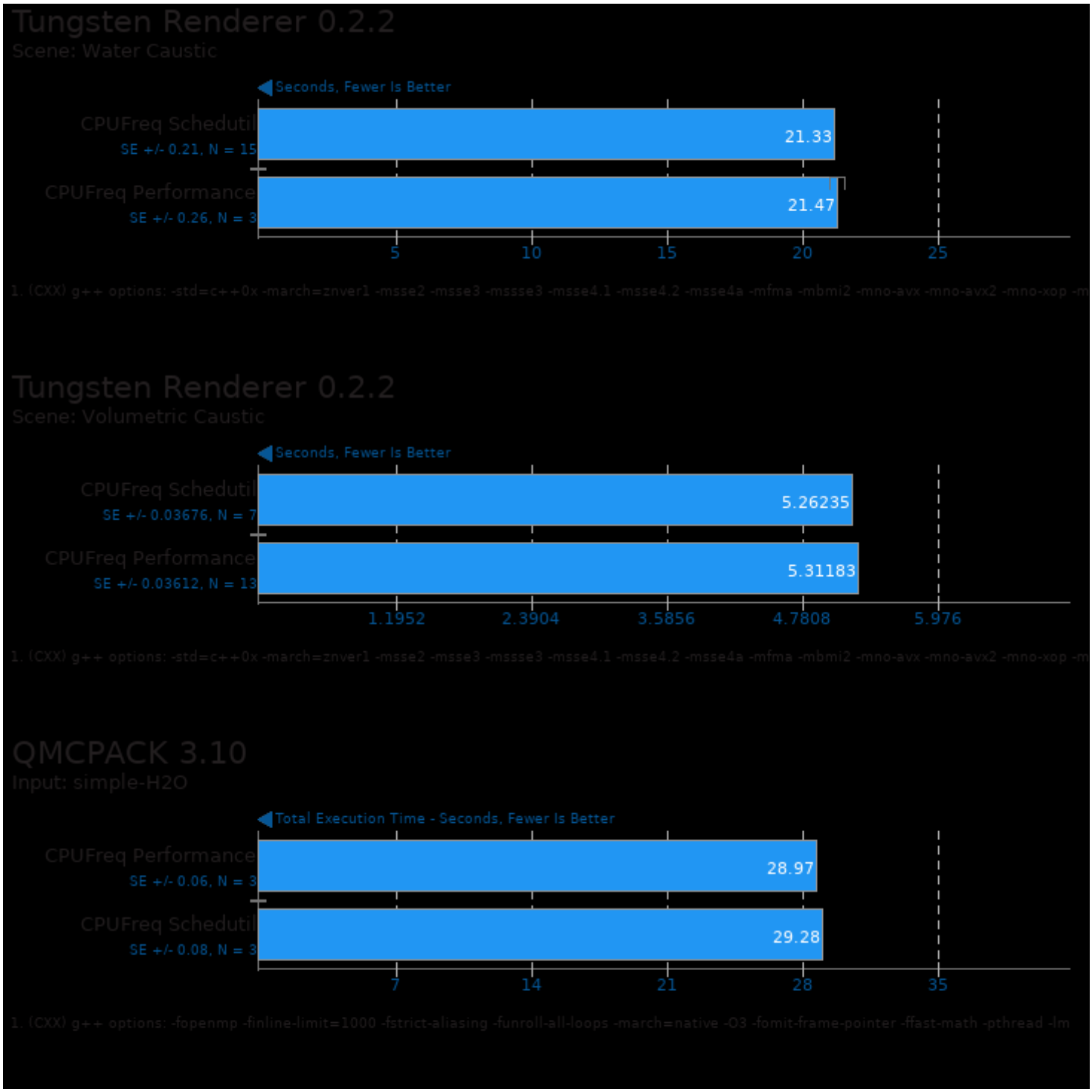
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



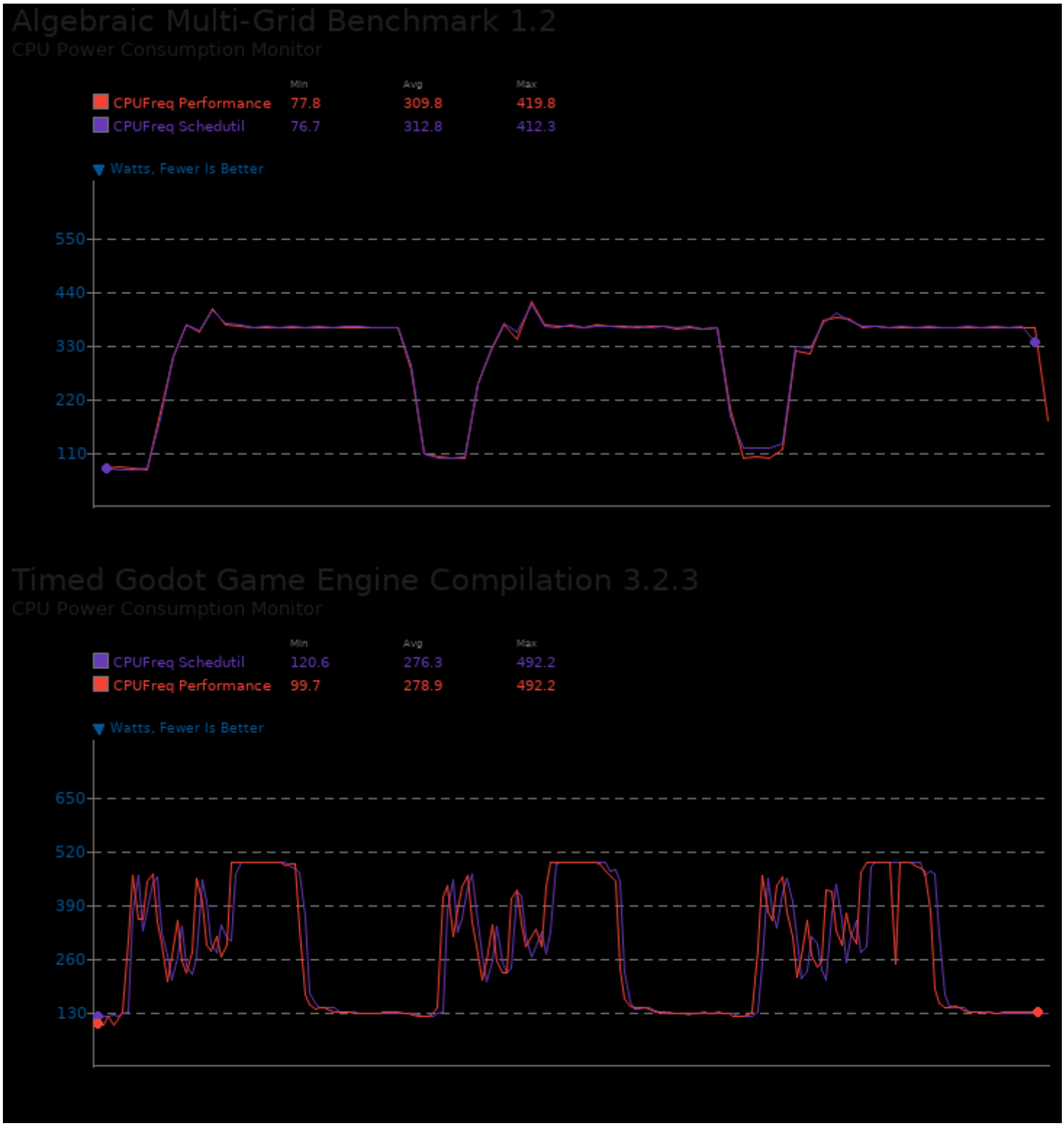
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



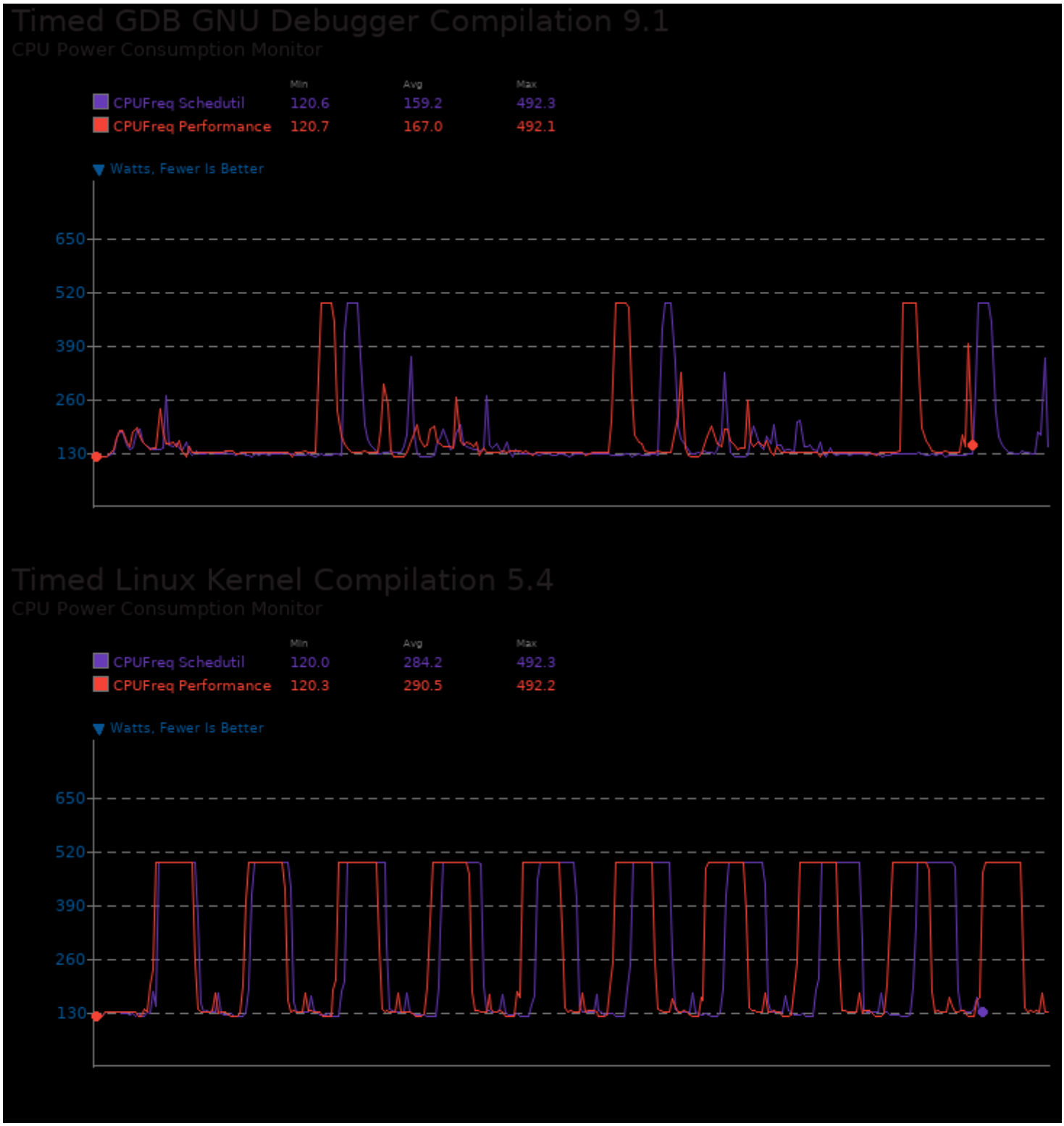
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



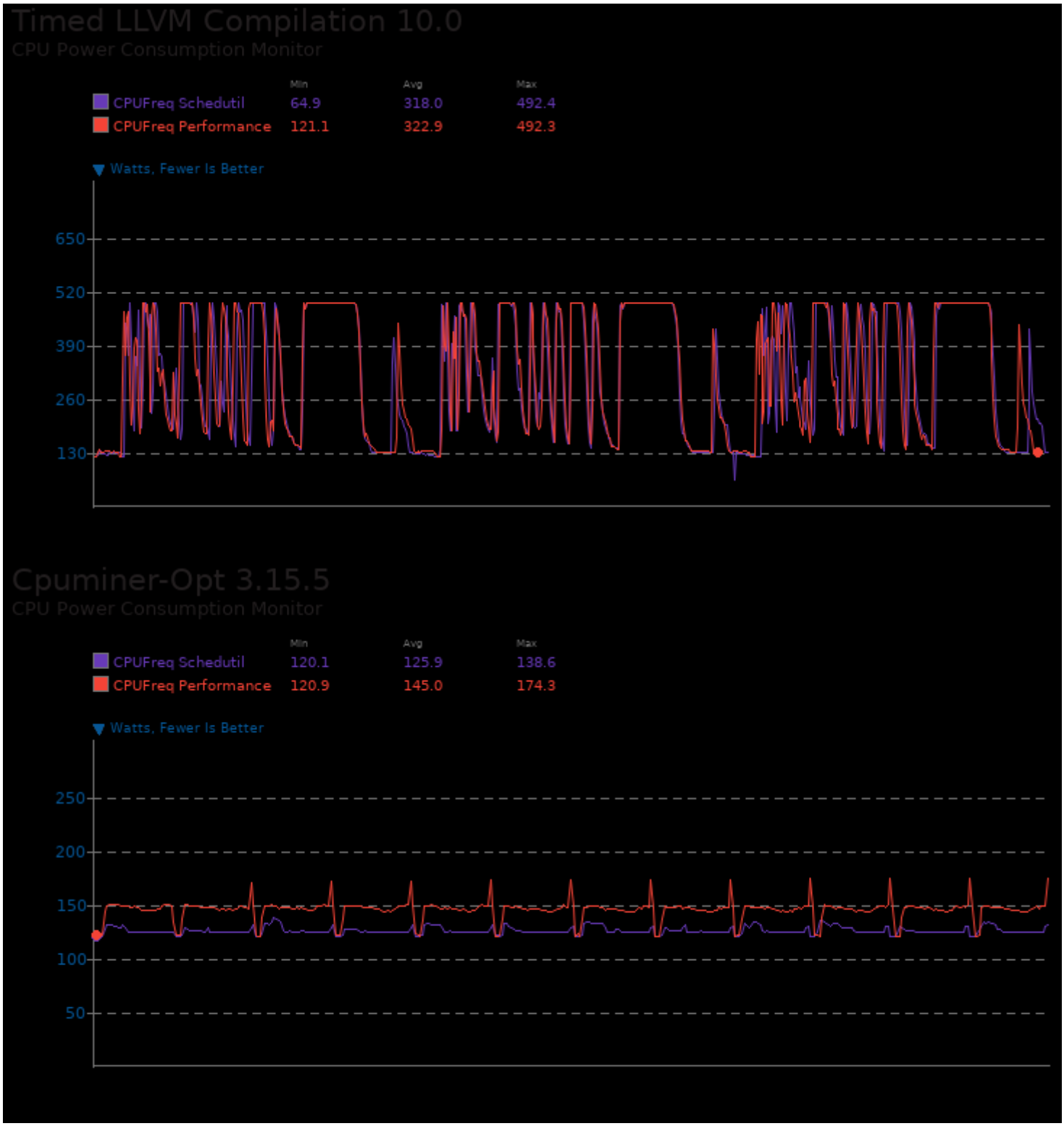
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



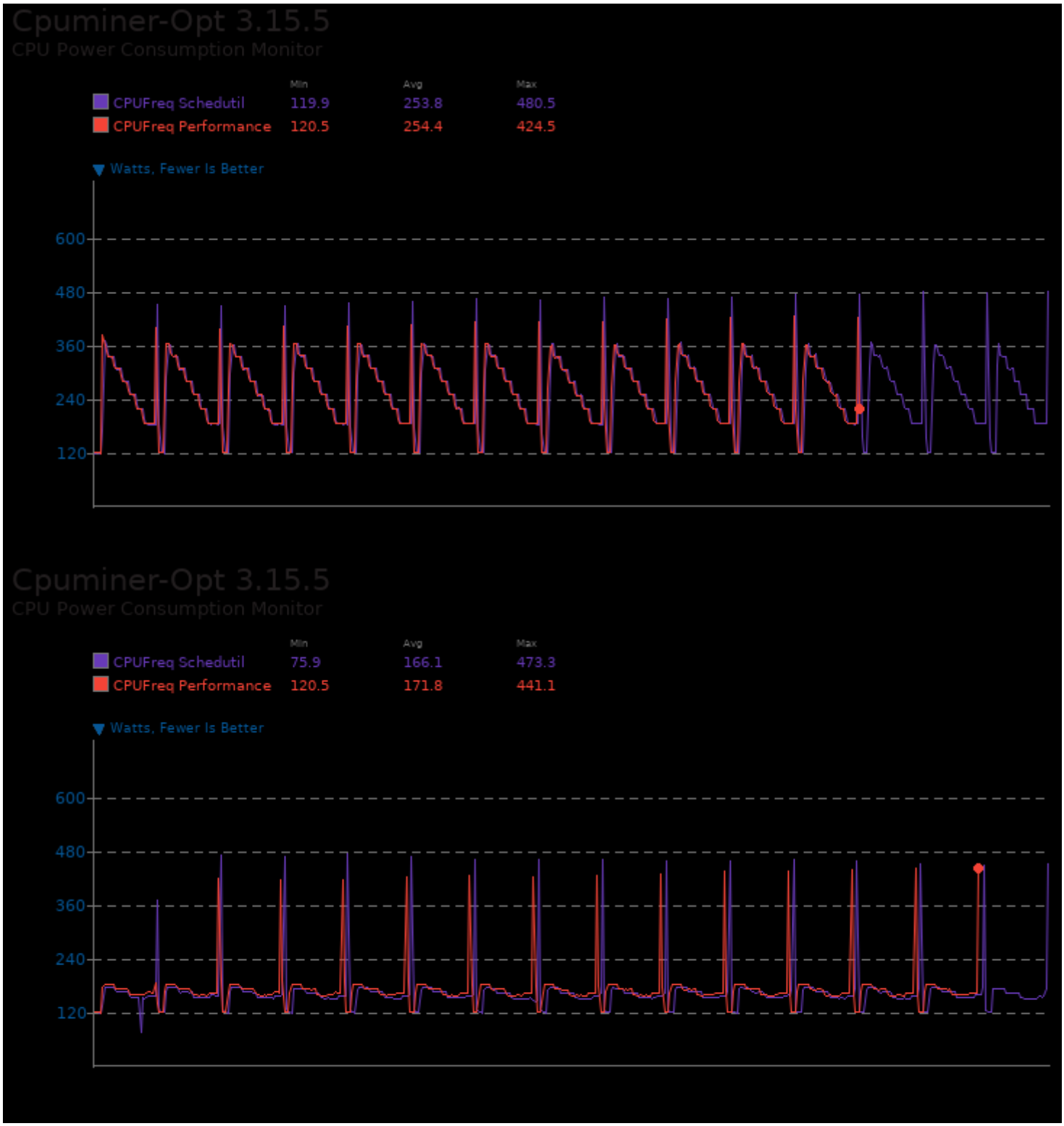
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



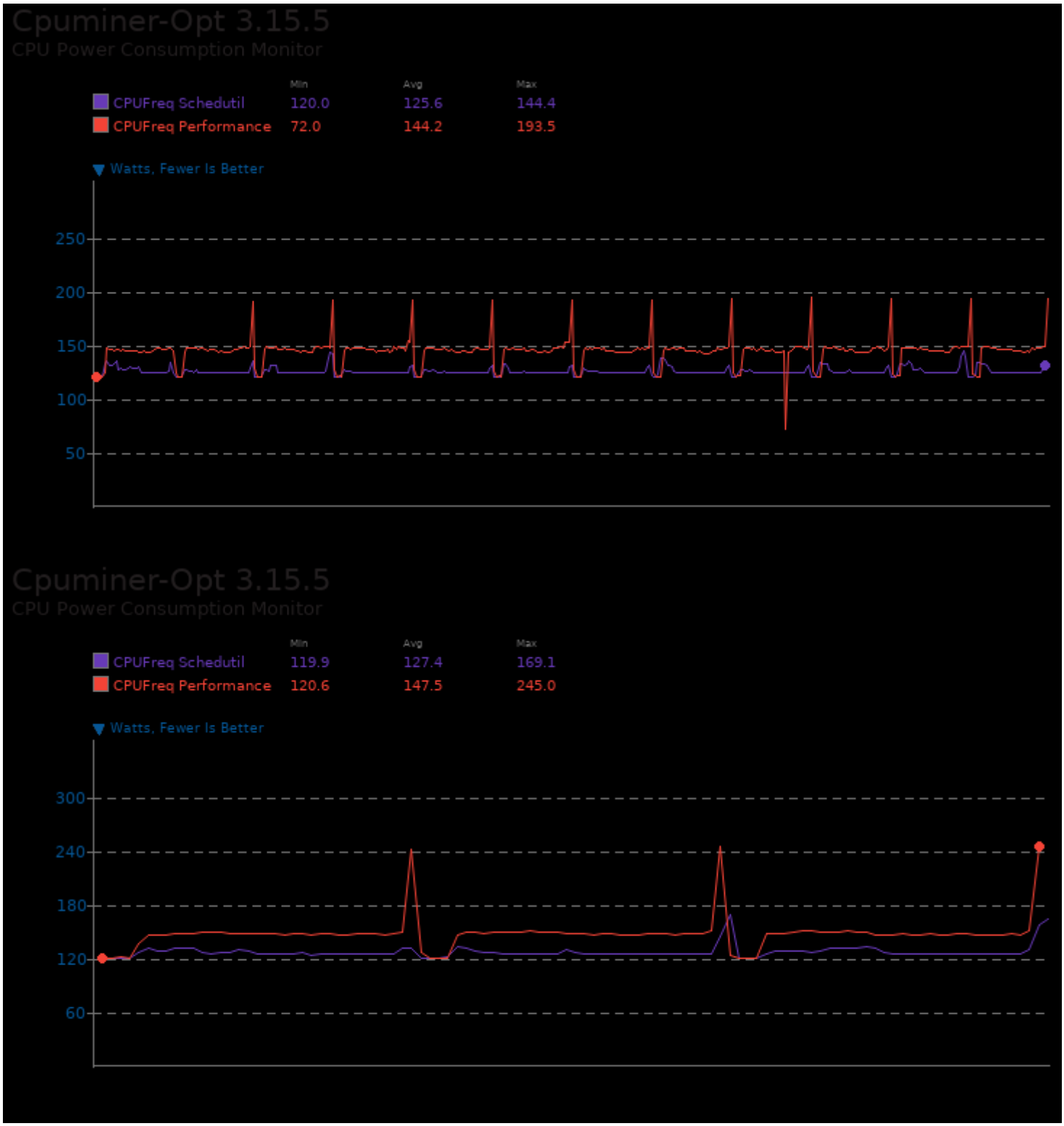
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



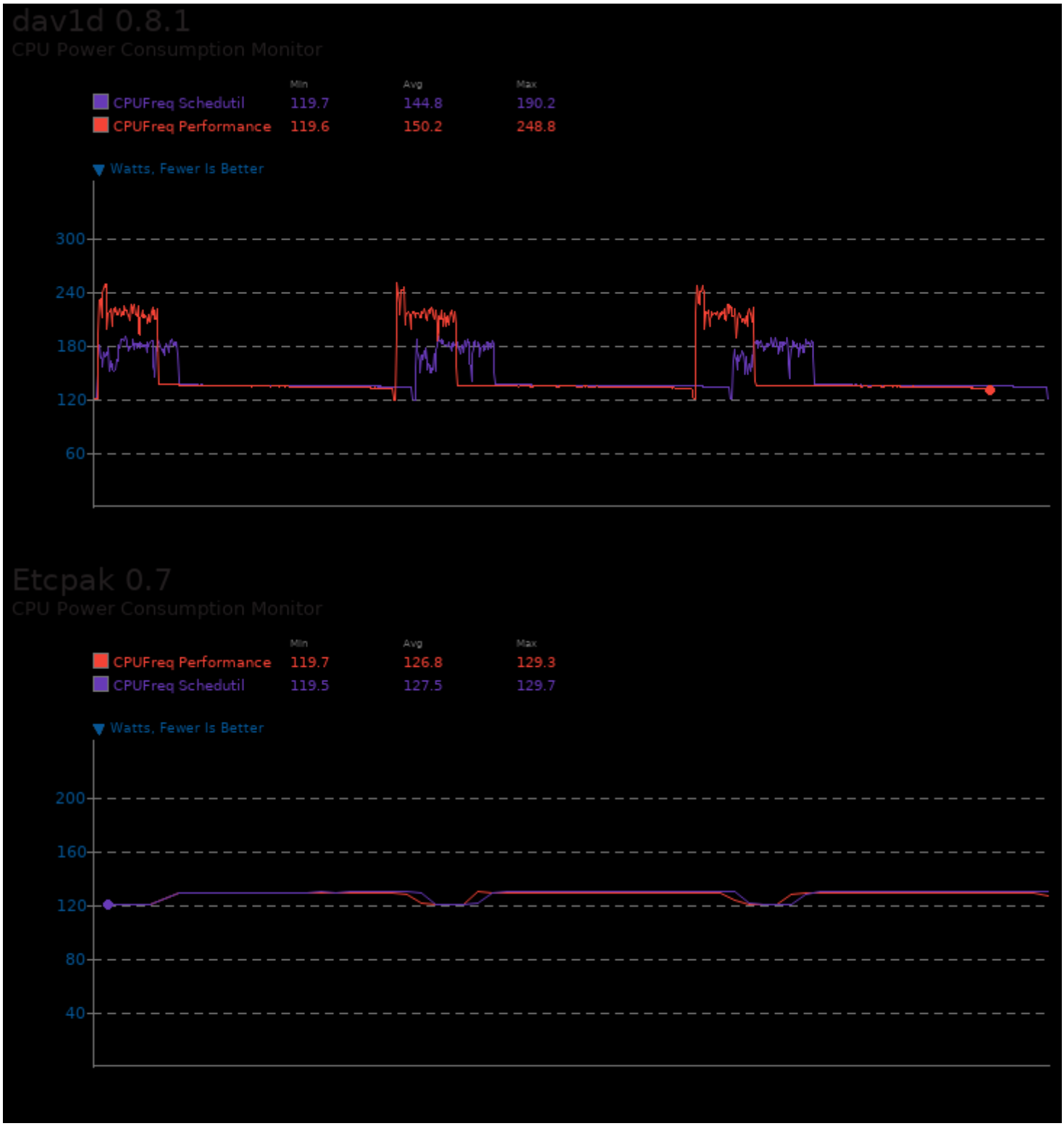
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



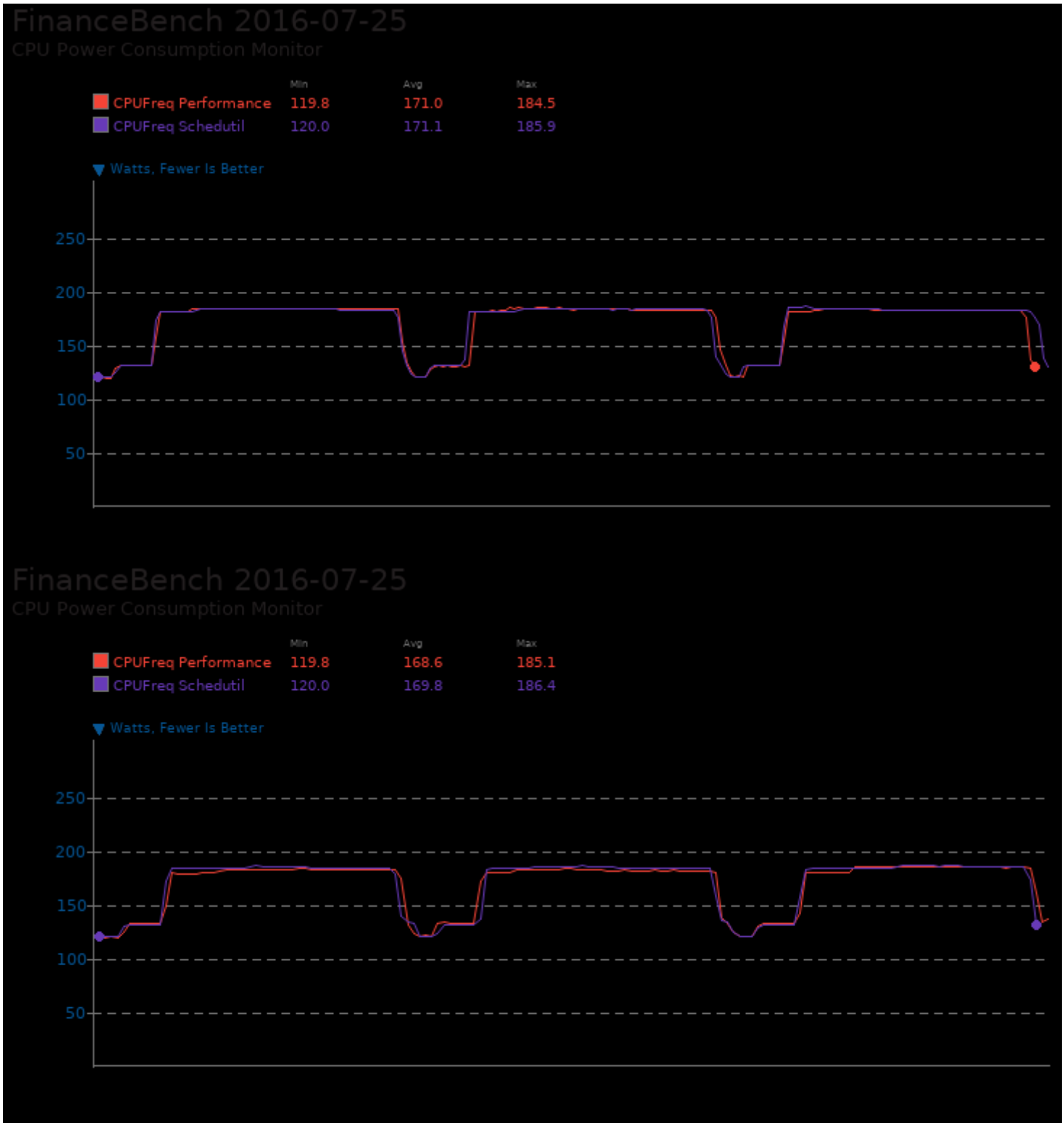
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



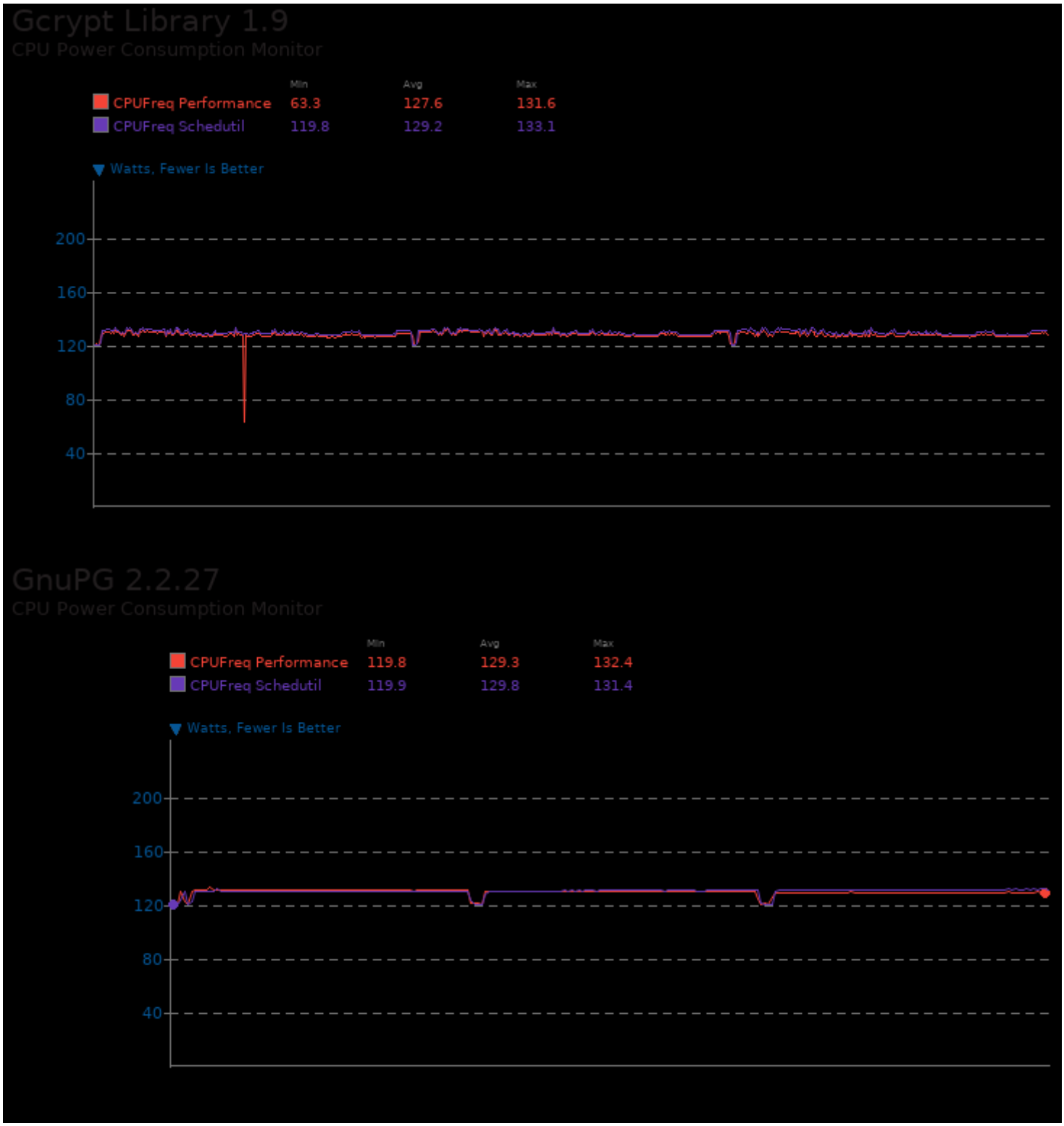
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



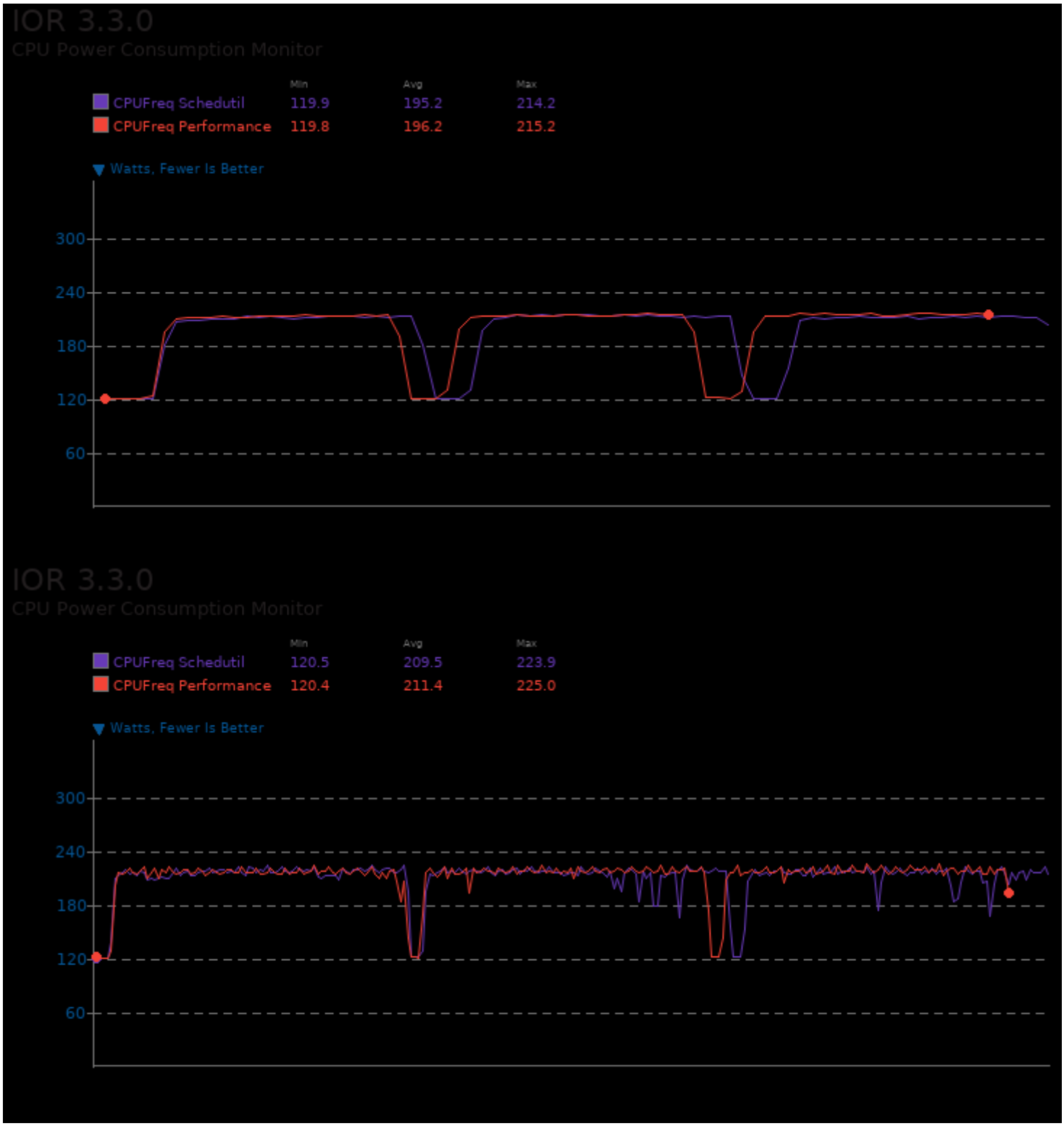
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



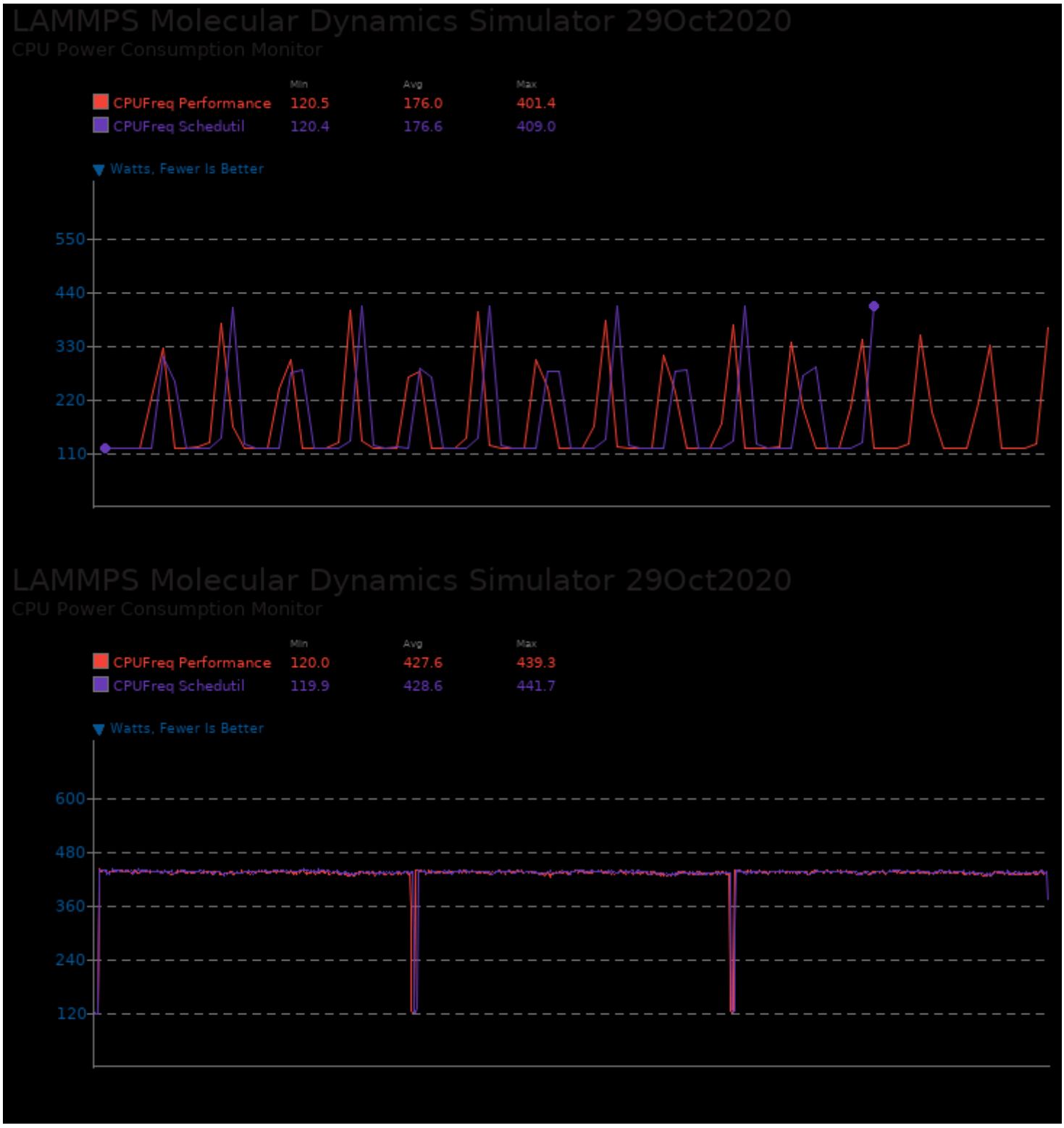
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



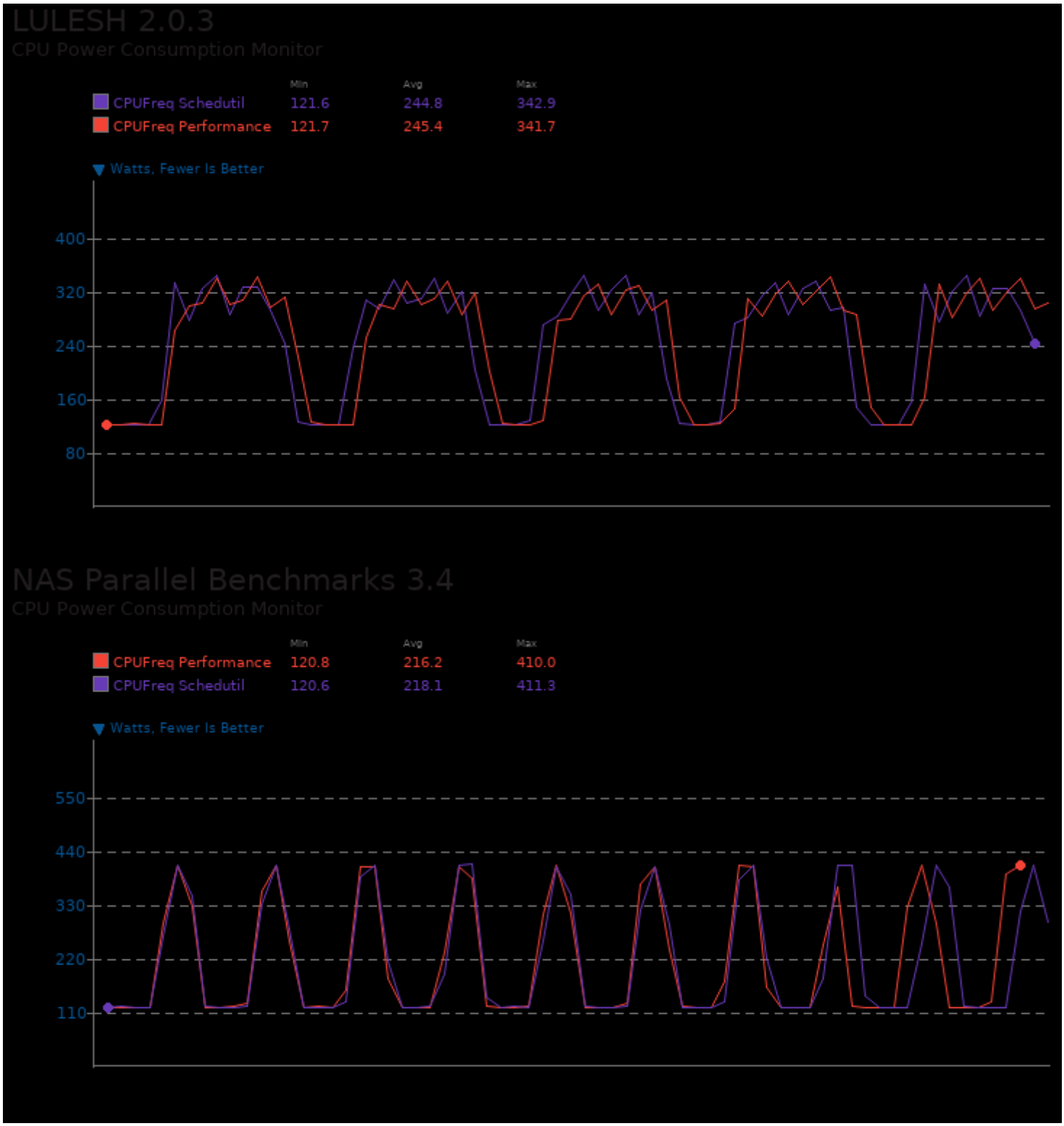
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



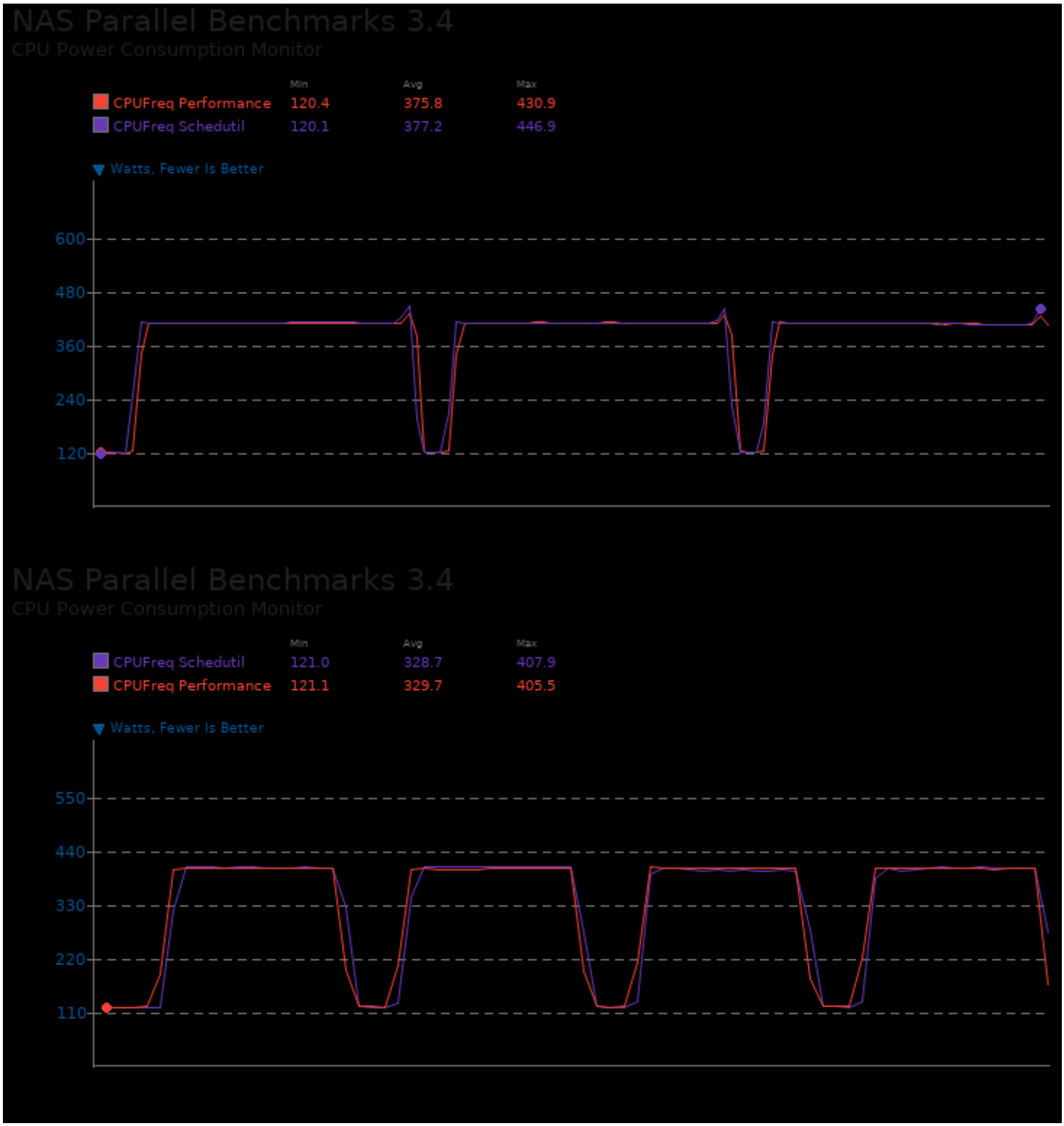
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



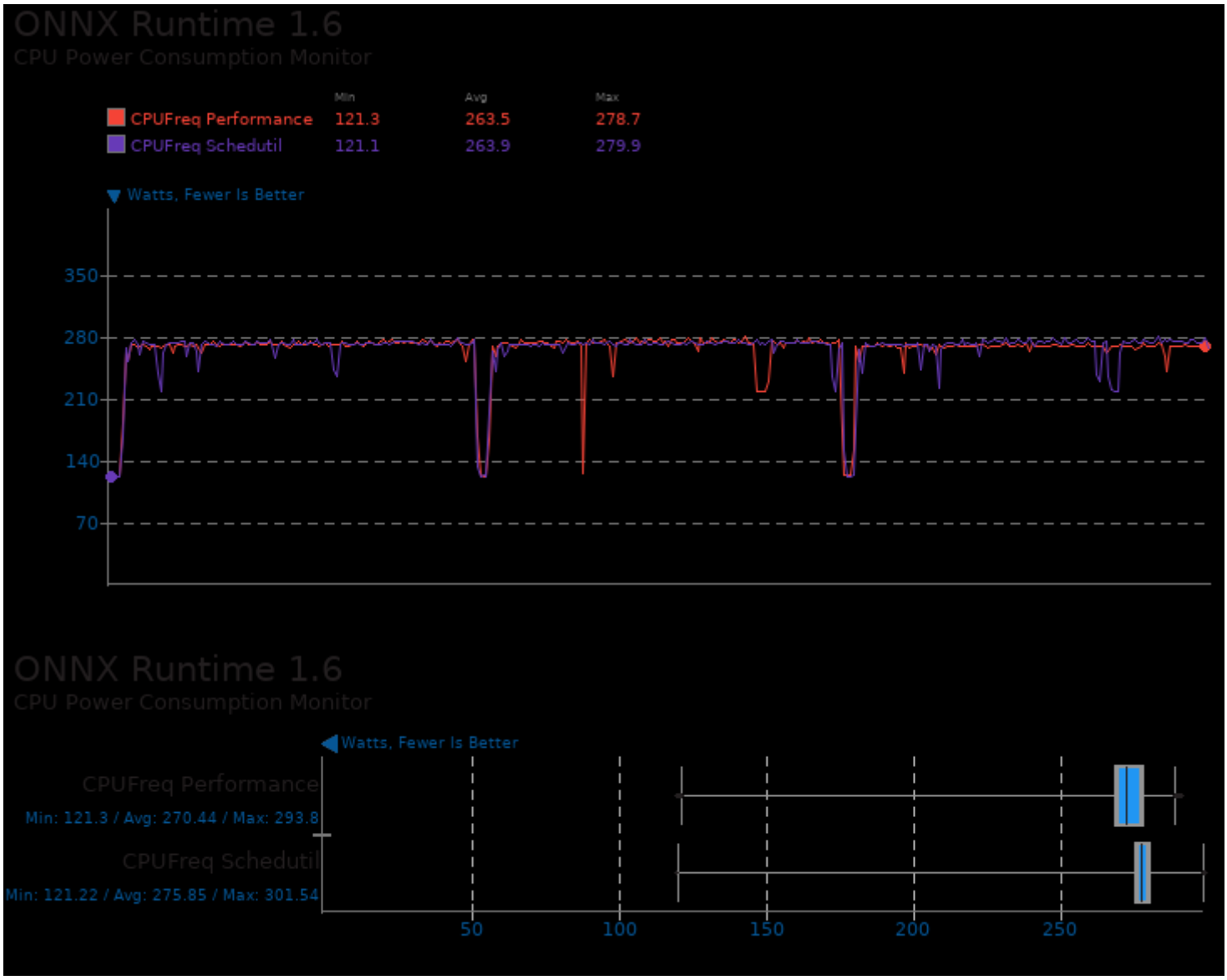
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



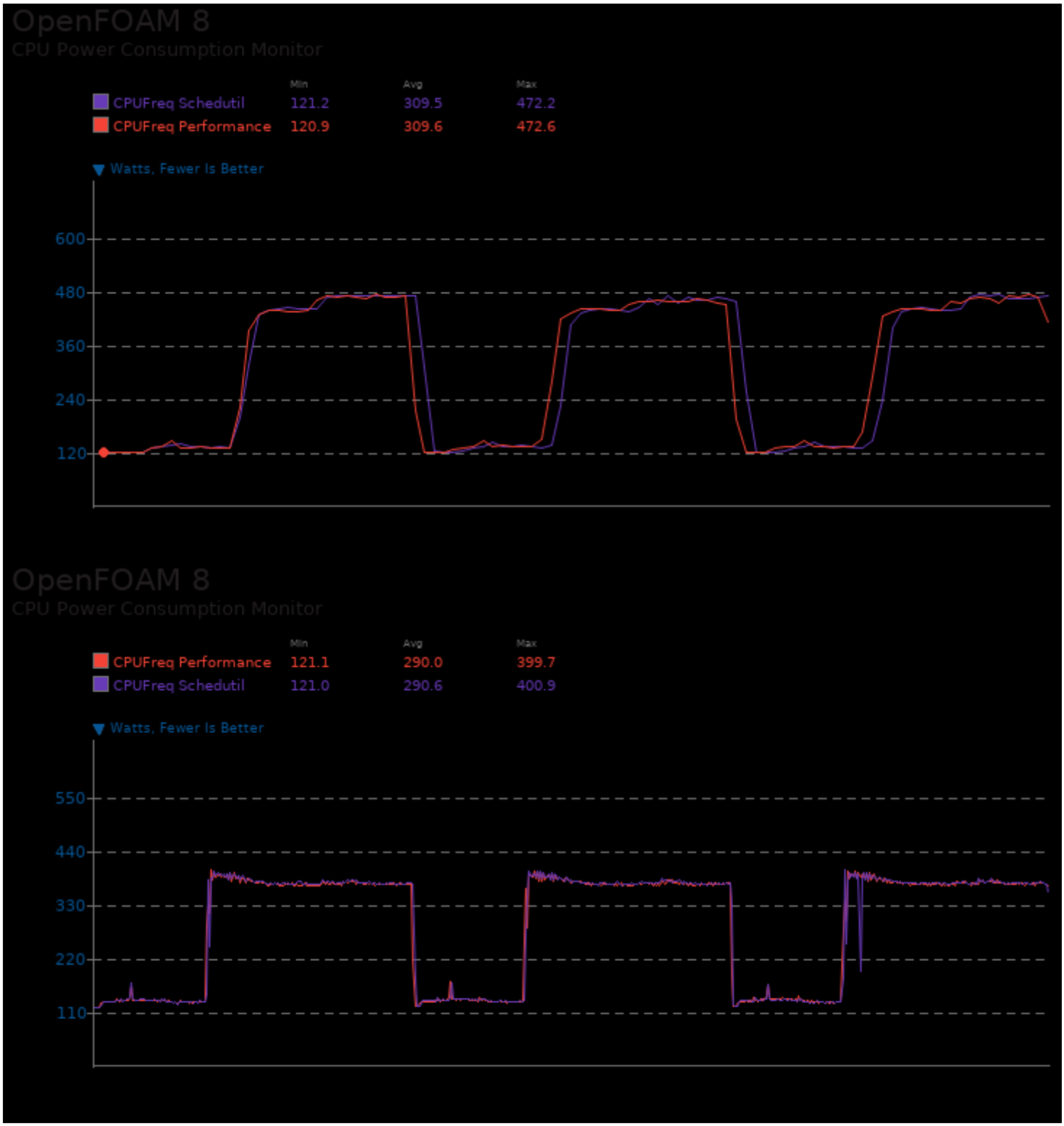
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



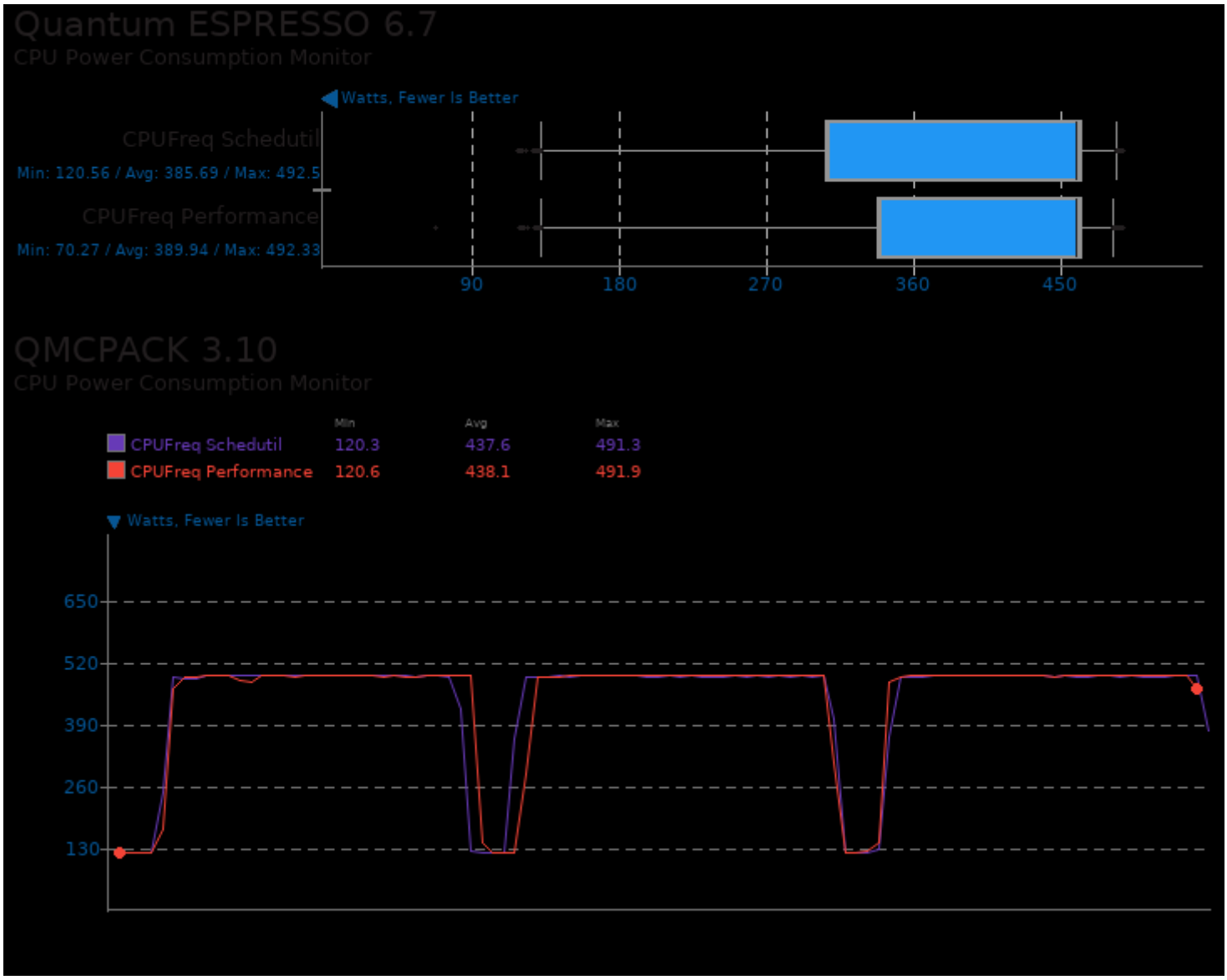
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



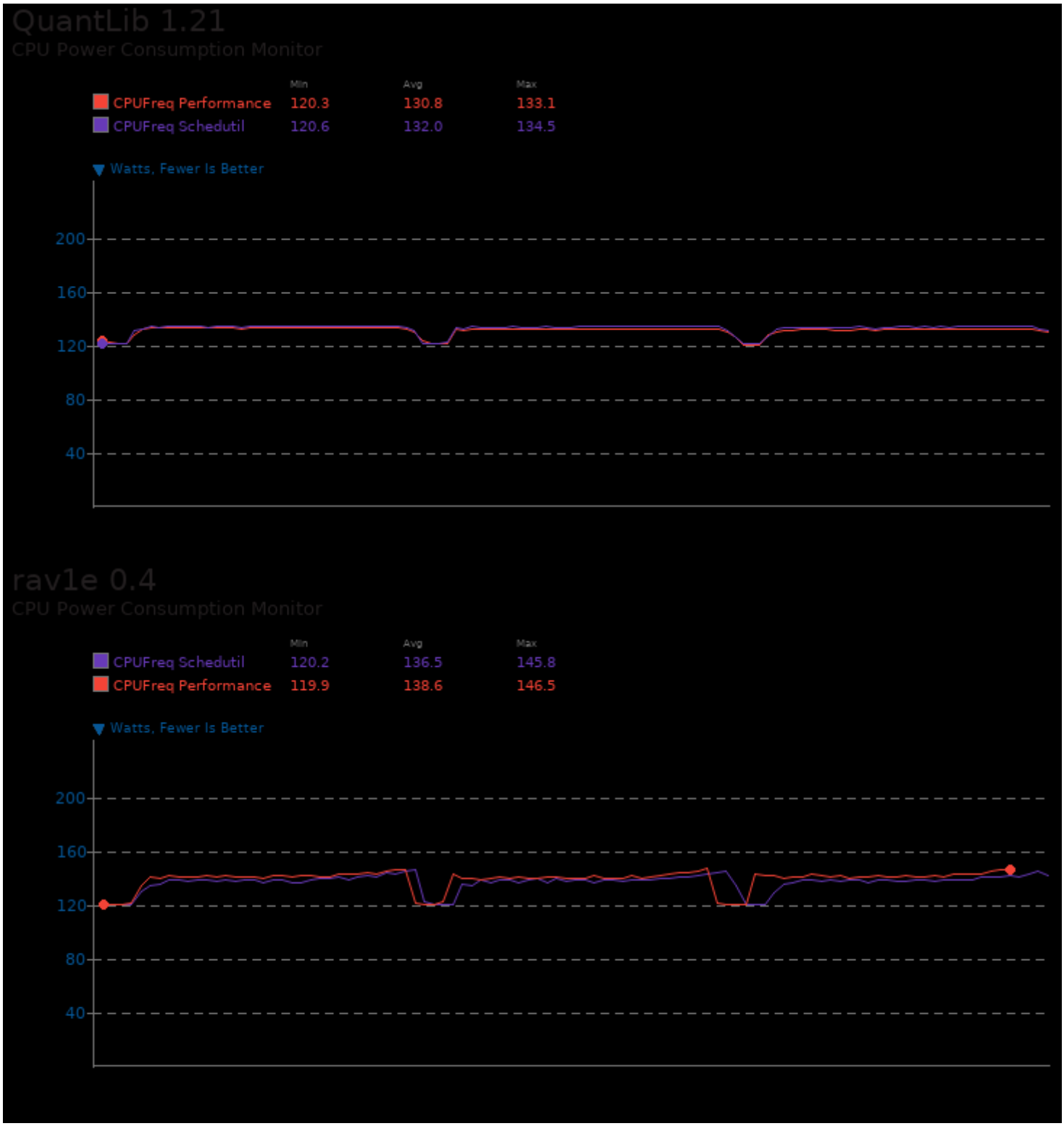
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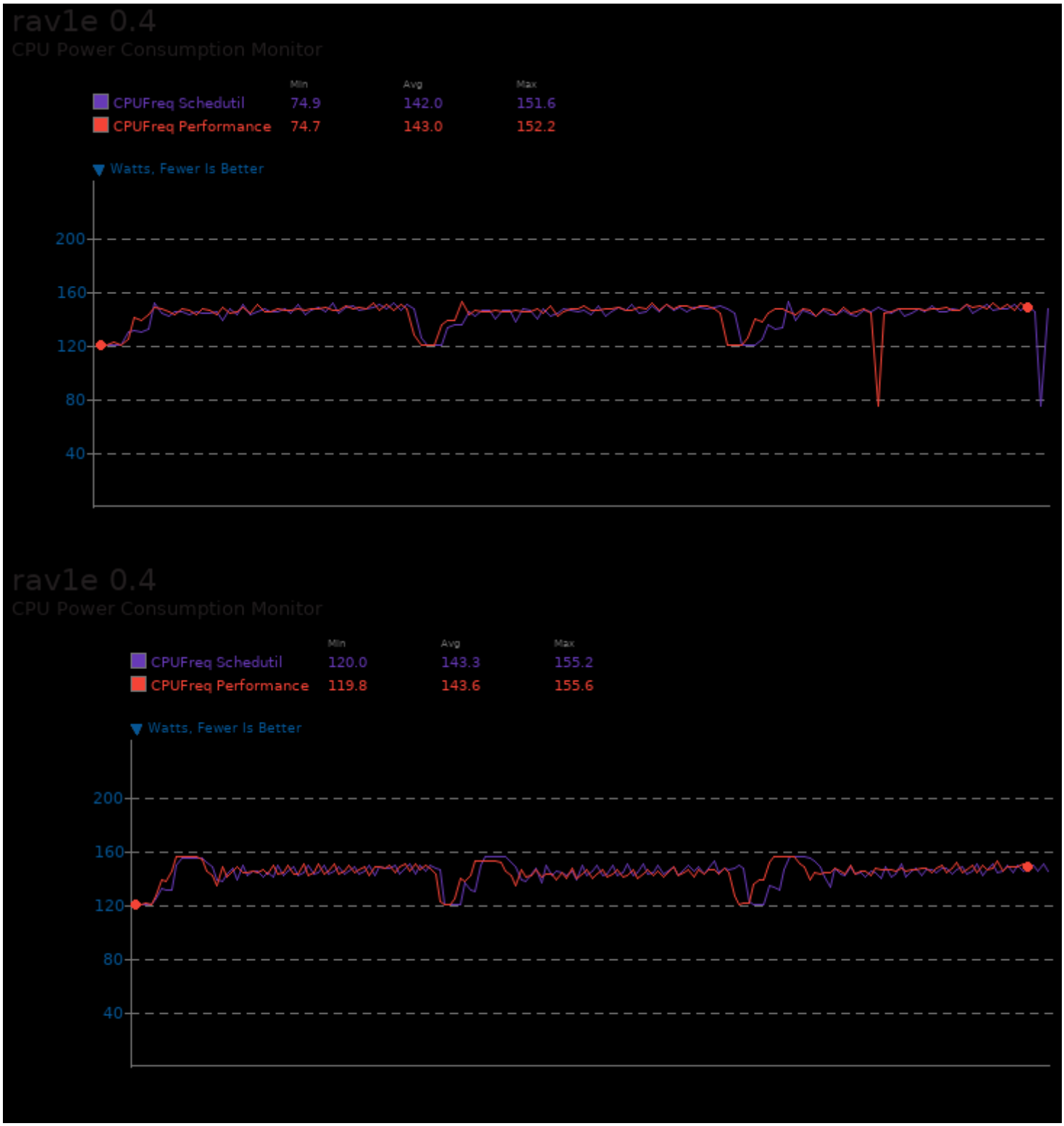
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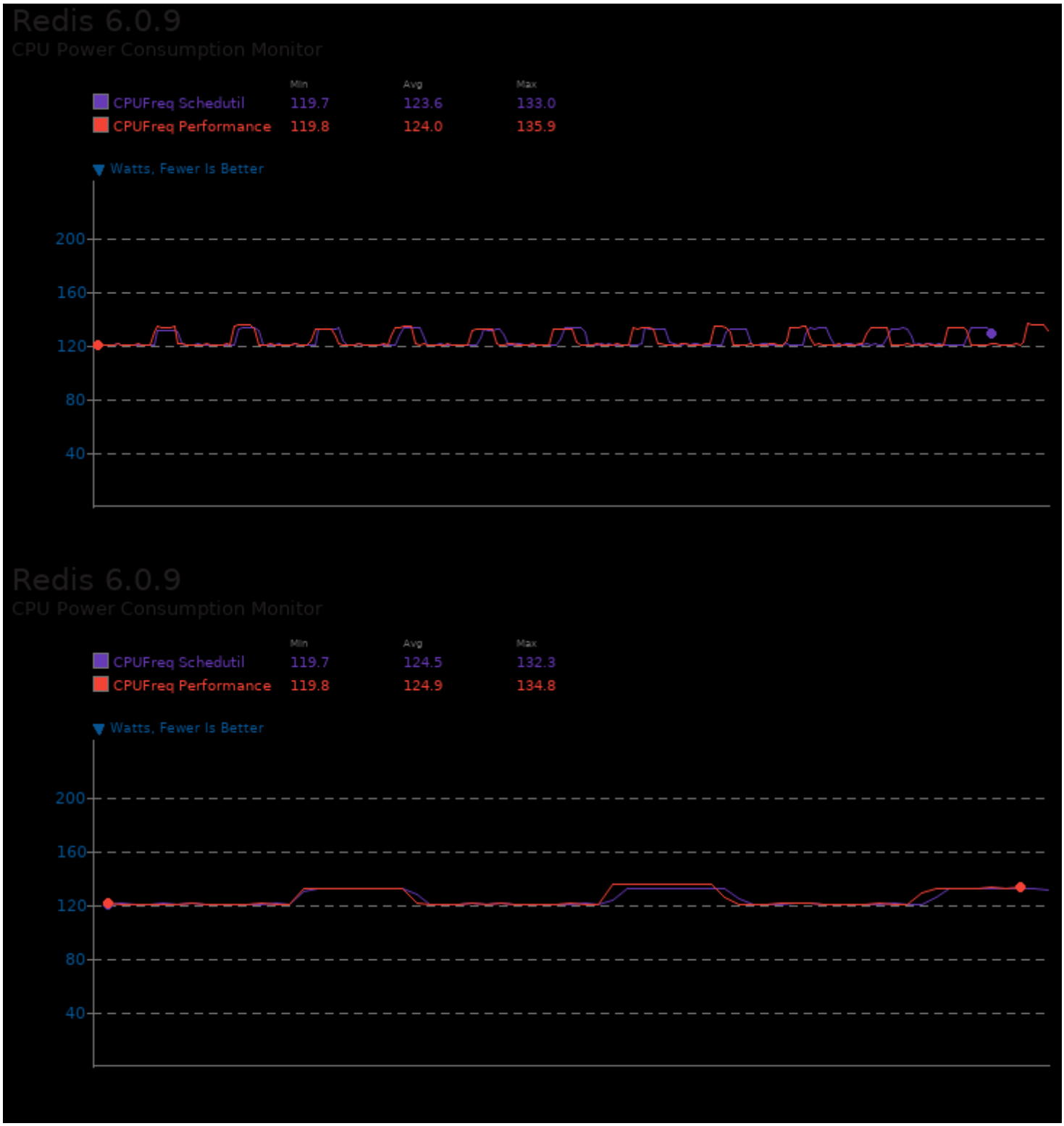
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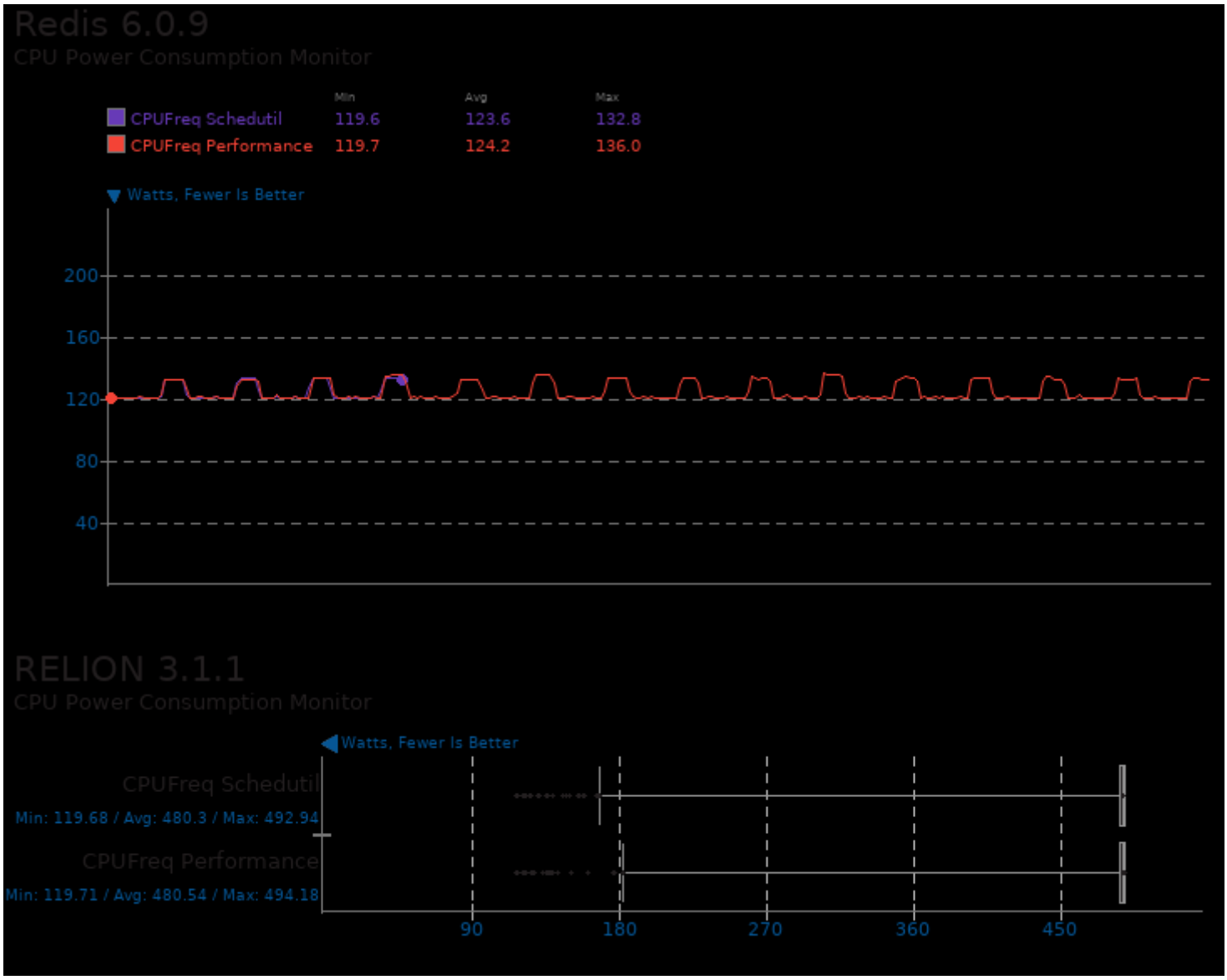
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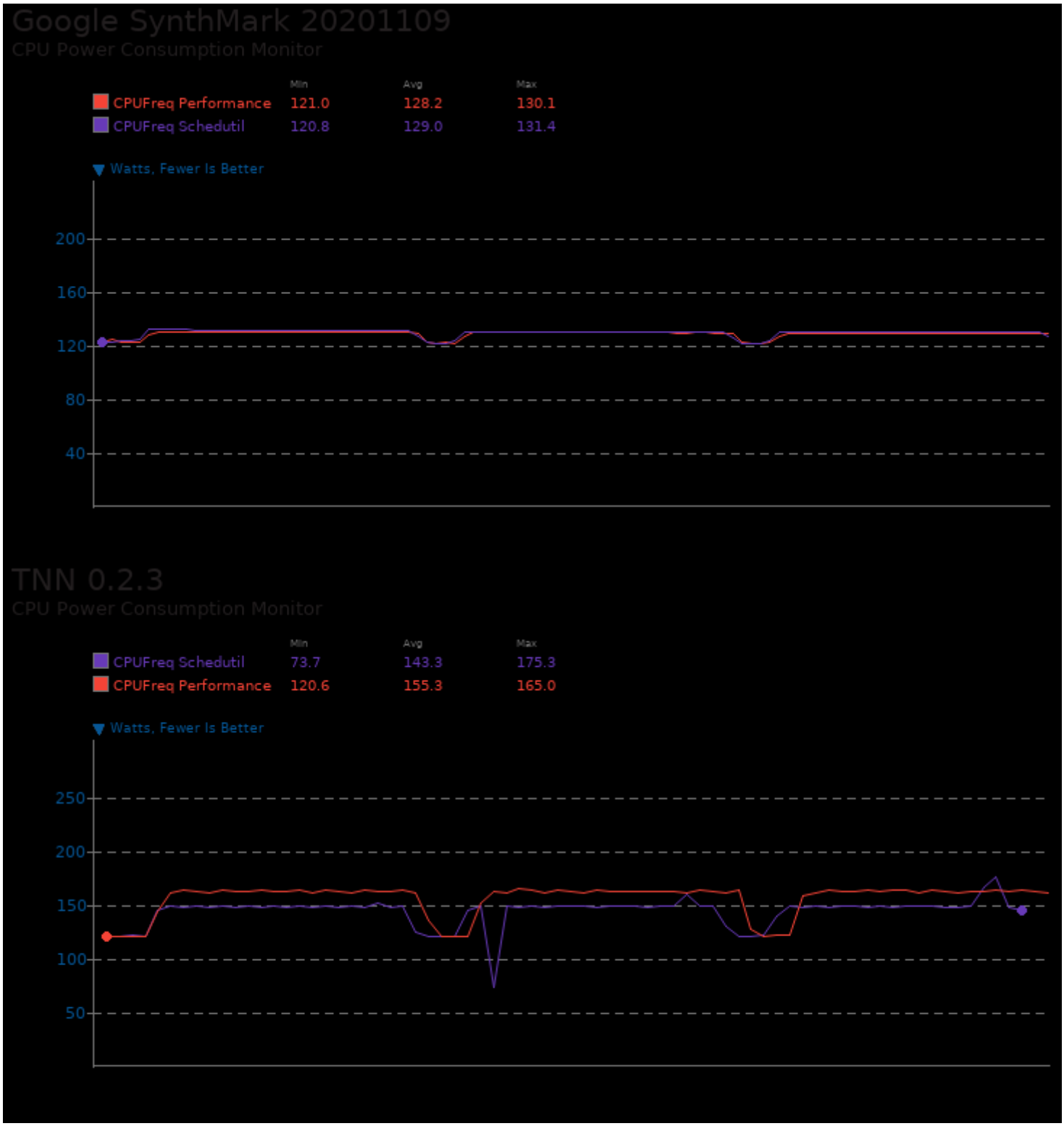
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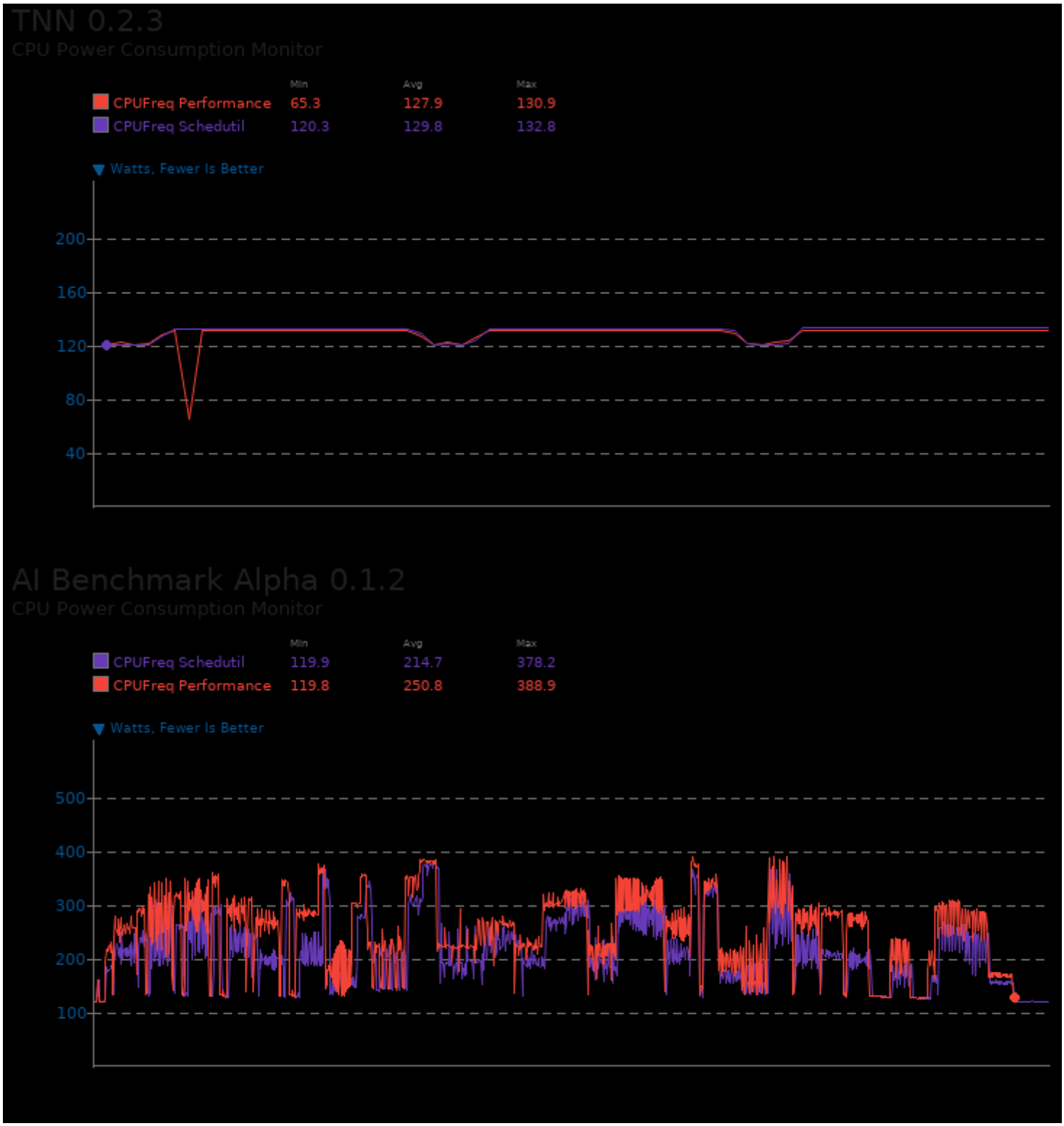
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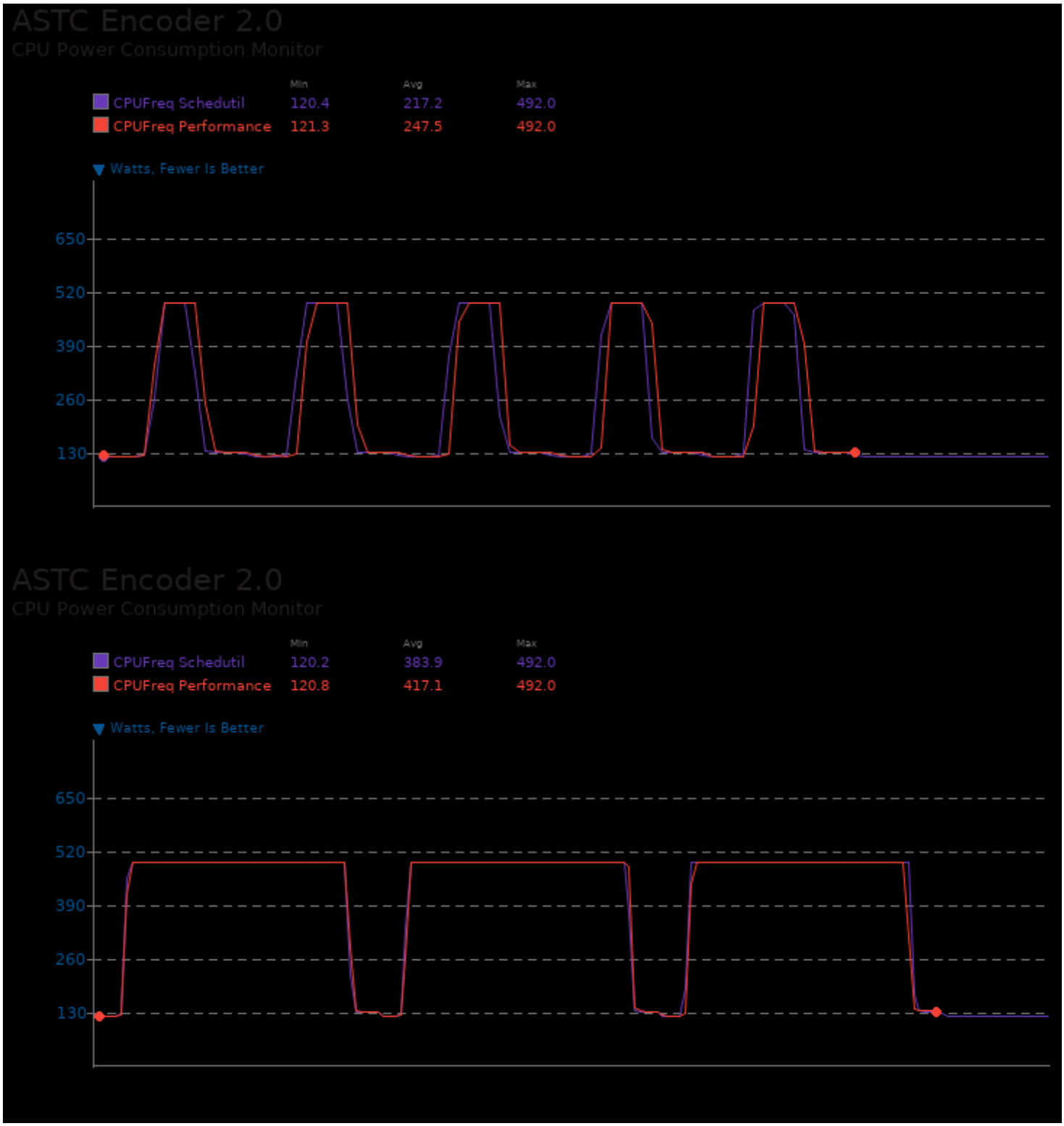
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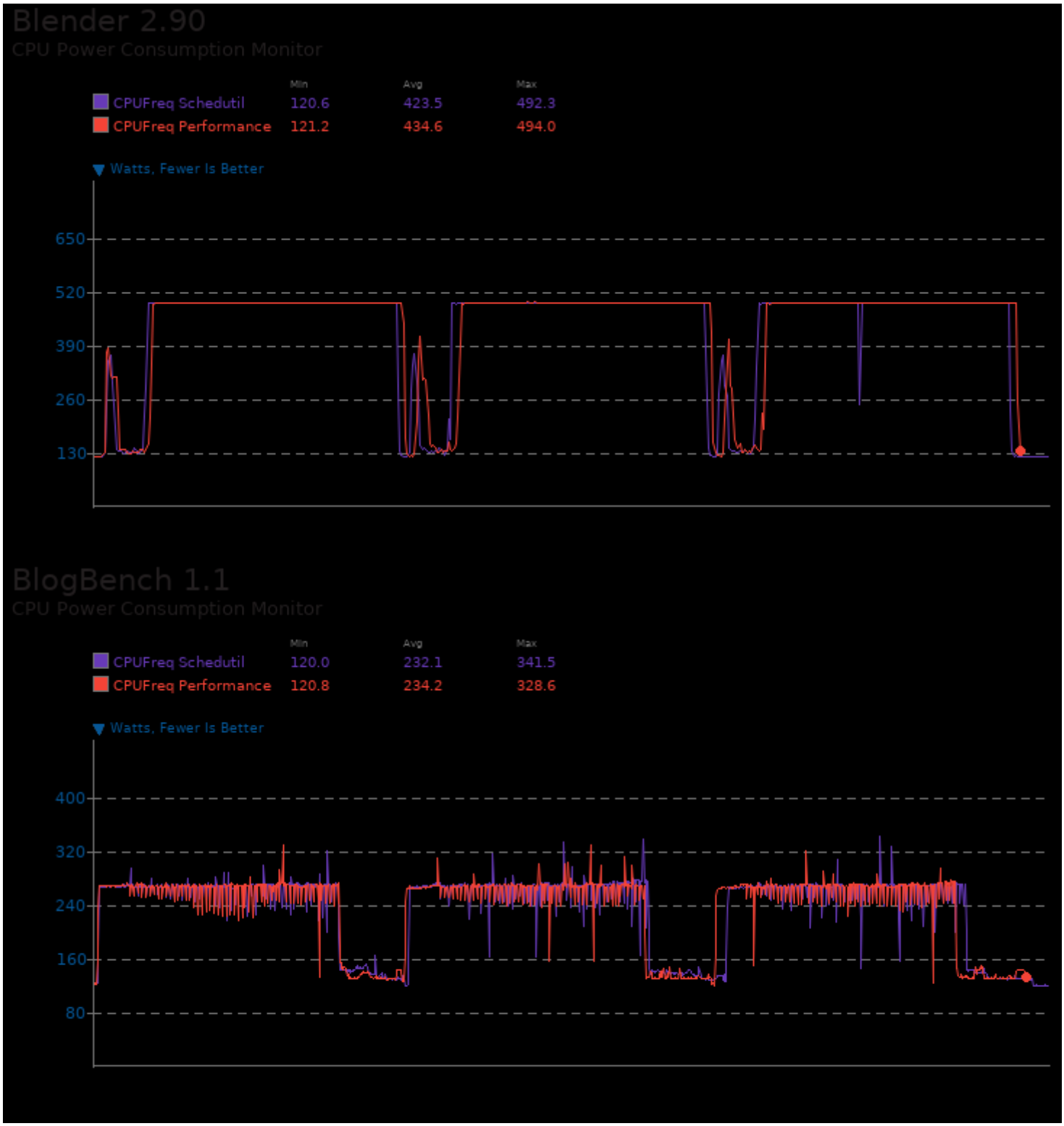
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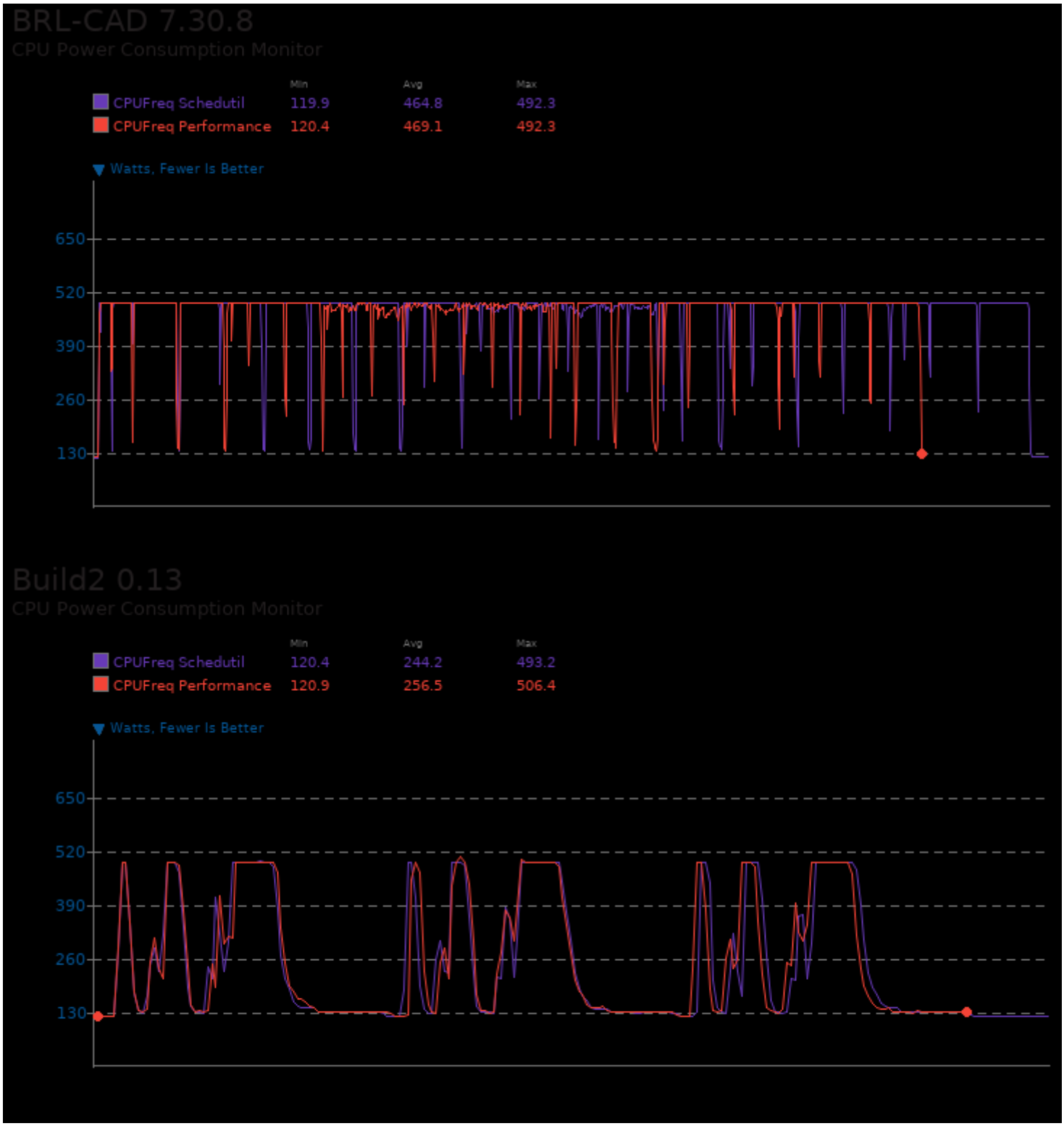
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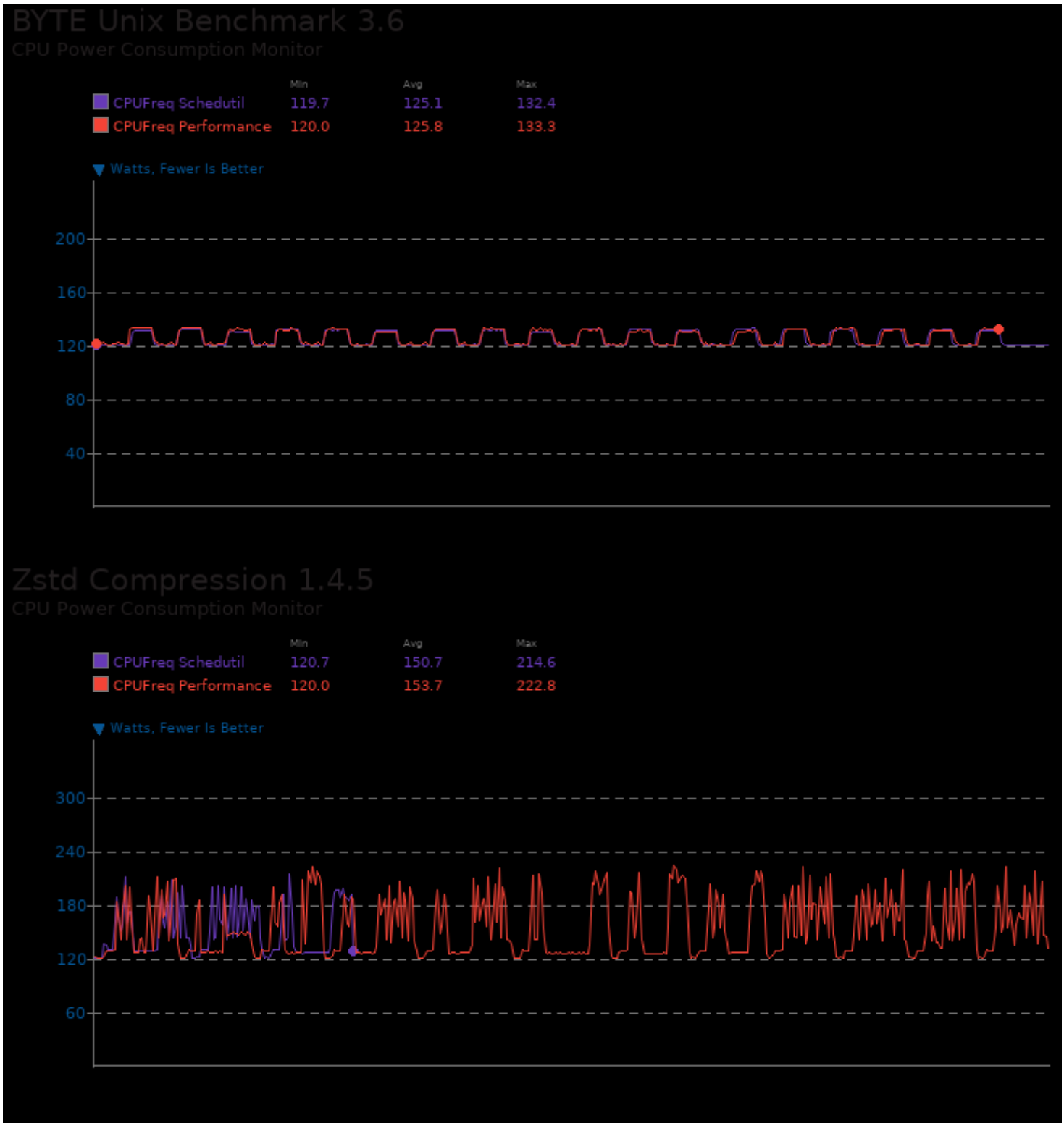
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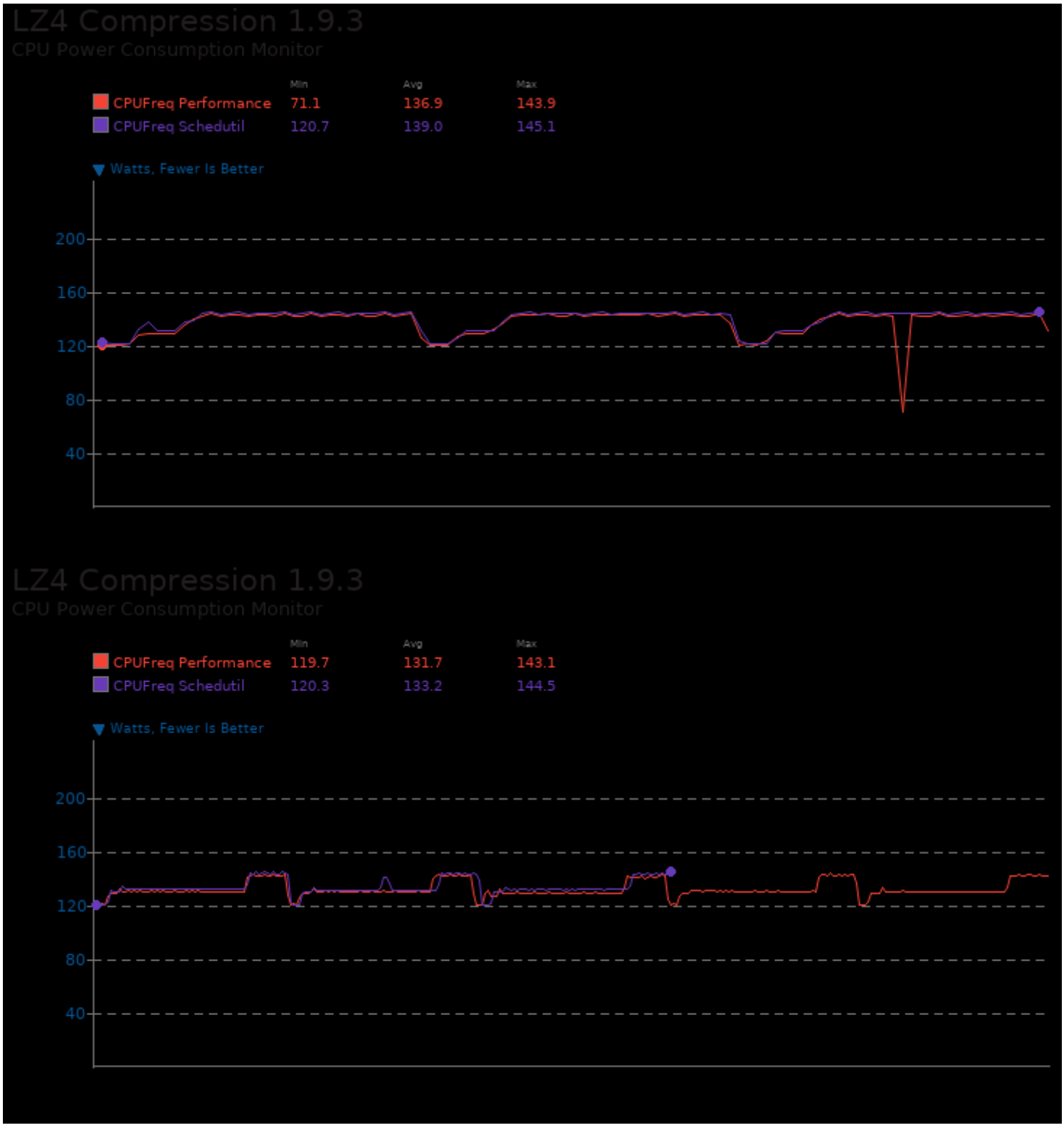
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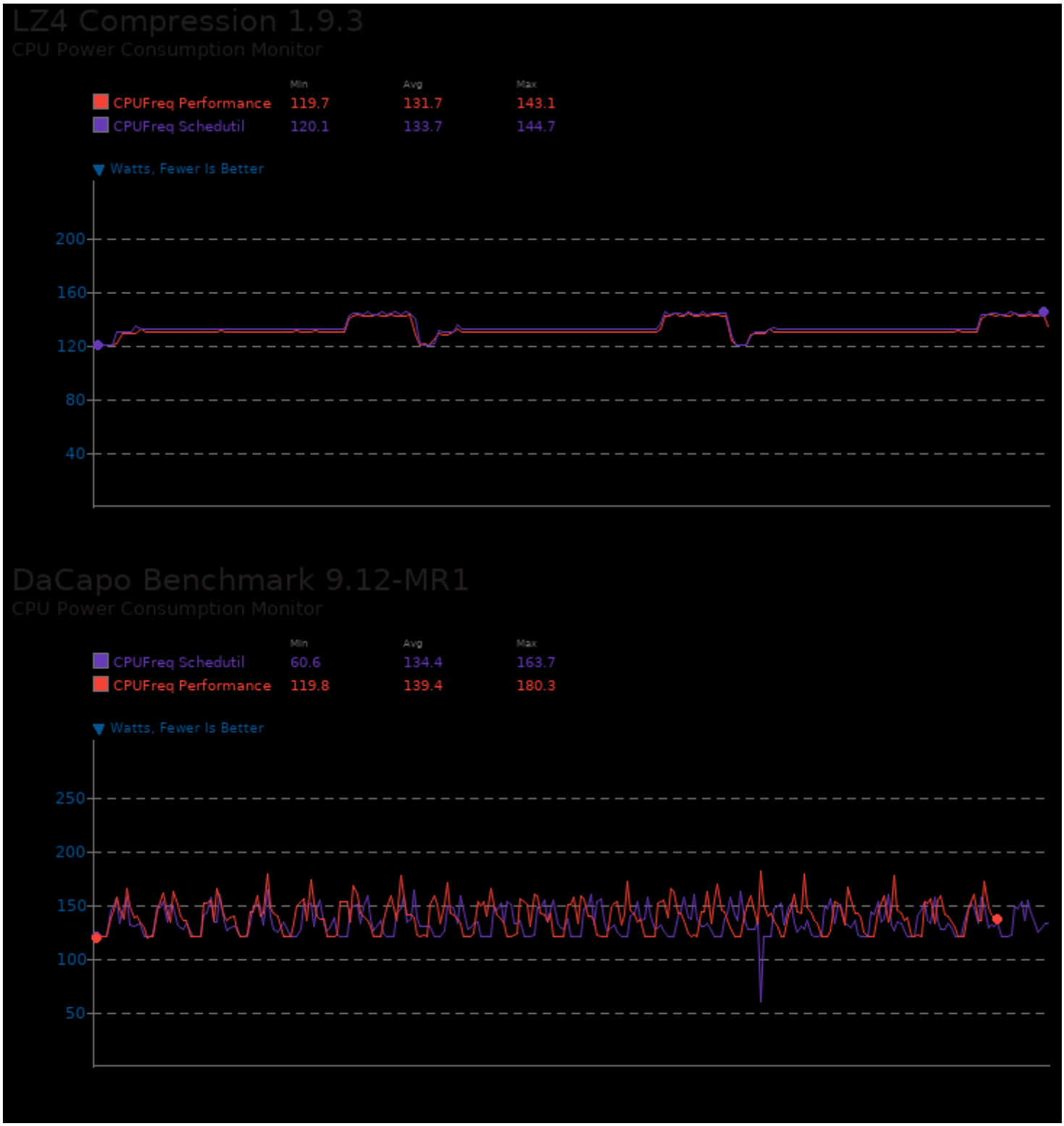
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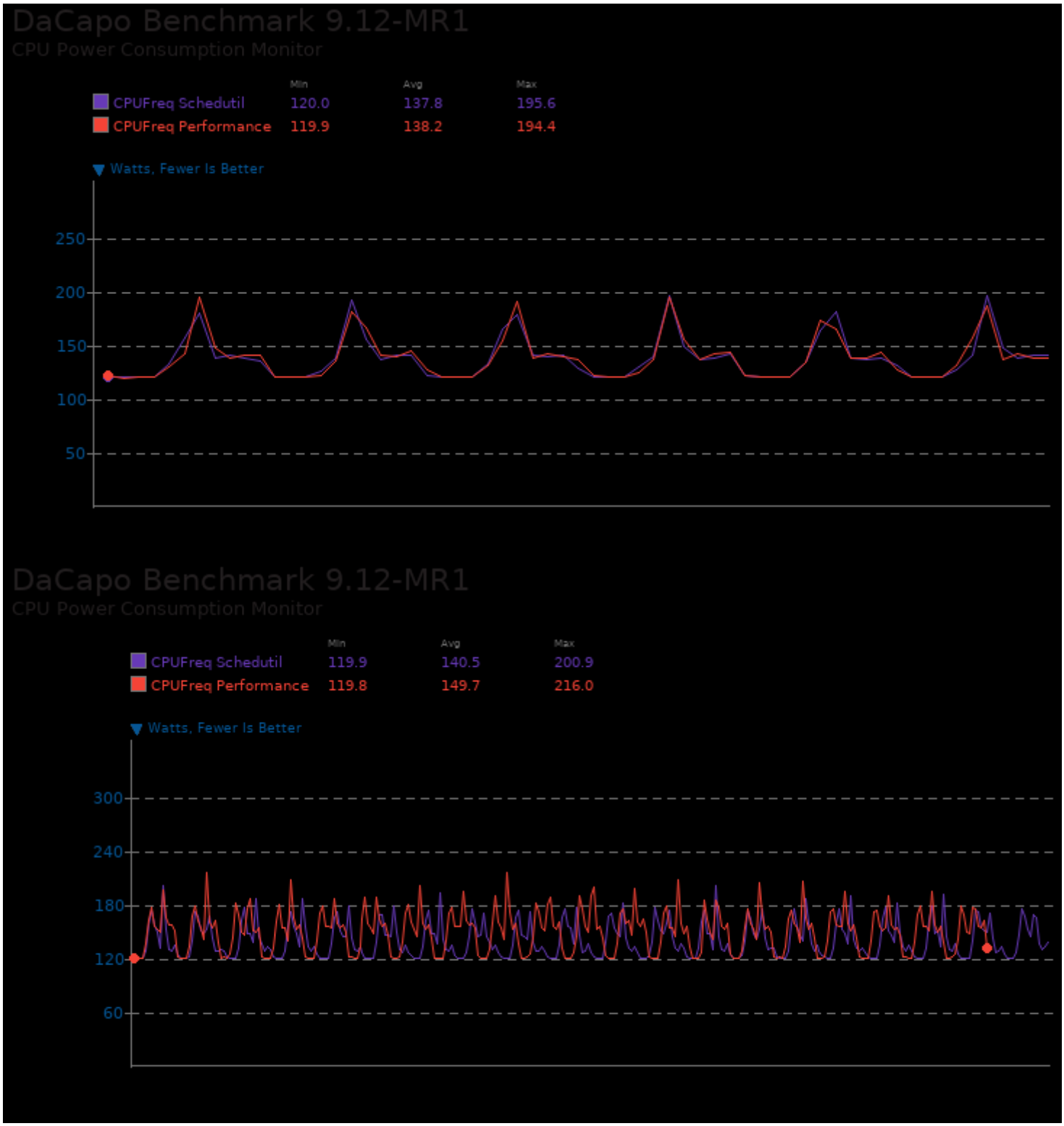


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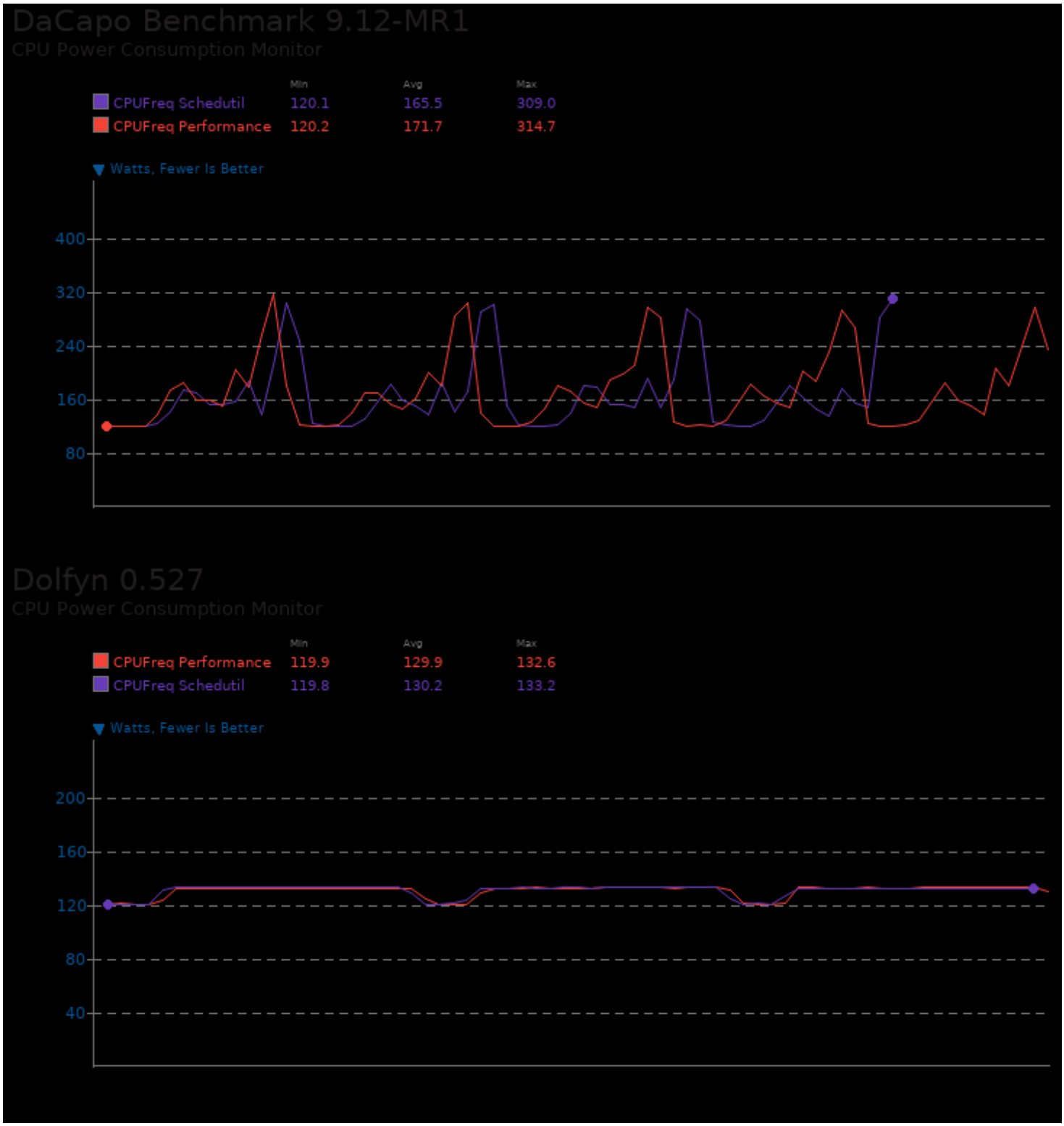


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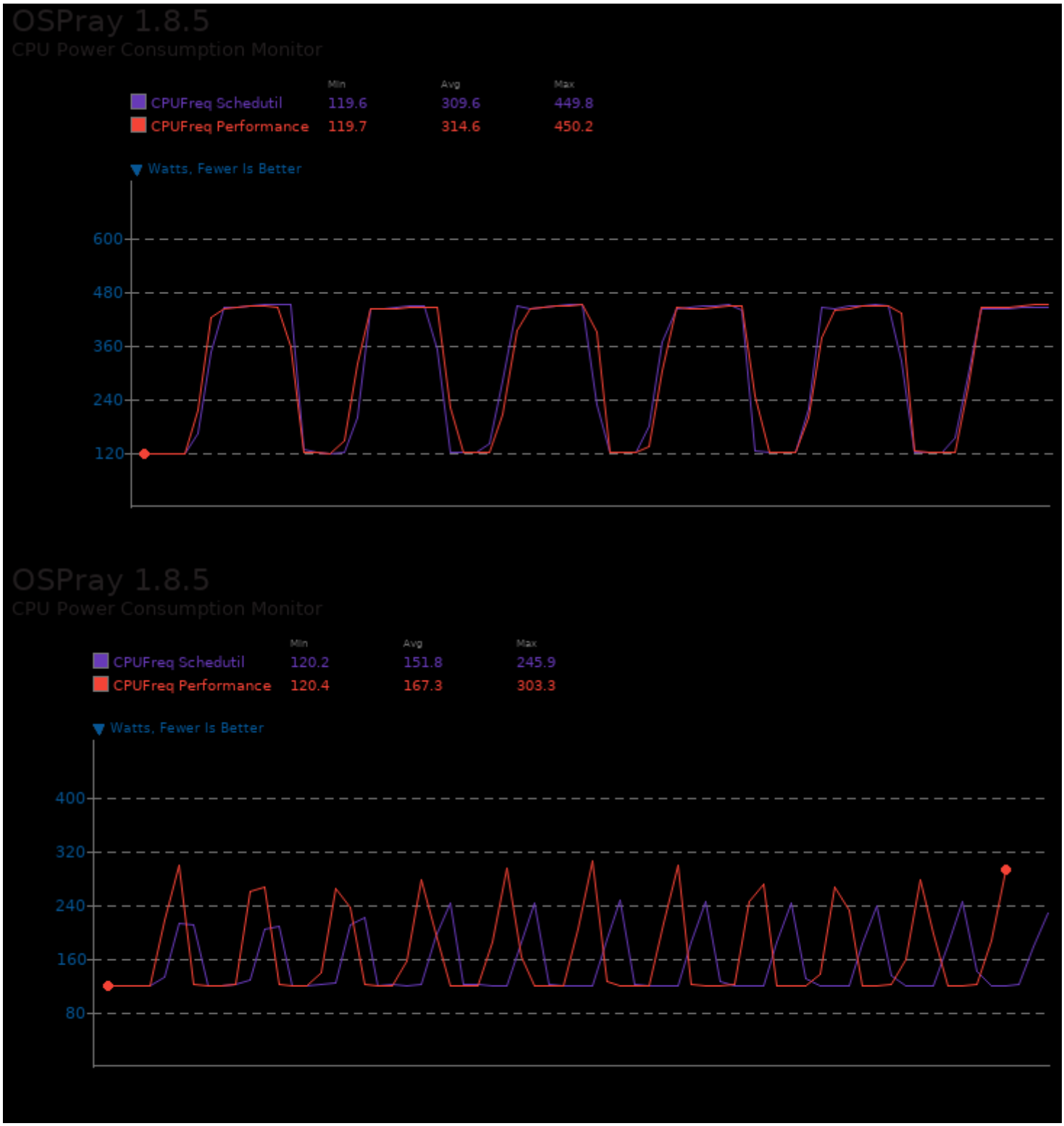



DaCapo Benchmark 9.12-MR1
CPU Power Consumption Monitor
Min
Avg
Max
CPUFreq Schedutil 120.0 137.8 195.6
CPUFreq Performance 119.9 138.2 194.4
Watts, Fewer Is Better
250
200
150
100
50
DaCapo Benchmark 9.12-MR1
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240
180
120
60

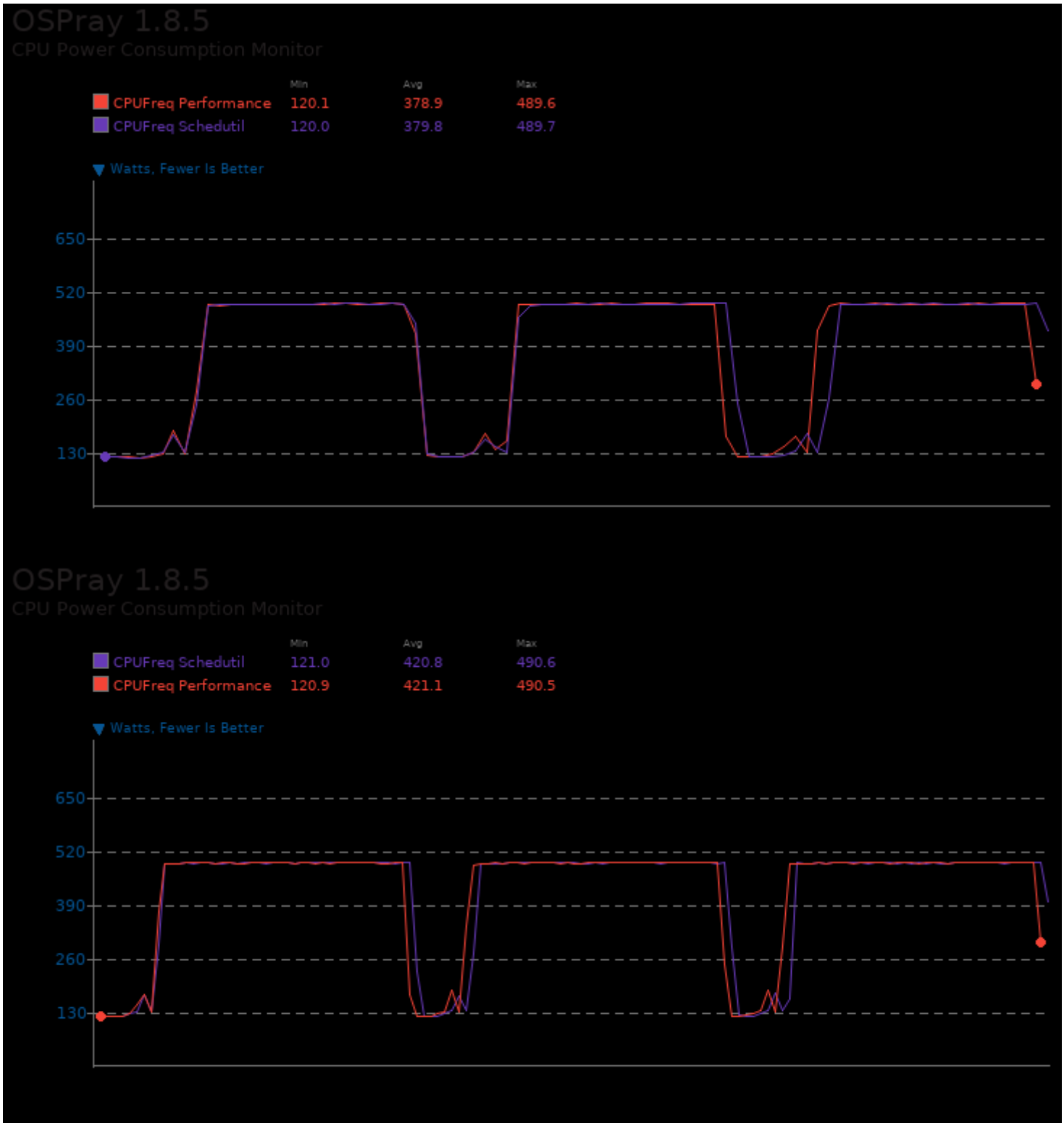
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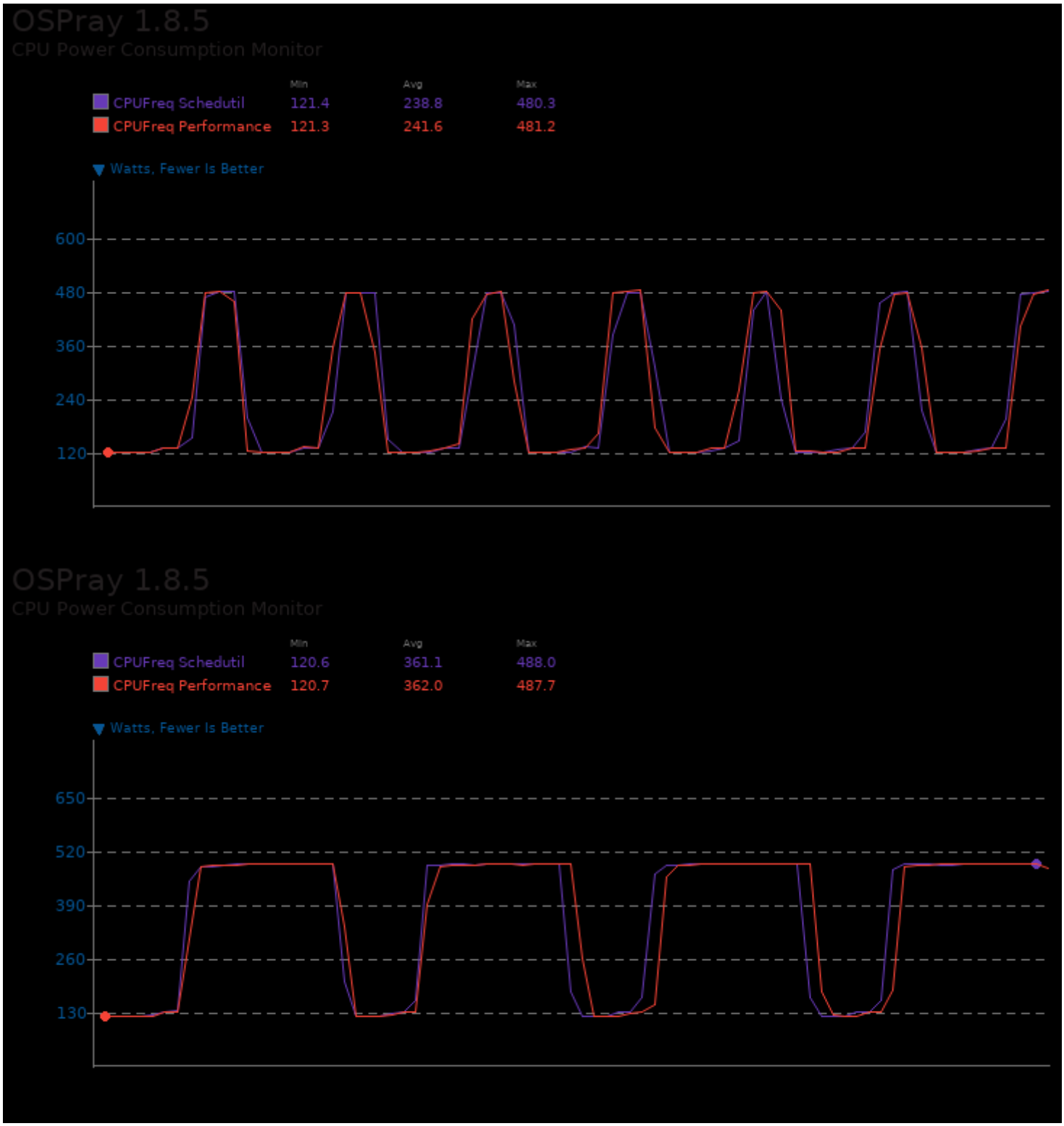
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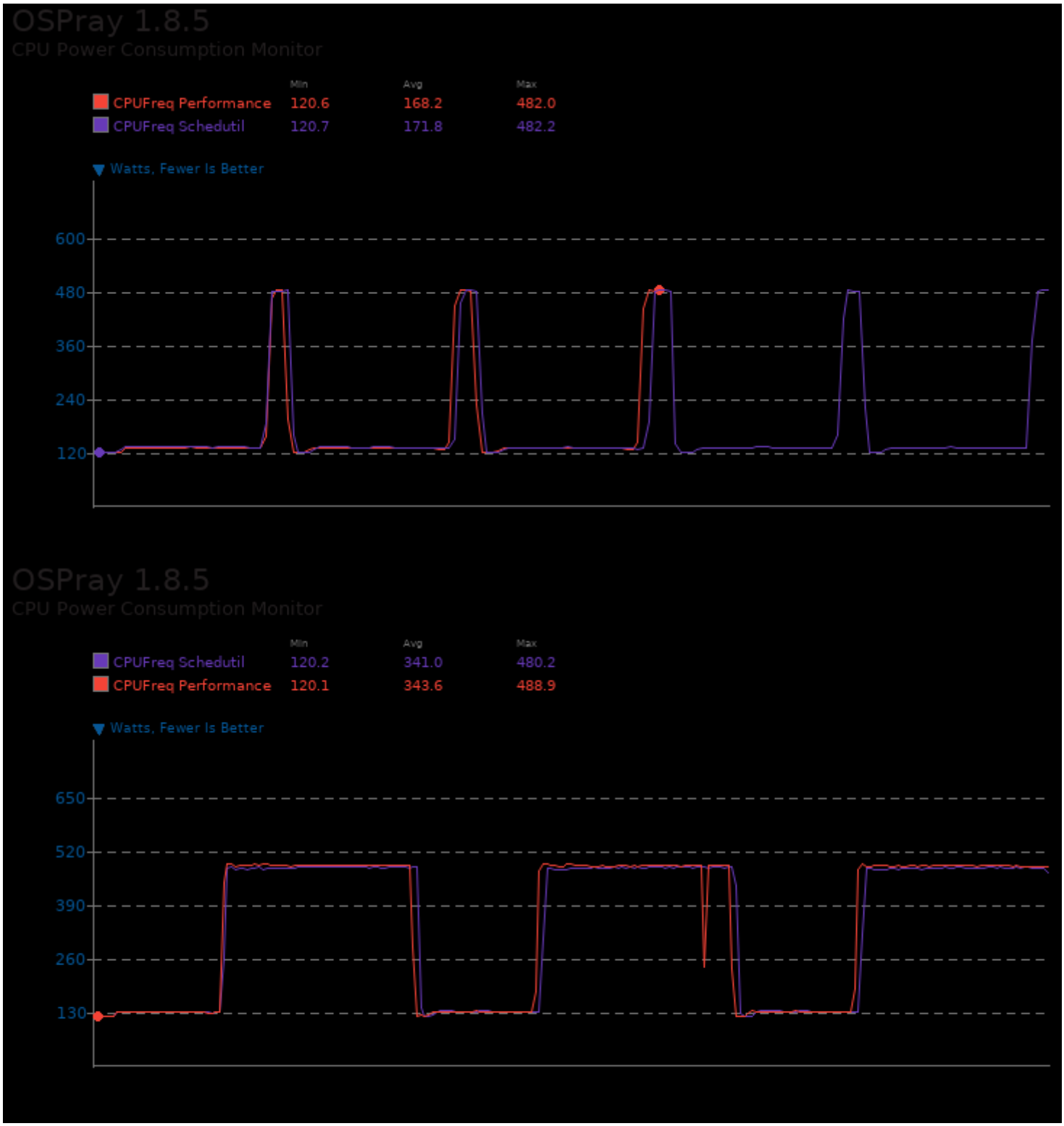
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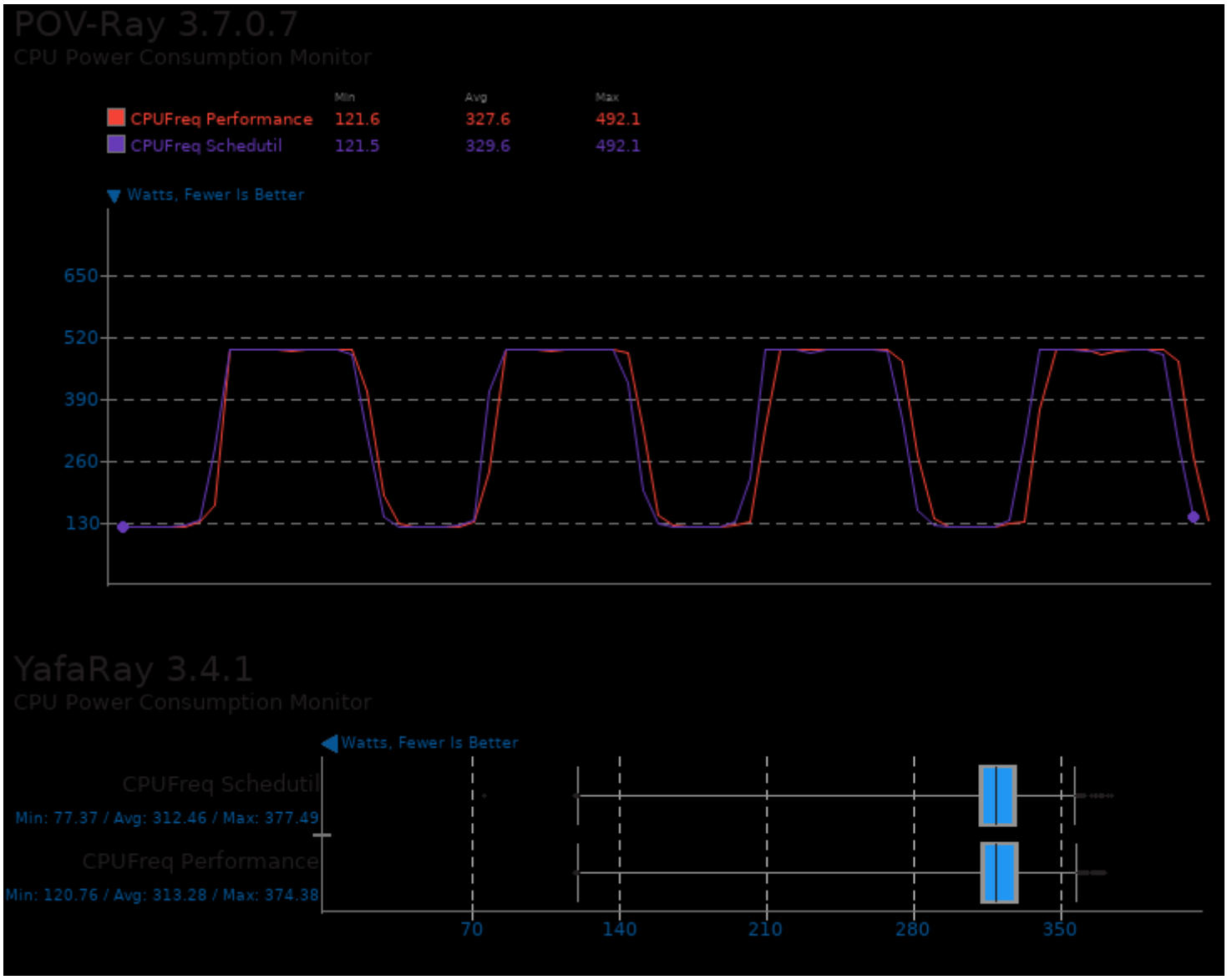
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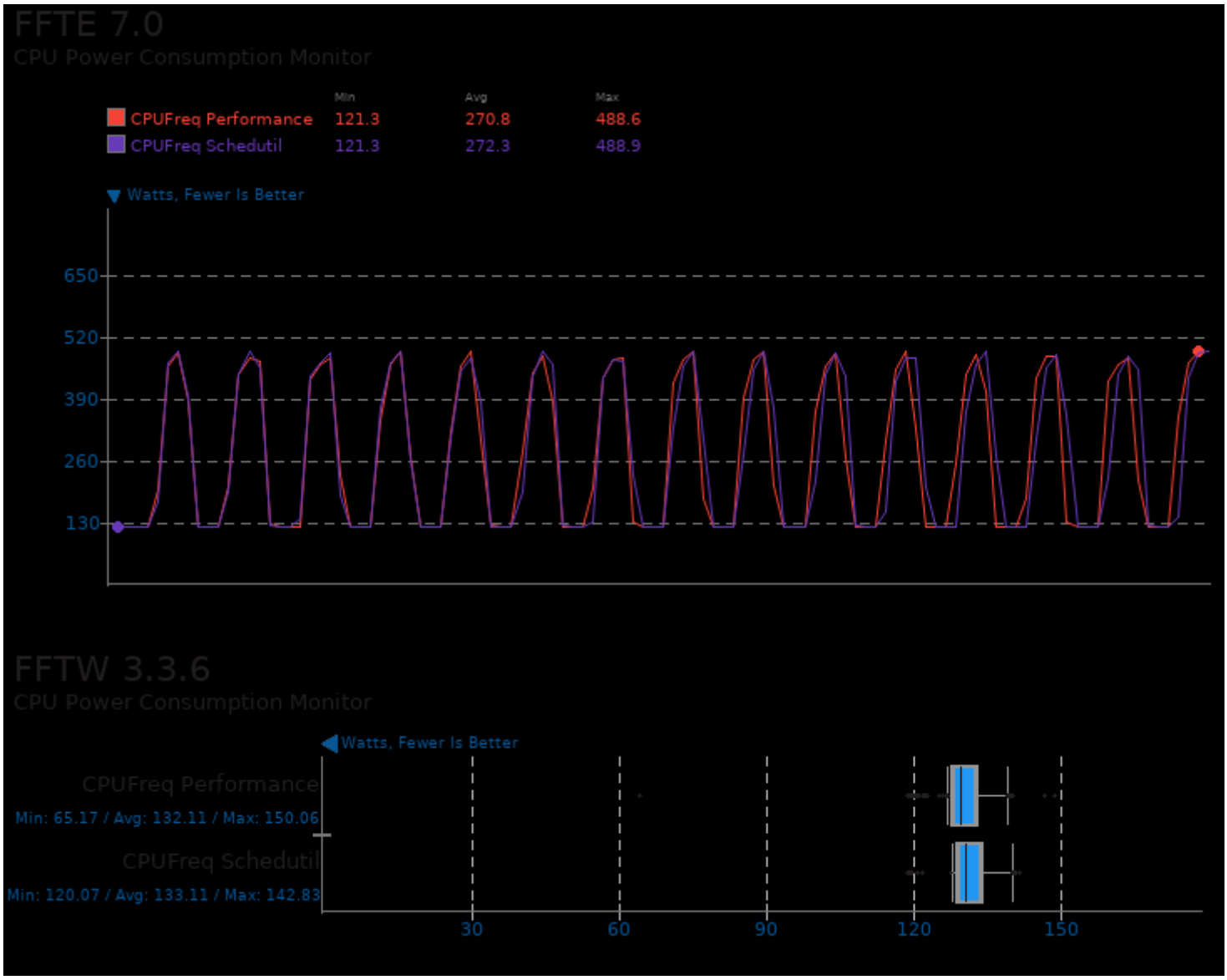
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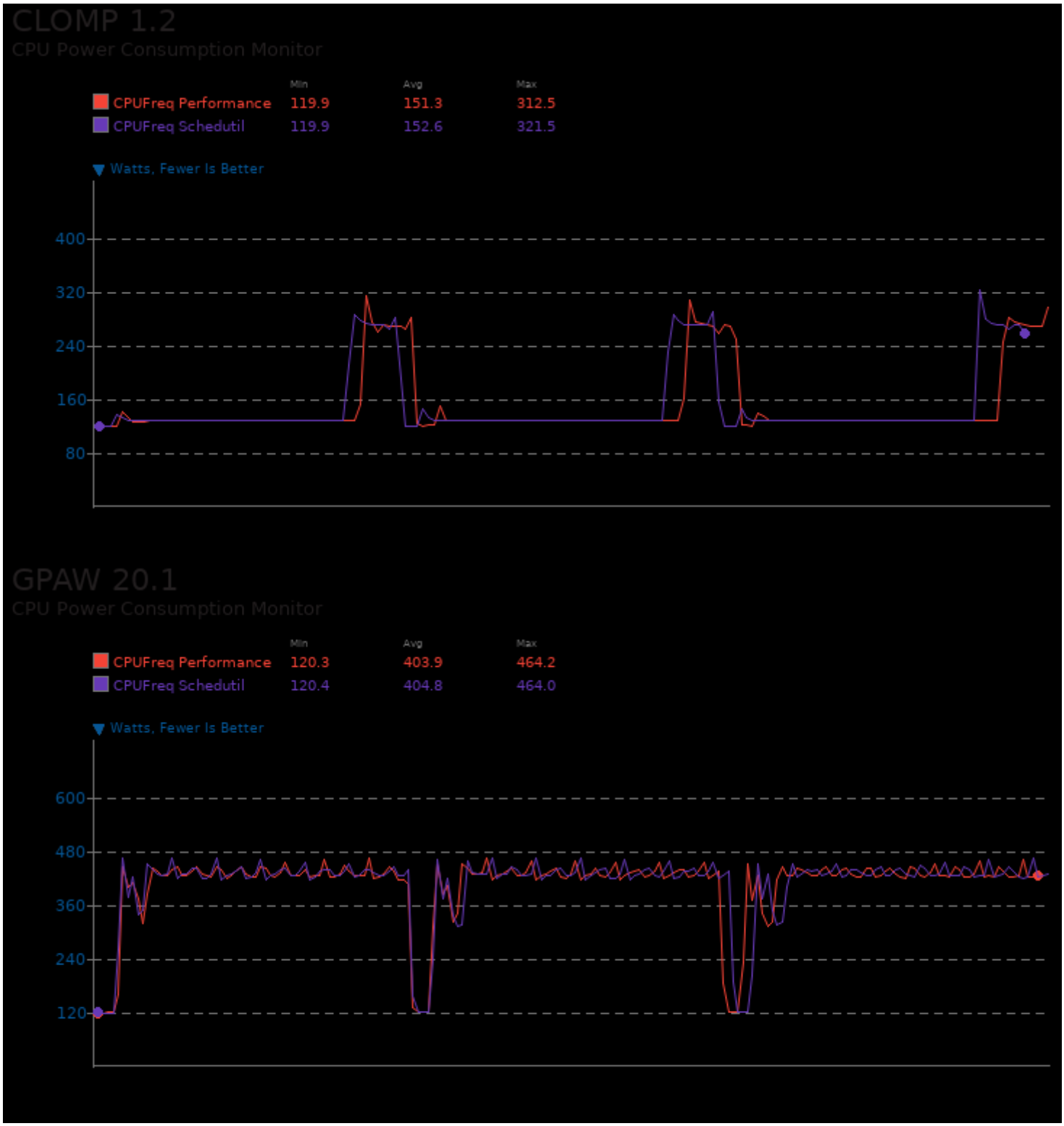
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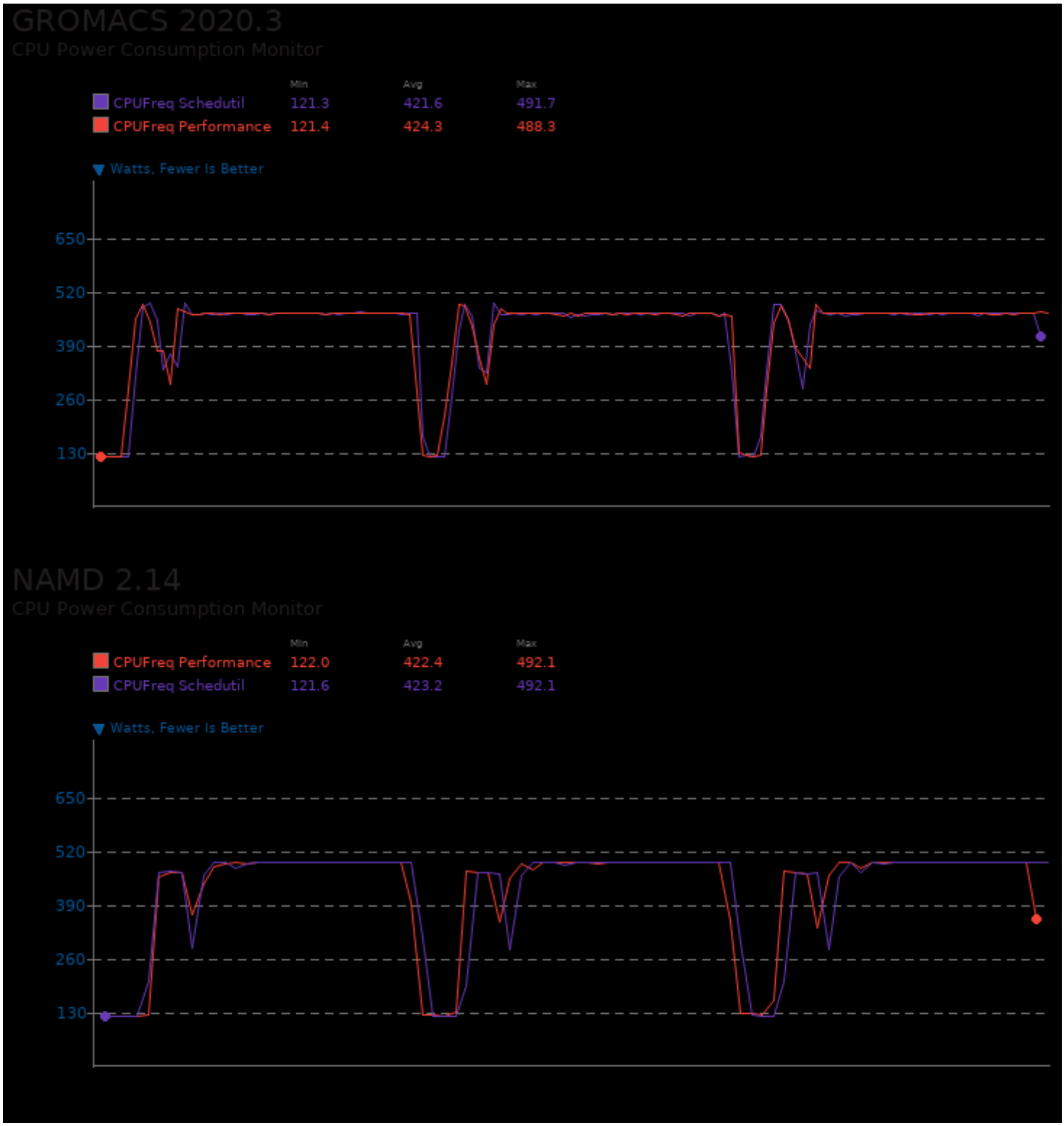
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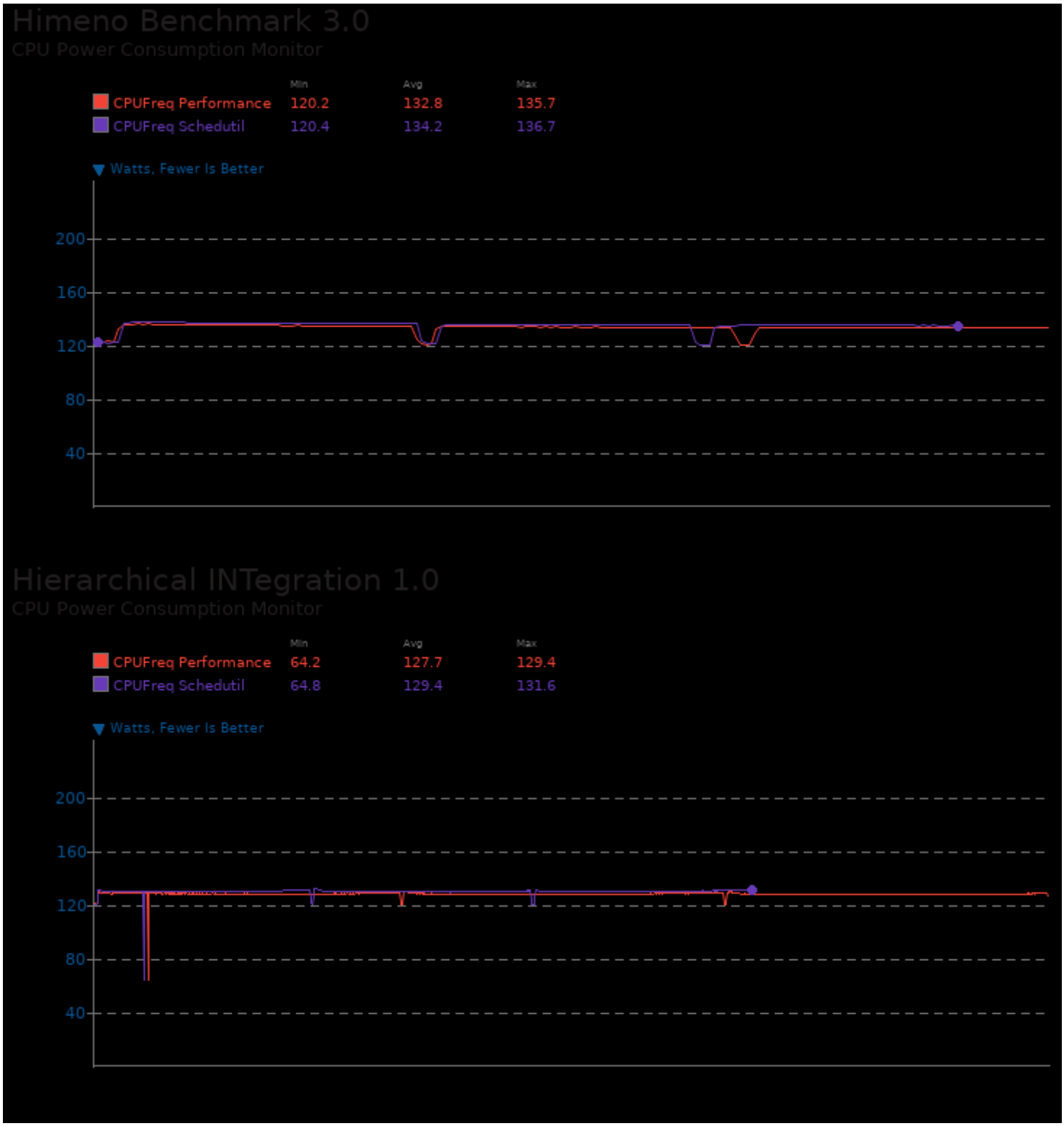
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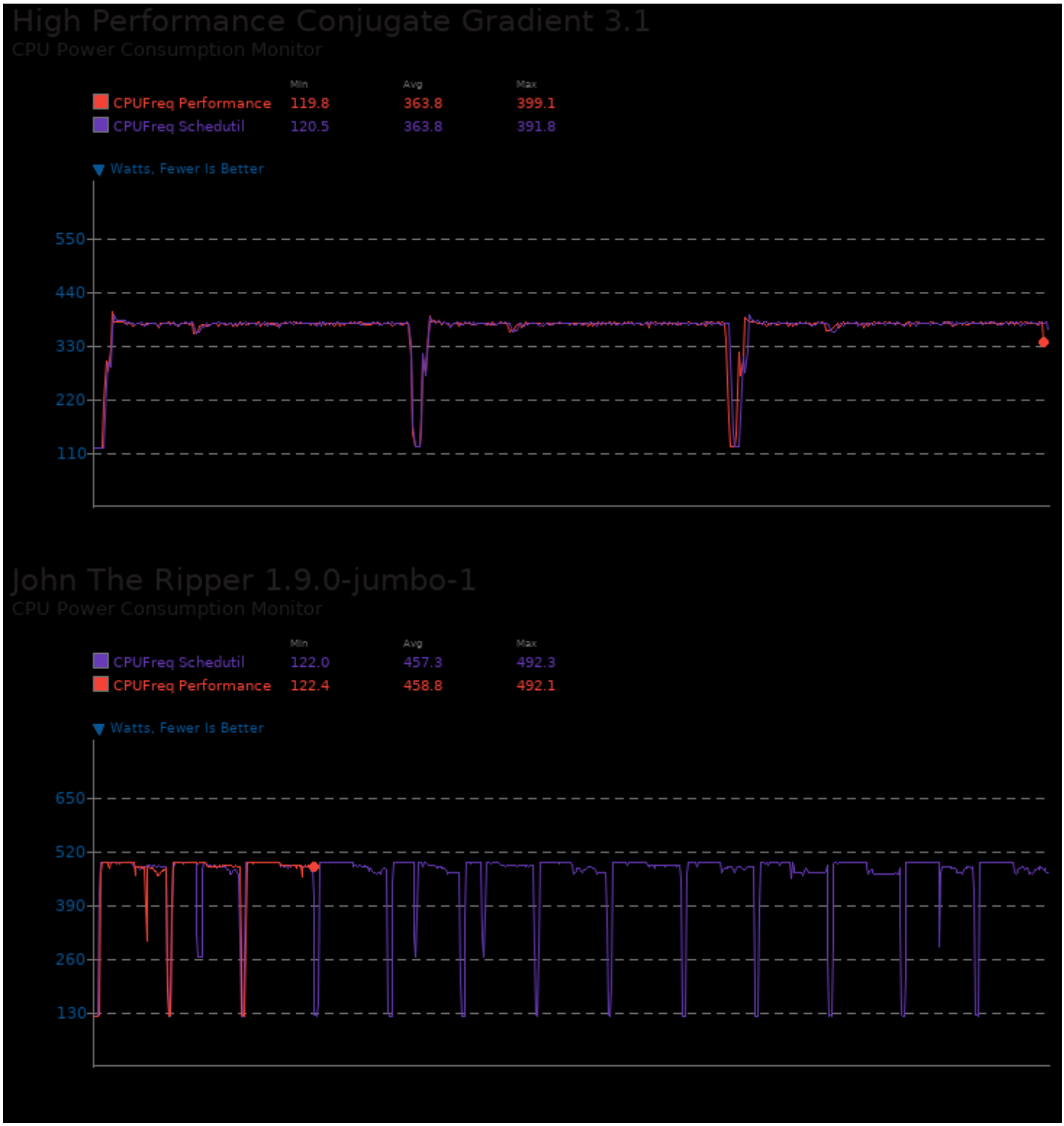
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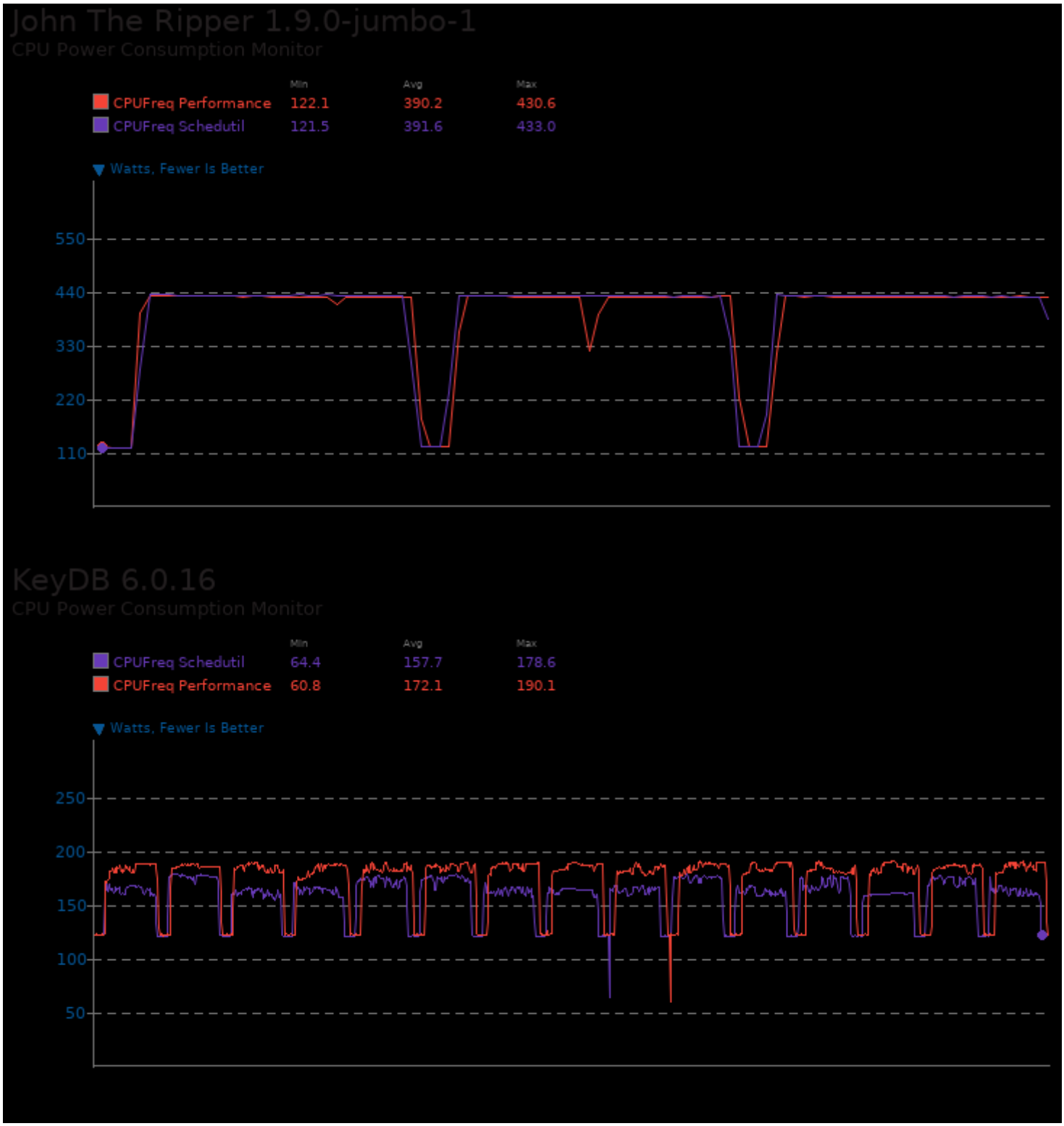
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



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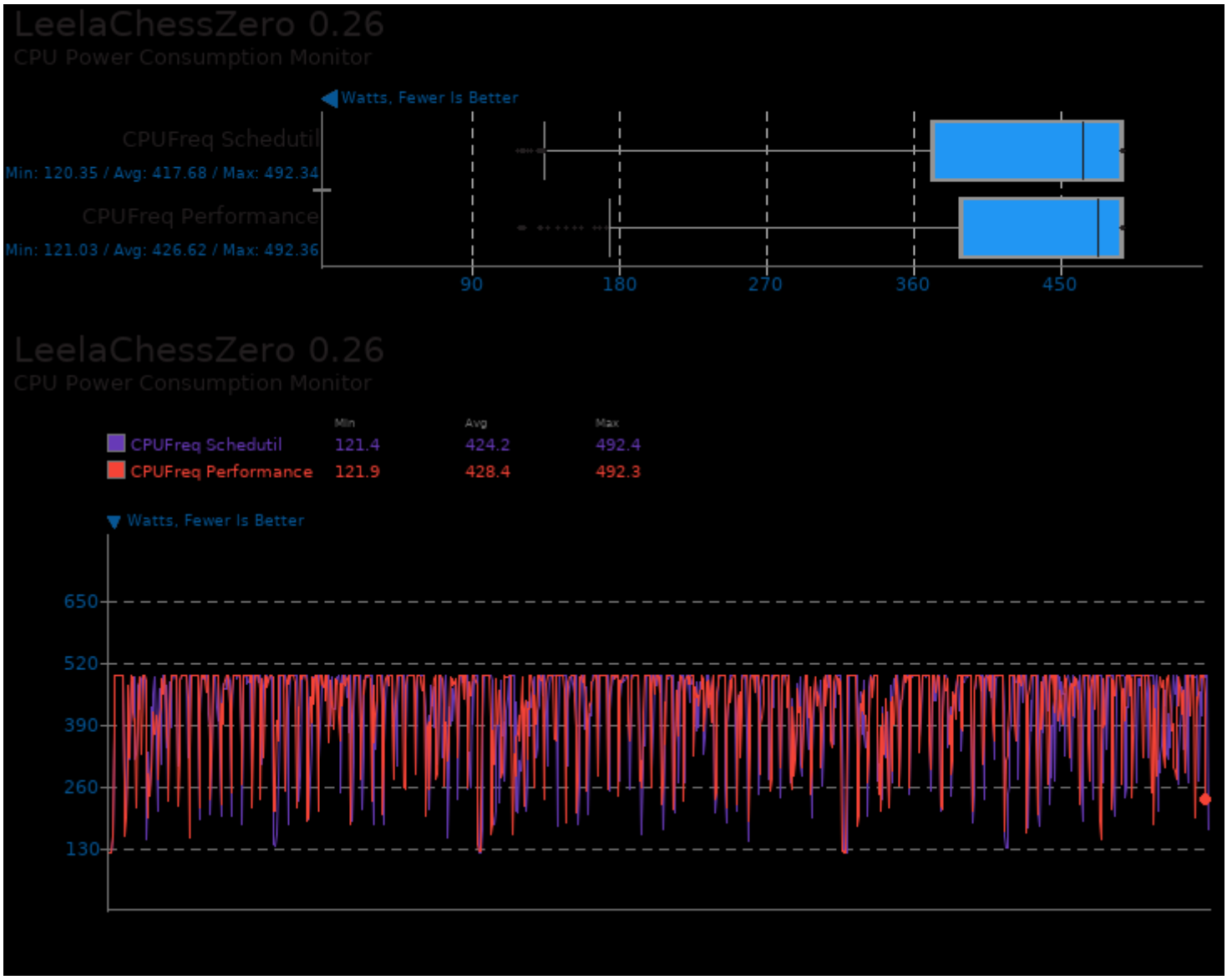
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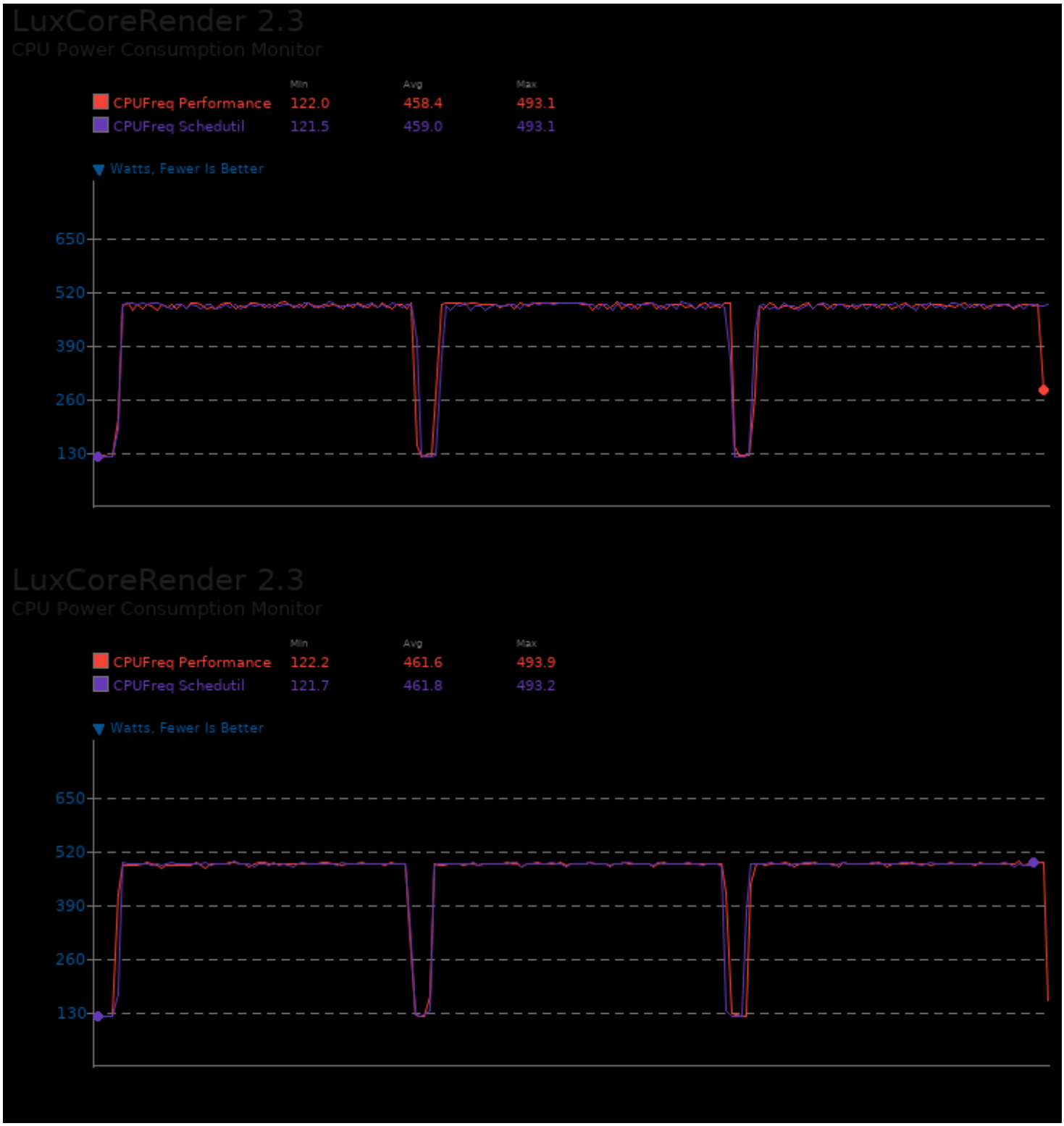
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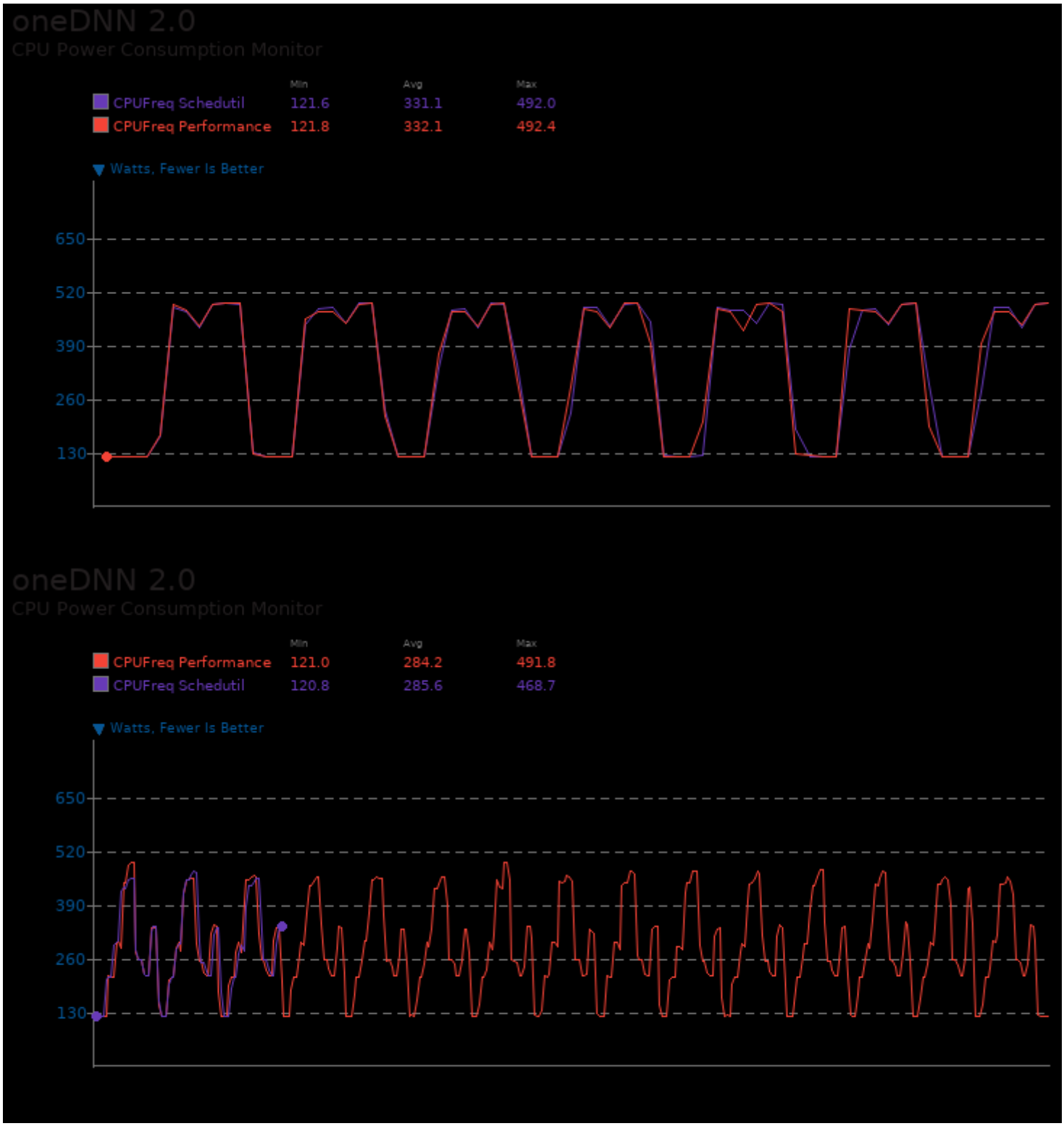
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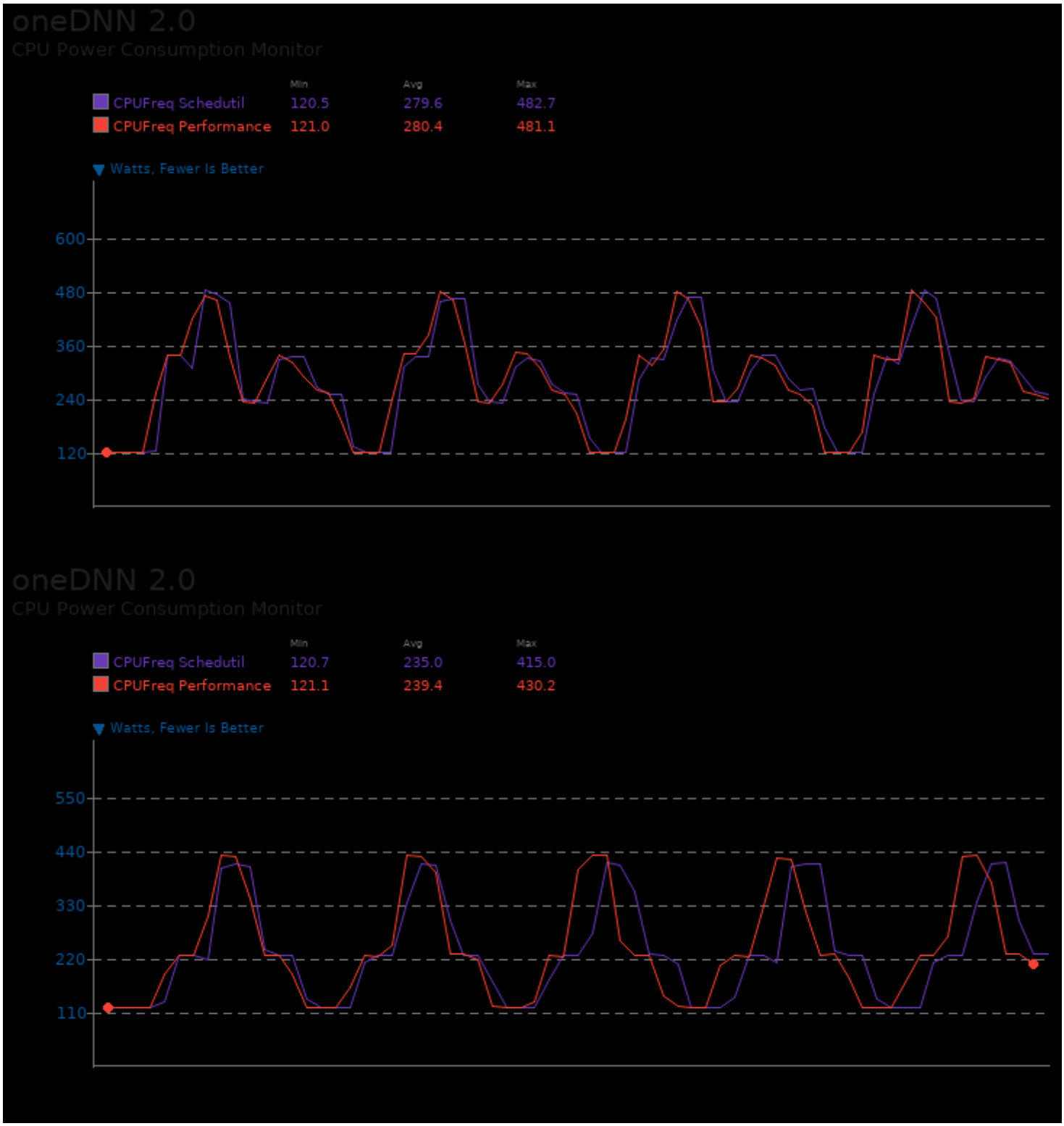
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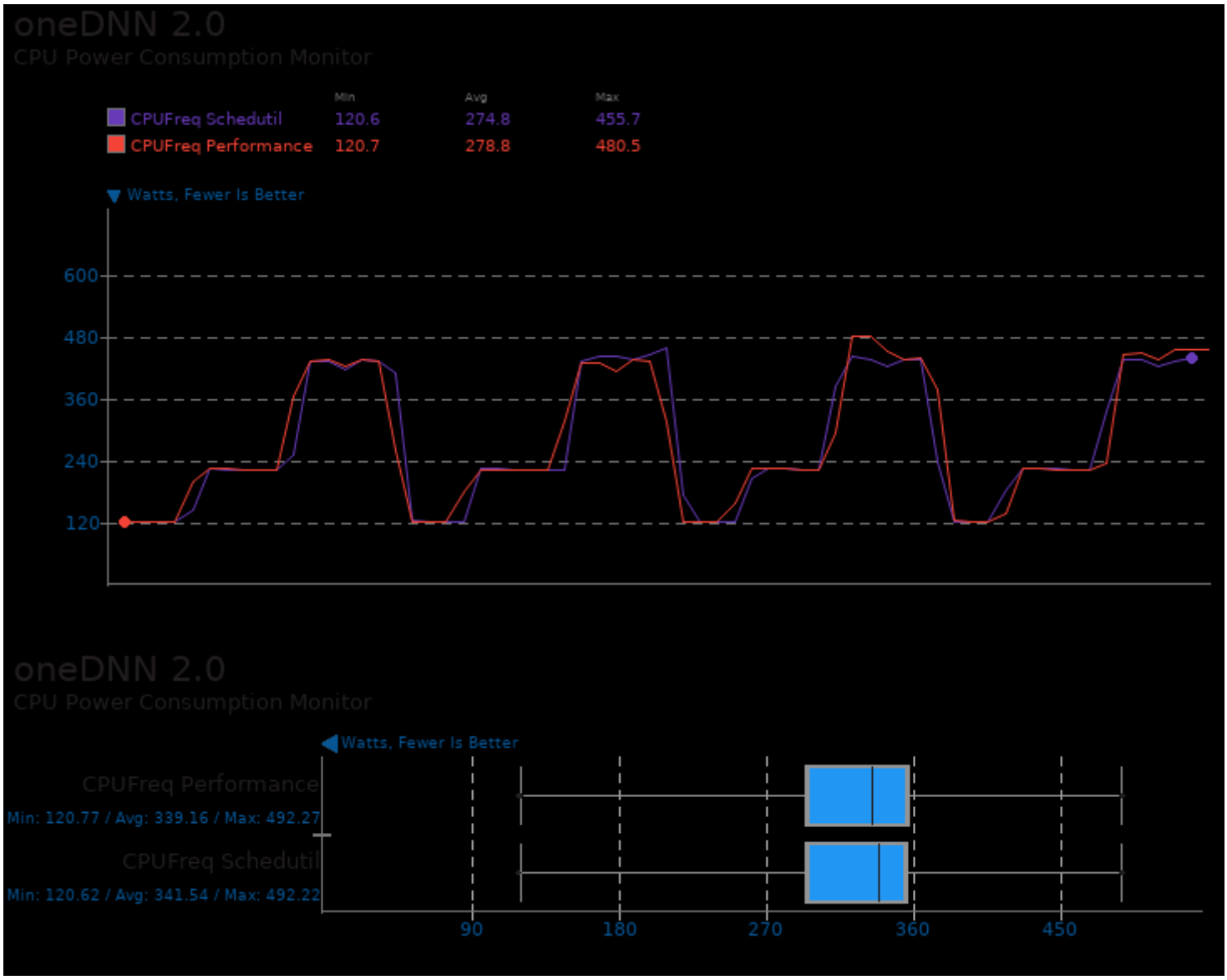
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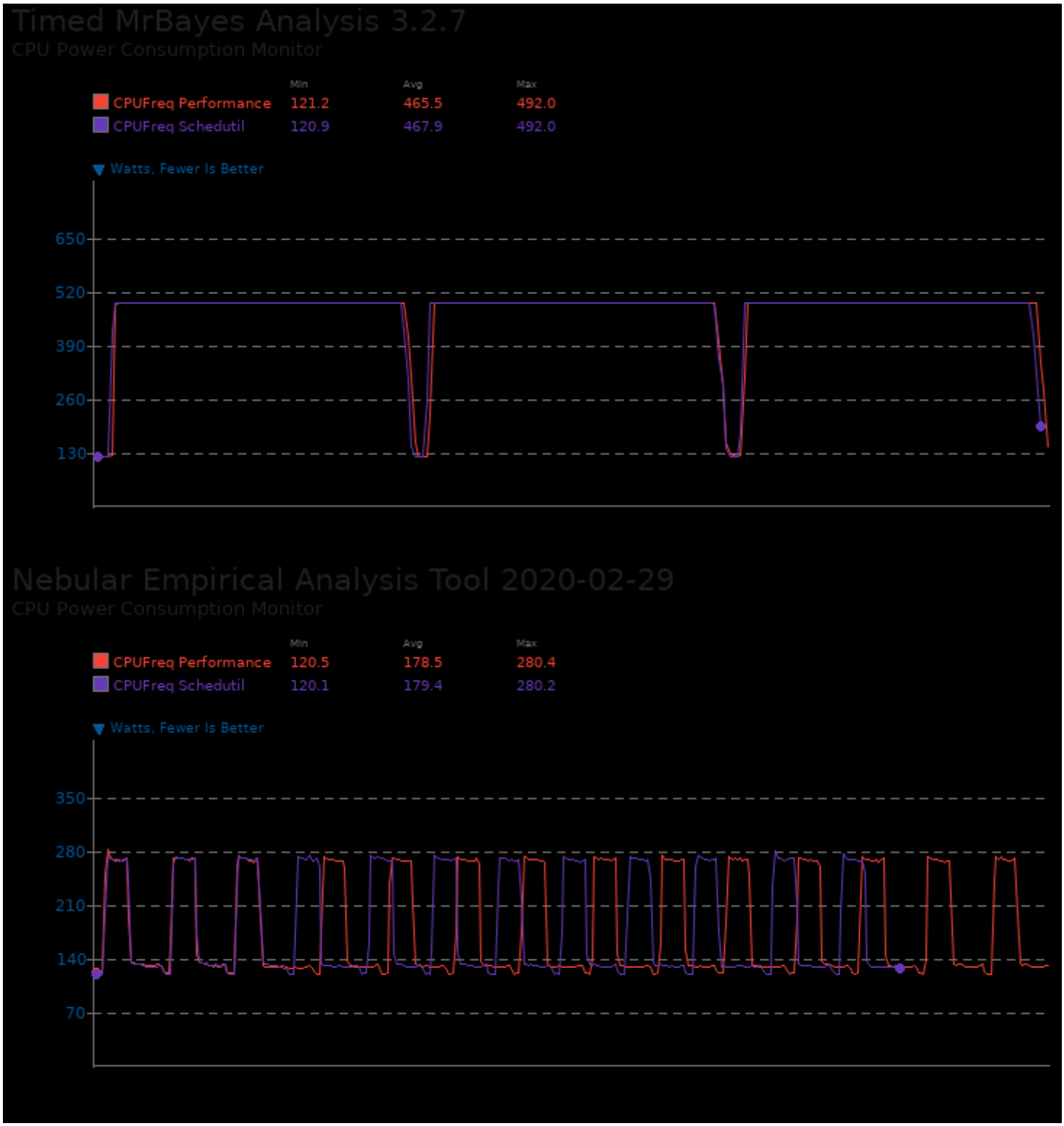
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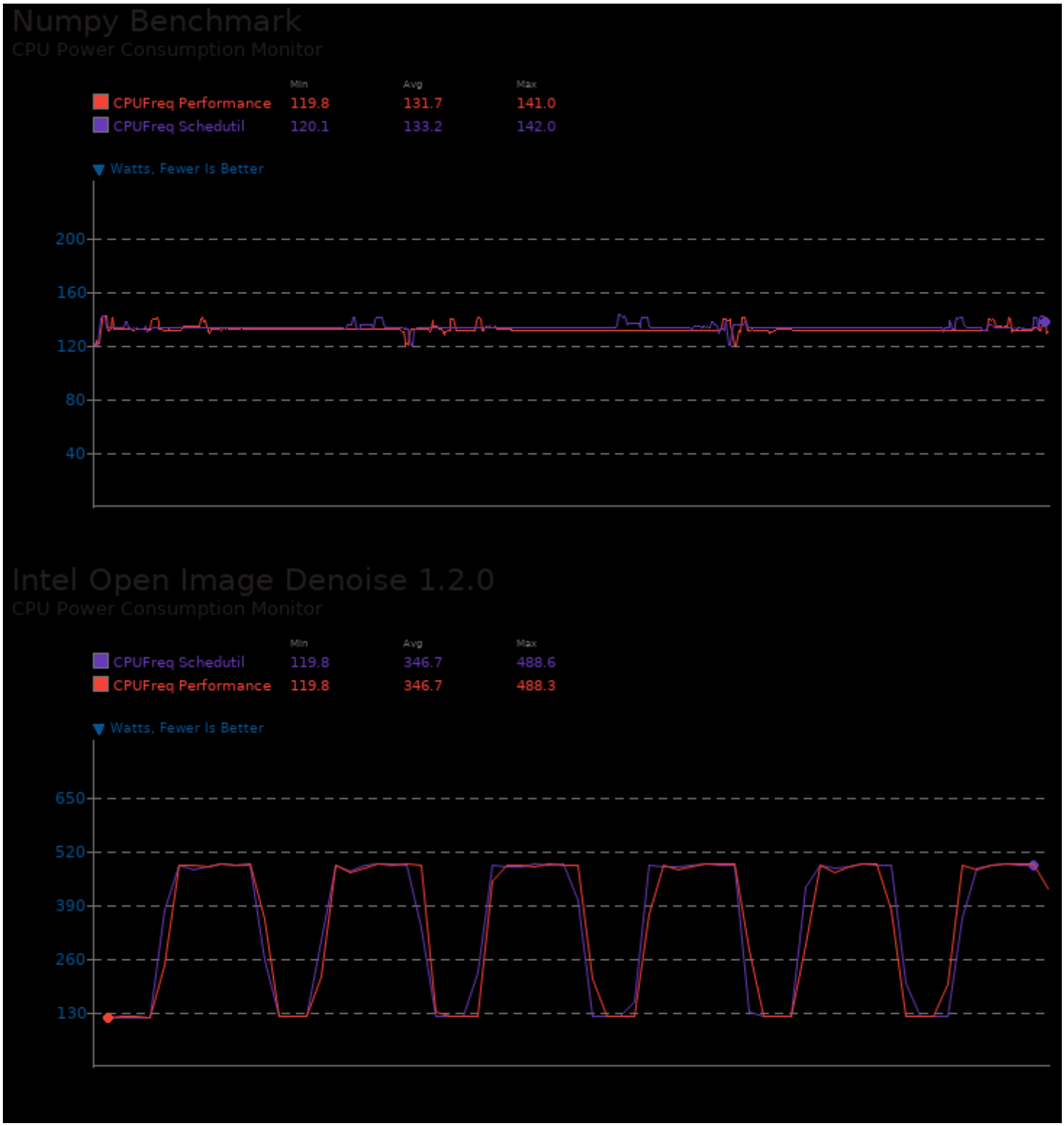
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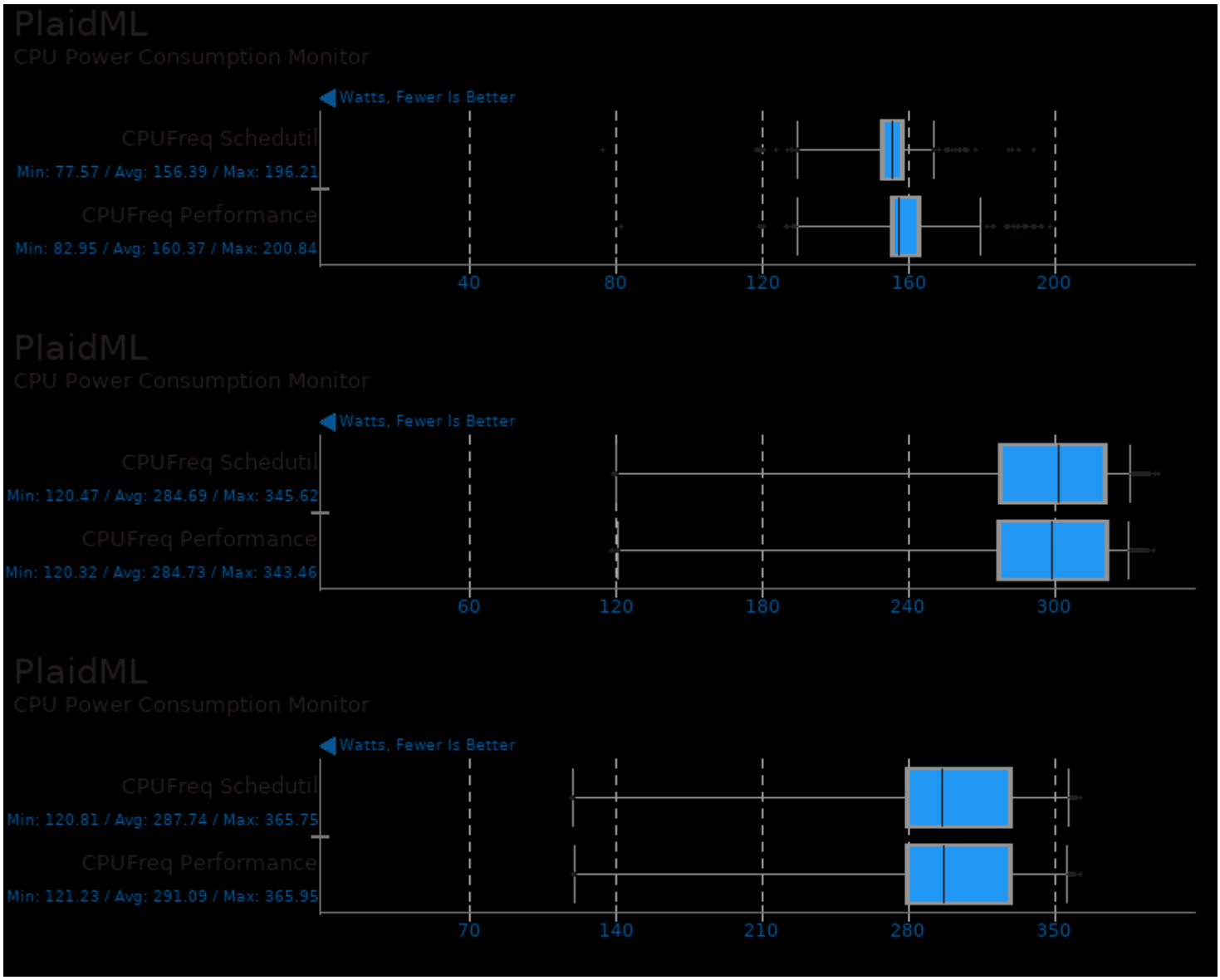
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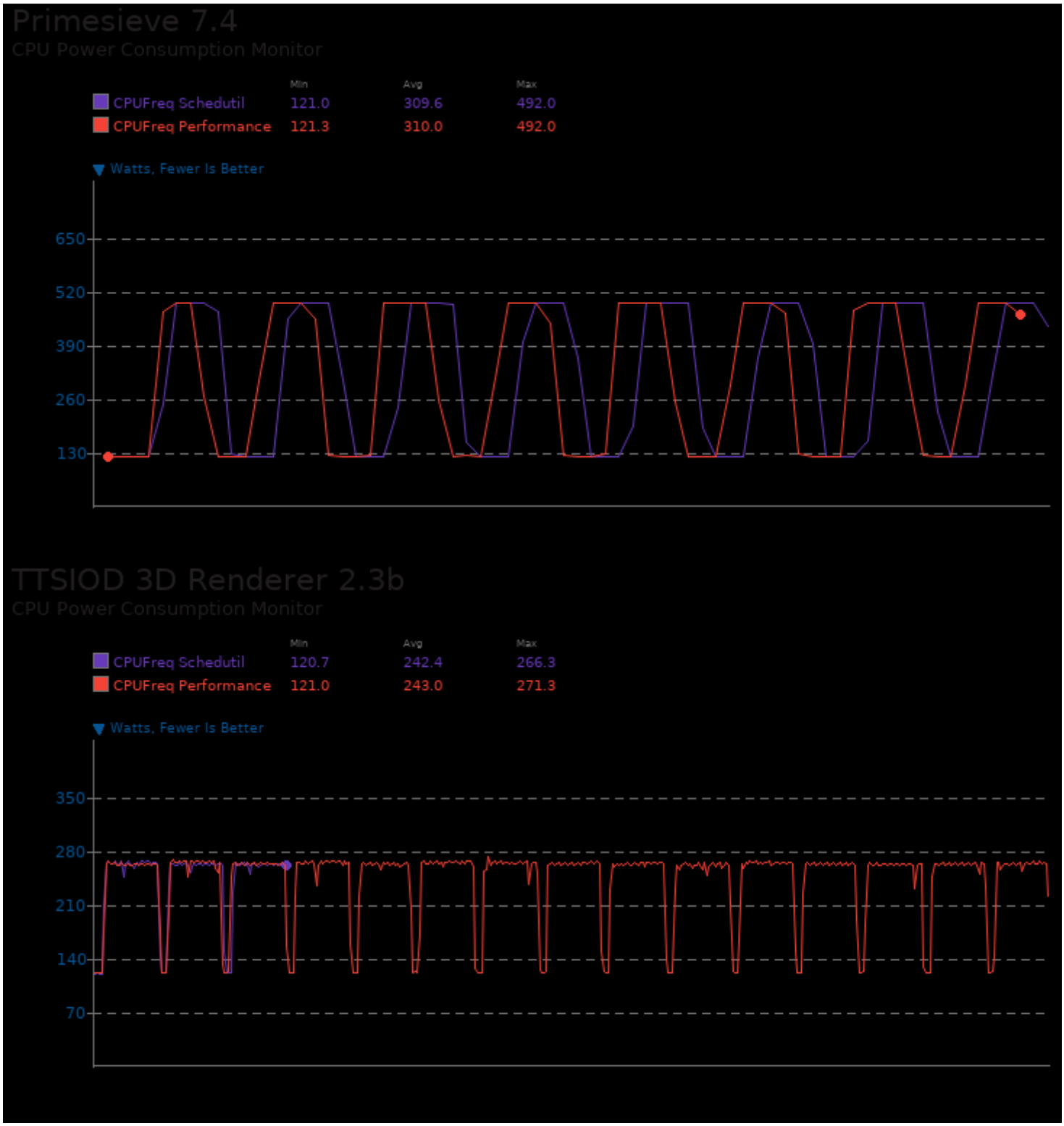
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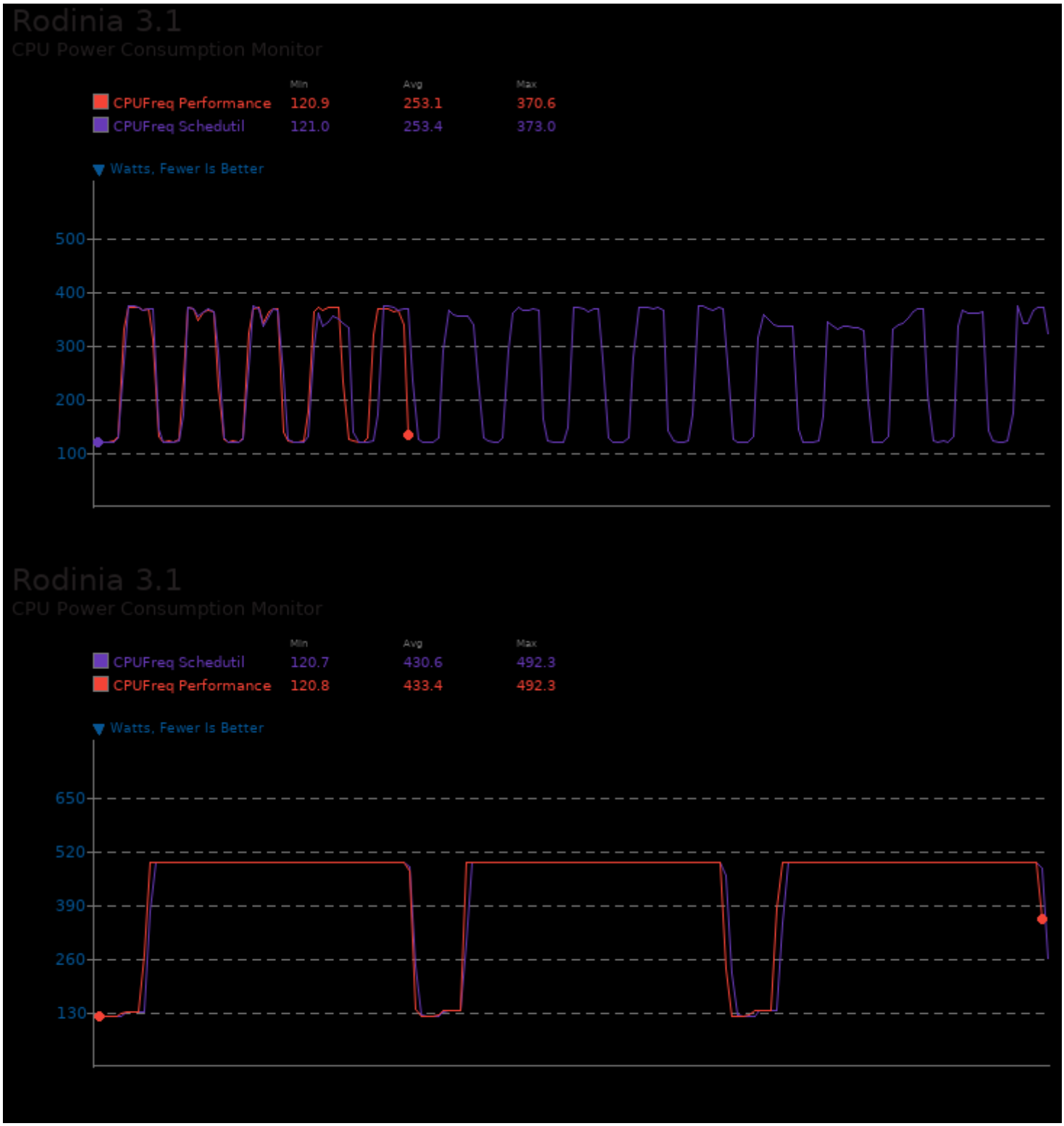
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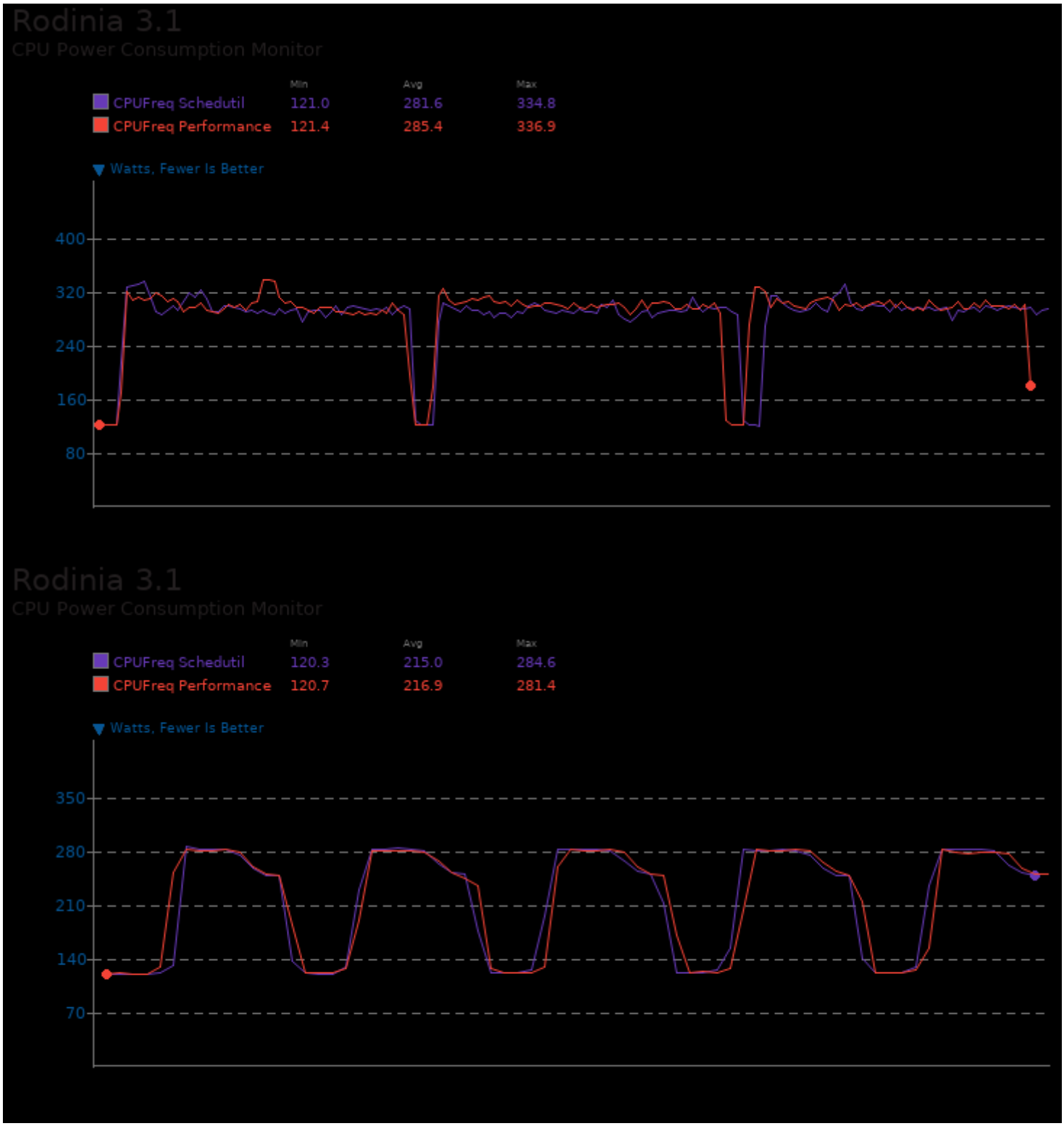
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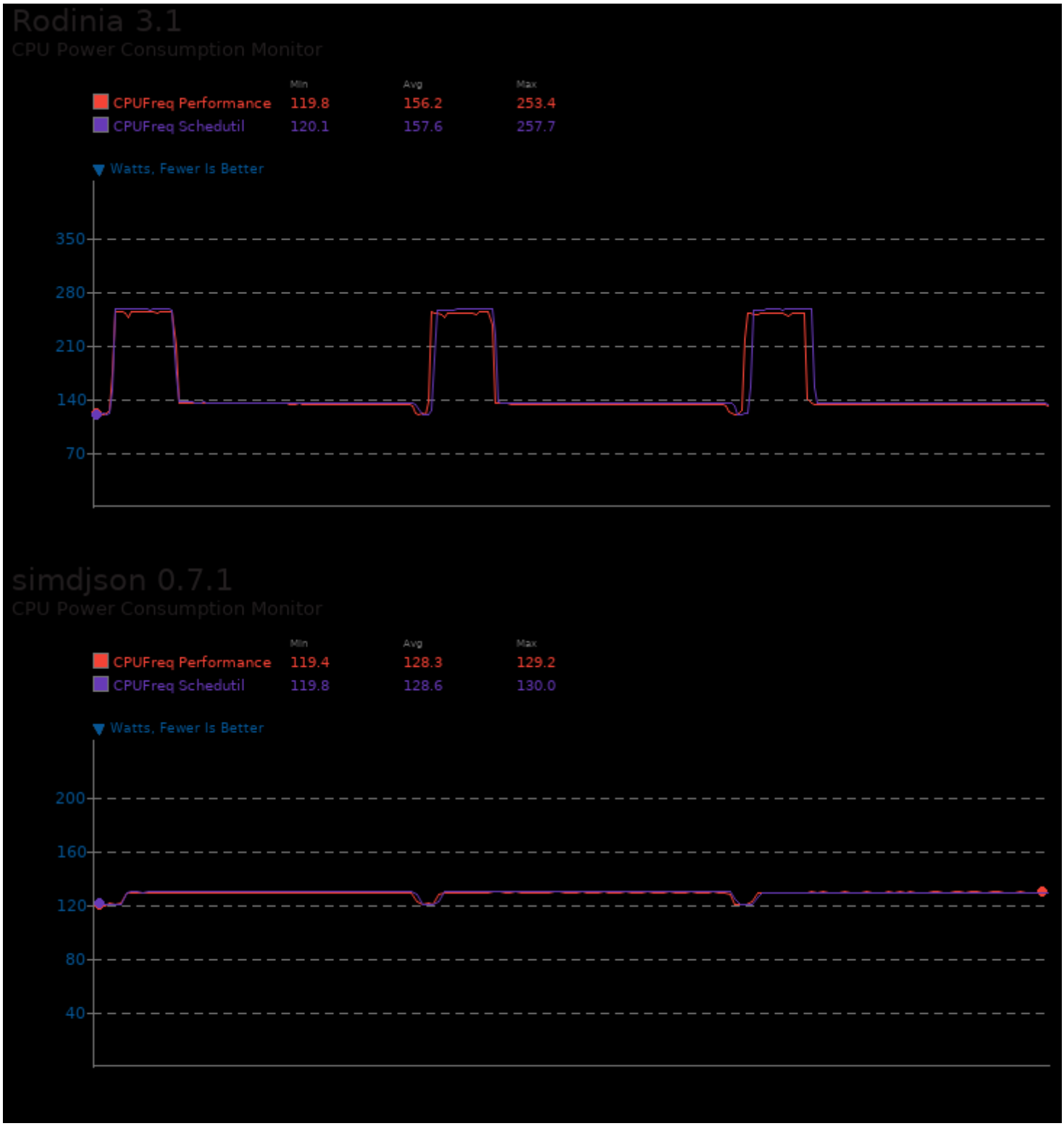
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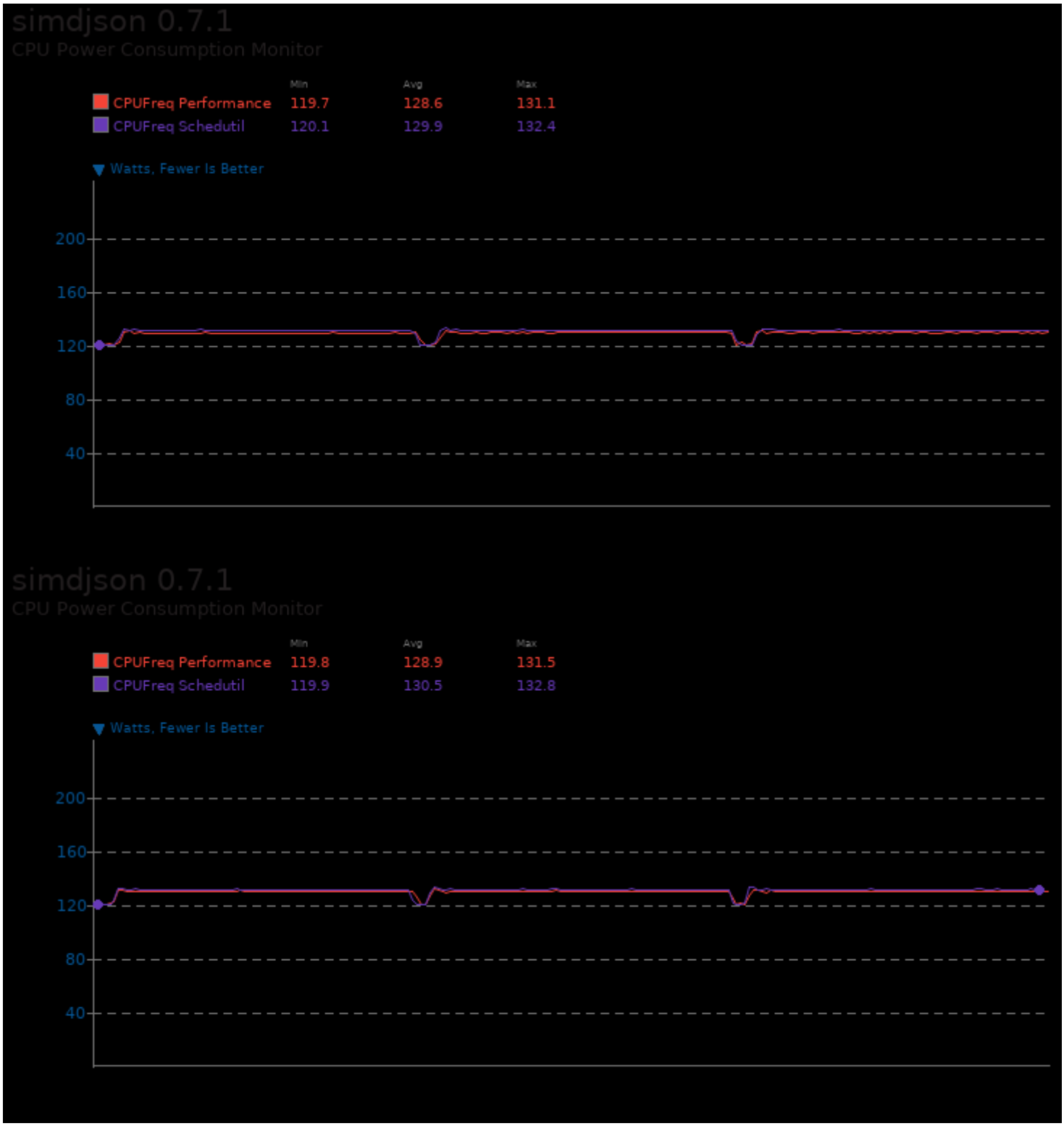
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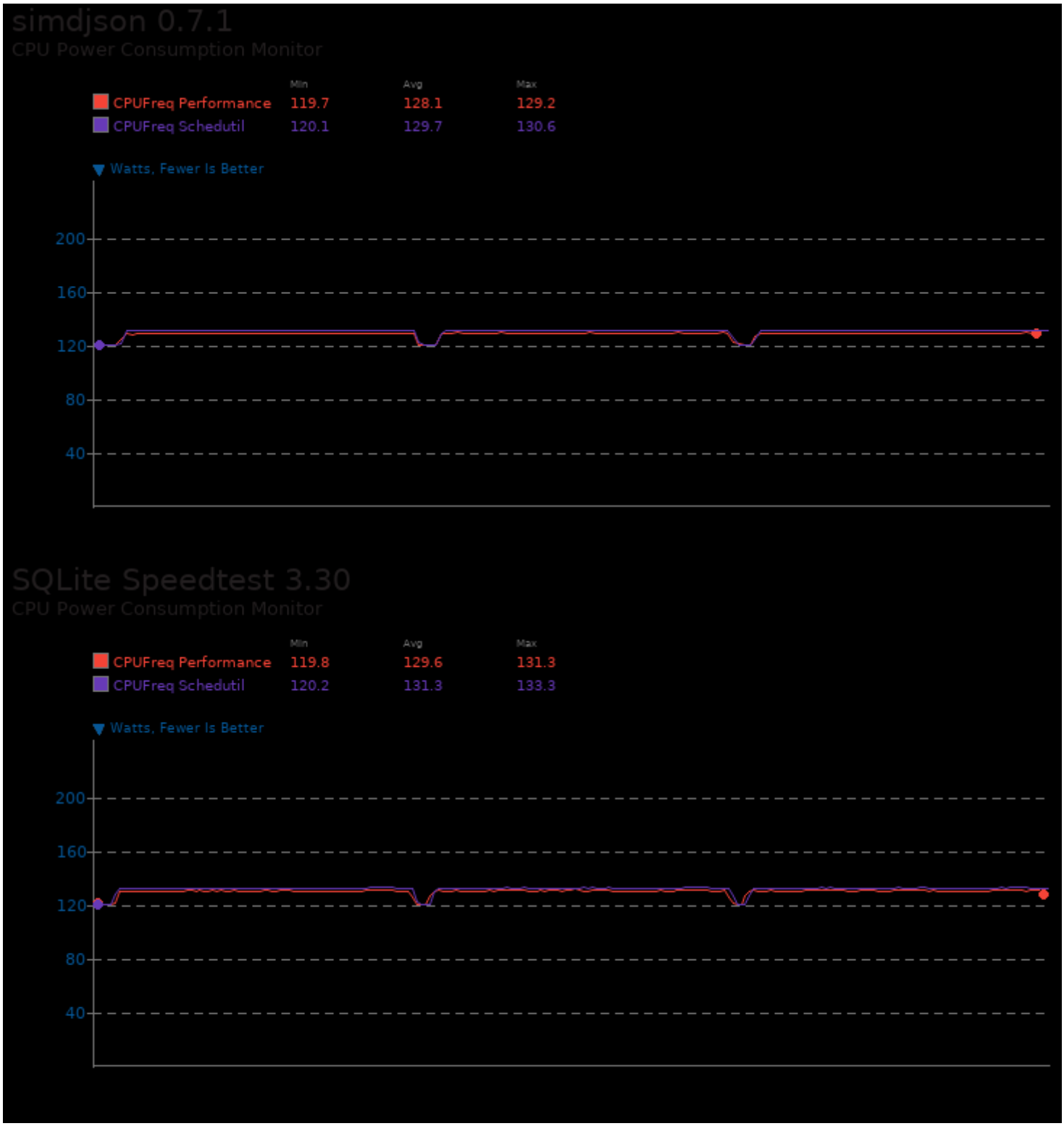
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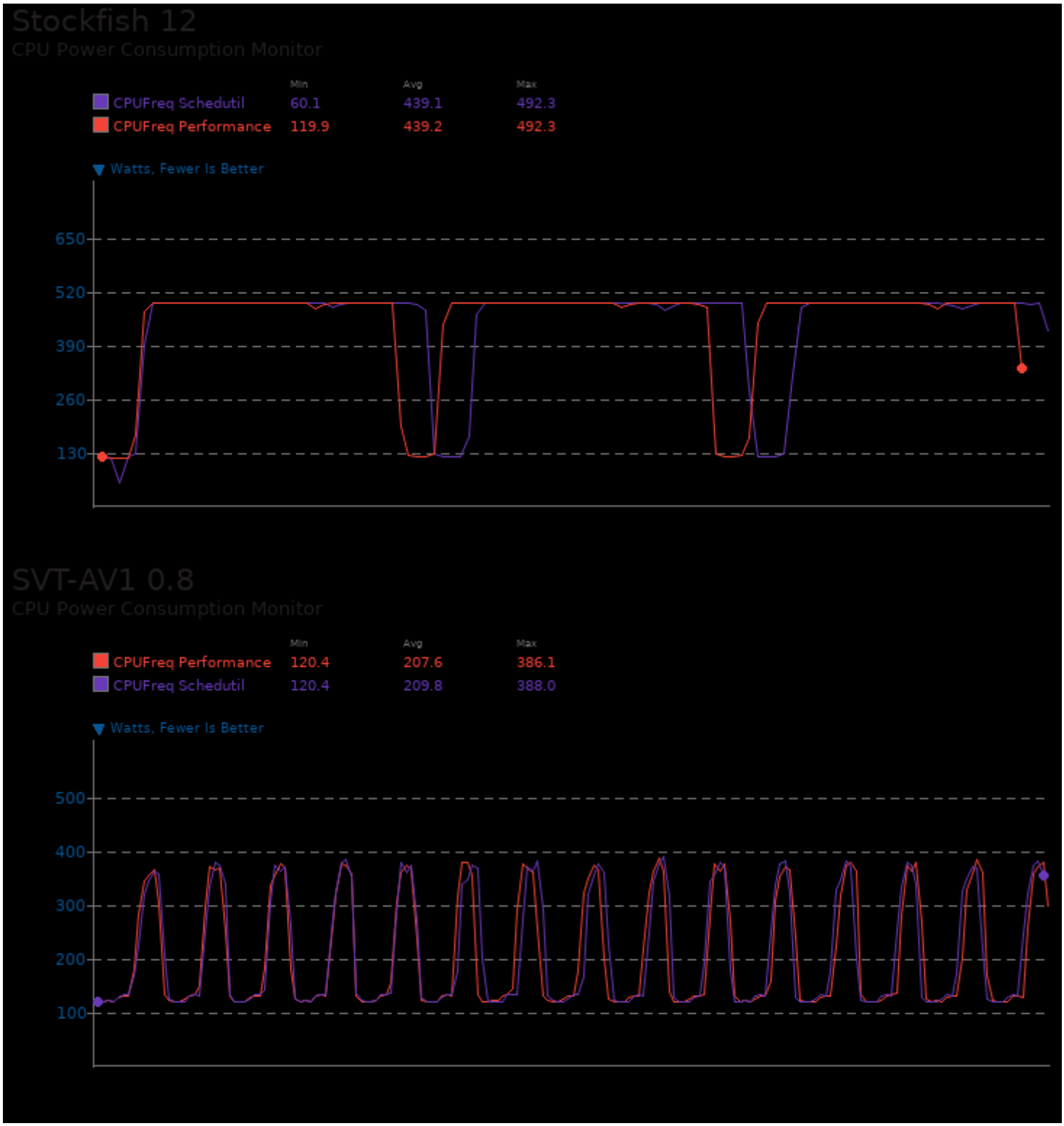
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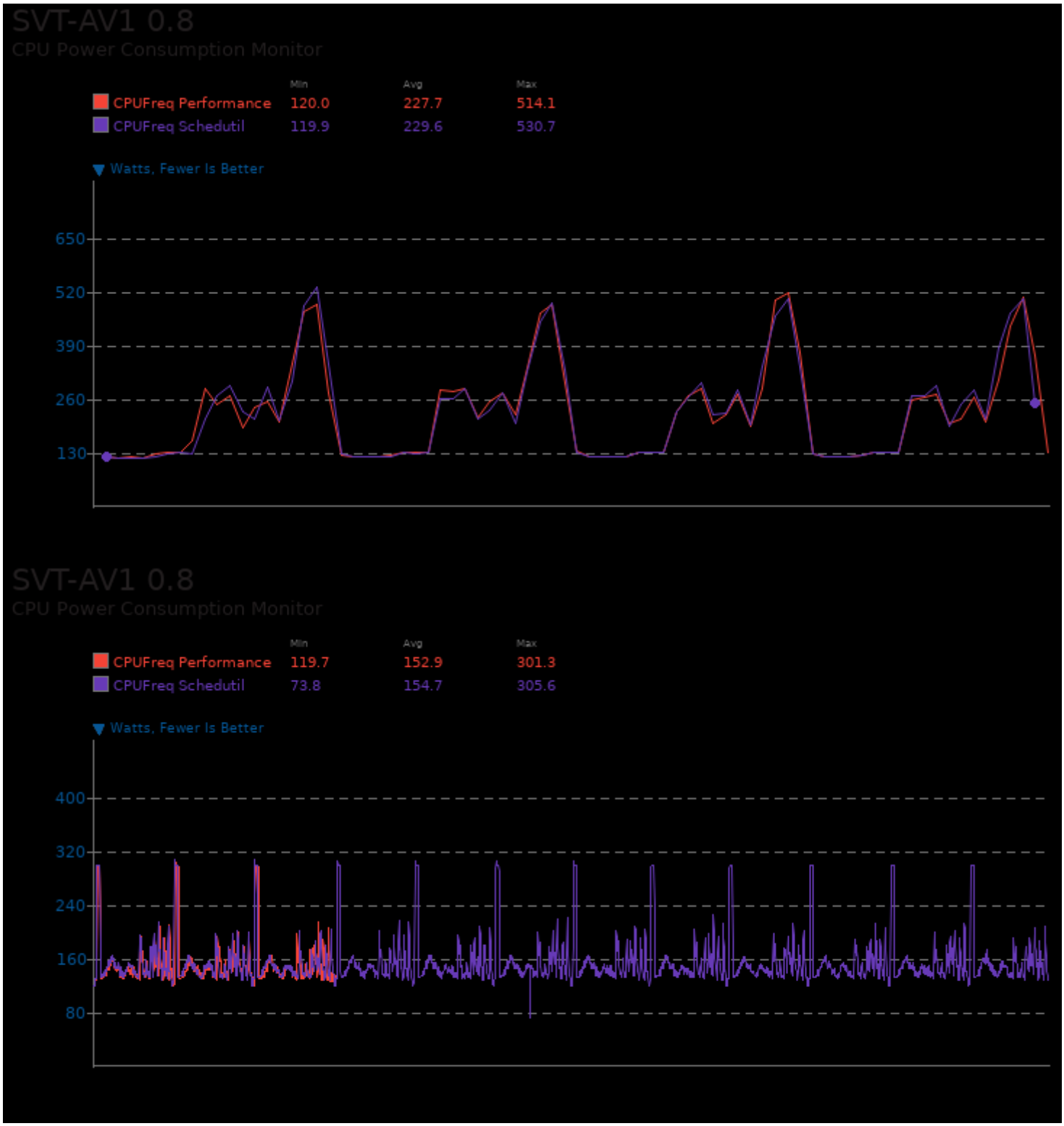
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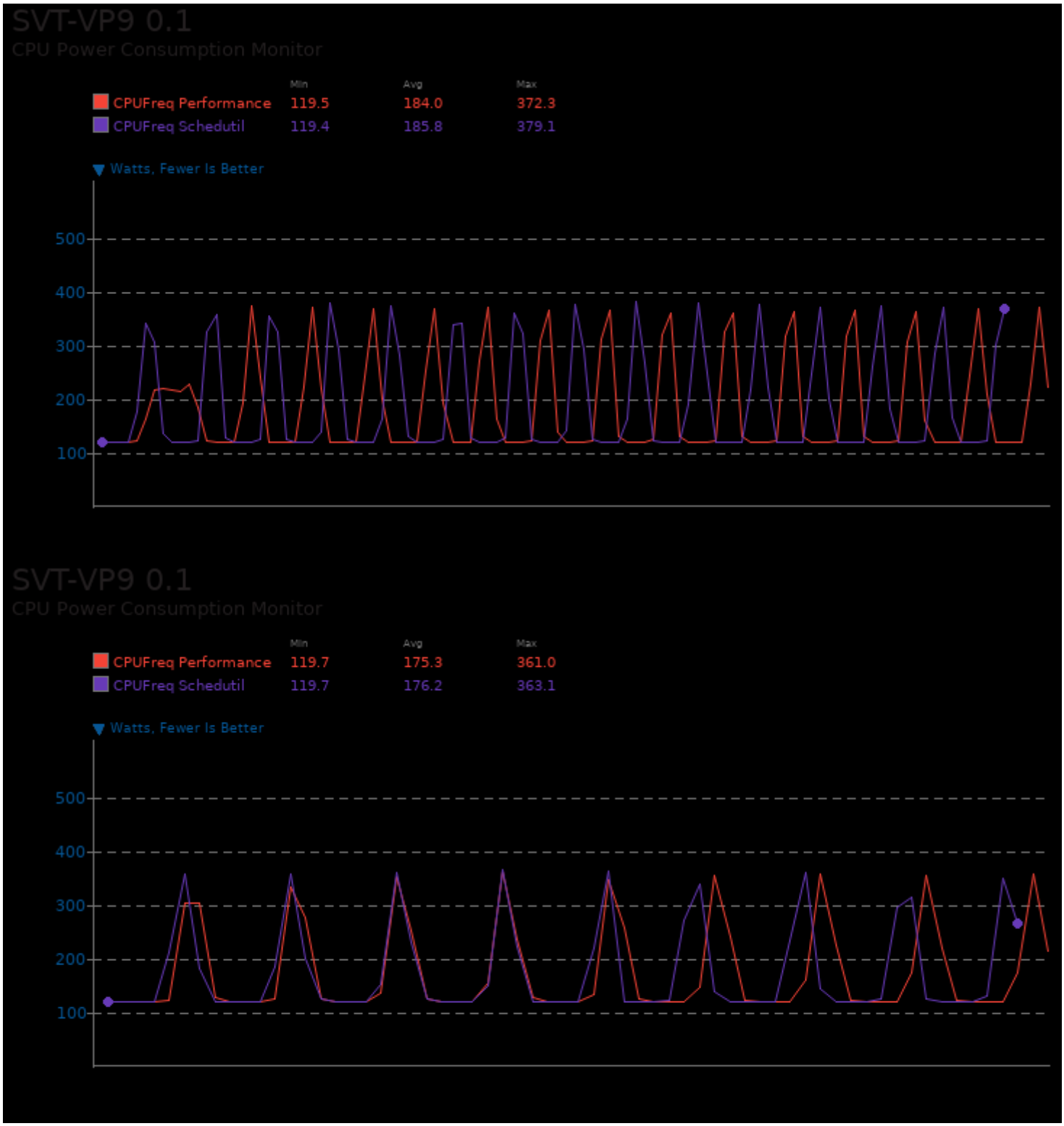
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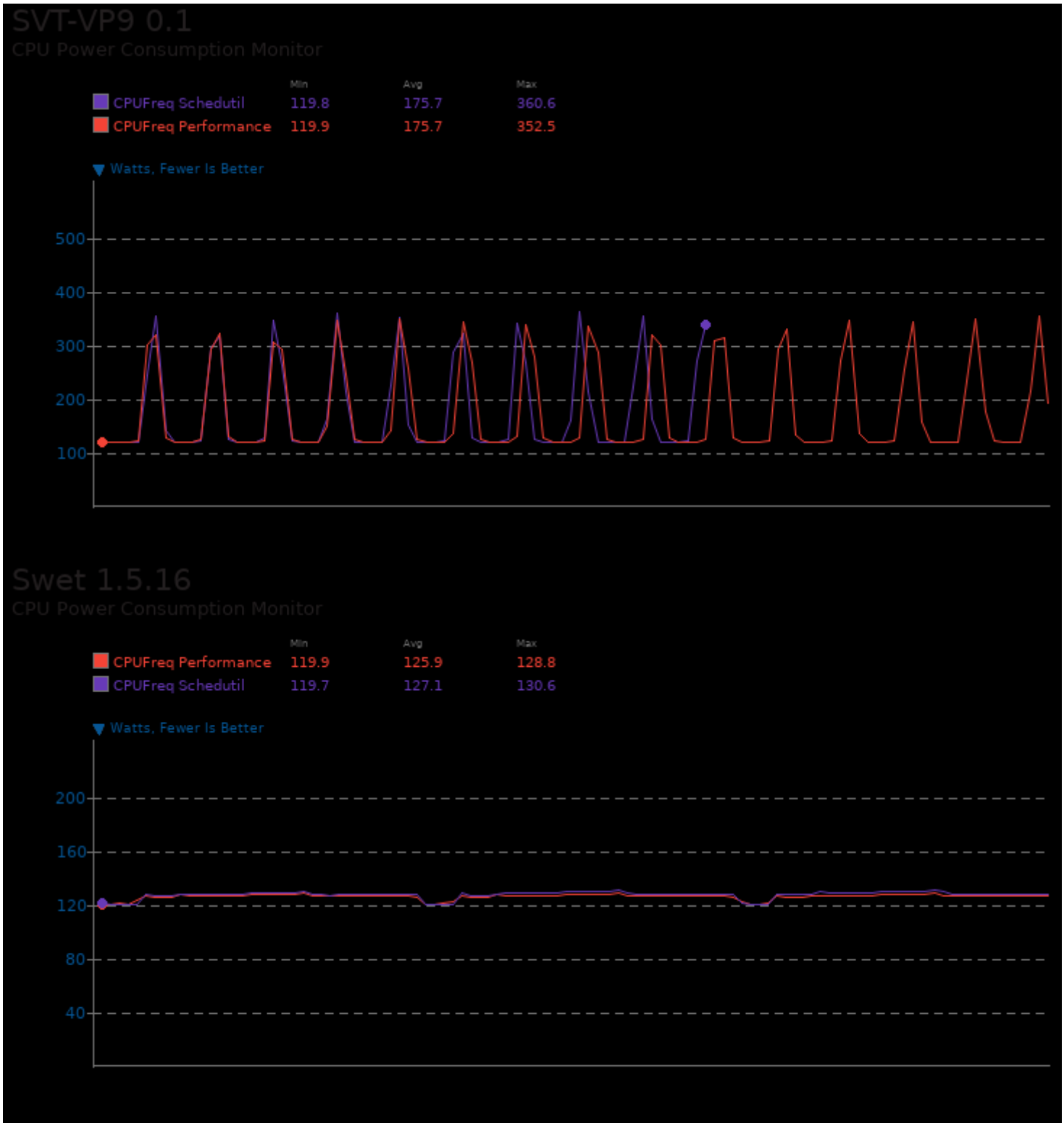
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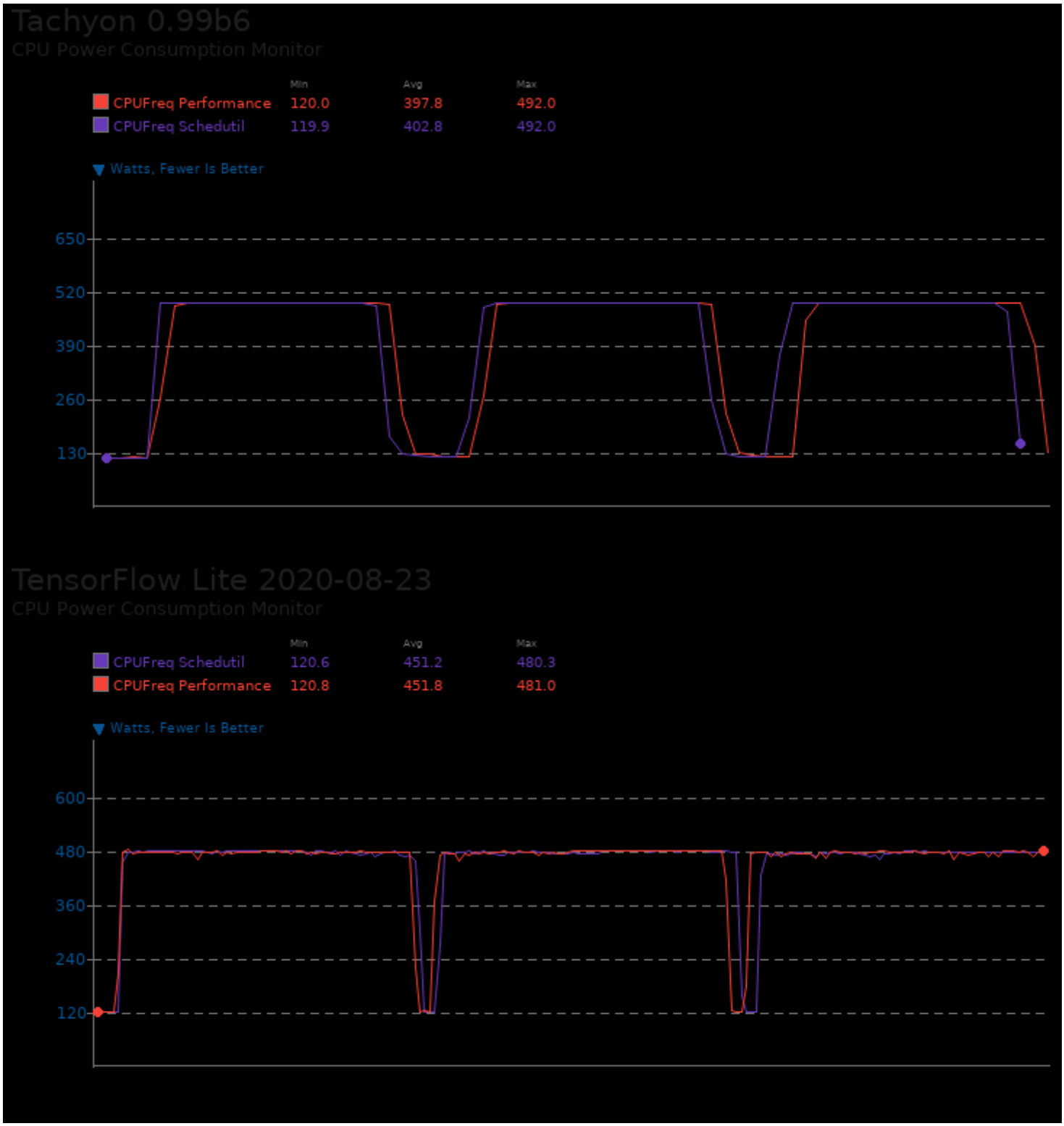
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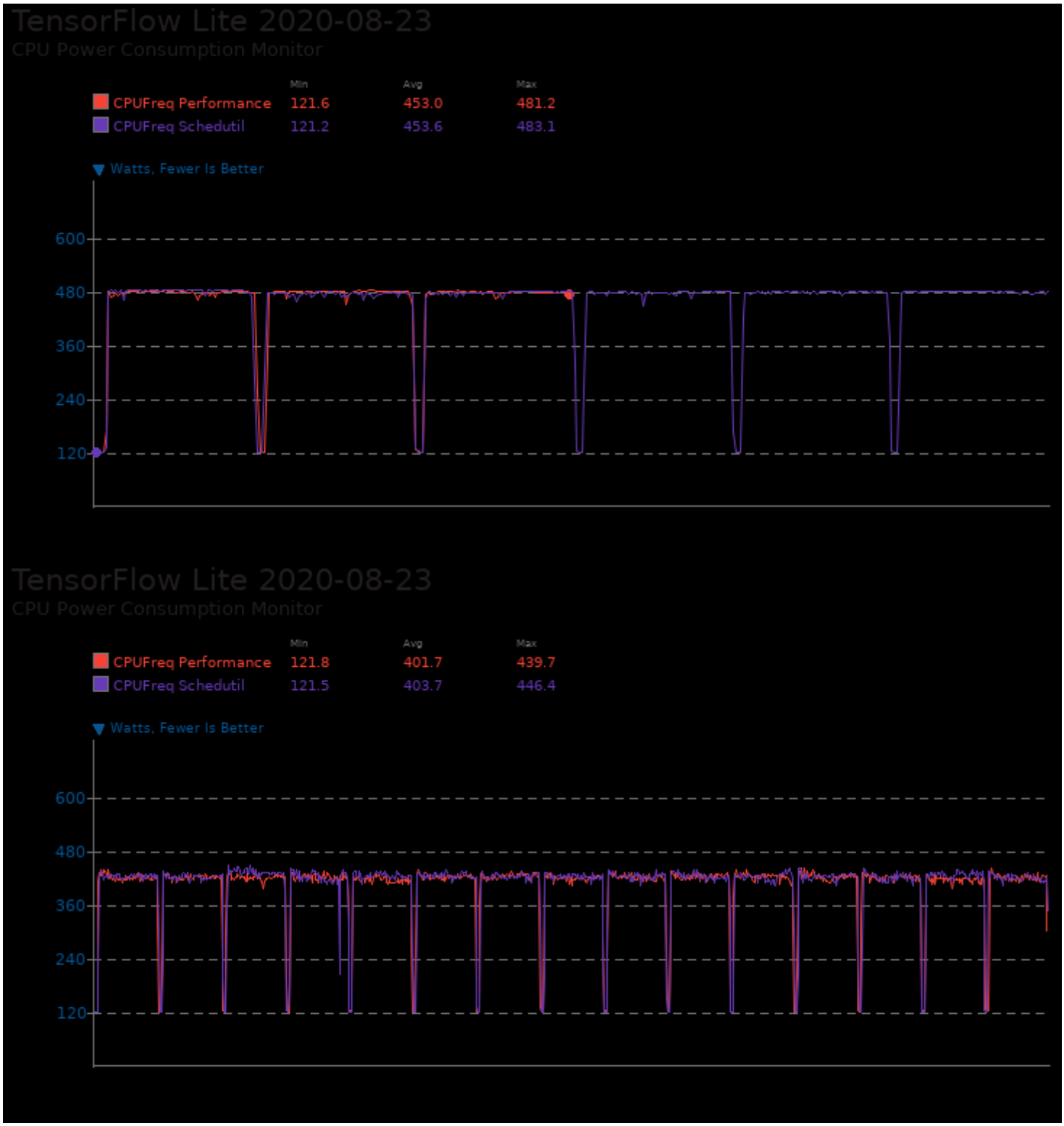
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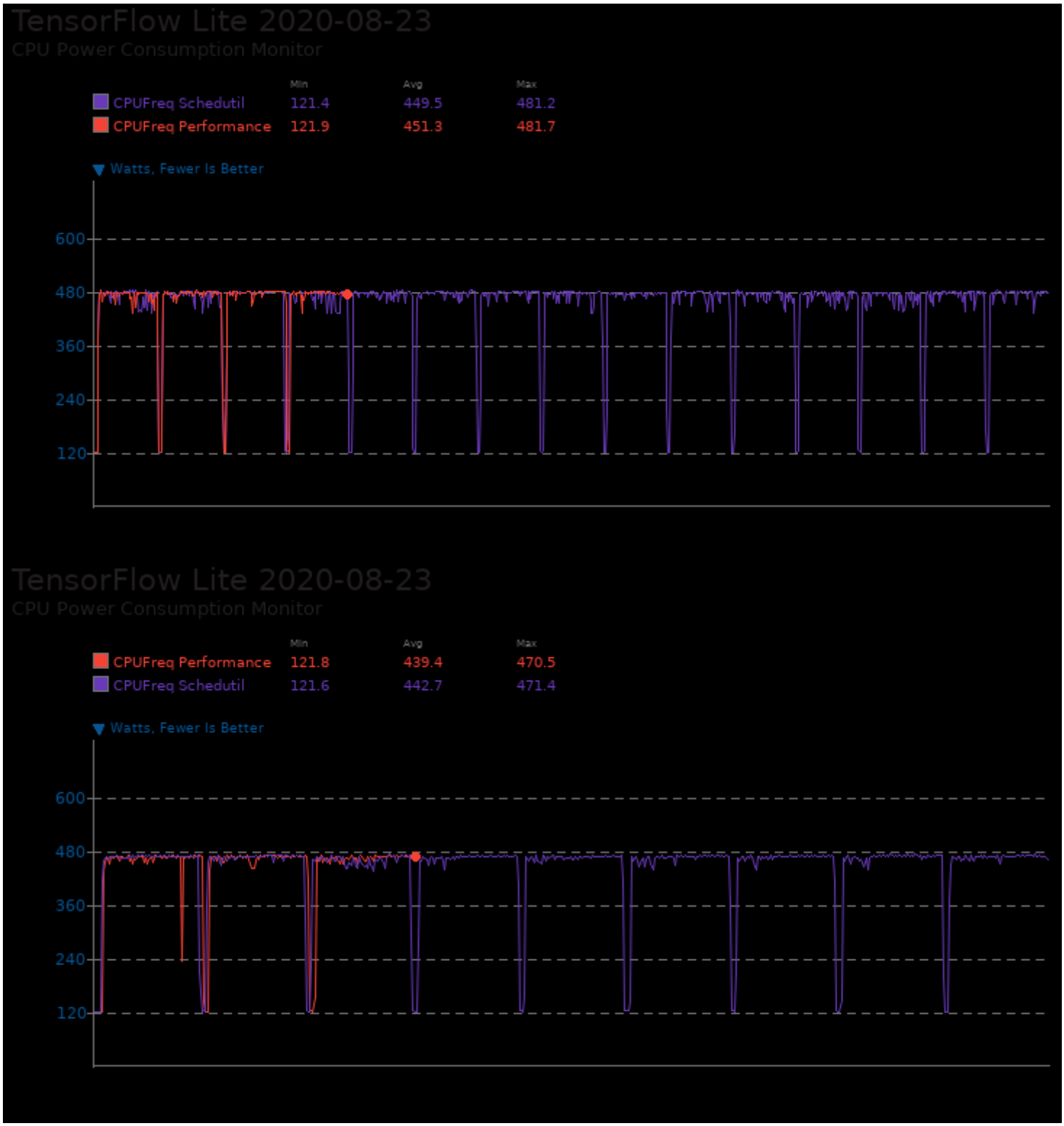
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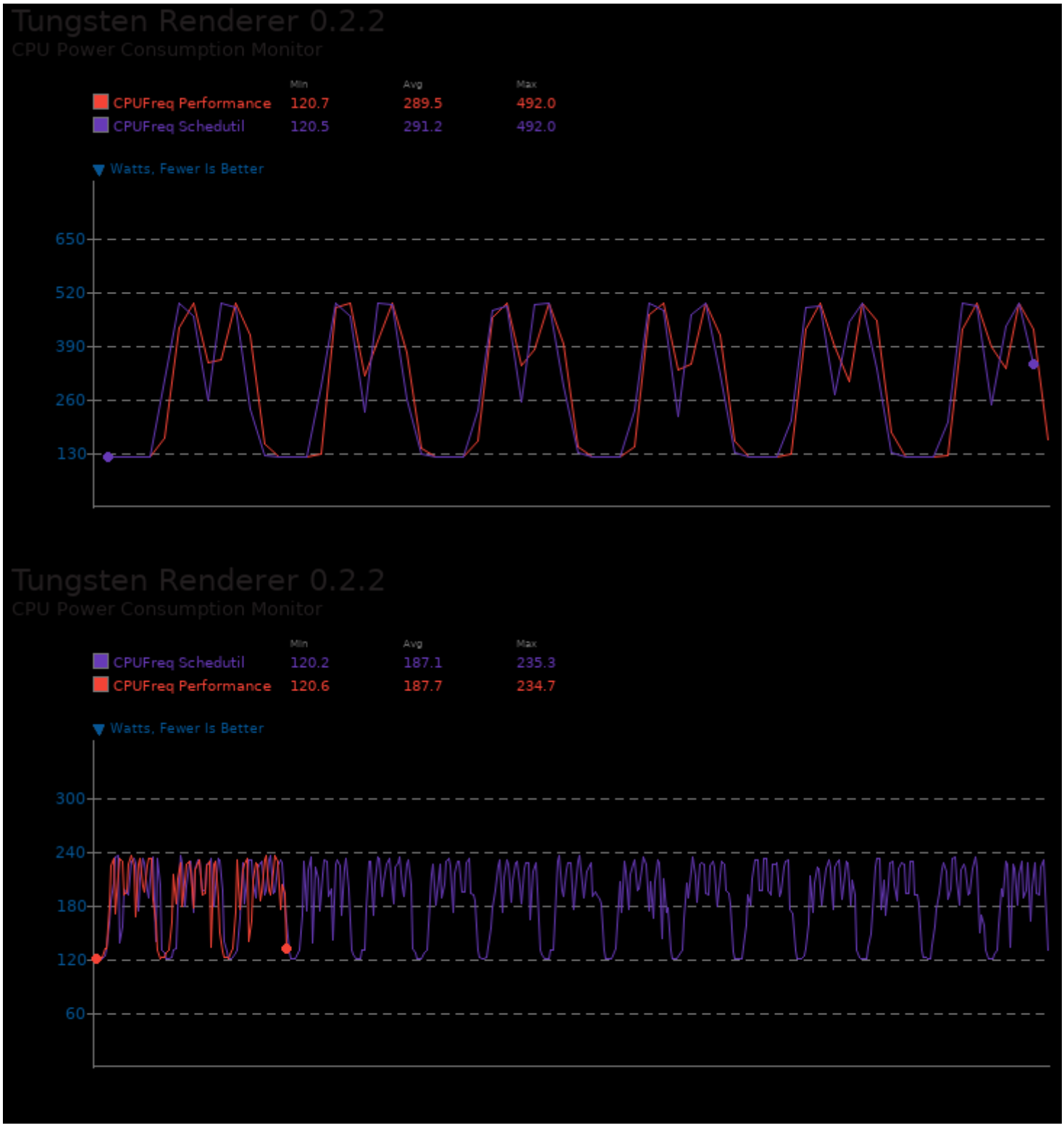
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



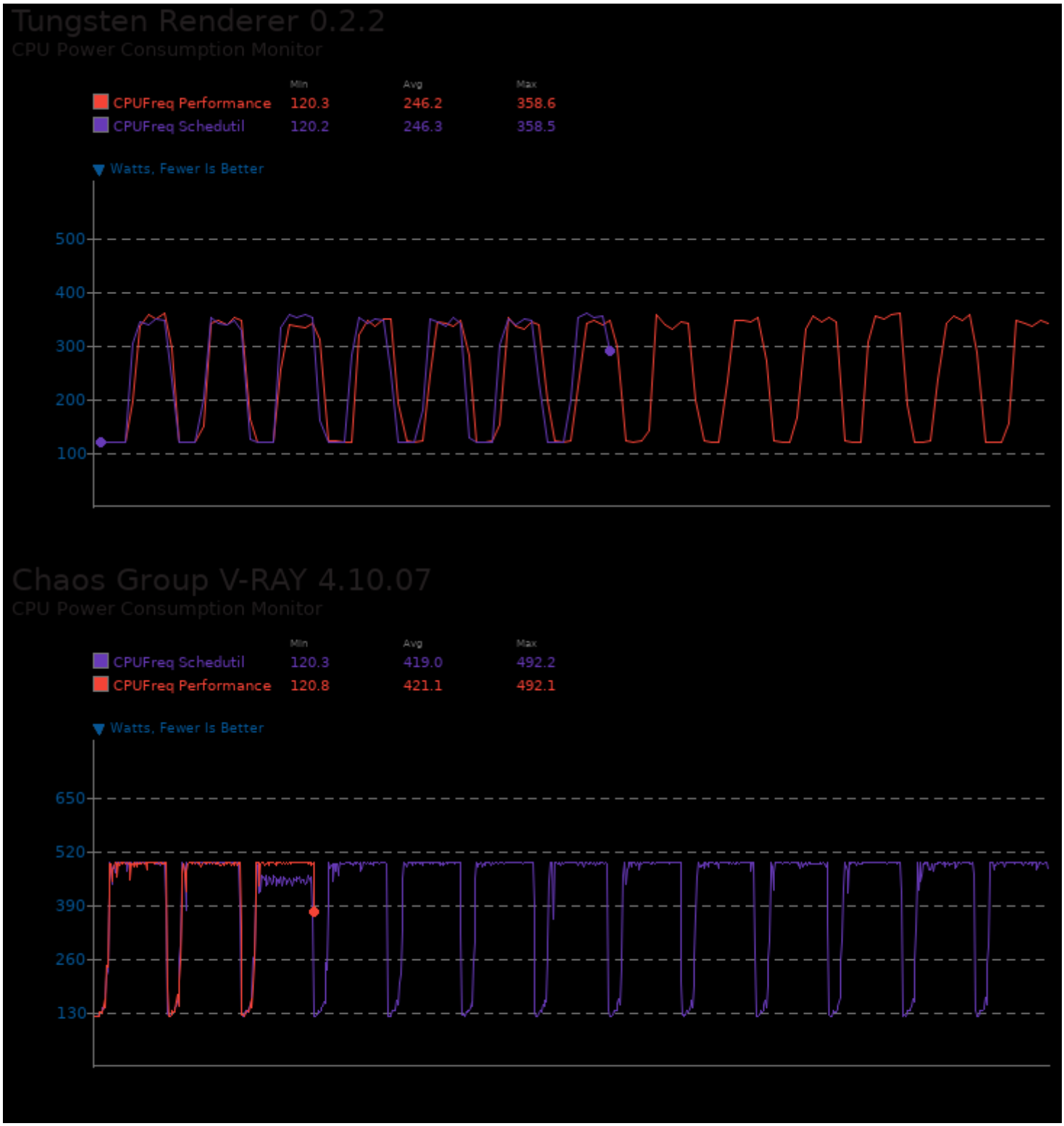
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



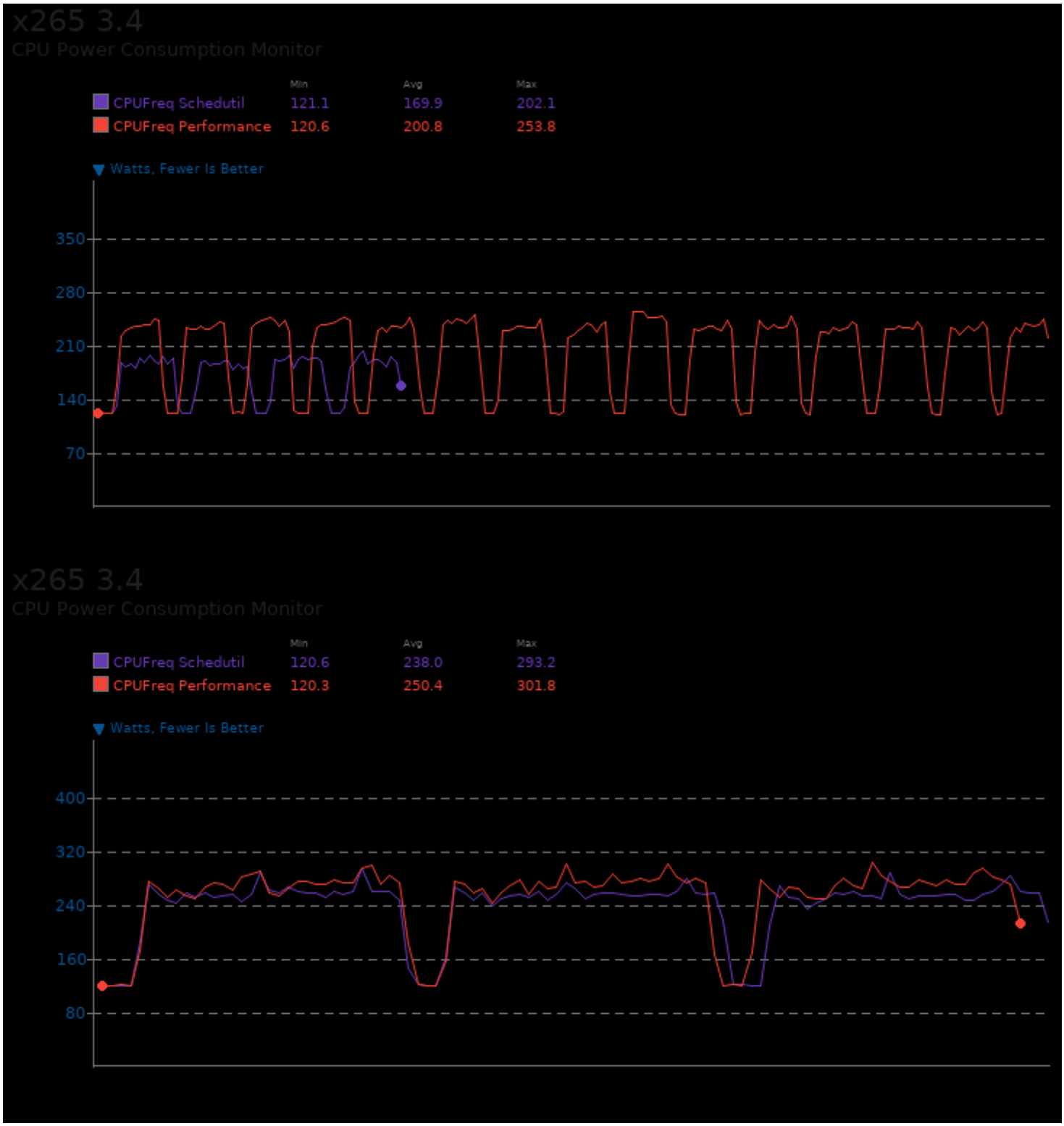
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



AMD EPYC 7F72 2P Linux 5.11 - Perf Governor

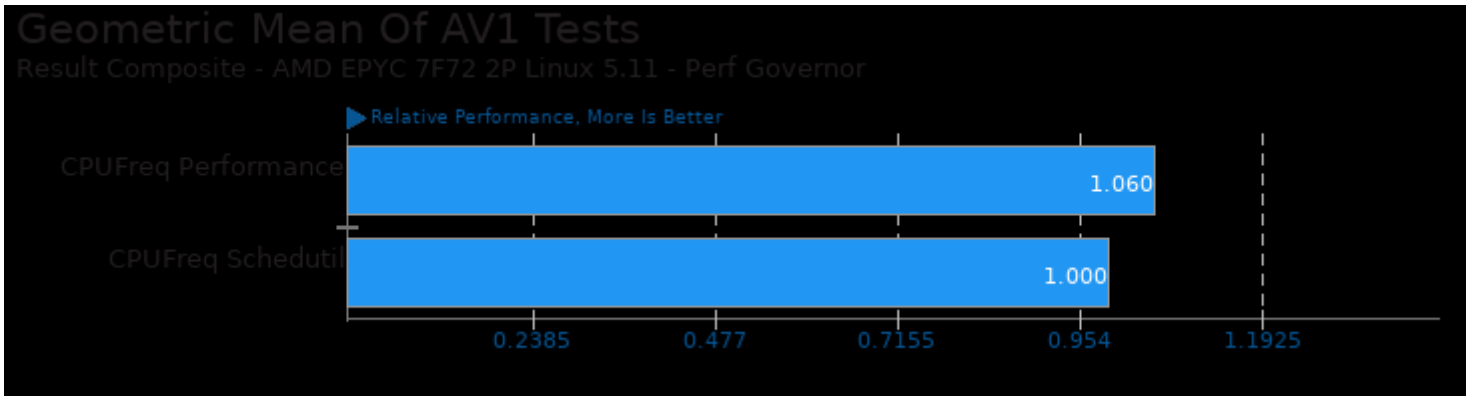


AMD EPYC 7F72 2P Linux 5.11 - Perf Governor

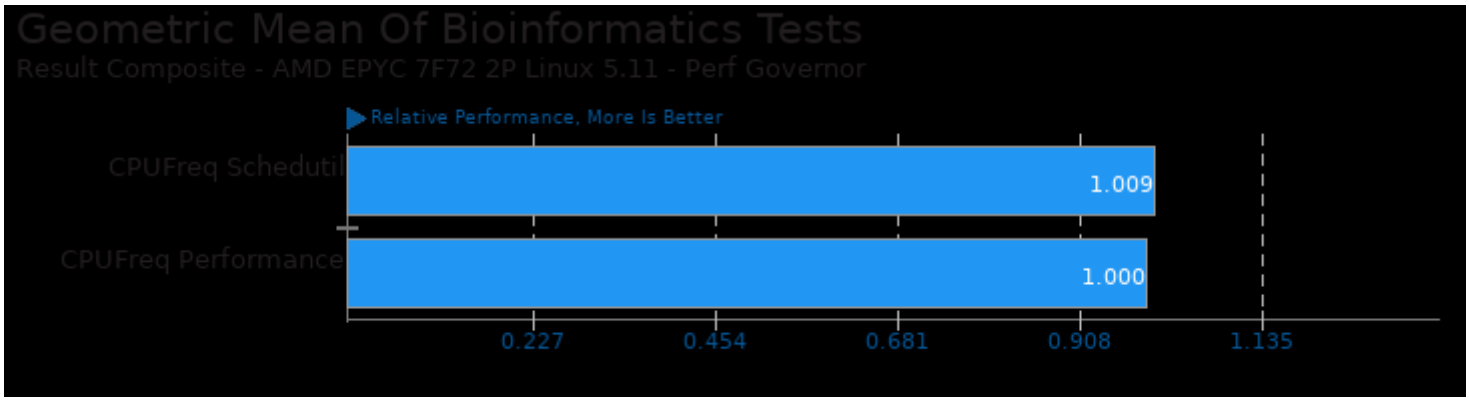


AMD EPYC 7F72 2P Linux 5.11 - Perf Governor

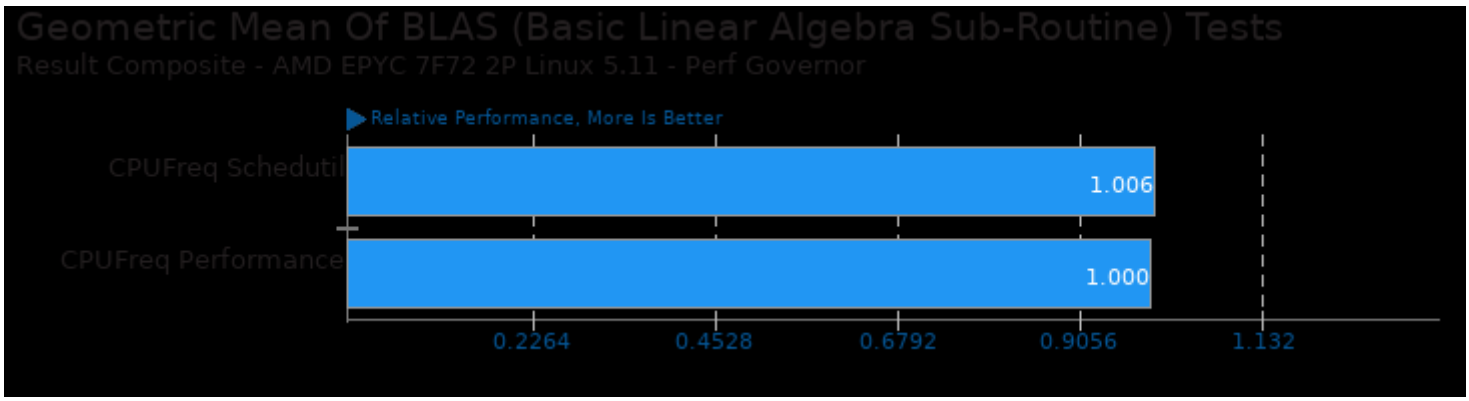
These geometric means are based upon test groupings / test suites for this result file.



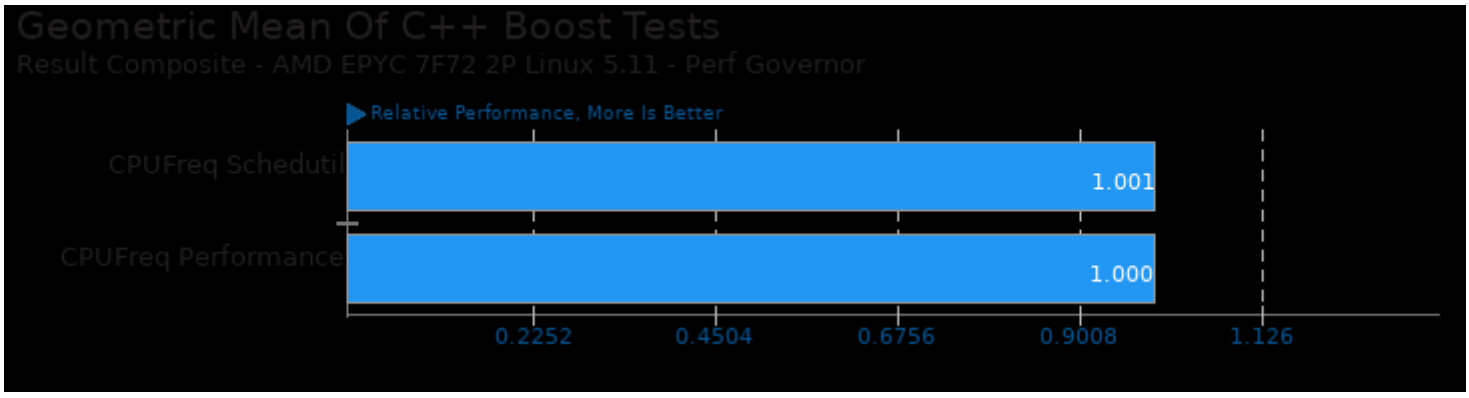
Geometric mean based upon tests: pts/dav1d, pts/svt-av1 and pts/rav1e



Geometric mean based upon tests: pts/himeno, pts/mrbayes and pts/qmcpack

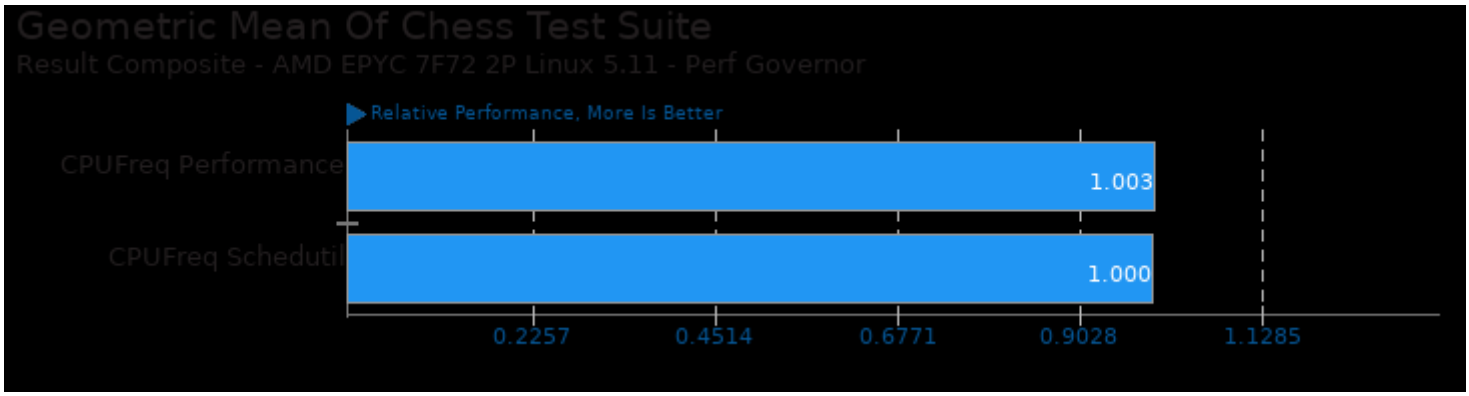


Geometric mean based upon tests: pts/lczero, pts/qe, pts/gpaw and pts/qmcpack

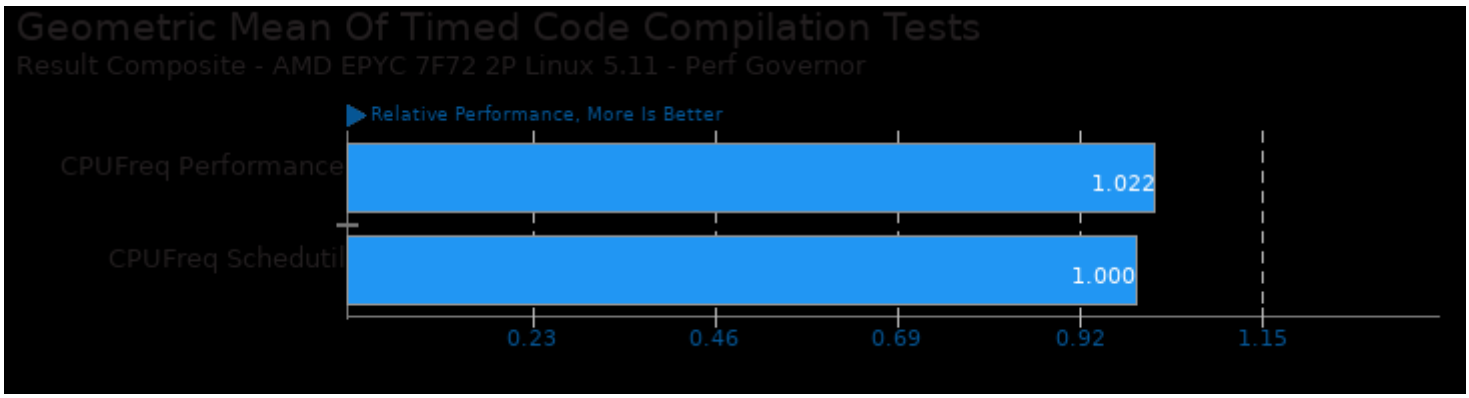


AMD EPYC 7F72 2P Linux 5.11 - Perf Governor

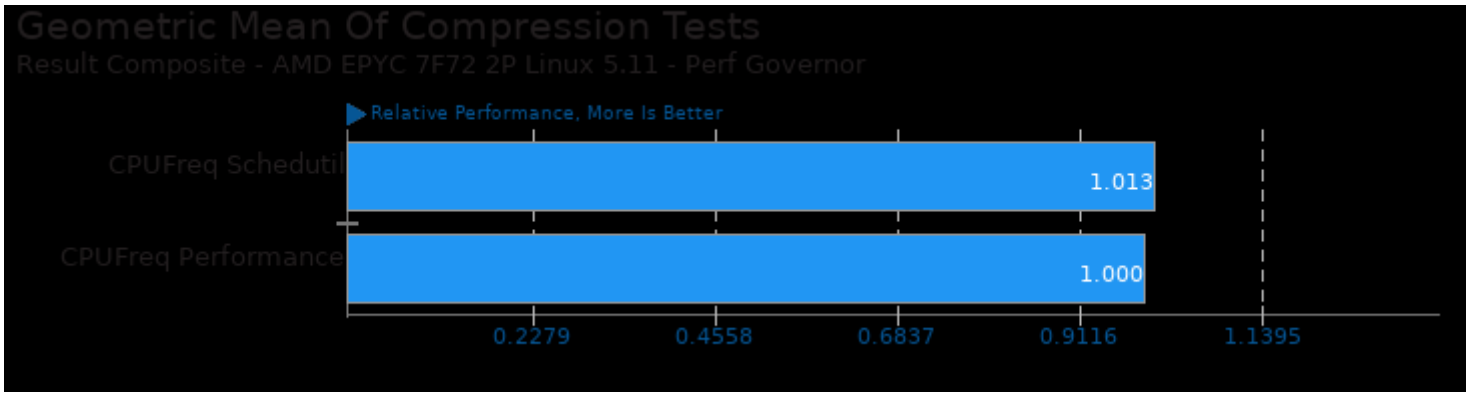
Geometric mean based upon tests: pts/quantlib, pts/openfoam, pts/povray, pts/yafaray and pts/qmcpack



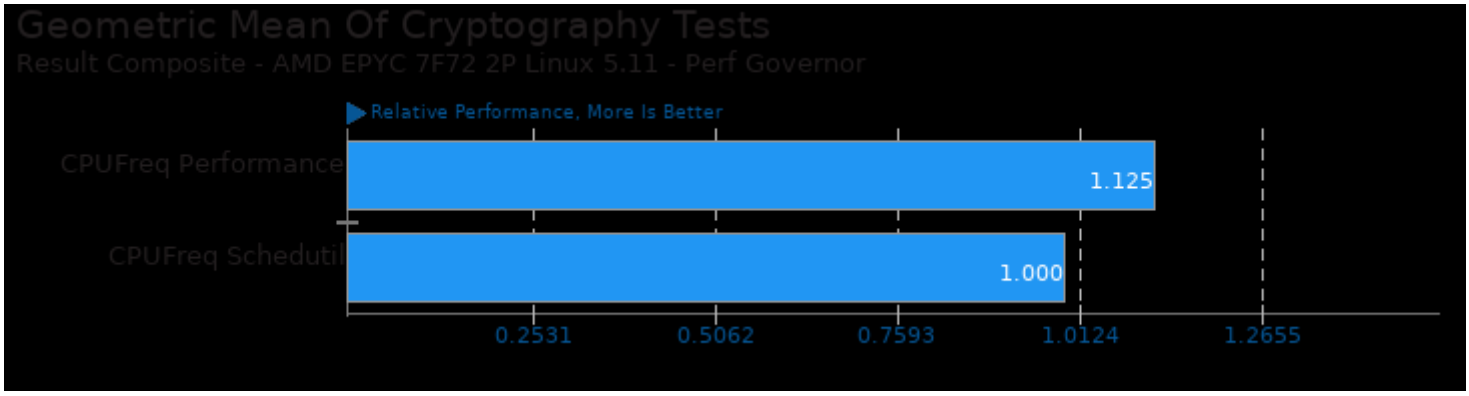
Geometric mean based upon tests: pts/tscp, pts/lczero, pts/stockfish and pts/asmfish



Geometric mean based upon tests: pts/build-linux-kernel, pts/build-gdb, pts/build-llvm, pts/build2 and pts/build-godot

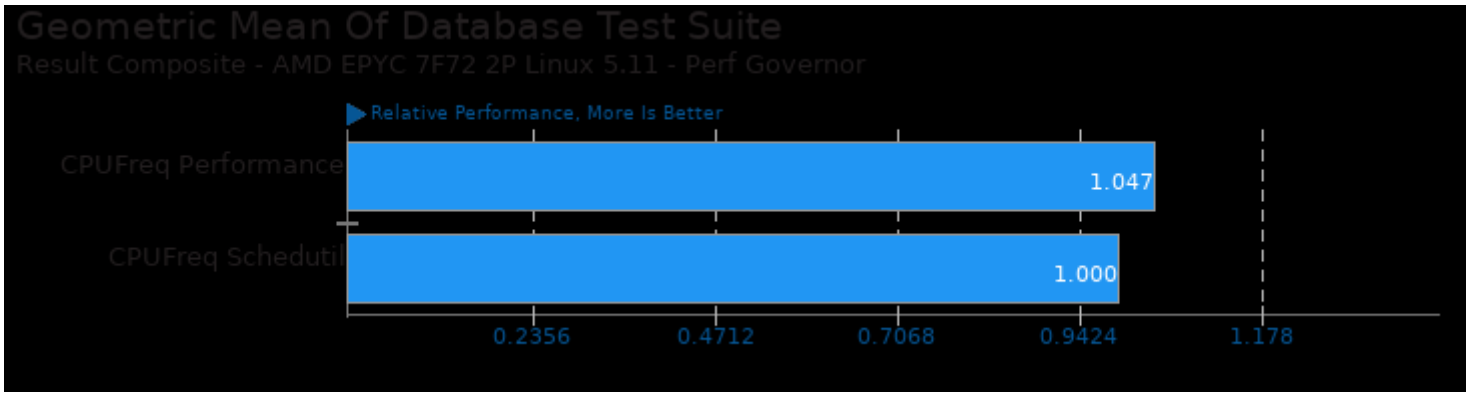


Geometric mean based upon tests: pts/compress-zstd and pts/compress-lz4

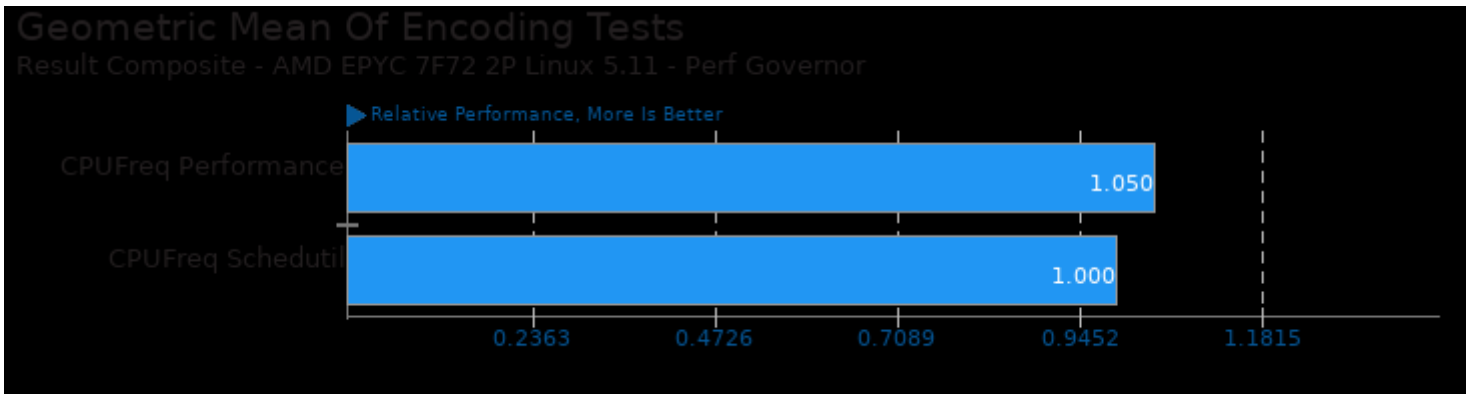


AMD EPYC 7F72 2P Linux 5.11 - Perf Governor

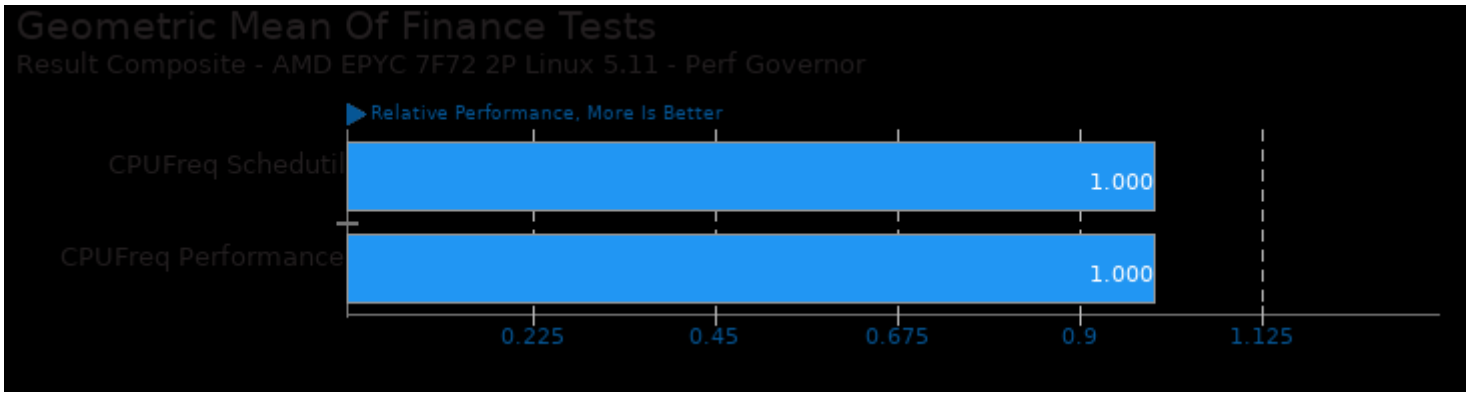
Geometric mean based upon tests: pts/gnupg, pts/gcrypt, pts/john-the-ripper and pts/cpuminer-opt



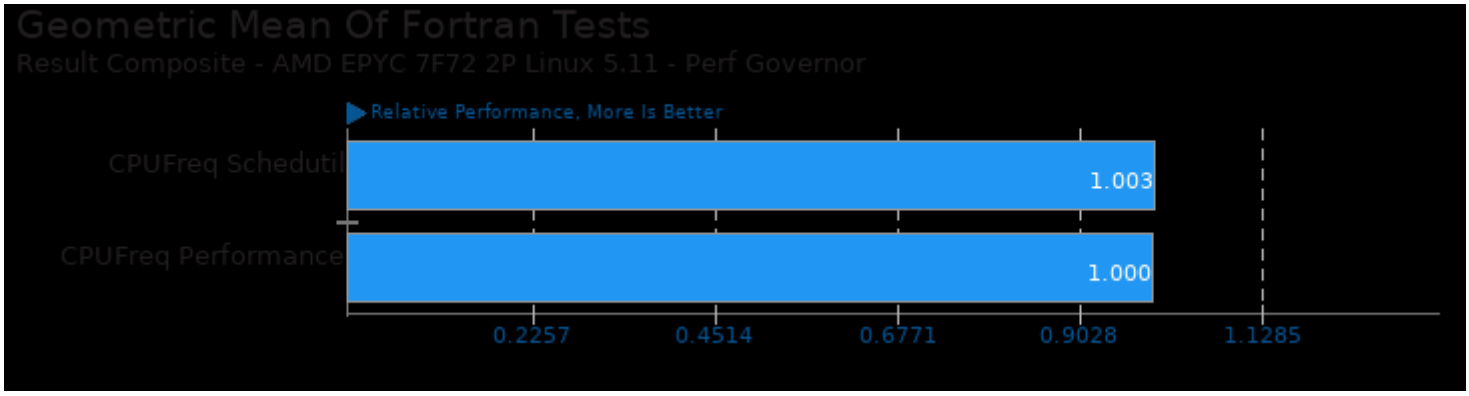
Geometric mean based upon tests: pts/sqlite-speedtest, pts/redis, pts/keydb and pts/influxdb



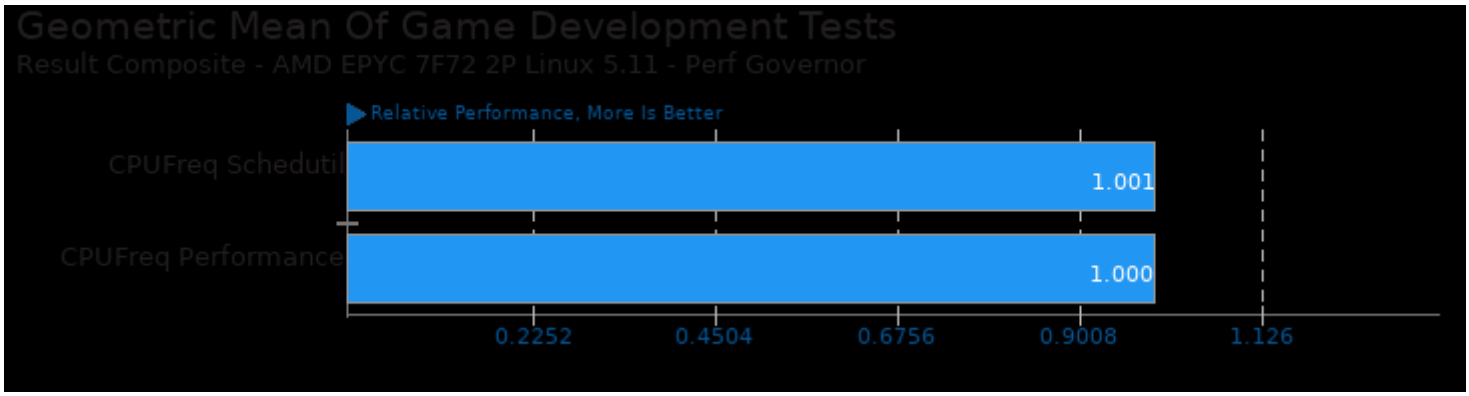
Geometric mean based upon tests: pts/svt-vp9, pts/x265, pts/dav1d, pts/svt-av1 and pts/rav1e



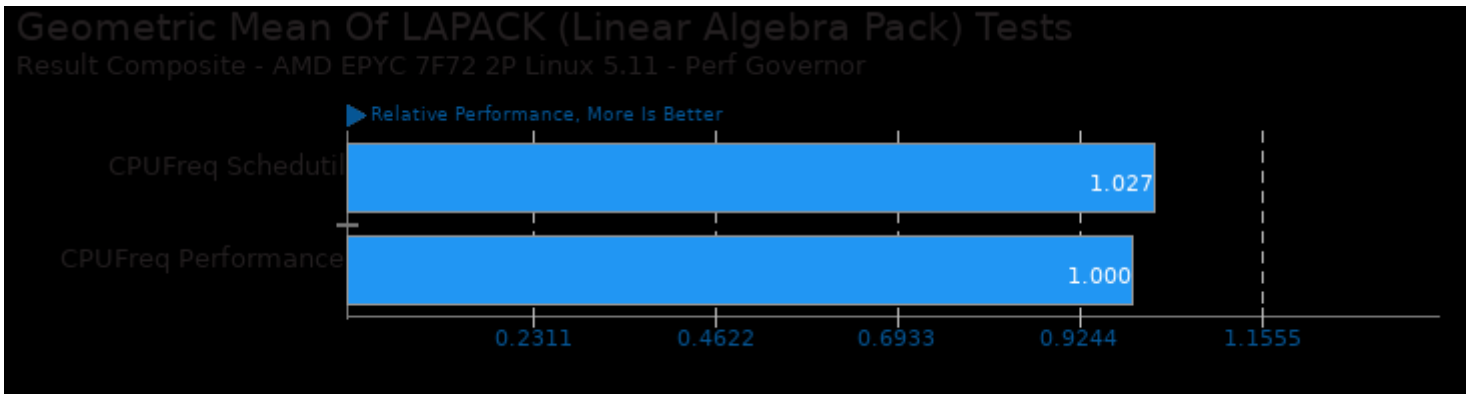
Geometric mean based upon tests: pts/financebench and pts/quantlib



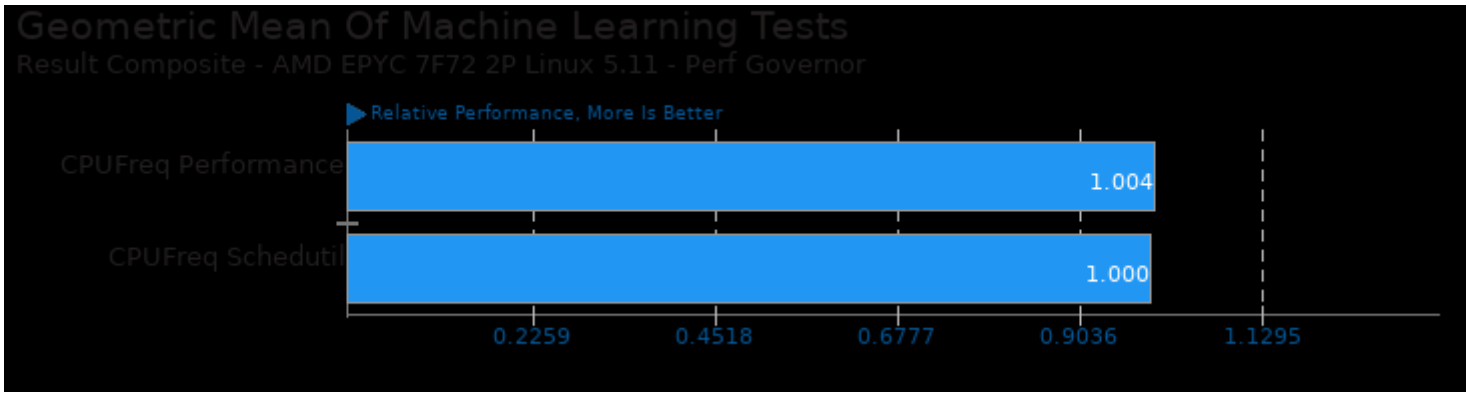
Geometric mean based upon tests: pts/hpcg, pts/ffte, pts/lammps, pts/npb, pts/qe, pts/dolfyn and pts/neat



Geometric mean based upon tests: pts/astcenc, pts/etcpak, pts/build-godot, pts/blender and pts/oidn

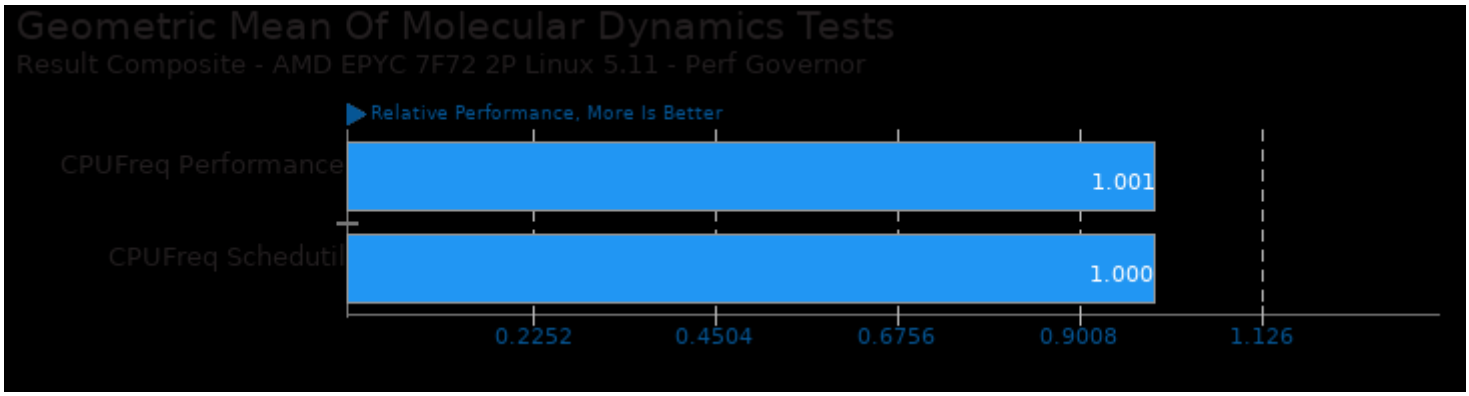


Geometric mean based upon tests: pts/qe and pts/qmcpack

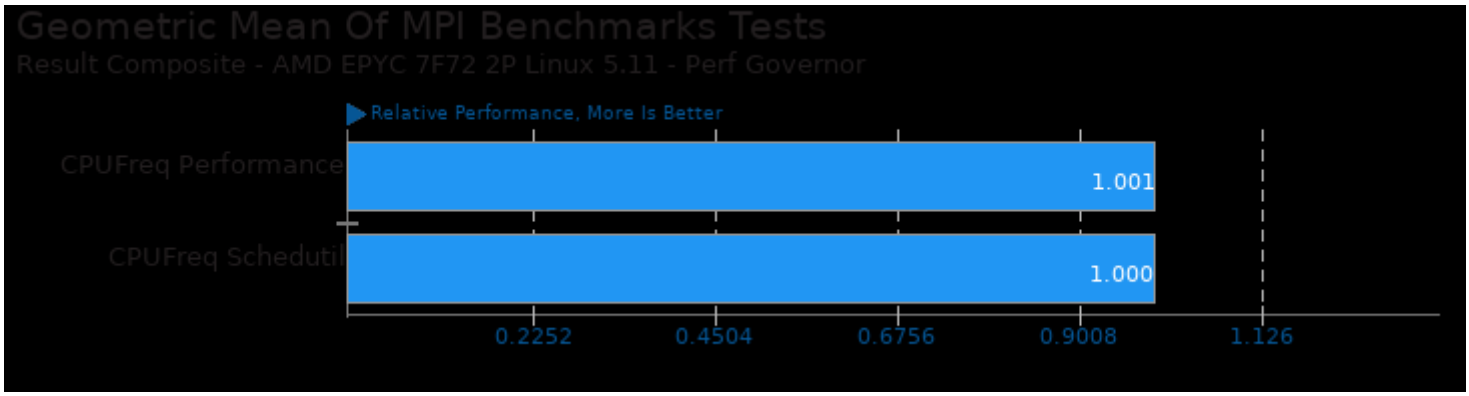


Geometric mean based upon tests: pts/tnn, pts/numpy, pts/ai-benchmark, pts/tensorflow-lite, pts/onednn, pts/onnx, pts/plaidml and pts/lczero

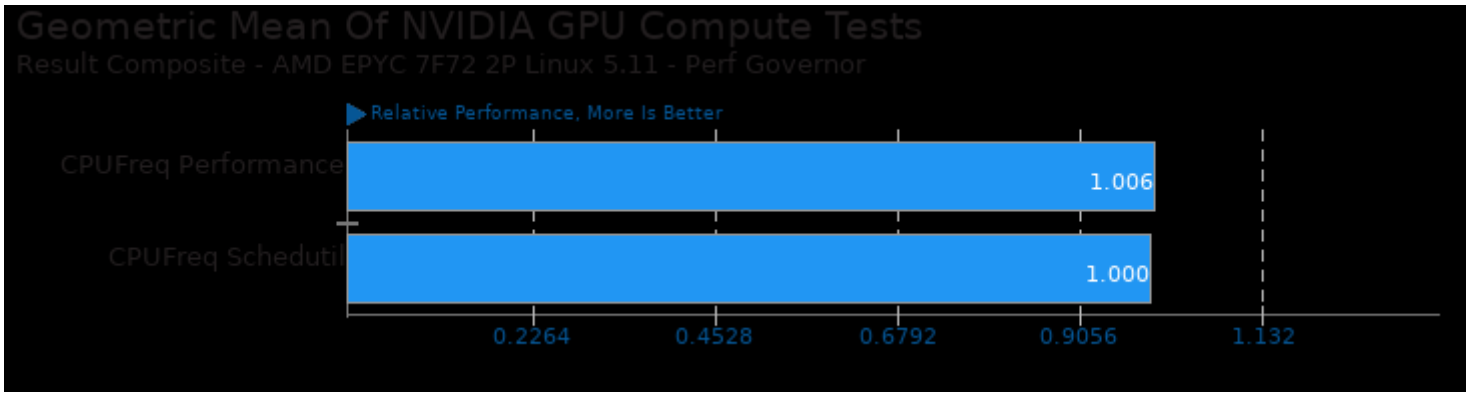
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



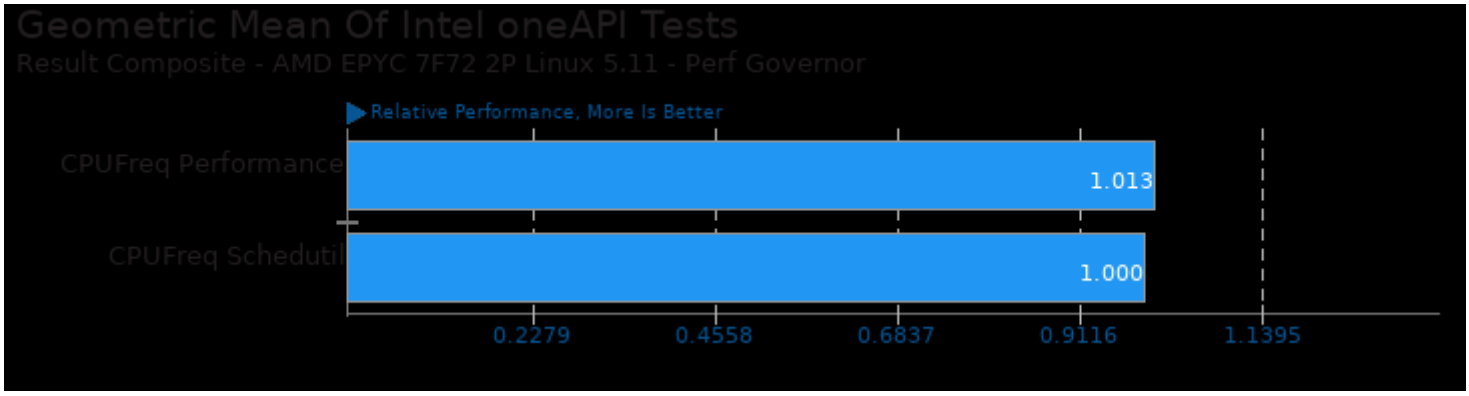
Geometric mean based upon tests: pts/namd, pts/gromacs, pts/dolfyn, pts/lammps, pts/lulesh and pts/openfoam



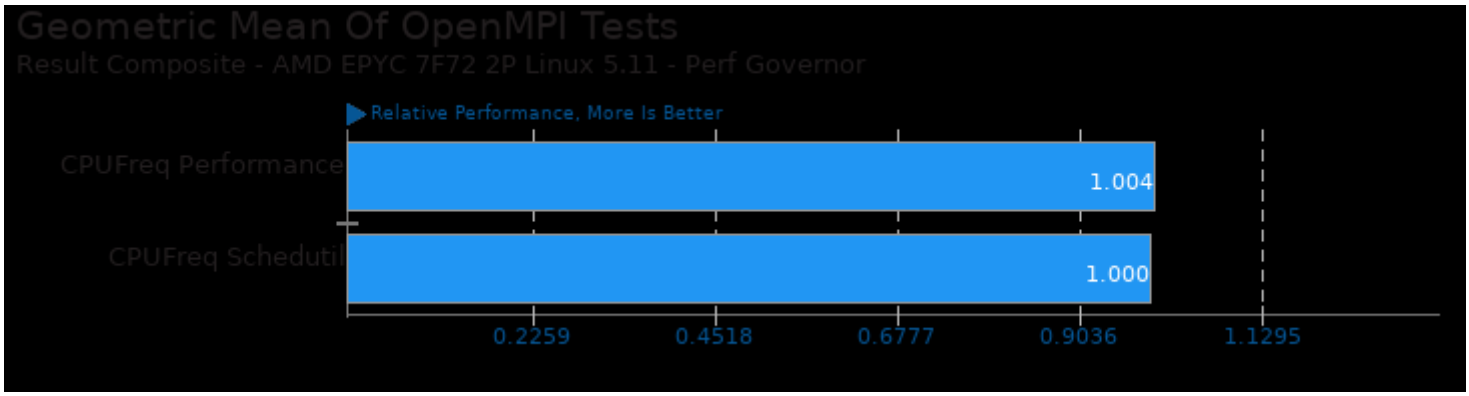
Geometric mean based upon tests: pts/askap, pts/lammps, pts/gpaw, pts/gromacs, pts/qmcpack, pts/hpcg, pts/mrbayes and pts/npb



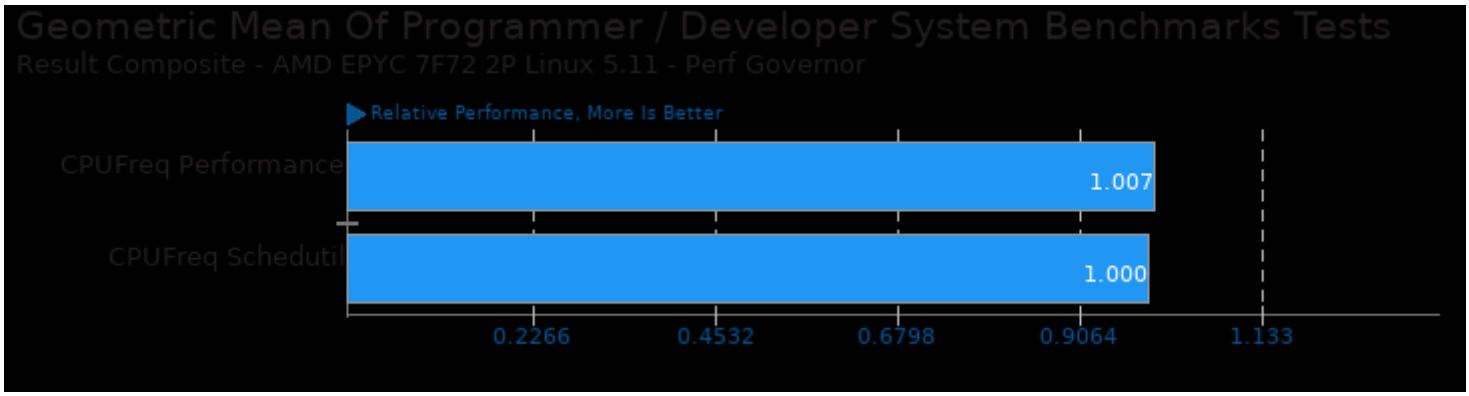
Geometric mean based upon tests: pts/gromacs, pts/luxcorerender, pts/rodinia, pts/financebench, pts/plaidml, pts/lczero, pts/v-ray and pts/blender



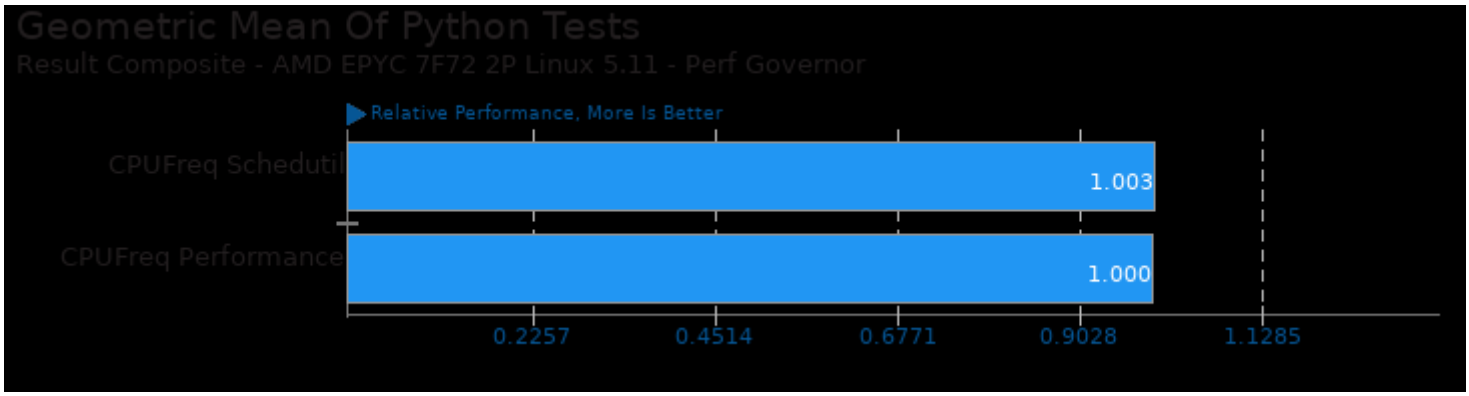
Geometric mean based upon tests: pts/onednn, pts/oidn, pts/ospray and pts/tungsten



Geometric mean based upon tests: pts/amg, pts/hpcg, pts/ior, pts/askap, pts/gromacs, pts/lammps, pts/npb, pts/lulesh, pts/openfoam, pts/qe, pts/relion, pts/gpaw, pts/mrbayes, pts/rodinia and pts/qmcpack

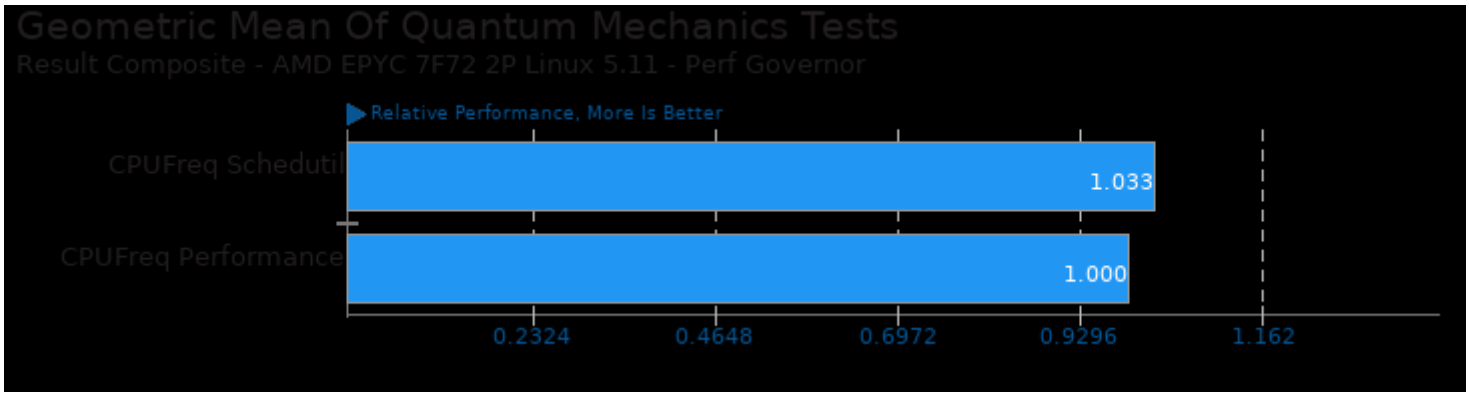


Geometric mean based upon tests: pts/simdjson, pts/sqlite-speedtest, pts/compress-zstd, pts/build-linux-kernel, pts/build-gdb, pts/build-llvm, pts/build2, pts/build-godot and pts/amg

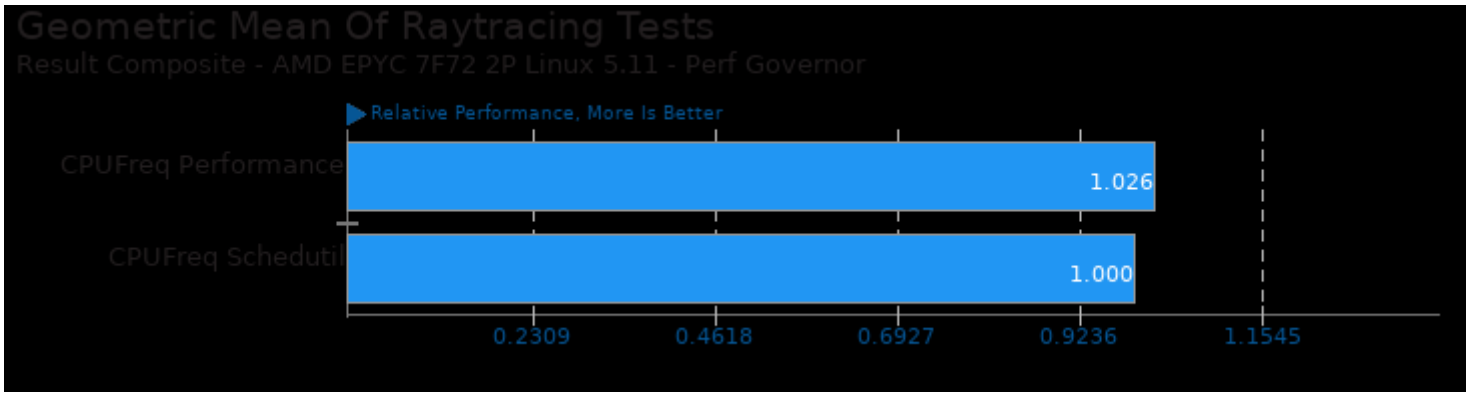


Geometric mean based upon tests: pts/cython-bench and pts/numpy

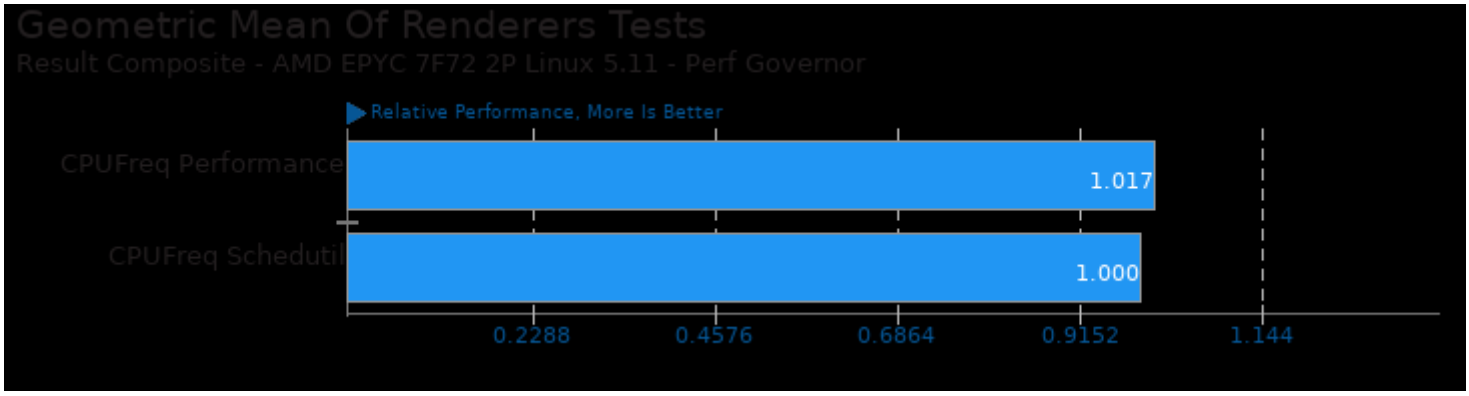
AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



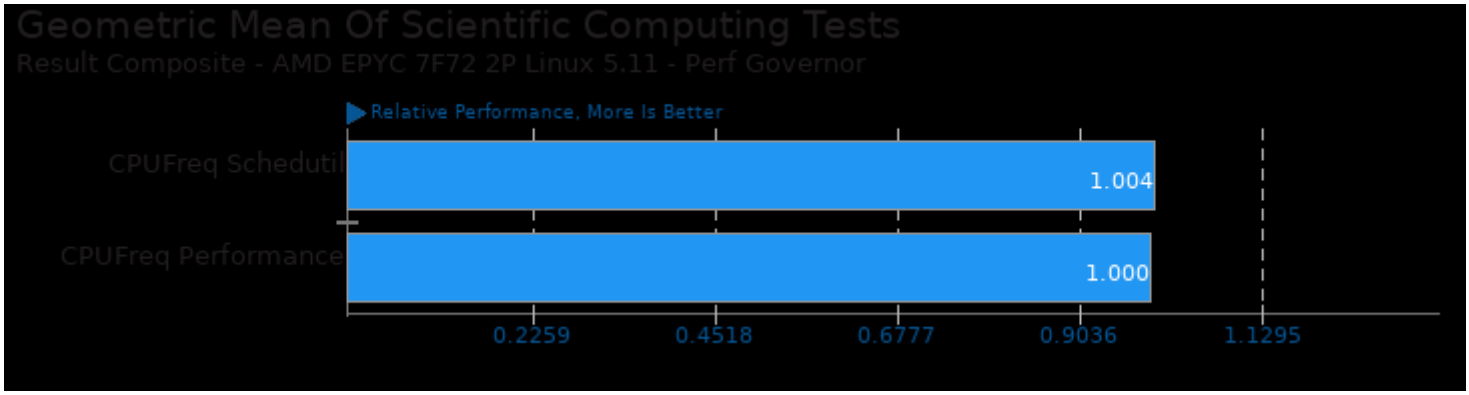
Geometric mean based upon tests: pts/gpaw and pts/qe



Geometric mean based upon tests: pts/ospray, pts/tachyon, pts/povray and pts/yafaray

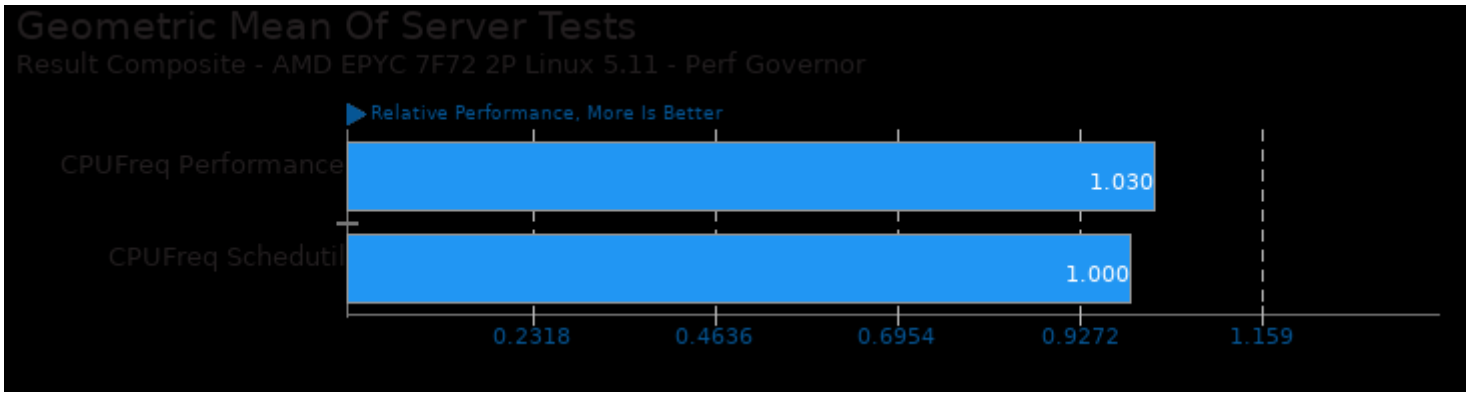


Geometric mean based upon tests: pts/ospray, pts/tachyon, pts/povray, pts/yafaray, pts/blender, pts/tungsten, pts/luxcorerender, pts/ttsiod-renderer and pts/v-ray

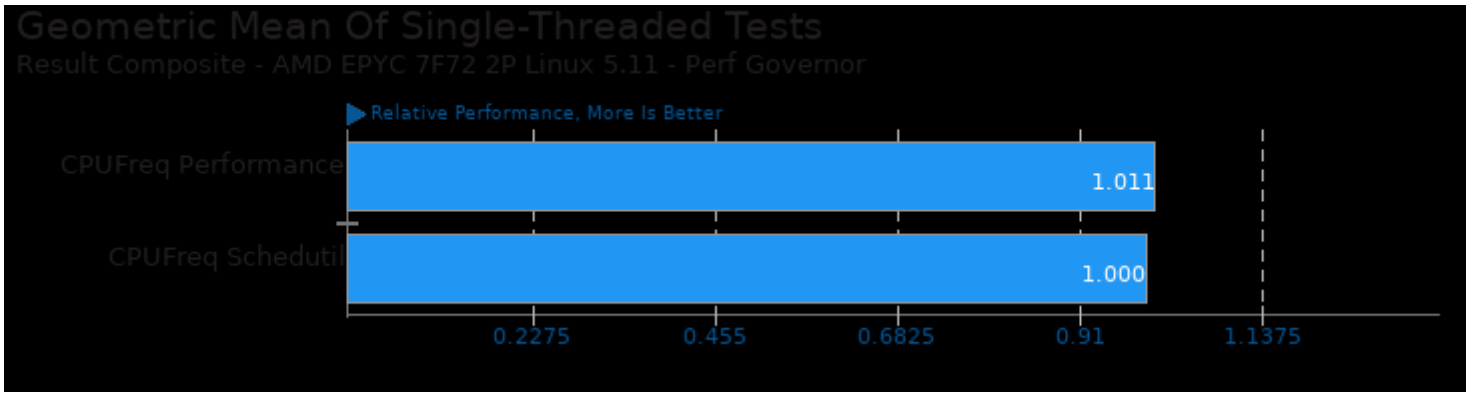


Geometric mean based upon tests: pts/ffte, pts/fftw, pts/neat, pts/amg, pts/namd, pts/gromacs, pts/dolfyn, pts/lammps,

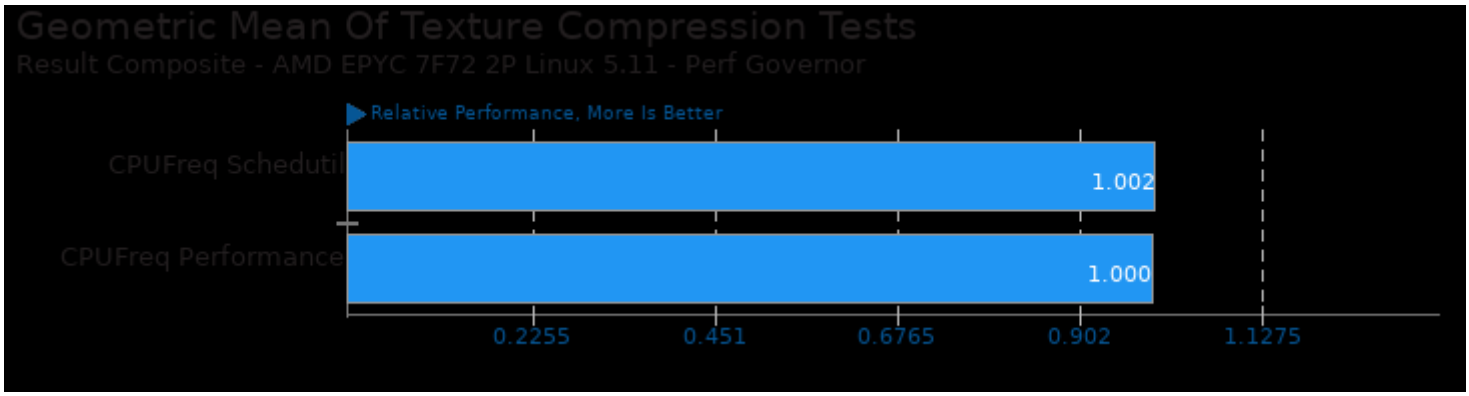
pts/lulesh, pts/openfoam, pts/himeno, pts/mrbayes, pts/qmcpack, pts/gpaw and pts/qe



Geometric mean based upon tests: pts/blogbench, pts/redis, pts/keydb, pts/simdjson, pts/sqlite-speedtest and pts/influxdb

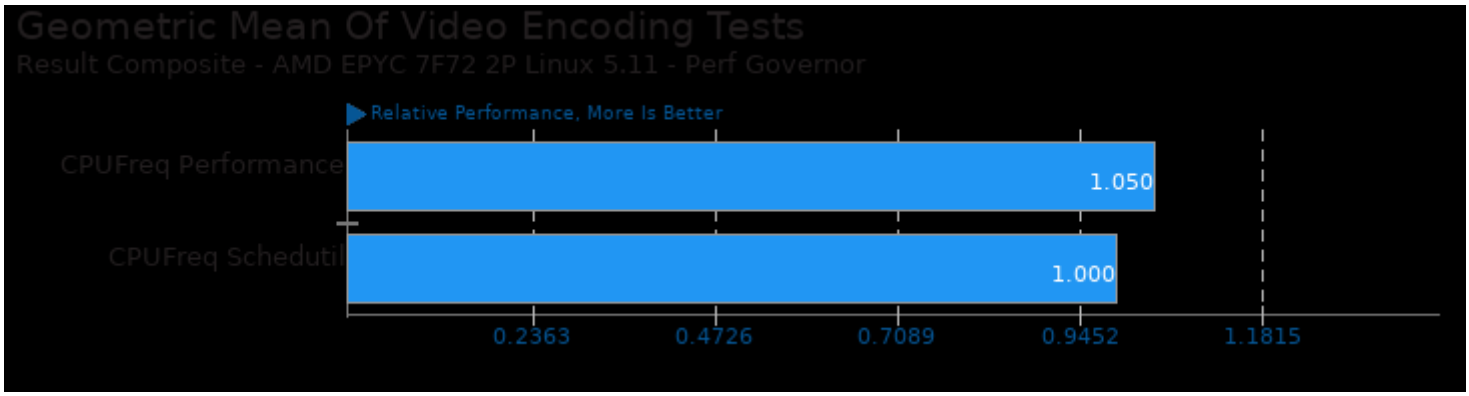


Geometric mean based upon tests: pts/byte, pts/swet, pts/numpy, pts/gnupg, pts/redis and pts/hint

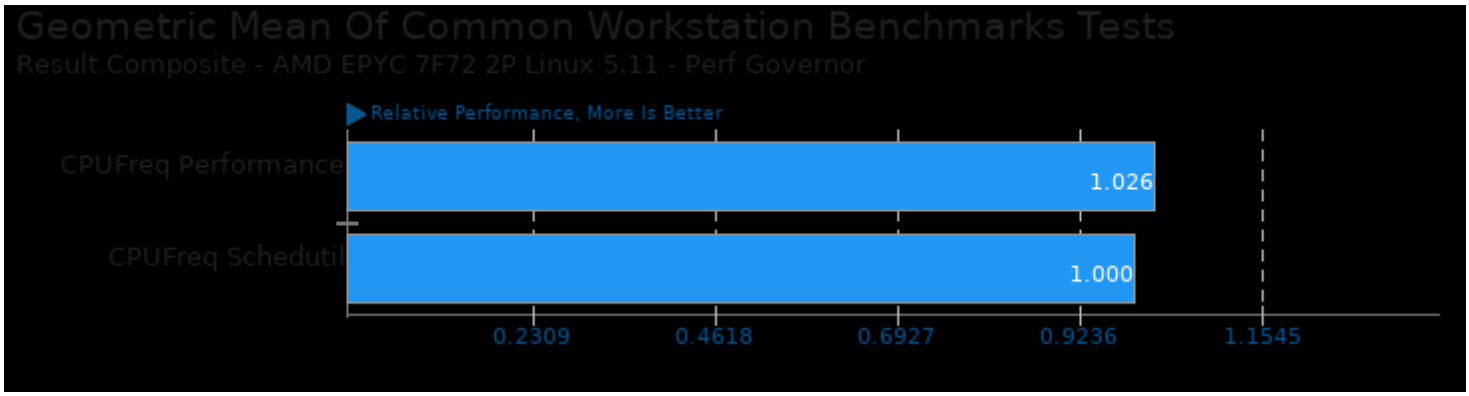


Geometric mean based upon tests: pts/astcenc and pts/etcpak

AMD EPYC 7F72 2P Linux 5.11 - Perf Governor



Geometric mean based upon tests: pts/svt-vp9, pts/x265, pts/dav1d, pts/svt-av1 and pts/rav1e



Geometric mean based upon tests: pts/blender, pts/rodinia, pts/himeno, pts/brl-cad, pts/x265 and pts/swet

This file was automatically generated via the Phoronix Test Suite benchmarking software on Friday, 29 March 2024 10:06.