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Core i7 4960X Linux 2

Intel Core i7-4960X testing with a MSI X79MA-GD45 (MS-7738) v1.0 (V3.8 BIOS) and AMD FirePro V4800 1GB on Ubuntu 18.04 via the Phoronix Test Suite.

Automated Executive Summary

No Mitigations had the most wins, coming in first place for 70% of the tests.

Based on the geometric mean of all complete results, the fastest (No Mitigations) was 1.086x the speed of the slowest (MDS Mitigations + No HT). MDS Mitigations was 0.996x the speed of No Mitigations, Default Mitigations was 0.952x the speed of MDS Mitigations, MDS Mitigations + No HT was 0.971x the speed of Default Mitigations.

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

Selenium (CPU Power Consumption Monitor) at 11.681x
Selenium (CPU Power Consumption Monitor) at 11.268x
Go Benchmarks (CPU Power Consumption Monitor) at 8.247x
Timed LLVM Compilation (CPU Power Consumption Monitor) at 8.032x
Stockfish (CPU Power Consumption Monitor) at 7.97x
Chaos Group V-RAY (CPU Power Consumption Monitor) at 7.921x
Blender (CPU Power Consumption Monitor) at 7.783x
Go Benchmarks (CPU Power Consumption Monitor) at 7.654x

x264 (CPU Power Consumption Monitor) at 7.642x
IndigoBench (CPU Power Consumption Monitor) at 7.409x.

Test Systems:

No Mitigations

Default Mitigations

MDS Mitigations

Processor: Intel Core i7-4960X @ 4.00GHz (6 Cores / 12 Threads), Motherboard: MSI X79MA-GD45 (MS-7738) v1.0 (V3.8 BIOS), Chipset: Intel Xeon E7 v2/Xeon, Memory: 8192MB, Disk: VisionTek 240GB, Graphics: AMD FirePro V4800 1GB, Audio: Realtek ALC892, Monitor: VA2431, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 18.04, Kernel: 4.18.0-20-generic (x86_64), Desktop: GNOME Shell 3.28.3, Display Server: X Server 1.20.1, Display Driver: modesetting 1.20.1, OpenGL: 3.3 Mesa 18.2.8 (LLVM 7.0.0), Compiler: GCC 7.4.0, File-System: ext4, Screen Resolution: 1920x1080

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++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --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 --with-tune=generic --without-cuda-driver -v
Disk Notes: CFQ / errors=remount-ro,relatime,rw
Processor Notes: Scaling Governor: intel_pstate powersave
Python Notes: Python 2.7.15rc1 + Python 3.6.7
Security Notes: l1tf: Mitigation of PTE Inversion + mds: Mitigation of Clear buffers; SMT vulnerable + meltdown: Vulnerable + spec_store_bypass: Vulnerable + spectre_v1: Mitigation of __user pointer sanitization + spectre_v2: Vulnerable IBPB: disabled STIBP: disabled

MDS Mitigations + No HT

Processor: Intel Core i7-4960X @ 4.00GHz (6 Cores), Motherboard: MSI X79MA-GD45 (MS-7738) v1.0 (V3.8 BIOS), Chipset: Intel Xeon E7 v2/Xeon, Memory: 8192MB, Disk: VisionTek 240GB, Graphics: AMD FirePro V4800 1GB, Audio: Realtek ALC892, Monitor: VA2431, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 18.04, Kernel: 4.18.0-21-generic (x86_64), Desktop: GNOME Shell 3.28.3, Display Server: X Server 1.20.1, Display Driver: modesetting 1.20.1, OpenGL: 3.3 Mesa 18.2.8 (LLVM 7.0.0), Compiler: GCC 7.4.0, File-System: ext4, Screen Resolution: 1920x1080

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Disk Notes: CFQ / errors=remount-ro,relatime,rw
Processor Notes: Scaling Governor: intel_pstate powersave
Python Notes: Python 2.7.15rc1 + Python 3.6.7
Security Notes: l1tf: Mitigation of PTE Inversion + mds: Mitigation of Clear buffers; SMT disabled + meltdown: Vulnerable + spec_store_bypass: Vulnerable + spectre_v1: Mitigation of __user pointer sanitization + spectre_v2: Vulnerable IBPB: disabled STIBP: disabled

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	No Mitigations	Default Mitigations	MDS Mitigations	MDS Mitigations + No HT
Blender - BMW27 - CPU-Only (sec)	407	406	407	537
Normalized	99.75%	100%	99.75%	75.61%
Standard Deviation	0.2%	0.3%	0.8%	0%
Selenium - ARES-6 - Google Chrome (ms)	26.89	32.70	27.22	27.29
Normalized	100%	82.23%	98.79%	98.53%
Standard Deviation	0.4%	0.8%	0.7%	0.2%
Selenium - Basemark - Google Chrome (Overall Score)	504	464	504	514
Normalized	98.05%	90.27%	98.05%	100%
Standard Deviation	4.6%	5.5%	5.5%	3%
Selenium - Speedometer - Google Chrome (Runs/min)	77.79	69.70	77.52	77.87
Normalized	99.9%	89.51%	99.55%	100%
Standard Deviation	0.3%	0.9%	0.8%	0.8%
Selenium - WebXPRT - Google Chrome (Score)	204	179	203	201
Normalized	100%	87.75%	99.51%	98.53%
Standard Deviation				0.7%
Selenium - Octane - Google Chrome (Geometric Mean)	36984	30248	36762	36194
Normalized	100%	81.79%	99.4%	97.86%
Standard Deviation	0.5%	0.5%	0.3%	0.8%
Selenium - Jetstream - Google Chrome (Score)	178	147	177	175
Normalized	100%	82.58%	99.44%	98.31%
Standard Deviation	1%	0.3%	0.2%	1%
Selenium - Jetstream 2 - Google Chrome (Score)	103.62	87.94	103.63	99.79
Normalized	99.99%	84.86%	100%	96.29%
Standard Deviation	0.5%	0.4%	0.3%	0.6%
Go Benchmarks - build (ns/op)	19052584533	20324187878	19458391602	19037709479
Normalized	99.92%	93.67%	97.84%	100%
Standard Deviation	1.1%	1%	1%	1%
Go Benchmarks - json (ns/op)	10528486	10532921	10534687	11407052
Normalized	100%	99.96%	99.94%	92.3%
Standard Deviation	0.2%	0.2%	0.2%	0.2%
Go Benchmarks - garbage (ns/op)	2179291	2196653	2187754	2731818
Normalized	100%	99.21%	99.61%	79.77%
Standard Deviation	0.4%	0.3%	0.3%	0.3%
x264 - H.2.V.E (FPS)	46.14	45.89	46.07	40.22
Normalized	100%	99.46%	99.85%	87.17%
Standard Deviation	1.2%	1.1%	1.1%	1.8%
Timed LLVM Compilation - Time To Compile (sec)	899	914	905	1056
Normalized	100%	98.36%	99.34%	85.13%
Standard Deviation	0.3%	0.5%	0.5%	0.1%
Darktable - Boat - CPU-only (sec)	25.82	25.89	25.85	22.46
Normalized	86.99%	86.75%	86.89%	100%
Standard Deviation	0.1%	0.1%	0.1%	0.1%
Darktable - Masskrug - CPU-only (sec)	10.25	10.43	10.33	11.32
Normalized	100%	98.27%	99.23%	90.55%

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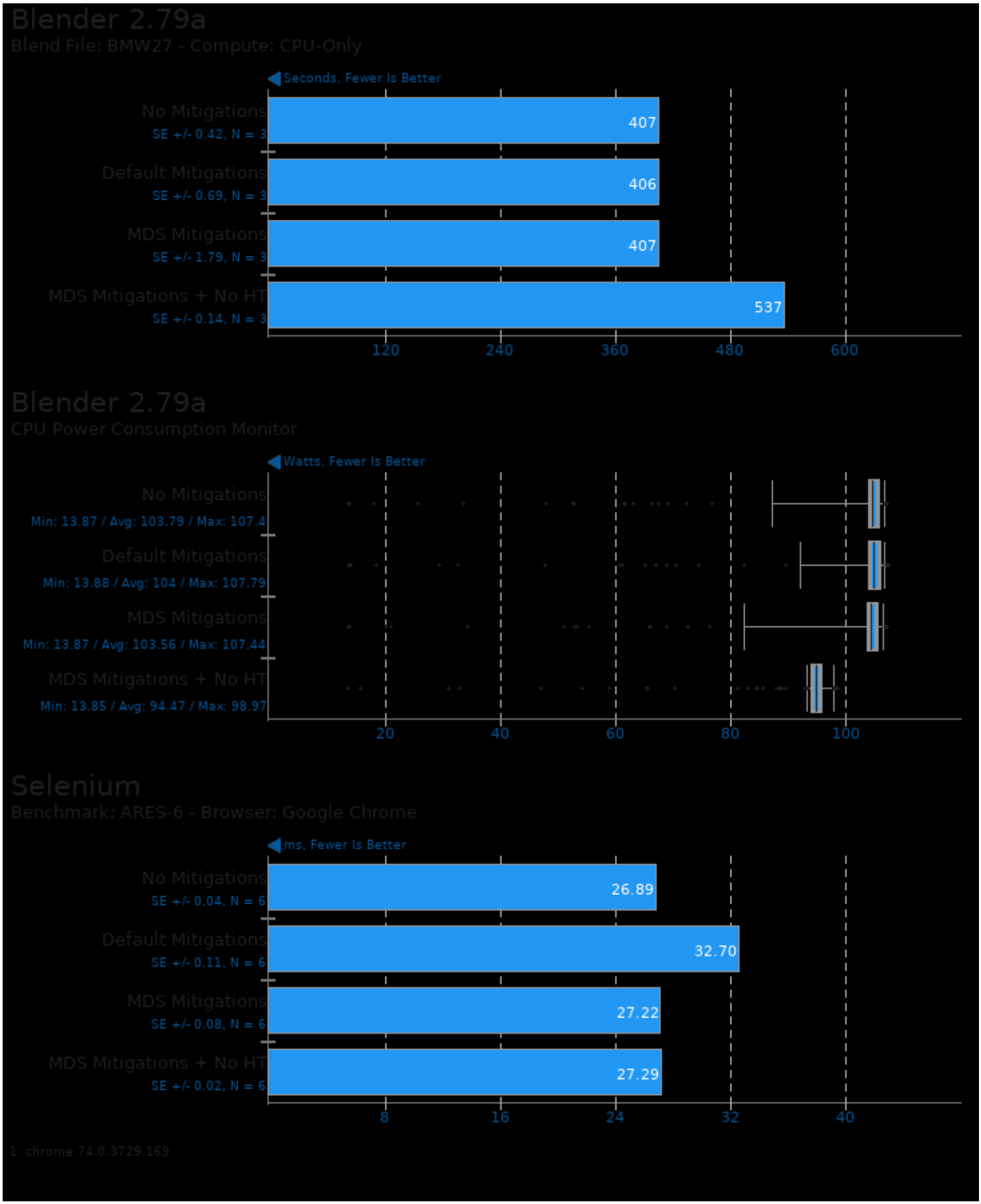
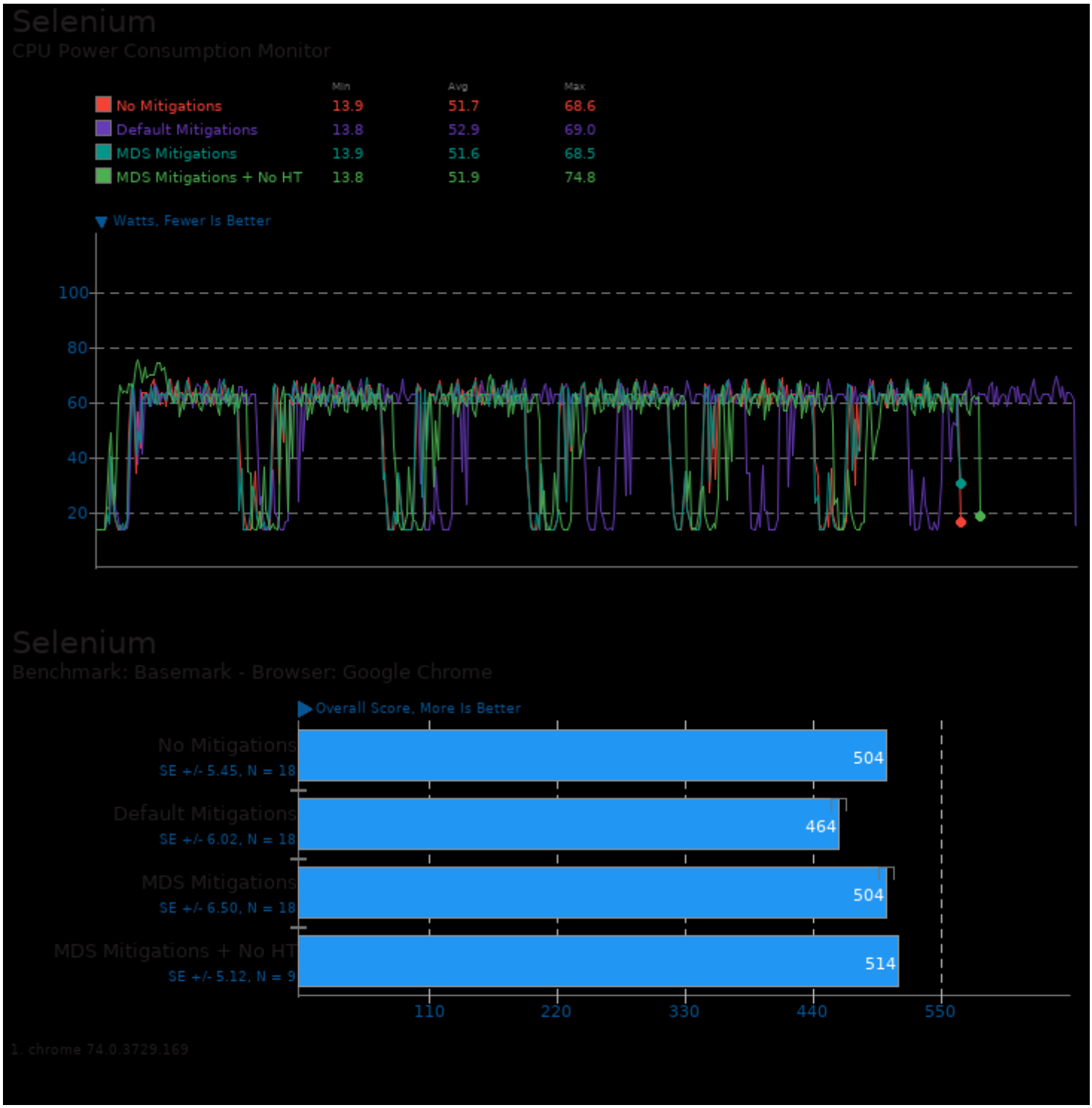
Standard Deviation	0.1%	0.1%	0.1%	0.6%
Darktable - Server Room - CPU-only (sec)	9.20	9.27	9.23	9.64
Normalized	100%	99.24%	99.67%	95.44%
Standard Deviation	0.2%	0.3%	0.3%	0.1%
Darktable - Server Rack - CPU-only (sec)	0.32	0.33	0.32	0.32
Normalized	100%	96.97%	100%	100%
Standard Deviation	0.2%	1%	0.3%	0.4%
IndigoBench - Supercar (M samples/s)	1.55	1.54	1.55	1.15
Normalized	100%	99.35%	100%	74.19%
Standard Deviation	0.7%	0.3%	0.9%	0.4%
IndigoBench - Bedroom (M samples/s)	0.71	0.71	0.71	0.51
Normalized	100%	100%	100%	71.83%
Standard Deviation	0.2%	0.4%	0.6%	0.2%
XZ Compression - C.u.1.0.3.s.i.i.C.L.9 (sec)	49.20	49.30	49.22	59.71
Normalized	100%	99.8%	99.96%	82.4%
Standard Deviation	0.2%	0.3%	0.3%	0.5%
Zstd Compression - C.u.1.0.3.s.i.i.C.L.1 (sec)	37.20	37.26	37.26	37.70
Normalized	100%	99.84%	99.84%	98.67%
Standard Deviation	0.1%	0.1%	0.2%	0.1%
Stockfish - Total Time (Nodes/s)	14456352	14353931	14521789	11702383
Normalized	99.55%	98.84%	100%	80.58%
Standard Deviation	1.3%	1.1%	0.7%	1.2%
Scikit-Learn (sec)	15.60	15.75	15.66	15.03
Normalized	96.35%	95.43%	95.98%	100%
Standard Deviation	0.8%	0.8%	1.3%	1.1%
PHPBench - P.B.S (Score)	446994	435319	441784	444162
Normalized	100%	97.39%	98.83%	99.37%
Standard Deviation	0.2%	0.3%	0.7%	0.3%
Dbench - 6 (MB/s)	574	558	568	
Normalized	100%	97.21%	98.95%	
Standard Deviation	0.7%	0.5%	1%	
GraphicsMagick - Enhanced (Iterations/min)	108	107	108	
Normalized	100%	99.07%	100%	
GraphicsMagick - Resizing (Iterations/min)	211	209	210	
Normalized	100%	99.05%	99.53%	
Standard Deviation	0.2%		0.2%	
GraphicsMagick - Sharpen (Iterations/min)	102	102	102	
Himeno Benchmark - P.P.S (MFLOPS)	1717	1714	1713	
Normalized	100%	99.83%	99.77%	
Standard Deviation	0.7%	0.9%	0.5%	
PyBench - T.F.A.T.T (Milliseconds)	1368	1367	1367	
Normalized	99.93%	100%	100%	
Standard Deviation		0.2%	0.3%	
Chaos Group V-RAY - CPU	5975	5912	5924	
Normalized	100%	98.95%	99.15%	
Standard Deviation	0.4%	0.9%	0.2%	


Blender 2.79a
Blend File: BMW27 - Compute: CPU-Only
Seconds, Fewer Is Better
No Mitigations
SE +/- 0.42, N = 3
407
Default Mitigations
SE +/- 0.69, N = 3
406
MDS Mitigations
SE +/- 1.79, N = 3
407
MDS Mitigations + No HT
SE +/- 0.14, N = 3
537
120
240
360
480
600
Blender 2.79a
CPU Power Consumption Monitor
Watts, Fewer Is Better
No Mitigations
Min: 13.87 / Avg: 103.79 / Max: 107.4
Default Mitigations
Min: 13.88 / Avg: 104 / Max: 107.79
MDS Mitigations
Min: 13.87 / Avg: 103.56 / Max: 107.44
MDS Mitigations + No HT
Min: 13.85 / Avg: 94.47 / Max: 98.97
20
40
60
80
100
Selenium
Benchmark: ARES-6 - Browser: Google Chrome
ms, Fewer Is Better
No Mitigations
SE +/- 0.04, N = 6
26.89
Default Mitigations
SE +/- 0.11, N = 6
32.70
MDS Mitigations
SE +/- 0.08, N = 6
27.22
MDS Mitigations + No HT
SE +/- 0.02, N = 6
27.29
8
16
24
32
40
1. chrome 74.0.3729.169


Selenium
CPU Power Consumption Monitor
Min
Avg
Max
No Mitigations 13.9 51.7 68.6
Default Mitigations 13.8 52.9 69.0
MDS Mitigations 13.9 51.6 68.5
MDS Mitigations + No HT 13.8 51.9 74.8
Watts, Fewer Is Better
100
80
60
40
20
Selenium
Benchmark: Basemark - Browser: Google Chrome
Overall Score, More Is Better
No Mitigations
SE +/- 5.45, N = 18
504
Default Mitigations
SE +/- 6.02, N = 18
464
MDS Mitigations
SE +/- 6.50, N = 18
504
MDS Mitigations + No HT
SE +/- 5.12, N = 9
514
110
220
330
440
550
1: chrome 74.0.3729.169

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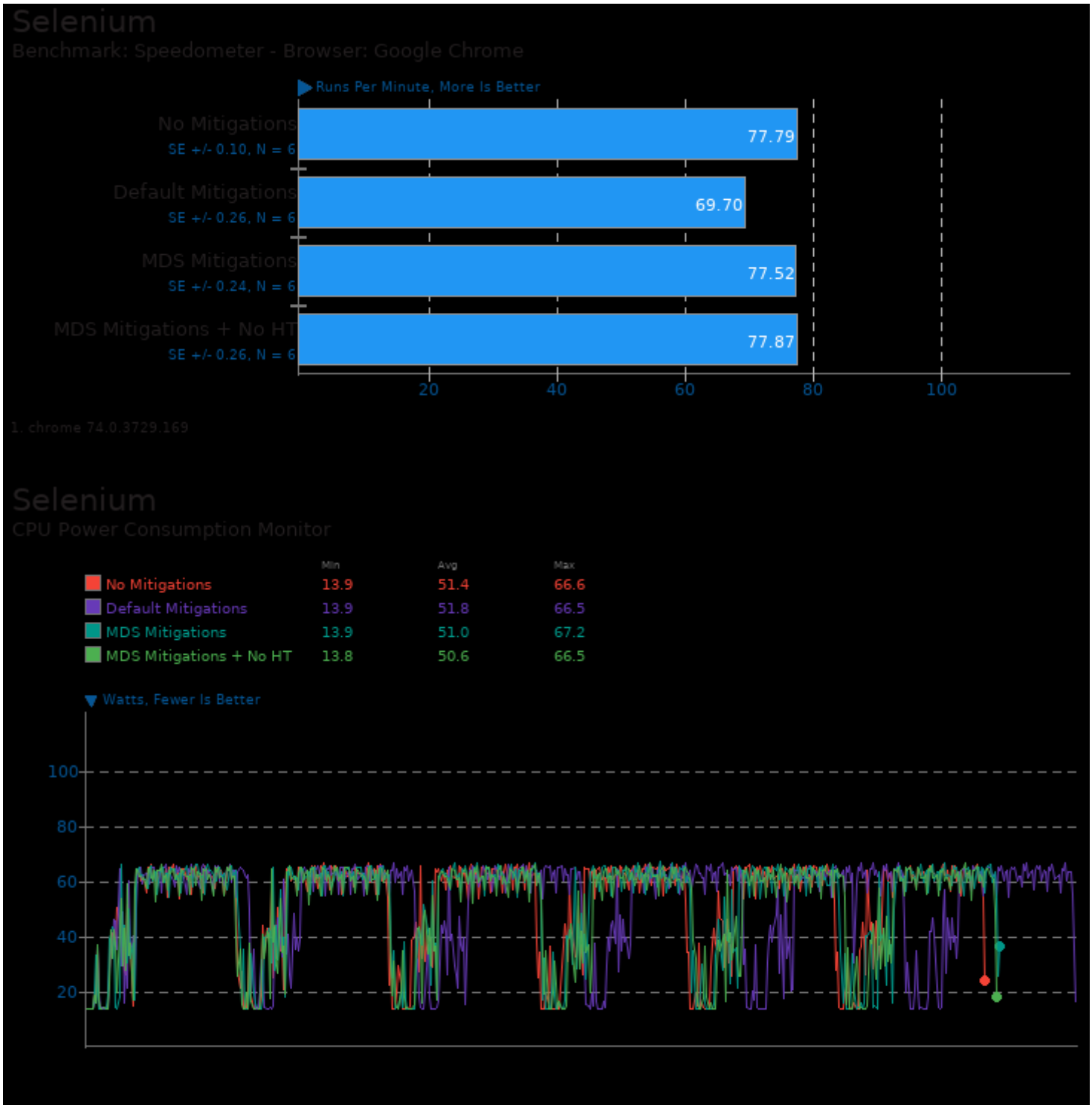
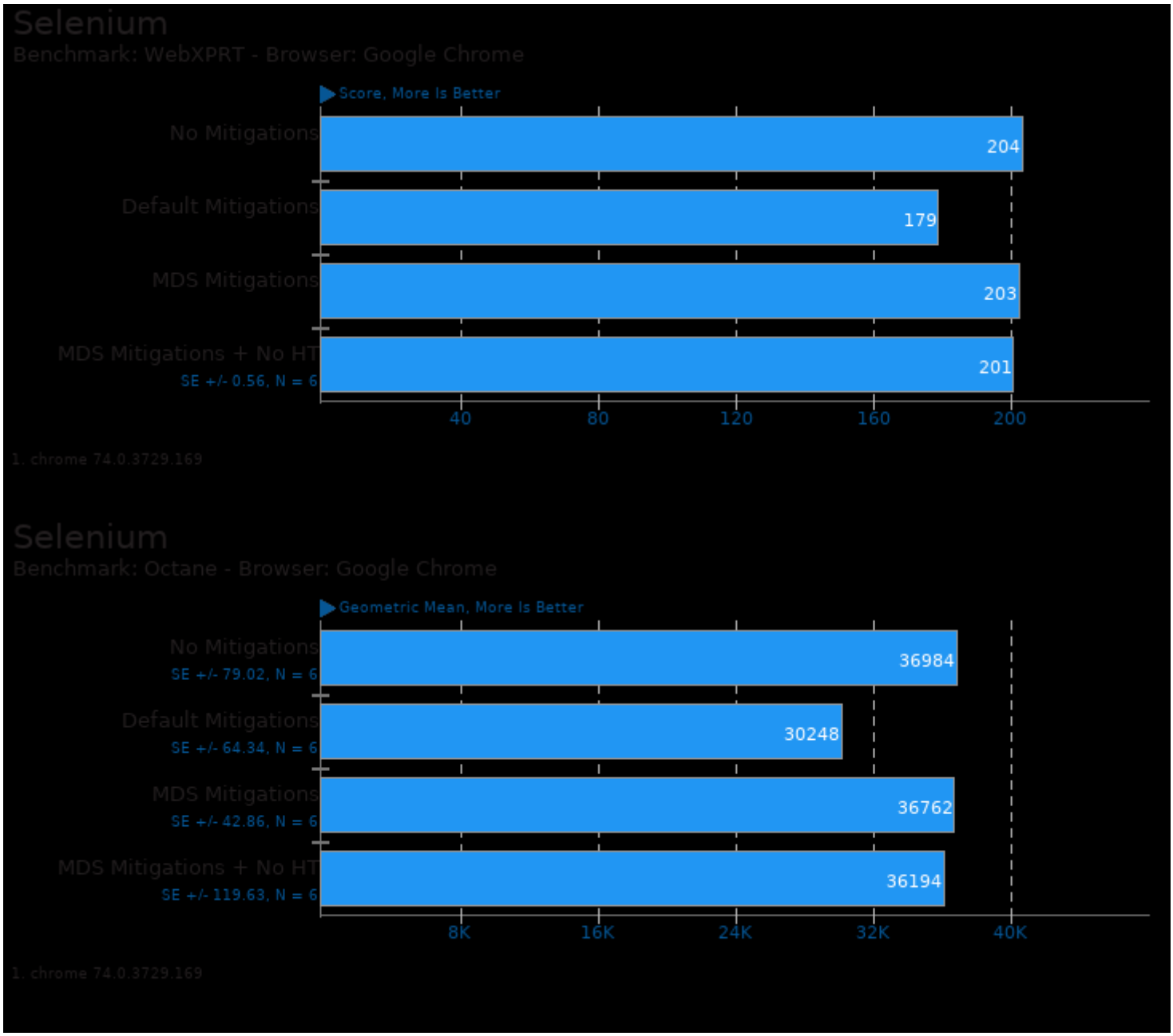
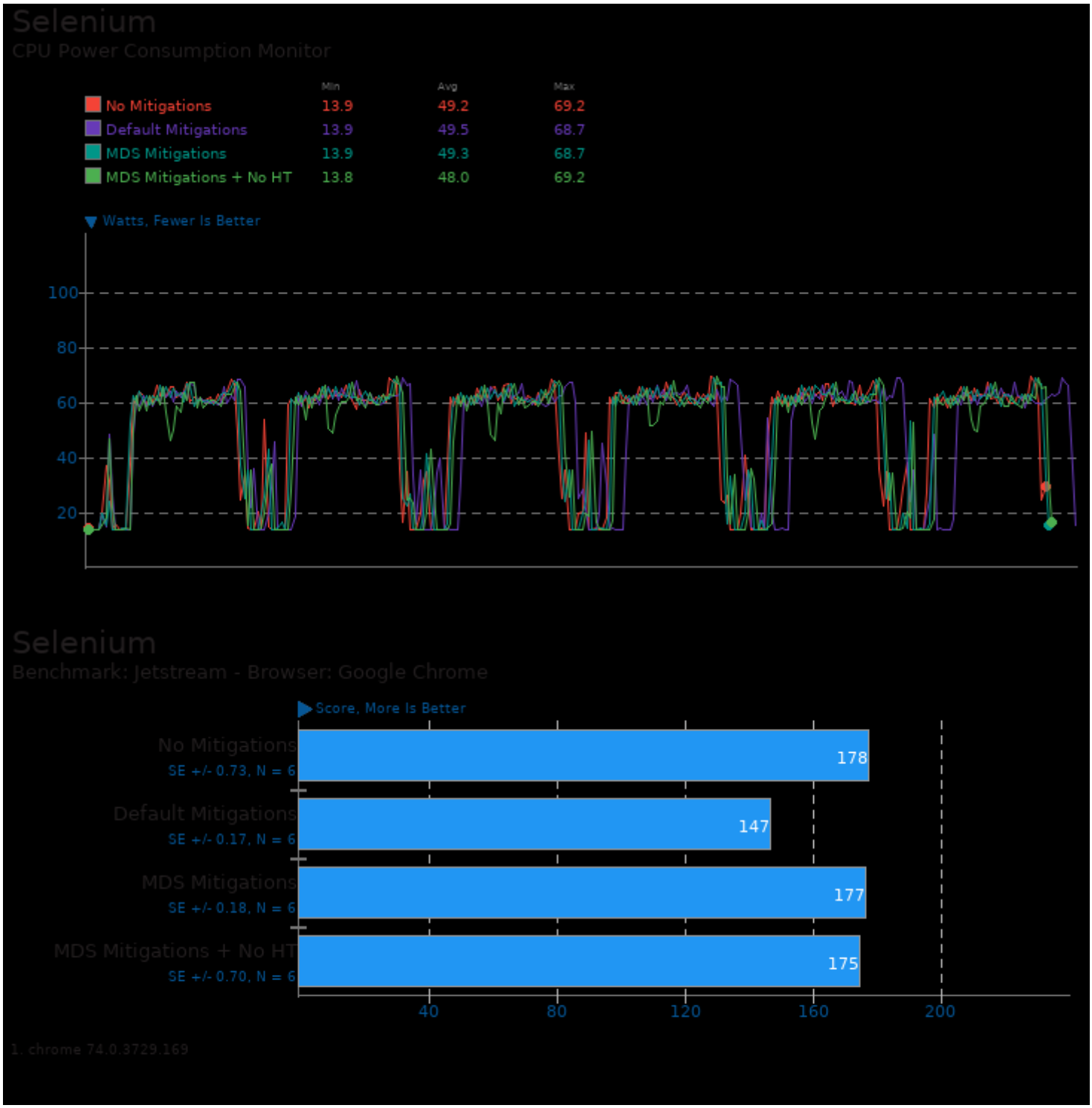
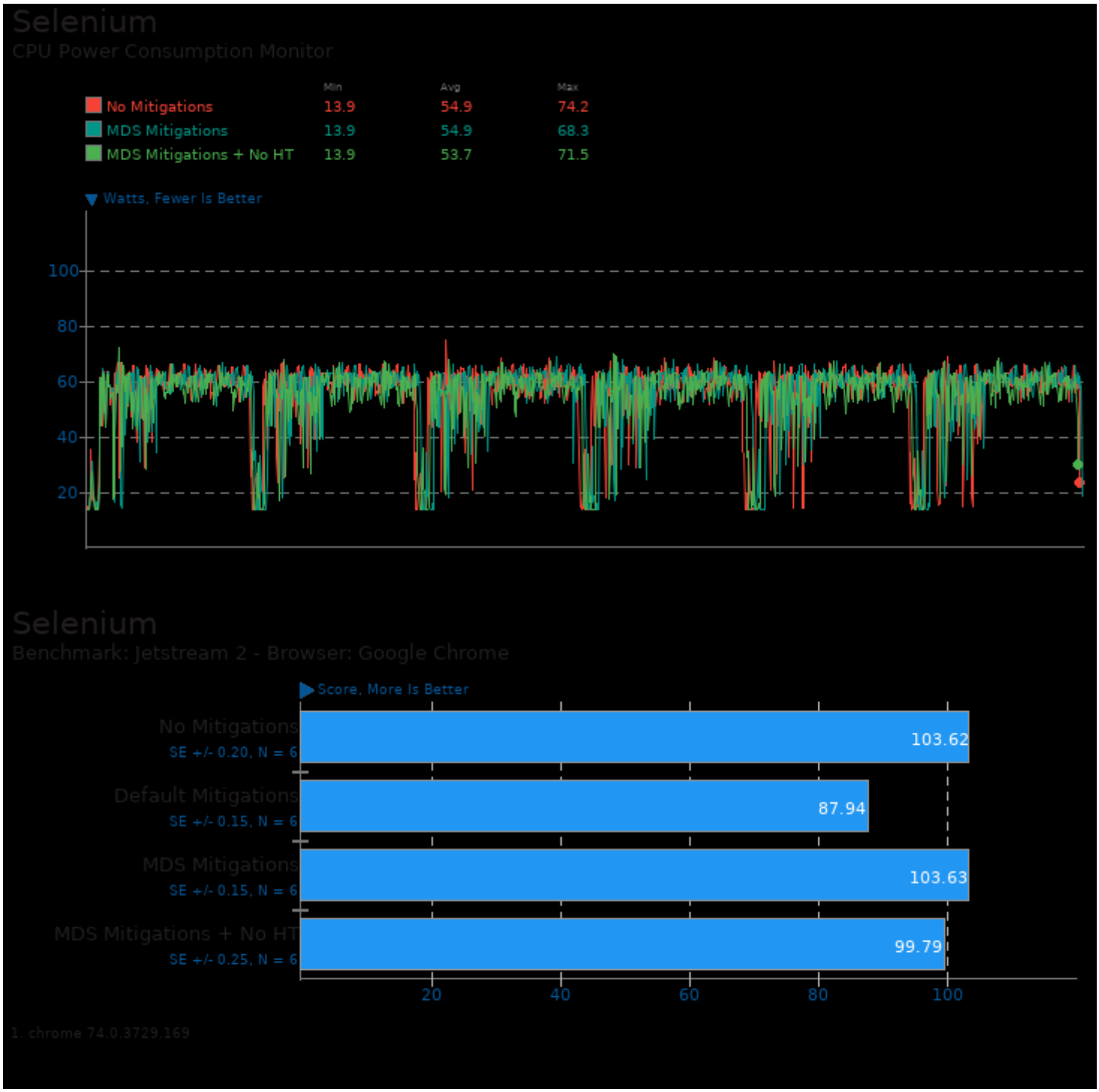
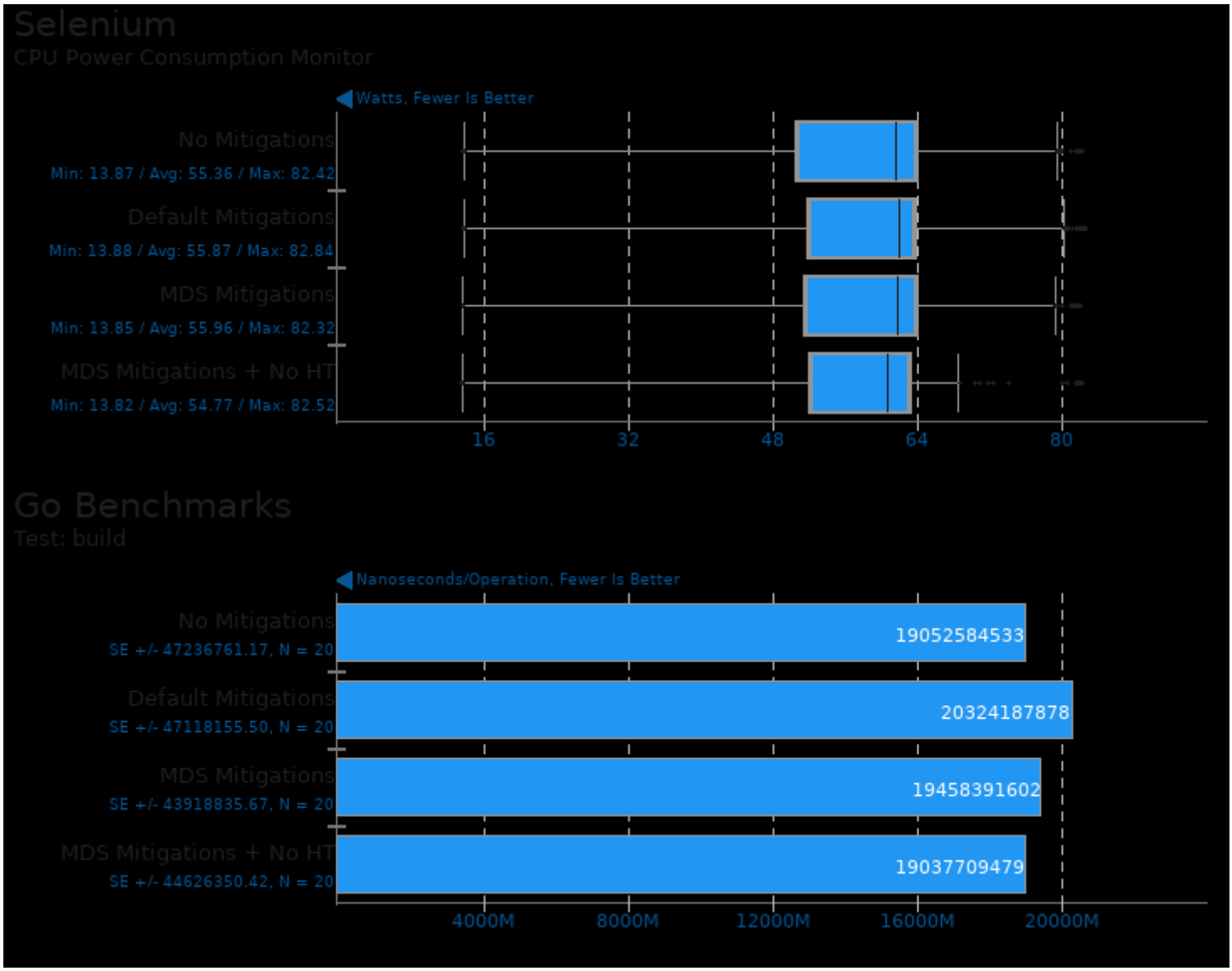
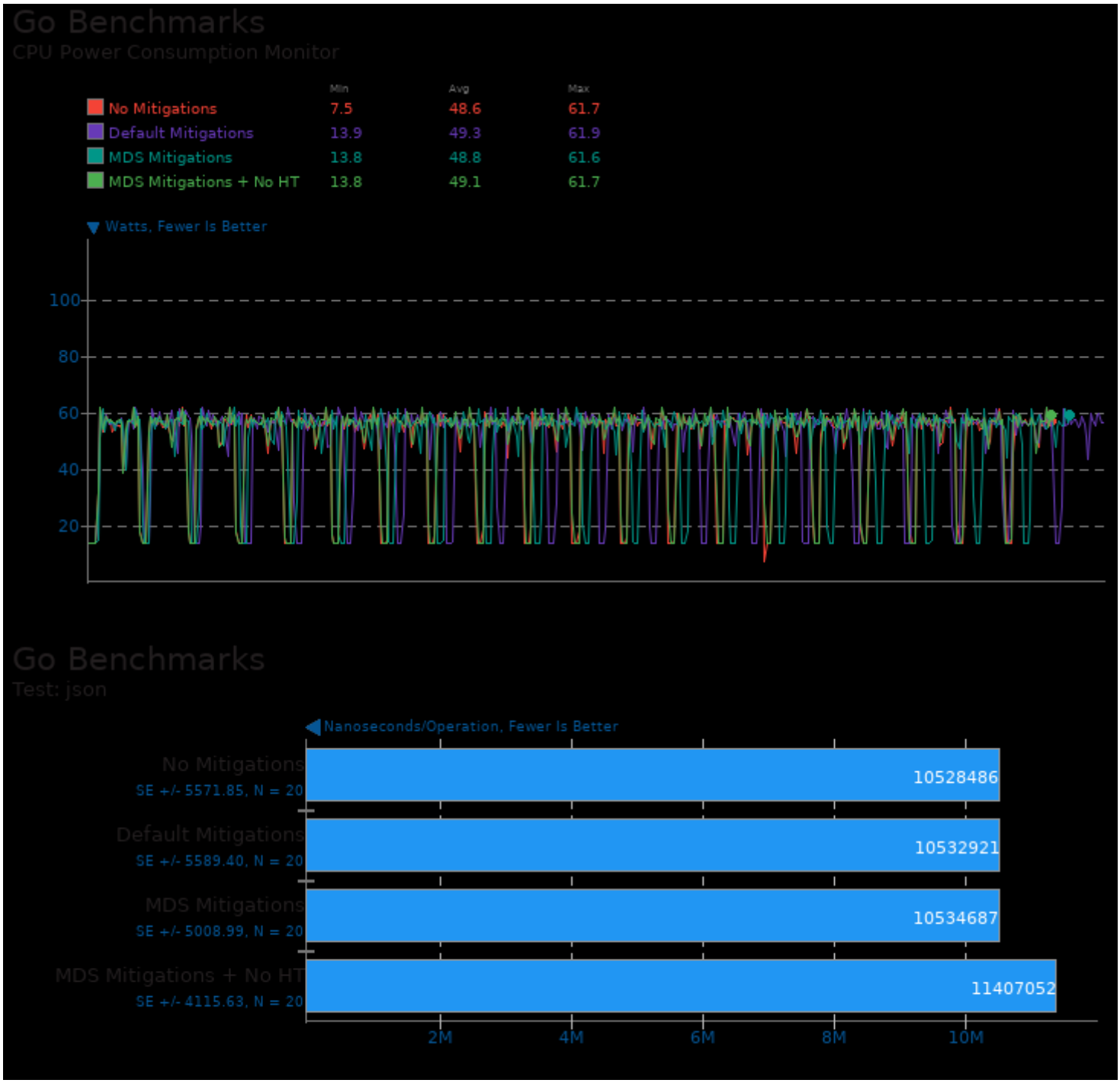


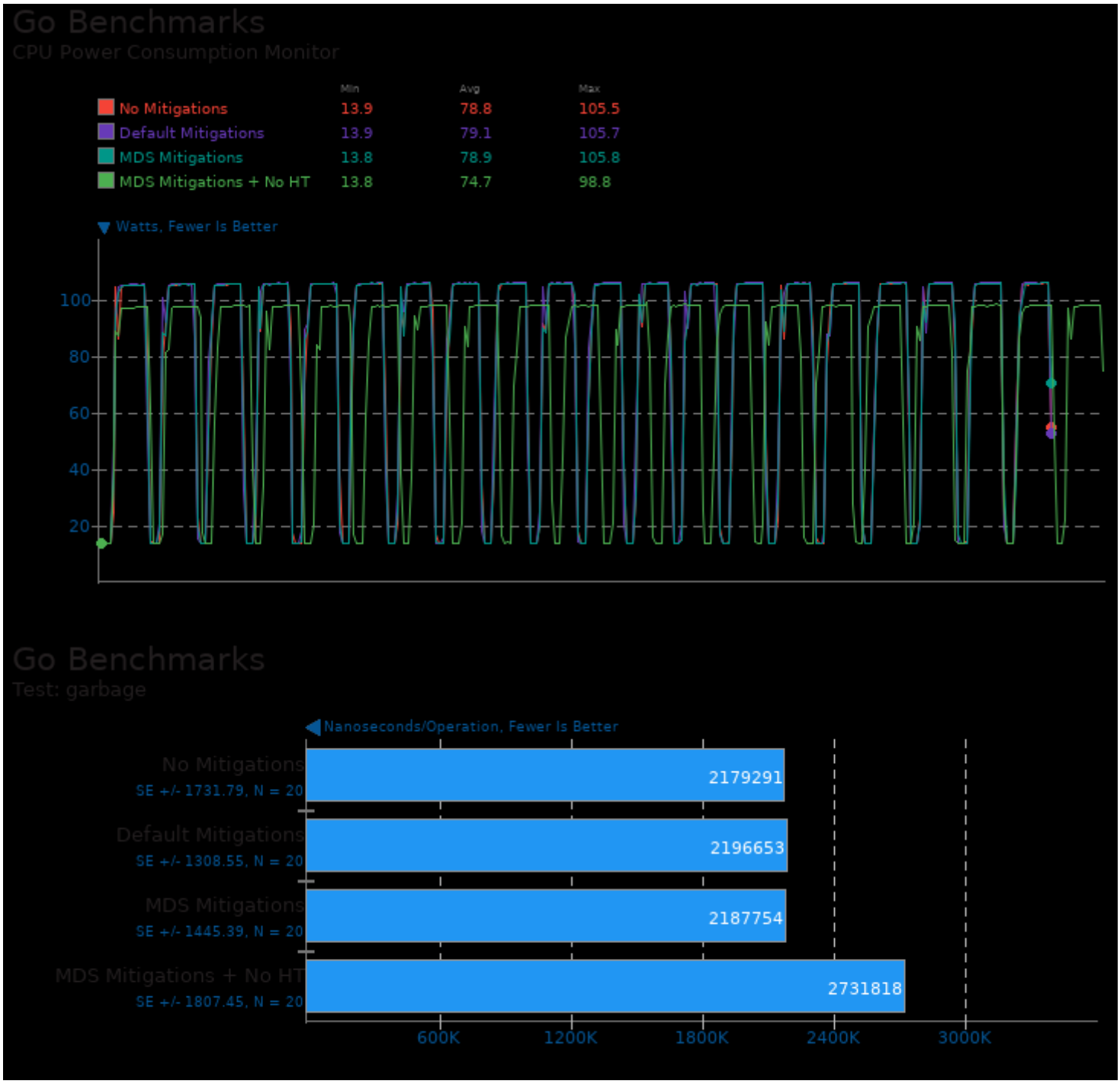

Selenium
Benchmark: WebXPRT - Browser: Google Chrome
Score, More Is Better
No Mitigations
204
Default Mitigations
179
MDS Mitigations
203
MDS Mitigations + No HT
201
SE +/- 0.56, N = 6
40
80
120
160
200
1. chrome 74.0.3729.169
Selenium
Benchmark: Octane - Browser: Google Chrome
Geometric Mean, More Is Better
No Mitigations
SE +/- 79.02, N = 6
36984
Default Mitigations
SE +/- 64.34, N = 6
30248
MDS Mitigations
SE +/- 42.86, N = 6
36762
MDS Mitigations + No HT
SE +/- 119.63, N = 6
36194
8K
16K
24K
32K
40K
1. chrome 74.0.3729.169

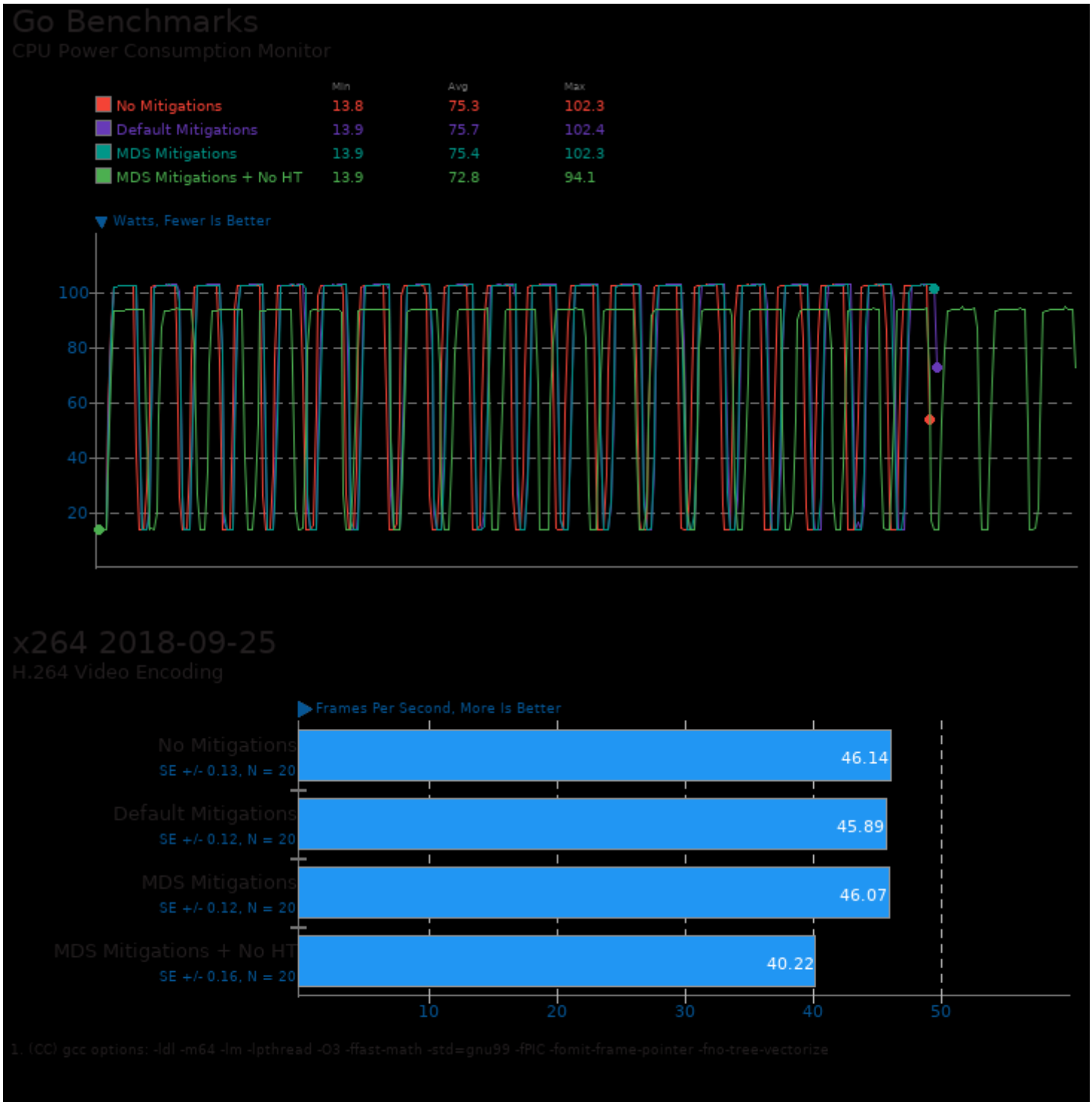

Selenium
CPU Power Consumption Monitor
Min
Avg
Max
No Mitigations 13.9 49.2 69.2
Default Mitigations 13.9 49.5 68.7
MDS Mitigations 13.9 49.3 68.7
MDS Mitigations + No HT 13.8 48.0 69.2
Watts, Fewer Is Better
100
80
60
40
20
Selenium
Benchmark: Jetstream - Browser: Google Chrome
Score, More Is Better
No Mitigations
SE +/- 0.73, N = 6
178
Default Mitigations
SE +/- 0.17, N = 6
147
MDS Mitigations
SE +/- 0.18, N = 6
177
MDS Mitigations + No HT
SE +/- 0.70, N = 6
175
40
80
120
160
200
1: chrome 74.0.3729.169

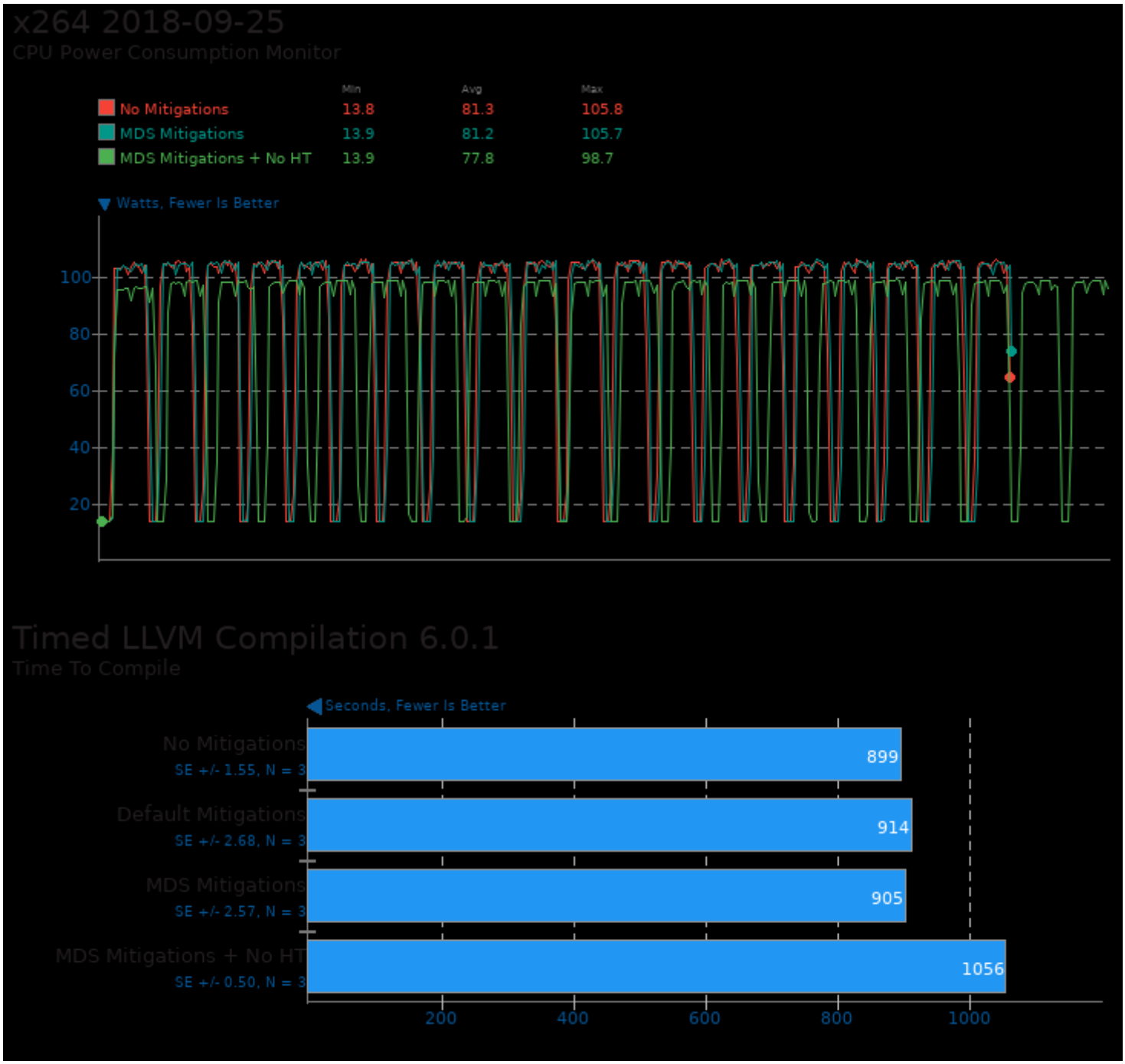

Selenium
CPU Power Consumption Monitor
Min
Avg
Max
No Mitigations 13.9 54.9 74.2
MDS Mitigations 13.9 54.9 68.3
MDS Mitigations + No HT 13.9 53.7 71.5
Watts, Fewer Is Better
100
80
60
40
20
Selenium
Benchmark: Jetstream 2 - Browser: Google Chrome
Score, More Is Better
No Mitigations
SE +/- 0.20, N = 6
103.62
Default Mitigations
SE +/- 0.15, N = 6
87.94
MDS Mitigations
SE +/- 0.15, N = 6
103.63
MDS Mitigations + No HT
SE +/- 0.25, N = 6
99.79
20
40
60
80
100
1. chrome 74.0.3729.169

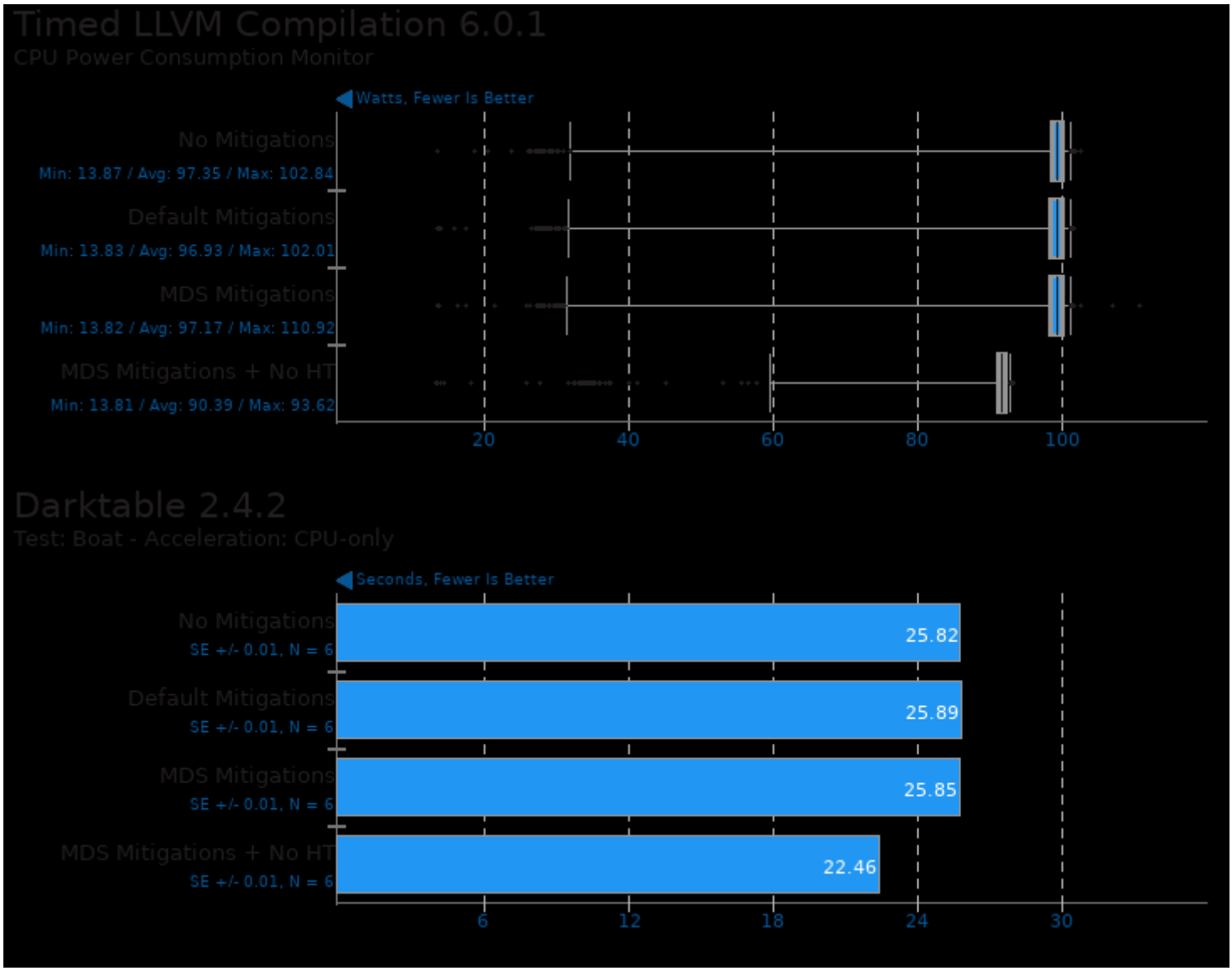

Selenium
CPU Power Consumption Monitor
Watts, Fewer Is Better
No Mitigations
Min: 13.87 / Avg: 55.36 / Max: 82.42
Default Mitigations
Min: 13.88 / Avg: 55.87 / Max: 82.84
MDS Mitigations
Min: 13.85 / Avg: 55.96 / Max: 82.32
MDS Mitigations + No HT
Min: 13.82 / Avg: 54.77 / Max: 82.52
16
32
48
64
80
Go Benchmarks
Test: build
Nanoseconds/Operation, Fewer Is Better
No Mitigations
SE +/- 47236761.17, N = 20
19052584533
Default Mitigations
SE +/- 47118155.50, N = 20
20324187878
MDS Mitigations
SE +/- 43918835.67, N = 20
19458391602
MDS Mitigations + No HT
SE +/- 44626350.42, N = 20
19037709479
4000M
8000M
12000M
16000M
20000M


Go Benchmarks
CPU Power Consumption Monitor
Min
Avg
Max
No Mitigations 7.5 48.6 61.7
Default Mitigations 13.9 49.3 61.9
MDS Mitigations 13.8 48.8 61.6
MDS Mitigations + No HT 13.8 49.1 61.7
Watts, Fewer Is Better
100
80
60
40
20
Go Benchmarks
Test: json
Nanoseconds/Operation, Fewer Is Better
No Mitigations
SE +/- 5571.85, N = 20
10528486
Default Mitigations
SE +/- 5589.40, N = 20
10532921
MDS Mitigations
SE +/- 5008.99, N = 20
10534687
MDS Mitigations + No HT
SE +/- 4115.63, N = 20
11407052
2M
4M
6M
8M
10M

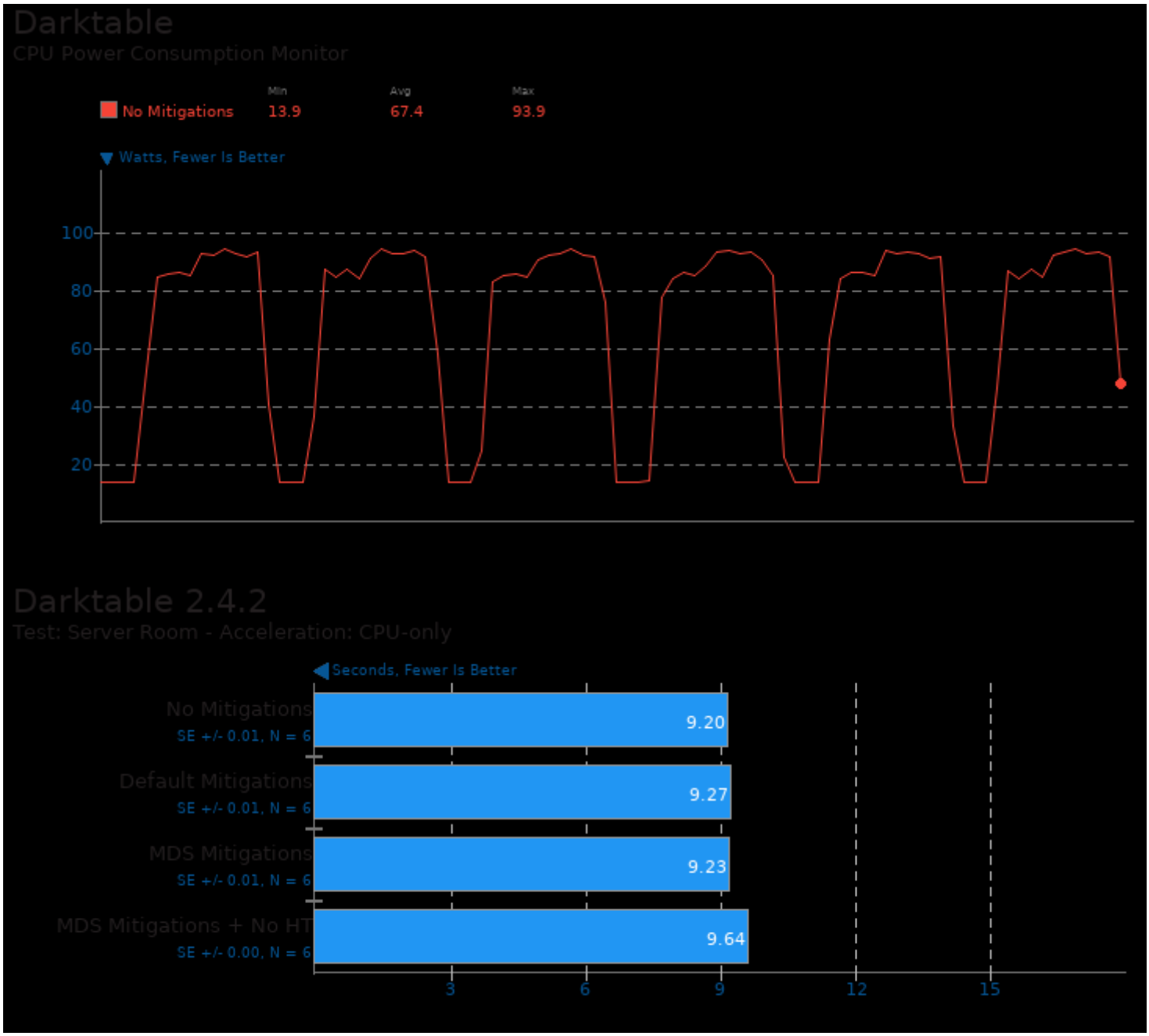

Go Benchmarks
CPU Power Consumption Monitor
Min
Avg
Max
No Mitigations 13.9 78.8 105.5
Default Mitigations 13.9 79.1 105.7
MDS Mitigations 13.8 78.9 105.8
MDS Mitigations + No HT 13.8 74.7 98.8
Watts, Fewer Is Better
100
80
60
40
20
Go Benchmarks
Test: garbage
Nanoseconds/Operation, Fewer Is Better
No Mitigations
SE +/- 1731.79, N = 20
2179291
Default Mitigations
SE +/- 1308.55, N = 20
2196653
MDS Mitigations
SE +/- 1445.39, N = 20
2187754
MDS Mitigations + No HT
SE +/- 1807.45, N = 20
2731818
600K
1200K
1800K
2400K
3000K

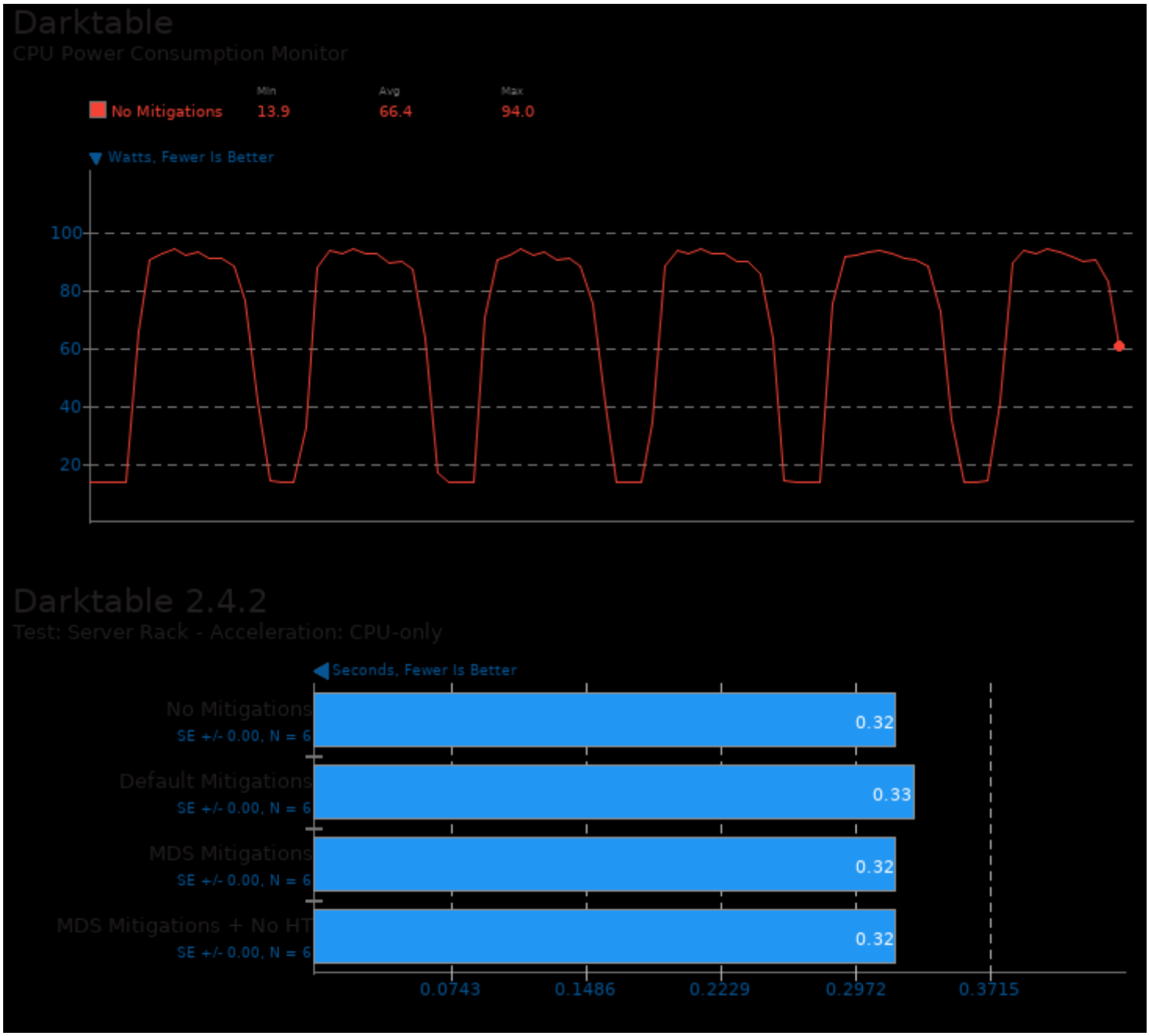

Go Benchmarks
CPU Power Consumption Monitor
Min
Avg
Max
No Mitigations 13.8 75.3 102.3
Default Mitigations 13.9 75.7 102.4
MDS Mitigations 13.9 75.4 102.3
MDS Mitigations + No HT 13.9 72.8 94.1
Watts, Fewer Is Better
100
80
60
40
20
x264 2018-09-25
H.264 Video Encoding
Frames Per Second, More Is Better
No Mitigations
SE +/- 0.13, N = 20
46.14
Default Mitigations
SE +/- 0.12, N = 20
45.89
MDS Mitigations
SE +/- 0.12, N = 20
46.07
MDS Mitigations + No HT
SE +/- 0.16, N = 20
40.22
10
20
30
40
50
1. (CC) gcc options: -ldl -m64 -lm -lpthread -O3 -ffast-math -std=gnu99 -fPIC -fomit-frame-pointer -fno-tree-vectorize

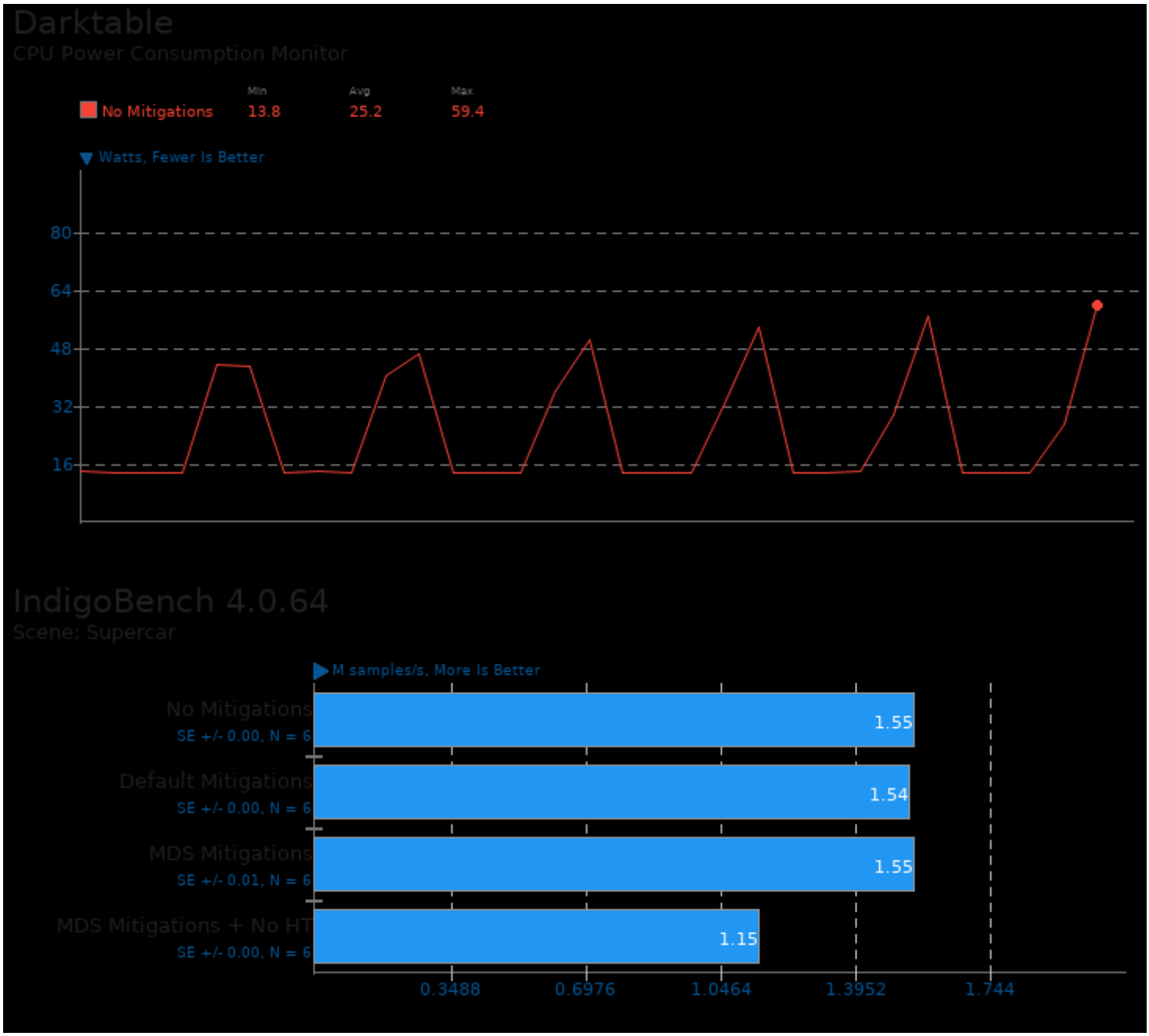

x264 2018-09-25
CPU Power Consumption Monitor
Min
Avg
Max
No Mitigations 13.8 81.3 105.8
MDS Mitigations 13.9 81.2 105.7
MDS Mitigations + No HT 13.9 77.8 98.7
Watts, Fewer Is Better
100
80
60
40
20
Timed LLVM Compilation 6.0.1
Time To Compile
Seconds, Fewer Is Better
No Mitigations
SE +/- 1.55, N = 3
899
Default Mitigations
SE +/- 2.68, N = 3
914
MDS Mitigations
SE +/- 2.57, N = 3
905
MDS Mitigations + No HT
SE +/- 0.50, N = 3
1056
200
400
600
800
1000

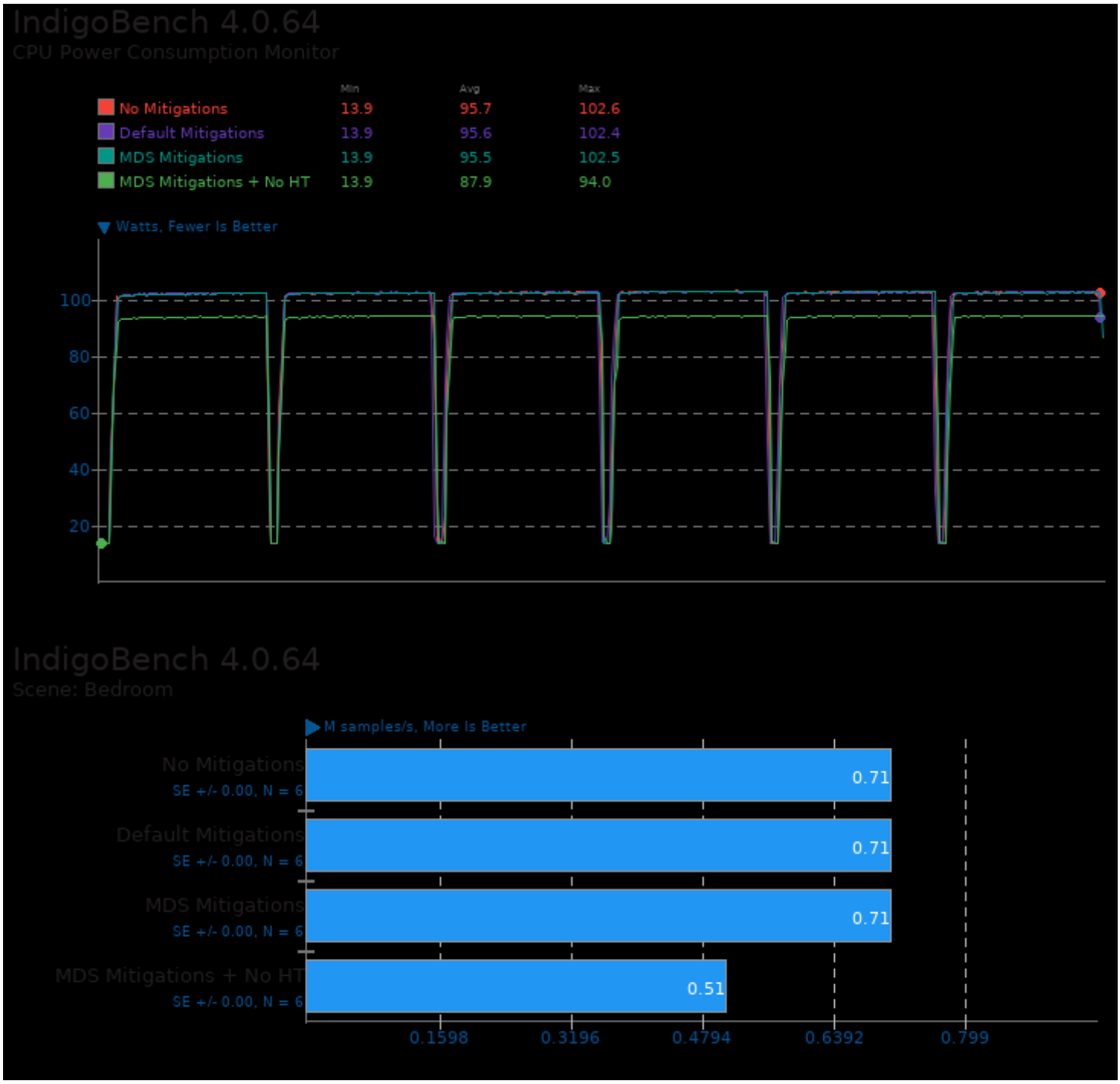

Timed LLVM Compilation 6.0.1
CPU Power Consumption Monitor
Watts, Fewer Is Better
No Mitigations
Min: 13.87 / Avg: 97.35 / Max: 102.84
Default Mitigations
Min: 13.83 / Avg: 96.93 / Max: 102.01
MDS Mitigations
Min: 13.82 / Avg: 97.17 / Max: 110.92
MDS Mitigations + No HT
Min: 13.81 / Avg: 90.39 / Max: 93.62
20
40
60
80
100
Darktable 2.4.2
Test: Boat - Acceleration: CPU-only
Seconds, Fewer Is Better
No Mitigations
SE +/- 0.01, N = 6
25.82
Default Mitigations
SE +/- 0.01, N = 6
25.89
MDS Mitigations
SE +/- 0.01, N = 6
25.85
MDS Mitigations + No HT
SE +/- 0.01, N = 6
22.46
6
12
18
24
30

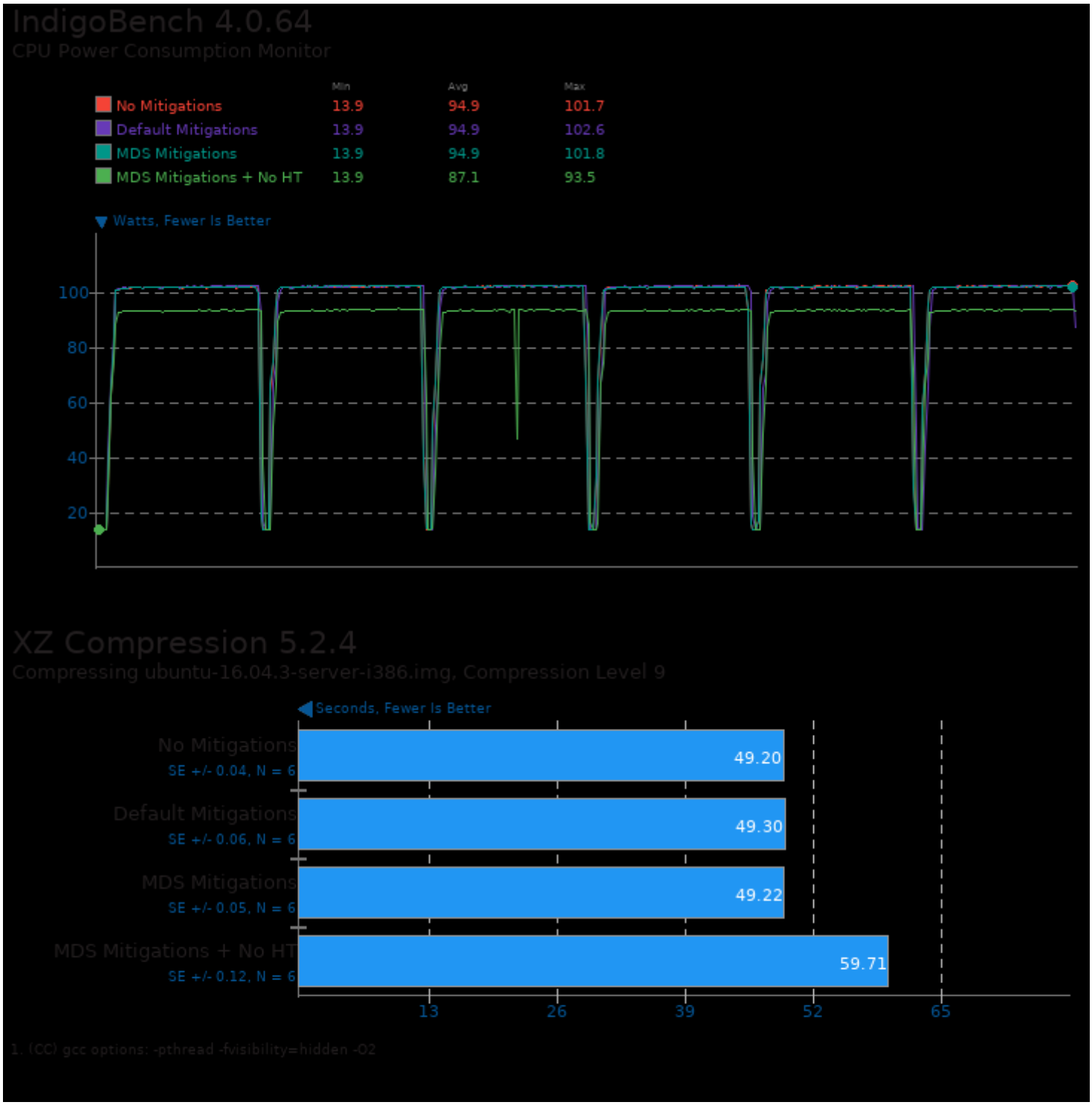

Darktable
CPU Power Consumption Monitor
Min
Avg
Max
No Mitigations
13.9
79.4
93.8
Watts, Fewer Is Better
100
80
60
40
20
Darktable 2.4.2
Test: Masskrug - Acceleration: CPU-only
Seconds, Fewer Is Better
No Mitigations
SE +/- 0.00, N = 6
10.25
Default Mitigations
SE +/- 0.00, N = 6
10.43
MDS Mitigations
SE +/- 0.00, N = 6
10.33
MDS Mitigations + No HT
SE +/- 0.03, N = 6
11.32
3
6
9
12
15

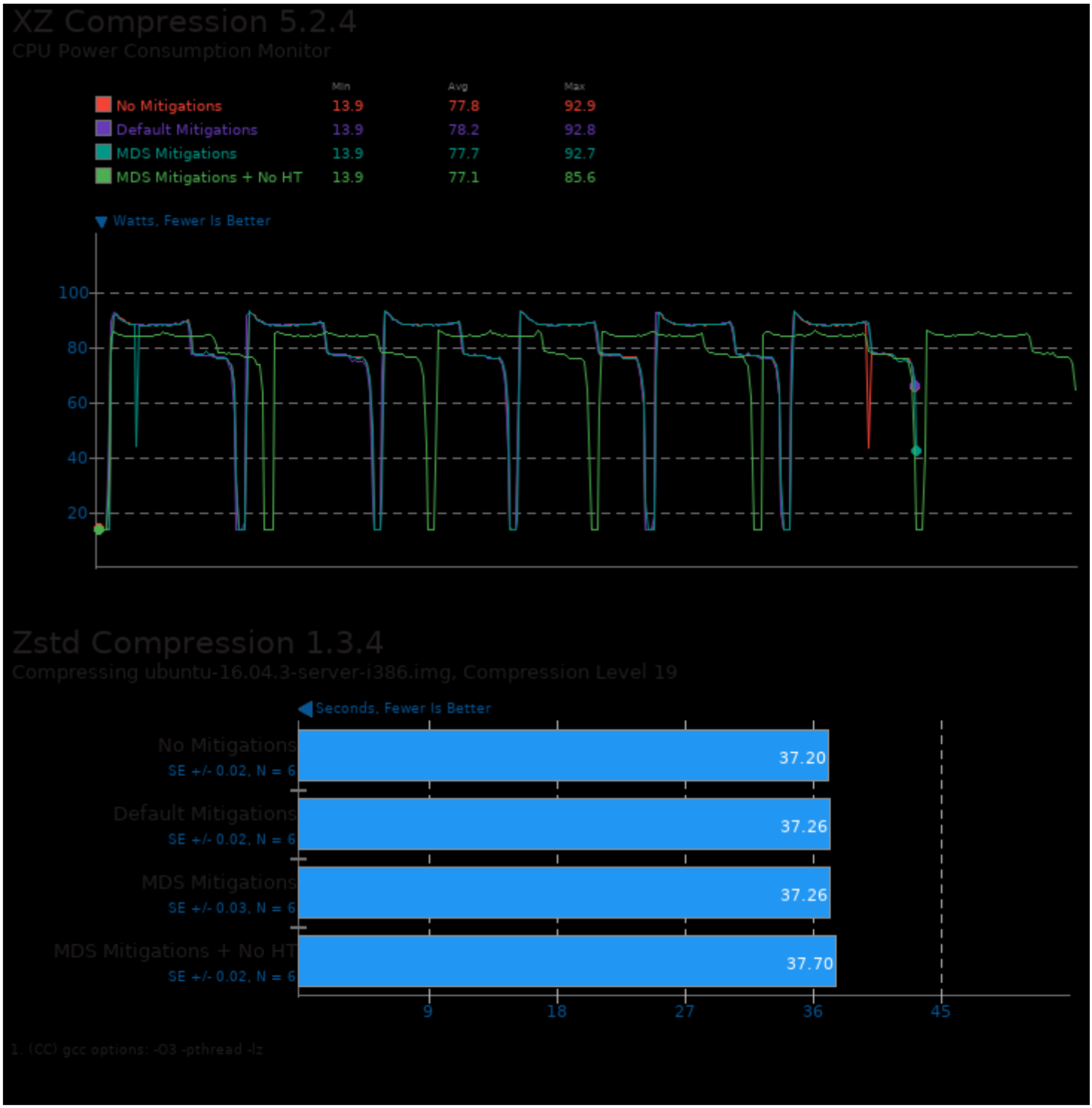

Darktable
CPU Power Consumption Monitor
Min
Avg
Max
No Mitigations
13.9
67.4
93.9
Watts, Fewer Is Better
100
80
60
40
20
Darktable 2.4.2
Test: Server Room - Acceleration: CPU-only
Seconds, Fewer Is Better
No Mitigations
SE +/- 0.01, N = 6
9.20
Default Mitigations
SE +/- 0.01, N = 6
9.27
MDS Mitigations
SE +/- 0.01, N = 6
9.23
MDS Mitigations + No HT
SE +/- 0.00, N = 6
9.64
3
6
9
12
15

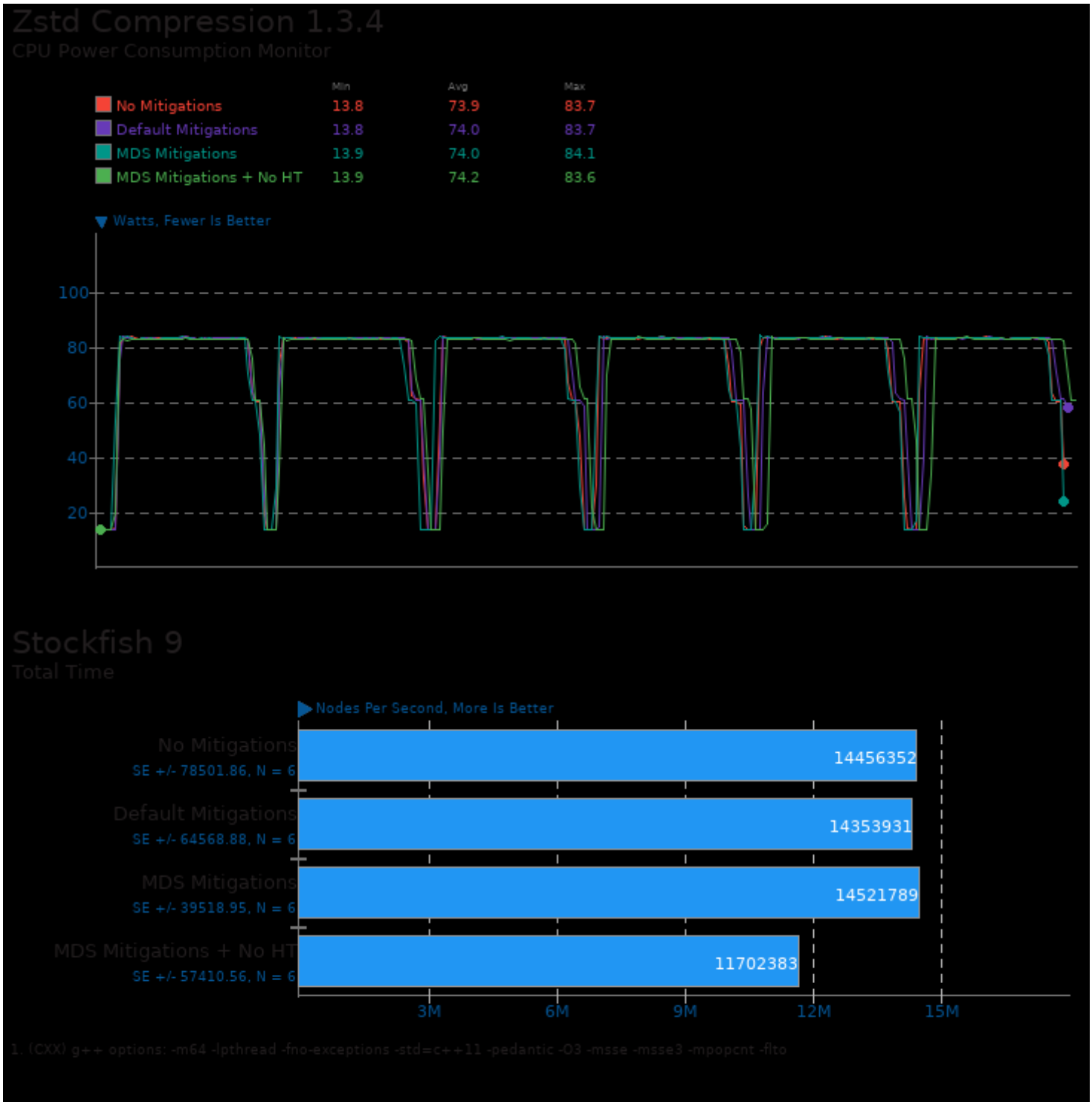

Darktable
CPU Power Consumption Monitor
Min
Avg
Max
No Mitigations
13.9
66.4
94.0
Watts, Fewer Is Better
100
80
60
40
20
Darktable 2.4.2
Test: Server Rack - Acceleration: CPU-only
Seconds, Fewer Is Better
No Mitigations
SE +/- 0.00, N = 6
0.32
Default Mitigations
SE +/- 0.00, N = 6
0.33
MDS Mitigations
SE +/- 0.00, N = 6
0.32
MDS Mitigations + No HT
SE +/- 0.00, N = 6
0.32
0.0743
0.1486
0.2229
0.2972
0.3715


Darktable
CPU Power Consumption Monitor
Min
Avg
Max
No Mitigations
13.8
25.2
59.4
Watts, Fewer Is Better
80
64
48
32
16
IndigoBench 4.0.64
Scene: Supercar
M samples/s, More Is Better
No Mitigations
SE +/- 0.00, N = 6
1.55
Default Mitigations
SE +/- 0.00, N = 6
1.54
MDS Mitigations
SE +/- 0.01, N = 6
1.55
MDS Mitigations + No HT
SE +/- 0.00, N = 6
1.15
0.3488
0.6976
1.0464
1.3952
1.744


IndigoBench 4.0.64
CPU Power Consumption Monitor
Min
Avg
Max
No Mitigations 13.9 95.7 102.6
Default Mitigations 13.9 95.6 102.4
MDS Mitigations 13.9 95.5 102.5
MDS Mitigations + No HT 13.9 87.9 94.0
Watts, Fewer Is Better
100
80
60
40
20
IndigoBench 4.0.64
Scene: Bedroom
M samples/s, More Is Better
No Mitigations
SE +/- 0.00, N = 6
0.71
Default Mitigations
SE +/- 0.00, N = 6
0.71
MDS Mitigations
SE +/- 0.00, N = 6
0.71
MDS Mitigations + No HT
SE +/- 0.00, N = 6
0.51
0.1598
0.3196
0.4794
0.6392
0.799


IndigoBench 4.0.64
CPU Power Consumption Monitor
Min
Avg
Max
No Mitigations 13.9 94.9 101.7
Default Mitigations 13.9 94.9 102.6
MDS Mitigations 13.9 94.9 101.8
MDS Mitigations + No HT 13.9 87.1 93.5
Watts, Fewer Is Better
100
80
60
40
20
XZ Compression 5.2.4
Compressing ubuntu-16.04.3-server-i386.img, Compression Level 9
Seconds, Fewer Is Better
No Mitigations
SE +/- 0.04, N = 6
49.20
Default Mitigations
SE +/- 0.06, N = 6
49.30
MDS Mitigations
SE +/- 0.05, N = 6
49.22
MDS Mitigations + No HT
SE +/- 0.12, N = 6
59.71
13
26
39
52
65
1. (CC) gcc options: -pthread -fvisibility=hidden -O2

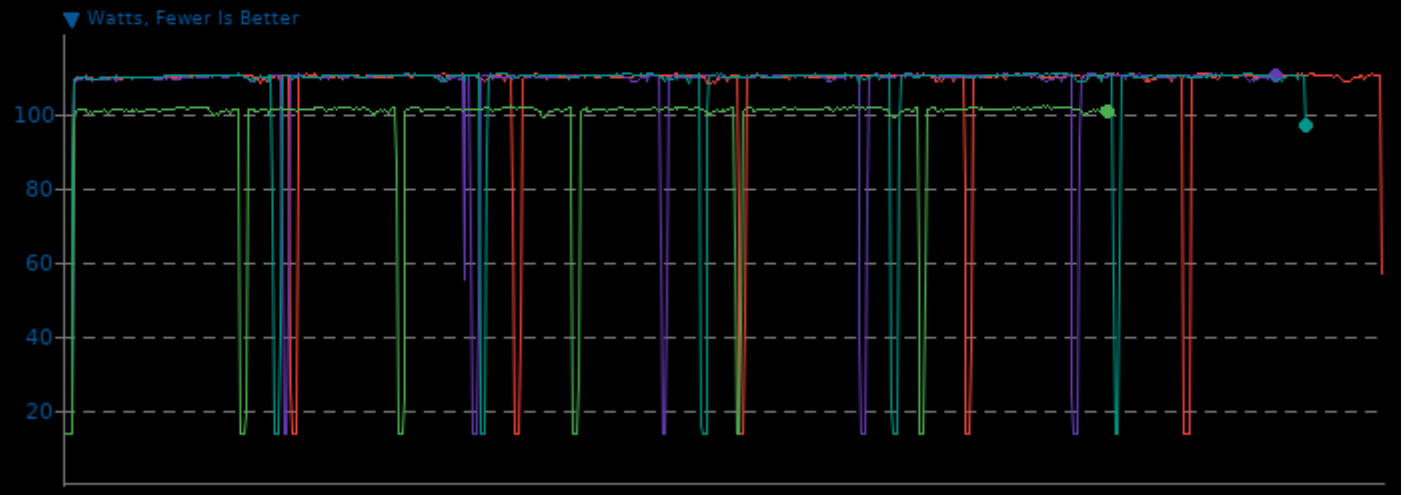

XZ Compression 5.2.4
CPU Power Consumption Monitor
Min
Avg
Max
No Mitigations 13.9 77.8 92.9
Default Mitigations 13.9 78.2 92.8
MDS Mitigations 13.9 77.7 92.7
MDS Mitigations + No HT 13.9 77.1 85.6
Watts, Fewer Is Better
100
80
60
40
20
Zstd Compression 1.3.4
Compressing ubuntu-16.04.3-server-i386.img, Compression Level 19
Seconds, Fewer Is Better
No Mitigations
SE +/- 0.02, N = 6
37.20
Default Mitigations
SE +/- 0.02, N = 6
37.26
MDS Mitigations
SE +/- 0.03, N = 6
37.26
MDS Mitigations + No HT
SE +/- 0.02, N = 6
37.70
9
18
27
36
45
1. (CC) gcc options: -O3 -pthread -lz


Zstd Compression 1.3.4
CPU Power Consumption Monitor
Min
Avg
Max
No Mitigations 13.8 73.9 83.7
Default Mitigations 13.8 74.0 83.7
MDS Mitigations 13.9 74.0 84.1
MDS Mitigations + No HT 13.9 74.2 83.6
Watts, Fewer Is Better
100
80
60
40
20
Stockfish 9
Total Time
Nodes Per Second, More Is Better
No Mitigations
SE +/- 78501.86, N = 6
14456352
Default Mitigations
SE +/- 64568.88, N = 6
14353931
MDS Mitigations
SE +/- 39518.95, N = 6
14521789
MDS Mitigations + No HT
SE +/- 57410.56, N = 6
11702383
3M
6M
9M
12M
15M
1. (CXX) g++ options: -m64 -lpthread -fno-exceptions -std=c++11 -pedantic -O3 -msse -msse3 -mpopcnt -flto

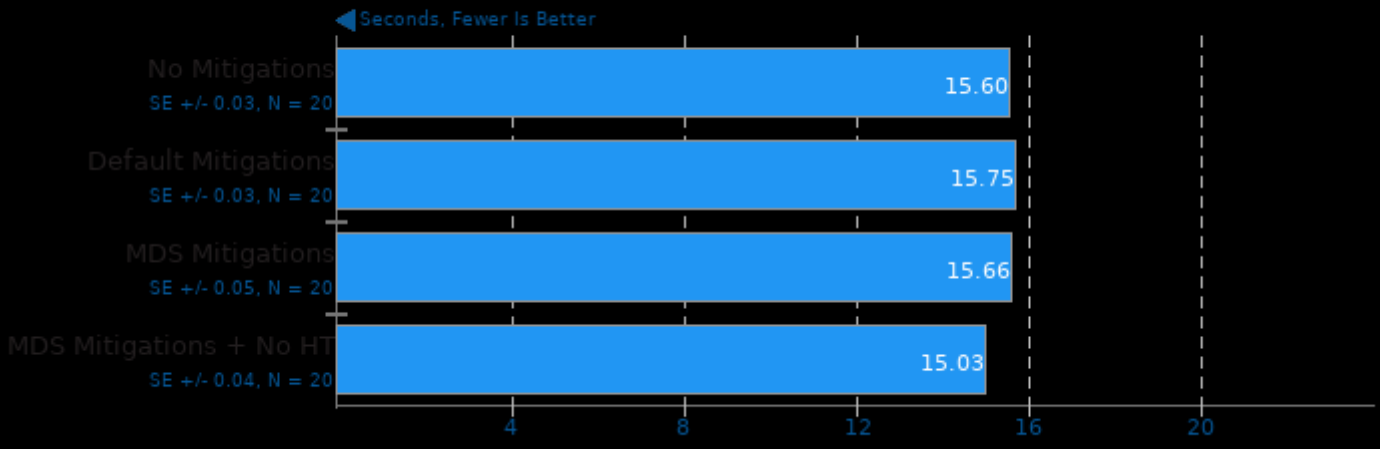
Stockfish 9

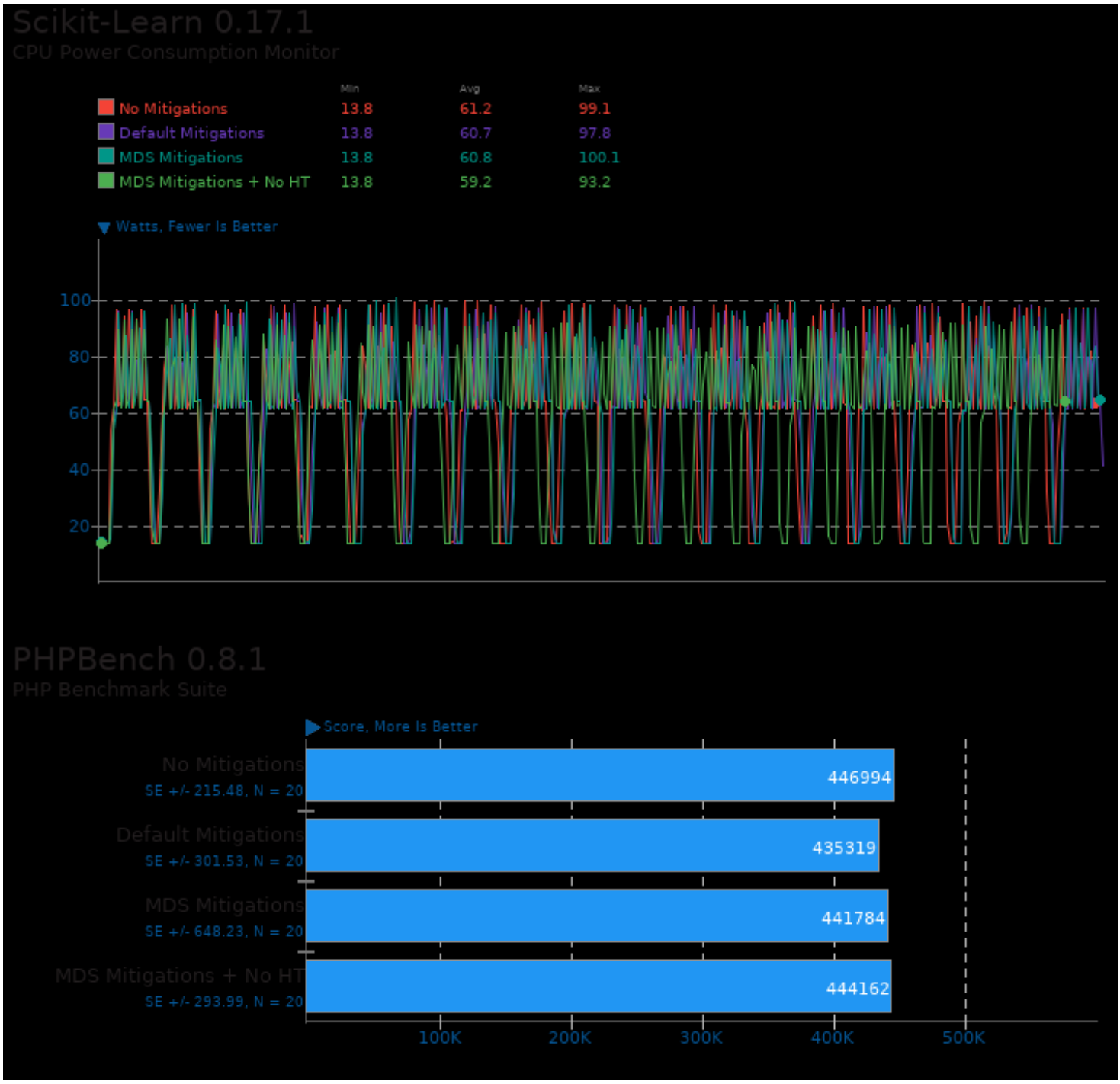
CPU Power Consumption Monitor

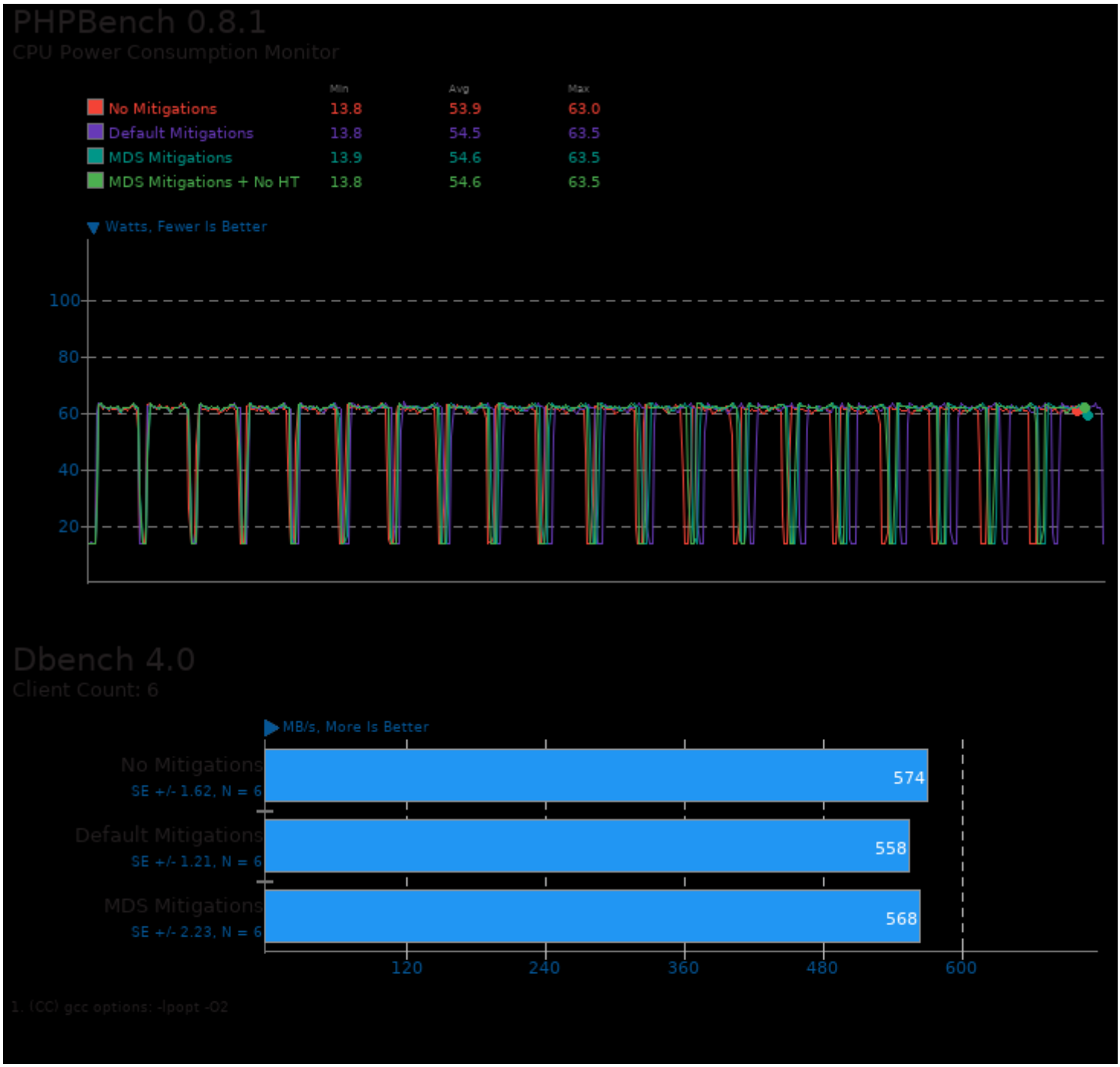
	Min	Avg	Max
No Mitigations	13.9	106.3	110.4
Default Mitigations	13.9	105.9	110.4
MDS Mitigations	13.9	106.2	110.3
MDS Mitigations + No HT	13.9	97.0	101.6

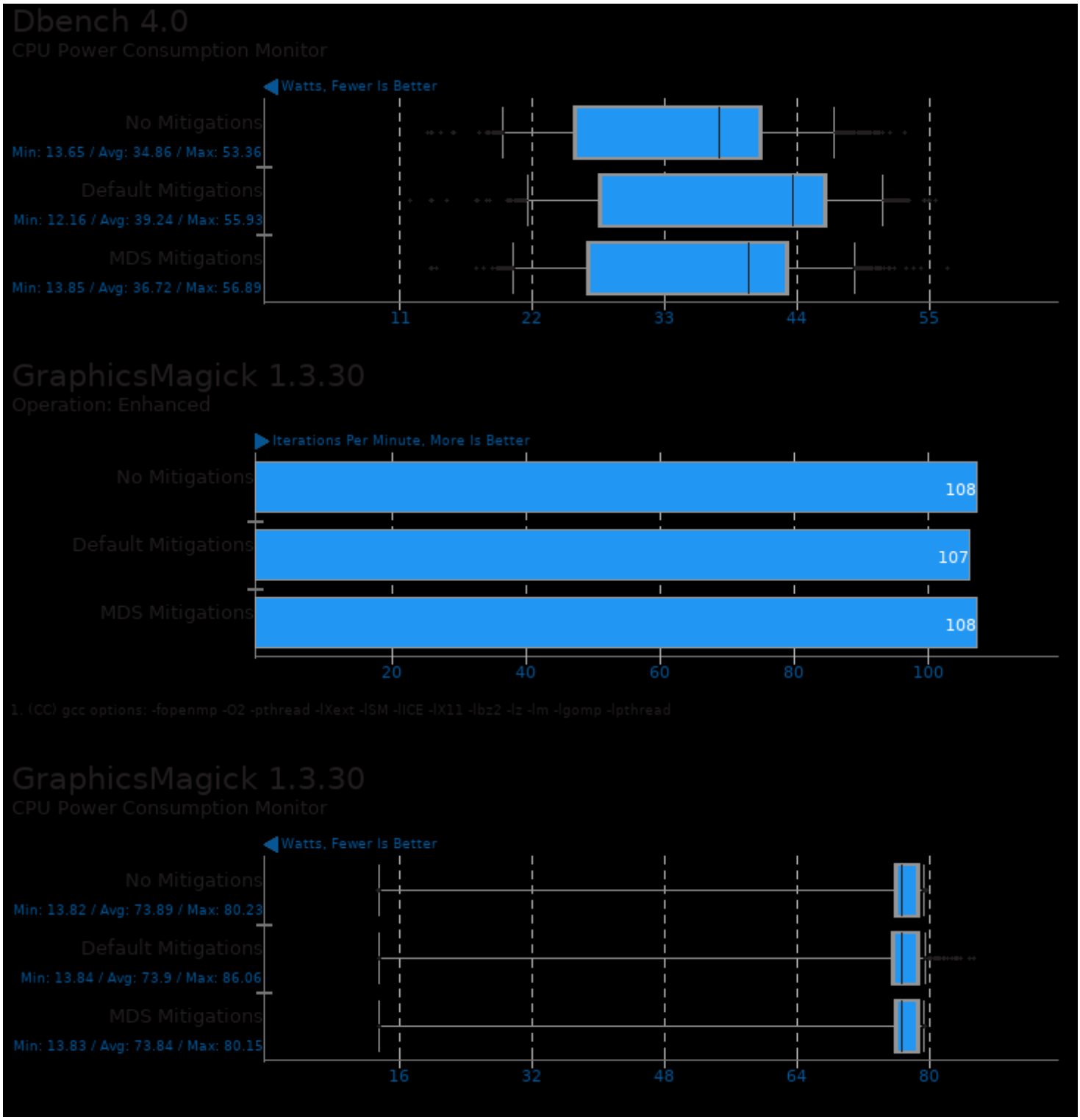


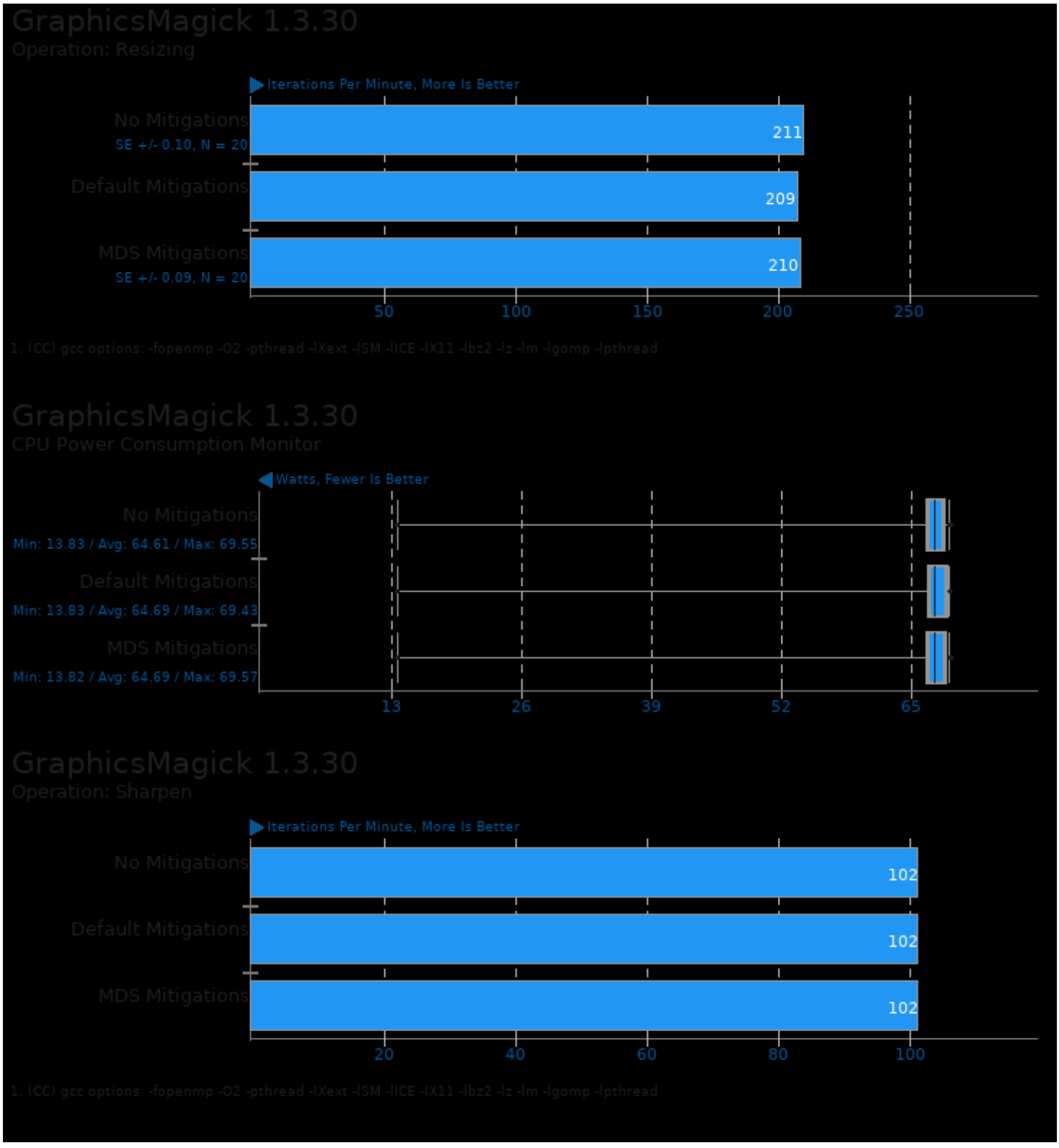
Scikit-Learn 0.17.1

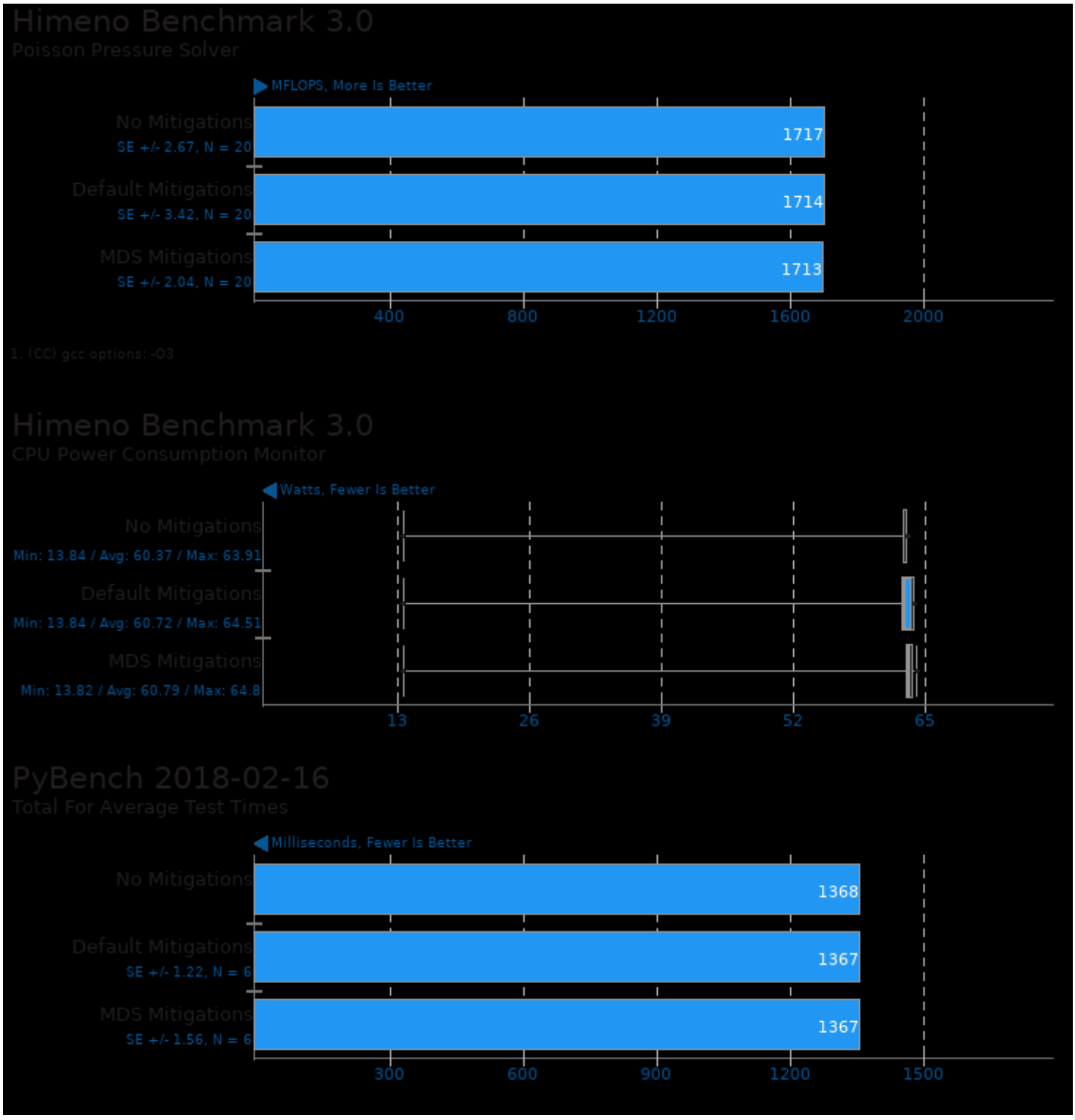


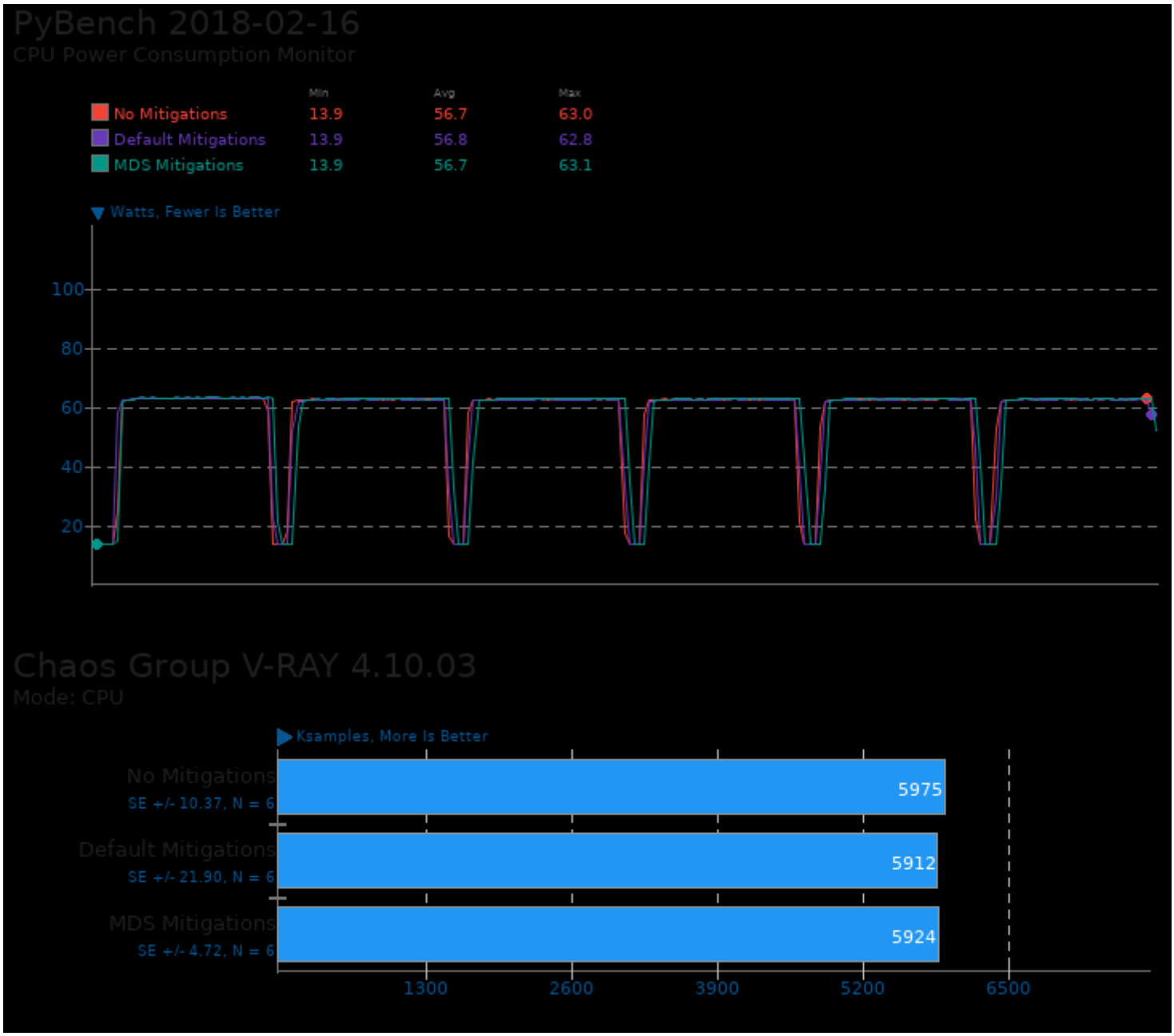

Scikit-Learn 0.17.1
CPU Power Consumption Monitor
Min
Avg
Max
No Mitigations 13.8 61.2 99.1
Default Mitigations 13.8 60.7 97.8
MDS Mitigations 13.8 60.8 100.1
MDS Mitigations + No HT 13.8 59.2 93.2
Watts, Fewer Is Better
100
80
60
40
20
PHPBench 0.8.1
PHP Benchmark Suite
Score, More Is Better
No Mitigations
SE +/- 215.48, N = 20
446994
Default Mitigations
SE +/- 301.53, N = 20
435319
MDS Mitigations
SE +/- 648.23, N = 20
441784
MDS Mitigations + No HT
SE +/- 293.99, N = 20
444162
100K
200K
300K
400K
500K

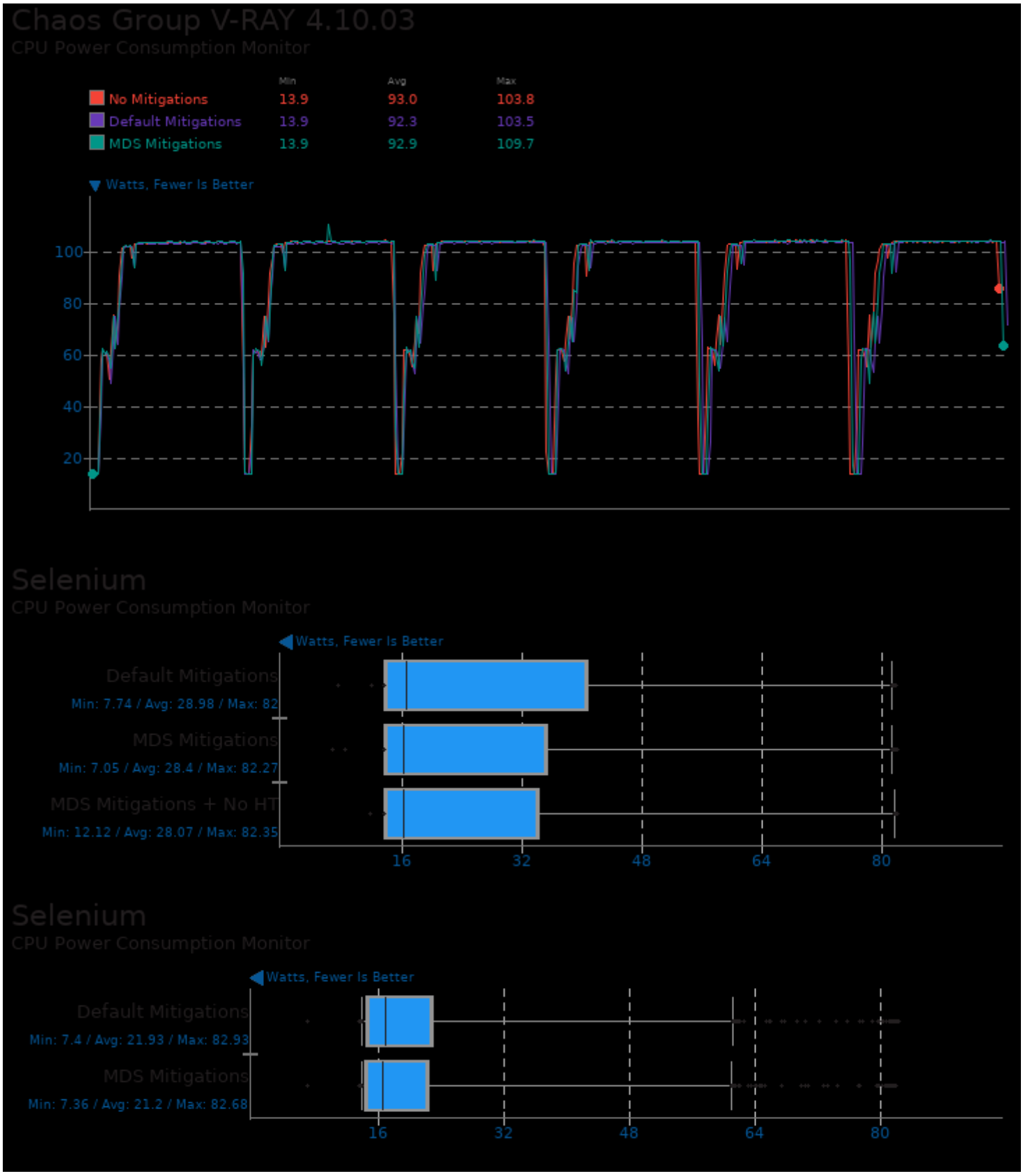

PHPBench 0.8.1
CPU Power Consumption Monitor
Min
Avg
Max
No Mitigations 13.8 53.9 63.0
Default Mitigations 13.8 54.5 63.5
MDS Mitigations 13.9 54.6 63.5
MDS Mitigations + No HT 13.8 54.6 63.5
Watts, Fewer Is Better
100
80
60
40
20
Dbench 4.0
Client Count: 6
MB/s, More Is Better
No Mitigations
SE +/- 1.62, N = 6
574
Default Mitigations
SE +/- 1.21, N = 6
558
MDS Mitigations
SE +/- 2.23, N = 6
568
120
240
360
480
600
1. (CC) gcc options: -lpopt -O2

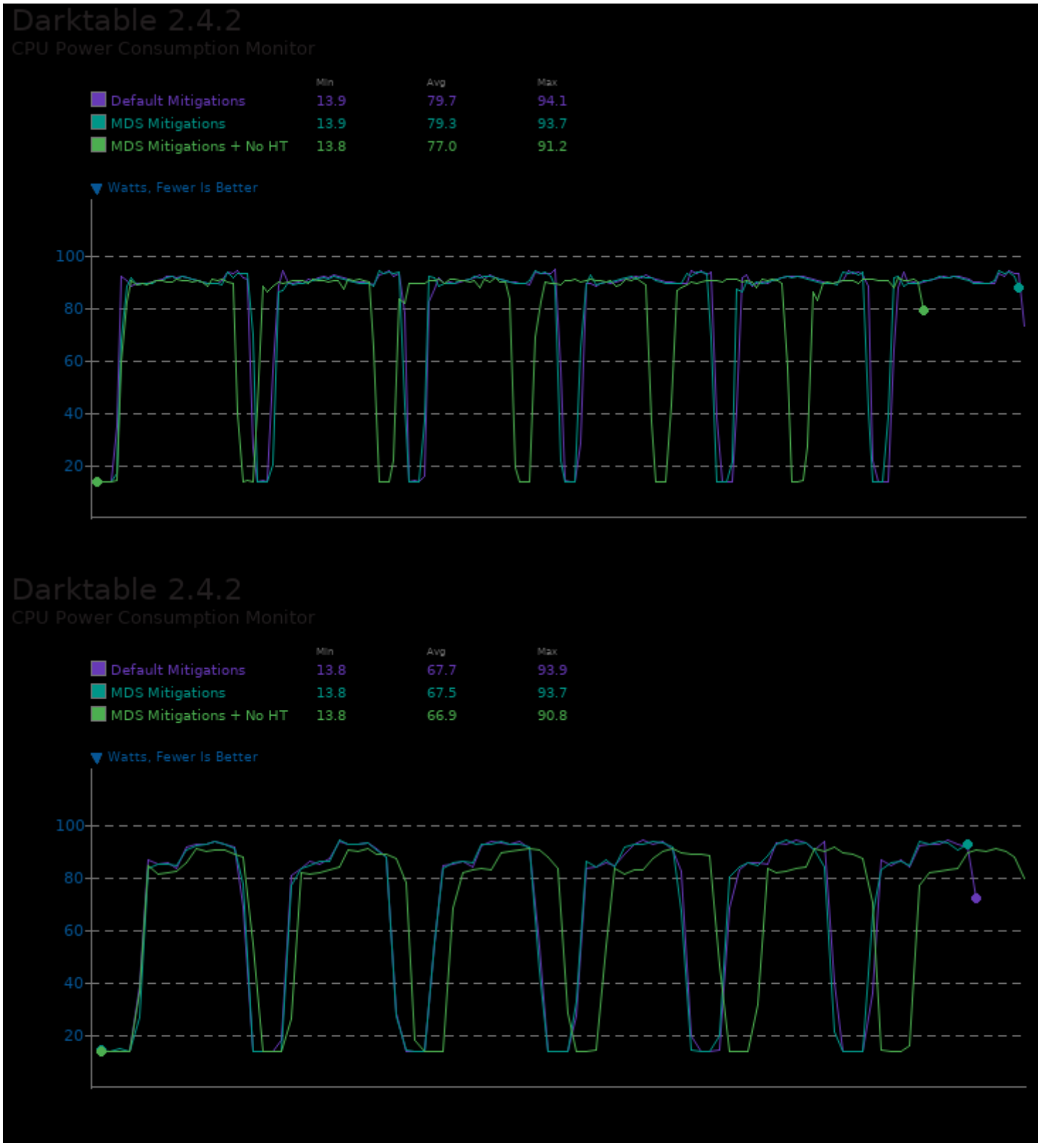

Dbench 4.0
CPU Power Consumption Monitor
Watts, Fewer Is Better
No Mitigations
Min: 13.65 / Avg: 34.86 / Max: 53.36
Default Mitigations
Min: 12.16 / Avg: 39.24 / Max: 55.93
MDS Mitigations
Min: 13.85 / Avg: 36.72 / Max: 56.89
11
22
33
44
55
GraphicsMagick 1.3.30
Operation: Enhanced
Iterations Per Minute, More Is Better
No Mitigations
108
Default Mitigations
107
MDS Mitigations
108
20
40
60
80
100
1. (CC) gcc options: -fopenmp -O2 -pthread -lXext -lSM -lICE -lX11 -lbz2 -lz -lm -lgomp -lpthread
GraphicsMagick 1.3.30
CPU Power Consumption Monitor
Watts, Fewer Is Better
No Mitigations
Min: 13.82 / Avg: 73.89 / Max: 80.23
Default Mitigations
Min: 13.84 / Avg: 73.9 / Max: 86.06
MDS Mitigations
Min: 13.83 / Avg: 73.84 / Max: 80.15
16
32
48
64
80

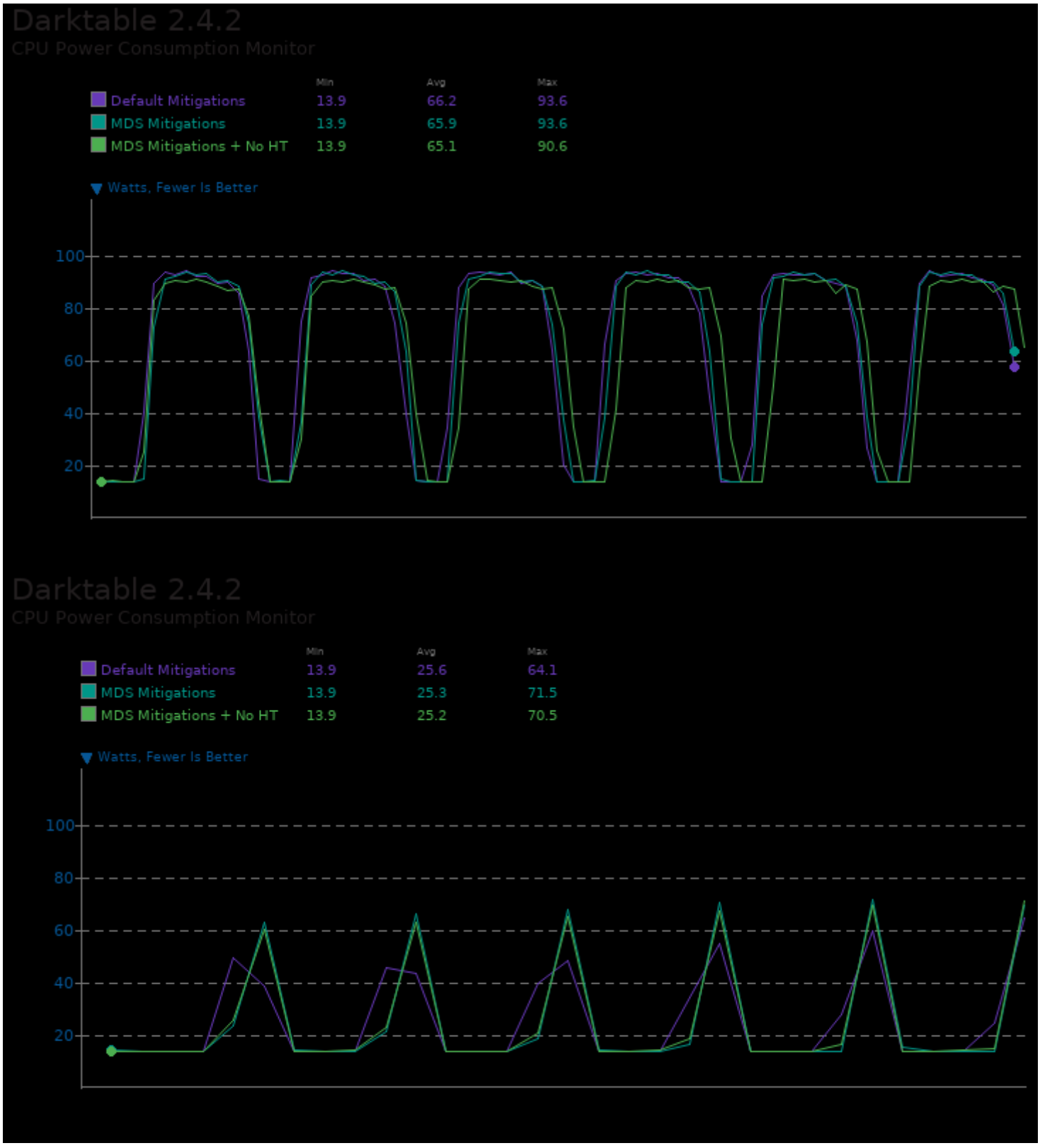

GraphicsMagick 1.3.30
Operation: Resizing
Iterations Per Minute, More Is Better
No Mitigations
SE +/- 0.10, N = 20
211
Default Mitigations
209
MDS Mitigations
SE +/- 0.09, N = 20
210
50
100
150
200
250
1. (CC) gcc options: -fopenmp -O2 -pthread -lXext -lSM -lICE -lX11 -lbz2 -lz -lm -lgomp -lpthread
GraphicsMagick 1.3.30
CPU Power Consumption Monitor
Watts, Fewer Is Better
No Mitigations
Min: 13.83 / Avg: 64.61 / Max: 69.55
Default Mitigations
Min: 13.83 / Avg: 64.69 / Max: 69.43
MDS Mitigations
Min: 13.82 / Avg: 64.69 / Max: 69.57
13
26
39
52
65
GraphicsMagick 1.3.30
Operation: Sharpen
Iterations Per Minute, More Is Better
No Mitigations
102
Default Mitigations
102
MDS Mitigations
102
20
40
60
80
100
1. (CC) gcc options: -fopenmp -O2 -pthread -lXext -lSM -lICE -lX11 -lbz2 -lz -lm -lgomp -lpthread


Himeno Benchmark 3.0
Poisson Pressure Solver
MFLOPS, More Is Better
No Mitigations
SE +/- 2.67, N = 20
1717
Default Mitigations
SE +/- 3.42, N = 20
1714
MDS Mitigations
SE +/- 2.04, N = 20
1713
400
800
1200
1600
2000
1. (CC) gcc options: -O3
Himeno Benchmark 3.0
CPU Power Consumption Monitor
Watts, Fewer Is Better
No Mitigations
Min: 13.84 / Avg: 60.37 / Max: 63.91
Default Mitigations
Min: 13.84 / Avg: 60.72 / Max: 64.51
MDS Mitigations
Min: 13.82 / Avg: 60.79 / Max: 64.8
13
26
39
52
65
PyBench 2018-02-16
Total For Average Test Times
Milliseconds, Fewer Is Better
No Mitigations
1368
Default Mitigations
SE +/- 1.22, N = 6
1367
MDS Mitigations
SE +/- 1.56, N = 6
1367
300
600
900
1200
1500

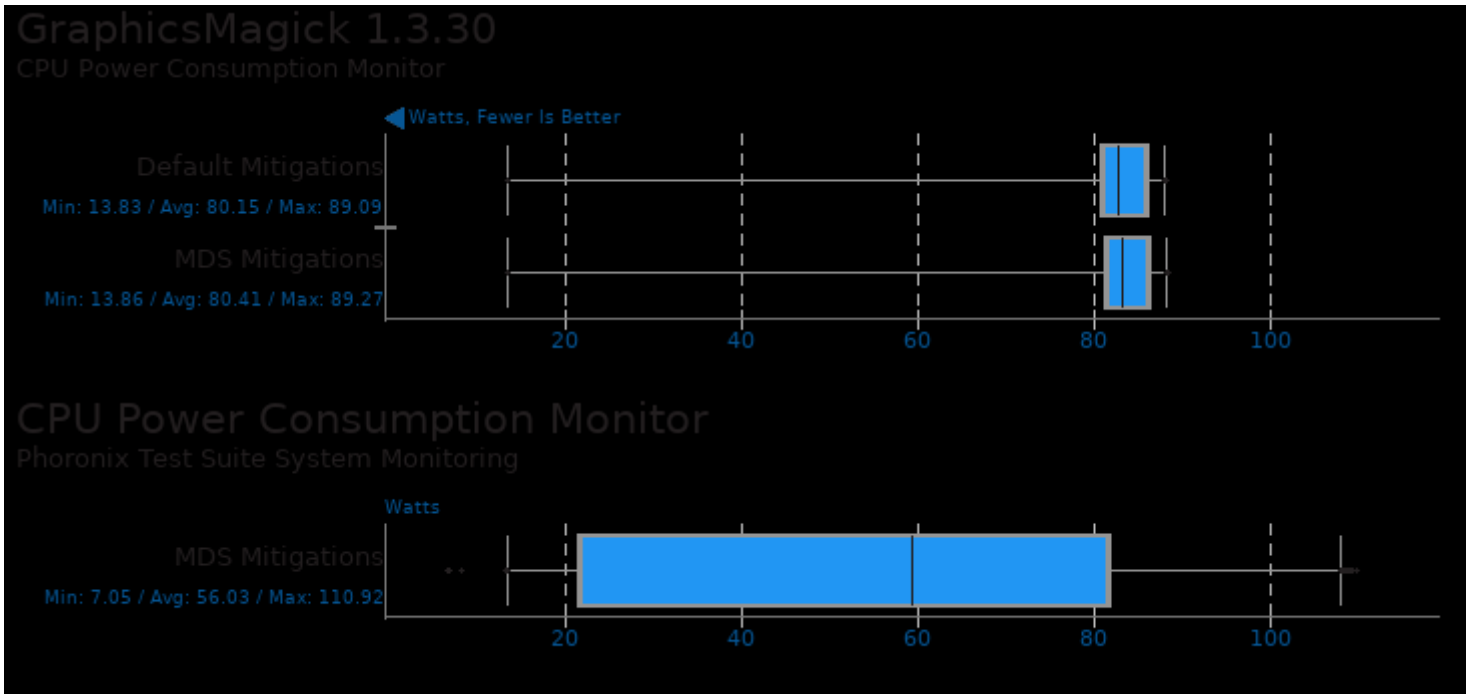

PyBench 2018-02-16
CPU Power Consumption Monitor
Min
Avg
Max
No Mitigations 13.9 56.7 63.0
Default Mitigations 13.9 56.8 62.8
MDS Mitigations 13.9 56.7 63.1
Watts, Fewer Is Better
100
80
60
40
20
Chaos Group V-RAY 4.10.03
Mode: CPU
Ksamples, More Is Better
No Mitigations
SE +/- 10.37, N = 6
5975
Default Mitigations
SE +/- 21.90, N = 6
5912
MDS Mitigations
SE +/- 4.72, N = 6
5924
1300
2600
3900
5200
6500


Chaos Group V-RAY 4.10.03
CPU Power Consumption Monitor
Min
Avg
Max
No Mitigations 13.9 93.0 103.8
Default Mitigations 13.9 92.3 103.5
MDS Mitigations 13.9 92.9 109.7
Watts, Fewer Is Better
100
80
60
40
20
Selenium
CPU Power Consumption Monitor
Watts, Fewer Is Better
Default Mitigations
Min: 7.74 / Avg: 28.98 / Max: 82
MDS Mitigations
Min: 7.05 / Avg: 28.4 / Max: 82.27
MDS Mitigations + No HT
Min: 12.12 / Avg: 28.07 / Max: 82.35
16
32
48
64
80
Selenium
CPU Power Consumption Monitor
Watts, Fewer Is Better
Default Mitigations
Min: 7.4 / Avg: 21.93 / Max: 82.93
MDS Mitigations
Min: 7.36 / Avg: 21.2 / Max: 82.68
16
32
48
64
80

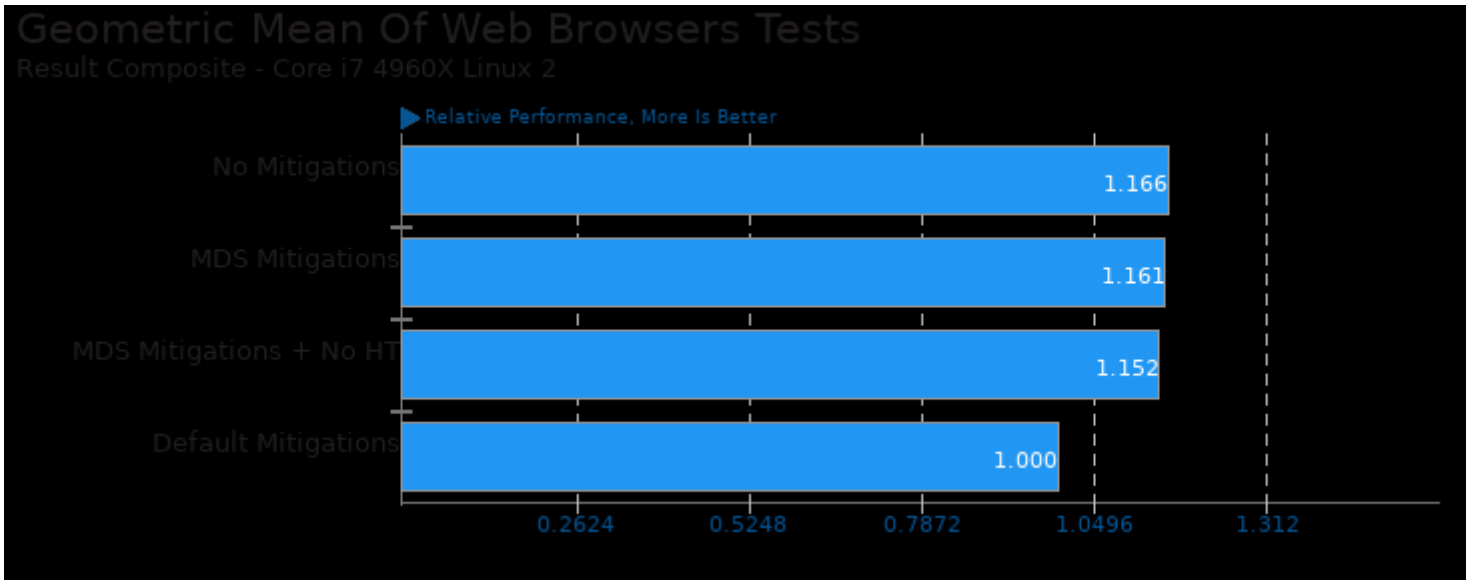

Darktable 2.4.2
CPU Power Consumption Monitor
Min
Avg
Max
Default Mitigations 13.9 79.7 94.1
MDS Mitigations 13.9 79.3 93.7
MDS Mitigations + No HT 13.8 77.0 91.2
Watts, Fewer Is Better
100
80
60
40
20
Darktable 2.4.2
CPU Power Consumption Monitor
Min
Avg
Max
Default Mitigations 13.8 67.7 93.9
MDS Mitigations 13.8 67.5 93.7
MDS Mitigations + No HT 13.8 66.9 90.8
Watts, Fewer Is Better
100
80
60
40
20


Darktable 2.4.2
CPU Power Consumption Monitor
Min
Avg
Max
Default Mitigations 13.9 66.2 93.6
MDS Mitigations 13.9 65.9 93.6
MDS Mitigations + No HT 13.9 65.1 90.6
Watts, Fewer Is Better
100
80
60
40
20

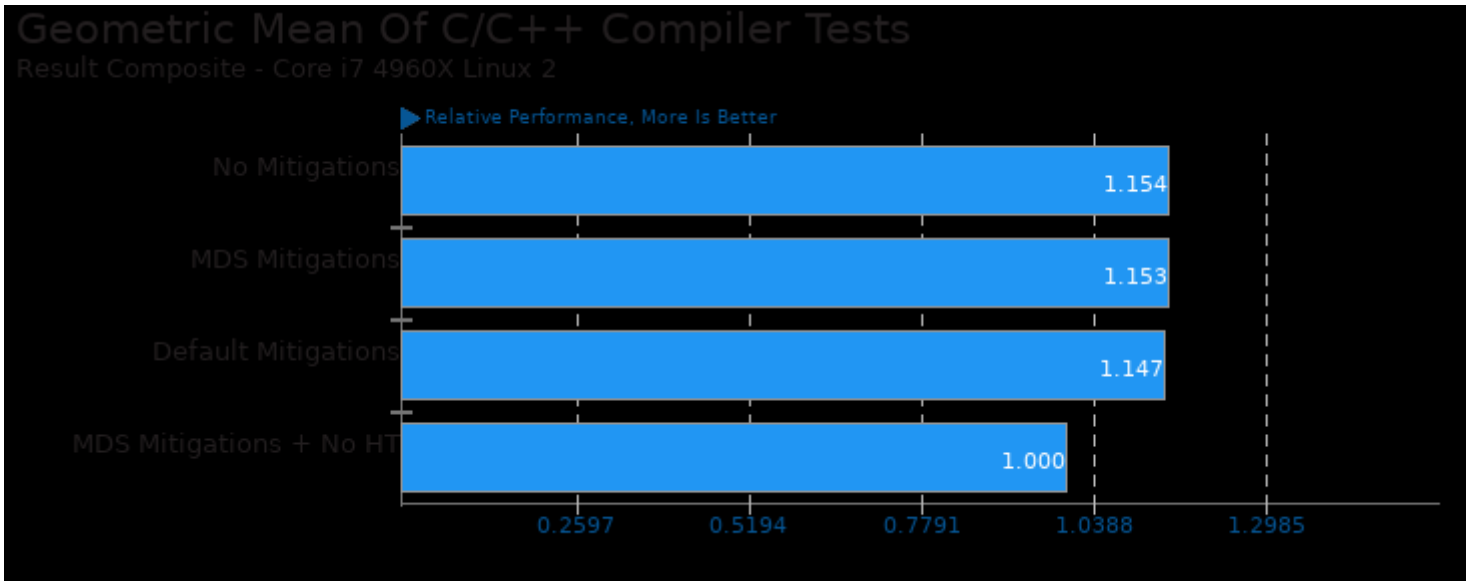
Darktable 2.4.2
CPU Power Consumption Monitor
Min
Avg
Max
Default Mitigations 13.9 25.6 64.1
MDS Mitigations 13.9 25.3 71.5
MDS Mitigations + No HT 13.9 25.2 70.5
Watts, Fewer Is Better
100
80
60
40
20


GraphicsMagick 1.3.30
CPU Power Consumption Monitor
Watts, Fewer Is Better
Default Mitigations
Min: 13.83 / Avg: 80.15 / Max: 89.09
MDS Mitigations
Min: 13.86 / Avg: 80.41 / Max: 89.27
20
40
60
80
100
CPU Power Consumption Monitor
Phoronix Test Suite System Monitoring
Watts
MDS Mitigations
Min: 7.05 / Avg: 56.03 / Max: 110.92
20
40
60
80
100

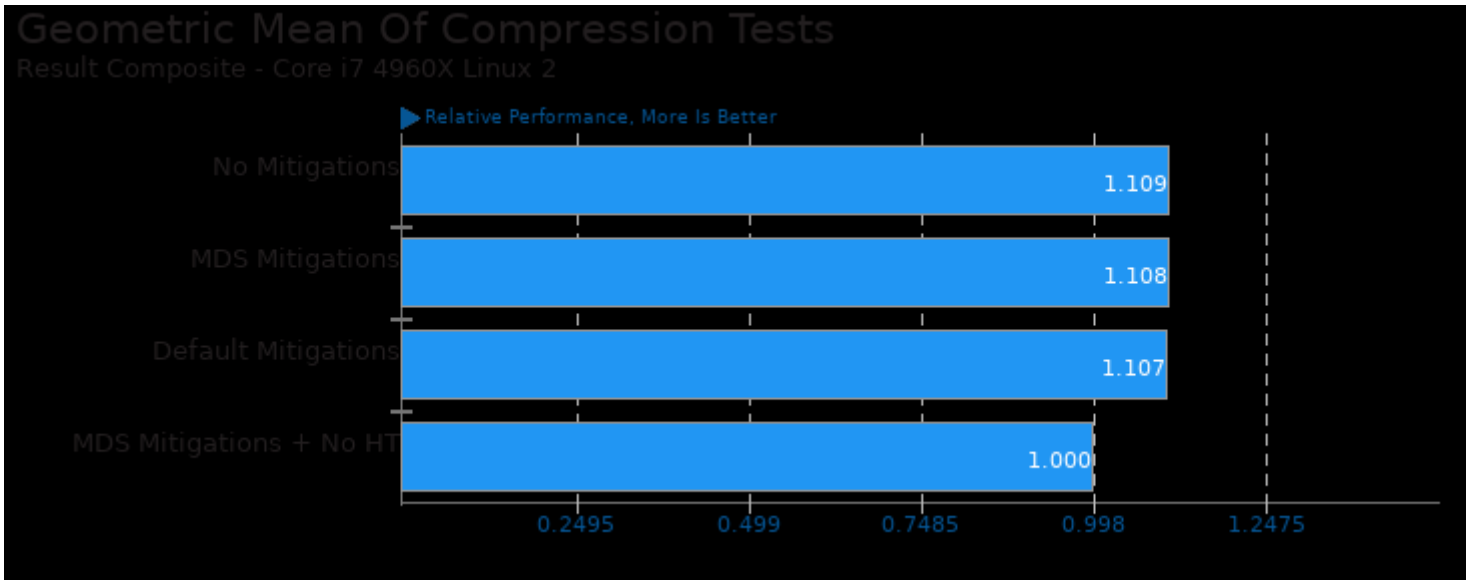
These geometric means are based upon test groupings / test suites for this result file.



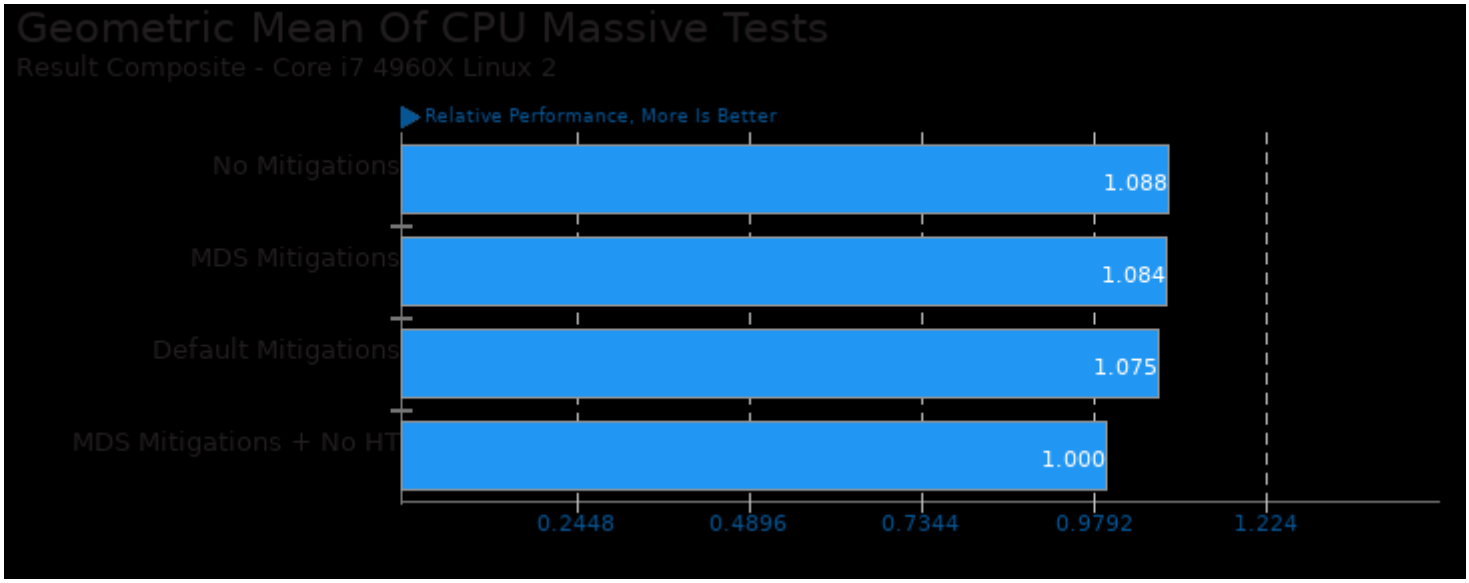
Geometric mean based upon tests: system/selenium



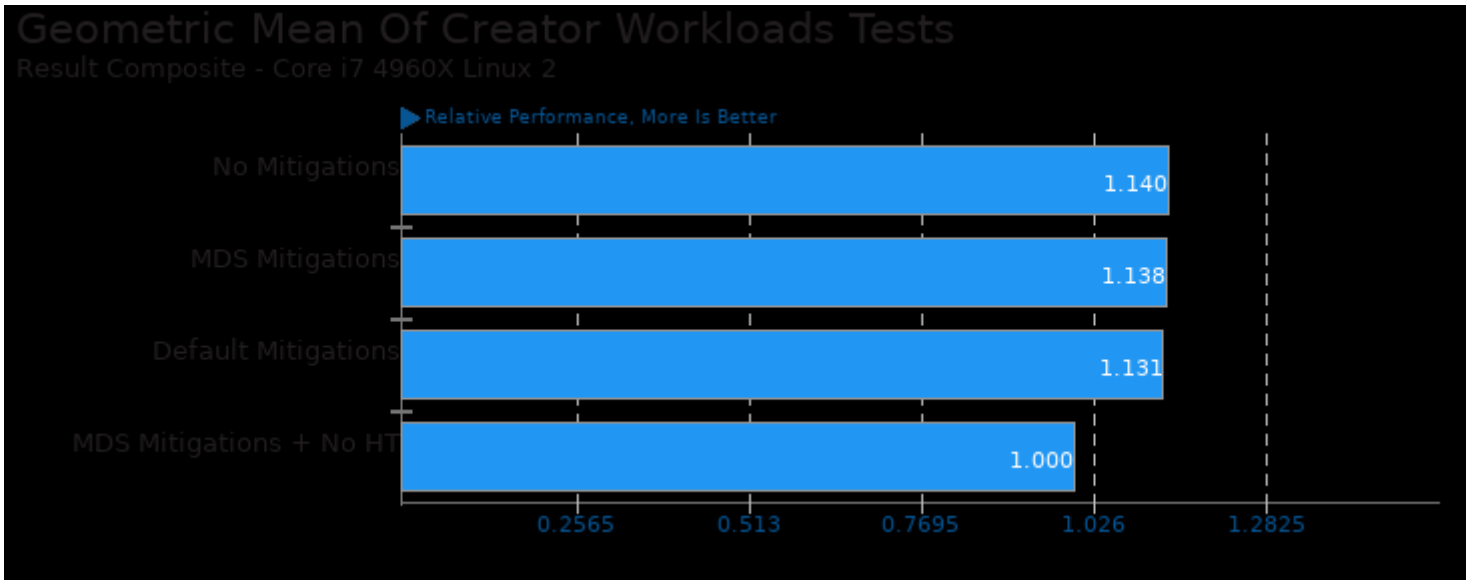
Geometric mean based upon tests: pts/graphics-magick, pts/himeno, pts/stockfish, pts/build-llvm, pts/x264, pts/compress-xz and pts/compress-zstd



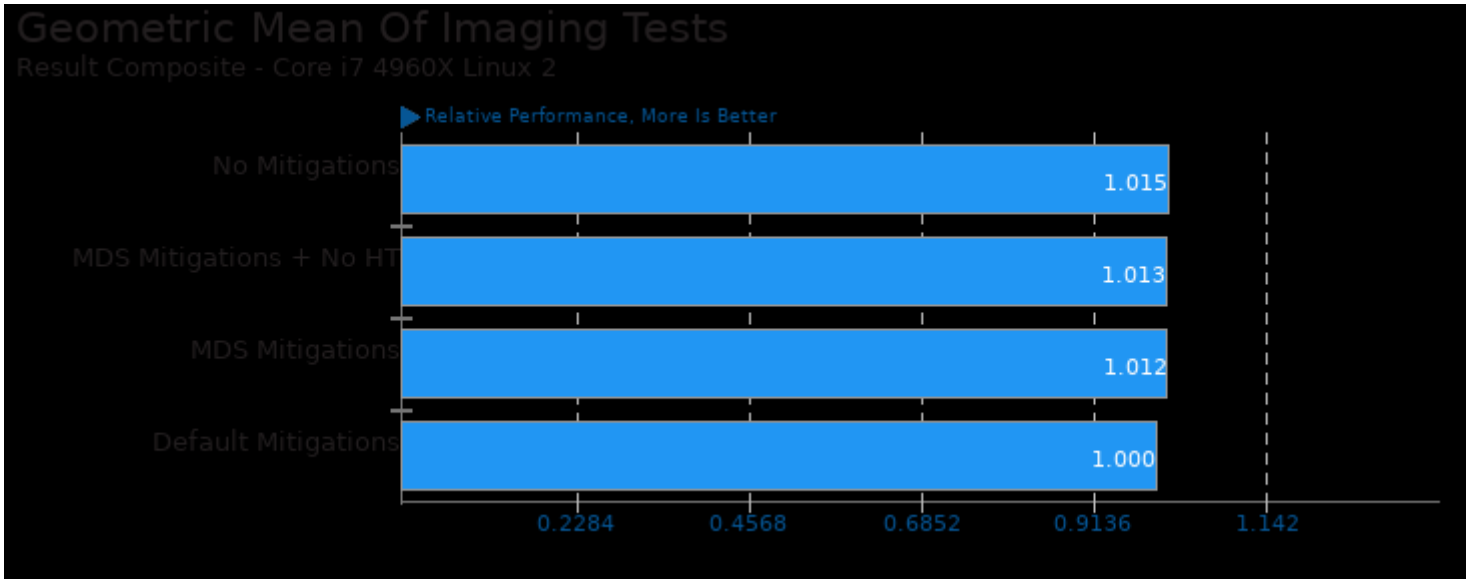
Geometric mean based upon tests: pts/compress-zstd and pts/compress-xz



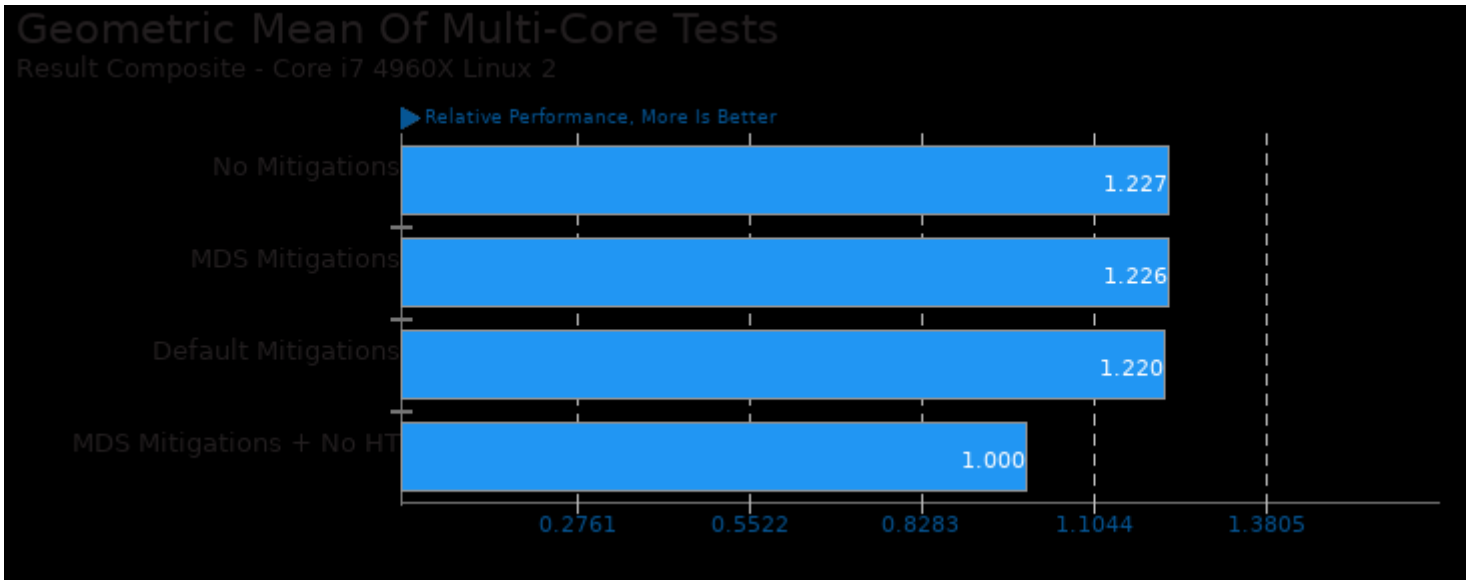
Geometric mean based upon tests: pts/build-llvm, pts/compress-xz, pts/compress-zstd, pts/x264, pts/go-benchmark, pts/graphics-magick, pts/himeno, pts/phpbench, pts/scikit-learn, pts/stockfish, pts/v-ray, pts/blender and system/darktable



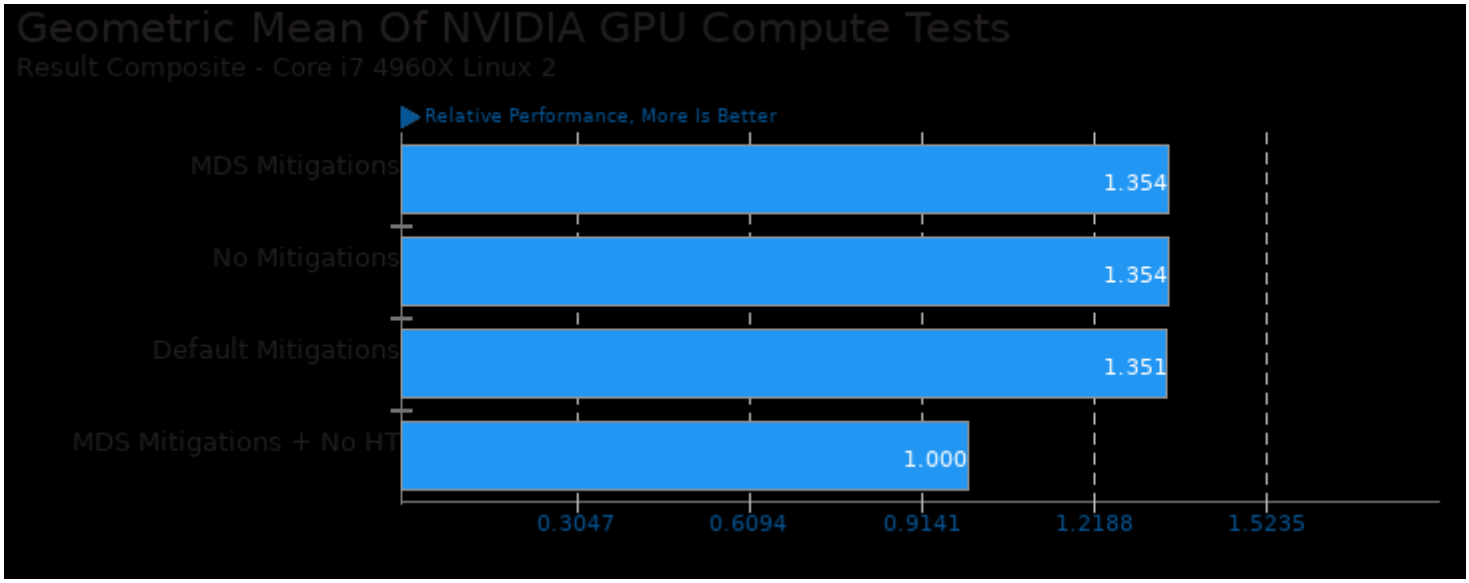
Geometric mean based upon tests: pts/blender, pts/v-ray, pts/indigobench, pts/x264, pts/graphics-magick and system/darktable



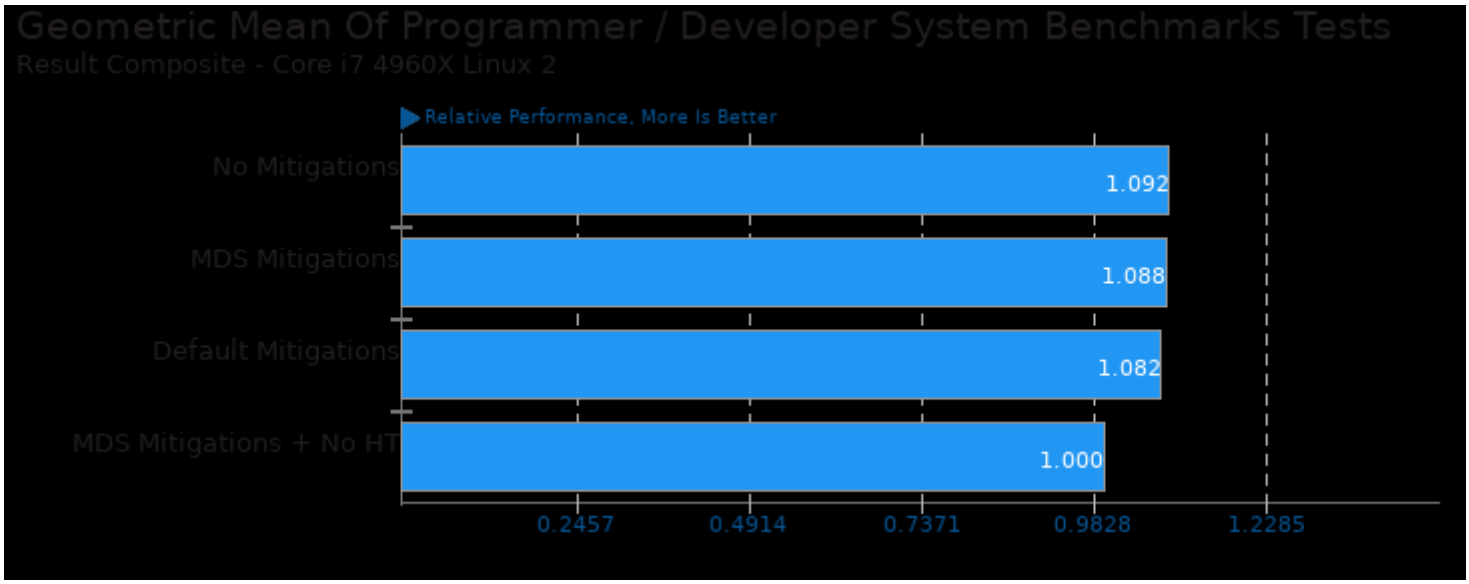
Geometric mean based upon tests: pts/graphics-magick and system/darktable



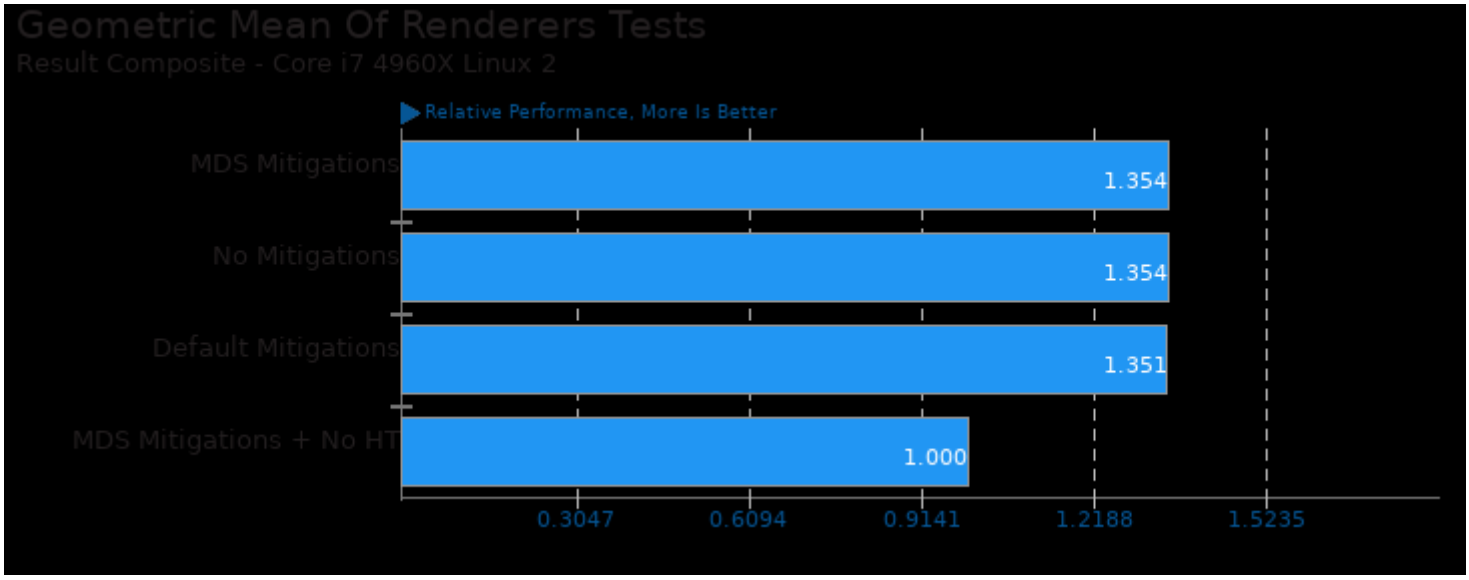
Geometric mean based upon tests: pts/blender, pts/stockfish, pts/x264, pts/graphics-magick, pts/compress-zstd, pts/build-llvm, pts/v-ray and pts/indigobench



Geometric mean based upon tests: pts/indigobench, pts/v-ray and pts/blender

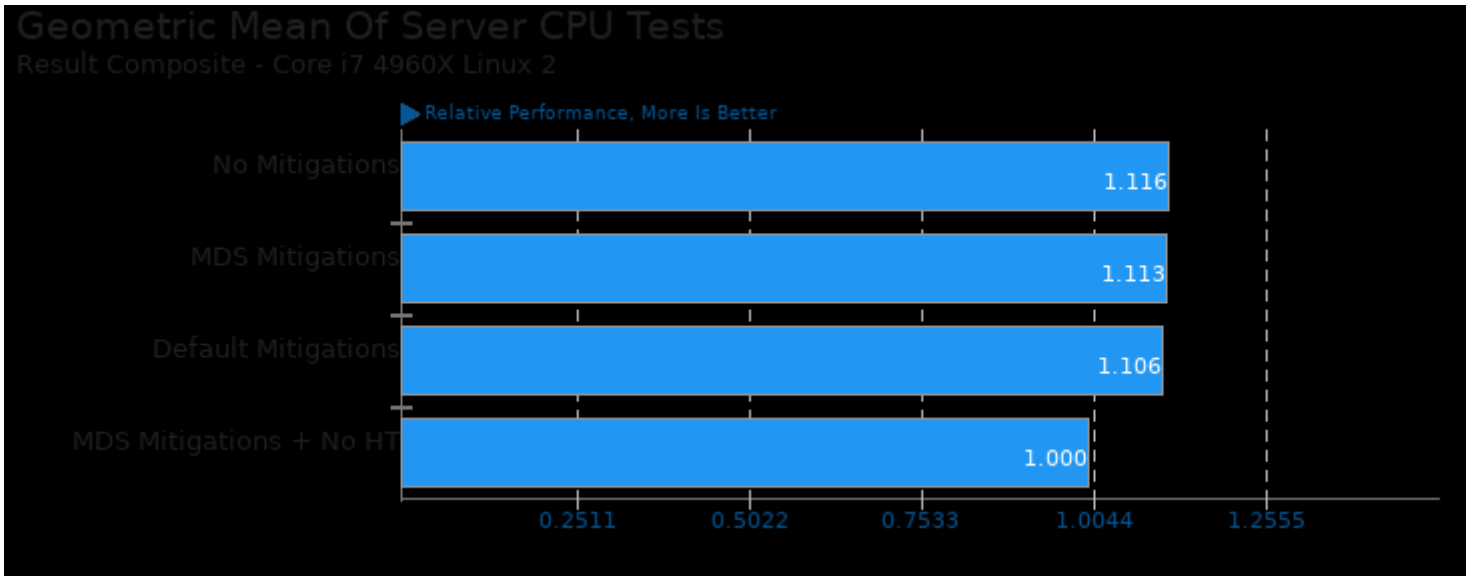


Geometric mean based upon tests: pts/compress-zstd, pts/pybench and pts/build-llvm



Geometric mean based upon tests: pts/blender, pts/v-ray and pts/indigobench

Core i7 4960X Linux 2



Geometric mean based upon tests: pts/x264, pts/himeno, pts/stockfish, pts/build-llvm, pts/compress-zstd, pts/blender, pts/pybench, pts/phpbench and pts/scikit-learn

This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 10:08.