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Volteer Chromebook testing

VirGL testing on Chromebook

Automated Executive Summary

Host (Debian in chroot) had the most wins, coming in first place for 85% of the tests.

Based on the geometric mean of all complete results, the fastest (Host (Debian in chroot)) was 1.573x the speed of the slowest (Borealis (virgl) using async command stream submission). Qemu Gentoo guest mesa/virglrenderer TOT was 0.784x the speed of Host (Debian in chroot), Qemu Gentoo guest mesa both/virglrenderer TOT was 0.945x the speed of Qemu Gentoo guest mesa/virglrenderer TOT, Qemu Gentoo guest, async cmd stream was 0.968x the speed of Qemu Gentoo guest mesa both/virglrenderer TOT, Qemu Gentoo guest, default mesa was 0.987x the speed of Qemu Gentoo guest, async cmd stream, Borealis (virgl) default mesa was 0.913x the speed of Qemu Gentoo guest, default mesa, Borealis (virgl) using async command stream submission was 0.984x the speed of Borealis (virgl) default mesa.

Test Systems:

Host (Debian in chroot)

Processor: Intel Core i7-1165G7 @ 4.70GHz (4 Cores / 8 Threads), Motherboard: Google Drobit (Google_Drobit.13672.206.0 BIOS), Disk: 512GB SAMSUNG MZVLQ512HALU-00000 + 988GB SanDisk 3.2Gen1, Graphics: Intel Xe TGL GT2 3GB (1300MHz)

OS: Debian 11, Kernel: 5.4.191-18501-g8a73dd4872a1 (x86_64), Desktop: Xfce 4.16, Display Server: X Server, OpenGL: 4.6 Mesa 21.3.8, Vulkan: 1.2.195, Compiler: GCC 11.3.0, File-System: ext4, Screen Resolution: 1920x1080

Kernel Notes: Transparent Huge Pages: madvise
Processor Notes: Scaling Governor: intel_pstate powersave (EPP: balance_performance) - CPU Microcode: 0x9a
Python Notes: Python 3.10.4
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Enhanced IBRS IBPB: conditional RSB filling + srbds: Not affected + tsx_async_abort: Not affected

Borealis (virgl) default mesa

Processor: Intel Core i7-1165G7 (8 Cores), Motherboard: ChromiumOS crosvm, Chipset: Intel 440FX 82441FX PMC, Memory: 16GB, Disk: 800GB, Graphics: virgl Intel Xe TGL GT2

OS: Arch rolling, Kernel: 5.15.16-01331-gb6c5afc81904 (x86_64), OpenGL: 4.5 Mesa 22.2.0-devel (git-c9f68361a8), Compiler: GCC 11.2.0 + LLVM 13.0.1, File-System: btrfs, Screen Resolution: 1920x1080, System Layer: docker

Kernel Notes: Transparent Huge Pages: madvise
Environment Notes: MESA_REPO=git@gitlab.freedesktop.org:gerddie/mesa.git MESA_BRANCH=async-submit-only MESA_SOURCE_PREFIX=/home/chronos/mesa
Processor Notes: CPU Microcode: 0x1
Python Notes: Python 3.10.4
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Enhanced IBRS IBPB: conditional RSB filling + srbds: Not affected + tsx_async_abort: Not affected

Borealis (virgl) using async command stream submission

Processor: Intel Core i7-1165G7 (8 Cores), Motherboard: ChromiumOS crosvm, Chipset: Intel 440FX 82441FX PMC, Memory: 16GB, Disk: 800GB, Graphics: virgl Intel Xe TGL GT2

OS: Arch rolling, Kernel: 5.15.16-01331-gb6c5afc81904 (x86_64), OpenGL: 4.5 Mesa 22.2.0-devel (git-fb68750067), Compiler: GCC 11.2.0 + LLVM 13.0.1, File-System: btrfs, Screen Resolution: 1920x1080, System Layer: docker

Kernel Notes: Transparent Huge Pages: madvise
Environment Notes: MESA_REPO=git@gitlab.freedesktop.org:gerddie/mesa.git MESA_BRANCH=async-submit-only LIBGL_DRIVERS_PATH=/home/chronos/mesa/install/lib/dri:/home/chronos/mesa/install/lib32/dri: MESA_SOURCE_PREFIX=/home/chronos/mesa
Processor Notes: CPU Microcode: 0x1
Python Notes: Python 3.10.4
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Enhanced IBRS IBPB: conditional RSB filling + srbds: Not affected + tsx_async_abort: Not affected

Qemu Gentoo guest, default mesa

Qemu Gentoo guest mesa/virglrenderer TOT

Processor: QEMU Virtual 2.5+ (4 Cores), Motherboard: QEMU Standard PC (Q35 + ICH9 2009) (1.16.0-debian-1.16.0-4 BIOS), Chipset: Intel 82G33/G31/P35/P31 + ICH9, Memory: 16GB, Disk: 97GB, Graphics: virgl, Audio: Intel 82801I, Monitor: QEMU Monitor, Network: Red Hat Virtio device

OS: Gentoo/Linux, Kernel: 5.15.11-gentoo-x86_64 (x86_64), Display Server: X Server 1.21.1.3, OpenGL: 4.3 Mesa 21.3.5, Compiler: GCC 11.2.0 + LLVM 13.0.0, File-System: ext4, Screen Resolution: 1280x800, System Layer: QEMU

Processor Notes: CPU Microcode: 0x1
Python Notes: Python 3.9.9
Security Notes: itlb_multihit: vulnerable + l1tf: Mitigation of PTE Inversion + mds: Vulnerable: Clear buffers attempted no microcode; SMT Host state unknown + meltdown: Mitigation of PTI + spec_store_bypass: Vulnerable + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full generic retpoline STIBP: disabled RSB filling + srbds: Not affected + tsx_async_abort: Not affected

Qemu Gentoo guest, async cmd stream

Qemu Gentoo guest mesa both/virglrenderer TOT

Processor: QEMU Virtual 2.5+ (4 Cores), Motherboard: QEMU Standard PC (Q35 + ICH9 2009) (1.16.0-debian-1.16.0-4 BIOS), Chipset: Intel 82G33/G31/P35/P31 + ICH9, Memory: 16GB, Disk: 97GB, Graphics: virgl, Audio: Intel 82801I, Monitor: QEMU Monitor, Network: Red Hat Virtio device

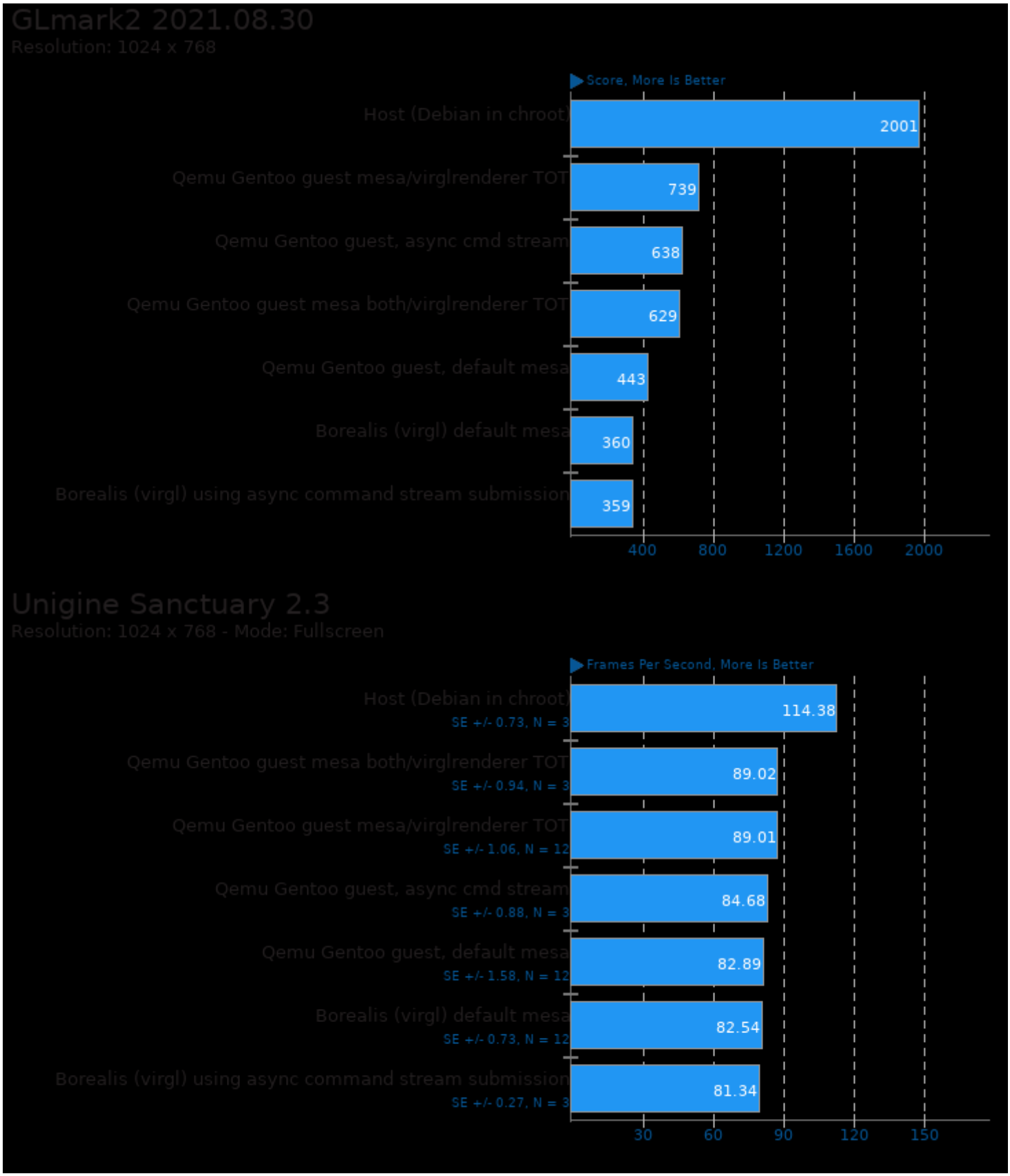
OS: Gentoo/Linux, Kernel: 5.15.11-gentoo-x86_64 (x86_64), Display Server: X Server 1.21.1.3, OpenGL: 4.3 Mesa 22.2.0-devel (git-fb68750067), Compiler: GCC 11.2.0 + LLVM 13.0.0, File-System: ext4, Screen Resolution: 1280x800, System Layer: QEMU

Processor Notes: CPU Microcode: 0x1
Python Notes: Python 3.9.9
Security Notes: itlb_multihit: vulnerable + l1tf: Mitigation of PTE Inversion + mds: Vulnerable: Clear buffers attempted no microcode; SMT Host state unknown + meltdown: Mitigation of PTI + spec_store_bypass: Vulnerable + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full generic retpoline STIBP: disabled RSB filling + srbds: Not affected + tsx_async_abort: Not affected

	Host (Debian in chroot)	Borealis (virgl) default mesa	Borealis (virgl) using async command stream submission	Qemu Gentoo guest, default mesa	Qemu Gentoo guest mesa/virglrenderer TOT	Qemu Gentoo guest, async cmd stream	Qemu Gentoo guest mesa both/virglrenderer TOT
GLmark2 - 1024 x 768 (Score)	**2001**	360	**359**	443	739	638	629
Normalized	100%	17.99%	17.94%	22.14%	36.93%	31.88%	31.43%
Unigine Sanctuary - 1024 x 768 - Fullscreen (FPS)	**114.377**	82.5352	**81.3405**	82.8855	89.0062	84.6839	89.0202
Normalized	100%	72.16%	71.12%	72.47%	77.82%	74.04%	77.83%
Standard Deviation	1.1%	3.1%	0.6%	6.6%	4.1%	1.8%	1.8%
Unigine Heaven - 1024 x 768 - Fullscreen - OpenGL (FPS)	**34.2113**	27.0590	**24.9512**	26.2812	29.2454	26.6433	27.9732
Normalized	100%	79.09%	72.93%	76.82%	85.48%	77.88%	81.77%
Standard Deviation	2%	3.5%	13.8%	1.9%	2.3%	5.3%	2.3%
Unigine Tropics - 1024 x 768 - Fullscreen (FPS)	**80.4345**	61.6656	61.5085	62.6909	65.4651	**60.9280**	63.9521
Normalized	100%	76.67%	76.47%	77.94%	81.39%	75.75%	79.51%
Standard Deviation	2.6%	2.4%	0.8%	3.2%	4.6%	1.3%	0.5%
Xonotic - 1024 x 768 - Ultimate (FPS)	**80.5466546**	**61.2714369**	64.5552774	77.2952549	77.4969739	71.0779210	73.3862357
Normalized	100%	76.07%	80.15%	95.96%	96.21%	88.24%	91.11%
Standard Deviation	0.9%	1.7%	1.3%	2%	2.4%	3%	1.5%

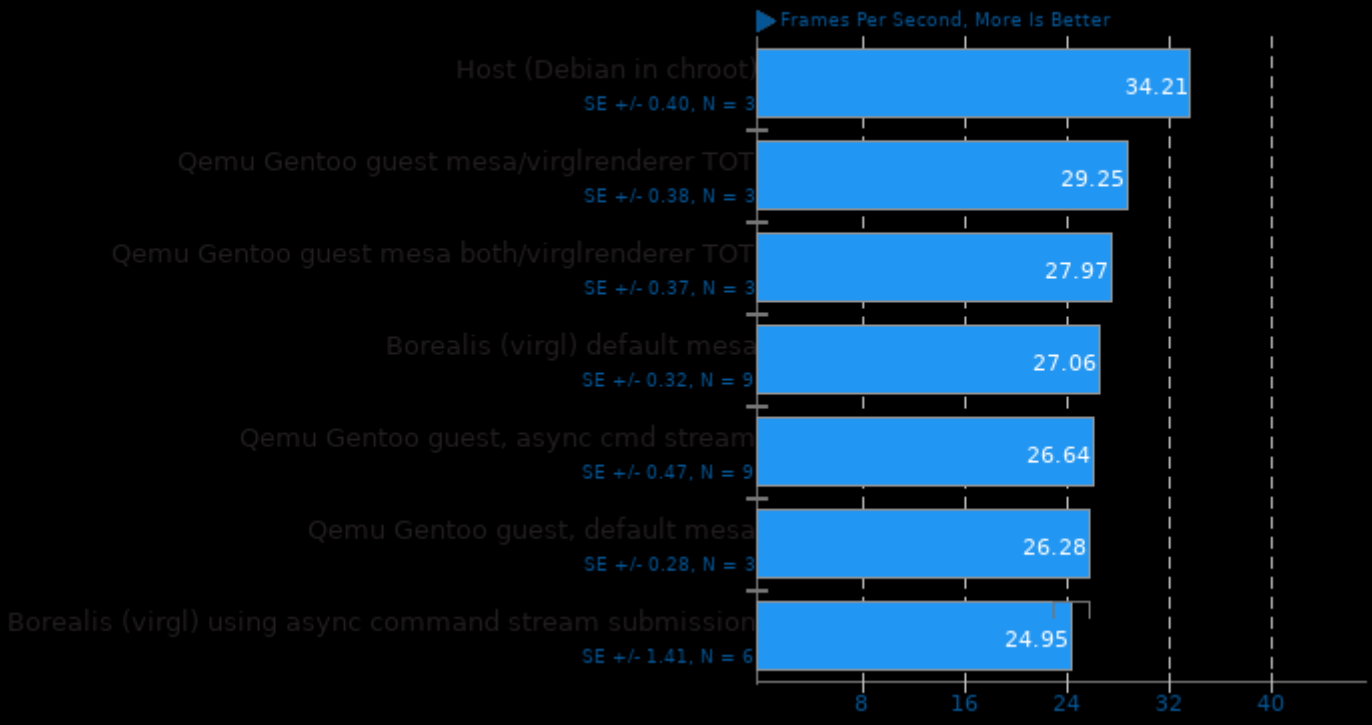
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Unigine Valley - 1024 x 768 - Fullscreen - OpenGL (FPS)	**34.8859**	28.8471	**26.8113**	30.7183	31.4072	26.9351	28.0647
Normalized	100%	82.69%	76.85%	88.05%	90.03%	77.21%	80.45%
Standard Deviation	2.4%	0.2%	3.2%	2%	3.6%	1.6%	0.8%
GpuTest - 1024 x 768 - Fullscreen (Points)	2278	**2166**	2179	**2494**	2390	2335	2384
Normalized	91.34%	86.85%	87.37%	100%	95.83%	93.62%	95.59%
Standard Deviation	0.5%	1.3%	2.3%	2.2%	2.4%	2.9%	0.4%


GLmark2 2021.08.30
Resolution: 1024 x 768
Score, More Is Better
Host (Debian in chroot)
2001
Qemu Gentoo guest mesa/virglrenderer TOT
739
Qemu Gentoo guest, async cmd stream
638
Qemu Gentoo guest mesa both/virglrenderer TOT
629
Qemu Gentoo guest, default mesa
443
Borealis (virgl) default mesa
360
Borealis (virgl) using async command stream submission
359
400
800
1200
1600
2000
Unigine Sanctuary 2.3
Resolution: 1024 x 768 - Mode: Fullscreen
Frames Per Second, More Is Better
Host (Debian in chroot)
SE +/- 0.73, N = 3
114.38
Qemu Gentoo guest mesa both/virglrenderer TOT
SE +/- 0.94, N = 3
89.02
Qemu Gentoo guest mesa/virglrenderer TOT
SE +/- 1.06, N = 12
89.01
Qemu Gentoo guest, async cmd stream
SE +/- 0.88, N = 3
84.68
Qemu Gentoo guest, default mesa
SE +/- 1.58, N = 12
82.89
Borealis (virgl) default mesa
SE +/- 0.73, N = 12
82.54
Borealis (virgl) using async command stream submission
SE +/- 0.27, N = 3
81.34
30
60
90
120
150

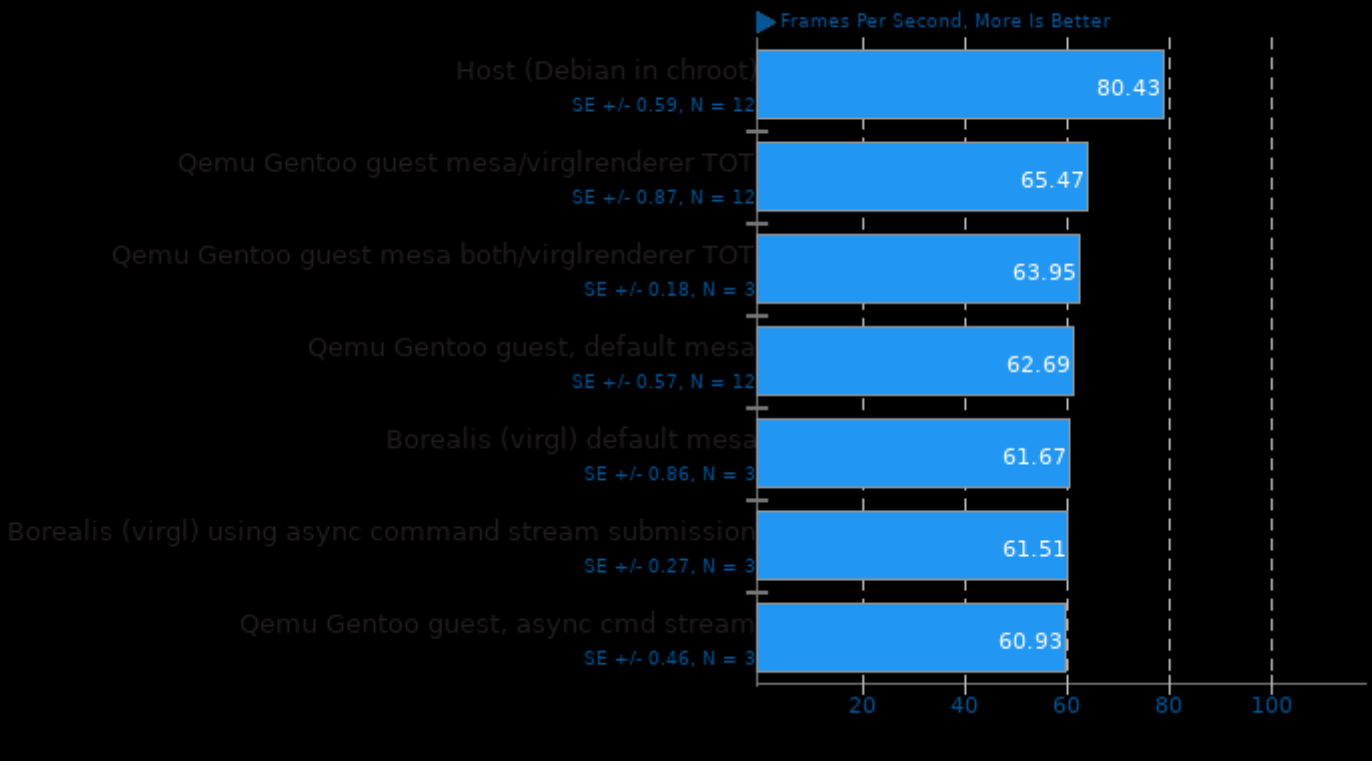
Unigine Heaven 4.0

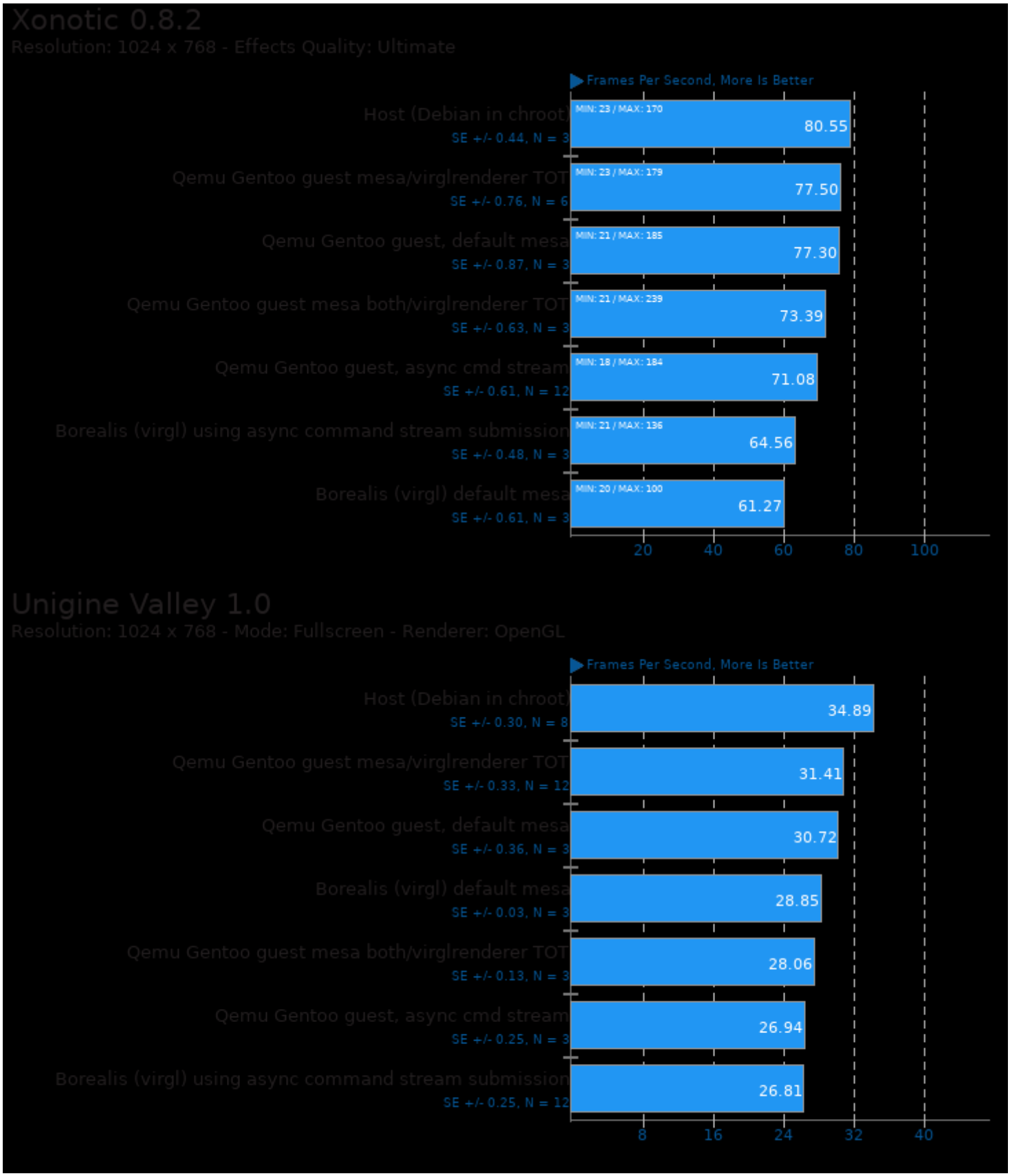
Resolution: 1024 x 768 - Mode: Fullscreen - Renderer: OpenGL



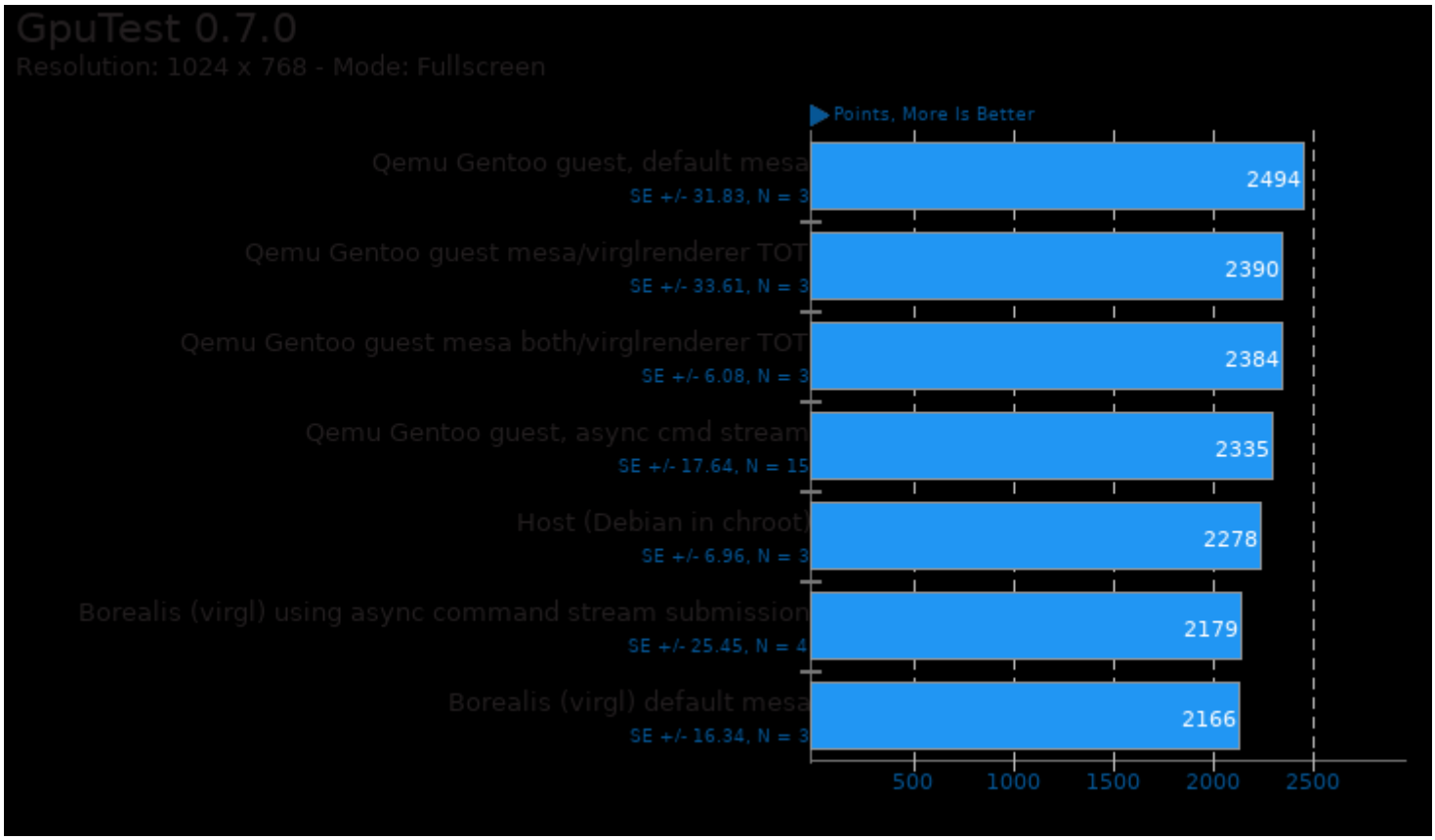
Unigine Tropics 1.3

Resolution: 1024 x 768 - Mode: Fullscreen

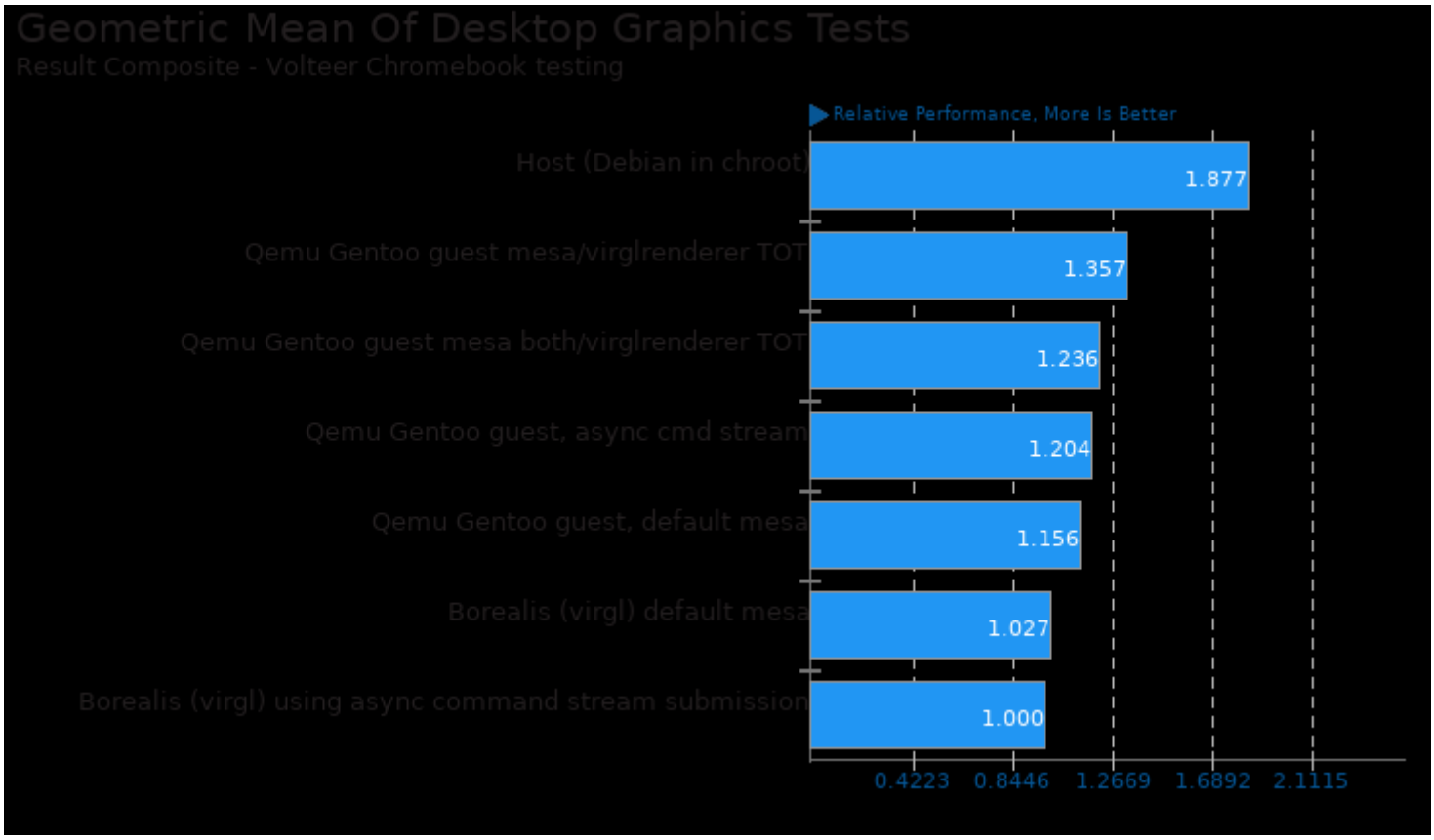



Xonotic 0.8.2
Resolution: 1024 x 768 - Effects Quality: Ultimate
Frames Per Second, More Is Better
Host (Debian in chroot)
SE +/- 0.44, N = 3
MIN: 23 / MAX: 170
80.55
Qemu Gentoo guest mesa/virglrenderer TOT
SE +/- 0.76, N = 6
MIN: 23 / MAX: 179
77.50
Qemu Gentoo guest, default mesa
SE +/- 0.87, N = 3
MIN: 21 / MAX: 185
77.30
Qemu Gentoo guest mesa both/virglrenderer TOT
SE +/- 0.63, N = 3
MIN: 21 / MAX: 239
73.39
Qemu Gentoo guest, async cmd stream
SE +/- 0.61, N = 12
MIN: 18 / MAX: 184
71.08
Borealis (virgl) using async command stream submission
SE +/- 0.48, N = 3
MIN: 21 / MAX: 136
64.56
Borealis (virgl) default mesa
SE +/- 0.61, N = 3
MIN: 20 / MAX: 100
61.27
20
40
60
80
100
Unigine Valley 1.0
Resolution: 1024 x 768 - Mode: Fullscreen - Renderer: OpenGL
Frames Per Second, More Is Better
Host (Debian in chroot)
SE +/- 0.30, N = 8
34.89
Qemu Gentoo guest mesa/virglrenderer TOT
SE +/- 0.33, N = 12
31.41
Qemu Gentoo guest, default mesa
SE +/- 0.36, N = 3
30.72
Borealis (virgl) default mesa
SE +/- 0.03, N = 3
28.85
Qemu Gentoo guest mesa both/virglrenderer TOT
SE +/- 0.13, N = 3
28.06
Qemu Gentoo guest, async cmd stream
SE +/- 0.25, N = 3
26.94
Borealis (virgl) using async command stream submission
SE +/- 0.25, N = 12
26.81
8
16
24
32
40

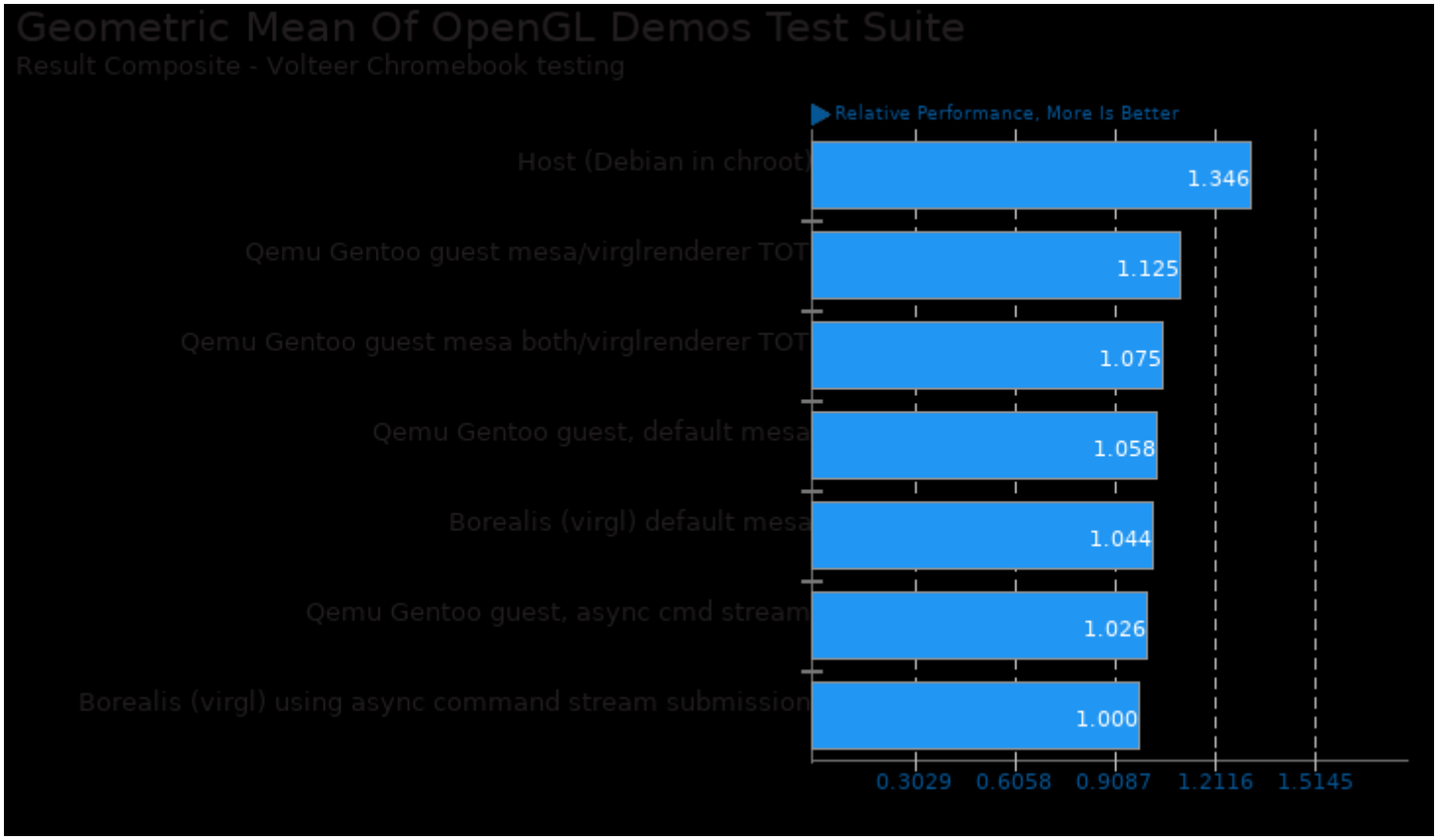
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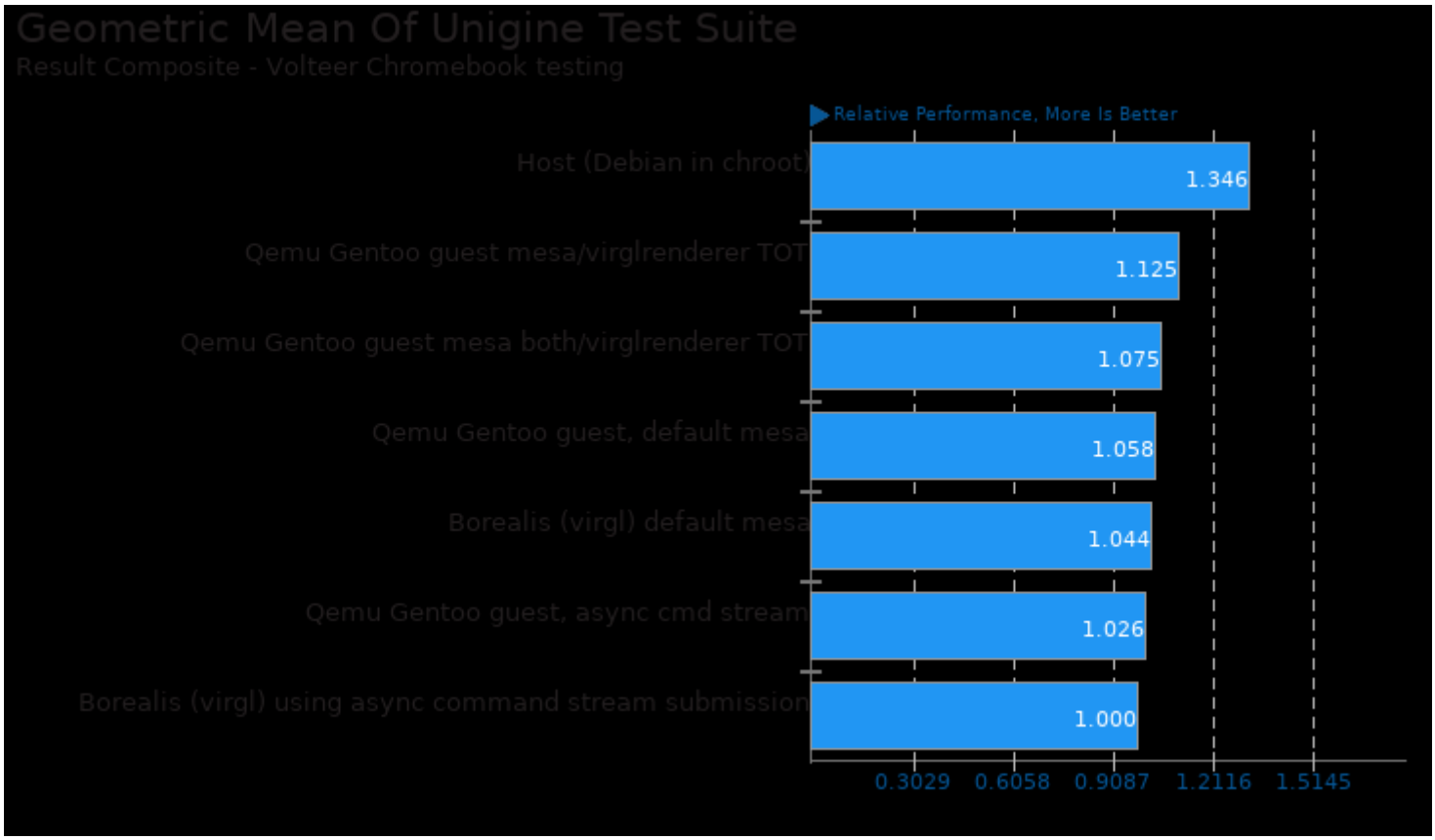
These geometric means are based upon test groupings / test suites for this result file.



Geometric mean based upon tests: pts/xonotic, pts/unigine-valley, pts/unigine-heaven and pts/glmark2



Geometric mean based upon tests: pts/unigine-valley, pts/unigine-heaven, pts/unigine-sanctuary and pts/unigine-tropics



Geometric mean based upon tests: pts/unigine-valley, pts/unigine-heaven, pts/unigine-sanctuary and pts/unigine-tropics

This file was automatically generated via the Phoronix Test Suite benchmarking software on Friday, 29 March 2024 04:02.