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Ubuntu 17.10 SSD HDD Gaming

Intel Core i7-8700K testing with a ASUS PRIME Z370-A and MSI AMD Radeon RX 580 8192MB on Ubuntu 17.10 via the Phoronix Test Suite.

Automated Executive Summary

Samsung 950 PRO NVMe had the most wins, coming in first place for 52% of the tests.

Based on the geometric mean of all complete results, the fastest (Crucial CT525MX3) was 1.013x the speed of the slowest (Western Digital WD5000AADS-0). Samsung 950 PRO NVMe was 0.995x the speed of Crucial CT525MX3 and Western Digital WD5000AADS-0 was 0.992x the speed of Samsung 950 PRO NVMe.

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

Civilization VI (Quality: Highest - Resolution: 1920 x 1080 - Total Frame Time) at 5.795x
Unigine Superposition (Test Run Time - Resolution: 1920 x 1080 - Mode: Fullscreen - Quality: High) at 1.29x
Serious Sam 3: BFE (Resolution: 3840 x 2160 - Quality: Ultra - Renderer: Vulkan) at 1.085x
Tesseract (Resolution: 3840 x 2160) at 1.051x
Xonotic (Test Run Time - Resolution: 3840 x 2160 - Effects Quality: Ultimate) at 1.051x
Dawn of War III (Resolution: 1920 x 1080 - Graphics Preset: Low - Renderer: OpenGL) at 1.046x
Xonotic (Resolution: 3840 x 2160 - Effects Quality: Ultimate) at 1.028x
Dota 2 (Resolution: 3840 x 2160 - Renderer: OpenGL) at 1.017x

Metro: Last Light Redux (Test Run Time - Resolution: 3840 x 2160) at 1.015x
Dawn of War III (Test Run Time - Resolution: 1920 x 1080 - Graphics Preset: Ultra - Renderer: Vulkan) at 1.015x.

Test Systems:

Samsung 950 PRO NVMe

Processor: Intel Core i7-8700K @ 4.70GHz (6 Cores / 12 Threads), Motherboard: ASUS PRIME Z370-A, Chipset: Intel Device 3ec2, Memory: 16384MB, Disk: 525GB Crucial_CT525MX3 + Samsung SSD 950 PRO 256GB, Graphics: MSI AMD Radeon RX 580 8192MB, Audio: Realtek ALC1220, Monitor: DELL P2415Q, Network: Intel Connection

OS: Ubuntu 17.10, Kernel: 4.14.0-041400-generic (x86_64), Desktop: GNOME Shell 3.26.1, Display Server: Wayland, Display Driver: modesetting 1.19.5, OpenGL: 4.5 Mesa 17.4.0-devel- padoka PPA (LLVM 6.0.0), Vulkan: 1.0.61, Compiler: GCC 7.2.0, File-System: ext4, Screen Resolution: 3840x2160

Environment Notes: GJS_DEBUG_TOPICS=JS ERROR;JS LOG GJS_DEBUG_OUTPUT=stderr
Processor Notes: Scaling Governor: intel_pstate powersave

Western Digital WD5000AADS-0

Processor: Intel Core i7-8700K @ 4.70GHz (6 Cores / 12 Threads), Motherboard: ASUS PRIME Z370-A, Chipset: Intel Device 3ec2, Memory: 16384MB, Disk: 500GB Western Digital WD5000AADS-0, Graphics: MSI AMD Radeon RX 580 8192MB, Audio: Realtek ALC1220, Monitor: DELL P2415Q, Network: Intel Connection

OS: Ubuntu 17.10, Kernel: 4.14.0-041400-generic (x86_64), Desktop: GNOME Shell 3.26.1, Display Server: Wayland, OpenGL: 4.5 Mesa 17.4.0-devel- padoka PPA (LLVM 6.0.0), Vulkan: 1.0.61, Compiler: GCC 7.2.0, File-System: ext4, Screen Resolution: 3840x2160

Environment Notes: GJS_DEBUG_TOPICS=JS ERROR;JS LOG GJS_DEBUG_OUTPUT=stderr
Processor Notes: Scaling Governor: intel_pstate powersave

Crucial CT525MX3

Processor: Intel Core i7-8700K @ 4.70GHz (6 Cores / 12 Threads), Motherboard: ASUS PRIME Z370-A, Chipset: Intel Device 3ec2, Memory: 16384MB, Disk: 525GB Crucial_CT525MX3, Graphics: MSI AMD Radeon RX 580 8192MB, Audio: Realtek ALC1220, Monitor: DELL P2415Q, Network: Intel Connection

OS: Ubuntu 17.10, Kernel: 4.14.0-041400-generic (x86_64), Desktop: GNOME Shell 3.26.1, Display Server: Wayland, OpenGL: 4.5 Mesa 17.4.0-devel- padoka PPA (LLVM 6.0.0), Vulkan: 1.0.61, Compiler: GCC 7.2.0, File-System: ext4, Screen Resolution: 3840x2160

Environment Notes: GJS_DEBUG_TOPICS=JS ERROR;JS LOG GJS_DEBUG_OUTPUT=stderr
Processor Notes: Scaling Governor: intel_pstate powersave

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	Samsung 950 PRO NVMe	Western Digital WD5000AADS-0	Crucial CT525MX3
BioShock Infinite - 3840 x 2160 - Medium	87.25	87.06	87.13
Normalized	100%	99.78%	99.86%
Standard Deviation	0%	0.1%	0.1%
BioShock Infinite - Test Run Time - 3840 x 2160 - Medium (sec)	95.8	100.84	95.82
Normalized	100%	95%	99.98%
Standard Deviation	0.6%	9.2%	0.6%
Deus Ex: Mankind Divided - 1920 x 1080 - High Quality (FPS)	52.17	52.10	52.60
Normalized	99.18%	99.05%	100%
Standard Deviation	0.9%	1.7%	0.7%
Deus Ex: Mankind Divided - Test Run Time - 1920 x 1080 - High Quality (sec)	120.52	174.76	120.19
Normalized	99.73%	68.77%	100%
Standard Deviation	3%	55.6%	2.9%
Deus Ex: Mankind Divided - 2560 x 1440 - High Quality (FPS)	35.40	35.57	35.67
Normalized	99.24%	99.72%	100%
Standard Deviation	0.6%	0.3%	1%
Deus Ex: Mankind Divided - Test Run Time - 2560 x 1440 - High Quality (sec)	120.3	119.81	120.09
Normalized	99.59%	100%	99.77%
Standard Deviation	0.2%	0.3%	0.3%
Dota 2 - 3840 x 2160 - OpenGL (FPS)	61.37	60.33	61.23
Normalized	100%	98.31%	99.77%
Standard Deviation	0.5%	2.9%	0.8%
Dota 2 - Test Run Time - 3840 x 2160 - OpenGL (sec)	30.36	55.83	29.03
Normalized	95.62%	52%	100%
Standard Deviation	6%	80.8%	4.6%
Dota 2 - 3840 x 2160 - Vulkan (FPS)	50.63	50.30	50.73
Normalized	99.8%	99.15%	100%
Standard Deviation	0.1%	2.2%	0.5%
Dota 2 - Test Run Time - 3840 x 2160 - Vulkan (sec)	33.38	36.65	33.55
Normalized	100%	91.08%	99.49%
Standard Deviation	0.4%	14.4%	2%
Metro: Last Light Redux - 3840 x 2160 (FPS)	60.83	60.69	61.08
Normalized	99.59%	99.36%	100%
Standard Deviation	0.2%	0.2%	0.1%
Metro: Last Light Redux - Test Run Time - 3840 x 2160 (sec)	182.57	184.54	181.82
Normalized	99.59%	98.53%	100%
Standard Deviation	1.1%	2.4%	0.7%
Serious Sam 3: BFE - 3840 x 2160 - Ultra - Vulkan (FPS)	41.07	39.03	42.33
Normalized	97.02%	92.2%	100%
Standard Deviation	5.9%	4.7%	0.3%
Serious Sam 3: BFE - Test Run Time - 3840 x 2160 - Ultra - Vulkan (sec)	95.38	95.42	95.5
Normalized	100%	99.96%	99.87%

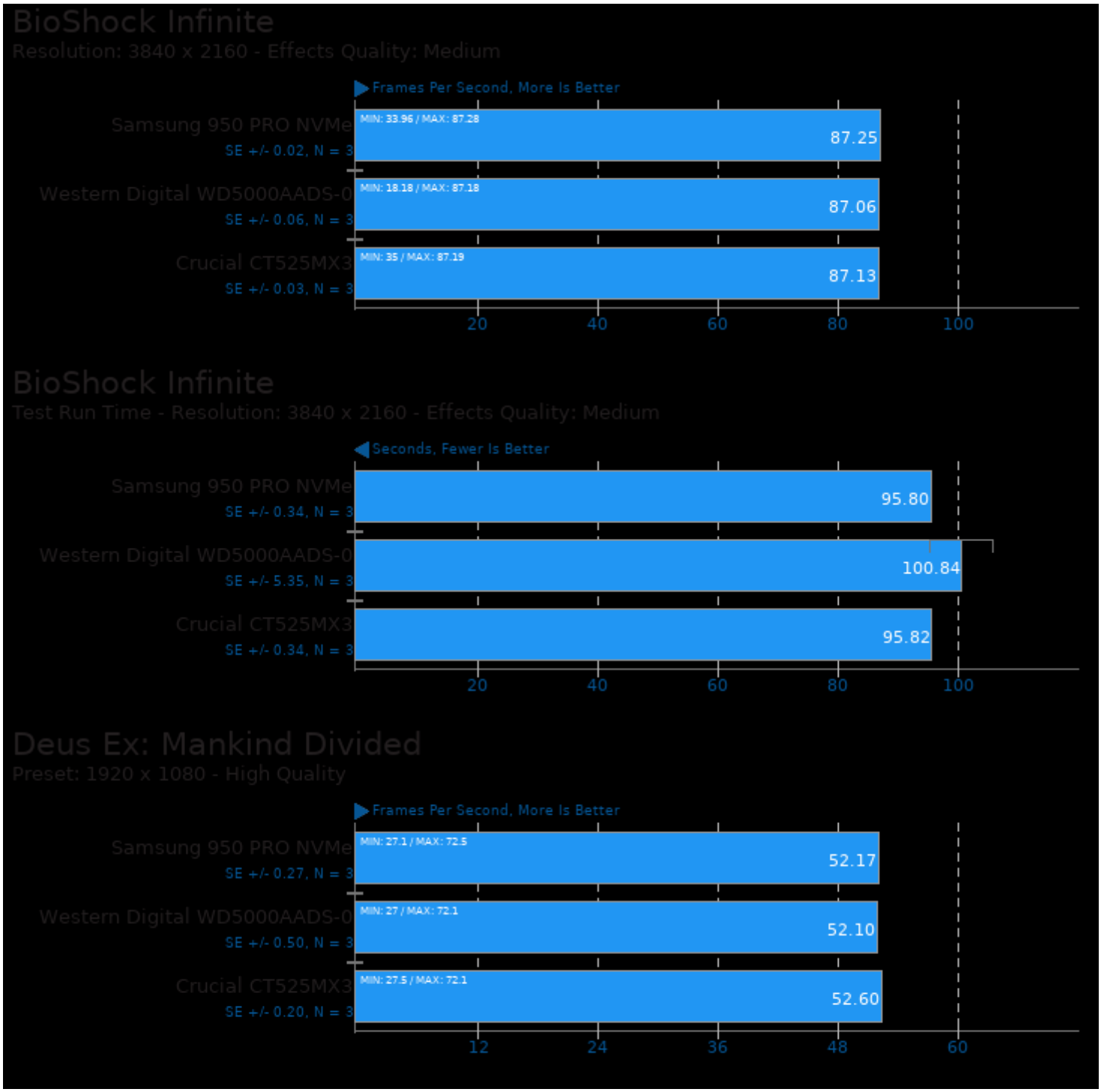
Ubuntu 17.10 SSD HDD Gaming

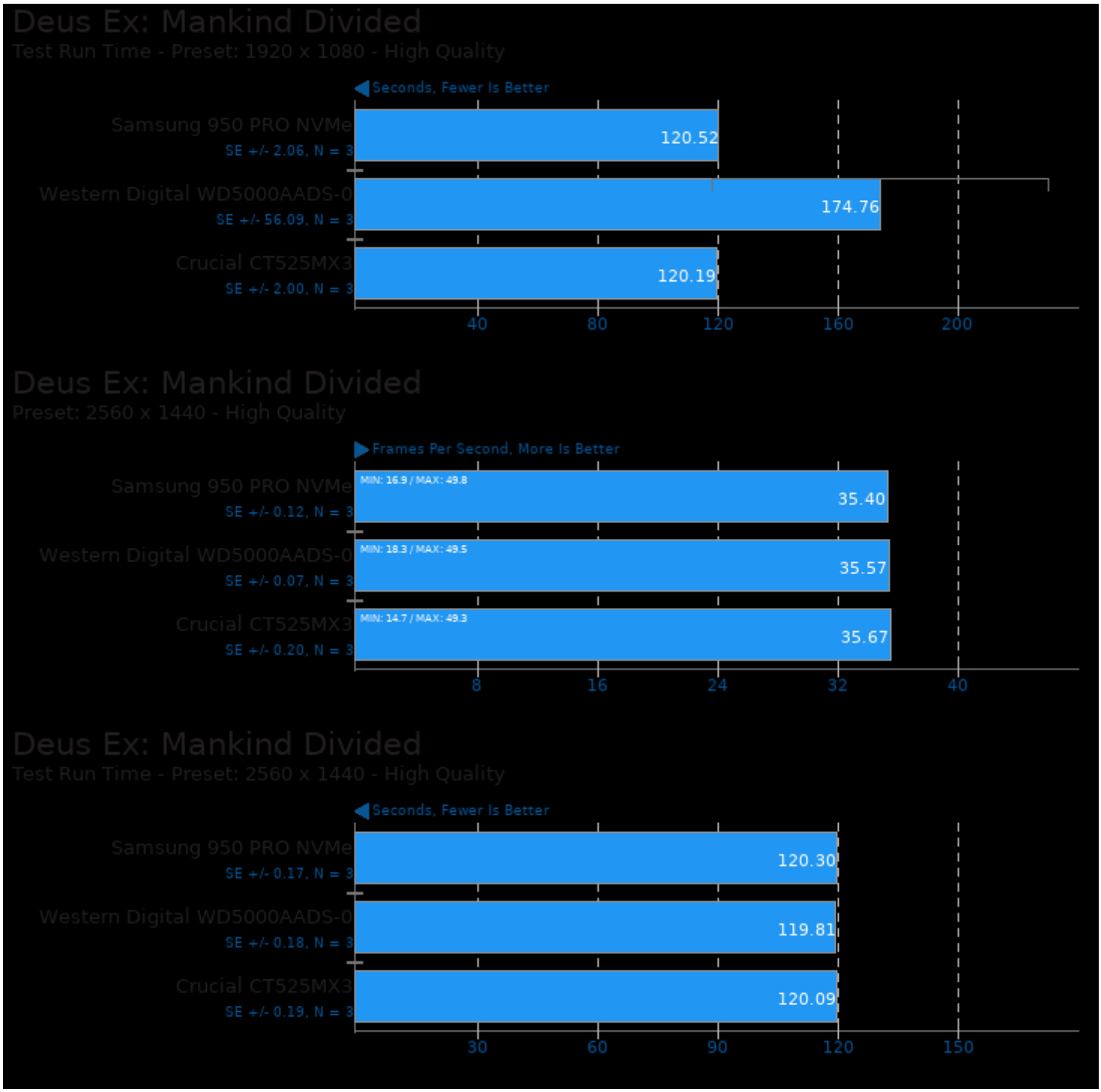
Standard Deviation	0.4%	0.5%	0.7%
Civilization VI - Highest - 1920 x 1080 (FPS)	**36.77**	36.40	**36.32**
Normalized	100%	98.99%	98.78%
Standard Deviation	0.6%	0.3%	0.6%
Civilization VI - Test Run Time - Highest - 1920 x 1080 (sec)	**105.81**	**143.75**	105.99
Normalized	100%	73.61%	99.83%
Standard Deviation	9.9%	51%	10.1%
The Talos Principle - Vulkan - 3840 x 2160 (FPS)	**38.90**	43.57	**43.70**
Normalized	89.02%	99.7%	100%
Standard Deviation	8.5%	0.5%	0.4%
The Talos Principle - Test Run Time - Vulkan - 3840 x 2160 (sec)	60.66	**63.08**	**60.27**
Normalized	99.36%	95.55%	100%
Standard Deviation	1.7%	7.9%	0.6%
Tomb Raider - 3840 x 2160 - Normal (FPS)	**69.37**	**69.17**	
Normalized	100%	99.71%	
Standard Deviation	0.3%	0.1%	
Tomb Raider - Test Run Time - 3840 x 2160 - Normal (sec)	75.27	**79.1**	**0.02**
Normalized	0.03%	0.03%	100%
Standard Deviation	0.8%	9%	14.3%
Dawn of War III - 1920 x 1080 - Low - Vulkan (FPS)	**78.20**	77.26	**71.49**
Normalized	100%	98.8%	91.42%
Standard Deviation	1.7%	5.7%	17.3%
Dawn of War III - Test Run Time - 1920 x 1080 - Low - Vulkan (sec)	81.27	**92.01**	**80.95**
Normalized	99.61%	87.98%	100%
Standard Deviation	4.7%	24.2%	5%
Dawn of War III - 1920 x 1080 - Low - OpenGL (FPS)	27.79	**27.17**	**28.42**
Normalized	97.78%	95.6%	100%
Standard Deviation	3.2%	1%	1.8%
Dawn of War III - Test Run Time - 1920 x 1080 - Low - OpenGL (sec)	**79.76**	**80.44**	80.08
Normalized	100%	99.15%	99.6%
Standard Deviation	0.7%	1.2%	0.7%
Dawn of War III - 1920 x 1080 - Ultra - Vulkan (FPS)	57.86	**56.88**	**58.32**
Normalized	99.21%	97.53%	100%
Standard Deviation	2.6%	6.3%	3.5%
Dawn of War III - Test Run Time - 1920 x 1080 - Ultra - Vulkan (sec)	**85.47**	**84.23**	85.16
Normalized	98.55%	100%	98.91%
Standard Deviation	2.3%	1.4%	1.8%
Dawn of War III - 1920 x 1080 - Ultra - OpenGL (FPS)	**26.62**	**26.27**	26.34
Normalized	100%	98.69%	98.95%
Standard Deviation	3.9%	3.5%	4.7%

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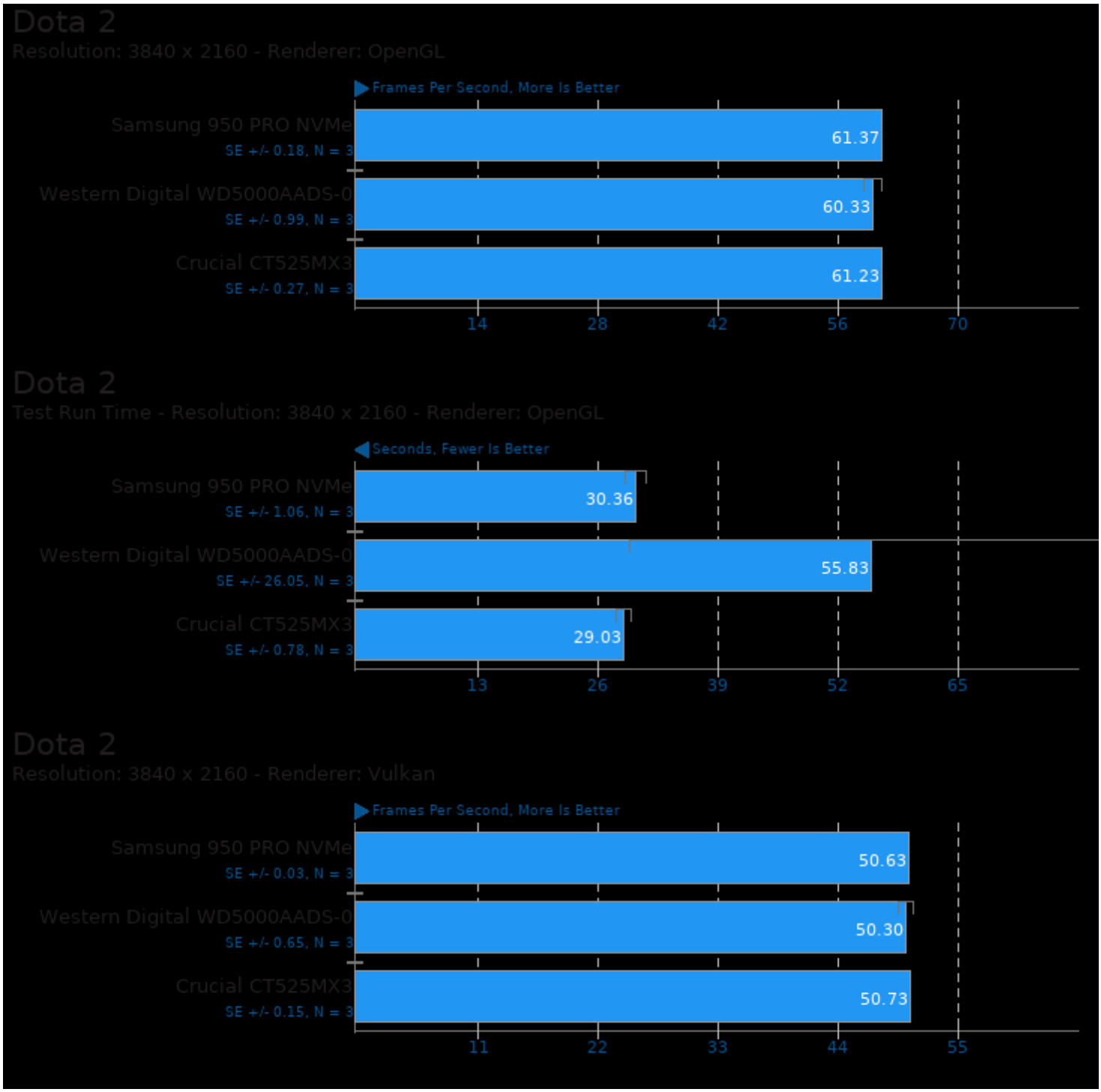
Dawn of War III - Test Run Time - 1920 x 1080 - Ultra - OpenGL (sec)	84.1	**84.08**	**84.15**
Normalized	99.98%	100%	99.92%
Standard Deviation	0.7%	0.7%	0.7%
Unigine Superposition - 1920 x 1080 - Fullscreen - High (FPS)	**11**	**10.90**	**11**
Normalized	100%	99.09%	100%
Unigine Superposition - Test Run Time - 1920 x 1080 - Fullscreen - High (sec)	**195.73**	**252.46**	202.4
Normalized	100%	77.53%	96.7%
Tesseract - 3840 x 2160 (FPS)	**187.16**	**178.00**	186.29
Normalized	100%	95.11%	99.54%
Standard Deviation	1.2%	3.5%	
Tesseract - Test Run Time - 3840 x 2160	21.74	**33.4**	**11.86**
Normalized	54.55%	35.51%	100%
Standard Deviation	80.2%	8.1%	150%
Xonotic - 3840 x 2160 - Ultimate (FPS)	**173.41**	**168.64**	173.07
Normalized	100%	97.25%	99.8%
Standard Deviation	1.3%	1.6%	0.5%
Xonotic - Test Run Time - 3840 x 2160 - Ultimate (sec)	**66.73**	**70.15**	66.92
Normalized	100%	95.12%	99.72%
Standard Deviation	1.1%	4.5%	0.2%

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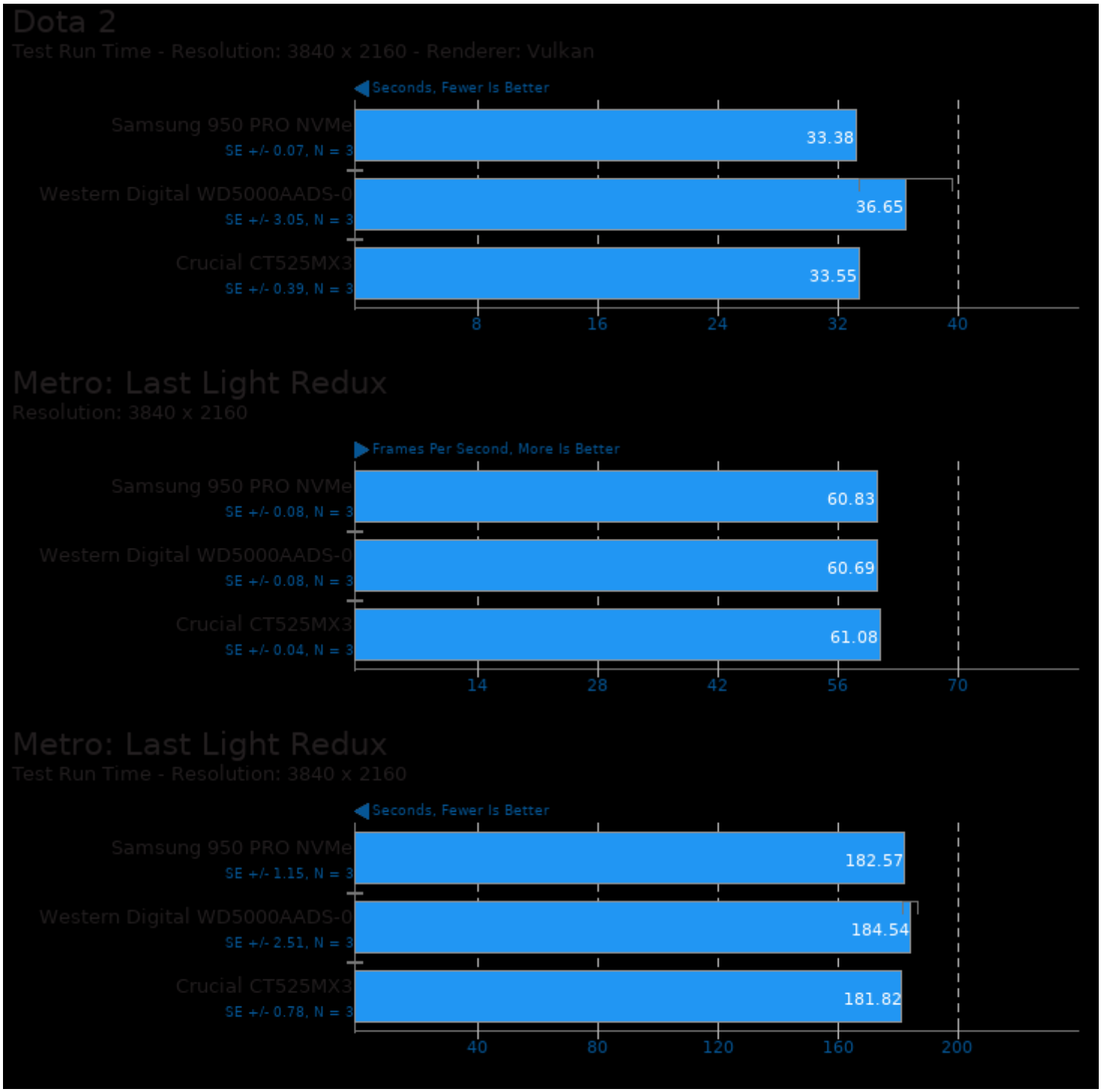


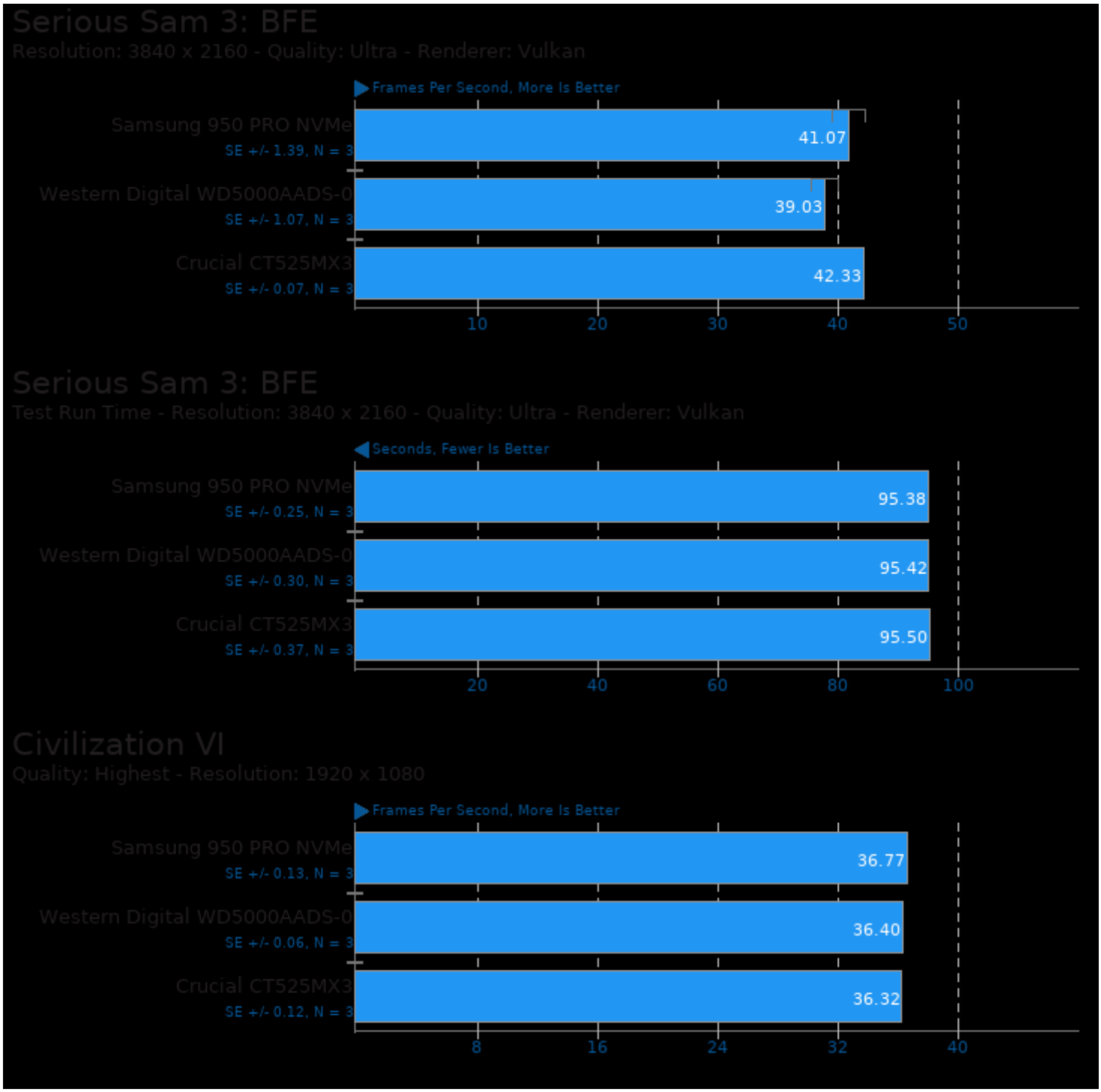

Deus Ex: Mankind Divided
Test Run Time - Preset: 1920 x 1080 - High Quality
Seconds, Fewer Is Better
Samsung 950 PRO NVMe
SE +/- 2.06, N = 3
120.52
Western Digital WD5000AADS-0
SE +/- 56.09, N = 3
174.76
Crucial CT525MX3
SE +/- 2.00, N = 3
120.19
40
80
120
160
200
Deus Ex: Mankind Divided
Preset: 2560 x 1440 - High Quality
Frames Per Second, More Is Better
Samsung 950 PRO NVMe
SE +/- 0.12, N = 3
MIN: 16.9 / MAX: 49.8
35.40
Western Digital WD5000AADS-0
SE +/- 0.07, N = 3
MIN: 18.3 / MAX: 49.5
35.57
Crucial CT525MX3
SE +/- 0.20, N = 3
MIN: 14.7 / MAX: 49.3
35.67
8
16
24
32
40
Deus Ex: Mankind Divided
Test Run Time - Preset: 2560 x 1440 - High Quality
Seconds, Fewer Is Better
Samsung 950 PRO NVMe
SE +/- 0.17, N = 3
120.30
Western Digital WD5000AADS-0
SE +/- 0.18, N = 3
119.81
Crucial CT525MX3
SE +/- 0.19, N = 3
120.09
30
60
90
120
150

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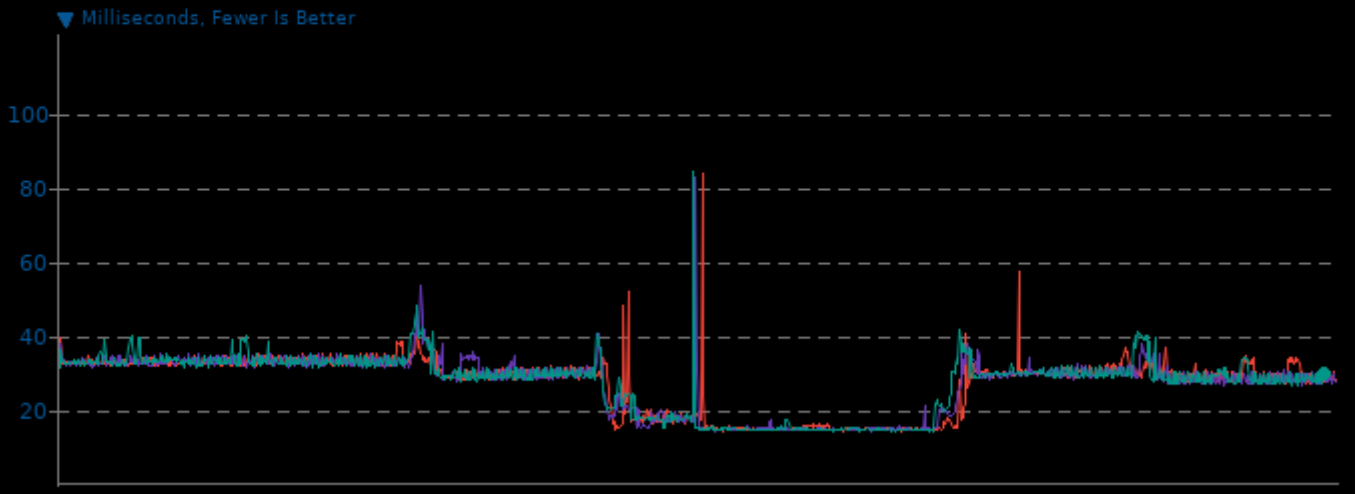



Serious Sam 3: BFE
Resolution: 3840 x 2160 - Quality: Ultra - Renderer: Vulkan
Frames Per Second, More Is Better
Samsung 950 PRO NVMe
SE +/- 1.39, N = 3
41.07
Western Digital WD5000AADS-0
SE +/- 1.07, N = 3
39.03
Crucial CT525MX3
SE +/- 0.07, N = 3
42.33
10
20
30
40
50
Serious Sam 3: BFE
Test Run Time - Resolution: 3840 x 2160 - Quality: Ultra - Renderer: Vulkan
Seconds, Fewer Is Better
Samsung 950 PRO NVMe
SE +/- 0.25, N = 3
95.38
Western Digital WD5000AADS-0
SE +/- 0.30, N = 3
95.42
Crucial CT525MX3
SE +/- 0.37, N = 3
95.50
20
40
60
80
100
Civilization VI
Quality: Highest - Resolution: 1920 x 1080
Frames Per Second, More Is Better
Samsung 950 PRO NVMe
SE +/- 0.13, N = 3
36.77
Western Digital WD5000AADS-0
SE +/- 0.06, N = 3
36.40
Crucial CT525MX3
SE +/- 0.12, N = 3
36.32
8
16
24
32
40

Civilization VI

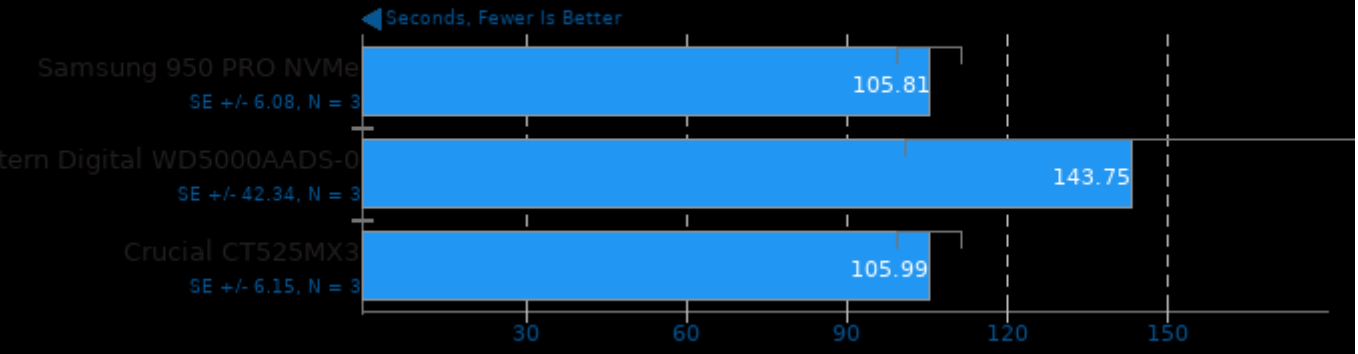
Quality: Highest - Resolution: 1920 x 1080 - Total Frame Time

	Min	Avg	Max
Samsung 950 PRO NVMe	14.5	27.4	83.6
Western Digital WD5000AADS-0	14.7	27.4	82.5
Crucial CT525MX3	14.6	27.7	83.9



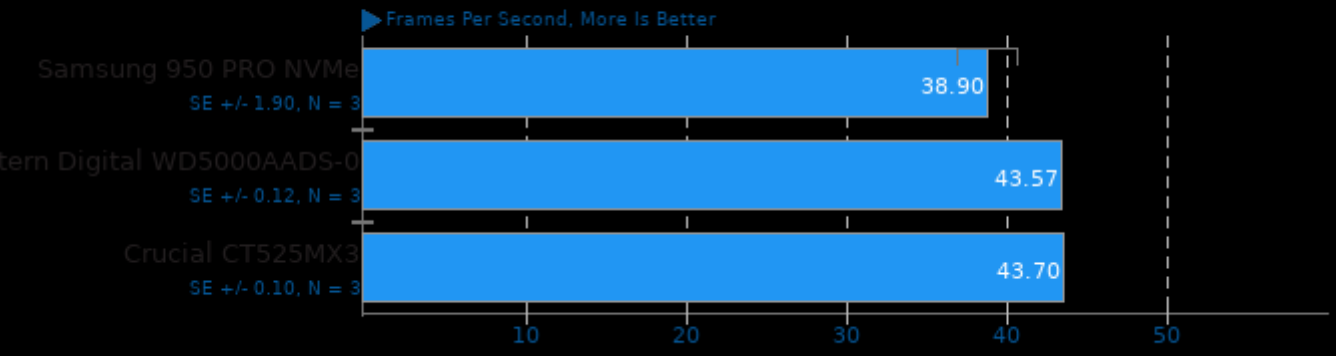
Civilization VI

Test Run Time - Quality: Highest - Resolution: 1920 x 1080



The Talos Principle

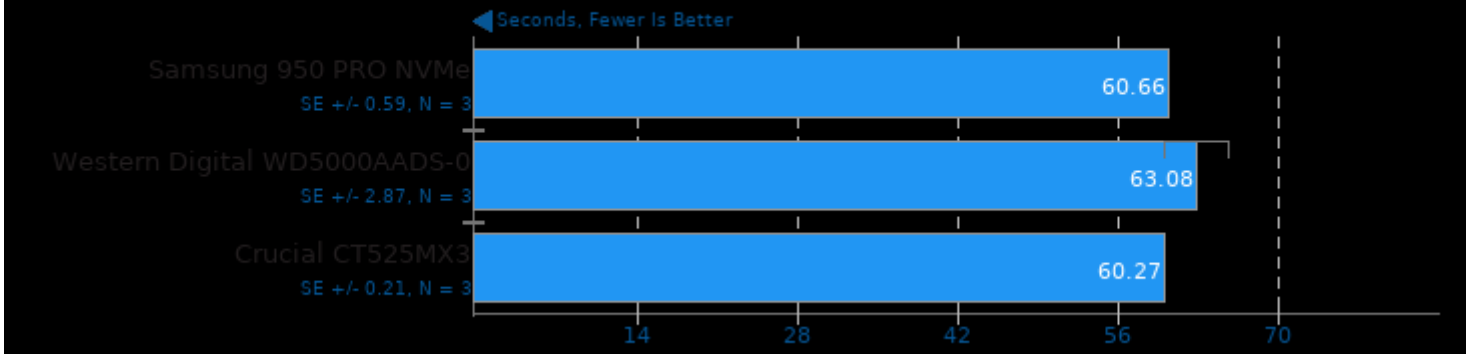
Renderer: Vulkan - Resolution: 3840 x 2160



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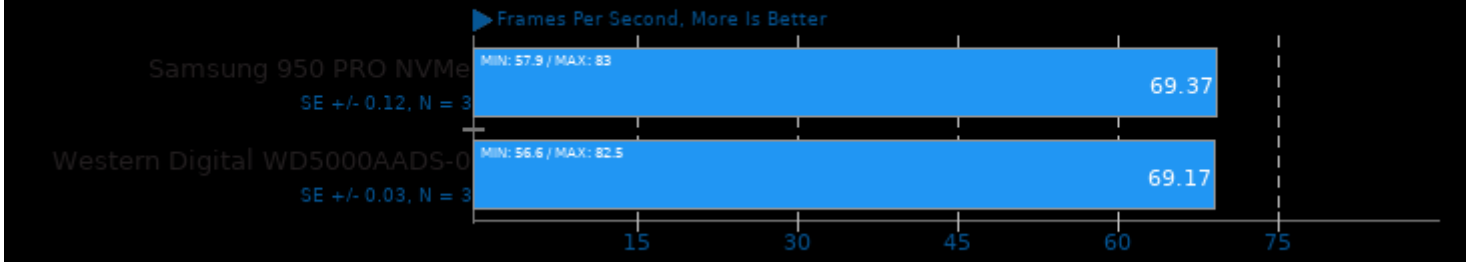
The Talos Principle

Test Run Time - Renderer: Vulkan - Resolution: 3840 x 2160



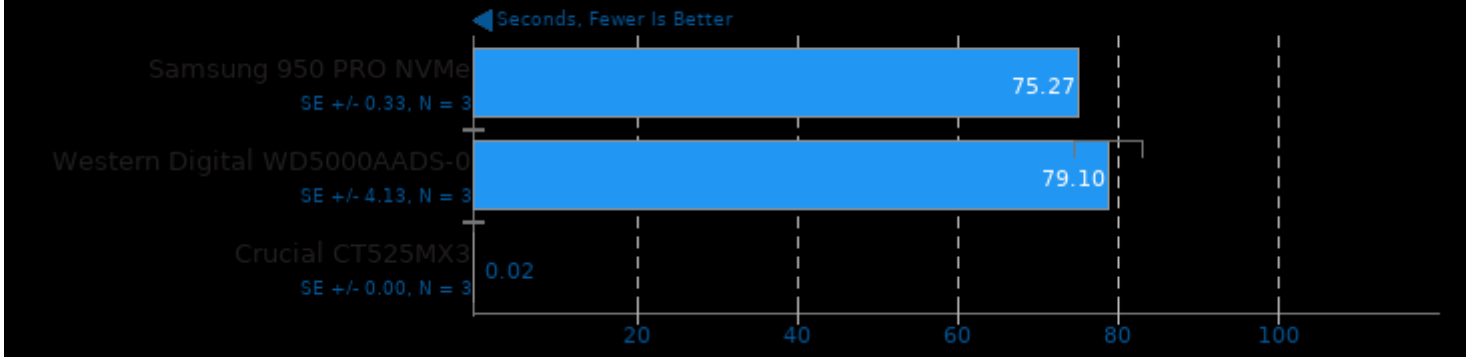
Tomb Raider

Resolution: 3840 x 2160 - Quality: Normal



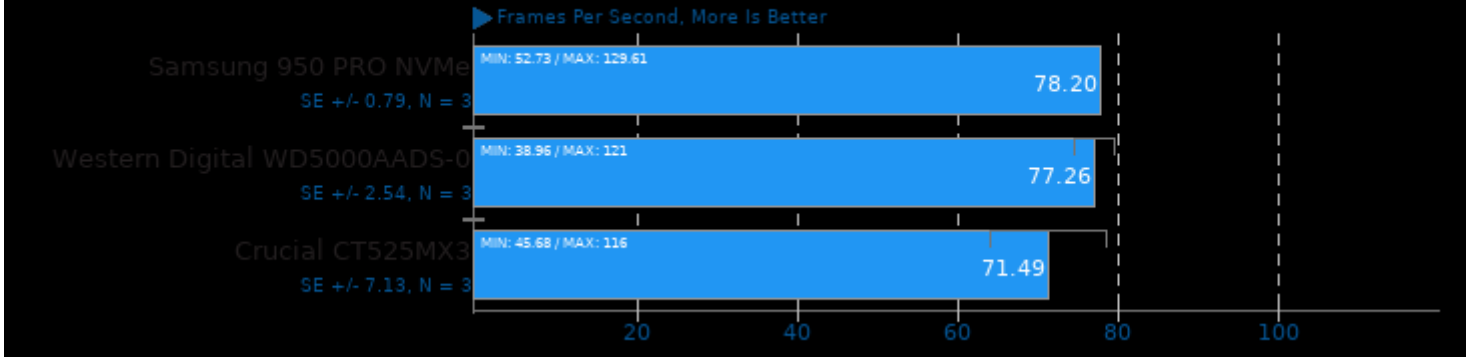
Tomb Raider

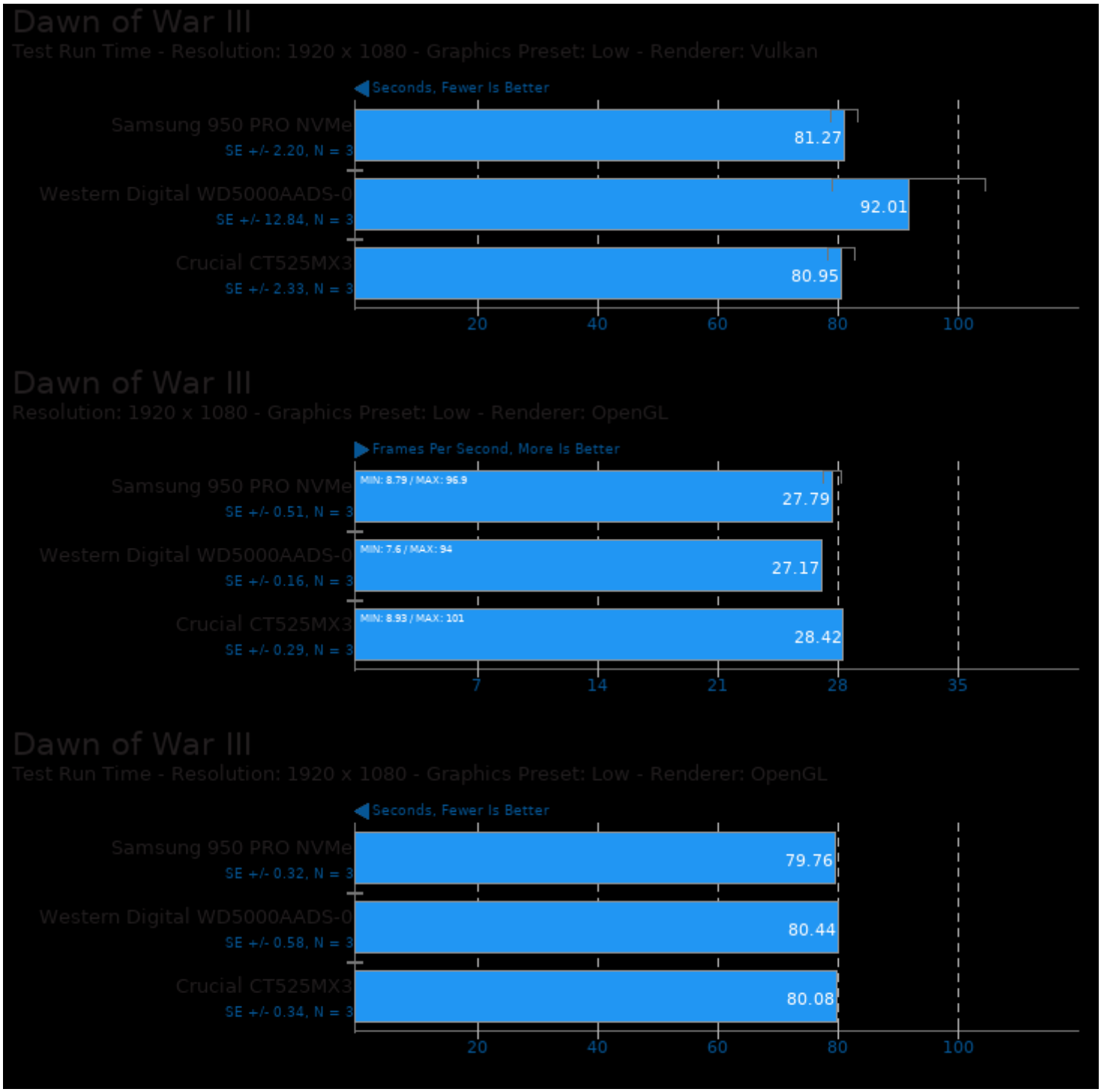
Test Run Time - Resolution: 3840 x 2160 - Quality: Normal

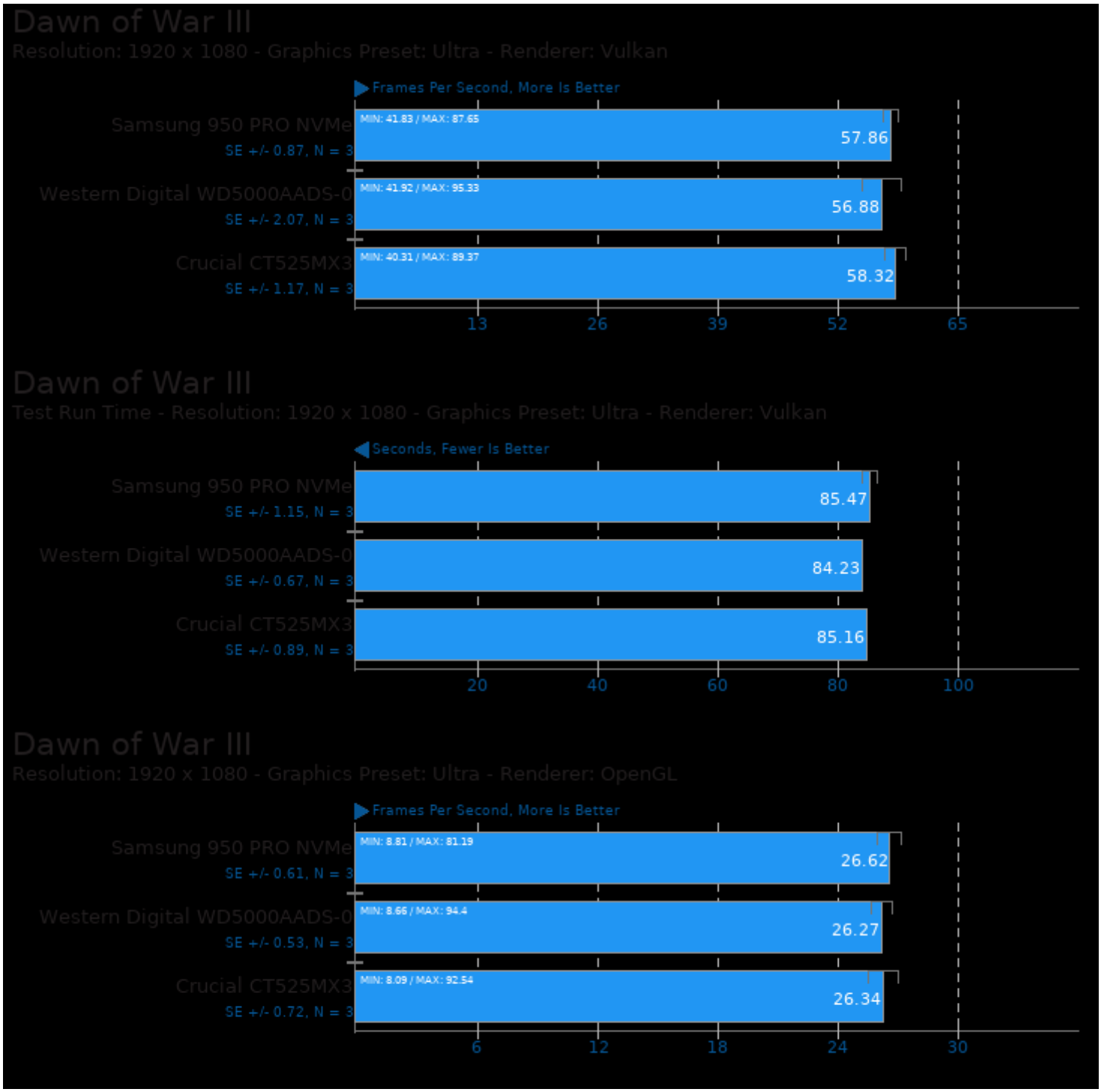


Dawn of War III

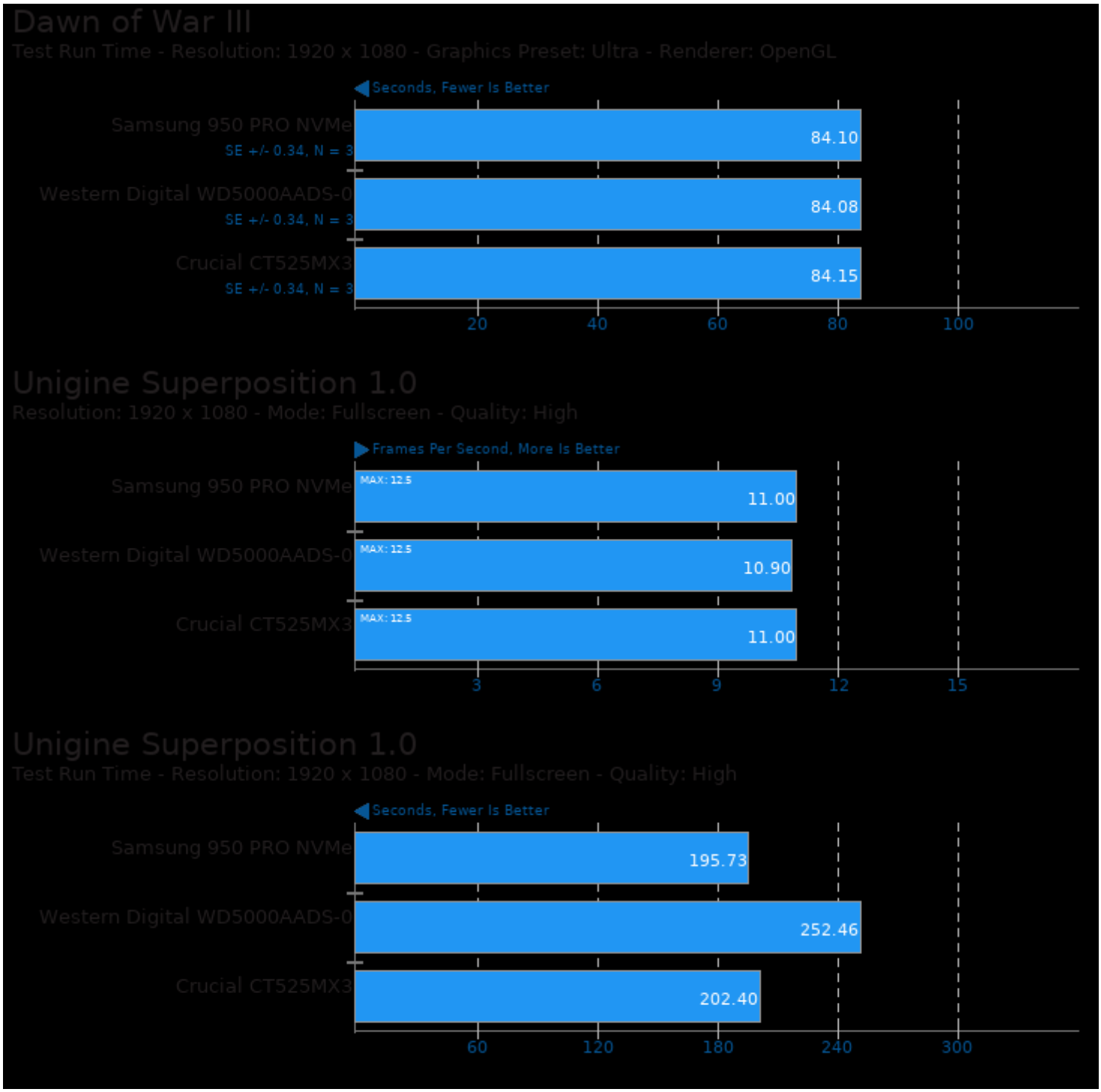
Resolution: 1920 x 1080 - Graphics Preset: Low - Renderer: Vulkan

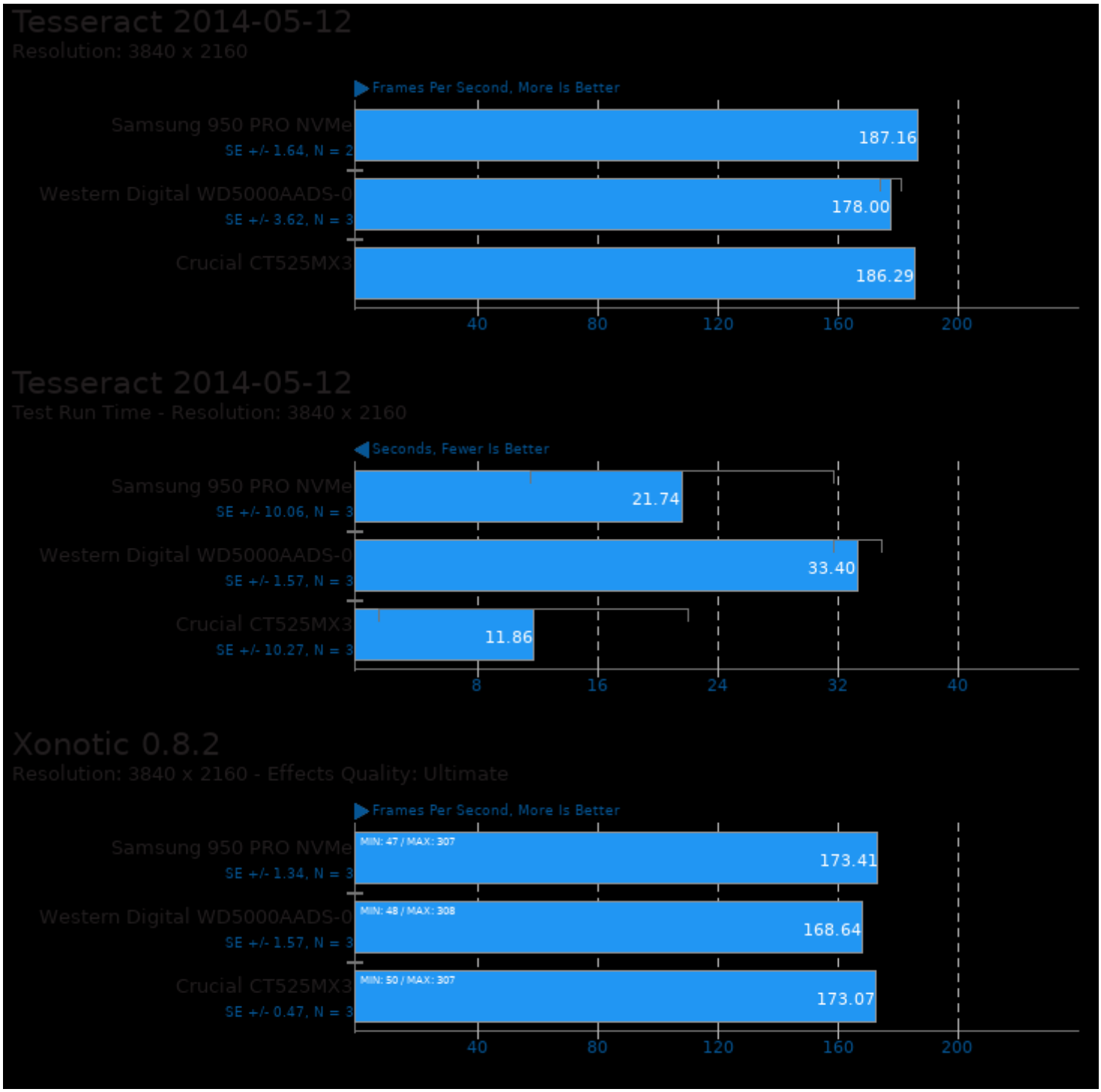



Dawn of War III
Test Run Time - Resolution: 1920 x 1080 - Graphics Preset: Low - Renderer: Vulkan
Seconds, Fewer Is Better
Samsung 950 PRO NVMe
SE +/- 2.20, N = 3
81.27
Western Digital WD5000AADS-0
SE +/- 12.84, N = 3
92.01
Crucial CT525MX3
SE +/- 2.33, N = 3
80.95
20
40
60
80
100
Dawn of War III
Resolution: 1920 x 1080 - Graphics Preset: Low - Renderer: OpenGL
Frames Per Second, More Is Better
Samsung 950 PRO NVMe
SE +/- 0.51, N = 3
MIN: 8.79 / MAX: 96.9
27.79
Western Digital WD5000AADS-0
SE +/- 0.16, N = 3
MIN: 7.6 / MAX: 94
27.17
Crucial CT525MX3
SE +/- 0.29, N = 3
MIN: 8.93 / MAX: 101
28.42
7
14
21
28
35
Dawn of War III
Test Run Time - Resolution: 1920 x 1080 - Graphics Preset: Low - Renderer: OpenGL
Seconds, Fewer Is Better
Samsung 950 PRO NVMe
SE +/- 0.32, N = 3
79.76
Western Digital WD5000AADS-0
SE +/- 0.58, N = 3
80.44
Crucial CT525MX3
SE +/- 0.34, N = 3
80.08
20
40
60
80
100

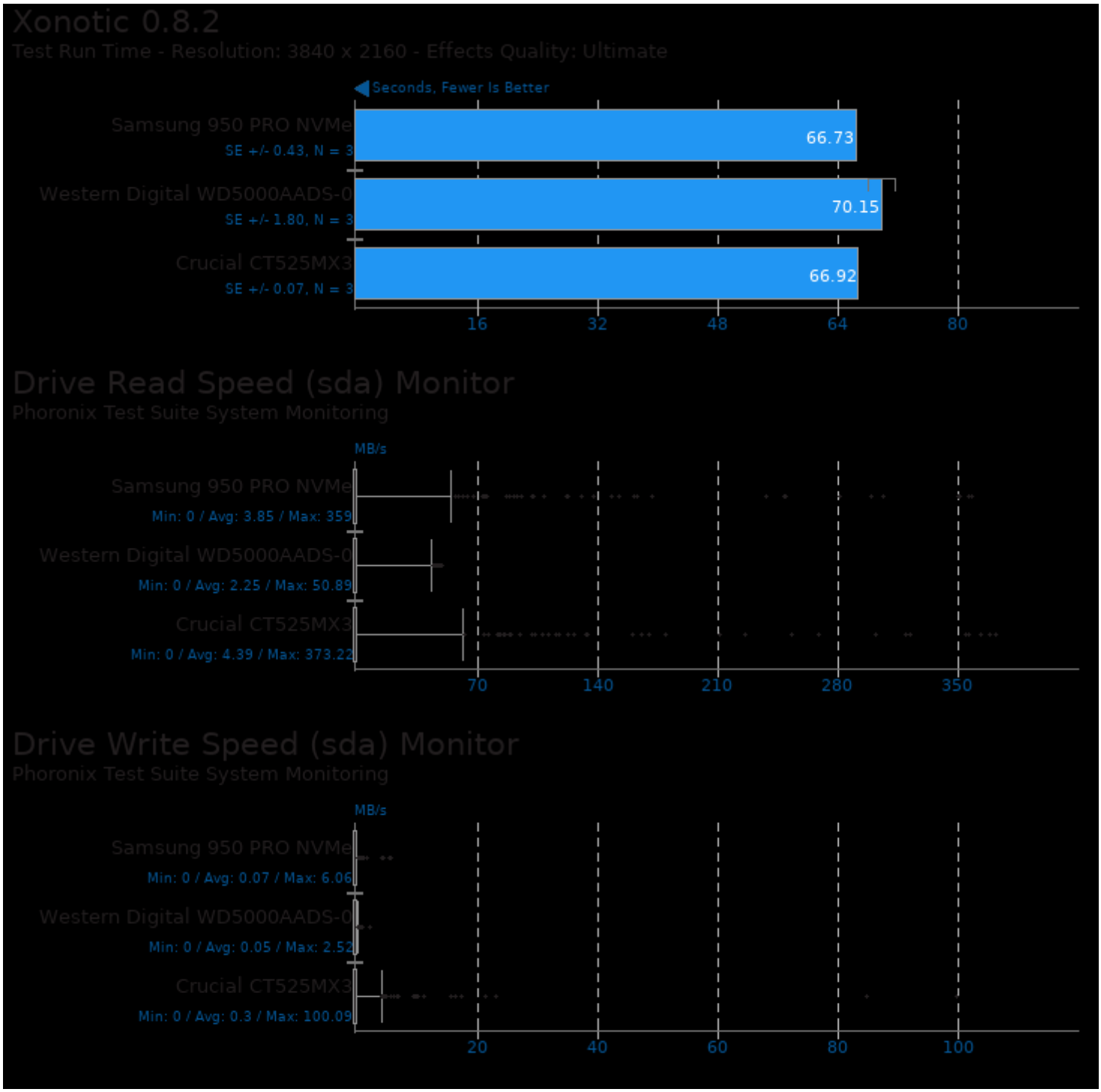

Dawn of War III
Resolution: 1920 x 1080 - Graphics Preset: Ultra - Renderer: Vulkan
Frames Per Second, More Is Better
Samsung 950 PRO NVMe
SE +/- 0.87, N = 3
MIN: 41.83 / MAX: 87.65
57.86
Western Digital WD5000AADS-0
SE +/- 2.07, N = 3
MIN: 41.92 / MAX: 95.33
56.88
Crucial CT525MX3
SE +/- 1.17, N = 3
MIN: 40.31 / MAX: 89.37
58.32
13
26
39
52
65
Dawn of War III
Test Run Time - Resolution: 1920 x 1080 - Graphics Preset: Ultra - Renderer: Vulkan
Seconds, Fewer Is Better
Samsung 950 PRO NVMe
SE +/- 1.15, N = 3
85.47
Western Digital WD5000AADS-0
SE +/- 0.67, N = 3
84.23
Crucial CT525MX3
SE +/- 0.89, N = 3
85.16
20
40
60
80
100
Dawn of War III
Resolution: 1920 x 1080 - Graphics Preset: Ultra - Renderer: OpenGL
Frames Per Second, More Is Better
Samsung 950 PRO NVMe
SE +/- 0.61, N = 3
MIN: 8.81 / MAX: 81.19
26.62
Western Digital WD5000AADS-0
SE +/- 0.53, N = 3
MIN: 8.66 / MAX: 94.4
26.27
Crucial CT525MX3
SE +/- 0.72, N = 3
MIN: 8.09 / MAX: 92.54
26.34
6
12
18
24
30

Ubuntu 17.10 SSD HDD Gaming

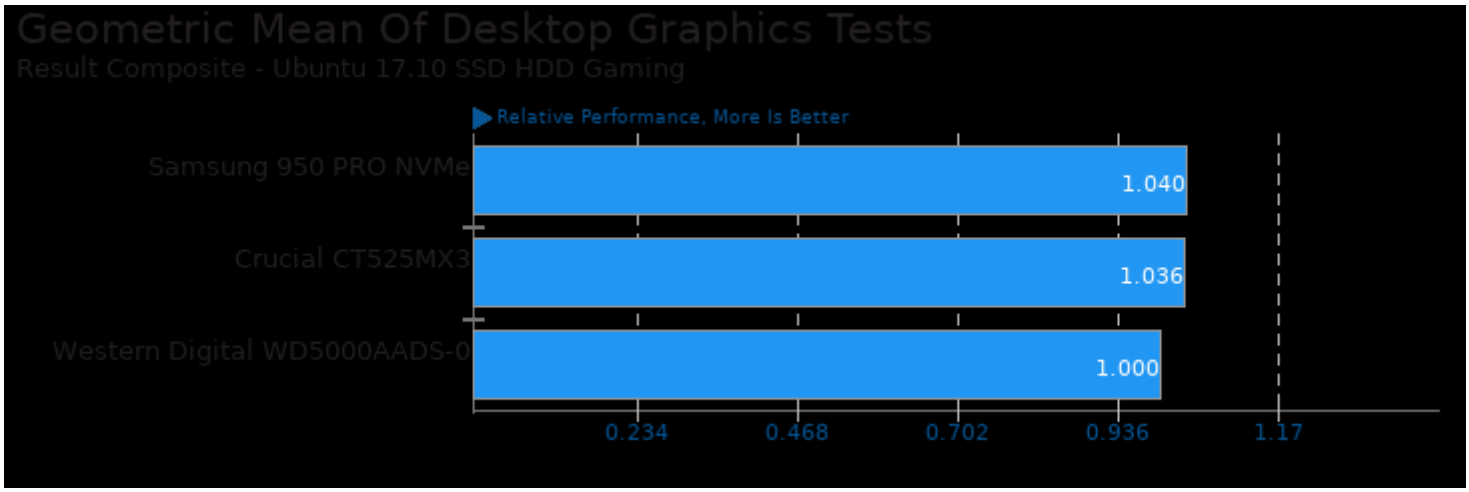



Tesseract 2014-05-12
Resolution: 3840 x 2160
Frames Per Second, More Is Better
Samsung 950 PRO NVMe
SE +/- 1.64, N = 2
187.16
Western Digital WD5000AADS-0
SE +/- 3.62, N = 3
178.00
Crucial CT525MX3
186.29
40
80
120
160
200
Tesseract 2014-05-12
Test Run Time - Resolution: 3840 x 2160
Seconds, Fewer Is Better
Samsung 950 PRO NVMe
SE +/- 10.06, N = 3
21.74
Western Digital WD5000AADS-0
SE +/- 1.57, N = 3
33.40
Crucial CT525MX3
SE +/- 10.27, N = 3
11.86
8
16
24
32
40
Xonotic 0.8.2
Resolution: 3840 x 2160 - Effects Quality: Ultimate
Frames Per Second, More Is Better
Samsung 950 PRO NVMe
SE +/- 1.34, N = 3
MIN: 47 / MAX: 307
173.41
Western Digital WD5000AADS-0
SE +/- 1.57, N = 3
MIN: 48 / MAX: 308
168.64
Crucial CT525MX3
SE +/- 0.47, N = 3
MIN: 50 / MAX: 307
173.07
40
80
120
160
200

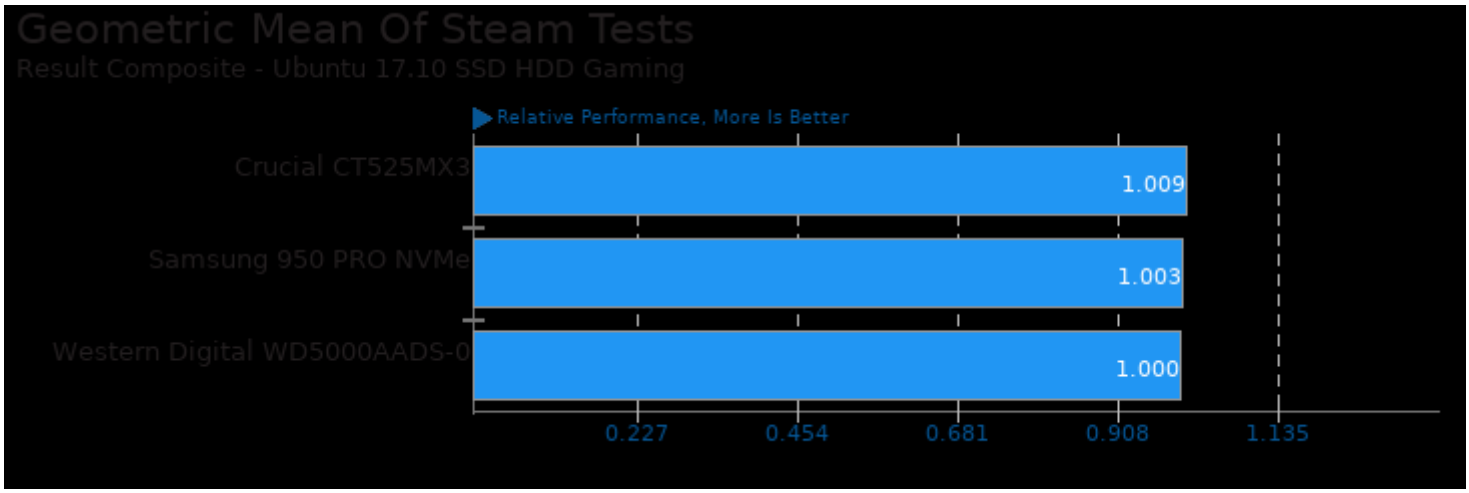
Ubuntu 17.10 SSD HDD Gaming



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



Geometric mean based upon tests: pts/xonotic and pts/tesseract



Geometric mean based upon tests: pts/bioshock-infinite, pts/civilization-vi, pts/dota2, pts/dow3, pts/metroll-redux, pts/ss3bfe, pts/talos-principle, pts/tomb-raider and pts/deus-exmd

This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 04:57.