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Kabylake i7-7700K Ubuntu 17.04 vs. 17.10

Tests for a future article.

Automated Executive Summary

Ubuntu 17.10 - Linux 4.14 + Mesa 17.3 had the most wins, coming in first place for 41% of the tests.

Based on the geometric mean of all complete results, the fastest (Ubuntu 17.10 - Linux 4.14 + Mesa 17.3) was 1.314x the speed of the slowest (Ubuntu 17.04). Ubuntu 17.10 - Wayland was 0.992x the speed of Ubuntu 17.10 - Linux 4.14 + Mesa 17.3, Ubuntu 17.10 - X.Org was 0.814x the speed of Ubuntu 17.10 - Wayland, Ubuntu 17.04 was 0.942x the speed of Ubuntu 17.10 - X.Org.

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

Serious Sam 3: BFE (Resolution: 1920 x 1080 - Quality: Low - Renderer: Vulkan) at 2.849x
Counter-Strike: Global Offensive (Resolution: 1920 x 1080) at 2.628x
GpuTest (Test: Triangle - Resolution: 1920 x 1080 - Mode: Fullscreen) at 1.731x
Serious Sam 3: BFE (Resolution: 1920 x 1080 - Quality: High - Renderer: Vulkan) at 1.394x
Xonotic (Resolution: 1920 x 1080 - Effects Quality: Low) at 1.269x
GLmark2 (Resolution: 1920 x 1080) at 1.175x
Xonotic (Resolution: 1920 x 1080 - Effects Quality: High) at 1.135x
Serious Sam 3: BFE (Resolution: 1920 x 1080 - Quality: Low - Renderer: OpenGL) at 1.102x

Dota 2 (Resolution: 1920 x 1080 - Renderer: OpenGL) at 1.094x
Serious Sam 3: BFE (Resolution: 1920 x 1080 - Quality: High - Renderer: OpenGL) at 1.093x.

Test Systems:

Ubuntu 17.04

Processor: Intel Core i7-7700K @ 4.50GHz (4 Cores / 8 Threads), Motherboard: MSI Z270-A PRO (MS-7A71) v1.0, Chipset: Intel Device 591f + Z270, Memory: 16384MB, Disk: 525GB Crucial_CT525MX3 + 128GB THNSN5128GPU7 TOSHIBA, Graphics: Intel Kabylake GT2 3072MB (1150MHz), Audio: Realtek ALC892, Monitor: DELL P2415Q, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 17.04, Kernel: 4.10.0-37-generic (x86_64), Desktop: Unity 7.5.0, Display Server: X Server 1.19.3, Display Driver: modesetting 1.19.3, OpenGL: 4.5 Mesa 17.0.7, Vulkan: 1.0.42, Compiler: GCC 6.3.0 20170406, File-System: ext4, Screen Resolution: 1920x1080

Processor Notes: Scaling Governor: intel_pstate powersave

Ubuntu 17.10 - Wayland

Processor: Intel Core i7-7700K @ 4.50GHz (4 Cores / 8 Threads), Motherboard: MSI Z270-A PRO (MS-7A71) v1.0, Chipset: Intel Intel Kaby Lake + Z270, Memory: 16384MB, Disk: 525GB Crucial_CT525MX3 + 128GB THNSN5128GPU7 TOSHIBA, Graphics: Intel HD 630 3072MB (1150MHz), Audio: Realtek ALC892, Monitor: DELL P2415Q, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 17.10, Kernel: 4.13.0-16-generic (x86_64), Desktop: GNOME Shell 3.26.1, Display Server: Wayland, Display Driver: modesetting 1.19.5, OpenGL: 4.5 Mesa 17.2.2, Vulkan: 1.0.61, Compiler: GCC 7.2.0, File-System: ext4, Screen Resolution: 1920x1080

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

Ubuntu 17.10 - X.Org

Processor: Intel Core i7-7700K @ 4.50GHz (4 Cores / 8 Threads), Motherboard: MSI Z270-A PRO (MS-7A71) v1.0, Chipset: Intel Intel Kaby Lake + Z270, Memory: 16384MB, Disk: 525GB Crucial_CT525MX3 + 128GB THNSN5128GPU7 TOSHIBA, Graphics: Intel HD 630 3072MB (1150MHz), Audio: Realtek ALC892, Monitor: DELL P2415Q, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 17.10, Kernel: 4.13.0-16-generic (x86_64), Desktop: GNOME Shell 3.26.1, Display Driver: modesetting 1.19.5, OpenGL: 4.5 Mesa 17.2.2, Vulkan: 1.0.61, Compiler: GCC 7.2.0, File-System: ext4, Screen Resolution: 1920x1080

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

Ubuntu 17.10 - Linux 4.14 + Mesa 17.3

Kabylake i7-7700K Ubuntu 17.04 vs. 17.10

Processor: Intel Core i7-7700K @ 4.50GHz (4 Cores / 8 Threads), Motherboard: MSI Z270-A PRO (MS-7A71) v1.0, Chipset: Intel Intel Kaby Lake + Z270, Memory: 16384MB, Disk: 525GB Crucial_CT525MX3 + 128GB THNSN5128GPU7 TOSHIBA, Graphics: Intel HD 630 3072MB (1150MHz), Audio: Realtek ALC892, Monitor: DELL P2415Q, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 17.10, Kernel: 4.14.0-999-generic (x86_64) 20171019, Desktop: GNOME Shell 3.26.1, Display Server: Wayland, Display Driver: modesetting 1.19.5, OpenGL: 4.5 Mesa 17.3.0-devel- padoka PPA, Vulkan: 1.0.61, Compiler: GCC 7.2.0, File-System: ext4, Screen Resolution: 1920x1080

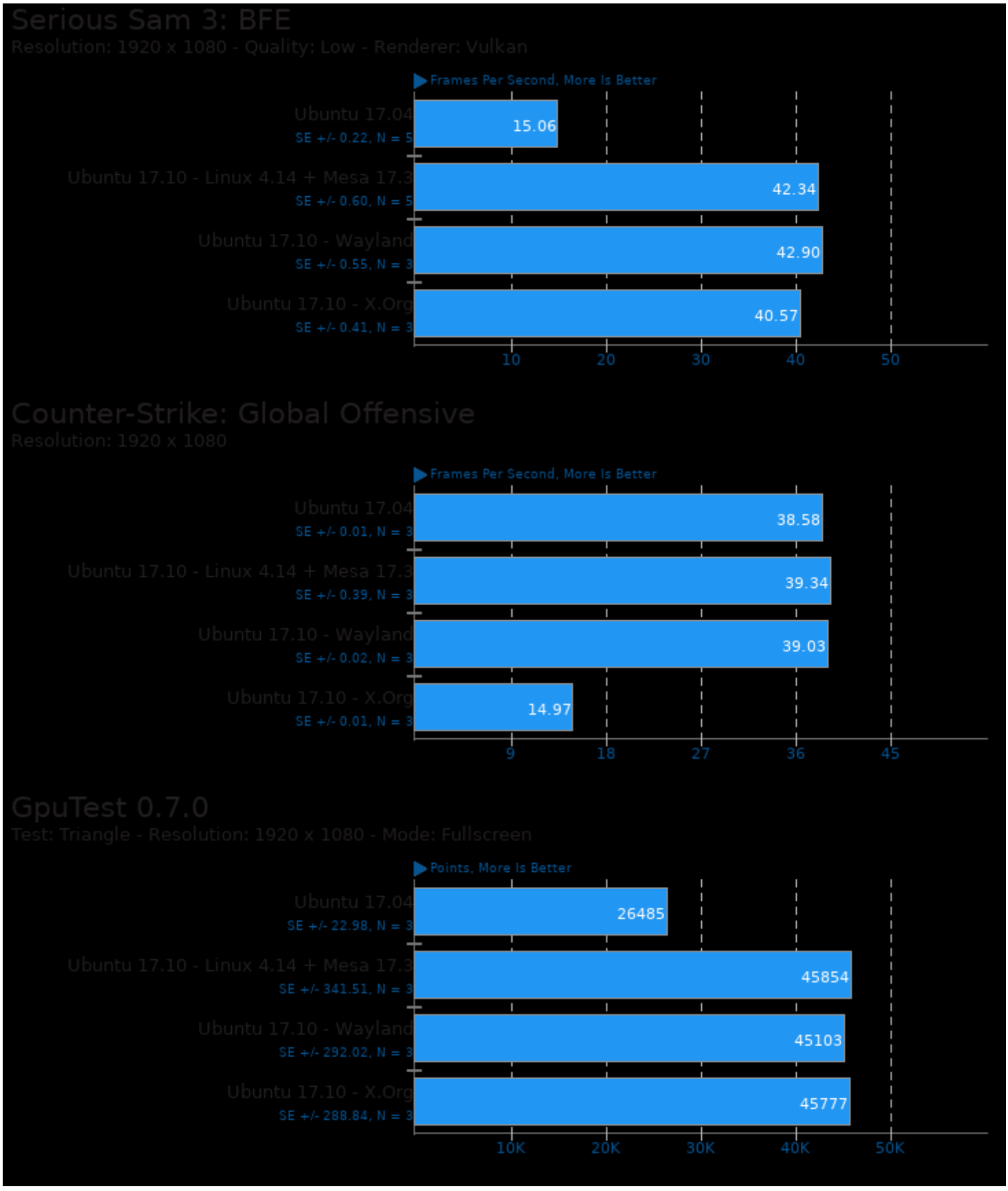
Environment Notes: GJS_DEBUG_TOPICS=JS ERROR;JS LOG GJS_DEBUG_OUTPUT=stderr
Processor Notes: Scaling Governor: intel_pstate powersave

	Ubuntu 17.04	Ubuntu 17.10 - Wayland	Ubuntu 17.10 - X.Org	Ubuntu 17.10 - Linux 4.14 + Mesa 17.3
Serious Sam 3: BFE - 1920 x 1080 - Low - Vulkan (FPS)	**15.06**	**42.90**	40.57	42.34
Normalized	35.1%	100%	94.57%	98.69%
Standard Deviation	3.3%	2.2%	1.7%	3.2%
Counter-Strike: Global Offensive - 1920 x 1080 (FPS)	38.58	39.03	**14.97**	**39.34**
Normalized	98.07%	99.21%	38.05%	100%
Standard Deviation	0%	0.1%	0.1%	1.7%
GpuTest - Triangle - 1920 x 1080 - Fullscreen (Points)	**26485**	45103	45777	**45854**
Normalized	57.76%	98.36%	99.83%	100%
Standard Deviation	0.2%	1.1%	1.1%	1.3%
Serious Sam 3: BFE - 1920 x 1080 - High - Vulkan (FPS)	**14.40**	19.00	18.03	**20.07**
Normalized	71.75%	94.67%	89.84%	100%
Standard Deviation	1.8%	1.6%	1.2%	1.4%
Xonotic - 1920 x 1080 - Low (FPS)	**204.29**	259.24	258.69	**259.26**
Normalized	78.8%	99.99%	99.78%	100%
Standard Deviation	0.1%	0.4%	0%	0.1%
GLmark2 - 1920 x 1080 (Score)	**527**	607	**619**	608
Normalized	85.14%	98.06%	100%	98.22%
Xonotic - 1920 x 1080 - High (FPS)	**124.38**	140.43	**141.16**	140.42
Normalized	88.11%	99.48%	100%	99.48%
Standard Deviation	0.1%	0.1%	0.1%	0.1%
Serious Sam 3: BFE - 1920 x 1080 - Low - OpenGL (FPS)	**45.63**	42.80	42.90	**41.40**
Normalized	100%	93.8%	94.02%	90.73%
Standard Deviation	1.8%	1.6%	2.3%	2.7%
Dota 2 - 1920 x 1080 - OpenGL (FPS)	**19.20**	20.97	**21**	20.87
Normalized	91.43%	99.86%	100%	99.38%
Standard Deviation	0%	0.3%		0.3%

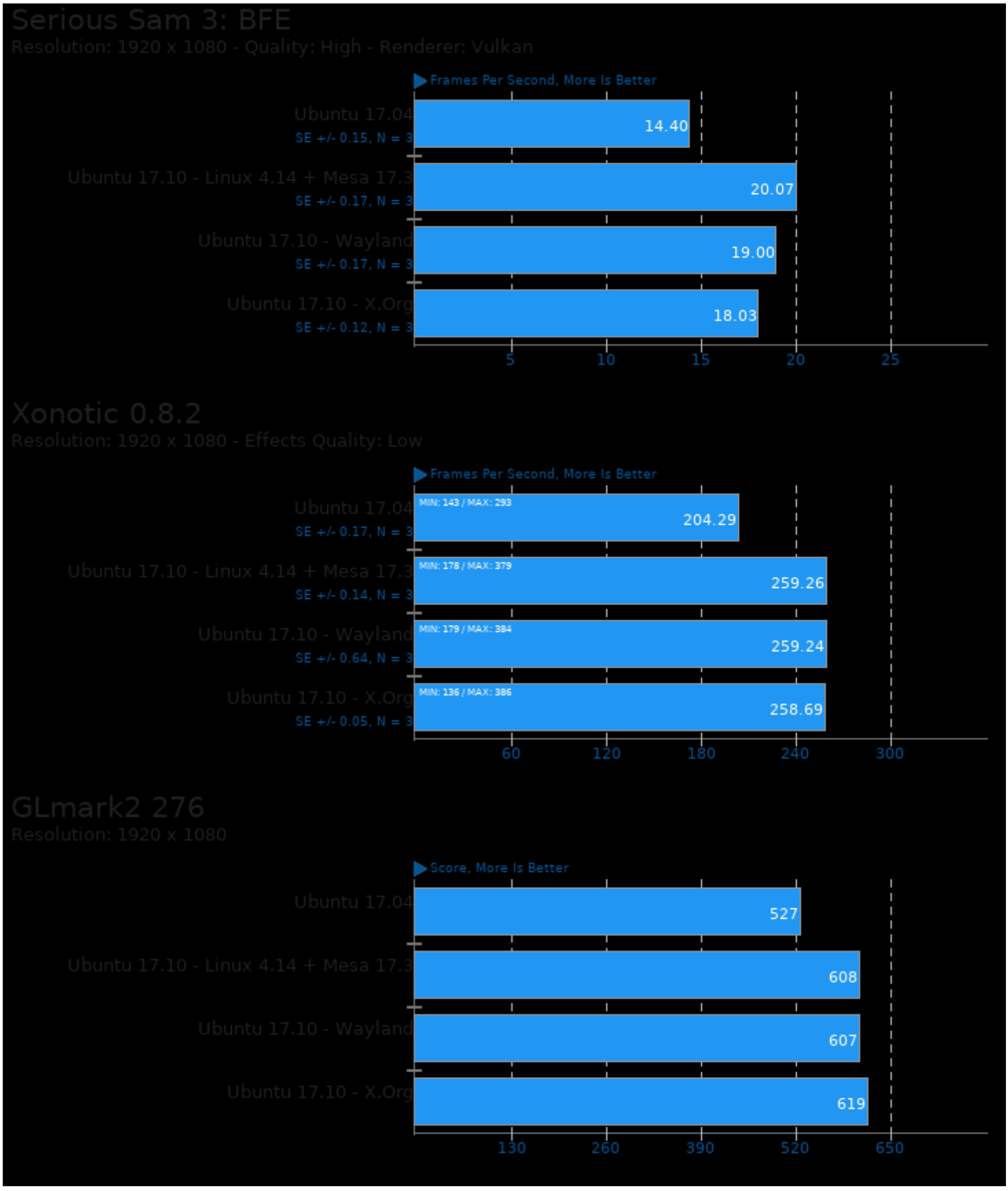
Kabylake i7-7700K Ubuntu 17.04 vs. 17.10

Serious Sam 3: BFE - 1920 x 1080 - High - OpenGL (FPS)	**16.17**	**17.67**	16.77	17.50
Normalized	91.51%	100%	94.91%	99.04%
Standard Deviation	0.4%	1.4%	1.7%	1.7%
ET: Legacy - Renderer2 - 1920 x 1080 (FPS)	102.47	**99.57**	100.20	**105.93**
Normalized	96.73%	94%	94.59%	100%
Standard Deviation	1%	0.3%	0.1%	0.2%
Portal - 1920 x 1080 (FPS)	**127.72**	121.09	**120.55**	122.26
Normalized	100%	94.81%	94.39%	95.73%
Standard Deviation	0.2%	0.1%	0.1%	0.7%
Tesseract - 1920 x 1080 (FPS)	**62.59**		**64.80**	63.01
Normalized	96.59%		100%	97.24%
Standard Deviation	0.4%			1.1%
BioShock Infinite - 1920 x 1080 - Low (FPS)	**38.75**	38.21	38.16	**38.03**
Normalized	100%	98.61%	98.48%	98.14%
Standard Deviation	1.3%	0.2%	0.1%	0.1%
Dota 2 - 1920 x 1080 - Vulkan (FPS)	**18.70**	**19**	18.97	**19**
Normalized	98.42%	100%	99.84%	100%
Standard Deviation	0%		0.3%	
The Talos Principle - Vulkan - 1920 x 1080 (FPS)	9.10	16.13	**6.40**	**16.73**
Normalized	54.39%	96.41%	38.25%	100%
Standard Deviation	1.1%	0.7%	60.6%	0.7%
The Talos Principle - OpenGL - 1920 x 1080 (FPS)	4.47	15.92	**4.38**	**16.00**
Normalized	27.94%	99.5%	27.38%	100%
Standard Deviation	1.3%	3.8%	9.5%	3.4%

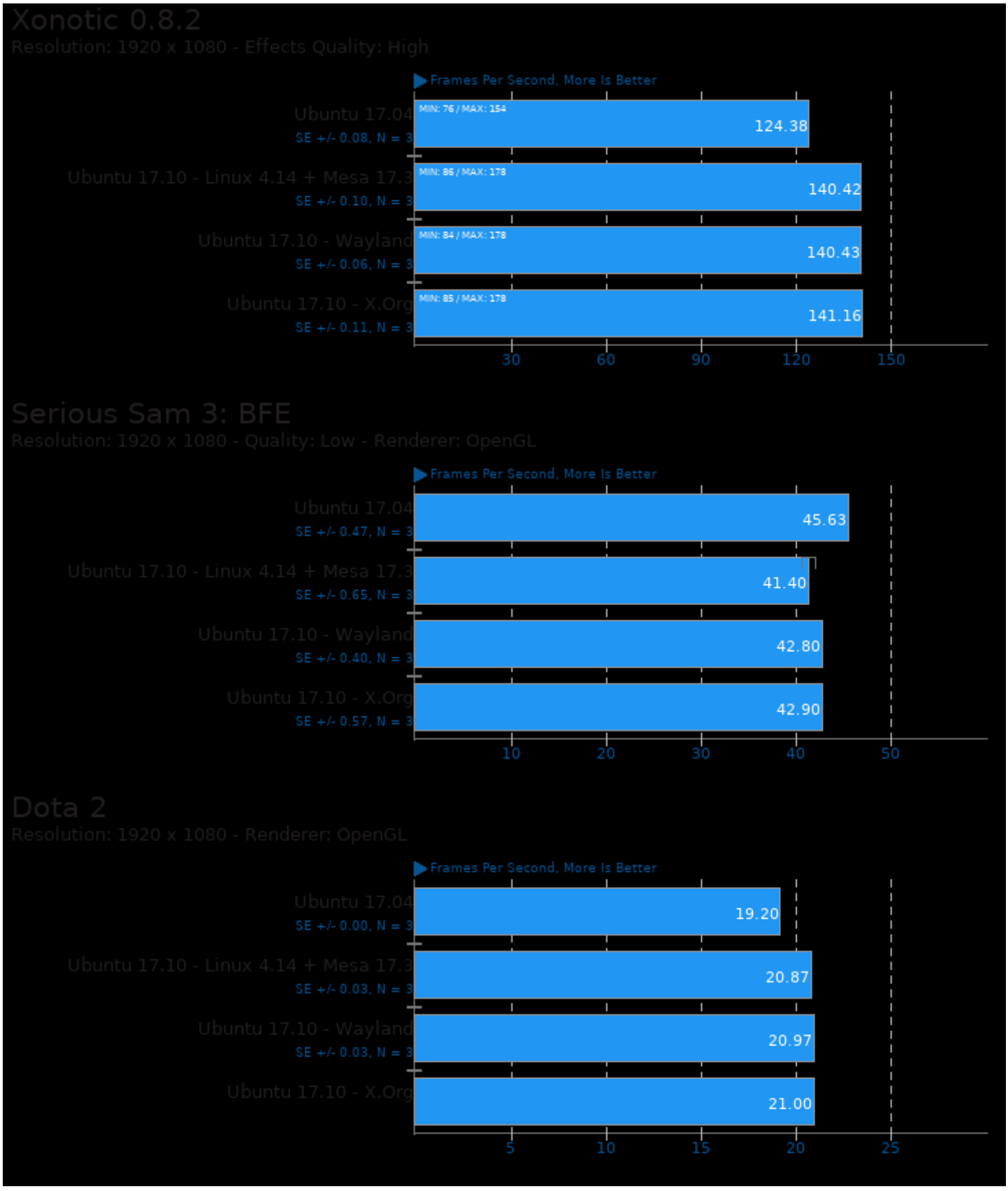
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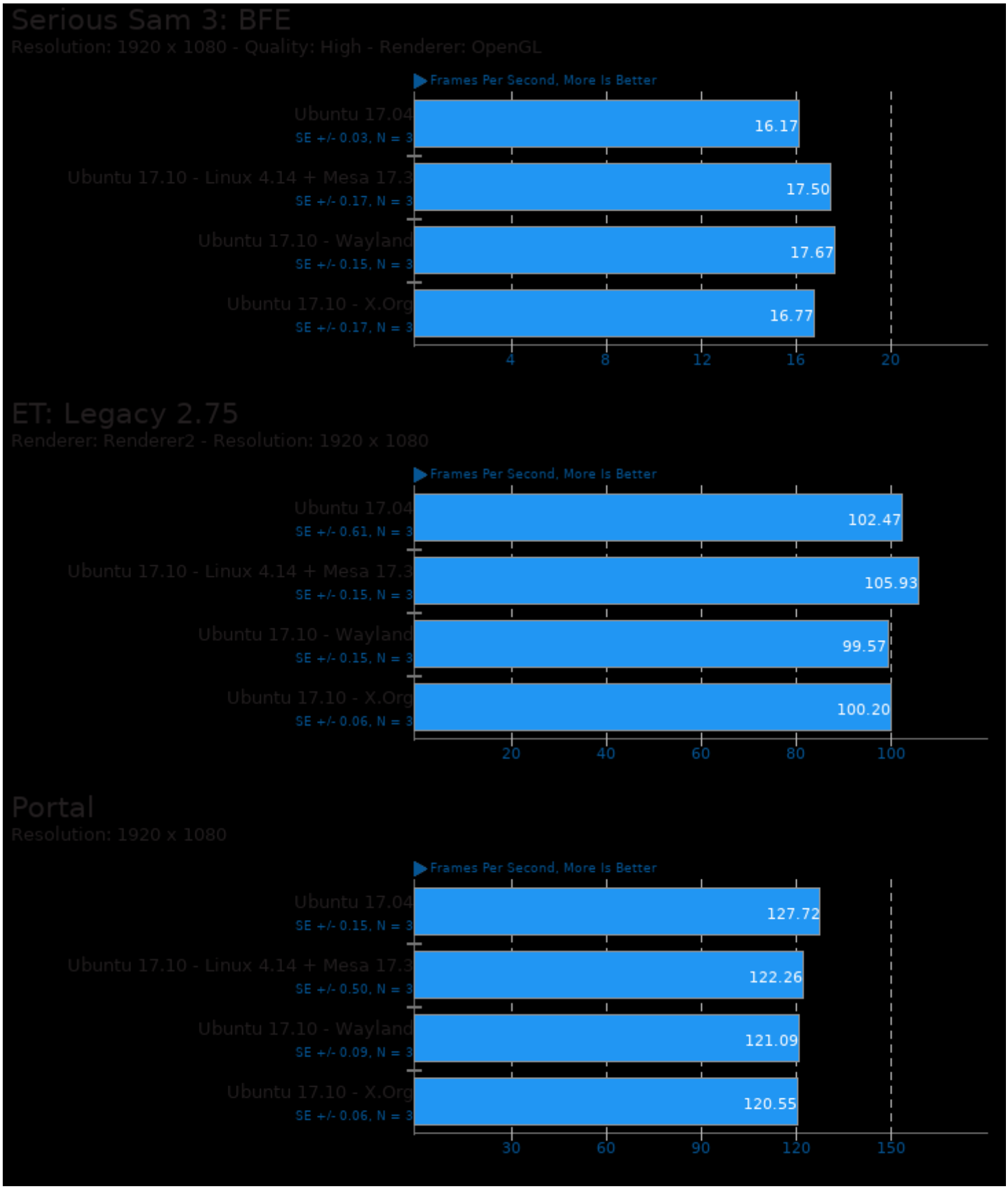
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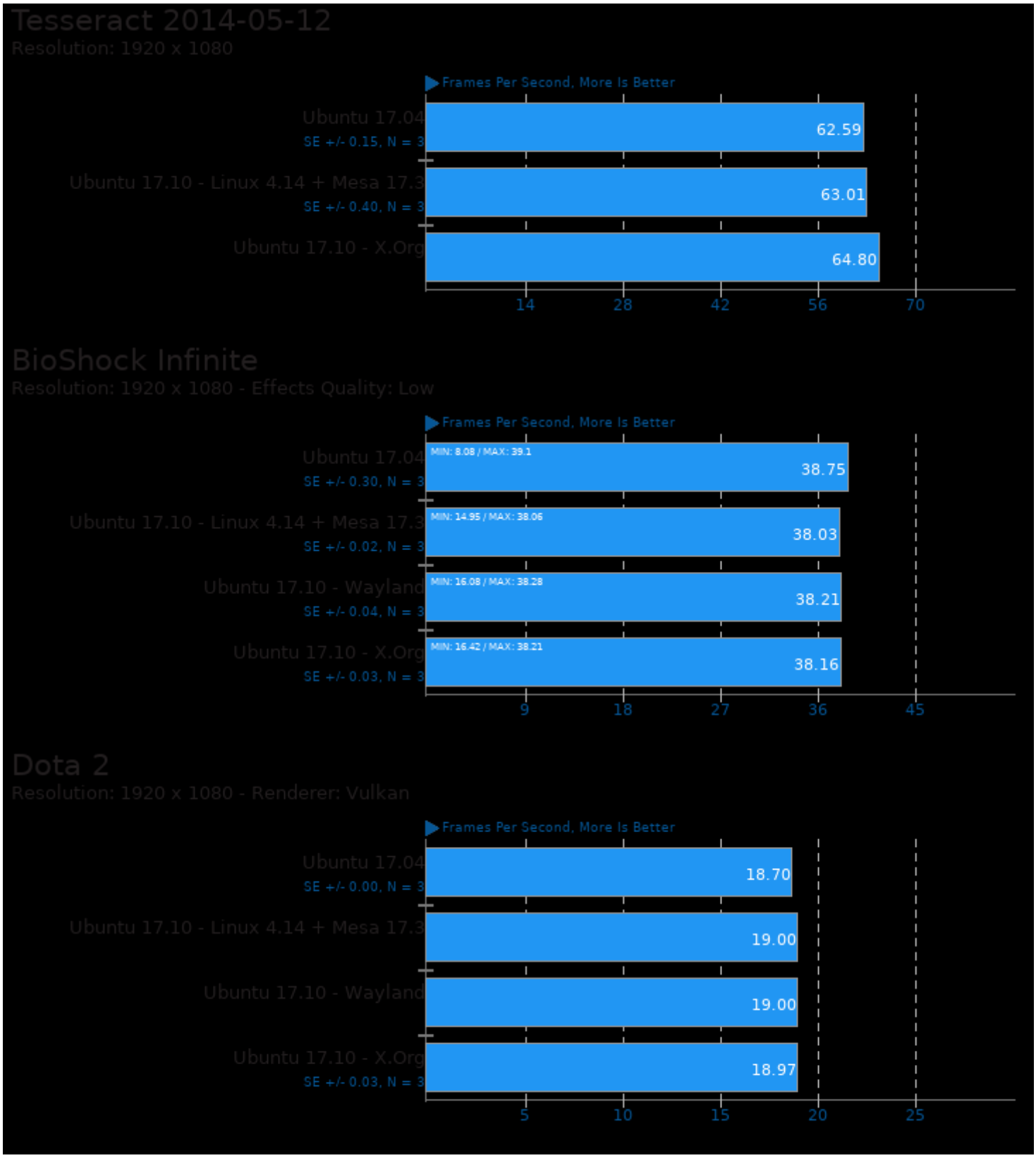
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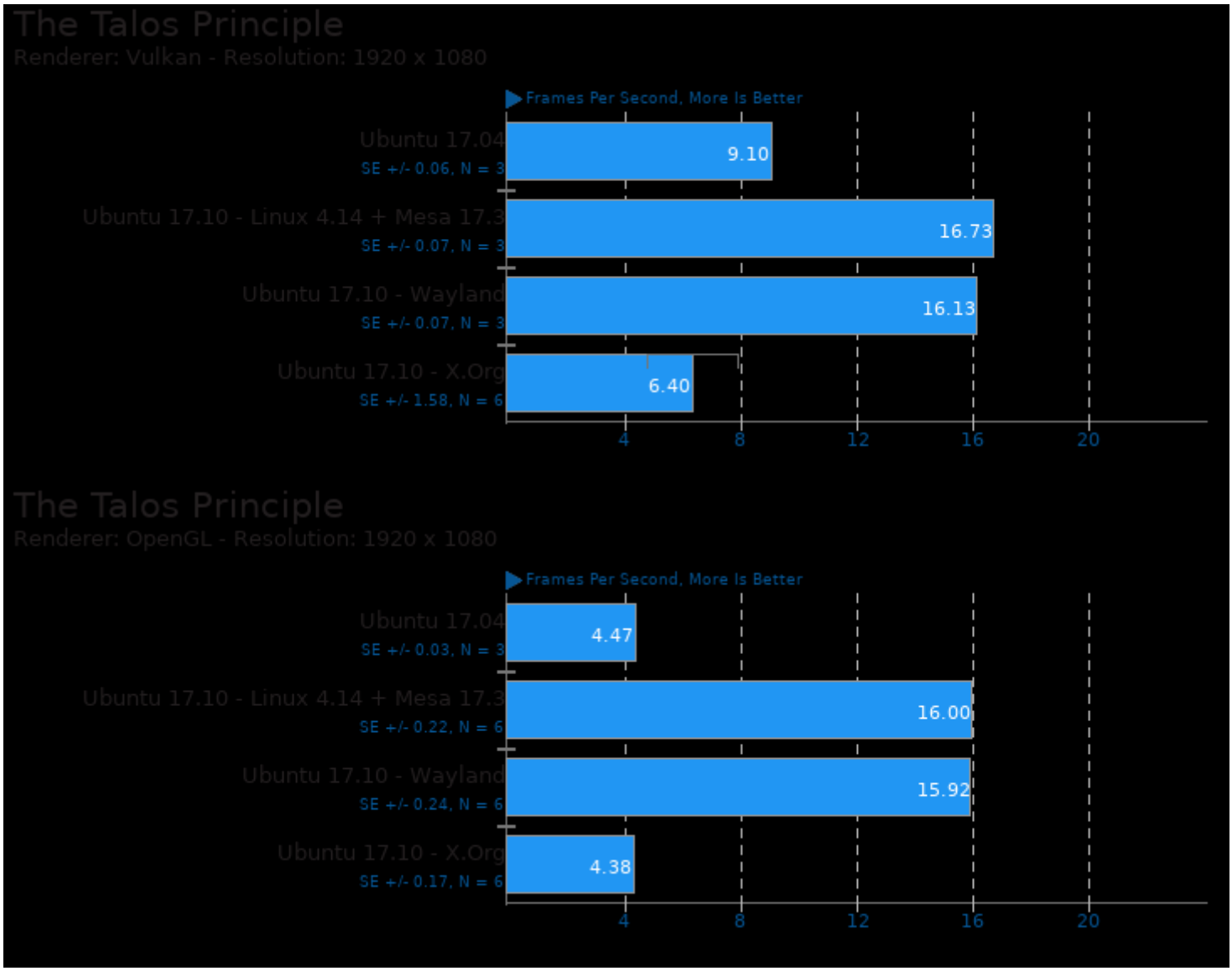
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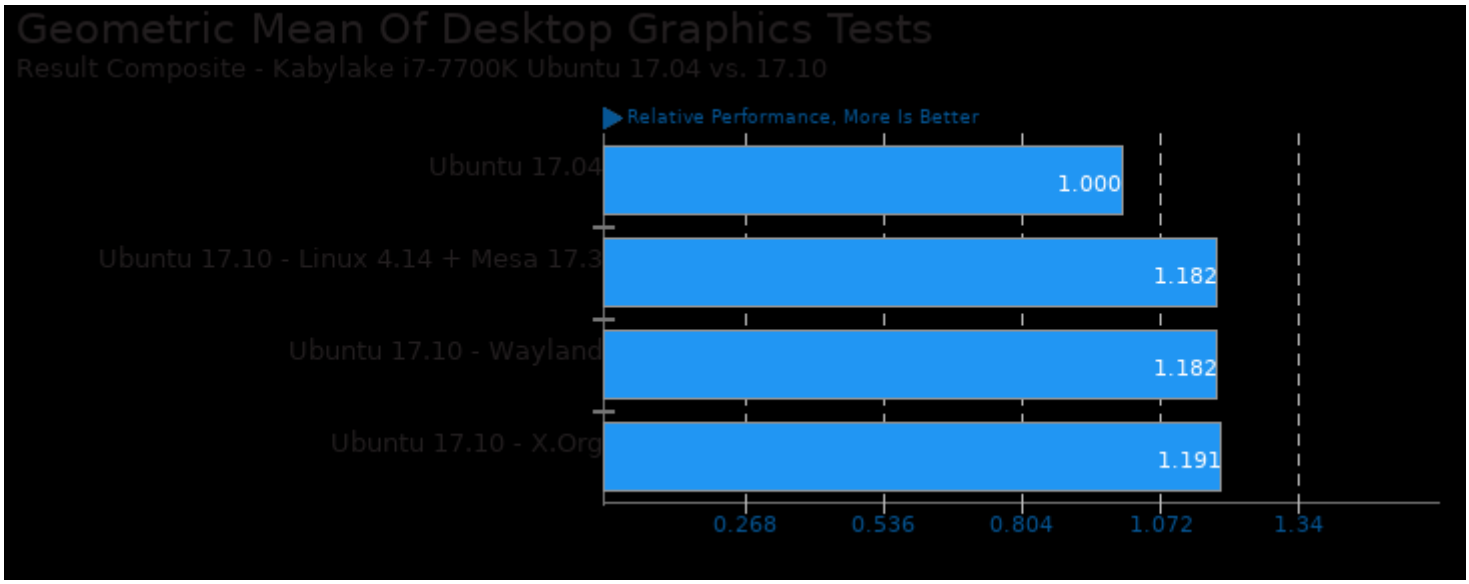


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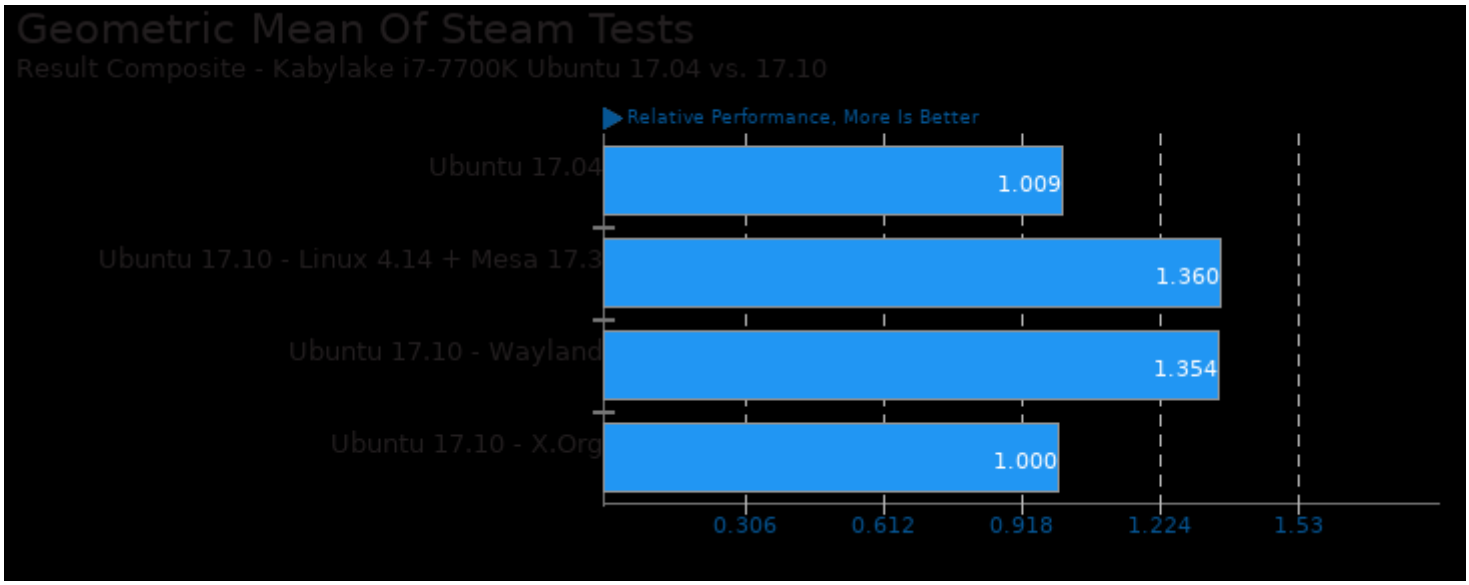


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These geometric means are based upon test groupings / test suites for this result file.



Geometric mean based upon tests: pts/xonotic, pts/tesseract and pts/glmark2



Geometric mean based upon tests: pts/bioshock-infinite, pts/csgo, pts/dota2, pts/portal, pts/ss3bfe and pts/talos-principle

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