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AMD A10-7850K vs. Intel Skylake So Far

Benchmarking some Linux systems with integrated graphics. Tests by Michael Larabel. More systems coming.

Automated Executive Summary

Intel Core i5 6600K had the most wins, coming in first place for 71% of the tests.

Based on the geometric mean of all complete results, the fastest (Intel Core i5 6600K) was 1.348x the speed of the slowest (AMD A10-7800). AMD A10-7800 TearFree=off v2 was 0.863x the speed of Intel Core i5 6600K, AMD A10-7850K was 0.985x the speed of AMD A10-7800 TearFree=off v2, Intel Core i5 6500 was 0.997x the speed of AMD A10-7850K, AMD A10-7800 TearFree=off was 0.962x the speed of Intel Core i5 6500, AMD A10-7800 TearFree=off 1GB was 0.991x the speed of AMD A10-7800 TearFree=off, AMD A10-7800 was 0.918x the speed of AMD A10-7800 TearFree=off 1GB.

Test Systems:

Intel Core i5 6500

Processor: Intel Core i5-6500 @ 3.60GHz (4 Cores), Motherboard: Gigabyte Z170M-D3H-CF, Chipset: Intel Skylake, Memory: 8192MB, Disk: 250GB Samsung SSD 850, Graphics: Intel HD 530 (Skylake GT2) 3072MB, Audio: Realtek ALC892, Monitor: DELL P2415Q, Network: Intel Connection

OS: Ubuntu 16.10, Kernel: 4.10.0-999-generic (x86_64) 20170104, Desktop: Unity 7.5.0, Display Server: X Server 1.18.4, Display Driver: modesetting 1.18.4, OpenGL: 4.5 Mesa 13.1.0-devel- padoka PPA, Compiler: GCC 6.2.0 20161005, File-System: ext4, Screen Resolution: 1920x1080

Processor Notes: Scaling Governor: intel_pstate powersave

Intel Core i5 6600K

Processor: Intel Core i5-6600K @ 3.90GHz (4 Cores), Motherboard: MSI Z170A GAMING PRO (MS-7984) v1.0, Chipset: Intel Skylake, Memory: 15360MB, Disk: 256GB TS256GSSD370S, Graphics: Intel HD 530 (Skylake GT2) 3072MB, Audio: Realtek ALC1150, Monitor: DELL P2415Q, Network: Intel Connection

OS: Ubuntu 16.10, Kernel: 4.10.0-999-generic (x86_64) 20170104, Desktop: Unity 7.5.0, Display Server: X Server 1.18.4, Display Driver: modesetting 1.18.4, OpenGL: 4.5 Mesa 13.1.0-devel- padoka PPA, Compiler: GCC 6.2.0 20161005, File-System: ext4, Screen Resolution: 1920x1080

Processor Notes: Scaling Governor: intel_pstate powersave

AMD A10-7850K

Processor: AMD A10-7850K APU with Radeon R7 @ 3.70GHz (4 Cores), Motherboard: Gigabyte F2A88XM-D3H, Chipset: AMD Family 15h, Memory: 7168MB, Disk: 120GB KINGSTON SV300S3, Graphics: AMD Radeon R7 1024MB, Audio: AMD Kaveri HDMI/DP, Monitor: DELL S2409W, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 16.10, Kernel: 4.10.0-999-generic (x86_64) 20170104, Desktop: Unity 7.5.0, Display Server: X Server 1.18.4, Display Driver: modesetting 1.18.4, OpenGL: 4.5 Mesa 13.1.0-devel- padoka PPA Gallium 0.4, Compiler: GCC 6.2.0 20161005, File-System: ext4, Screen Resolution: 1920x1080

Processor Notes: Scaling Governor: acpi-cpufreq ondemand
Graphics Notes: GLAMOR

AMD A10-7800

AMD A10-7800 TearFree=off

Processor: AMD A10-7800 Radeon R7 12 Compute Cores 4C+8G @ 3.50GHz (4 Cores), Motherboard: ASRock FM2A88X-ITX+, Chipset: AMD Family 15h, Memory: 14336MB, Disk: 512GB Samsung SSD 840, Graphics: AMD Radeon R7 2048MB, Audio: AMD Kaveri HDMI/DP, Monitor: DELL U2415, Network: Qualcomm Atheros QCA8171 Gigabit + Qualcomm Atheros AR9462 Wireless

OS: Debian testing, Kernel: 4.8.4 (x86_64), Desktop: GNOME Shell 3.22.2, Display Server: X Server 1.19.0, OpenGL: 4.3 Mesa 13.0.2 Gallium 0.4, Compiler: GCC 6.2.1 20161124, File-System: ext4, Screen Resolution: 1920x1200

Processor Notes: Scaling Governor: acpi-cpufreq ondemand
Graphics Notes: GLAMOR

AMD A10-7800 TearFree=off 1GB

Processor: AMD A10-7800 Radeon R7 12 Compute Cores 4C+8G @ 3.50GHz (4 Cores), Motherboard: ASRock

FM2A88X-ITX+, Chipset: AMD Family 15h, Memory: 15360MB, Disk: 512GB Samsung SSD 840, Graphics: AMD Radeon R7 1024MB, Audio: AMD Kaveri HDMI/DP, Monitor: DELL U2415, Network: Qualcomm Atheros QCA8171 Gigabit + Qualcomm Atheros AR9462 Wireless

OS: Debian testing, Kernel: 4.8.4 (x86_64), Desktop: GNOME Shell 3.22.2, Display Server: X Server 1.19.0, OpenGL: 4.3 Mesa 13.0.2 Gallium 0.4, Compiler: GCC 6.2.1 20161124, File-System: ext4, Screen Resolution: 1920x1200

Processor Notes: Scaling Governor: acpi-cpufreq ondemand
Graphics Notes: GLAMOR

AMD A10-7800 TearFree=off v2

Processor: AMD A10-7800 Radeon R7 12 Compute Cores 4C+8G @ 3.50GHz (4 Cores), Motherboard: ASRock FM2A88X-ITX+, Chipset: AMD Family 15h, Memory: 14336MB, Disk: 512GB Samsung SSD 840, Graphics: AMD Radeon R7 2048MB, Audio: AMD Kaveri HDMI/DP, Monitor: DELL U2415, Network: Qualcomm Atheros QCA8171 Gigabit + Qualcomm Atheros AR9462 Wireless

OS: Debian testing, Kernel: 4.8.4 (x86_64), Desktop: GNOME Shell 3.22.2, Display Server: X Server 1.19.0, OpenGL: 4.3 Mesa 13.0.2 Gallium 0.4, Compiler: GCC 6.2.1 20161124, File-System: ext4, Screen Resolution: 1920x1080

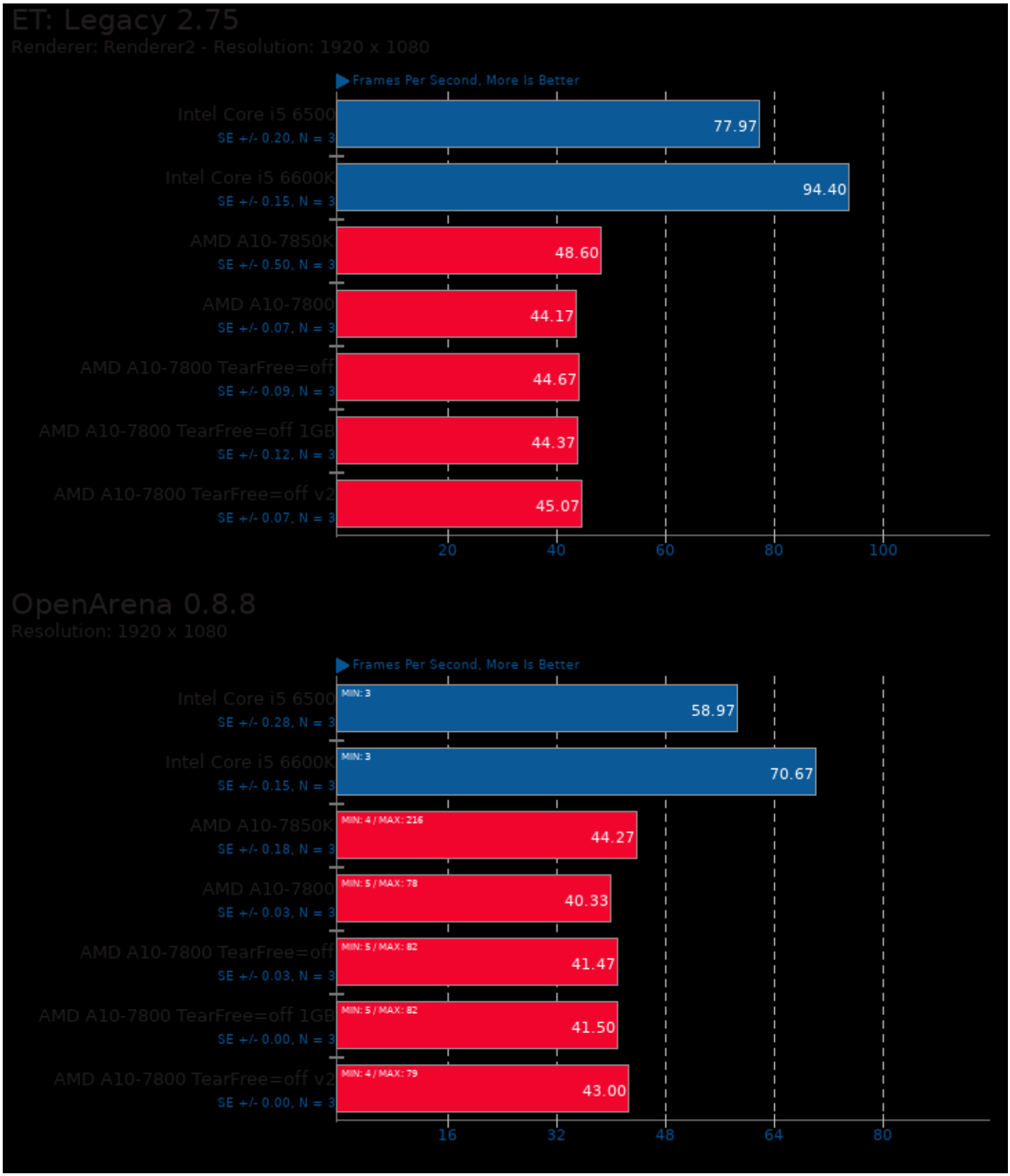
Processor Notes: Scaling Governor: acpi-cpufreq ondemand
Graphics Notes: GLAMOR

	Intel Core i5 6500	Intel Core i5 6600K	AMD A10-7850K	AMD A10-7800	AMD A10-7800 TearFree=off	AMD A10-7800 TearFree=off 1GB	AMD A10-7800 TearFree=off v2
ET: Legacy - Renderer2 - 1920 x 1080 (FPS)	77.97	**94.40**	48.60	**44.17**	44.67	44.37	45.07
Normalized	82.6%	100%	51.48%	46.79%	47.32%	47%	47.74%
Standard Deviation	0.5%	0.3%	1.8%	0.3%	0.3%	0.5%	0.3%
OpenArena - 1920 x 1080 (FPS)	58.97	**70.67**	44.27	**40.33**	41.47	41.50	43
Normalized	83.44%	100%	62.64%	57.07%	58.68%	58.72%	60.85%
Standard Deviation	0.8%	0.4%	0.7%	0.1%	0.1%	0%	0%
Tesseract - 1920 x 1080 (FPS)	58.95	**66.51**	59.81	**52.37**	56.93	57.07	59.67
Normalized	88.63%	100%	89.93%	78.74%	85.6%	85.81%	89.72%
Standard Deviation	0.4%	0.6%	1.2%	0.9%	0.8%	0.9%	1%
Xonotic - 1920 x 1080 - Low (FPS)	179.34	**212.91**	173.62	**159.17**	165.33	164.63	166.52
Normalized	84.23%	100%	81.55%	74.76%	77.65%	77.32%	78.21%
Standard Deviation	0.2%	1%	0.3%	0.3%	0.3%	0.2%	0.2%
Xonotic - 1920 x 1080 - High (FPS)	114.59	**135.41**	102.51	**92.97**	100.70	95.79	109.00
Normalized	84.62%	100%	75.7%	68.66%	74.37%	70.74%	80.5%
Standard Deviation	0%	0.1%	0.9%	0%	0.1%	0.3%	0.1%

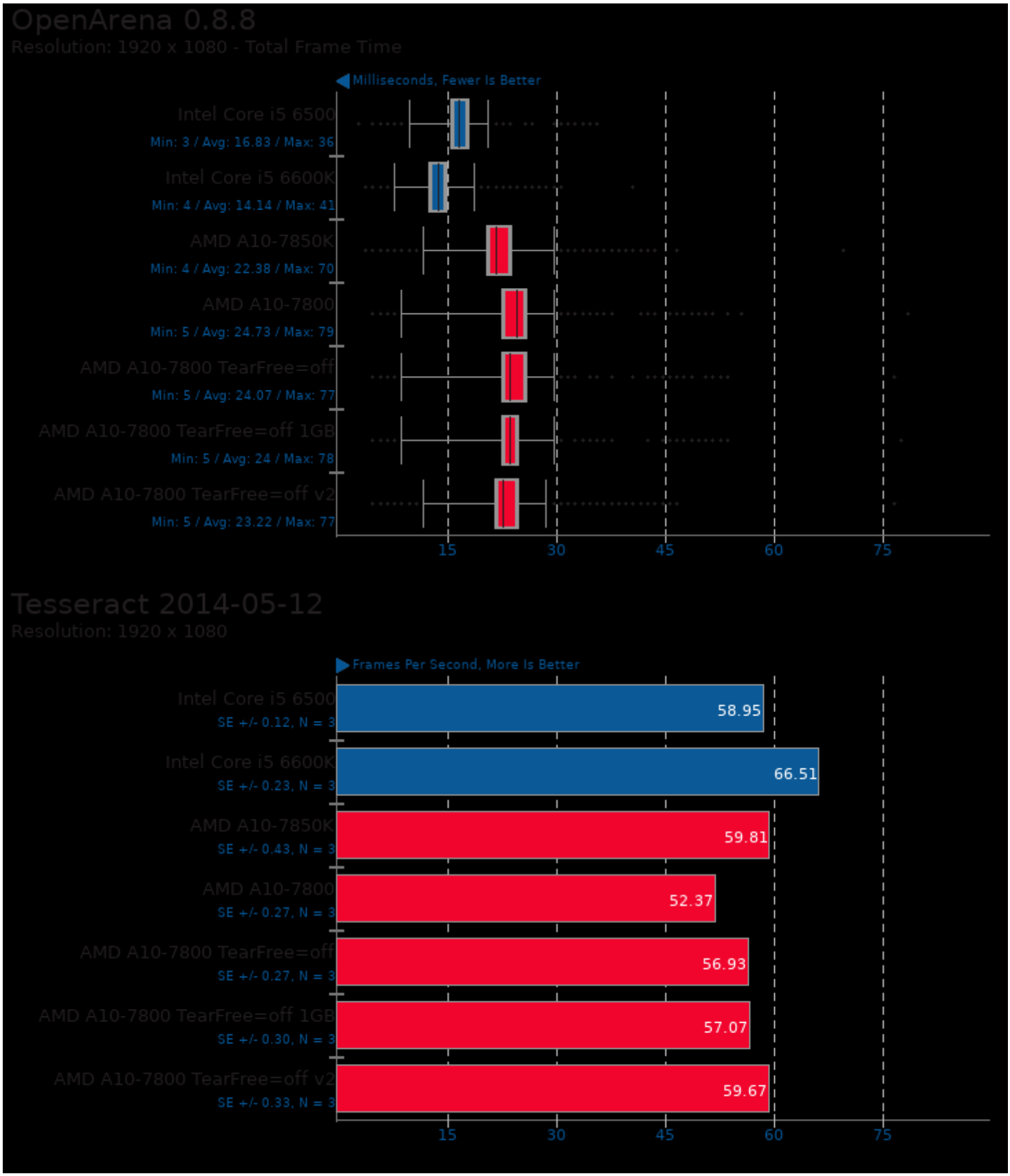
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Xonotic - 1920 x 1080 - Ultra (FPS)	91.10	**107.33**	87.99	**79.59**	85.53	82.32	92.35
Normalized	84.88%	100%	81.98%	74.15%	79.69%	76.7%	86.04%
Standard Deviation	0.1%	0.1%	1.2%	0.1%	0.1%	2.8%	0.2%
GpuTest - Plot3D - 1920 x 1080 - Fullscreen (Points)	**7415**	8592	**11517**	8300	9888	9902	10785
Normalized	64.38%	74.6%	100%	72.07%	85.86%	85.98%	93.64%
Standard Deviation	0%	0%	0%	0.6%	0.9%	0.3%	1.2%
GpuTest - Furmark - 1920 x 1080 - Fullscreen	621	**726**	581	**427**	431	431	491
Normalized	85.54%	100%	80.03%	58.82%	59.37%	59.37%	67.63%
Standard Deviation	0.1%	0%	0.4%	0%	0.6%	0.7%	0.6%
GpuTest - Triangle - 1920 x 1080 - Fullscreen	35233	43715	69906	**32123**	64432	64416	**70514**
Normalized	49.97%	61.99%	99.14%	45.56%	91.37%	91.35%	100%
Standard Deviation	0.4%	0.5%	0.1%	0.1%	0%	0%	0%
GpuTest - Pixmark Piano - 1920 x 1080 - Fullscreen (Points)	128	147	**126**	139	139	139	**155**
Normalized	82.58%	94.84%	81.29%	89.68%	89.68%	89.68%	100%
Standard Deviation	0%	0%	0%	0%	0%	0%	0%
GpuTest - Pixmark Volplosion - 1920 x 1080 - Fullscreen (Points)	**349**	402	427	385	387	387	**433**
Normalized	80.6%	92.84%	98.61%	88.91%	89.38%	89.38%	100%
Standard Deviation	0%	0%	0.1%	0%	0%	0%	0%
BioShock Infinite - 1920 x 1080 - Low (FPS)	30.56	**36.99**	**19.05**	27.55	28.84	28.37	29.02
Normalized	82.62%	100%	51.5%	74.48%	77.97%	76.7%	78.45%
Standard Deviation	0.2%	0.1%	0.6%	0.2%	0.4%	3.3%	0.3%
Dota 2 - 1920 x 1080 - OpenGL (FPS)	**15.50**	**18.30**	17.03	16.67	16.93	16.73	17.10
Normalized	84.7%	100%	93.06%	91.09%	92.51%	91.42%	93.44%
Standard Deviation	0.6%	0.5%	0.3%	0.3%	1.2%	0.9%	0%
Team Fortress 2 - 1920 x 1080 (FPS)	57.98	**68.45**	64.38	**51.10**	53.95	53.97	54.19
Normalized	84.7%	100%	94.05%	74.65%	78.82%	78.85%	79.17%
Standard Deviation	3.6%	3.3%	5.7%	0.6%	0.1%	0.5%	0.6%

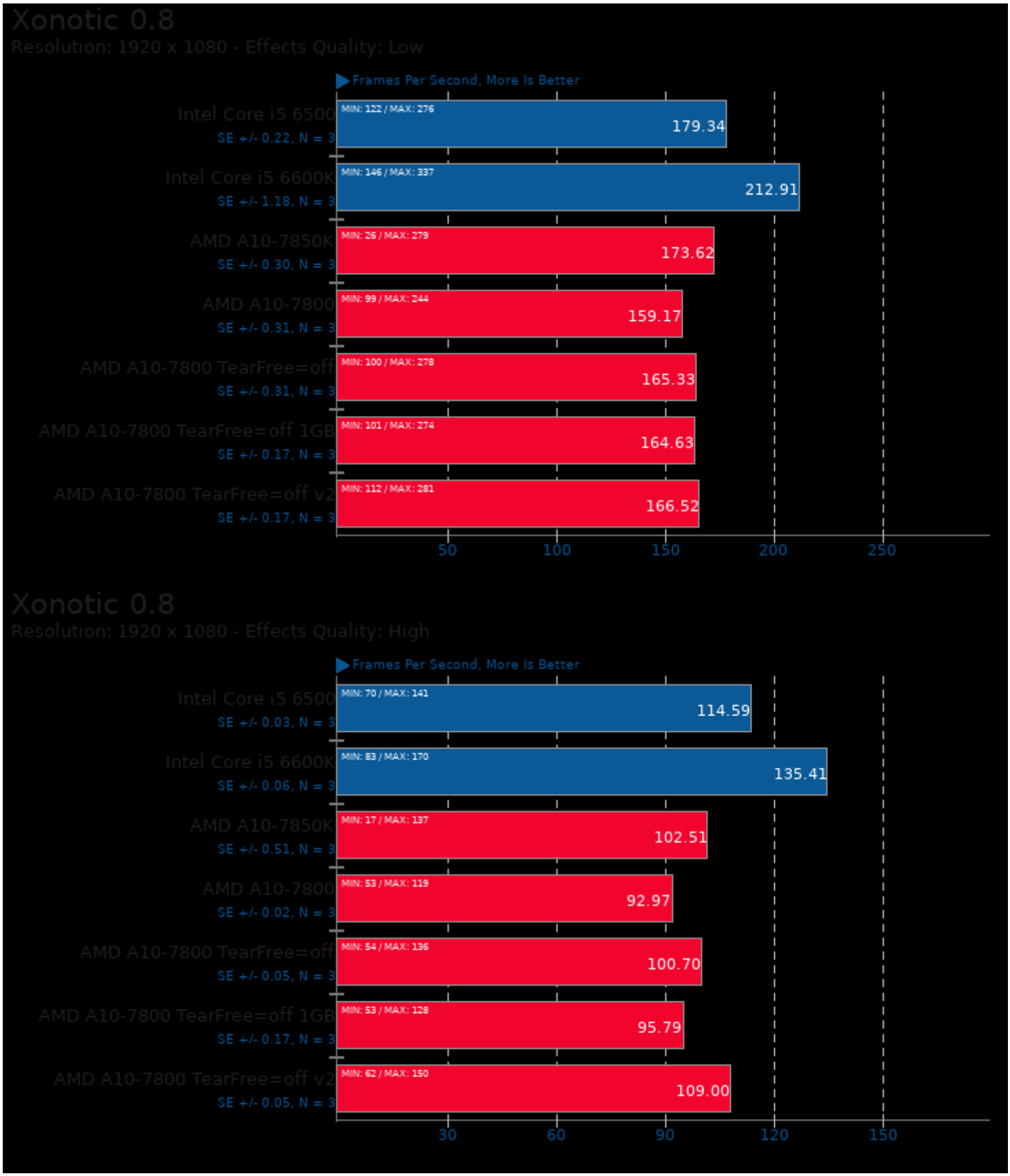
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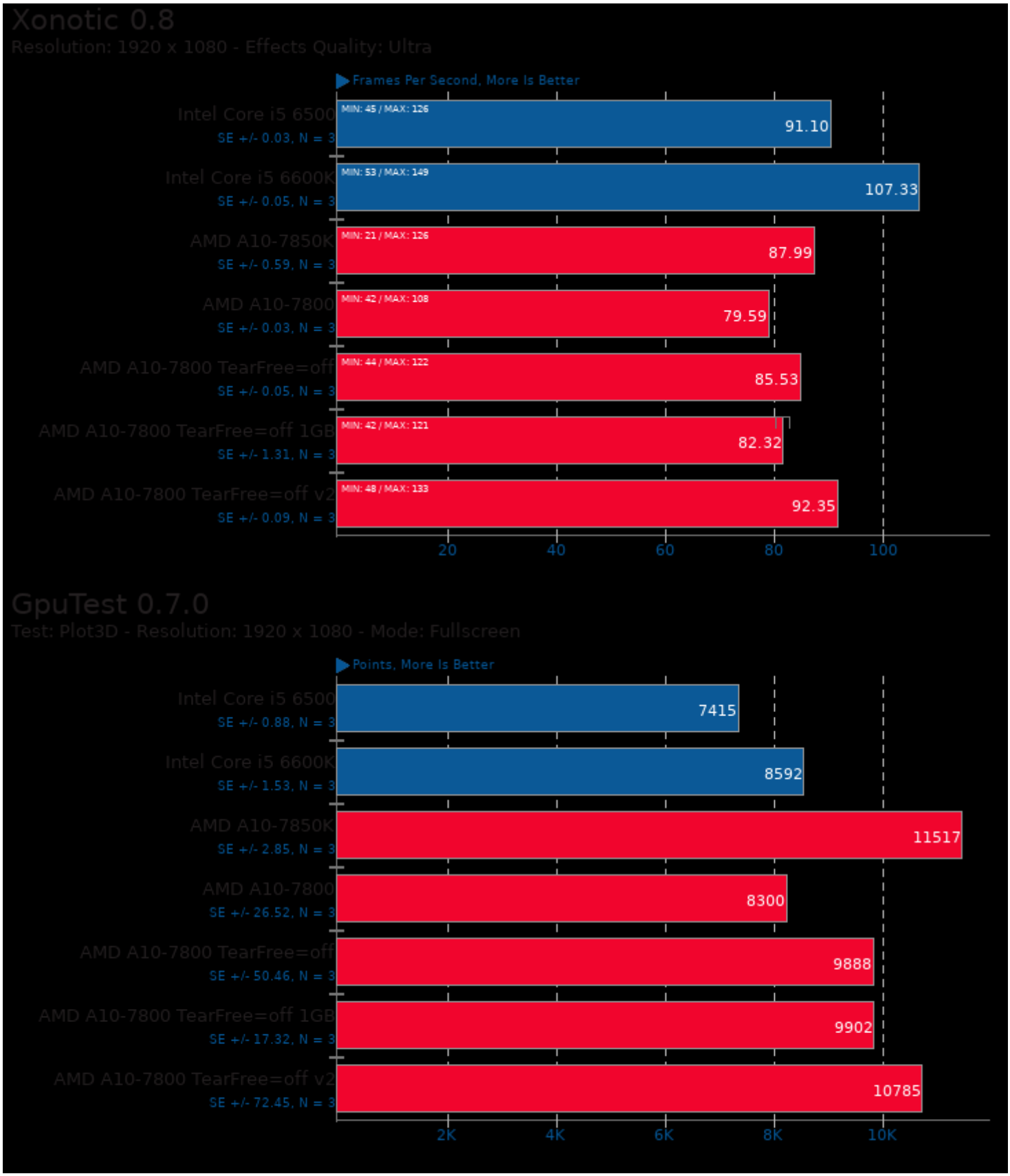
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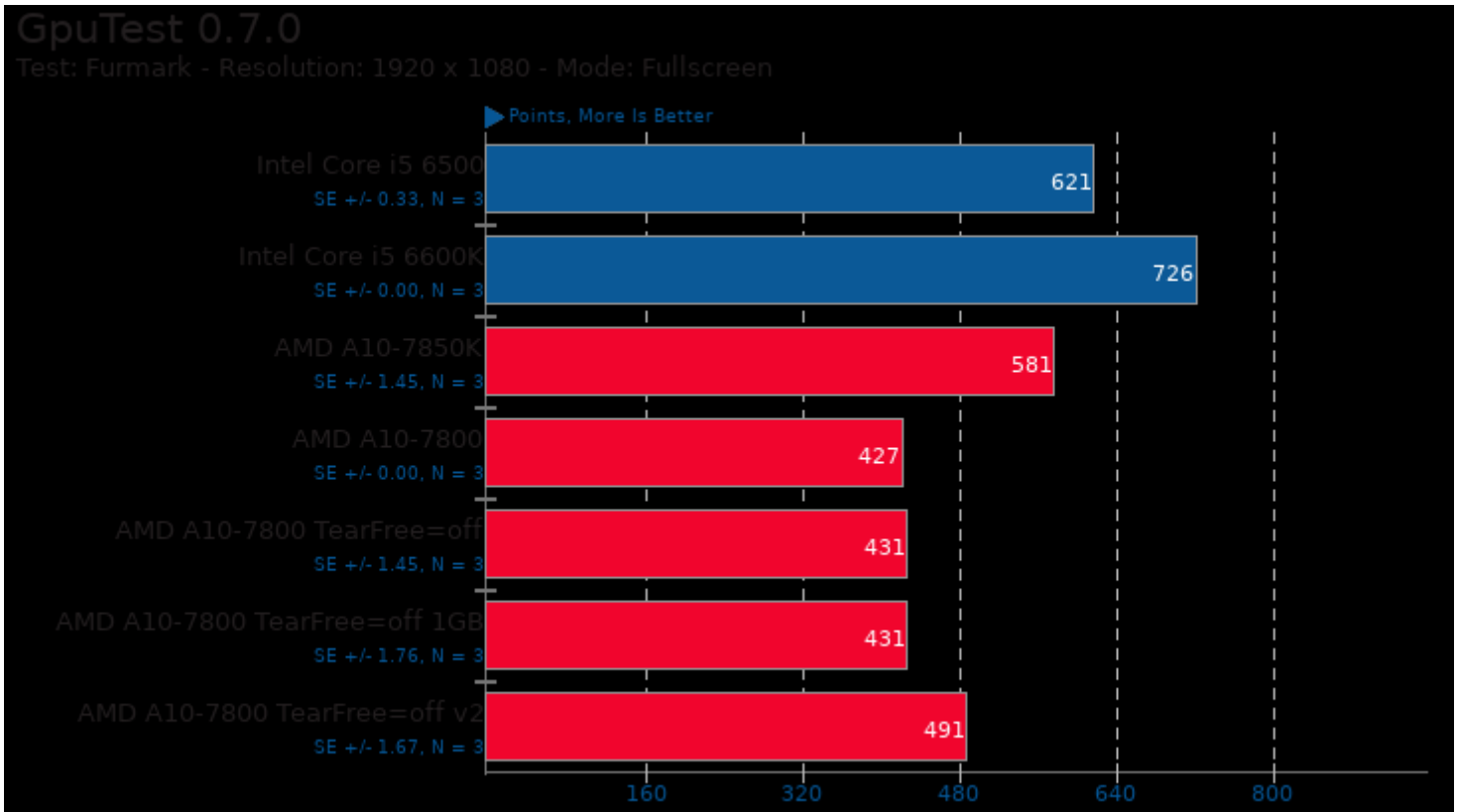
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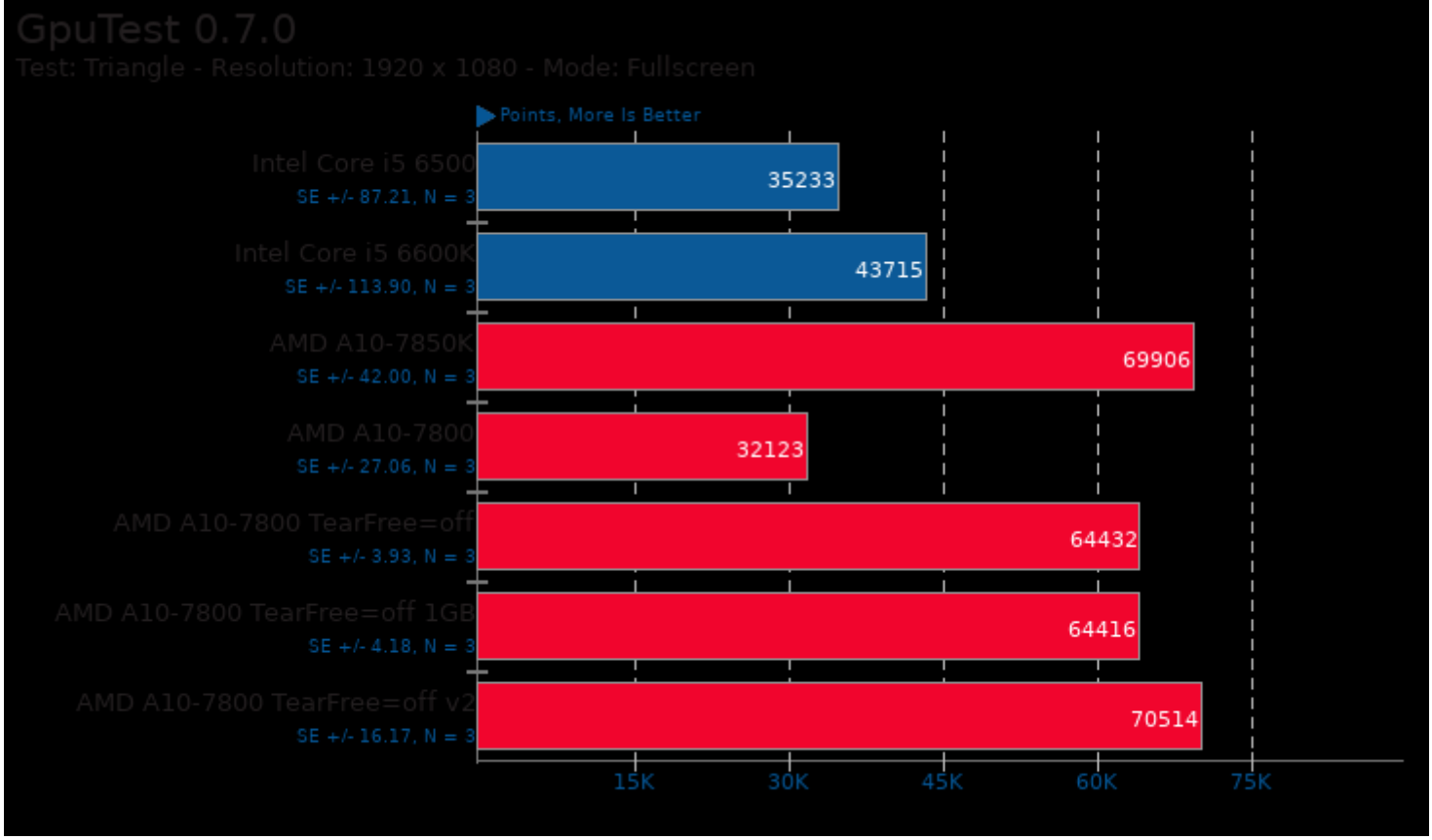


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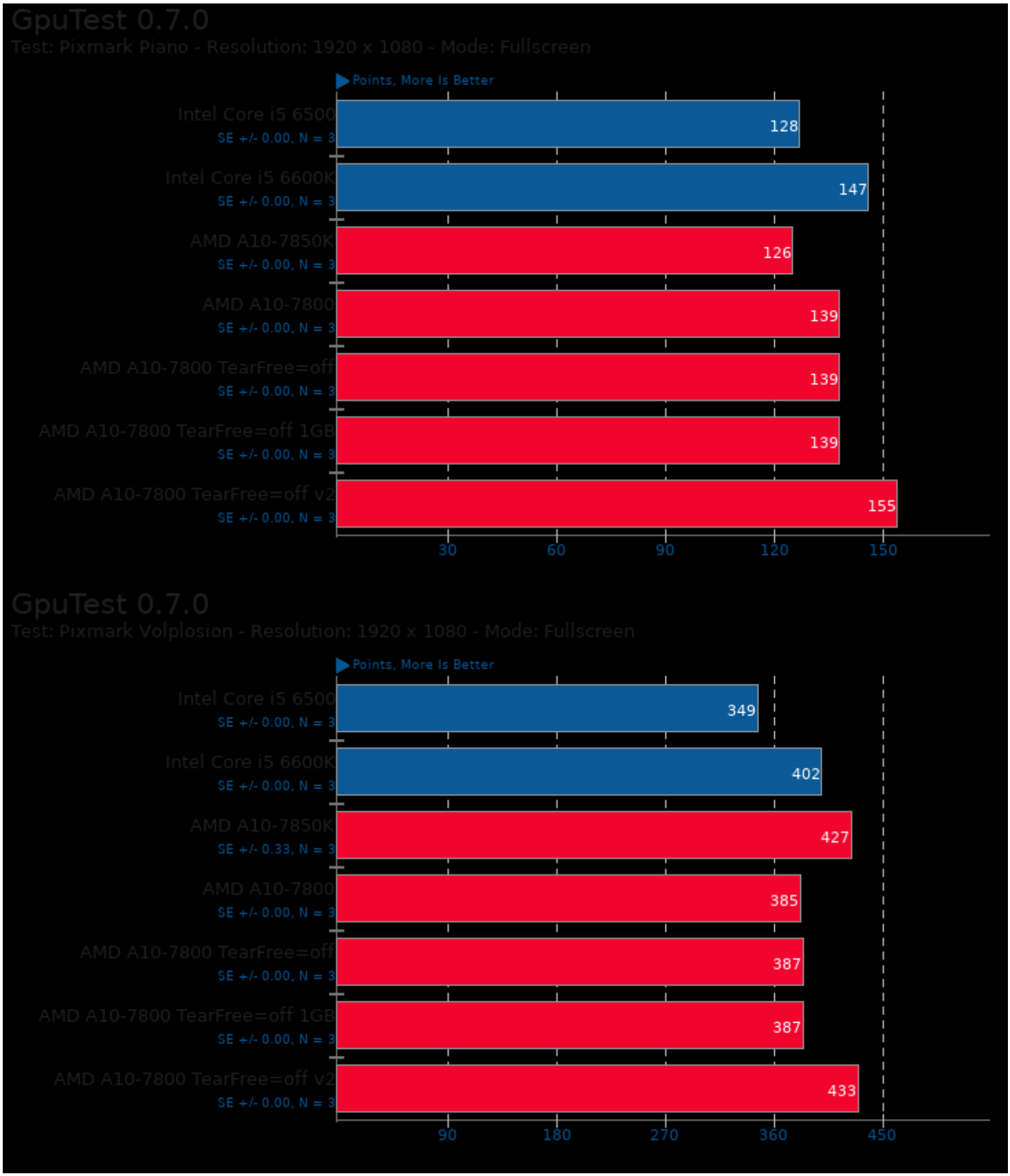


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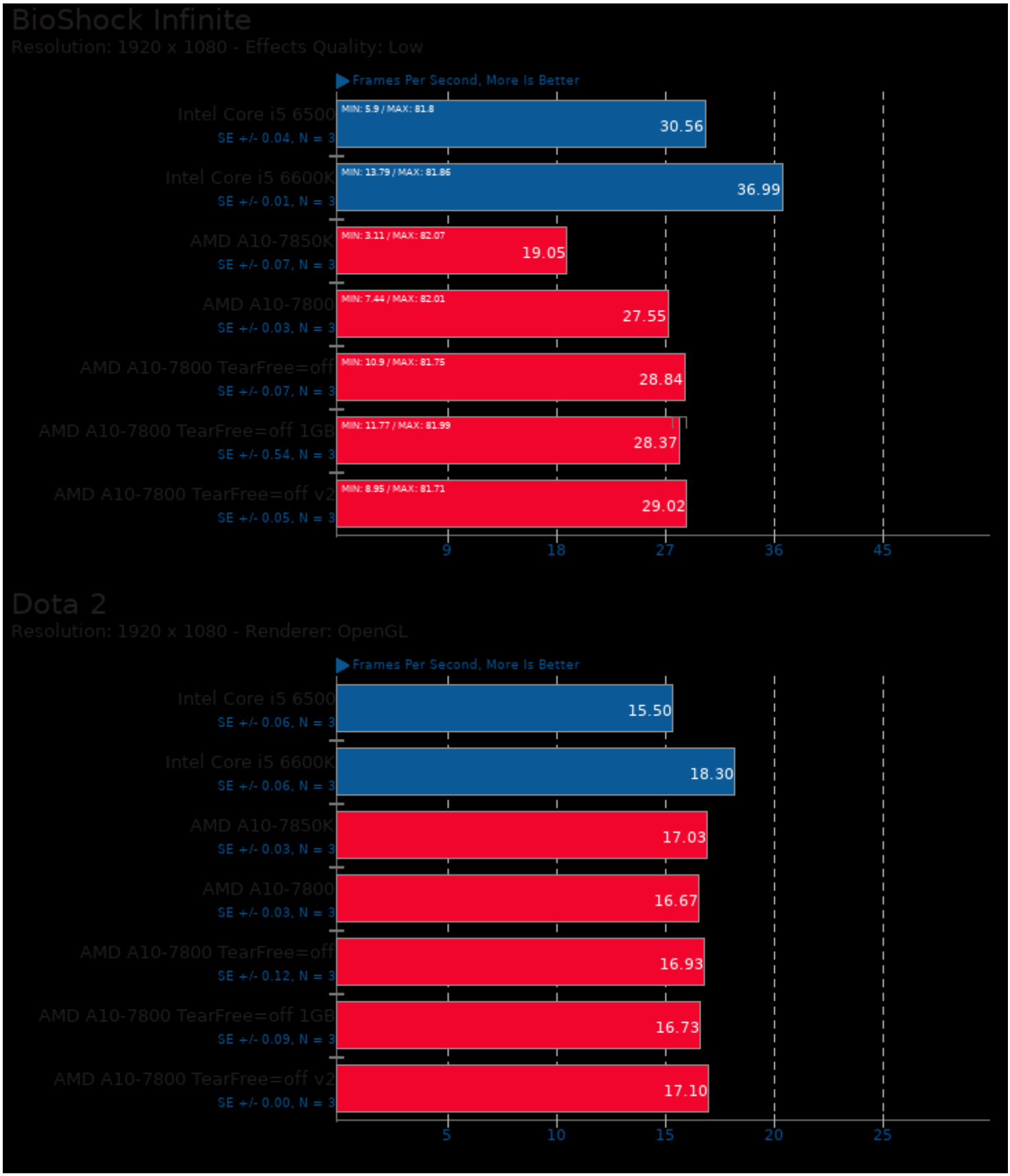




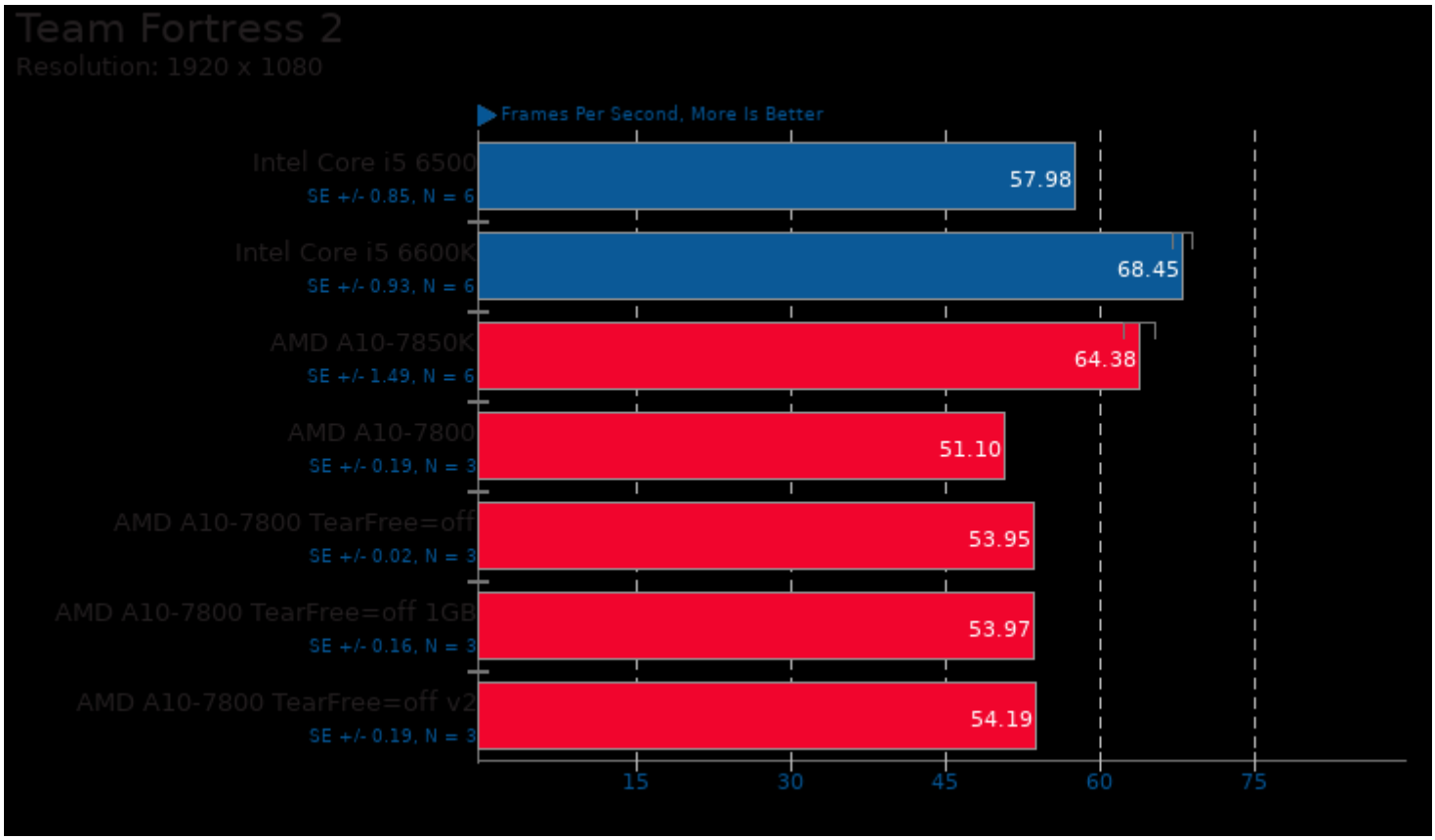
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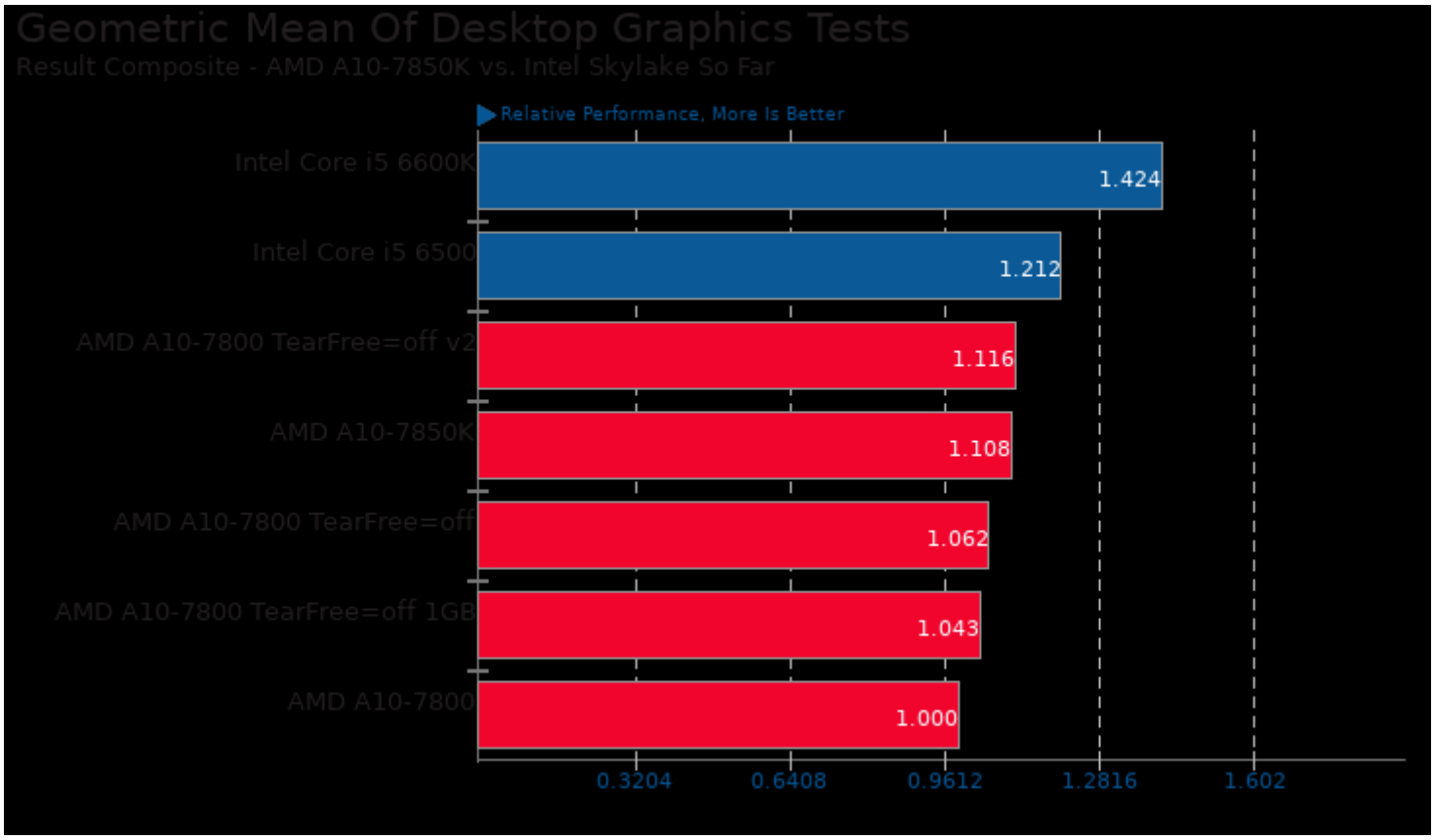


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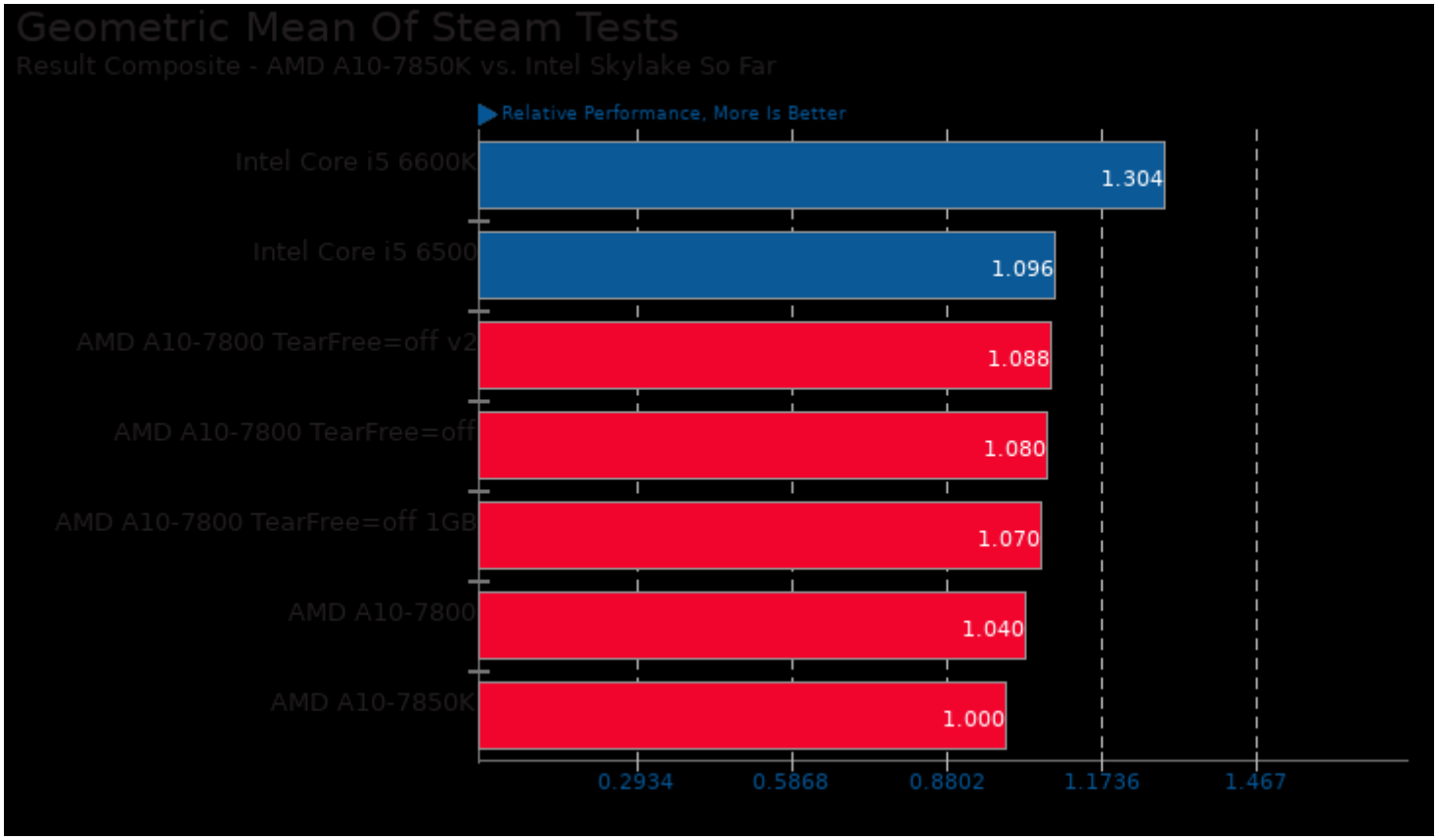


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These geometric means are based upon test groupings / test suites for this result file.



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



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Geometric mean based upon tests: pts/bioshock-infinite, pts/dota2 and pts/tf2

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