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Intel UXA SNA Ivy Bridge 29 May

Intel UXA versus SNA 2D acceleration benchmarks of Intel Ivy Bridge HD 4000 graphics. Benchmarking by Michael Larabel of Phoronix.

Test Systems:

Ivy Bridge UXA

Ivy Bridge SNA

Processor: Intel Core i3-3217U @ 1.80GHz (4 Cores), Motherboard: ASUS K56CA v1.0, Chipset: Intel 3rd Gen Core DRAM, Memory: 4096MB, Disk: 500GB Hitachi HTS54505 + 24GB SanDisk SSD i100, Graphics: Intel 3rd Gen Core, Audio: Realtek ALC270, Network: Realtek RTL8111/8168 + Atheros AR9485 Wireless

OS: Ubuntu 13.10, Kernel: 3.10.0-999-generic (x86_64), Desktop: Unity 7.0.0, Display Server: X Server 1.13.3, Display Driver: intel 2.21.8, OpenGL: 3.0 Mesa 9.2.0 (git-4f518e1), Compiler: GCC 4.8, File-System: ext4, Screen Resolution: 1366x768

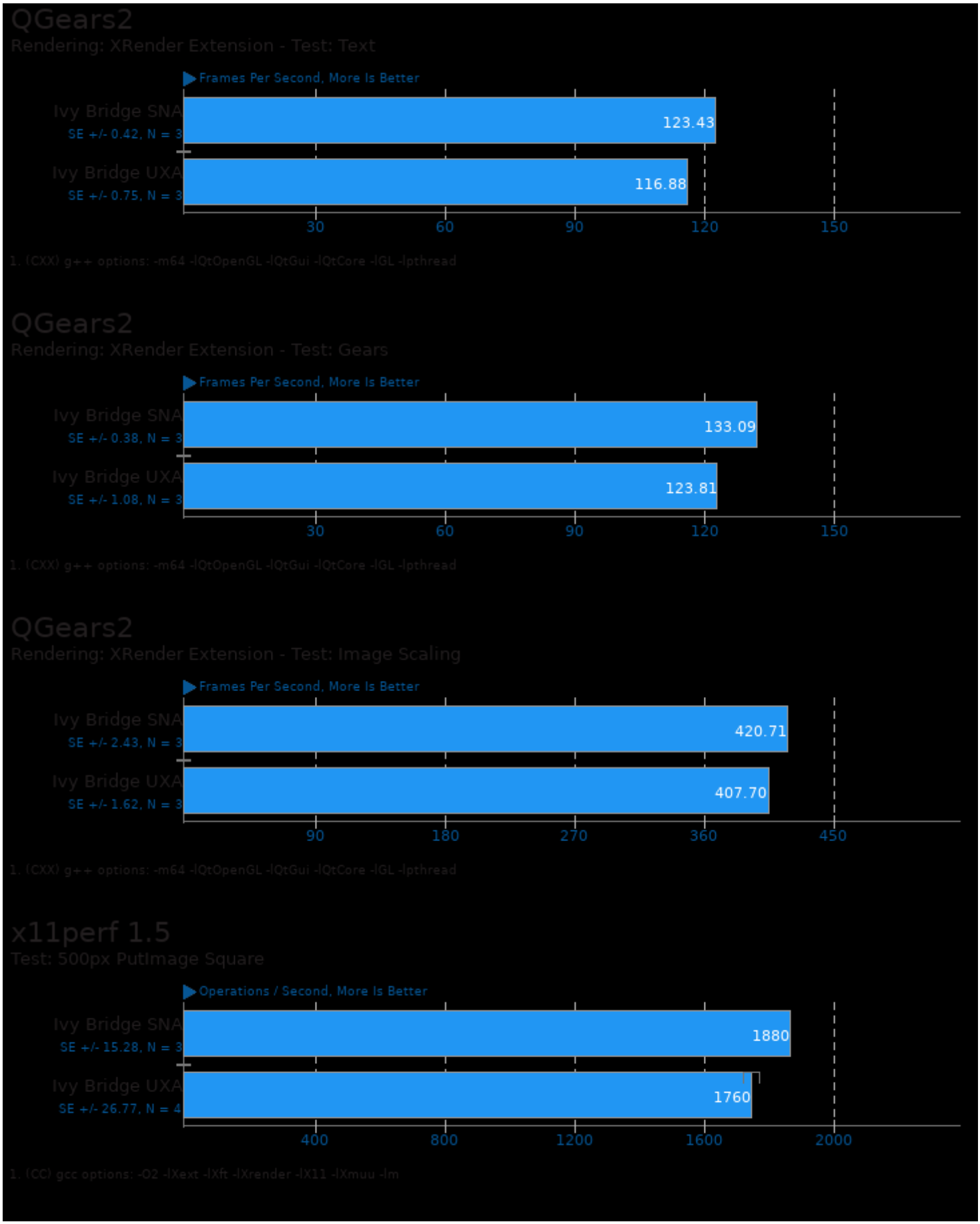
Intel UXA SNA Ivy Bridge 29 May

Compiler Notes: --build=x86_64-linux-gnu --disable-werror --enable-checking=release --enable-clocale=gnu --enable-gnu-unique-object --enable-languages=c,c++,go,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-multilib-list=m32,m64,mx32 --with-tune=generic -v
Graphics Notes: SNA

	Ivy Bridge UXA	Ivy Bridge SNA
QGears2 - XRender Extension - Text (FPS)	**116.88**	**123.43**
Normalized	94.69%	100%
Standard Deviation	1.1%	0.6%
QGears2 - XRender Extension - Gears (FPS)	**123.81**	**133.09**
Normalized	93.03%	100%
Standard Deviation	1.5%	0.5%
QGears2 - XRender Extension - Image Scaling (FPS)	**407.70**	**420.71**
Normalized	96.91%	100%
Standard Deviation	0.7%	1%
x11perf - 5.P.S (Operations / Second)	**1760**	**1880**
Normalized	93.62%	100%
Standard Deviation	3%	1.4%
x11perf - S.5.x.5.p (Operations / Second)	**6980**	**7060**
Normalized	98.87%	100%
Standard Deviation	0%	0%
x11perf - C.i.8.c.a.l (Operations / Second)	**1873333**	**9296667**
Normalized	20.15%	100%
Standard Deviation	0.6%	0.8%
x11perf - P.X.5.S (Operations / Second)	**0.90**	**137**
Normalized	0.66%	100%
Standard Deviation	0%	0.4%
x11perf - F.3.x.3.A.T (Operations / Second)	**1350**	**160200**
Normalized	0.84%	100%
Standard Deviation	0%	29.4%
x11perf - 5.C.F.W.T.W (Operations / Second)	**6960**	**7010**
Normalized	99.29%	100%
Standard Deviation	0%	0%
x11perf - C.5.F.P.T.P (Operations / Second)	**7007**	**7030**
Normalized	99.67%	100%
Standard Deviation	0.1%	0%
x11perf - 5.C.F.P.T.W (Operations / Second)	**6843**	**14502**
Normalized	47.19%	100%
Standard Deviation	0.7%	25.1%
x11perf - 5.C.F.W.T.W (Operations / Second)	**6947**	**10385**
Normalized	66.89%	100%
Standard Deviation	0.1%	31.1%
cairo-perf-trace - Poppler (sec)	**6.19**	**1.56**
Normalized	25.2%	100%
Standard Deviation	1.2%	2.4%
cairo-perf-trace - Firefox Canvas (sec)	**72.77**	**25.51**
Normalized	35.06%	100%
Standard Deviation	0.3%	0.9%
cairo-perf-trace - GNOME Terminal Vim (sec)	**14.05**	**2.14**
Normalized	15.23%	100%
Standard Deviation	24.5%	3.3%

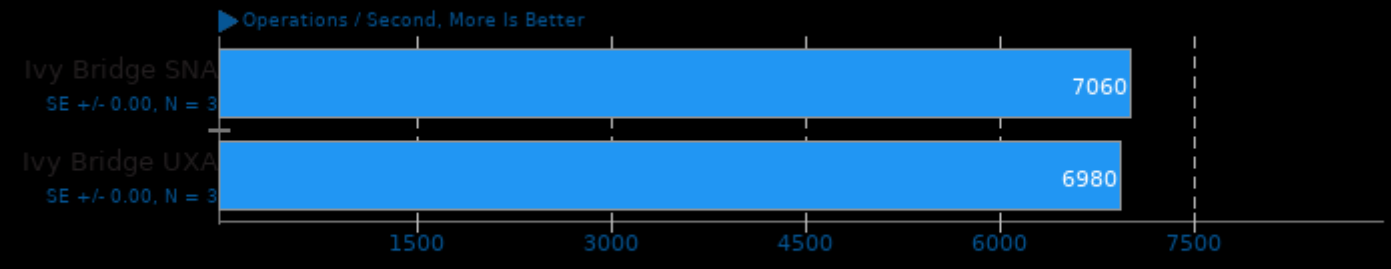
Intel UXA SNA Ivy Bridge 29 May

Render Bench - P.T.S.v.6.0 (sec)	**23.33**	**22.99**
Normalized	98.54%	100%
Standard Deviation	0.1%	9.2%
GtkPerf - GtkComboBox (sec)	**53.19**	**37.61**
Normalized	70.71%	100%
Standard Deviation	0.4%	0.5%
GtkPerf - GtkCheckButton (sec)	**4.97**	**4.65**
Normalized	93.56%	100%
Standard Deviation	2.4%	0.3%
GtkPerf - GtkRadioButton (sec)	**8.51**	**7.87**
Normalized	92.48%	100%
Standard Deviation	4.6%	3.1%
GtkPerf - GtkToggleButton (sec)	**38.50**	**14.05**
Normalized	36.49%	100%
Standard Deviation	2.7%	1.1%
GtkPerf - GtkComboBoxEntry (sec)	**23.58**	**22.08**
Normalized	93.64%	100%
Standard Deviation	1.2%	0.6%
GtkPerf - GtkDrawingArea - Circles (sec)	**49.58**	**18.16**
Normalized	36.63%	100%
Standard Deviation	0.8%	0.5%
GtkPerf - GtkDrawingArea - Pixbufs (sec)	**5.36**	**0.92**
Normalized	17.16%	100%
Standard Deviation	6.7%	6%


QGears2
Rendering: XRender Extension - Test: Text
Frames Per Second, More Is Better
Ivy Bridge SNA
SE +/- 0.42, N = 3
123.43
Ivy Bridge UXA
SE +/- 0.75, N = 3
116.88
30
60
90
120
150
1. (CXX) g++ options: -m64 -lQtOpenGL -lQtGui -lQtCore -lGL -lpthread
QGears2
Rendering: XRender Extension - Test: Gears
Frames Per Second, More Is Better
Ivy Bridge SNA
SE +/- 0.38, N = 3
133.09
Ivy Bridge UXA
SE +/- 1.08, N = 3
123.81
30
60
90
120
150
1. (CXX) g++ options: -m64 -lQtOpenGL -lQtGui -lQtCore -lGL -lpthread
QGears2
Rendering: XRender Extension - Test: Image Scaling
Frames Per Second, More Is Better
Ivy Bridge SNA
SE +/- 2.43, N = 3
420.71
Ivy Bridge UXA
SE +/- 1.62, N = 3
407.70
90
180
270
360
450
1. (CXX) g++ options: -m64 -lQtOpenGL -lQtGui -lQtCore -lGL -lpthread
x11perf 1.5
Test: 500px PutImage Square
Operations / Second, More Is Better
Ivy Bridge SNA
SE +/- 15.28, N = 3
1880
Ivy Bridge UXA
SE +/- 26.77, N = 4
1760
400
800
1200
1600
2000
1. (CC) gcc options: -O2 -lXext -lXft -lXrender -lX11 -lXmuu -lm

x11perf 1.5

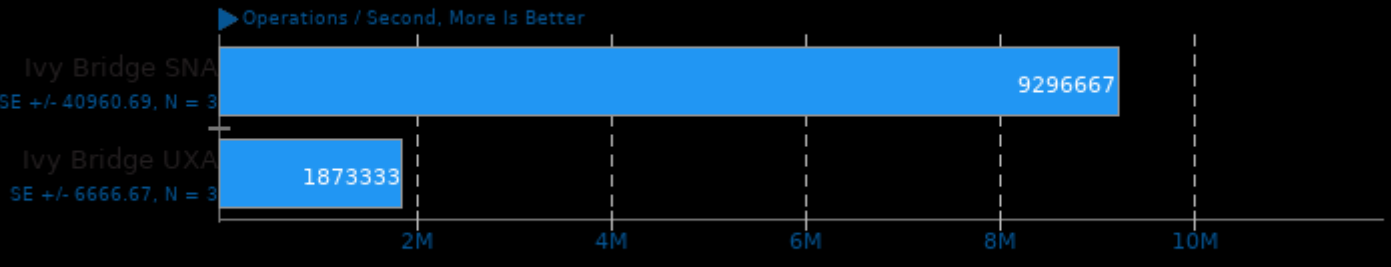
Test: Scrolling 500 x 500 px



1. (CC) gcc options: -O2 -lXext -lXft -lXrender -lX11 -lXmuu -lm

x11perf 1.5

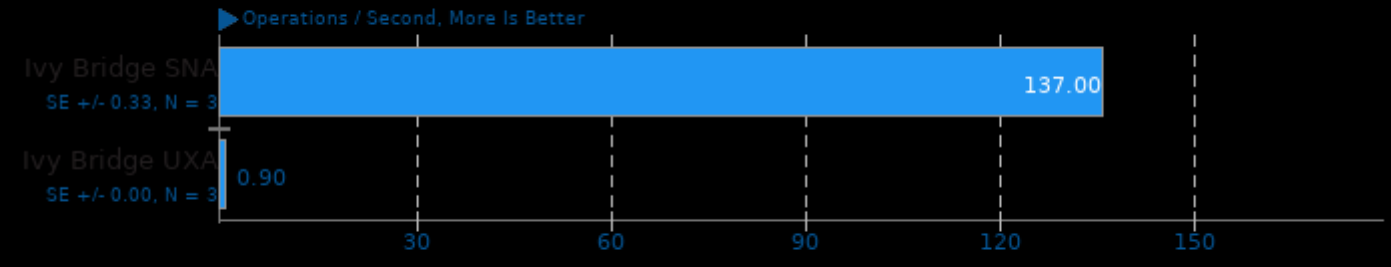
Test: Char in 80-char aa line



1. (CC) gcc options: -O2 -lXext -lXft -lXrender -lX11 -lXmuu -lm

x11perf 1.5

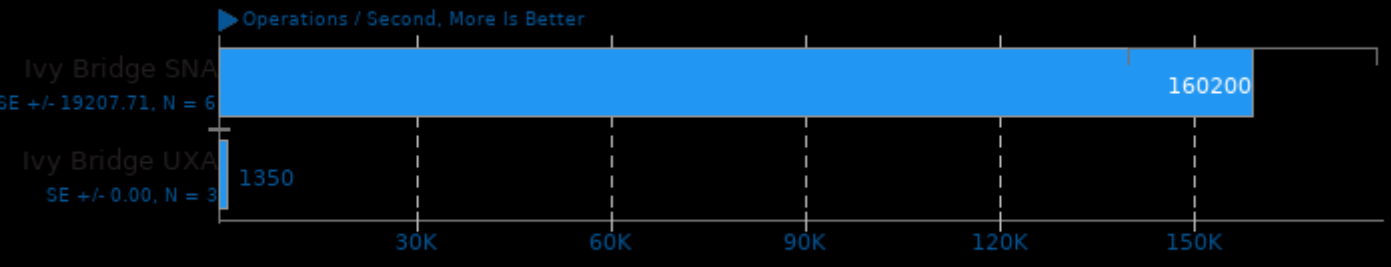
Test: PutImage XY 500x500 Square



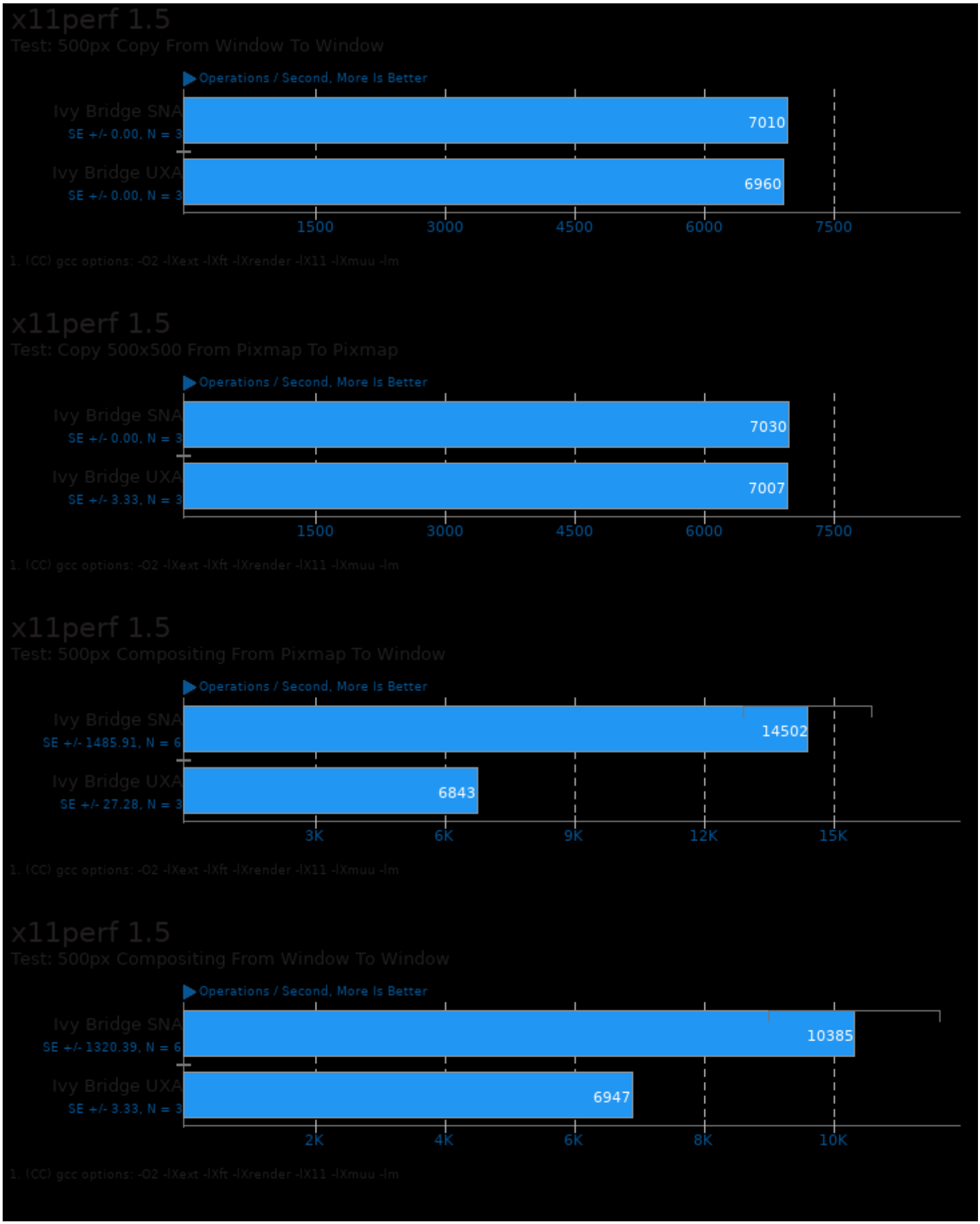
1. (CC) gcc options: -O2 -lXext -lXft -lXrender -lX11 -lXmuu -lm

x11perf 1.5

Test: Fill 300 x 300px AA Trapezoid

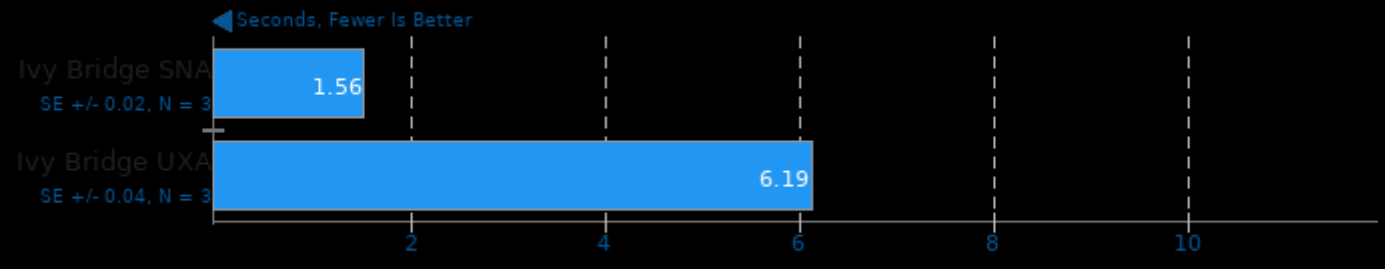


1. (CC) gcc options: -O2 -lXext -lXft -lXrender -lX11 -lXmuu -lm


x11perf 1.5
Test: 500px Copy From Window To Window
Operations / Second, More Is Better
Ivy Bridge SNA
SE +/- 0.00, N = 3
7010
Ivy Bridge UXA
SE +/- 0.00, N = 3
6960
1500
3000
4500
6000
7500
1. (CC) gcc options: -O2 -lXext -lXft -lXrender -lX11 -lXmuu -lm
x11perf 1.5
Test: Copy 500x500 From Pixmap To Pixmap
Operations / Second, More Is Better
Ivy Bridge SNA
SE +/- 0.00, N = 3
7030
Ivy Bridge UXA
SE +/- 3.33, N = 3
7007
1500
3000
4500
6000
7500
1. (CC) gcc options: -O2 -lXext -lXft -lXrender -lX11 -lXmuu -lm
x11perf 1.5
Test: 500px Compositing From Pixmap To Window
Operations / Second, More Is Better
Ivy Bridge SNA
SE +/- 1485.91, N = 6
14502
Ivy Bridge UXA
SE +/- 27.28, N = 3
6843
3K
6K
9K
12K
15K
1. (CC) gcc options: -O2 -lXext -lXft -lXrender -lX11 -lXmuu -lm
x11perf 1.5
Test: 500px Compositing From Window To Window
Operations / Second, More Is Better
Ivy Bridge SNA
SE +/- 1320.39, N = 6
10385
Ivy Bridge UXA
SE +/- 3.33, N = 3
6947
2K
4K
6K
8K
10K
1. (CC) gcc options: -O2 -lXext -lXft -lXrender -lX11 -lXmuu -lm

cairo-perf-trace 1.10.2

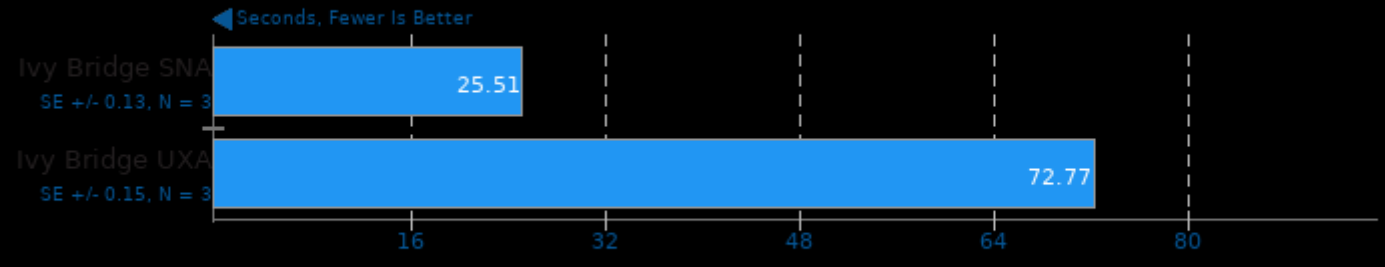
Cairo Trace: Poppler



1. (CC) gcc options: -O2 -lpthread -lpixman-1 -lfontconfig -lpng12 -lXrender -lX11 -lz -ldl -lrt -lm

cairo-perf-trace 1.10.2

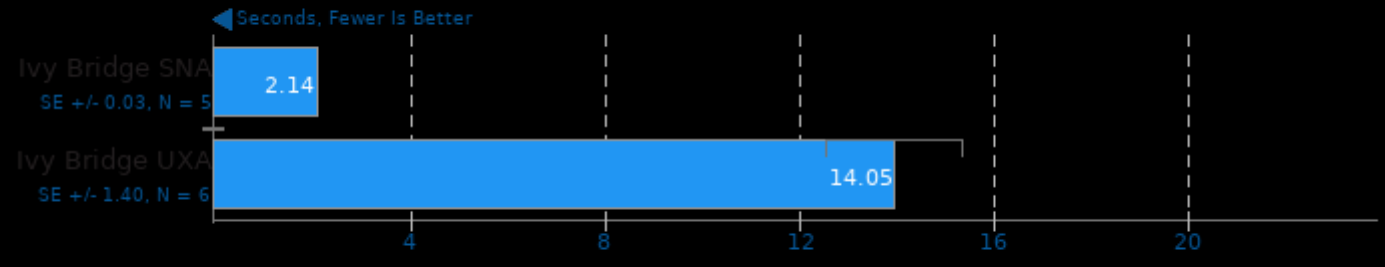
Cairo Trace: Firefox Canvas



1. (CC) gcc options: -O2 -lpthread -lpixman-1 -lfontconfig -lpng12 -lXrender -lX11 -lz -ldl -lrt -lm

cairo-perf-trace 1.10.2

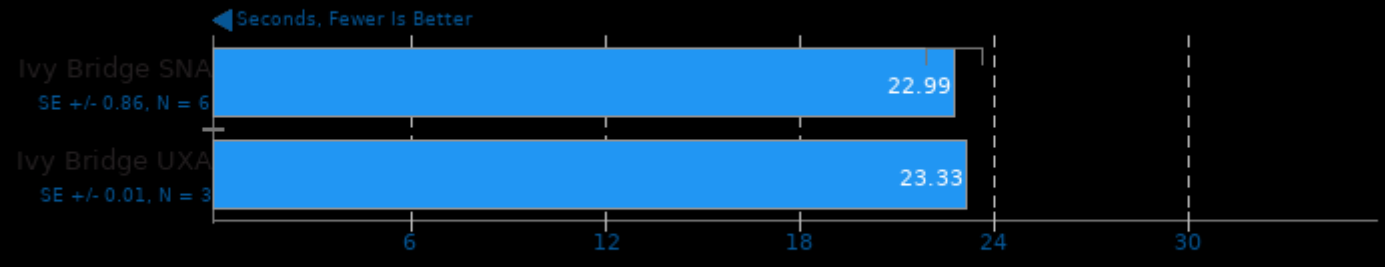
Cairo Trace: GNOME Terminal Vim



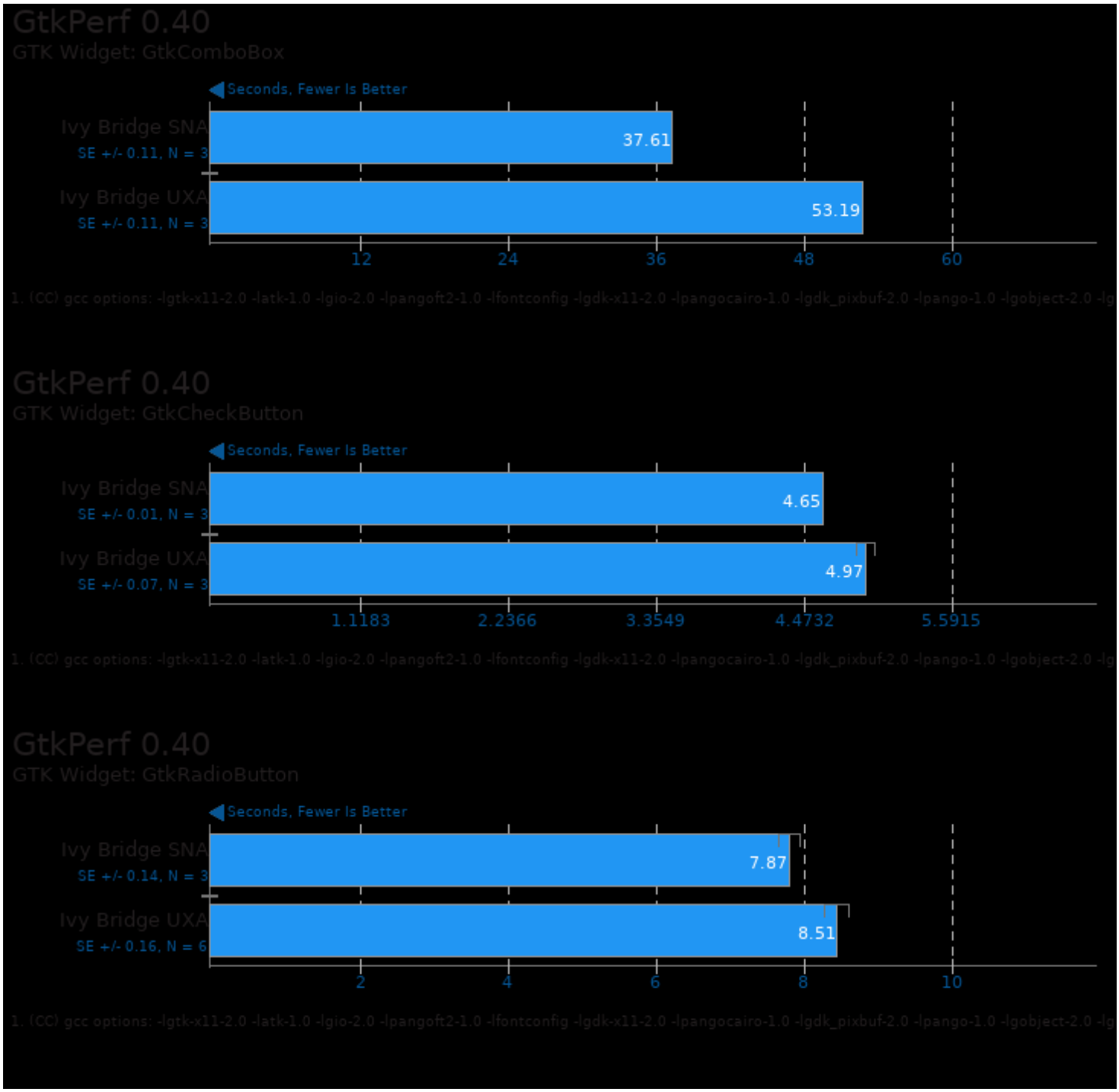
1. (CC) gcc options: -O2 -lpthread -lpixman-1 -lfontconfig -lpng12 -lXrender -lX11 -lz -ldl -lrt -lm

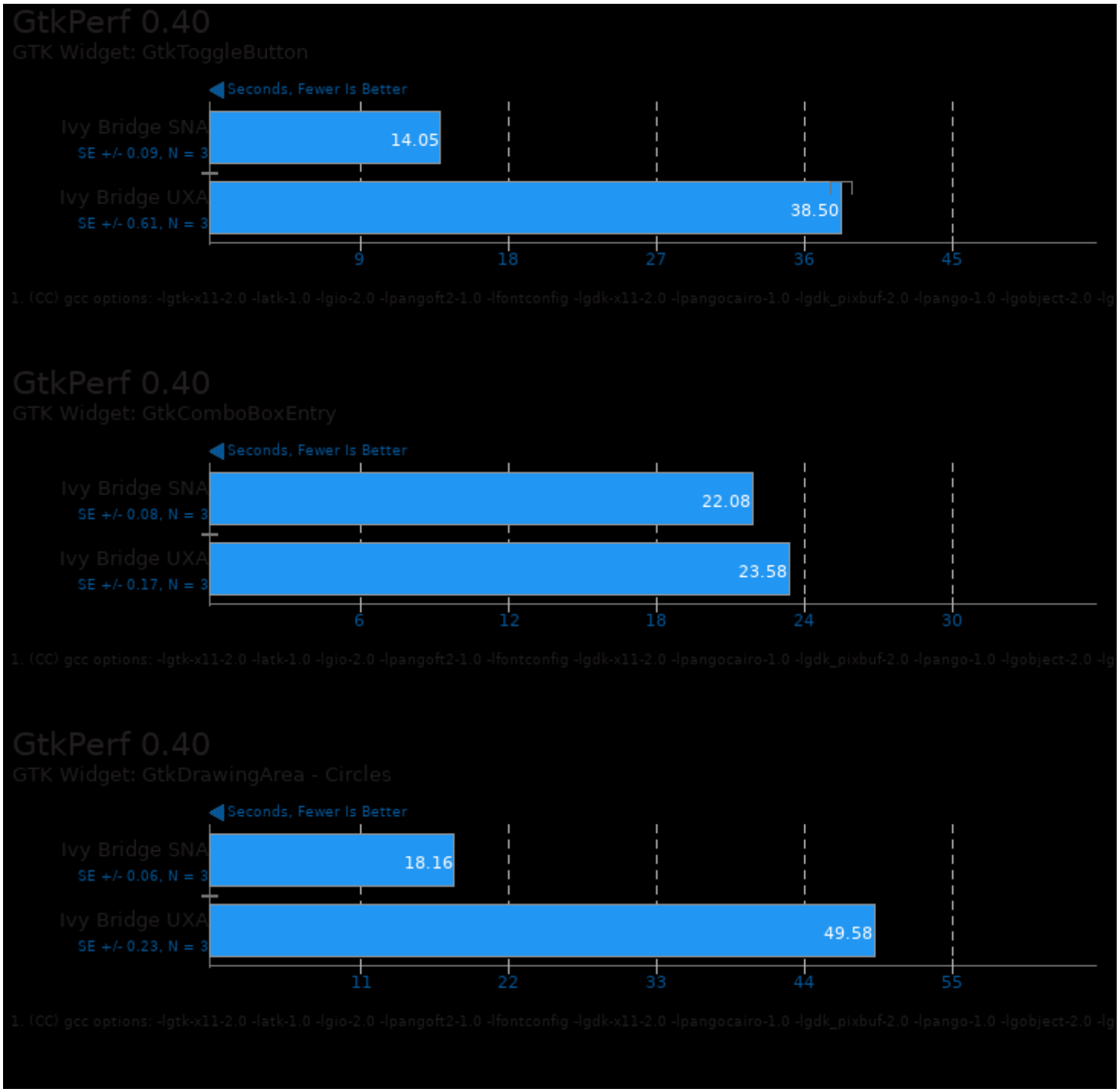
Render Bench

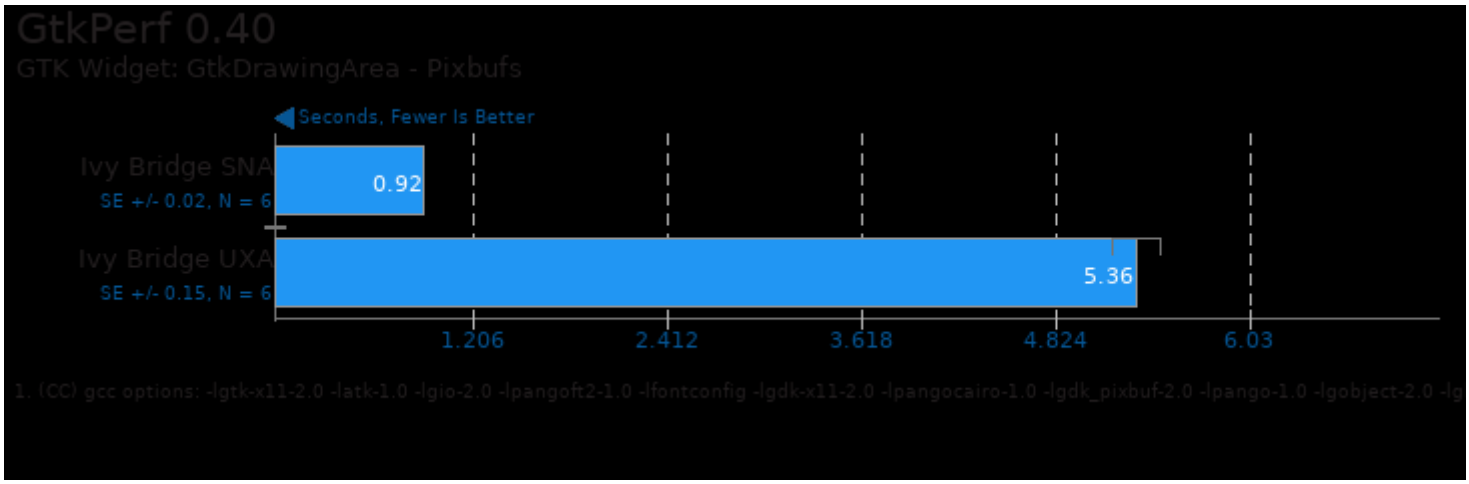
Phoronix Test Suite v4.6.0m1



1. (CC) gcc options: -lm -lX11 -lXext -lXrender -llmlib2 -lfreetype -lz -ldl


GtkPerf 0.40
GTK Widget: GtkComboBox
Seconds, Fewer Is Better
Ivy Bridge SNA
SE +/- 0.11, N = 3
37.61
Ivy Bridge UXA
SE +/- 0.11, N = 3
53.19
12
24
36
48
60
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: GtkCheckButton
Seconds, Fewer Is Better
Ivy Bridge SNA
SE +/- 0.01, N = 3
4.65
Ivy Bridge UXA
SE +/- 0.07, N = 3
4.97
1.1183
2.2366
3.3549
4.4732
5.5915
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
Ivy Bridge SNA
SE +/- 0.14, N = 3
7.87
Ivy Bridge UXA
SE +/- 0.16, N = 6
8.51
2
4
6
8
10
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: GtkToggleButton
Seconds, Fewer Is Better
Ivy Bridge SNA
SE +/- 0.09, N = 3
14.05
Ivy Bridge UXA
SE +/- 0.61, N = 3
38.50
9
18
27
36
45
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
Ivy Bridge SNA
SE +/- 0.08, N = 3
22.08
Ivy Bridge UXA
SE +/- 0.17, N = 3
23.58
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
GtkPerf 0.40
GTK Widget: GtkDrawingArea - Circles
Seconds, Fewer Is Better
Ivy Bridge SNA
SE +/- 0.06, N = 3
18.16
Ivy Bridge UXA
SE +/- 0.23, N = 3
49.58
11
22
33
44
55
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



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