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Intel HD Graphics Ivy / Sandy / Haswell Linux Comparison

Benchmarks by Michael Larabel for a future article on Phoronix.com. Comparing various Intel HD Graphics on different Sandy Bridge and Ivy Bridge and Haswell processors. Testing from Ubuntu 13.10 with the Linux 3.11 kernel and Mesa 9.2.0. The main focus of this latest batch of results is looking at the Intel HD Graphics 4400 Graphics performance on the Intel Core i3 4130 CPU for a future article reviewing this low-end processor on Phoronix.

Automated Executive Summary

Core i7 4770K - HD 4600 had the most wins, coming in first place for 57% of the tests.

Based on the geometric mean of all complete results, the fastest (Core i7 4770K - HD 4600) was 2.044x the speed of the slowest (Core i3 2120 - HD 2000). Core i7 3770K - HD 4000 was 0.848x the speed of Core i7 4770K - HD 4600, Core i3 4130 - HD 4400 was 0.929x the speed of Core i7 3770K - HD 4000, Core i5 4300U - HD 4400 was 0.958x the speed of Core i3 4130 - HD 4400, Core i5 2500K - HD 3000 was 0.874x the speed of Core i5 4300U - HD 4400, Core i5 3470 - HD 2500 was 0.903x the speed of Core i5 2500K - HD 3000, Core i3 2120 - HD 2000 was 0.82x the speed of Core i5 3470 - HD 2500.

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

Reaction Quake 3 (Resolution: 1280 x 1024 - Total Frame Time) at 67x
OpenArena (Resolution: 1920 x 1080 - Total Frame Time) at 49.5x
GtkPerf (GTK Widget: GtkComboBoxEntry) at 40.228x

Reaction Quake 3 (Resolution: 1920 x 1080 - Total Frame Time) at 33.5x
OpenArena (Resolution: 1920 x 1080 - Total Frame Time) at 28x
GpuTest (Test: Pixmark Volplosion - Resolution: 1920 x 1080) at 9.411x
GpuTest (Test: Pixmark Piano - Resolution: 1920 x 1080) at 8.381x
GtkPerf (GTK Widget: GtkComboBox) at 7.335x
GpuTest (Test: Furmark - Resolution: 1920 x 1080) at 4.229x
OpenArena (Resolution: 1920 x 1080) at 3.413x.

Test Systems:

Core i3 2120 - HD 2000

Processor: Intel Core i3-2120 @ 3.30GHz (4 Cores), Motherboard: ECS Z77H2-A2X v1.0, Chipset: Intel 2nd Generation Core Family DRAM, Memory: 16384MB, Disk: 240GB OCZ VERTEX3, Graphics: Intel HD 2000 (1100MHz), Audio: Realtek ALC892, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 13.10, Kernel: 3.11.0-11-generic (x86_64), Desktop: Unity 7.1.1, Display Server: X Server 1.14.2.901 (1.14.3 RC 1), Display Driver: intel 2.21.14, OpenGL: 3.1 Mesa 9.2.0, Compiler: GCC 4.8, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-linux-gnu --disable-browser-plugin --disable-werror --enable-checking=release --enable-clocale=gnu --enable-gnu-unique-object --enable-gtk-cairo --enable-java-awt=gtk --enable-java-home --enable-languages=c,c++,java,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-nls --enable-objc-gc --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-arch-directory=amd64 --with-ecj-jar=/usr/share/java/eclipse-ecj.jar --with-java-home=/usr/lib/jvm/java-1.5.0-gcj-4.8-amd64/jre --with-jvm-jar-dir=/usr/lib/jvm-exports/java-1.5.0-gcj-4.8-amd64 --with-jvm-root-dir=/usr/lib/jvm/java-1.5.0-gcj-4.8-amd64 --with-multilib-list=m32,m64,mx32 --with-tune=generic -v
Graphics Notes: SNA

Core i5 3470 - HD 2500

Processor: Intel Core i5-3470 @ 3.20GHz (4 Cores), Motherboard: ECS Z77H2-A2X v1.0, Chipset: Intel Xeon E3-1200 v2/3rd, Memory: 16384MB, Disk: 240GB OCZ VERTEX3, Graphics: Intel HD 2500 (1100MHz), Audio: Realtek ALC892, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 13.10, Kernel: 3.11.0-11-generic (x86_64), Desktop: Unity 7.1.1, Display Server: X Server 1.14.2.901 (1.14.3 RC 1), Display Driver: intel 2.21.14, OpenGL: 3.1 Mesa 9.2.0, Compiler: GCC 4.8, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-linux-gnu --disable-browser-plugin --disable-werror --enable-checking=release --enable-clocale=gnu --enable-gnu-unique-object --enable-gtk-cairo --enable-java-awt=gtk --enable-java-home --enable-languages=c,c++,java,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-nls --enable-objc-gc --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-arch-directory=amd64 --with-ecj-jar=/usr/share/java/eclipse-ecj.jar --with-java-home=/usr/lib/jvm/java-1.5.0-gcj-4.8-amd64/jre --with-jvm-jar-dir=/usr/lib/jvm-exports/java-1.5.0-gcj-4.8-amd64 --with-jvm-root-dir=/usr/lib/jvm/java-1.5.0-gcj-4.8-amd64 --with-multilib-list=m32,m64,mx32 --with-tune=generic -v
Graphics Notes: SNA

Core i5 2500K - HD 3000

Processor: Intel Core i5-2500K @ 3.30GHz (4 Cores), Motherboard: ECS Z77H2-A2X v1.0, Chipset: Intel 2nd Generation Core Family DRAM, Memory: 16384MB, Disk: 240GB OCZ VERTEX3, Graphics: Intel HD 3000 (1100MHz), Audio: Realtek ALC892, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 13.10, Kernel: 3.11.0-11-generic (x86_64), Desktop: Unity 7.1.1, Display Server: X Server 1.14.2.901 (1.14.3 RC 1), Display Driver: intel 2.21.14, OpenGL: 3.1 Mesa 9.2.0, Compiler: GCC 4.8, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-linux-gnu --disable-browser-plugin --disable-werror --enable-checking=release --enable-clocale=gnu --enable-gnu-unique-object --enable-gtk-cairo --enable-java-awt=gtk --enable-java-home --enable-languages=c,c++,java,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-nls --enable-objc-gc --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-arch-directory=amd64 --with-ecj-jar=/usr/share/java/eclipse-ecj.jar --with-java-home=/usr/lib/jvm/java-1.5.0-gcj-4.8-amd64/jre --with-jvm-jar-dir=/usr/lib/jvm-exports/java-1.5.0-gcj-4.8-amd64 --with-jvm-root-dir=/usr/lib/jvm/java-1.5.0-gcj-4.8-amd64 --with-multilib-list=m32,m64,mx32 --with-tune=generic -v
Graphics Notes: SNA

Core i7 3770K - HD 4000

Processor: Intel Core i7-3770K @ 3.50GHz (8 Cores), Motherboard: ECS Z77H2-A2X v1.0, Chipset: Intel Xeon E3-1200 v2/3rd, Memory: 16384MB, Disk: 240GB OCZ VERTEX3, Graphics: Intel HD 4000 (1150MHz), Audio: Realtek ALC892, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 13.10, Kernel: 3.11.0-11-generic (x86_64), Desktop: Unity 7.1.1, Display Server: X Server 1.14.2.901 (1.14.3 RC 1), Display Driver: intel 2.21.14, OpenGL: 3.1 Mesa 9.2.0, Compiler: GCC 4.8, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-linux-gnu --disable-browser-plugin --disable-werror --enable-checking=release --enable-clocale=gnu --enable-gnu-unique-object --enable-gtk-cairo --enable-java-awt=gtk --enable-java-home --enable-languages=c,c++,java,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-nls --enable-objc-gc --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-arch-directory=amd64 --with-ecj-jar=/usr/share/java/eclipse-ecj.jar --with-java-home=/usr/lib/jvm/java-1.5.0-gcj-4.8-amd64/jre --with-jvm-jar-dir=/usr/lib/jvm-exports/java-1.5.0-gcj-4.8-amd64 --with-jvm-root-dir=/usr/lib/jvm/java-1.5.0-gcj-4.8-amd64 --with-multilib-list=m32,m64,mx32 --with-tune=generic -v
Graphics Notes: SNA

Core i3 4130 - HD 4400

Processor: Intel Core i3-4130 @ 3.40GHz (4 Cores), Motherboard: ECS Z87H3-A2X EXTREME v1.0, Chipset: Intel 4th Gen Core DRAM, Memory: 16384MB, Disk: 240GB OCZ VERTEX3, Graphics: Intel Device 041e (1150MHz), Audio: Intel Haswell HDMI, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 13.10, Kernel: 3.11.0-11-generic (x86_64), Desktop: Unity 7.1.1, Display Server: X Server 1.14.2.901 (1.14.3 RC 1), Display Driver: intel 2.21.14, OpenGL: 3.1 Mesa 9.2.0, Compiler: GCC 4.8, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-linux-gnu --disable-browser-plugin --disable-werror --enable-checking=release --enable-clocale=gnu --enable-gnu-unique-object --enable-gtk-cairo --enable-java-awt=gtk --enable-java-home --enable-languages=c,c++,java,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-nls --enable-objc-gc --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-arch-directory=amd64 --with-ecj-jar=/usr/share/java/eclipse-ecj.jar --with-java-home=/usr/lib/jvm/java-1.5.0-gcj-4.8-amd64/jre --with-jvm-jar-dir=/usr/lib/jvm-exports/java-1.5.0-gcj-4.8-amd64 --with-jvm-root-dir=/usr/lib/jvm/java-1.5.0-gcj-4.8-amd64 --with-multilib-list=m32,m64,mx32 --with-tune=generic -v
Graphics Notes: SNA

Core i7 4770K - HD 4600

Processor: Intel Core i7-4770K @ 3.50GHz (8 Cores), Motherboard: ECS Z87H3-A2X EXTREME v1.0, Chipset: Intel 4th Gen Core DRAM, Memory: 16384MB, Disk: 240GB OCZ VERTEX3, Graphics: Intel Haswell Desktop (1250MHz), Audio: Intel Haswell HDMI, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 13.10, Kernel: 3.11.0-11-generic (x86_64), Desktop: Unity 7.1.1, Display Server: X Server 1.14.2.901 (1.14.3 RC 1), Display Driver: intel 2.21.14, OpenGL: 3.1 Mesa 9.2.0, Compiler: GCC 4.8, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-linux-gnu --disable-browser-plugin --disable-werror --enable-checking=release --enable-clocale=gnu --enable-gnu-unique-object

--enable-gtk-cairo --enable-java-awt=gtk --enable-java-home --enable-languages=c,c++,java,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-nls --enable-objc-gc --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-arch-directory=amd64 --with-ecj-jar=/usr/share/java/eclipse-ecj.jar --with-java-home=/usr/lib/jvm/java-1.5.0-gcj-4.8-amd64/jre --with-jvm-jar-dir=/usr/lib/jvm-exports/java-1.5.0-gcj-4.8-amd64 --with-jvm-root-dir=/usr/lib/jvm/java-1.5.0-gcj-4.8-amd64 --with-multilib-list=m32,m64,mx32 --with-tune=generic -v
Graphics Notes: SNA

Core i5 4300U - HD 4400

Processor: Intel Core i5-4300U @ 2.90GHz (2 Cores / 4 Threads), Motherboard: LENOVO 20CLS7WW00 (N10ET47W 1.26 BIOS), Chipset: Intel Haswell-ULT DRAM, Memory: 8192MB, Disk: 1000GB HGST HTS541010A7 + 256GB TS256GMTS400 + 4GB NCard, Graphics: Intel Haswell Mobile 1536MB (1100MHz), Audio: Intel Haswell-ULT HD Audio, Network: Intel Connection I218-LM + Intel Wireless 7265

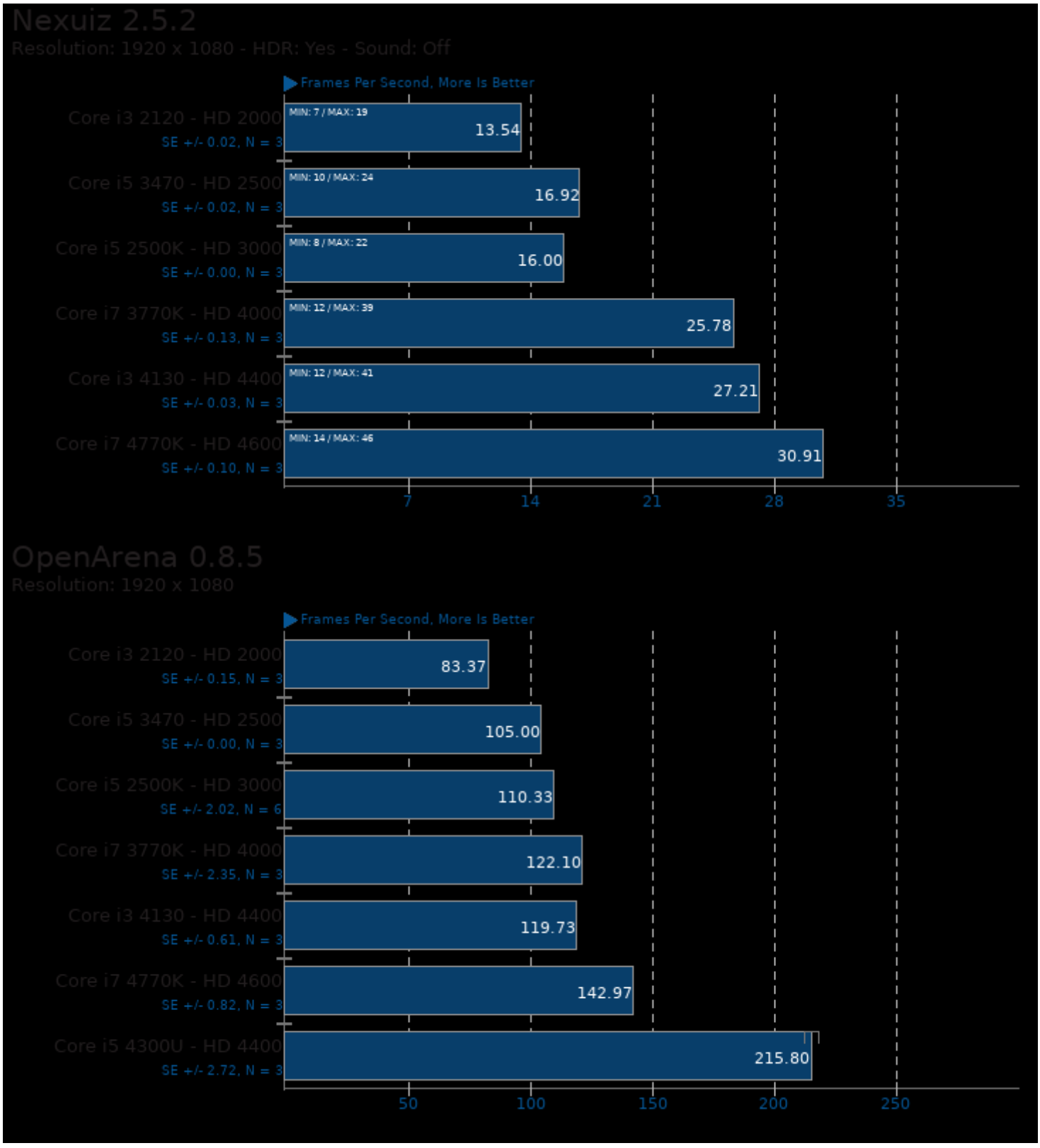
OS: Fedora 28, Kernel: 4.17.12-200.fc28.x86_64 (x86_64), Desktop: GNOME Shell 3.28.3, Display Server: Wayland, Display Driver: modesetting 1.19.6, OpenGL: 4.5 Mesa 18.0.5, Compiler: GCC 8.1.1 20180712, File-System: ext4, Screen Resolution: 1366x768

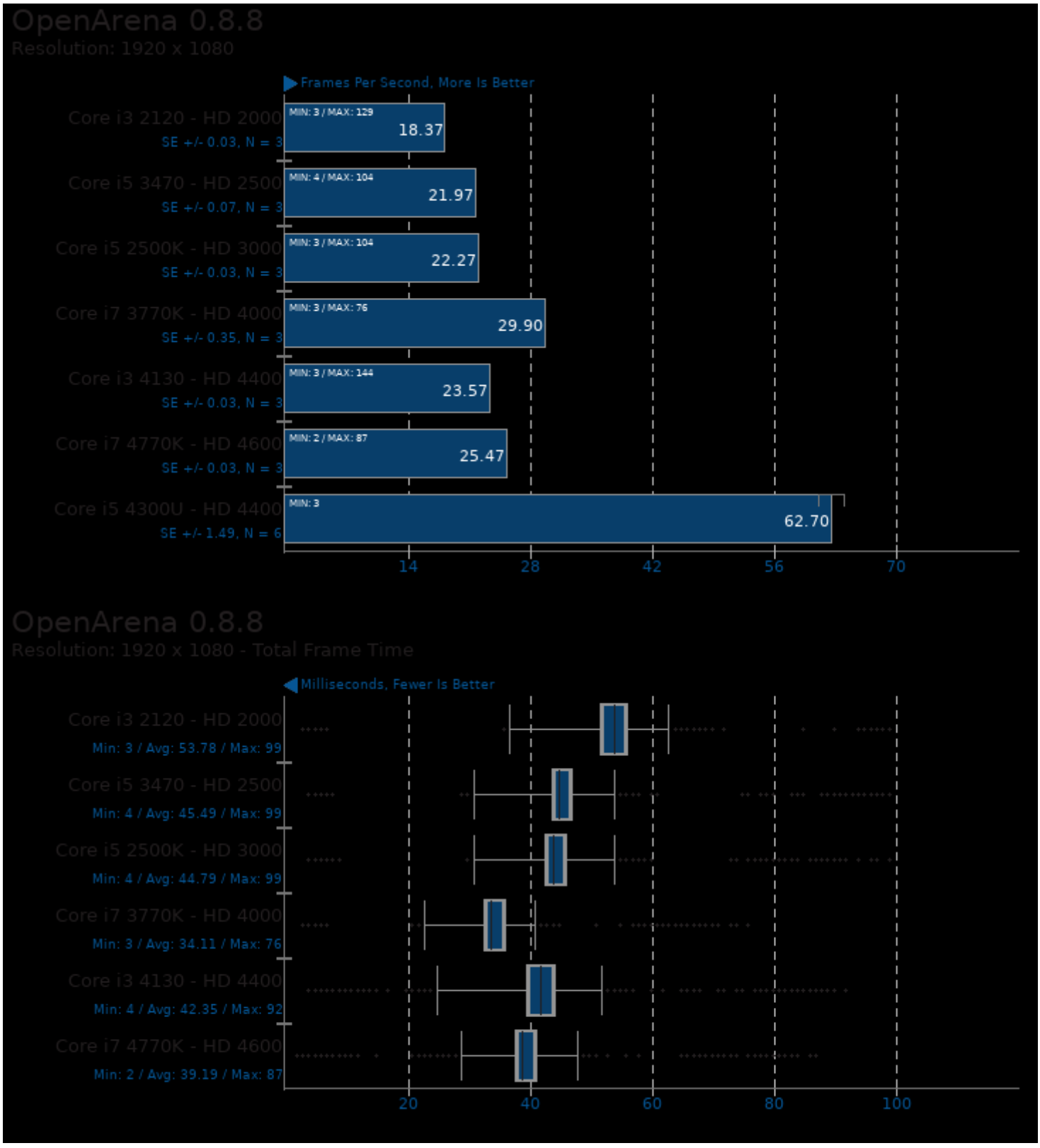
Compiler Notes: --build=x86_64-redhat-linux --disable-libunwind-exceptions --enable-__cxa_atexit --enable-bootstrap --enable-cet --enable-checking=release --enable-gnu-indirect-function --enable-gnu-unique-object --enable-initfini-array --enable-languages=c,c++,fortran,objc,obj-c++,ada,go,lto --enable-libmpx --enable-multilib --enable-offload-targets=nvptx-none --enable-plugin --enable-shared --enable-threads=posix --mandir=/usr/share/man --with-arch_32=i686 --with-gcc-major-version-only --with-isl --with-linker-hash-style=gnu --with-tune=generic --without-cuda-driver
Processor Notes: Scaling Governor: intel_pstate powersave
Security Notes: SELinux + KPTI + __user pointer sanitization + Full generic retpoline IBPB IBRS_FW Protection

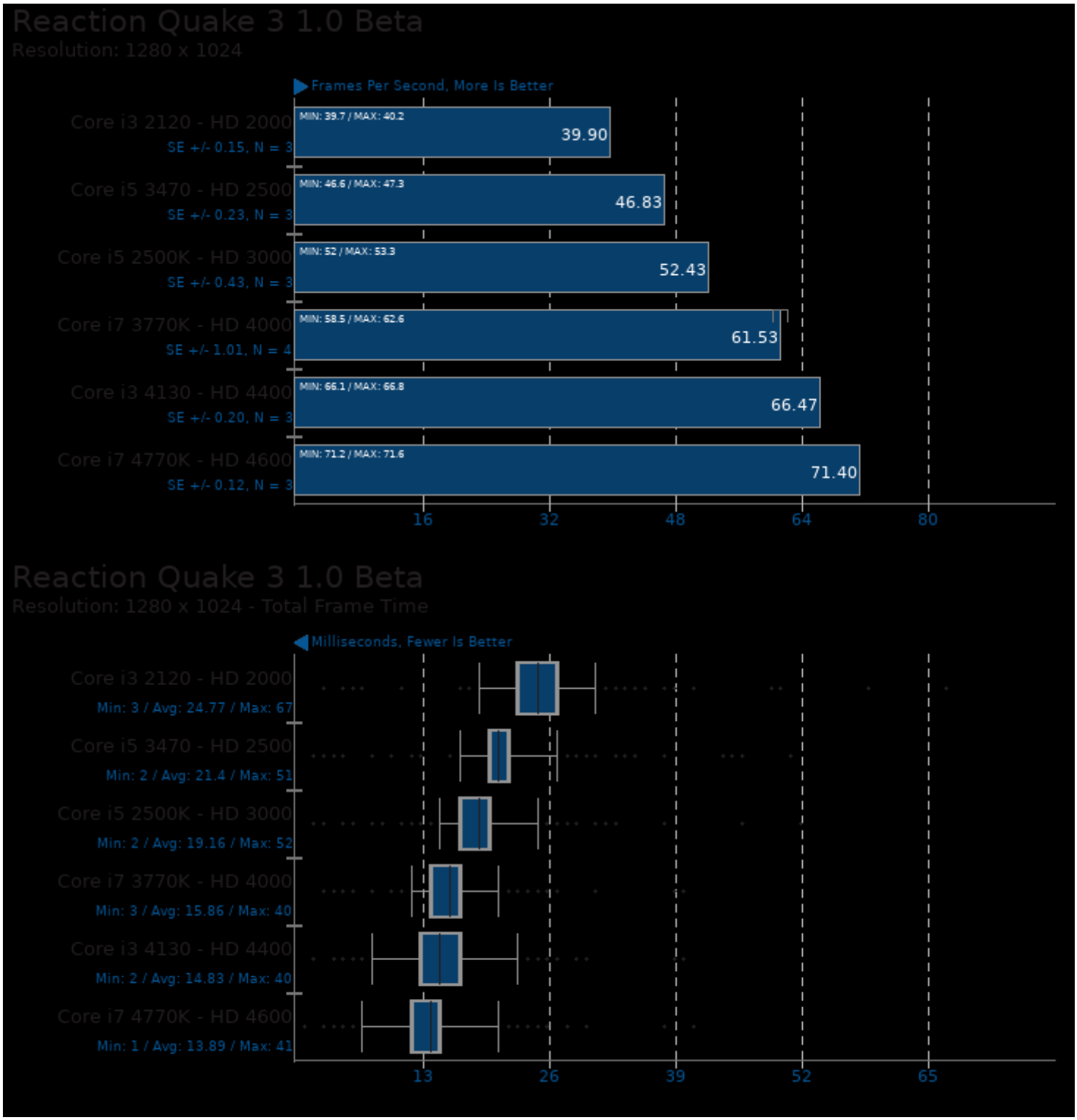
	Core i3 2120 - HD 2000	Core i5 3470 - HD 2500	Core i5 2500K - HD 3000	Core i7 3770K - HD 4000	Core i3 4130 - HD 4400	Core i7 4770K - HD 4600	Core i5 4300U - HD 4400
Nexuiz - 1920 x 1080 - Yes - Off (FPS)	**13.54**	16.92	16.00	25.78	27.21	**30.91**	
Normalized	43.8%	54.74%	51.76%	83.4%	88.03%	100%	
Standard Deviation	0.3%	0.2%	0%	0.9%	0.2%	0.5%	
OpenArena - 1920 x 1080 (FPS)	**83.37**	105	110.33	122.10	119.73	142.97	**215.80**
Normalized	38.63%	48.66%	51.13%	56.58%	55.48%	66.25%	100%
Standard Deviation	0.3%	0%	4.5%	3.3%	0.9%	1%	2.2%
OpenArena - 1920 x 1080 (FPS)	**18.37**	21.97	22.27	29.90	23.57	25.47	**62.70**
Normalized	29.3%	35.04%	35.52%	47.69%	37.59%	40.62%	100%
Standard Deviation	0.3%	0.5%	0.3%	2%	0.2%	0.2%	5.8%
Reaction Quake 3 - 1280 x 1024 (FPS)	**39.90**	46.83	52.43	61.53	66.47	**71.40**	
Normalized	55.88%	65.59%	73.43%	86.18%	93.1%	100%	
Standard Deviation	0.7%	0.9%	1.4%	3.3%	0.5%	0.3%	
Reaction Quake 3 - 1920 x 1080 (FPS)	**40.10**	46.83	52.40	61.17	65.97	**71.63**	
Normalized	55.98%	65.38%	73.15%	85.4%	92.1%	100%	
Standard Deviation	0.4%	1.3%	1.5%	1.5%	0.2%	0.5%	
Warsow - 1920 x 1080 (FPS)	**23.04**	28.60	31.23	43.77	40.47	**46.93**	
Normalized	49.09%	60.94%	66.55%	93.27%	86.23%	100%	
Standard Deviation	3.3%	0.3%	0.2%	1.5%	0.4%	0.5%	

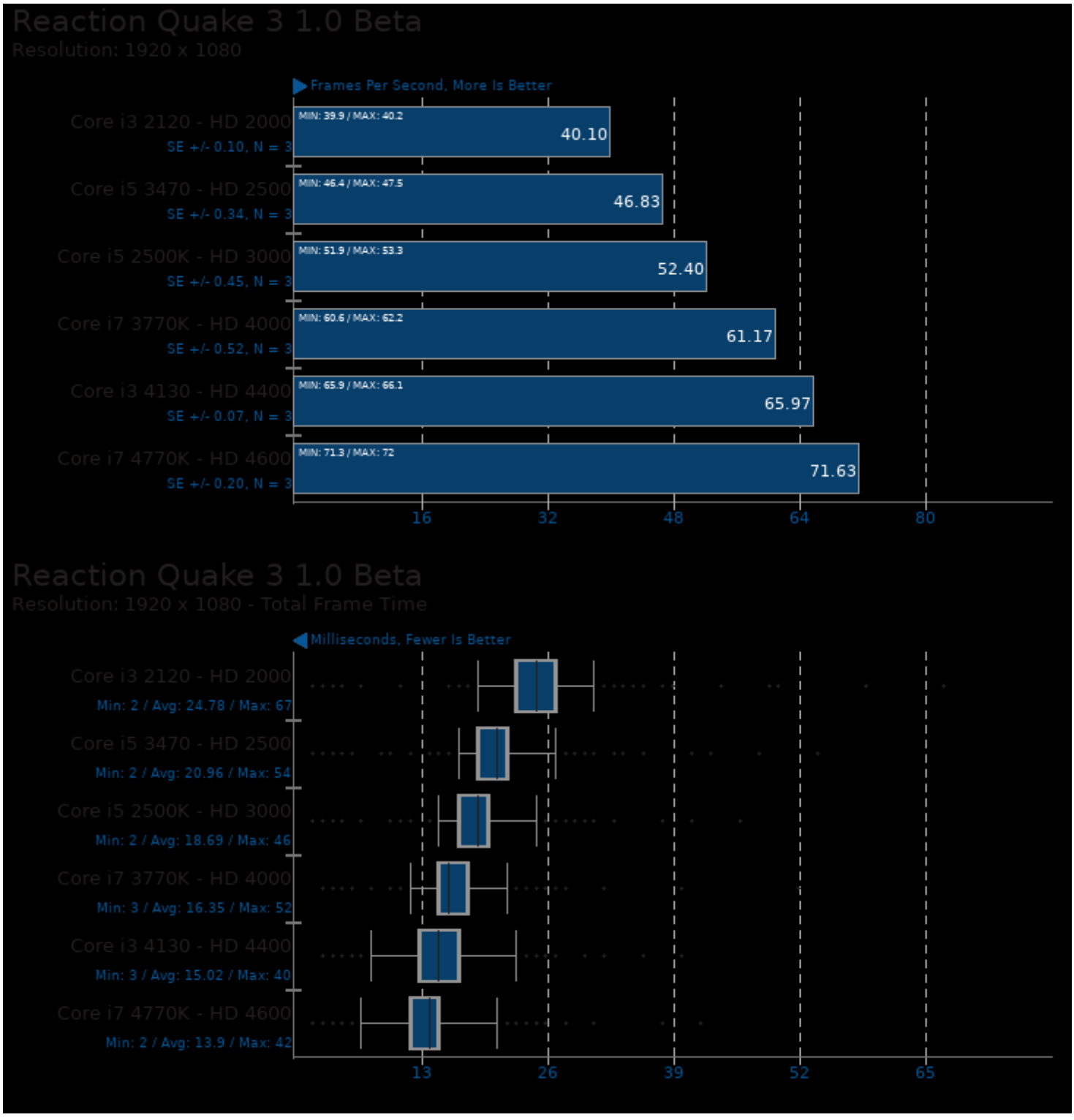
Xonotic - 1920 x 1080 - Low (FPS)	**73.98**	91.85	93.34	102.68	104.27	**123.84**	84.45
Normalized	59.74%	74.17%	75.37%	82.91%	84.2%	100%	68.19%
Standard Deviation	0.2%	0.3%	0.1%	1%	1.4%	0.4%	0.6%
Xonotic - 1920 x 1080 - High (FPS)	**25.19**	33.09	38.60	52.00	46.79	**54.81**	43.64
Normalized	45.96%	60.37%	70.43%	94.87%	85.37%	100%	79.62%
Standard Deviation	0.1%	0%	0.1%	0.6%	0.1%	0.2%	1.5%
Xonotic - 1920 x 1080 - Ultra (FPS)	**14.84**	17.97	24.01	32.14	31.28	36.55	**38.87**
Normalized	38.18%	46.23%	61.77%	82.69%	80.47%	94.03%	100%
Standard Deviation	0%	0.1%	0%	0.6%	0.1%	0.3%	1.9%
GpuTest - Plot3D - 1920 x 1080 (Points)	**2663**	3228	2804	3220	3483	3817	**4149**
Normalized	64.18%	77.8%	67.58%	77.61%	83.95%	92%	100%
Standard Deviation	0%	0.1%	0%	1.5%	0%	1%	0.1%
GpuTest - Furmark - 1920 x 1080 (Points)	**83**	124	156	294	206	271	**351**
Normalized	23.65%	35.33%	44.44%	83.76%	58.69%	77.21%	100%
Standard Deviation	0%	1.4%	0.4%	0.7%	0.7%	1%	1.9%
GpuTest - Triangle - 1920 x 1080 (Points)	**15596**	21652	21538	23977	26444	35864	**36437**
Normalized	42.8%	59.42%	59.11%	65.8%	72.57%	98.43%	100%
Standard Deviation	4.9%	0.4%	0.2%	3.9%	3.6%	2.6%	0.4%
GpuTest - Pixmark Piano - 1920 x 1080 (Points)	**21**	25	28	68	51	90	**176**
Normalized	11.93%	14.2%	15.91%	38.64%	28.98%	51.14%	100%
Standard Deviation	2.8%	0%	2.1%	0.9%	1.1%	0.6%	1%
GpuTest - Pixmark Volplosion - 1920 x 1080 (Points)	**56**	74	116	205	155	279	**527**
Normalized	10.63%	14.04%	22.01%	38.9%	29.41%	52.94%	100%
Standard Deviation	1%	0.8%	0%	0.3%	0.4%	0%	1%
GtkPerf - GtkComboBox (sec)	19.17	13.67	15.99	15.22	14.20	**11.17**	**81.93**
Normalized	58.27%	81.71%	69.86%	73.39%	78.66%	100%	13.63%
Standard Deviation	3.3%	0.2%	1.2%	3.2%	0.9%	0.6%	65.2%
GtkPerf - GtkRadioButton (sec)	4.03	3.44	3.36	3.29	3.27	**2.73**	**4.26**
Normalized	67.74%	79.36%	81.25%	82.98%	83.49%	100%	64.08%
Standard Deviation	4.8%	1%	0%	1.1%	1.9%	1.2%	2.7%
GtkPerf - GtkComboBoxEntry (sec)	12.52	15.83	8.99	8.49	8.25	**6.26**	**251.83**
Normalized	50%	39.55%	69.63%	73.73%	75.88%	100%	2.49%
Standard Deviation	0.4%	0.7%	1.1%	0.4%	0.5%	2.4%	17.6%
GtkPerf - GtkTextView - Add Text (sec)	**658.79**	574.62	584.97	532.86	580.66	498.59	**262.26**
Normalized	39.81%	45.64%	44.83%	49.22%	45.17%	52.6%	100%
Standard Deviation	0.1%	0.1%	0.3%	0%	0.1%	0.5%	1.9%
GtkPerf - GtkDrawingArea - Circles (sec)	10.44	9.38	9.95	8.82	8.78	**7.53**	**23.70**
Normalized	72.13%	80.28%	75.68%	85.37%	85.76%	100%	31.77%
Standard Deviation	1.3%	0.3%	0.4%	0.5%	2.7%	0.8%	6.1%

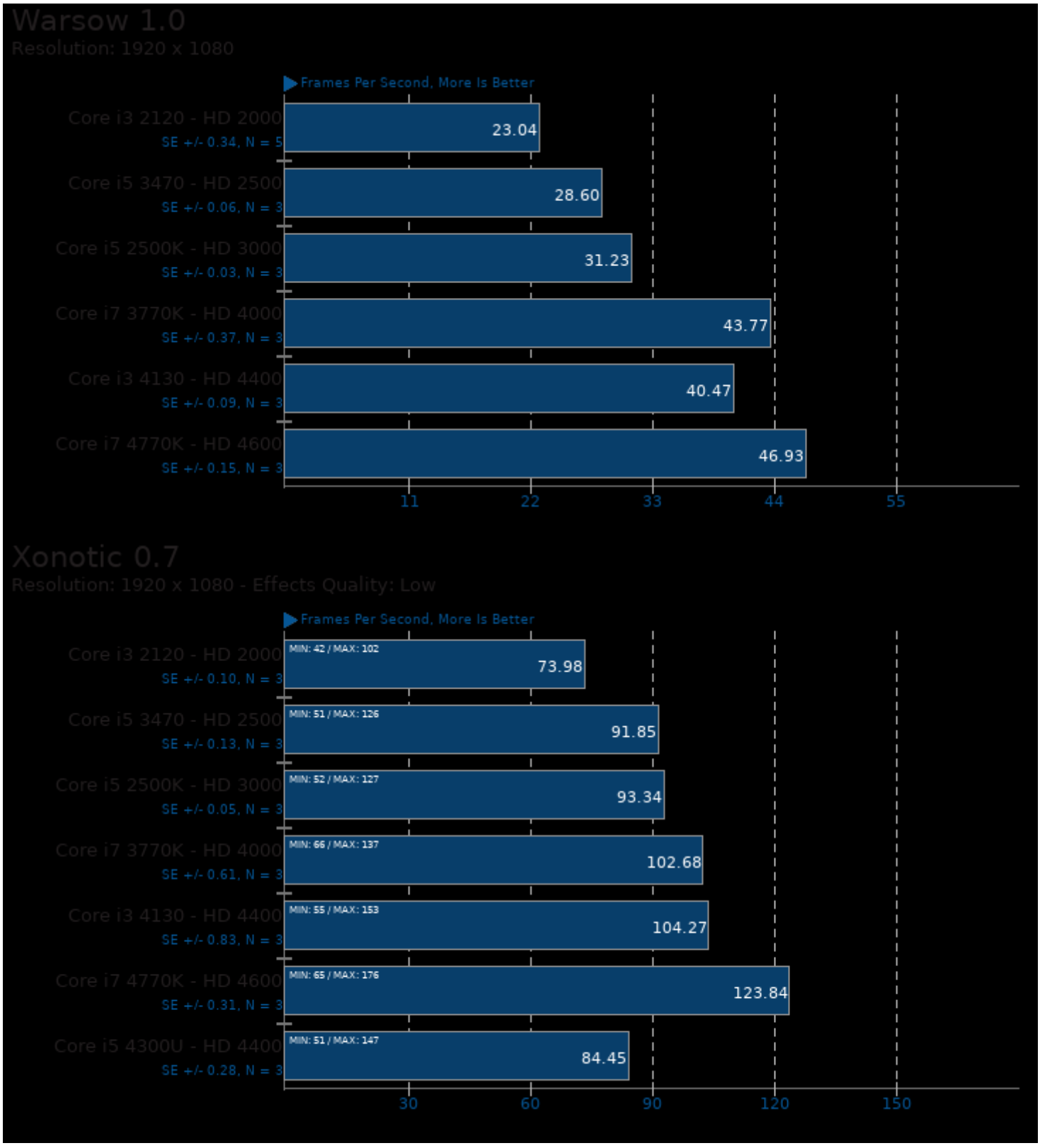
QGears2 - XRender Extension - Text (FPS)	**201.34**	251.86	232.49	267.83	273.68	**324.02**
Normalized	62.14%	77.73%	71.75%	82.66%	84.46%	100%
Standard Deviation	1.1%	1.6%	0.3%	0.4%	2.2%	1%
QGears2 - XRender Extension - Gears (FPS)	**212.93**	257.79	245.46	276.49	273.49	**323.32**
Normalized	65.86%	79.73%	75.92%	85.52%	84.59%	100%
Standard Deviation	0.3%	1.7%	0.6%	0.3%	1.2%	0.8%

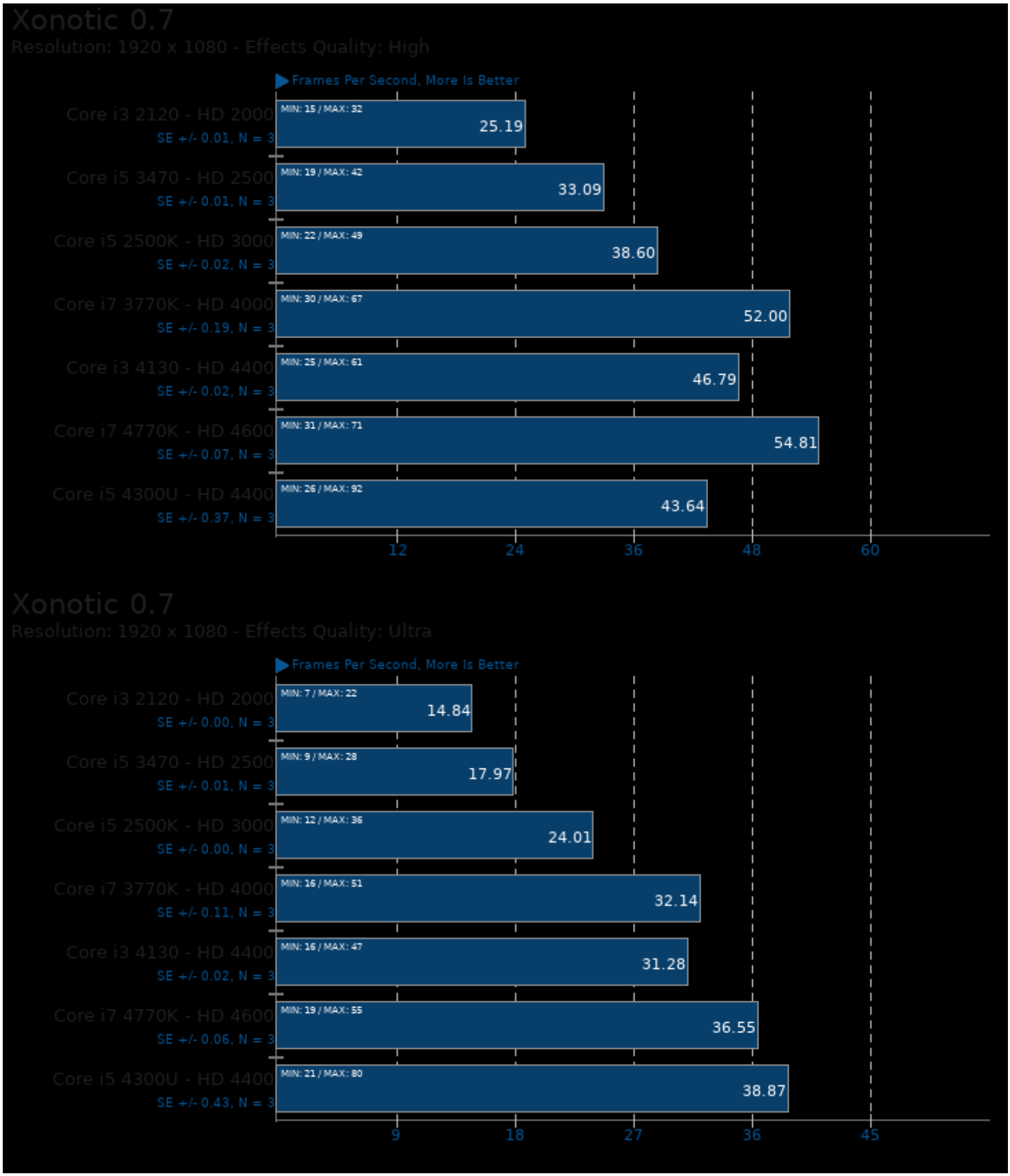

Nexuiz 2.5.2
Resolution: 1920 x 1080 - HDR: Yes - Sound: Off
Frames Per Second, More Is Better
Core i3 2120 - HD 2000
SE +/- 0.02, N = 3
MIN: 7 / MAX: 19
13.54
Core i5 3470 - HD 2500
SE +/- 0.02, N = 3
MIN: 10 / MAX: 24
16.92
Core i5 2500K - HD 3000
SE +/- 0.00, N = 3
MIN: 8 / MAX: 22
16.00
Core i7 3770K - HD 4000
SE +/- 0.13, N = 3
MIN: 12 / MAX: 39
25.78
Core i3 4130 - HD 4400
SE +/- 0.03, N = 3
MIN: 12 / MAX: 41
27.21
Core i7 4770K - HD 4600
SE +/- 0.10, N = 3
MIN: 14 / MAX: 46
30.91
7
14
21
28
35
OpenArena 0.8.5
Resolution: 1920 x 1080
Frames Per Second, More Is Better
Core i3 2120 - HD 2000
SE +/- 0.15, N = 3
83.37
Core i5 3470 - HD 2500
SE +/- 0.00, N = 3
105.00
Core i5 2500K - HD 3000
SE +/- 2.02, N = 6
110.33
Core i7 3770K - HD 4000
SE +/- 2.35, N = 3
122.10
Core i3 4130 - HD 4400
SE +/- 0.61, N = 3
119.73
Core i7 4770K - HD 4600
SE +/- 0.82, N = 3
142.97
Core i5 4300U - HD 4400
SE +/- 2.72, N = 3
215.80
50
100
150
200
250

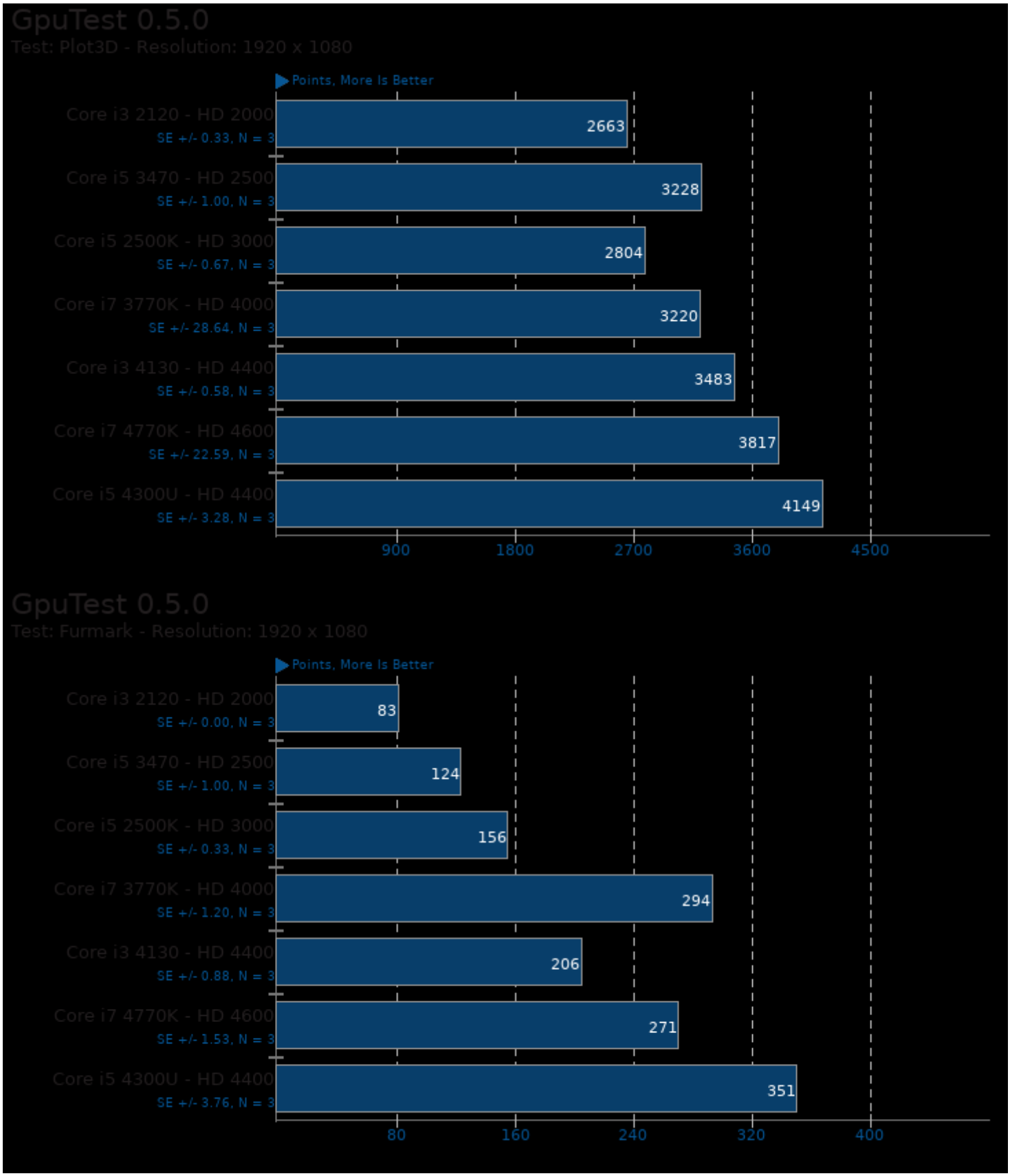

OpenArena 0.8.8
Resolution: 1920 x 1080
Frames Per Second, More Is Better
Core i3 2120 - HD 2000
SE +/- 0.03, N = 3
MIN: 3 / MAX: 129
18.37
Core i5 3470 - HD 2500
SE +/- 0.07, N = 3
MIN: 4 / MAX: 104
21.97
Core i5 2500K - HD 3000
SE +/- 0.03, N = 3
MIN: 3 / MAX: 104
22.27
Core i7 3770K - HD 4000
SE +/- 0.35, N = 3
MIN: 3 / MAX: 76
29.90
Core i3 4130 - HD 4400
SE +/- 0.03, N = 3
MIN: 3 / MAX: 144
23.57
Core i7 4770K - HD 4600
SE +/- 0.03, N = 3
MIN: 2 / MAX: 87
25.47
Core i5 4300U - HD 4400
SE +/- 1.49, N = 6
MIN: 3
62.70
14
28
42
56
70
OpenArena 0.8.8
Resolution: 1920 x 1080 - Total Frame Time
Milliseconds, Fewer Is Better
Core i3 2120 - HD 2000
Min: 3 / Avg: 53.78 / Max: 99
Core i5 3470 - HD 2500
Min: 4 / Avg: 45.49 / Max: 99
Core i5 2500K - HD 3000
Min: 4 / Avg: 44.79 / Max: 99
Core i7 3770K - HD 4000
Min: 3 / Avg: 34.11 / Max: 76
Core i3 4130 - HD 4400
Min: 4 / Avg: 42.35 / Max: 92
Core i7 4770K - HD 4600
Min: 2 / Avg: 39.19 / Max: 87
20
40
60
80
100

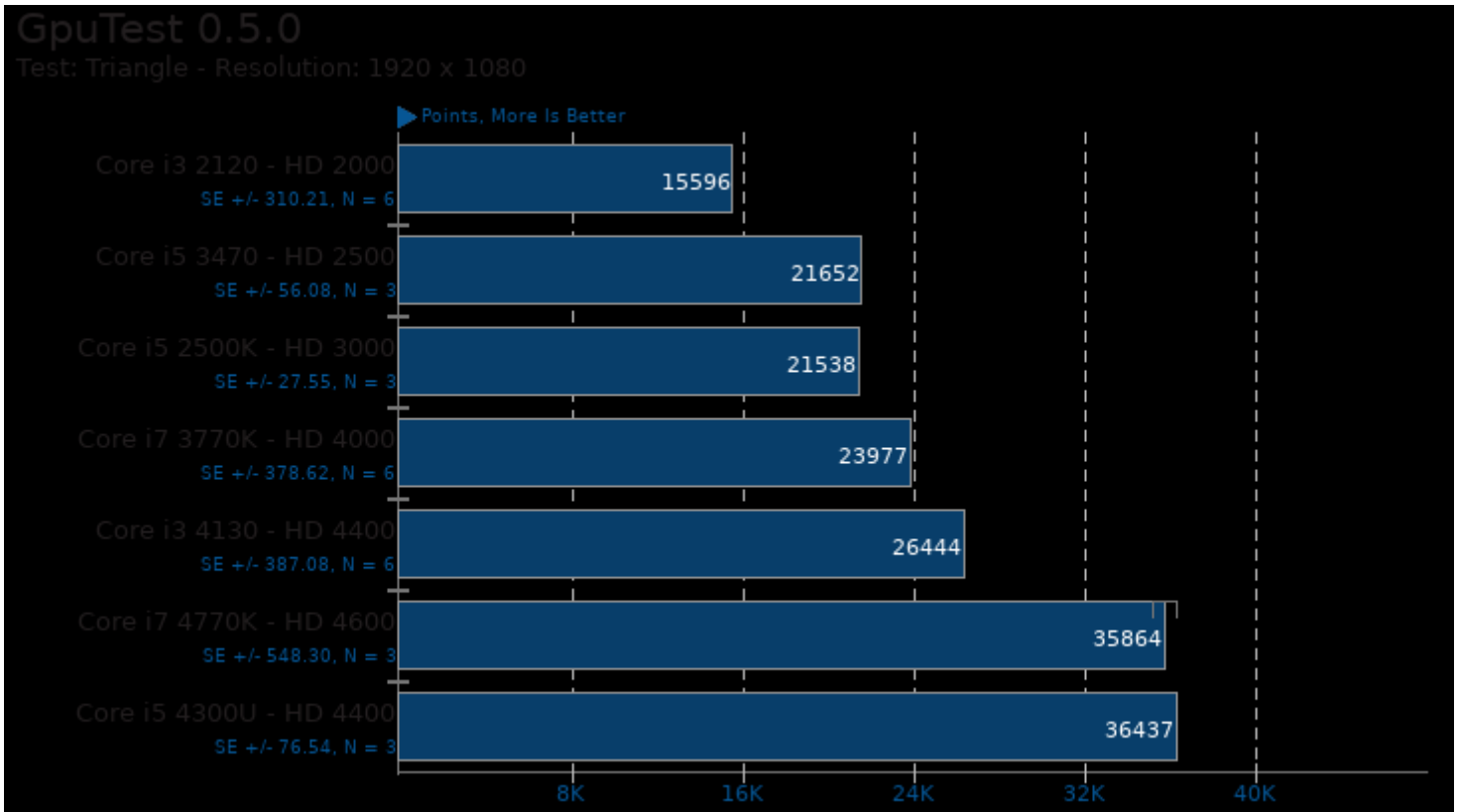

Reaction Quake 3 1.0 Beta
Resolution: 1280 x 1024
Frames Per Second, More Is Better
Core i3 2120 - HD 2000
SE +/- 0.15, N = 3
MIN: 39.7 / MAX: 40.2
39.90
Core i5 3470 - HD 2500
SE +/- 0.23, N = 3
MIN: 46.6 / MAX: 47.3
46.83
Core i5 2500K - HD 3000
SE +/- 0.43, N = 3
MIN: 52 / MAX: 53.3
52.43
Core i7 3770K - HD 4000
SE +/- 1.01, N = 4
MIN: 58.5 / MAX: 62.6
61.53
Core i3 4130 - HD 4400
SE +/- 0.20, N = 3
MIN: 66.1 / MAX: 66.8
66.47
Core i7 4770K - HD 4600
SE +/- 0.12, N = 3
MIN: 71.2 / MAX: 71.6
71.40
16
32
48
64
80
Reaction Quake 3 1.0 Beta
Resolution: 1280 x 1024 - Total Frame Time
Milliseconds, Fewer Is Better
Core i3 2120 - HD 2000
Min: 3 / Avg: 24.77 / Max: 67
Core i5 3470 - HD 2500
Min: 2 / Avg: 21.4 / Max: 51
Core i5 2500K - HD 3000
Min: 2 / Avg: 19.16 / Max: 52
Core i7 3770K - HD 4000
Min: 3 / Avg: 15.86 / Max: 40
Core i3 4130 - HD 4400
Min: 2 / Avg: 14.83 / Max: 40
Core i7 4770K - HD 4600
Min: 1 / Avg: 13.89 / Max: 41
13
26
39
52
65

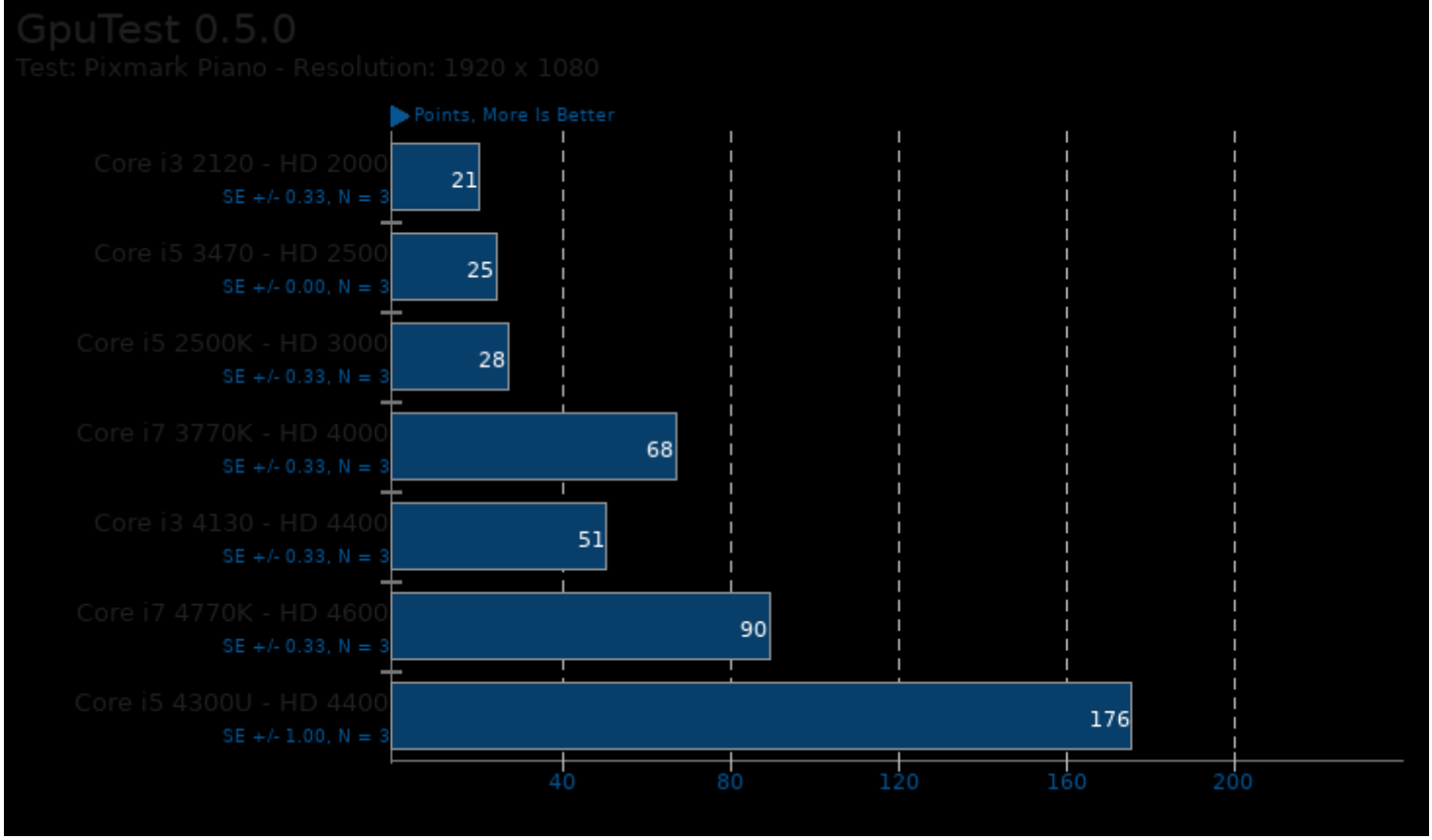

Reaction Quake 3 1.0 Beta
Resolution: 1920 x 1080
Frames Per Second, More Is Better
Core i3 2120 - HD 2000
SE +/- 0.10, N = 3
MIN: 39.9 / MAX: 40.2
40.10
Core i5 3470 - HD 2500
SE +/- 0.34, N = 3
MIN: 46.4 / MAX: 47.5
46.83
Core i5 2500K - HD 3000
SE +/- 0.45, N = 3
MIN: 51.9 / MAX: 53.3
52.40
Core i7 3770K - HD 4000
SE +/- 0.52, N = 3
MIN: 60.6 / MAX: 62.2
61.17
Core i3 4130 - HD 4400
SE +/- 0.07, N = 3
MIN: 65.9 / MAX: 66.1
65.97
Core i7 4770K - HD 4600
SE +/- 0.20, N = 3
MIN: 71.3 / MAX: 72
71.63
16
32
48
64
80
Reaction Quake 3 1.0 Beta
Resolution: 1920 x 1080 - Total Frame Time
Milliseconds, Fewer Is Better
Core i3 2120 - HD 2000
Min: 2 / Avg: 24.78 / Max: 67
Core i5 3470 - HD 2500
Min: 2 / Avg: 20.96 / Max: 54
Core i5 2500K - HD 3000
Min: 2 / Avg: 18.69 / Max: 46
Core i7 3770K - HD 4000
Min: 3 / Avg: 16.35 / Max: 52
Core i3 4130 - HD 4400
Min: 3 / Avg: 15.02 / Max: 40
Core i7 4770K - HD 4600
Min: 2 / Avg: 13.9 / Max: 42
13
26
39
52
65

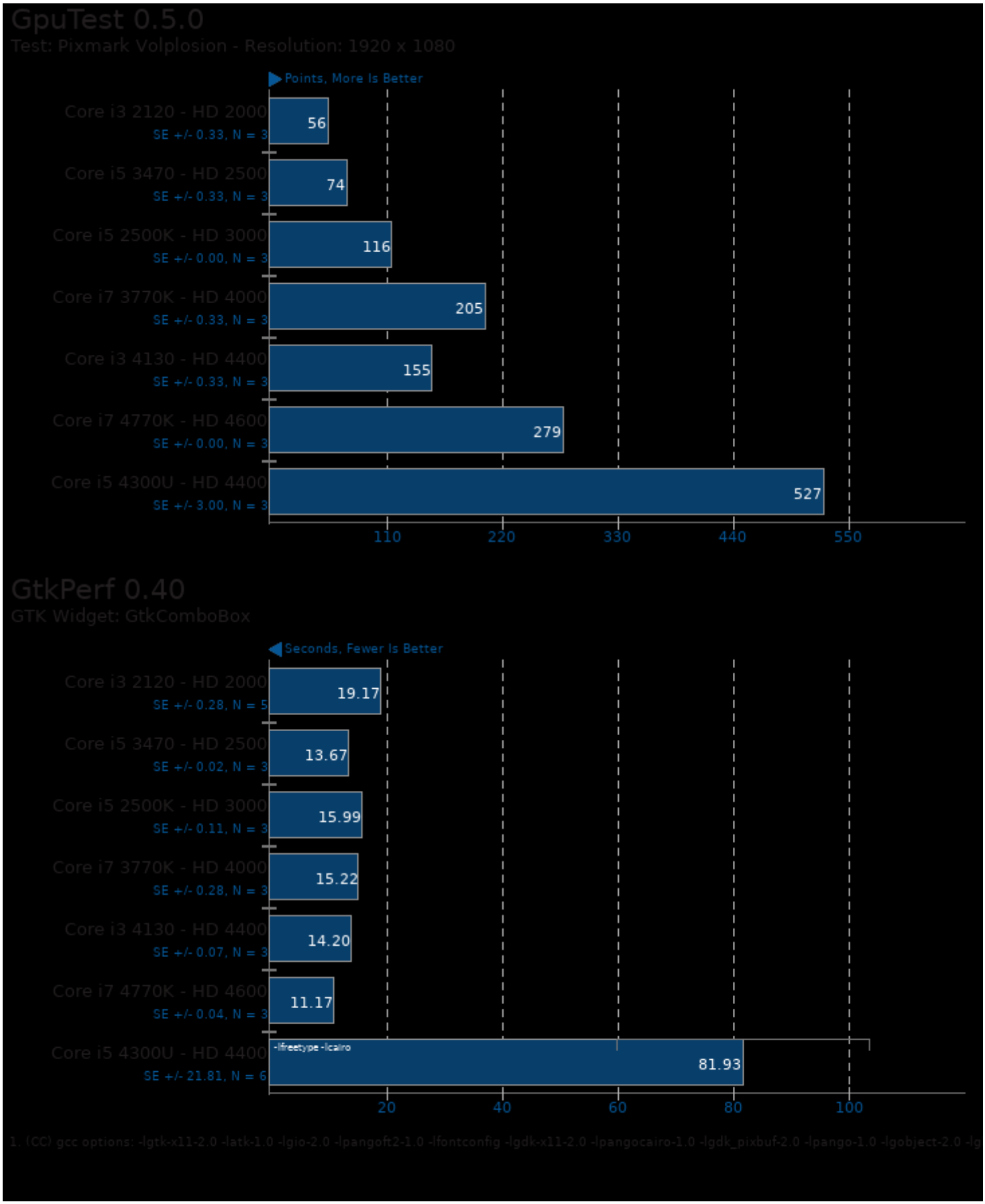

Warsow 1.0
Resolution: 1920 x 1080
Frames Per Second, More Is Better
Core i3 2120 - HD 2000
SE +/- 0.34, N = 5
23.04
Core i5 3470 - HD 2500
SE +/- 0.06, N = 3
28.60
Core i5 2500K - HD 3000
SE +/- 0.03, N = 3
31.23
Core i7 3770K - HD 4000
SE +/- 0.37, N = 3
43.77
Core i3 4130 - HD 4400
SE +/- 0.09, N = 3
40.47
Core i7 4770K - HD 4600
SE +/- 0.15, N = 3
46.93
11
22
33
44
55
Xonotic 0.7
Resolution: 1920 x 1080 - Effects Quality: Low
Frames Per Second, More Is Better
Core i3 2120 - HD 2000
SE +/- 0.10, N = 3
MIN: 42 / MAX: 102
73.98
Core i5 3470 - HD 2500
SE +/- 0.13, N = 3
MIN: 51 / MAX: 126
91.85
Core i5 2500K - HD 3000
SE +/- 0.05, N = 3
MIN: 52 / MAX: 127
93.34
Core i7 3770K - HD 4000
SE +/- 0.61, N = 3
MIN: 66 / MAX: 137
102.68
Core i3 4130 - HD 4400
SE +/- 0.83, N = 3
MIN: 55 / MAX: 153
104.27
Core i7 4770K - HD 4600
SE +/- 0.31, N = 3
MIN: 65 / MAX: 176
123.84
Core i5 4300U - HD 4400
SE +/- 0.28, N = 3
MIN: 51 / MAX: 147
84.45
30
60
90
120
150

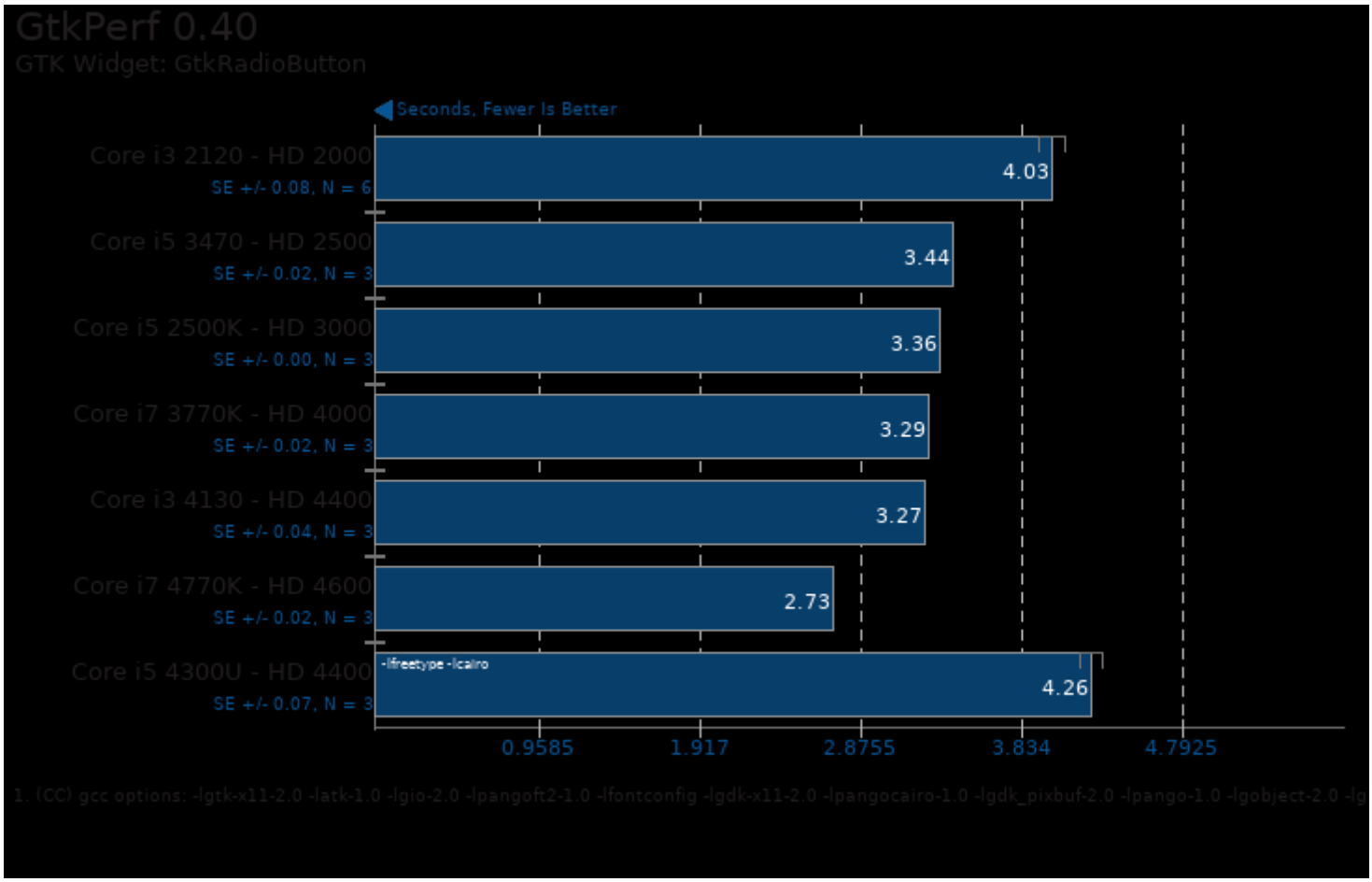

Xonotic 0.7
Resolution: 1920 x 1080 - Effects Quality: High
Frames Per Second, More Is Better
Core i3 2120 - HD 2000
SE +/- 0.01, N = 3
MIN: 15 / MAX: 32
25.19
Core i5 3470 - HD 2500
SE +/- 0.01, N = 3
MIN: 19 / MAX: 42
33.09
Core i5 2500K - HD 3000
SE +/- 0.02, N = 3
MIN: 22 / MAX: 49
38.60
Core i7 3770K - HD 4000
SE +/- 0.19, N = 3
MIN: 30 / MAX: 67
52.00
Core i3 4130 - HD 4400
SE +/- 0.02, N = 3
MIN: 25 / MAX: 61
46.79
Core i7 4770K - HD 4600
SE +/- 0.07, N = 3
MIN: 31 / MAX: 71
54.81
Core i5 4300U - HD 4400
SE +/- 0.37, N = 3
MIN: 26 / MAX: 92
43.64
12
24
36
48
60
Xonotic 0.7
Resolution: 1920 x 1080 - Effects Quality: Ultra
Frames Per Second, More Is Better
Core i3 2120 - HD 2000
SE +/- 0.00, N = 3
MIN: 7 / MAX: 22
14.84
Core i5 3470 - HD 2500
SE +/- 0.01, N = 3
MIN: 9 / MAX: 28
17.97
Core i5 2500K - HD 3000
SE +/- 0.00, N = 3
MIN: 12 / MAX: 36
24.01
Core i7 3770K - HD 4000
SE +/- 0.11, N = 3
MIN: 16 / MAX: 51
32.14
Core i3 4130 - HD 4400
SE +/- 0.02, N = 3
MIN: 16 / MAX: 47
31.28
Core i7 4770K - HD 4600
SE +/- 0.06, N = 3
MIN: 19 / MAX: 55
36.55
Core i5 4300U - HD 4400
SE +/- 0.43, N = 3
MIN: 21 / MAX: 80
38.87
9
18
27
36
45

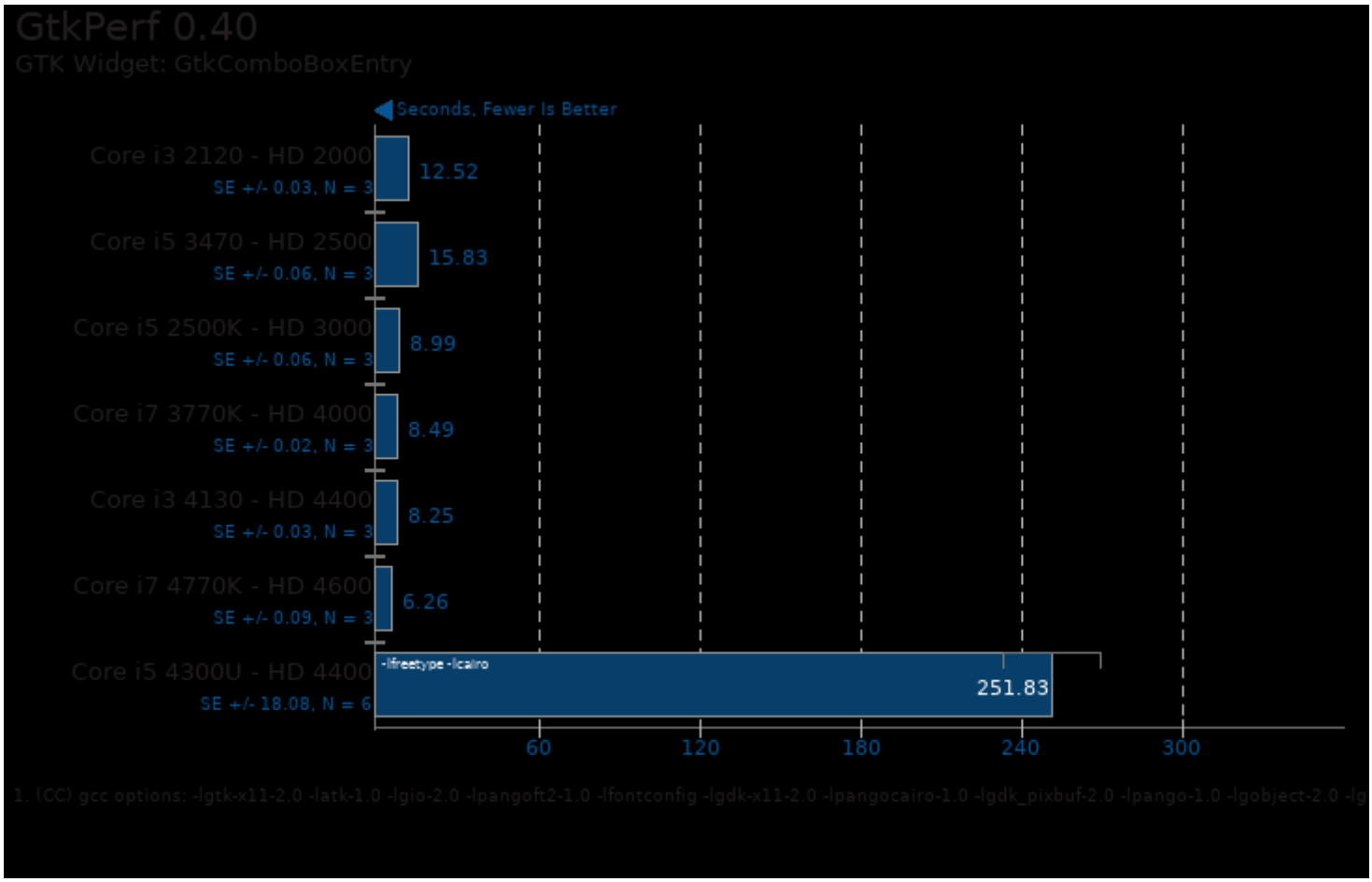

GpuTest 0.5.0
Test: Plot3D - Resolution: 1920 x 1080
Points, More Is Better
Core i3 2120 - HD 2000
SE +/- 0.33, N = 3
2663
Core i5 3470 - HD 2500
SE +/- 1.00, N = 3
3228
Core i5 2500K - HD 3000
SE +/- 0.67, N = 3
2804
Core i7 3770K - HD 4000
SE +/- 28.64, N = 3
3220
Core i3 4130 - HD 4400
SE +/- 0.58, N = 3
3483
Core i7 4770K - HD 4600
SE +/- 22.59, N = 3
3817
Core i5 4300U - HD 4400
SE +/- 3.28, N = 3
4149
900
1800
2700
3600
4500
GpuTest 0.5.0
Test: Furmark - Resolution: 1920 x 1080
Points, More Is Better
Core i3 2120 - HD 2000
SE +/- 0.00, N = 3
83
Core i5 3470 - HD 2500
SE +/- 1.00, N = 3
124
Core i5 2500K - HD 3000
SE +/- 0.33, N = 3
156
Core i7 3770K - HD 4000
SE +/- 1.20, N = 3
294
Core i3 4130 - HD 4400
SE +/- 0.88, N = 3
206
Core i7 4770K - HD 4600
SE +/- 1.53, N = 3
271
Core i5 4300U - HD 4400
SE +/- 3.76, N = 3
351
80
160
240
320
400

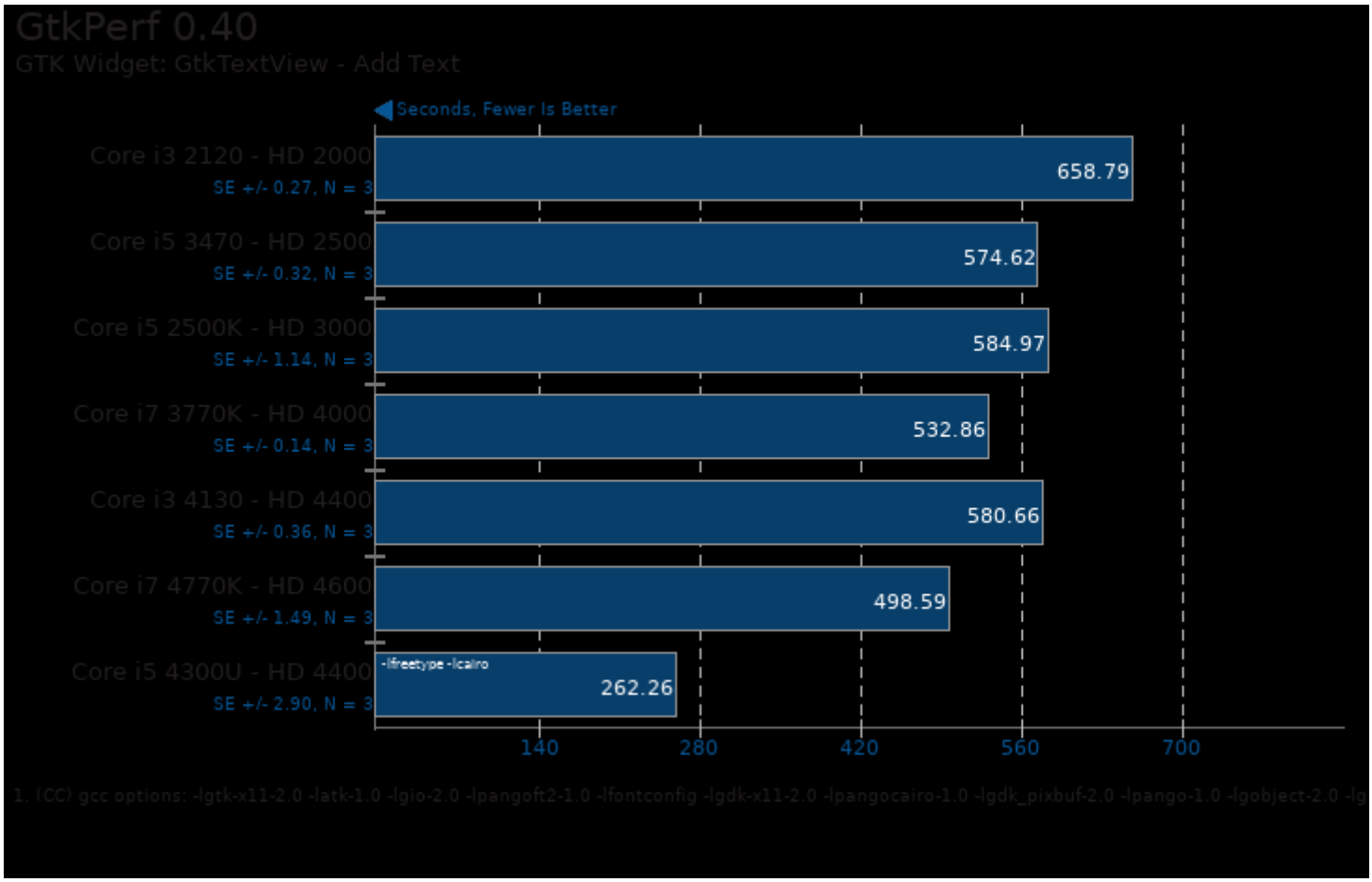

GpuTest 0.5.0
Test: Triangle - Resolution: 1920 x 1080
Points, More Is Better
Core i3 2120 - HD 2000
SE +/- 310.21, N = 6
15596
Core i5 3470 - HD 2500
SE +/- 56.08, N = 3
21652
Core i5 2500K - HD 3000
SE +/- 27.55, N = 3
21538
Core i7 3770K - HD 4000
SE +/- 378.62, N = 6
23977
Core i3 4130 - HD 4400
SE +/- 387.08, N = 6
26444
Core i7 4770K - HD 4600
SE +/- 548.30, N = 3
35864
Core i5 4300U - HD 4400
SE +/- 76.54, N = 3
36437
8K
16K
24K
32K
40K

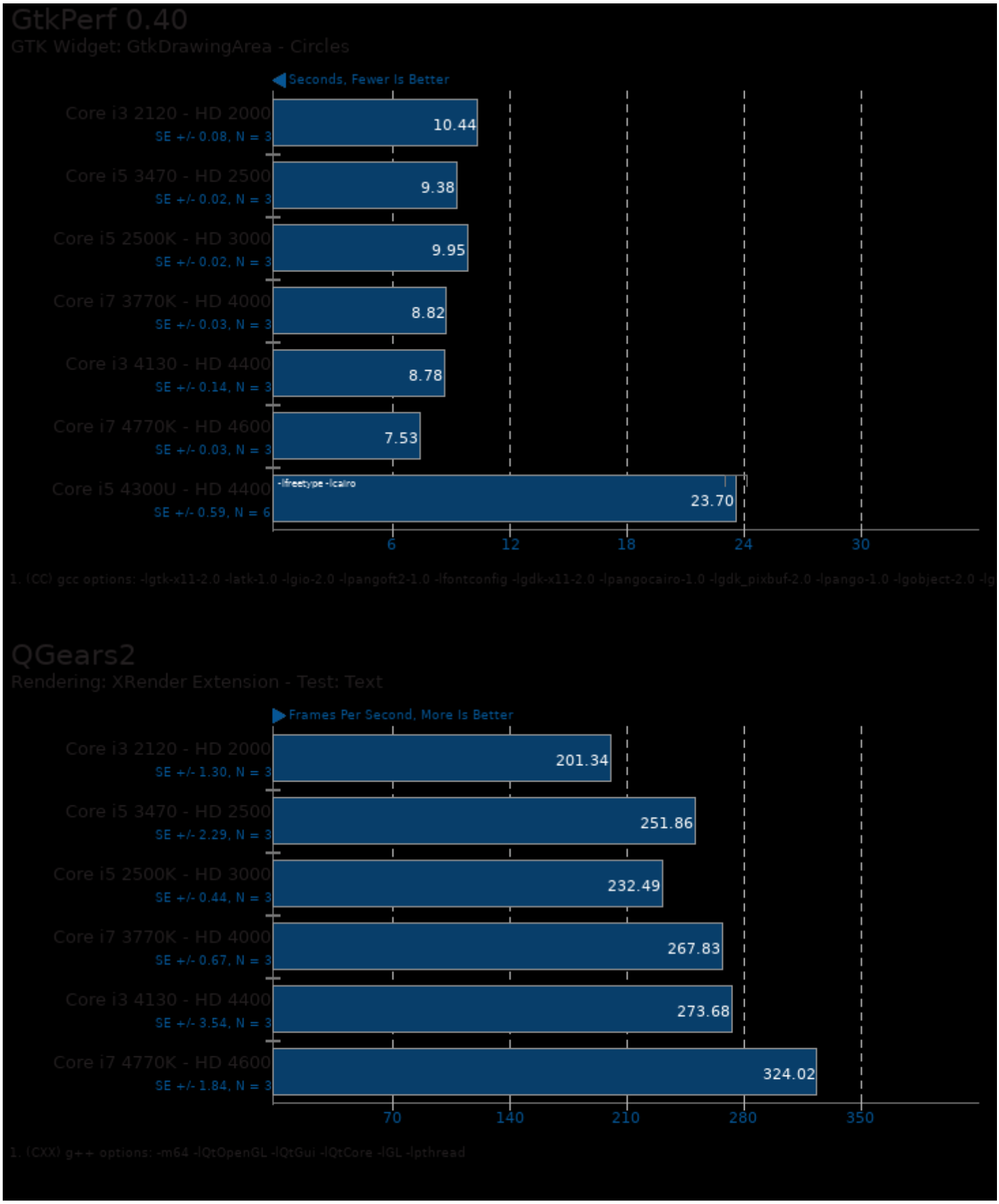

GpuTest 0.5.0
Test: Pixmark Piano - Resolution: 1920 x 1080
Points, More Is Better
Core i3 2120 - HD 2000
SE +/- 0.33, N = 3
21
Core i5 3470 - HD 2500
SE +/- 0.00, N = 3
25
Core i5 2500K - HD 3000
SE +/- 0.33, N = 3
28
Core i7 3770K - HD 4000
SE +/- 0.33, N = 3
68
Core i3 4130 - HD 4400
SE +/- 0.33, N = 3
51
Core i7 4770K - HD 4600
SE +/- 0.33, N = 3
90
Core i5 4300U - HD 4400
SE +/- 1.00, N = 3
176
40
80
120
160
200

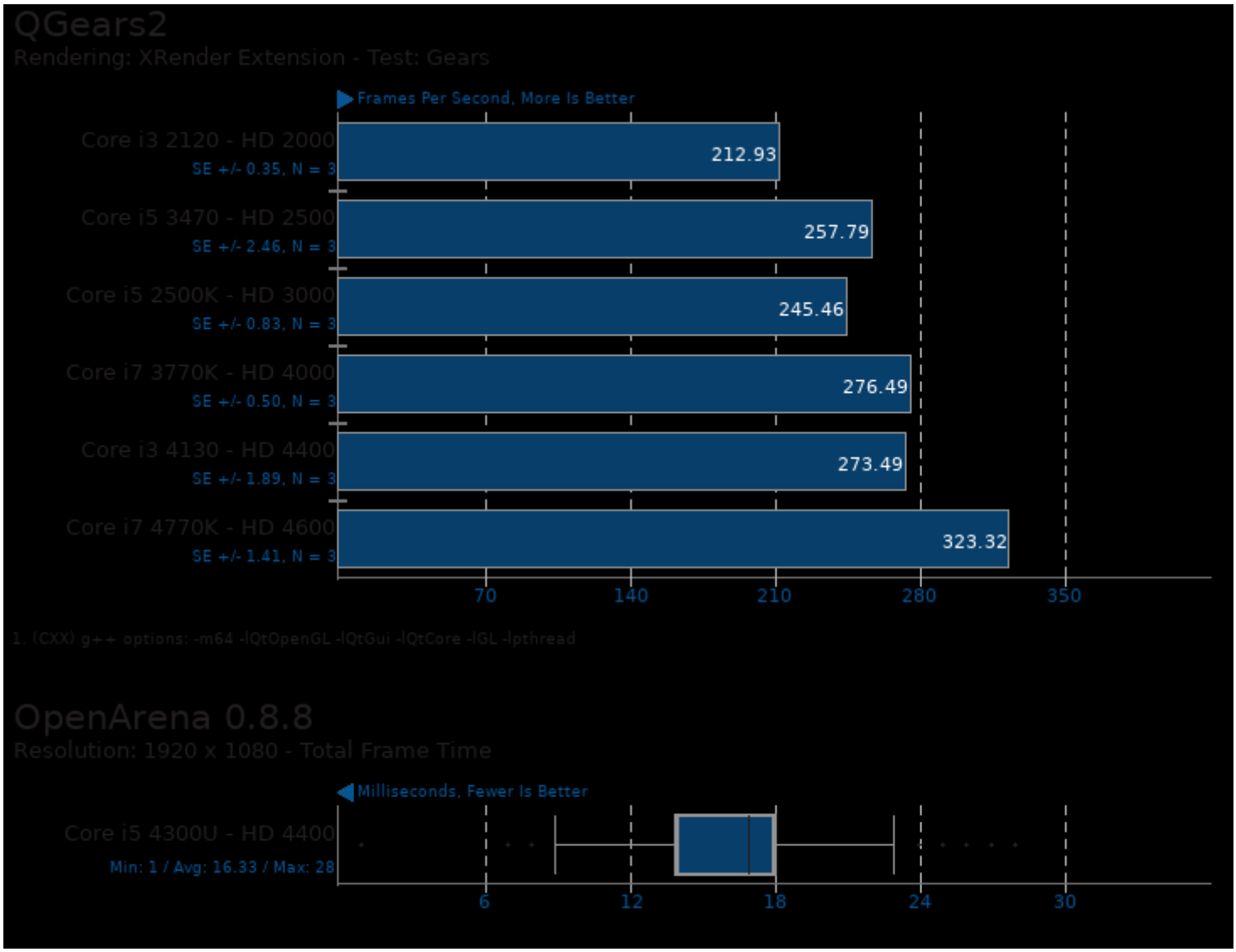

GpuTest 0.5.0
Test: Pixmark Volplosion - Resolution: 1920 x 1080
Points, More Is Better
Core i3 2120 - HD 2000
SE +/- 0.33, N = 3
56
Core i5 3470 - HD 2500
SE +/- 0.33, N = 3
74
Core i5 2500K - HD 3000
SE +/- 0.00, N = 3
116
Core i7 3770K - HD 4000
SE +/- 0.33, N = 3
205
Core i3 4130 - HD 4400
SE +/- 0.33, N = 3
155
Core i7 4770K - HD 4600
SE +/- 0.00, N = 3
279
Core i5 4300U - HD 4400
SE +/- 3.00, N = 3
527
110
220
330
440
550
GtkPerf 0.40
GTK Widget: GtkComboBox
Seconds, Fewer Is Better
Core i3 2120 - HD 2000
SE +/- 0.28, N = 5
19.17
Core i5 3470 - HD 2500
SE +/- 0.02, N = 3
13.67
Core i5 2500K - HD 3000
SE +/- 0.11, N = 3
15.99
Core i7 3770K - HD 4000
SE +/- 0.28, N = 3
15.22
Core i3 4130 - HD 4400
SE +/- 0.07, N = 3
14.20
Core i7 4770K - HD 4600
SE +/- 0.04, N = 3
11.17
Core i5 4300U - HD 4400
SE +/- 21.81, N = 6
-lfreetype -lcairo
81.93
20
40
60
80
100
1. (CC) gcc options: -lgtk-x11-2.0 -latk-1.0 -lgio-2.0 -lpangoft2-1.0 -lfontconfig -lgdk-x11-2.0 -lpangocairo-1.0 -lgdk_pixbuf-2.0 -lpango-1.0 -lgobject-2.0 -lg


GtkPerf 0.40
GTK Widget: GtkRadioButton
Seconds, Fewer Is Better
Core i3 2120 - HD 2000
SE +/- 0.08, N = 6
4.03
Core i5 3470 - HD 2500
SE +/- 0.02, N = 3
3.44
Core i5 2500K - HD 3000
SE +/- 0.00, N = 3
3.36
Core i7 3770K - HD 4000
SE +/- 0.02, N = 3
3.29
Core i3 4130 - HD 4400
SE +/- 0.04, N = 3
3.27
Core i7 4770K - HD 4600
SE +/- 0.02, N = 3
2.73
Core i5 4300U - HD 4400
SE +/- 0.07, N = 3
-lfreetype -lcairo
4.26
0.9585
1.917
2.8755
3.834
4.7925
1. (CC) gcc options: -lgtk-x11-2.0 -latk-1.0 -lgio-2.0 -lpangoft2-1.0 -lfontconfig -lgdk-x11-2.0 -lpangocairo-1.0 -lgdk_pixbuf-2.0 -lpango-1.0 -lgobject-2.0 -lg

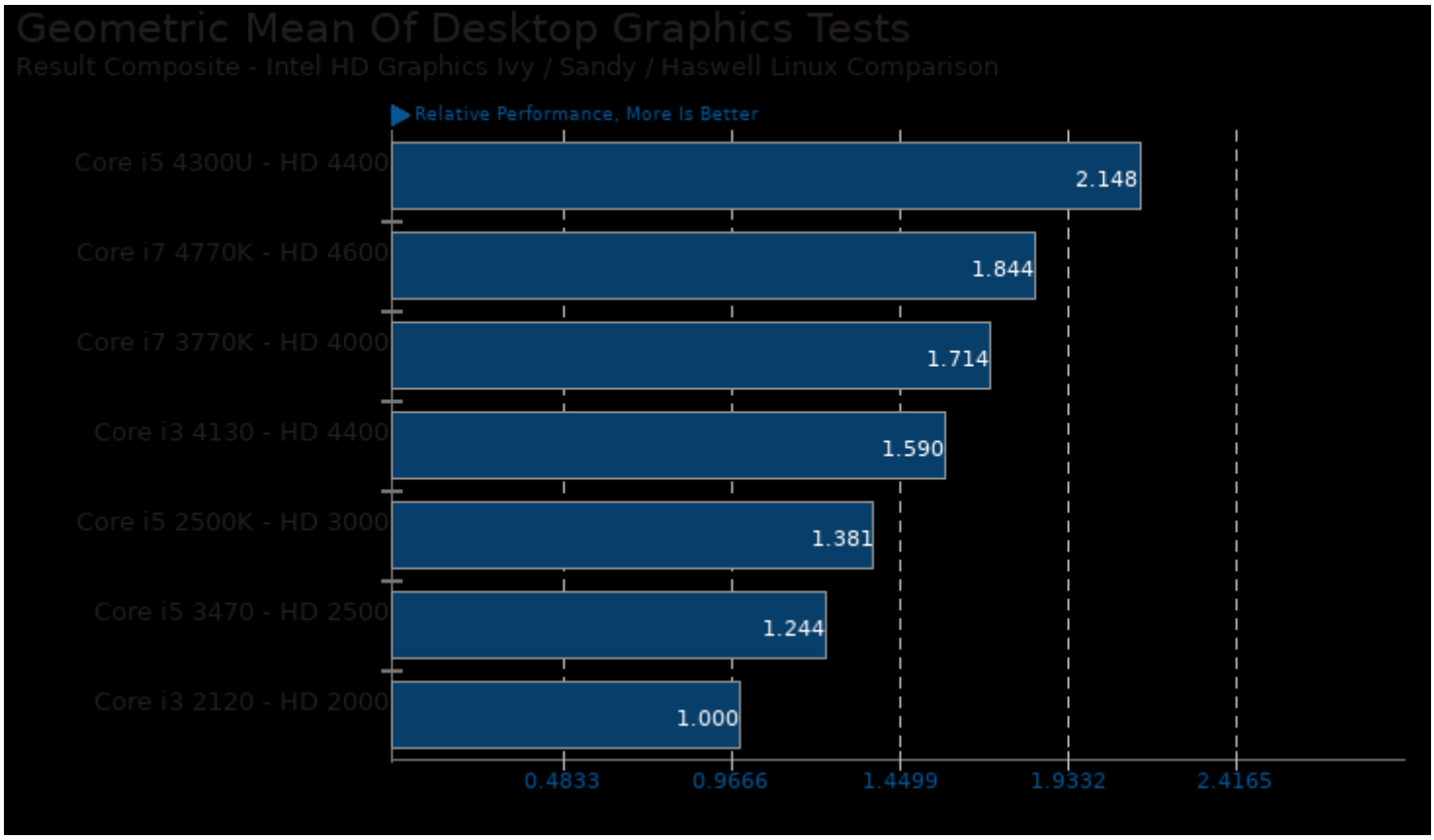

GtkPerf 0.40
GTK Widget: GtkComboBoxEntry
Seconds, Fewer Is Better
Core i3 2120 - HD 2000
SE +/- 0.03, N = 3
12.52
Core i5 3470 - HD 2500
SE +/- 0.06, N = 3
15.83
Core i5 2500K - HD 3000
SE +/- 0.06, N = 3
8.99
Core i7 3770K - HD 4000
SE +/- 0.02, N = 3
8.49
Core i3 4130 - HD 4400
SE +/- 0.03, N = 3
8.25
Core i7 4770K - HD 4600
SE +/- 0.09, N = 3
6.26
Core i5 4300U - HD 4400
SE +/- 18.08, N = 6
-lfreetype -lcairo
251.83
60
120
180
240
300
1. (CC) gcc options: -lgtk-x11-2.0 -latk-1.0 -lgio-2.0 -lpangoft2-1.0 -lfontconfig -lgdk-x11-2.0 -lpangocairo-1.0 -lgdk_pixbuf-2.0 -lpango-1.0 -lgobject-2.0 -lg


GtkPerf 0.40
GTK Widget: GtkTextView - Add Text
Seconds, Fewer Is Better
Core i3 2120 - HD 2000
SE +/- 0.27, N = 3
658.79
Core i5 3470 - HD 2500
SE +/- 0.32, N = 3
574.62
Core i5 2500K - HD 3000
SE +/- 1.14, N = 3
584.97
Core i7 3770K - HD 4000
SE +/- 0.14, N = 3
532.86
Core i3 4130 - HD 4400
SE +/- 0.36, N = 3
580.66
Core i7 4770K - HD 4600
SE +/- 1.49, N = 3
498.59
Core i5 4300U - HD 4400
SE +/- 2.90, N = 3
-lfreetype -lcairo
262.26
140
280
420
560
700
1. (CC) gcc options: -lgtk-x11-2.0 -latk-1.0 -lgio-2.0 -lpangoft2-1.0 -lfontconfig -lgdk-x11-2.0 -lpangocairo-1.0 -lgdk_pixbuf-2.0 -lpango-1.0 -lgobject-2.0 -lg


GtkPerf 0.40
GTK Widget: GtkDrawingArea - Circles
Seconds, Fewer Is Better
Core i3 2120 - HD 2000
SE +/- 0.08, N = 3
10.44
Core i5 3470 - HD 2500
SE +/- 0.02, N = 3
9.38
Core i5 2500K - HD 3000
SE +/- 0.02, N = 3
9.95
Core i7 3770K - HD 4000
SE +/- 0.03, N = 3
8.82
Core i3 4130 - HD 4400
SE +/- 0.14, N = 3
8.78
Core i7 4770K - HD 4600
SE +/- 0.03, N = 3
7.53
Core i5 4300U - HD 4400
SE +/- 0.59, N = 6
-lfreetype -lcairo
23.70
6
12
18
24
30
1. (CC) gcc options: -lgtk-x11-2.0 -latk-1.0 -lgio-2.0 -lpangoft2-1.0 -lfontconfig -lgdk-x11-2.0 -lpangocairo-1.0 -lgdk_pixbuf-2.0 -lpango-1.0 -lgobject-2.0 -lg
QGears2
Rendering: XRender Extension - Test: Text
Frames Per Second, More Is Better
Core i3 2120 - HD 2000
SE +/- 1.30, N = 3
201.34
Core i5 3470 - HD 2500
SE +/- 2.29, N = 3
251.86
Core i5 2500K - HD 3000
SE +/- 0.44, N = 3
232.49
Core i7 3770K - HD 4000
SE +/- 0.67, N = 3
267.83
Core i3 4130 - HD 4400
SE +/- 3.54, N = 3
273.68
Core i7 4770K - HD 4600
SE +/- 1.84, N = 3
324.02
70
140
210
280
350
1. (CXX) g++ options: -m64 -lQtOpenGL -lQtGui -lQtCore -lGL -lpthread


QGears2
Rendering: XRender Extension - Test: Gears
Frames Per Second, More Is Better
Core i3 2120 - HD 2000
SE +/- 0.35, N = 3
212.93
Core i5 3470 - HD 2500
SE +/- 2.46, N = 3
257.79
Core i5 2500K - HD 3000
SE +/- 0.83, N = 3
245.46
Core i7 3770K - HD 4000
SE +/- 0.50, N = 3
276.49
Core i3 4130 - HD 4400
SE +/- 1.89, N = 3
273.49
Core i7 4770K - HD 4600
SE +/- 1.41, N = 3
323.32
70
140
210
280
350
1. (CXX) g++ options: -m64 -lQtOpenGL -lQtGui -lQtCore -lGL -lpthread
OpenArena 0.8.8
Resolution: 1920 x 1080 - Total Frame Time
Milliseconds, Fewer Is Better
Core i5 4300U - HD 4400
Min: 1 / Avg: 16.33 / Max: 28
6
12
18
24
30

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



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

This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 18:57.