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Alienware-R10-memory-latency-gaming

AMD Ryzen 5 5600X (PPT=112 W, TDC=100 A, EDC=120 A, Boost Override=100 MHz) testing with an Alienware Aurora R10 (2.2.2 BIOS) and Dell Radeon RX 6700 XT 12 GB on Ubuntu 21.10 via the Phoronix Test Suite.

Test Systems:

DDR4-3200W

DDR4-3200 CL14

DDR4-3466 CL22

DDR4-3466 CL16

DDR4-3600 CL22

DDR4-3600 CL16

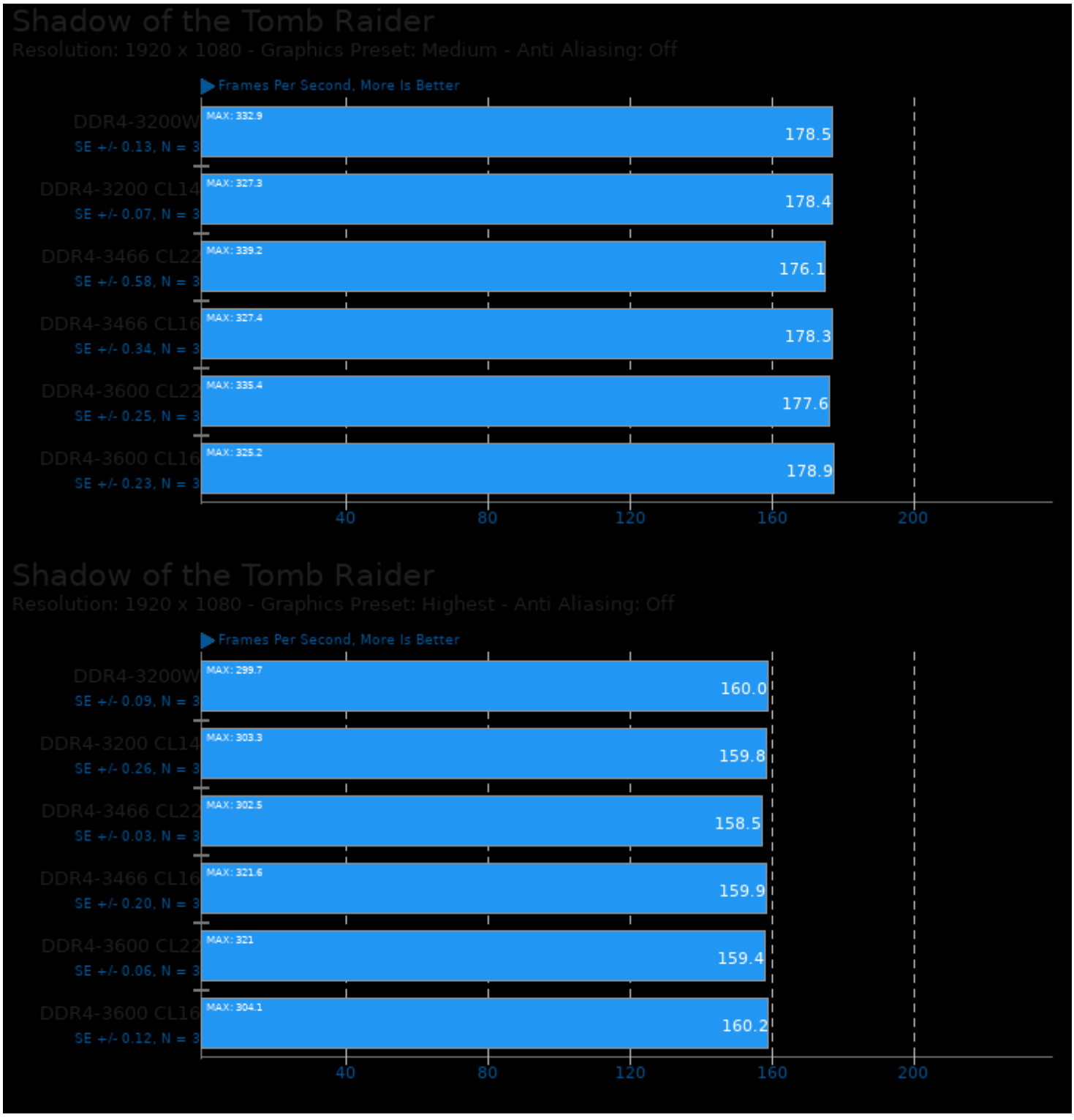
Alienware-R10-memory-latency-gaming

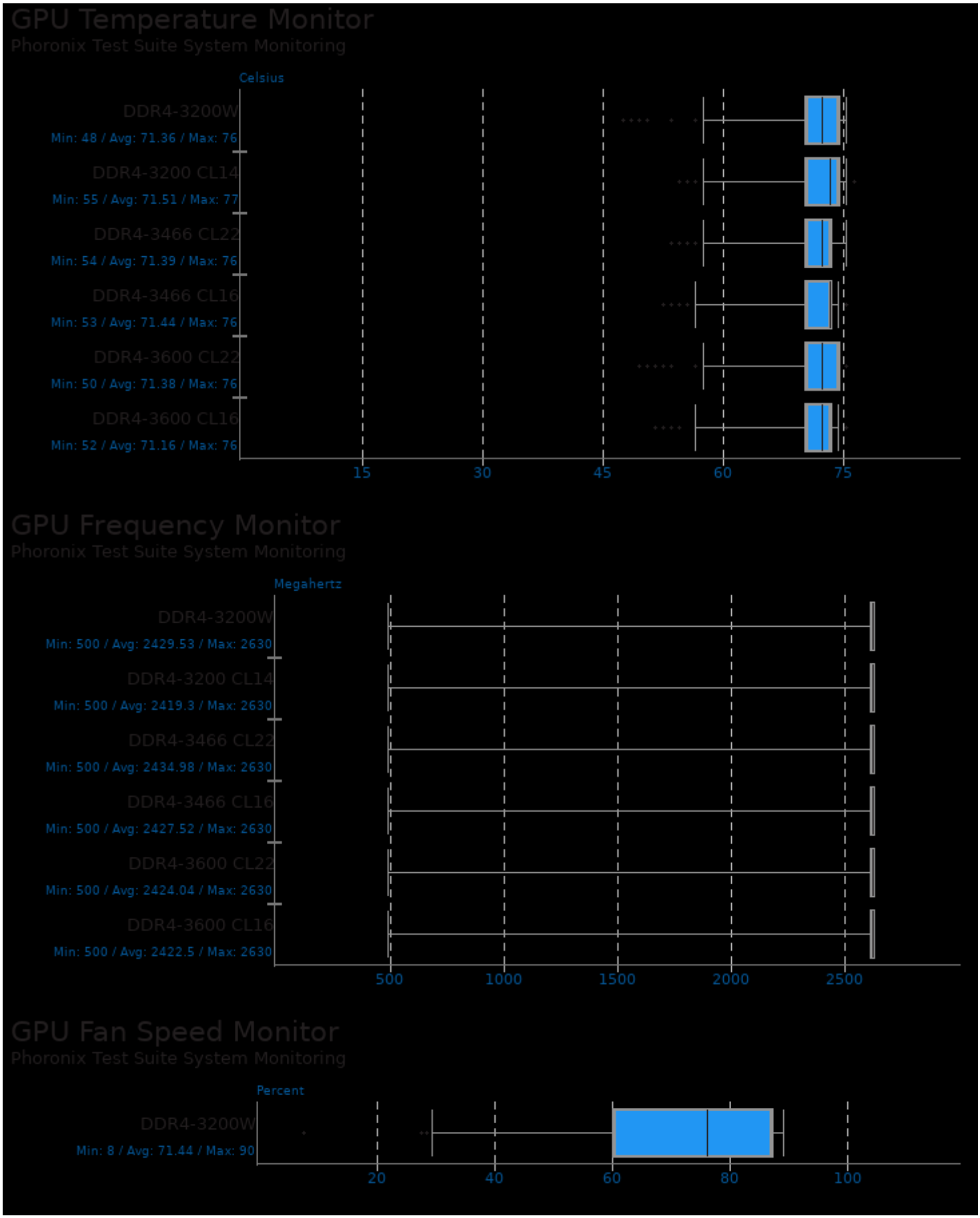
Processor: AMD Ryzen 5 5600X 6-Core @ 3.70GHz (6 Cores / 12 Threads), Motherboard: Alienware 0TYR0X (2.2.2 BIOS), Chipset: AMD Starship/Matisse, Memory: 16GB, Disk: 1000GB Western Digital WDS100T2B0C-00PXH0, Graphics: AMD Radeon RX 6700/6700 XT / 6800M 12GB (2725/1000MHz), Audio: AMD Navi 21 HDMI Audio, Monitor: LG TV SSCR2, Network: Realtek Device 2600 + Intel Wi-Fi 6 AX200

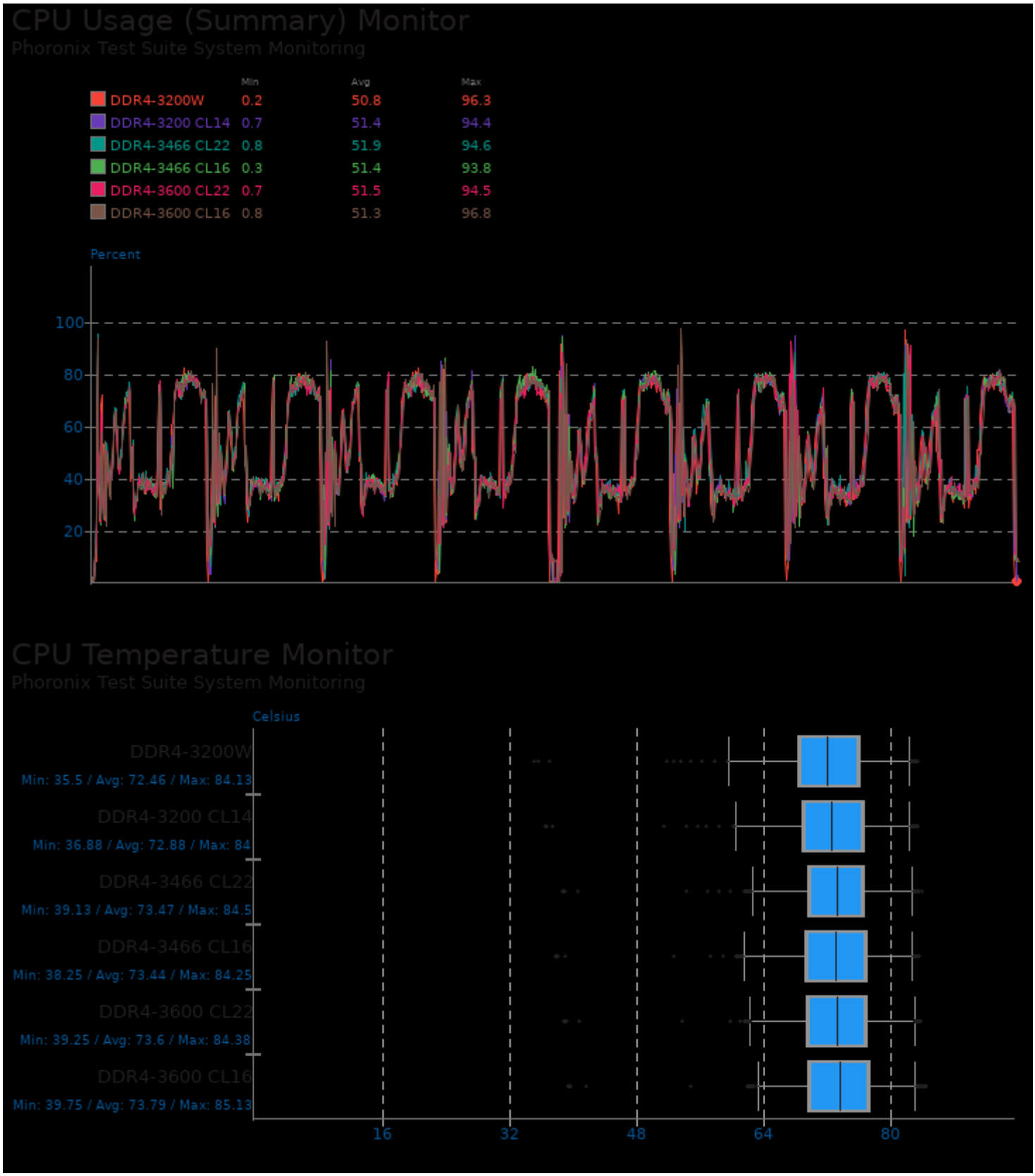
OS: Ubuntu 21.10, Kernel: 5.13.0-21-generic (x86_64), Desktop: GNOME Shell 40.5, Display Server: X Server + Wayland, OpenGL: 4.6 Mesa 21.2.2 (LLVM 12.0.1), Vulkan: 1.2.182, Compiler: GCC 10.3.0, File-System: ext4, Screen Resolution: 1920x1080

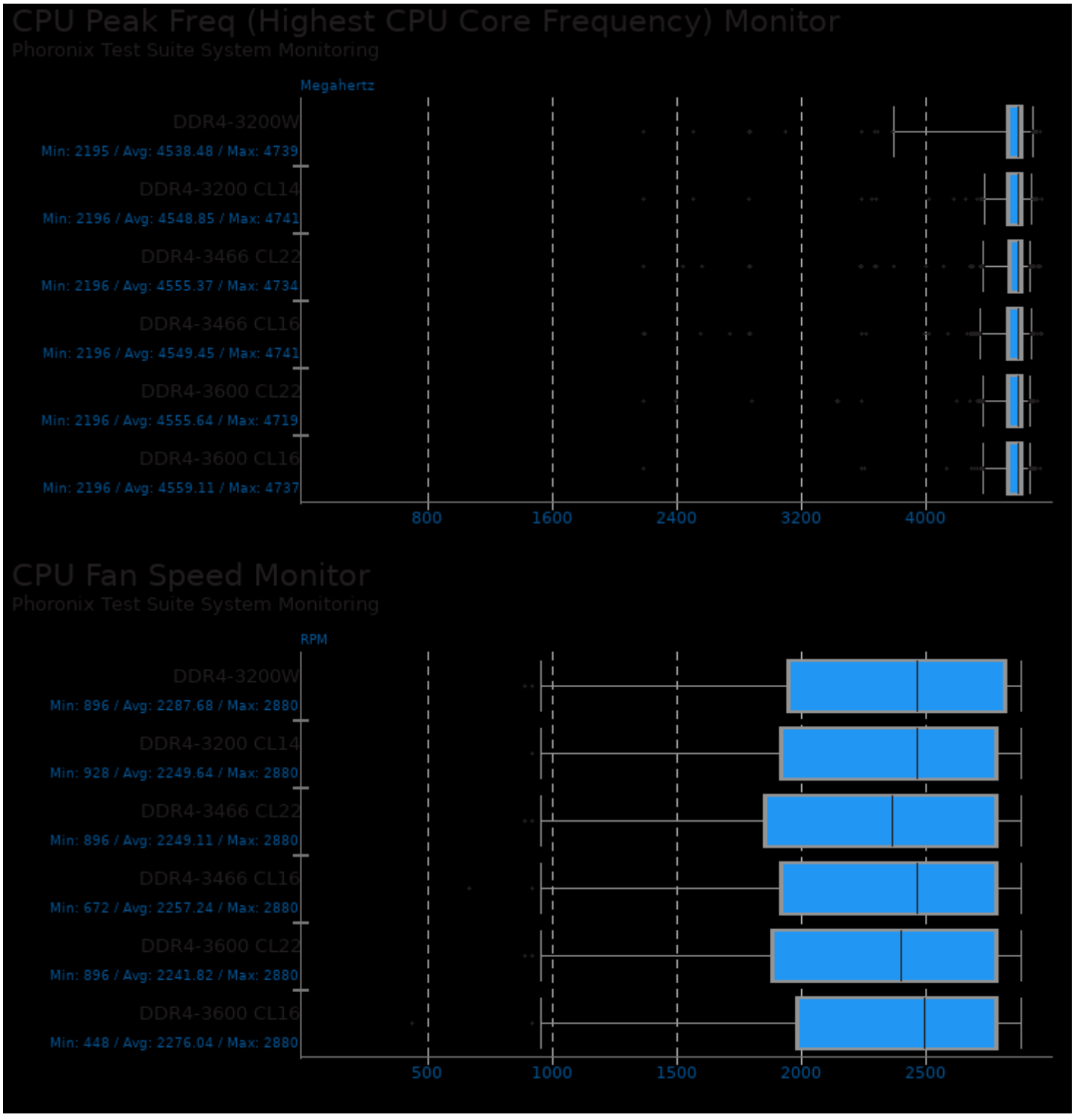
Kernel Notes: Transparent Huge Pages: madvise
Processor Notes: Scaling Governor: acpi-cpufreq schedutil (Boost: Enabled) - CPU Microcode: 0xa201016
Graphics Notes: BAR1 / Visible vRAM Size: 12272 MB
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + 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: always-on RSB filling + srbds: Not affected + tsx_async_abort: Not affected

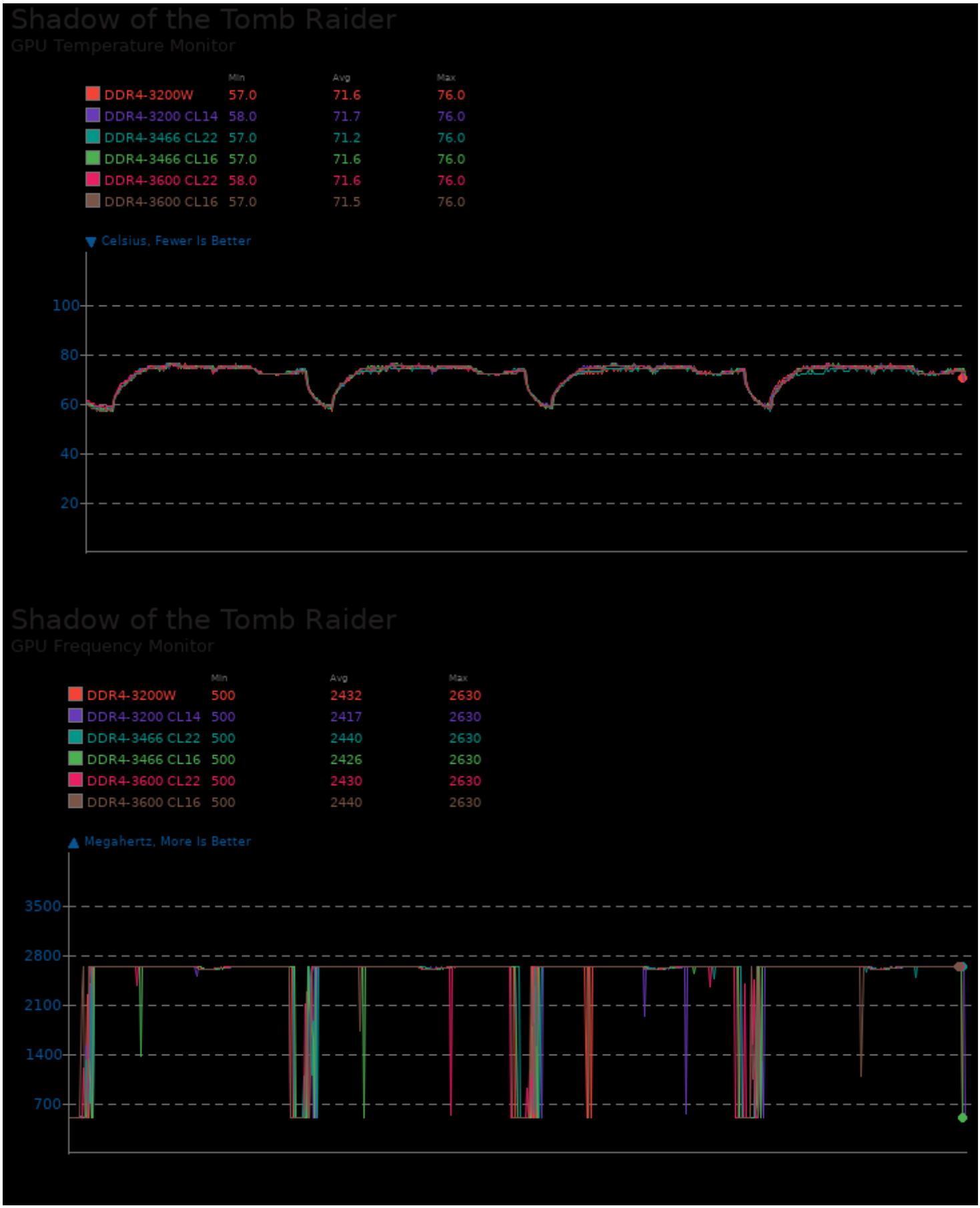
	DDR4-3200W	DDR4-3200 CL14	DDR4-3466 CL22	DDR4-3466 CL16	DDR4-3600 CL22	DDR4-3600 CL16
Shadow of the Tomb Raider - 1920 x 1080 - Medium - Off (FPS)	178.5	178.4	**176.1**	178.3	177.6	**178.9**
Normalized	99.78%	99.72%	98.43%	99.66%	99.27%	100%
Standard Deviation	0.1%	0.1%	0.6%	0.3%	0.2%	0.2%
Shadow of the Tomb Raider - 1920 x 1080 - Highest - Off (FPS)	160.0	159.8	**158.5**	159.9	159.4	**160.2**
Normalized	99.88%	99.75%	98.94%	99.81%	99.5%	100%
Standard Deviation	0.1%	0.3%	0%	0.2%	0.1%	0.1%


Shadow of the Tomb Raider
Resolution: 1920 x 1080 - Graphics Preset: Medium - Anti Aliasing: Off
Frames Per Second, More Is Better
DDR4-3200W
SE +/- 0.13, N = 3
MAX: 332.9
178.5
DDR4-3200 CL14
SE +/- 0.07, N = 3
MAX: 327.3
178.4
DDR4-3466 CL22
SE +/- 0.58, N = 3
MAX: 339.2
176.1
DDR4-3466 CL16
SE +/- 0.34, N = 3
MAX: 327.4
178.3
DDR4-3600 CL22
SE +/- 0.25, N = 3
MAX: 335.4
177.6
DDR4-3600 CL16
SE +/- 0.23, N = 3
MAX: 325.2
178.9
40
80
120
160
200
Shadow of the Tomb Raider
Resolution: 1920 x 1080 - Graphics Preset: Highest - Anti Aliasing: Off
Frames Per Second, More Is Better
DDR4-3200W
SE +/- 0.09, N = 3
MAX: 299.7
160.0
DDR4-3200 CL14
SE +/- 0.26, N = 3
MAX: 303.3
159.8
DDR4-3466 CL22
SE +/- 0.03, N = 3
MAX: 302.5
158.5
DDR4-3466 CL16
SE +/- 0.20, N = 3
MAX: 321.6
159.9
DDR4-3600 CL22
SE +/- 0.06, N = 3
MAX: 321
159.4
DDR4-3600 CL16
SE +/- 0.12, N = 3
MAX: 304.1
160.2
40
80
120
160
200


GPU Temperature Monitor
Phoronix Test Suite System Monitoring
Celsius
DDR4-3200W
Min: 48 / Avg: 71.36 / Max: 76
DDR4-3200 CL14
Min: 55 / Avg: 71.51 / Max: 77
DDR4-3466 CL22
Min: 54 / Avg: 71.39 / Max: 76
DDR4-3466 CL16
Min: 53 / Avg: 71.44 / Max: 76
DDR4-3600 CL22
Min: 50 / Avg: 71.38 / Max: 76
DDR4-3600 CL16
Min: 52 / Avg: 71.16 / Max: 76
15
30
45
60
75
GPU Frequency Monitor
Phoronix Test Suite System Monitoring
Megahertz
DDR4-3200W
Min: 500 / Avg: 2429.53 / Max: 2630
DDR4-3200 CL14
Min: 500 / Avg: 2419.3 / Max: 2630
DDR4-3466 CL22
Min: 500 / Avg: 2434.98 / Max: 2630
DDR4-3466 CL16
Min: 500 / Avg: 2427.52 / Max: 2630
DDR4-3600 CL22
Min: 500 / Avg: 2424.04 / Max: 2630
DDR4-3600 CL16
Min: 500 / Avg: 2422.5 / Max: 2630
500
1000
1500
2000
2500
GPU Fan Speed Monitor
Phoronix Test Suite System Monitoring
Percent
DDR4-3200W
Min: 8 / Avg: 71.44 / Max: 90
20
40
60
80
100

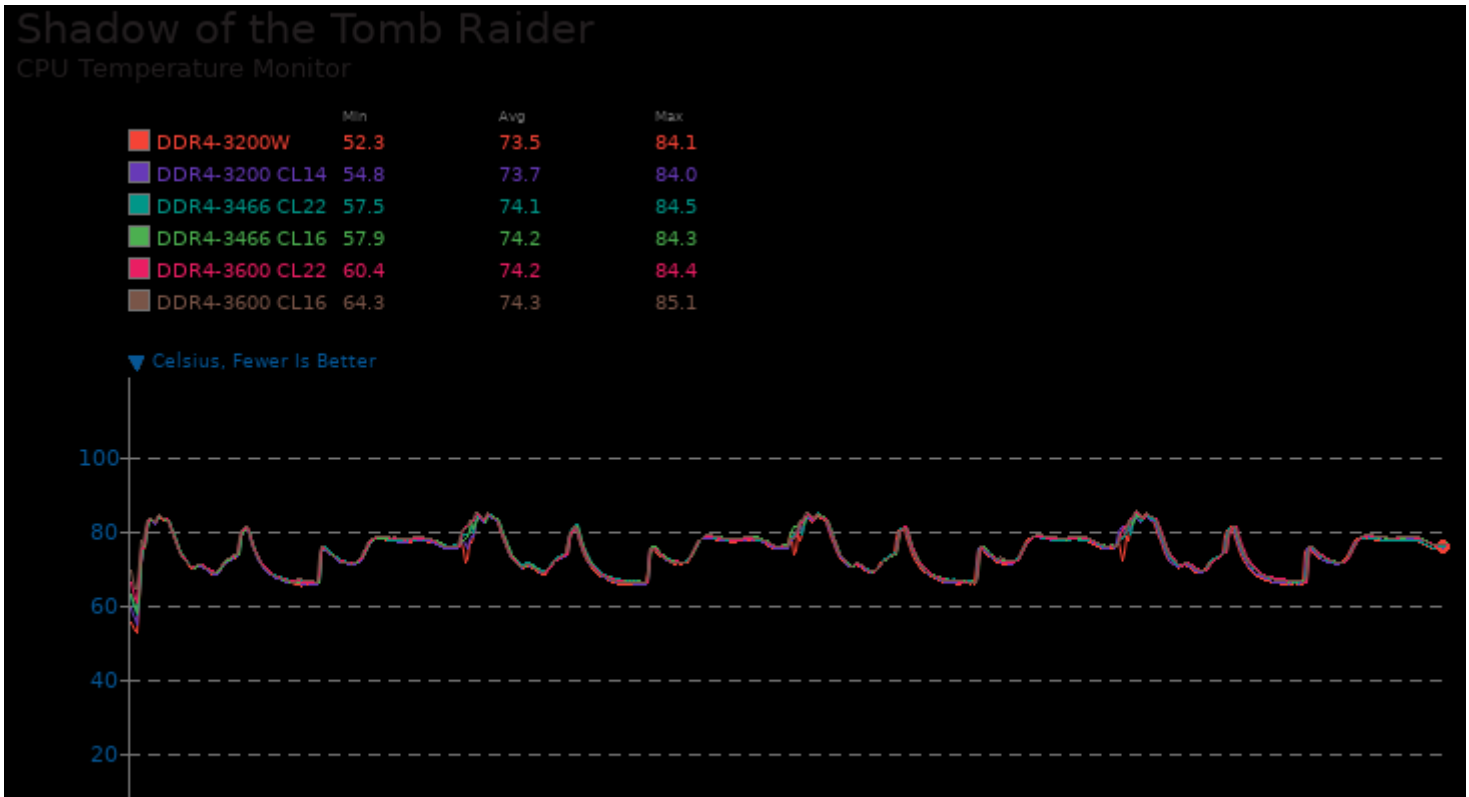

CPU Usage (Summary) Monitor
Phoronix Test Suite System Monitoring
Min
Avg
Max
DDR4-3200W 0.2 50.8 96.3
DDR4-3200 CL14 0.7 51.4 94.4
DDR4-3466 CL22 0.8 51.9 94.6
DDR4-3466 CL16 0.3 51.4 93.8
DDR4-3600 CL22 0.7 51.5 94.5
DDR4-3600 CL16 0.8 51.3 96.8
Percent
100
80
60
40
20
CPU Temperature Monitor
Phoronix Test Suite System Monitoring
Celsius
DDR4-3200W
Min: 35.5 / Avg: 72.46 / Max: 84.13
DDR4-3200 CL14
Min: 36.88 / Avg: 72.88 / Max: 84
DDR4-3466 CL22
Min: 39.13 / Avg: 73.47 / Max: 84.5
DDR4-3466 CL16
Min: 38.25 / Avg: 73.44 / Max: 84.25
DDR4-3600 CL22
Min: 39.25 / Avg: 73.6 / Max: 84.38
DDR4-3600 CL16
Min: 39.75 / Avg: 73.79 / Max: 85.13
16
32
48
64
80

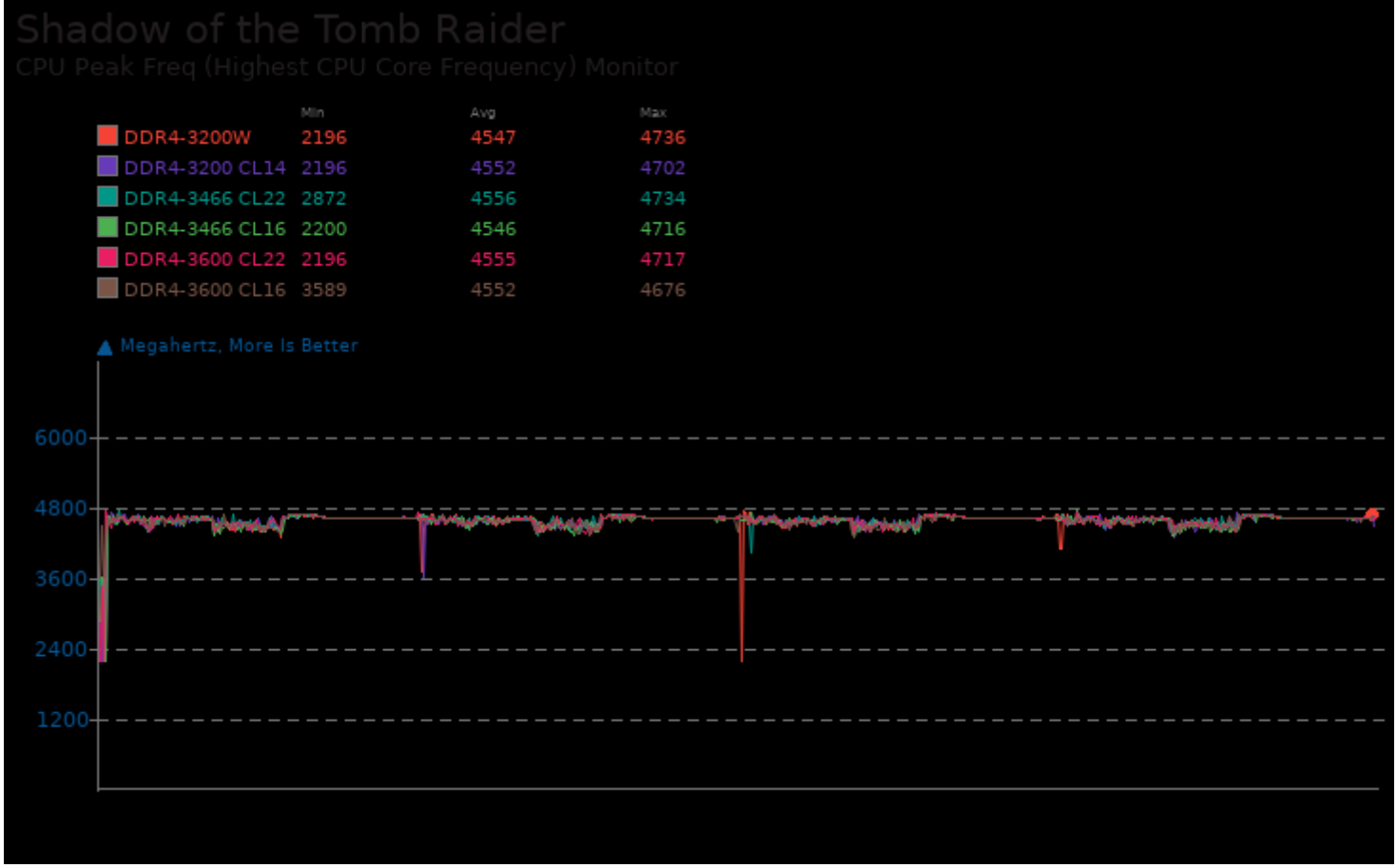

CPU Peak Freq (Highest CPU Core Frequency) Monitor
Phoronix Test Suite System Monitoring
Megahertz
DDR4-3200W
Min: 2195 / Avg: 4538.48 / Max: 4739
DDR4-3200 CL14
Min: 2196 / Avg: 4548.85 / Max: 4741
DDR4-3466 CL22
Min: 2196 / Avg: 4555.37 / Max: 4734
DDR4-3466 CL16
Min: 2196 / Avg: 4549.45 / Max: 4741
DDR4-3600 CL22
Min: 2196 / Avg: 4555.64 / Max: 4719
DDR4-3600 CL16
Min: 2196 / Avg: 4559.11 / Max: 4737
800
1600
2400
3200
4000
CPU Fan Speed Monitor
Phoronix Test Suite System Monitoring
RPM
DDR4-3200W
Min: 896 / Avg: 2287.68 / Max: 2880
DDR4-3200 CL14
Min: 928 / Avg: 2249.64 / Max: 2880
DDR4-3466 CL22
Min: 896 / Avg: 2249.11 / Max: 2880
DDR4-3466 CL16
Min: 672 / Avg: 2257.24 / Max: 2880
DDR4-3600 CL22
Min: 896 / Avg: 2241.82 / Max: 2880
DDR4-3600 CL16
Min: 448 / Avg: 2276.04 / Max: 2880
500
1000
1500
2000
2500

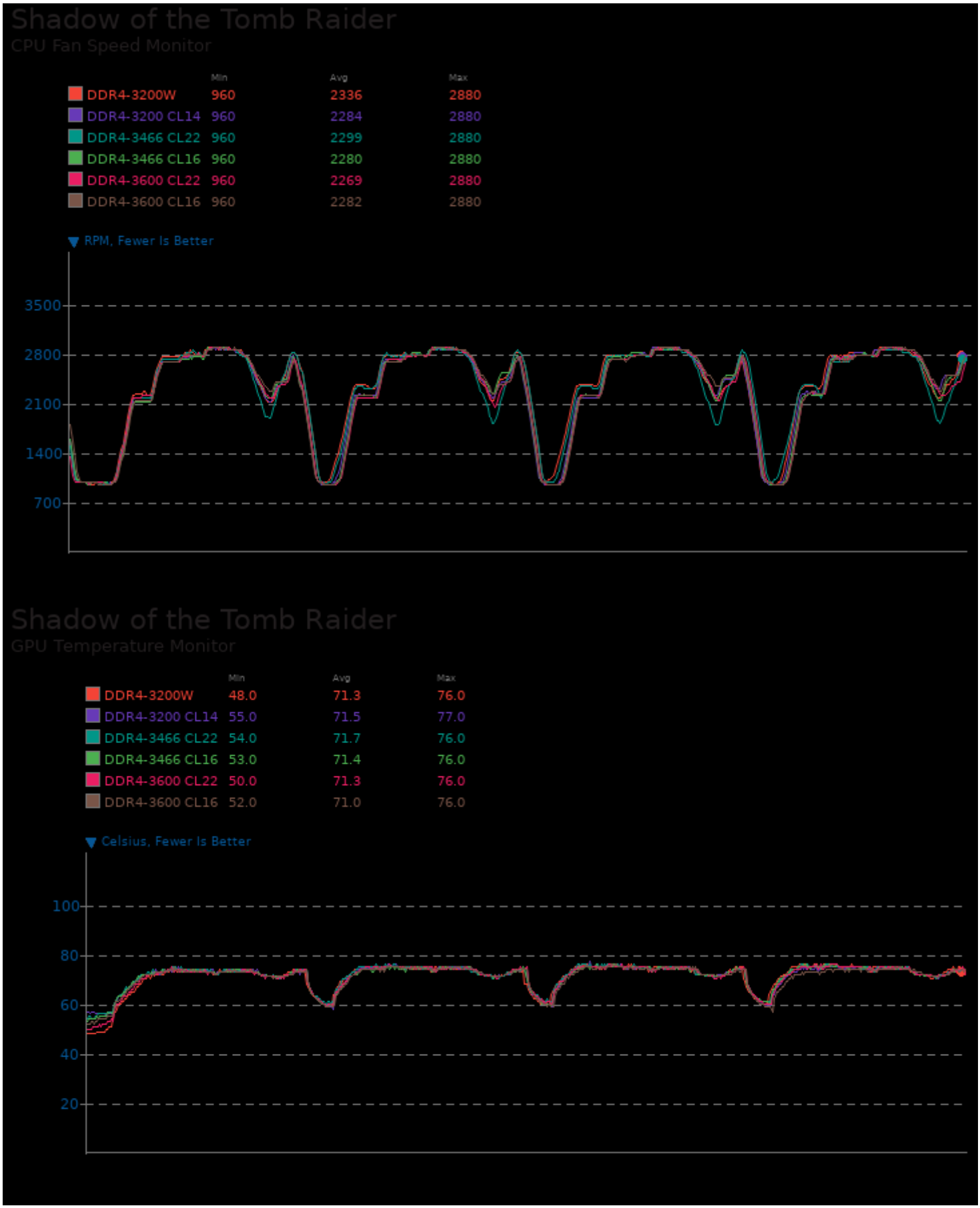

Shadow of the Tomb Raider
GPU Temperature Monitor
Min Avg Max
DDR4-3200W 57.0 71.6 76.0
DDR4-3200 CL14 58.0 71.7 76.0
DDR4-3466 CL22 57.0 71.2 76.0
DDR4-3466 CL16 57.0 71.6 76.0
DDR4-3600 CL22 58.0 71.6 76.0
DDR4-3600 CL16 57.0 71.5 76.0
▼ Celsius, Fewer Is Better
100
80
60
40
20

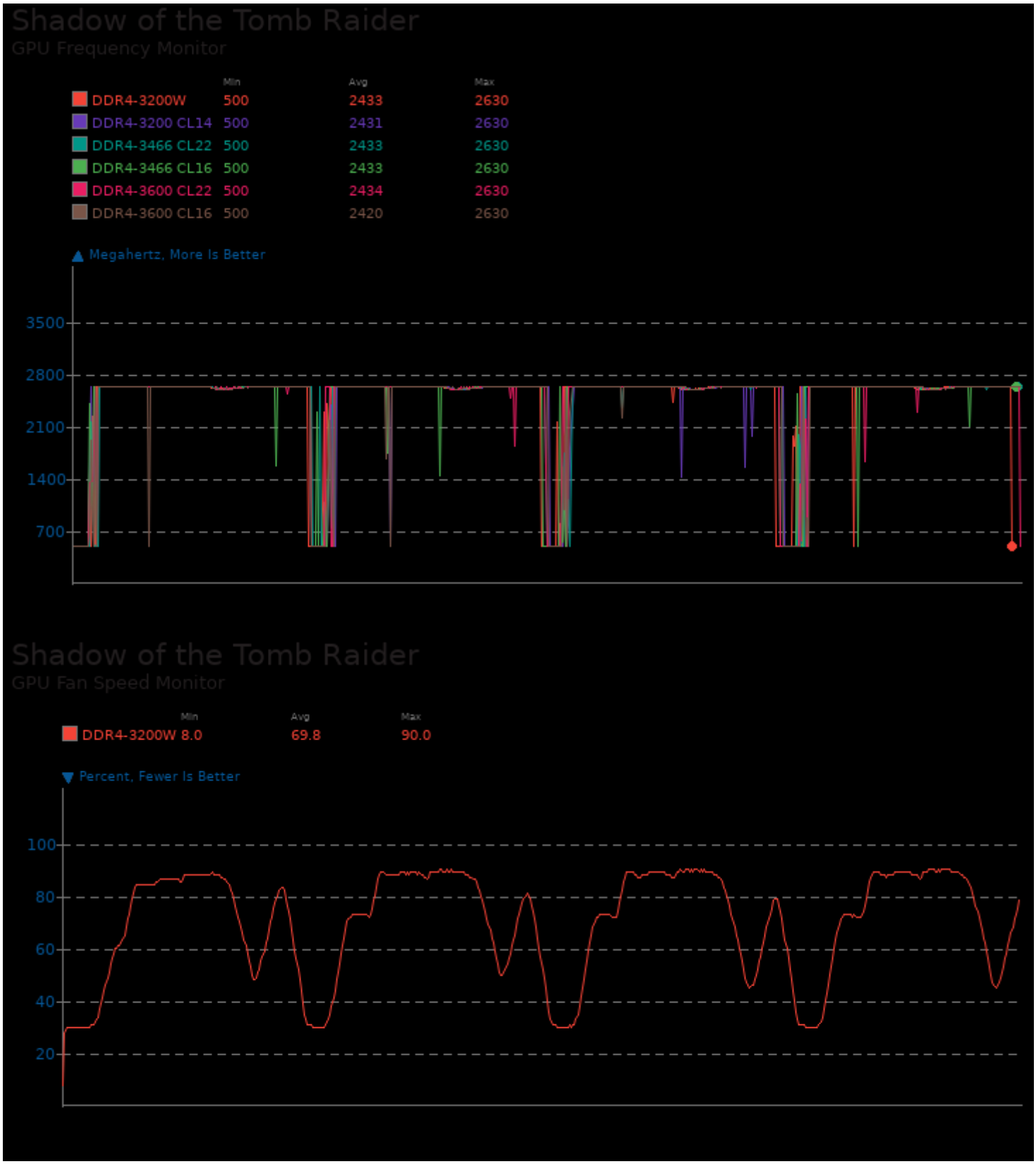
Shadow of the Tomb Raider
GPU Frequency Monitor
Min Avg Max
DDR4-3200W 500 2432 2630
DDR4-3200 CL14 500 2417 2630
DDR4-3466 CL22 500 2440 2630
DDR4-3466 CL16 500 2426 2630
DDR4-3600 CL22 500 2430 2630
DDR4-3600 CL16 500 2440 2630
▲ Megahertz, More Is Better
3500
2800
2100
1400
700


Shadow of the Tomb Raider
GPU Fan Speed Monitor
Min
Avg
Max
DDR4-3200W 30.0
73.0
90.0
Percent, Fewer Is Better
100
80
60
40
20
Shadow of the Tomb Raider
CPU Usage (Summary) Monitor
Min
Avg
Max
DDR4-3200W 0.3 50.5 96.3
DDR4-3200 CL14 1.0 51.1 94.4
DDR4-3466 CL22 1.0 51.8 92.0
DDR4-3466 CL16 0.8 50.9 93.8
DDR4-3600 CL22 0.8 51.3 94.5
DDR4-3600 CL16 0.8 50.6 96.8
Percent, Fewer Is Better
100
80
60
40
20

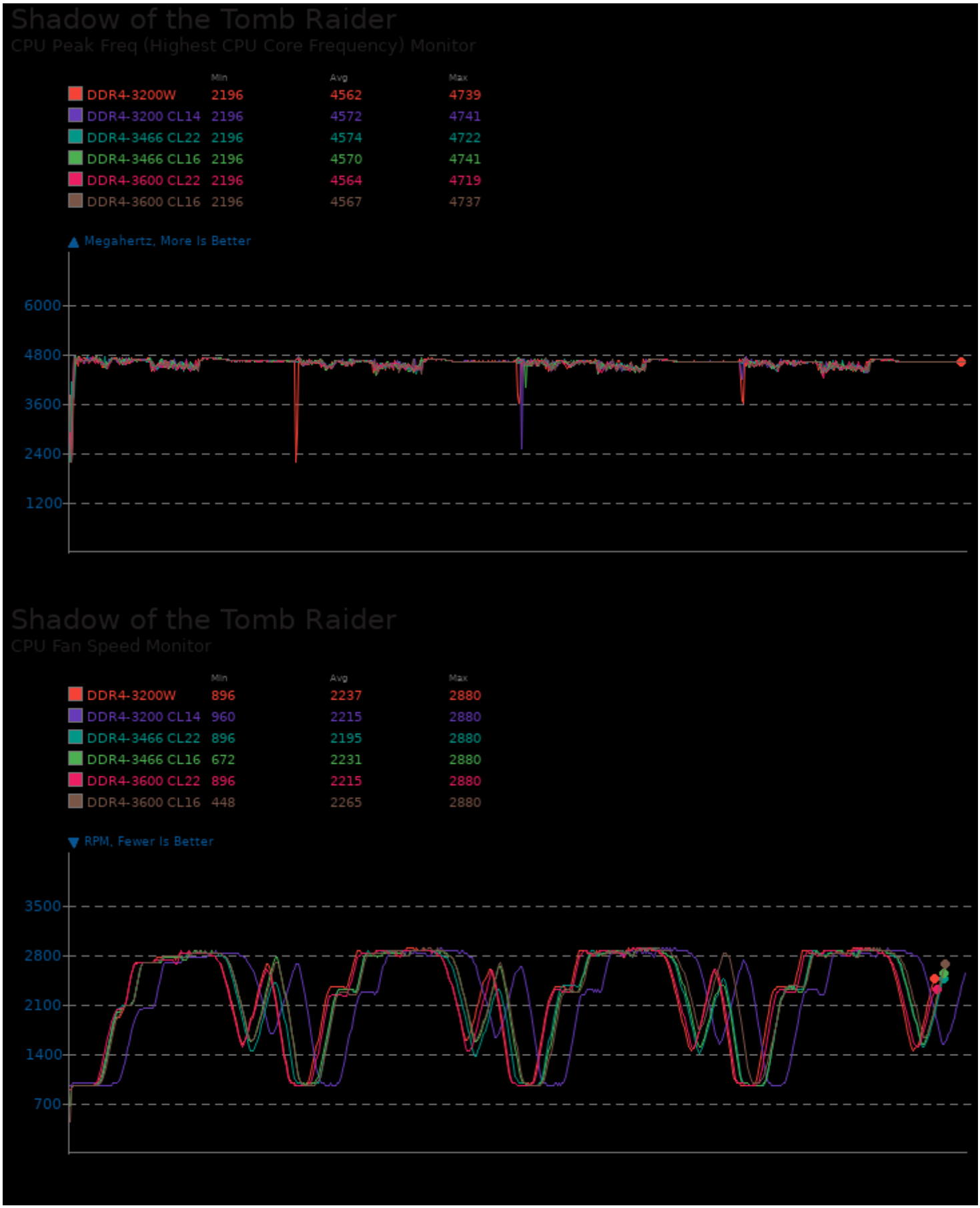

Shadow of the Tomb Raider
CPU Temperature Monitor
Min Avg Max
DDR4-3200W 52.3 73.5 84.1
DDR4-3200 CL14 54.8 73.7 84.0
DDR4-3466 CL22 57.5 74.1 84.5
DDR4-3466 CL16 57.9 74.2 84.3
DDR4-3600 CL22 60.4 74.2 84.4
DDR4-3600 CL16 64.3 74.3 85.1
▼ Celsius, Fewer Is Better
100
80
60
40
20


Shadow of the Tomb Raider
CPU Peak Freq (Highest CPU Core Frequency) Monitor
Min Avg Max
DDR4-3200W 2196 4547 4736
DDR4-3200 CL14 2196 4552 4702
DDR4-3466 CL22 2872 4556 4734
DDR4-3466 CL16 2200 4546 4716
DDR4-3600 CL22 2196 4555 4717
DDR4-3600 CL16 3589 4552 4676
▲ Megahertz, More Is Better
6000
4800
3600
2400
1200


Shadow of the Tomb Raider
CPU Fan Speed Monitor
Min
Avg
Max
DDR4-3200W 960 2336 2880
DDR4-3200 CL14 960 2284 2880
DDR4-3466 CL22 960 2299 2880
DDR4-3466 CL16 960 2280 2880
DDR4-3600 CL22 960 2269 2880
DDR4-3600 CL16 960 2282 2880
RPM, Fewer Is Better
3500
2800
2100
1400
700
Shadow of the Tomb Raider
GPU Temperature Monitor
Min
Avg
Max
DDR4-3200W 48.0 71.3 76.0
DDR4-3200 CL14 55.0 71.5 77.0
DDR4-3466 CL22 54.0 71.7 76.0
DDR4-3466 CL16 53.0 71.4 76.0
DDR4-3600 CL22 50.0 71.3 76.0
DDR4-3600 CL16 52.0 71.0 76.0
Celsius, Fewer Is Better
100
80
60
40
20


Shadow of the Tomb Raider
GPU Frequency Monitor
Min
Avg
Max
DDR4-3200W 500 2433 2630
DDR4-3200 CL14 500 2431 2630
DDR4-3466 CL22 500 2433 2630
DDR4-3466 CL16 500 2433 2630
DDR4-3600 CL22 500 2434 2630
DDR4-3600 CL16 500 2420 2630
Megahertz, More Is Better
3500
2800
2100
1400
700
Shadow of the Tomb Raider
GPU Fan Speed Monitor
Min
Avg
Max
DDR4-3200W 8.0 69.8 90.0
Percent, Fewer Is Better
100
80
60
40
20


Shadow of the Tomb Raider
CPU Usage (Summary) Monitor
Min
Avg
Max
DDR4-3200W 0.2 52.3 82.0
DDR4-3200 CL14 1.0 52.8 90.2
DDR4-3466 CL22 1.2 53.1 94.6
DDR4-3466 CL16 0.3 53.0 89.7
DDR4-3600 CL22 0.8 52.7 86.9
DDR4-3600 CL16 1.0 53.1 93.3
Percent, Fewer Is Better
100
80
60
40
20
Shadow of the Tomb Raider
CPU Temperature Monitor
Min
Avg
Max
DDR4-3200W 35.5 71.6 83.9
DDR4-3200 CL14 36.9 72.1 83.9
DDR4-3466 CL22 39.1 72.8 84.3
DDR4-3466 CL16 38.3 72.7 84.1
DDR4-3600 CL22 39.3 73.0 84.1
DDR4-3600 CL16 39.8 73.3 85.0
Celsius, Fewer Is Better
100
80
60
40
20



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