

www.phoronix-test-suite.com

Volteer Chromebook testing

QEMU testing on Gentoo/Linux via the Phoronix Test Suite.

Automated Executive Summary

Host (Debian in chroot, mesa-21.3.4) 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, mesa-21.3.4)) was 1.573x the speed of the slowest (Borealis (virgl) using async command stream submission). Qemu, crouton+mesa(fa323cb),virgl(TOT) + Gentoo Mesa 21.3.5 was 0.784x the speed of Host (Debian in chroot, mesa-21.3.4), Qemu, crouton+mesa(TOT),virgl(TOT)+Gentoo + Gentoo Mesa 21.3.5 was 0.949x the speed of Qemu, crouton+mesa(fa323cb),virgl(TOT) + Gentoo Mesa 21.3.5, Qemu, crouton, guest Gentoo, libs TOT was 0.995x the speed of Qemu, crouton+mesa(TOT),virgl(TOT)+Gentoo + Gentoo Mesa 21.3.5, Qemu, crouton+mesa(TOT),virgl(TOT)+Gentoo async cmd was 0.968x the speed of Qemu, crouton, guest Gentoo, libs TOT, Qemu, crouton + Gentoo, default libraries was 0.987x the speed of Qemu, crouton+mesa(TOT),virgl(TOT)+Gentoo async cmd, Borealis (virgl) default mesa was 0.913x the speed of Qemu, crouton + Gentoo, default libraries, Borealis (virgl) using async command stream submission was 0.984x the speed of Borealis (virgl) default mesa.

Test Systems:

Host (Debian in chroot, mesa-21.3.4)

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, crouton + Gentoo, default libraries

Qemu, crouton+mesa(fa323cb),virgl(TOT) + Gentoo Mesa 21.3.5

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, crouton+mesa(TOT),virgl(TOT)+Gentoo async cmd

Qemu, crouton, guest Gentoo, libs 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

Qemu, crouton+mesa(TOT),virgl(TOT)+Gentoo + Gentoo Mesa 21.3.5

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

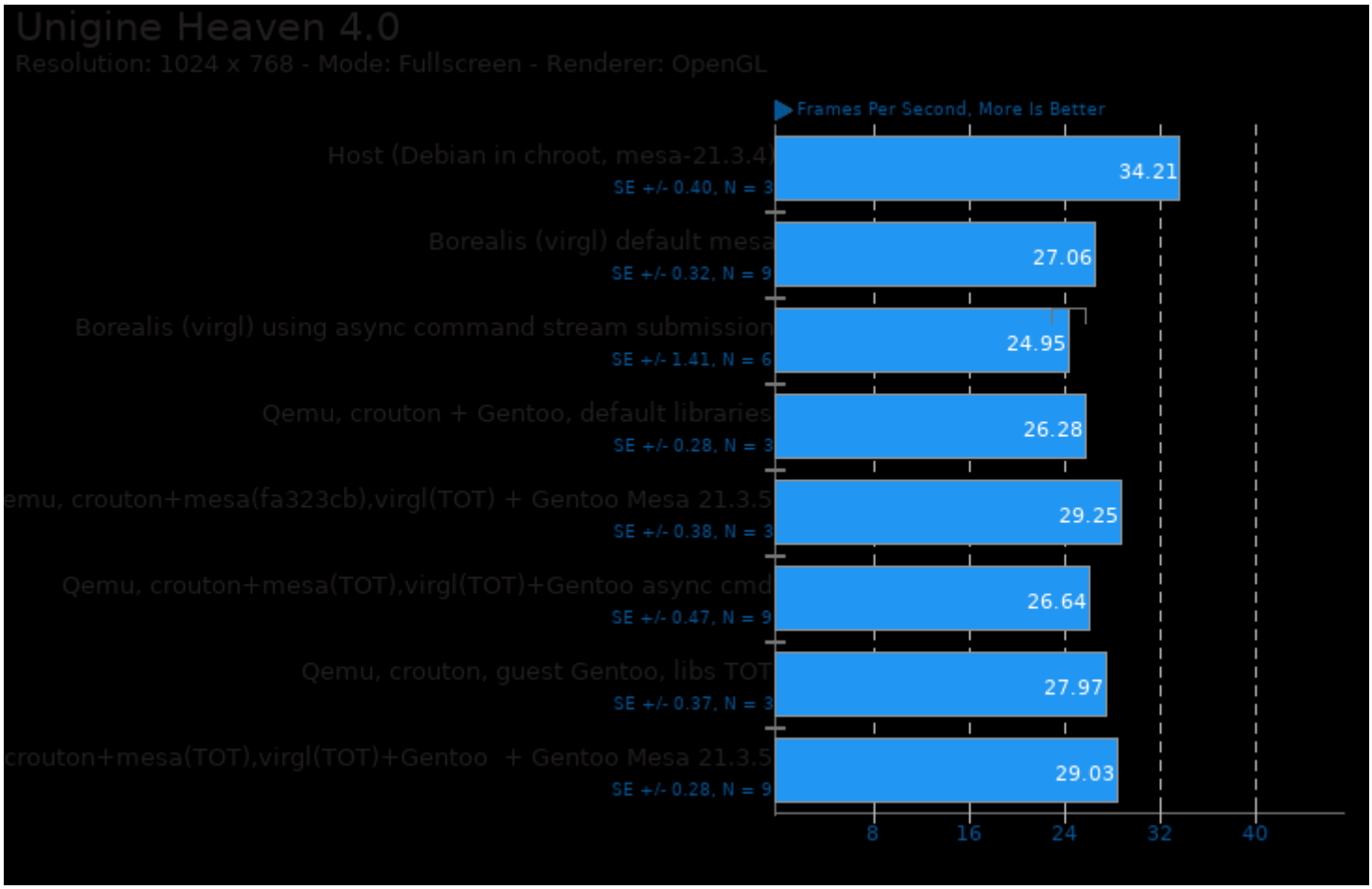
OS: Gentoo/Linux, Kernel: 5.15.11-gentoo-x86_64 (x86_64), Display Server: X Server 1.21.1.3, OpenGL: 4.3 Mesa 21.3.5, Compiler: GCC 11.2.0 + LLVM 13.0.0, File-System: ext4, Screen Resolution: 1280x800, System Layer: QEMU

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

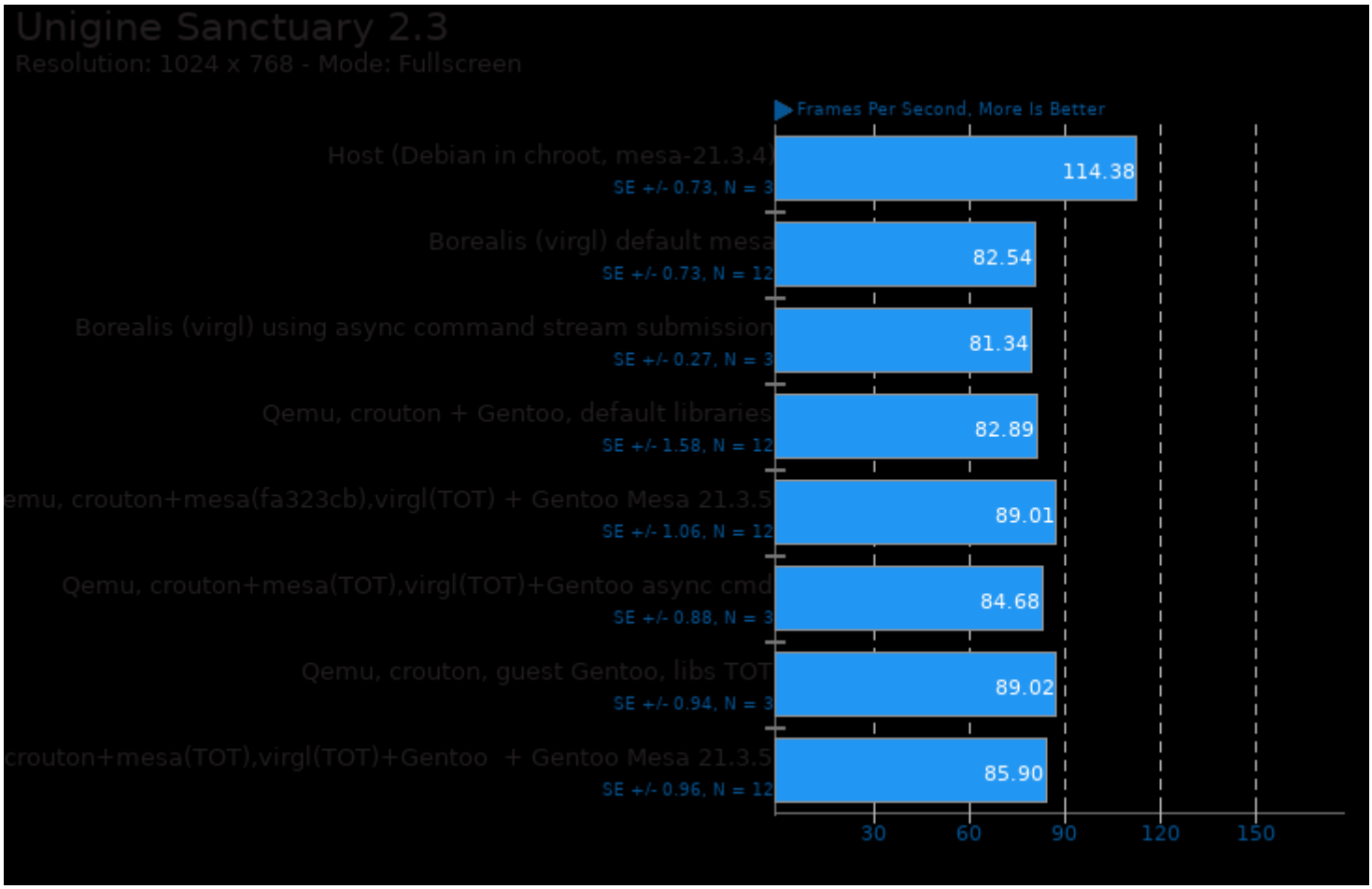
Volteer Chromebook testing

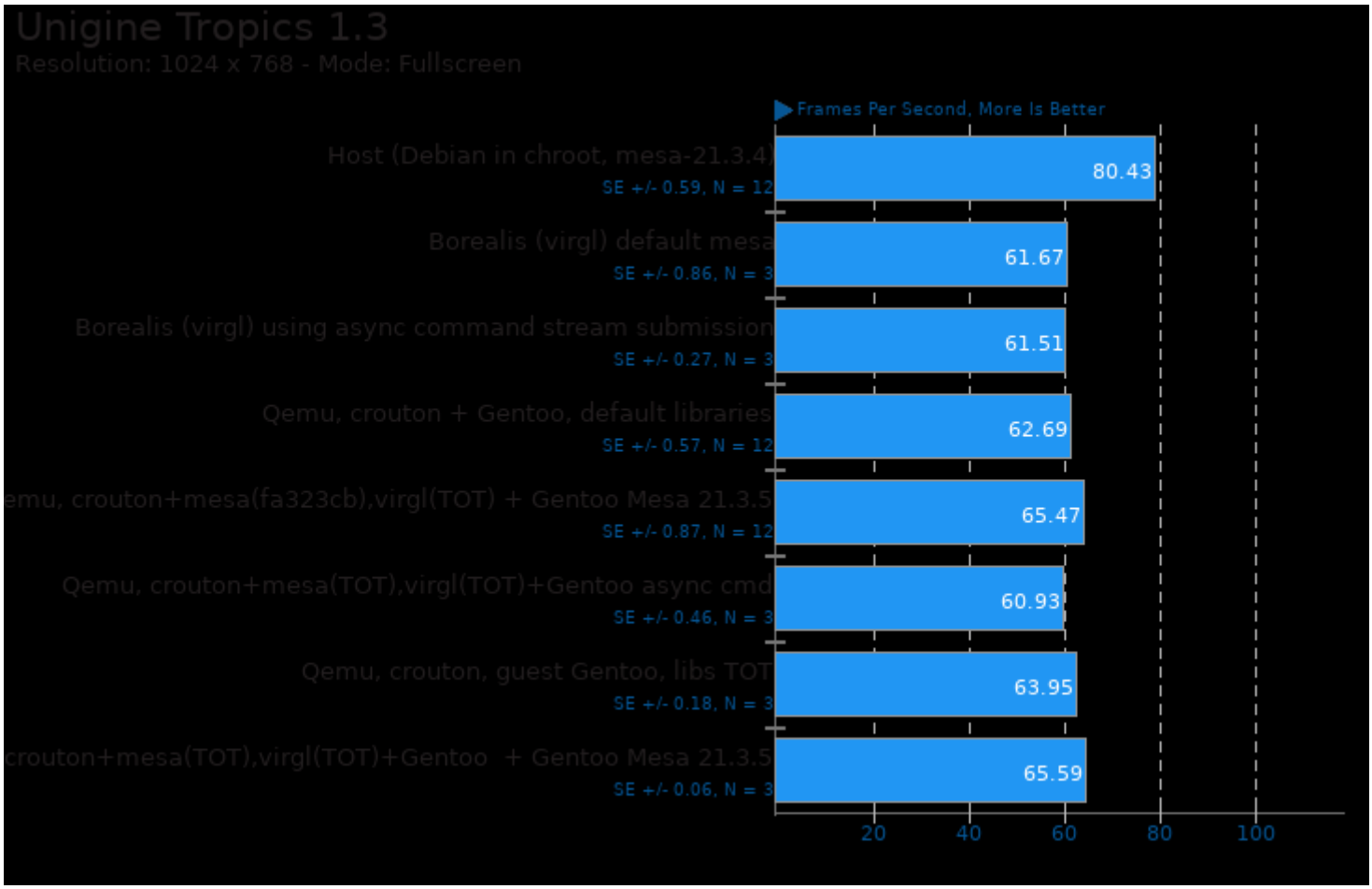
	Host (Debian in chroot, mesa-21.3.4)	Borealis (virgl) default mesa	Borealis (virgl) using async command stream submission	Qemu, crouton + Gentoo, default libraries	Qemu, crouton+mesa(fa323cb),virgl(TOT) + Gentoo Mesa 21.3.5	Qemu, crouton+mesa(TOT),virgl(TOT)+ Gentoo async cmd	Qemu, crouton, guest Gentoo, libs TOT	Qemu, crouton+mesa(TOT),virgl(TOT)+ Gentoo + Gentoo Mesa 21.3.5
Unigine Heaven - 1024 x 768 - Fullscreen - OpenGL (FPS)	34.2113	27.0590	24.9512	26.2812	29.2454	26.6433	27.9732	29.0330
Normalized	100%	79.09%	72.93%	76.82%	85.48%	77.88%	81.77%	84.86%
Standard Deviation	2%	3.5%	13.8%	1.9%	2.3%	5.3%	2.3%	2.9%
Unigine Sanctuary - 1024 x 768 - Fullscreen	114.377	82.5352	81.3405	82.8855	89.0062	84.6839	89.0202	85.8975
Normalized	100%	72.16%	71.12%	72.47%	77.82%	74.04%	77.83%	75.1%
Standard Deviation	1.1%	3.1%	0.6%	6.6%	4.1%	1.8%	1.8%	3.9%
Unigine Tropics - 1024 x 768 - Fullscreen (FPS)	80.4345	61.6656	61.5085	62.6909	65.4651	60.9280	63.9521	65.5863
Normalized	100%	76.67%	76.47%	77.94%	81.39%	75.75%	79.51%	81.54%
Standard Deviation	2.6%	2.4%	0.8%	3.2%	4.6%	1.3%	0.5%	0.2%
Unigine Valley - 1024 x 768 - Fullscreen - OpenGL (FPS)	34.8859	28.8471	26.8113	30.7183	31.4072	26.9351	28.0647	31.2211
Normalized	100%	82.69%	76.85%	88.05%	90.03%	77.21%	80.45%	89.49%
Standard Deviation	2.4%	0.2%	3.2%	2%	3.6%	1.6%	0.8%	2.2%
Xonotic - 1024 x 768 - Ultimate (FPS)	80.5466546	61.2714369	64.5552774	77.2952549	77.4969739	71.0779210	73.3862357	78.3746754
Normalized	100%	76.07%	80.15%	95.96%	96.21%	88.24%	91.11%	97.3%
Standard Deviation	0.9%	1.7%	1.3%	2%	2.4%	3%	1.5%	2%
GpuTest - 1024 x 768 - Fullscreen (Points)	2278	2166	2179	2494	2390	2335	2384	2394
Normalized	91.34%	86.85%	87.37%	100%	95.83%	93.62%	95.59%	95.99%
Standard Deviation	0.5%	1.3%	2.3%	2.2%	2.4%	2.9%	0.4%	3.7%
GLmark2 - 1024 x 768 (Score)	2001	360	359	443	739	638	629	530
Normalized	100%	17.99%	17.94%	22.14%	36.93%	31.88%	31.43%	26.49%

Volteer Chromebook testing

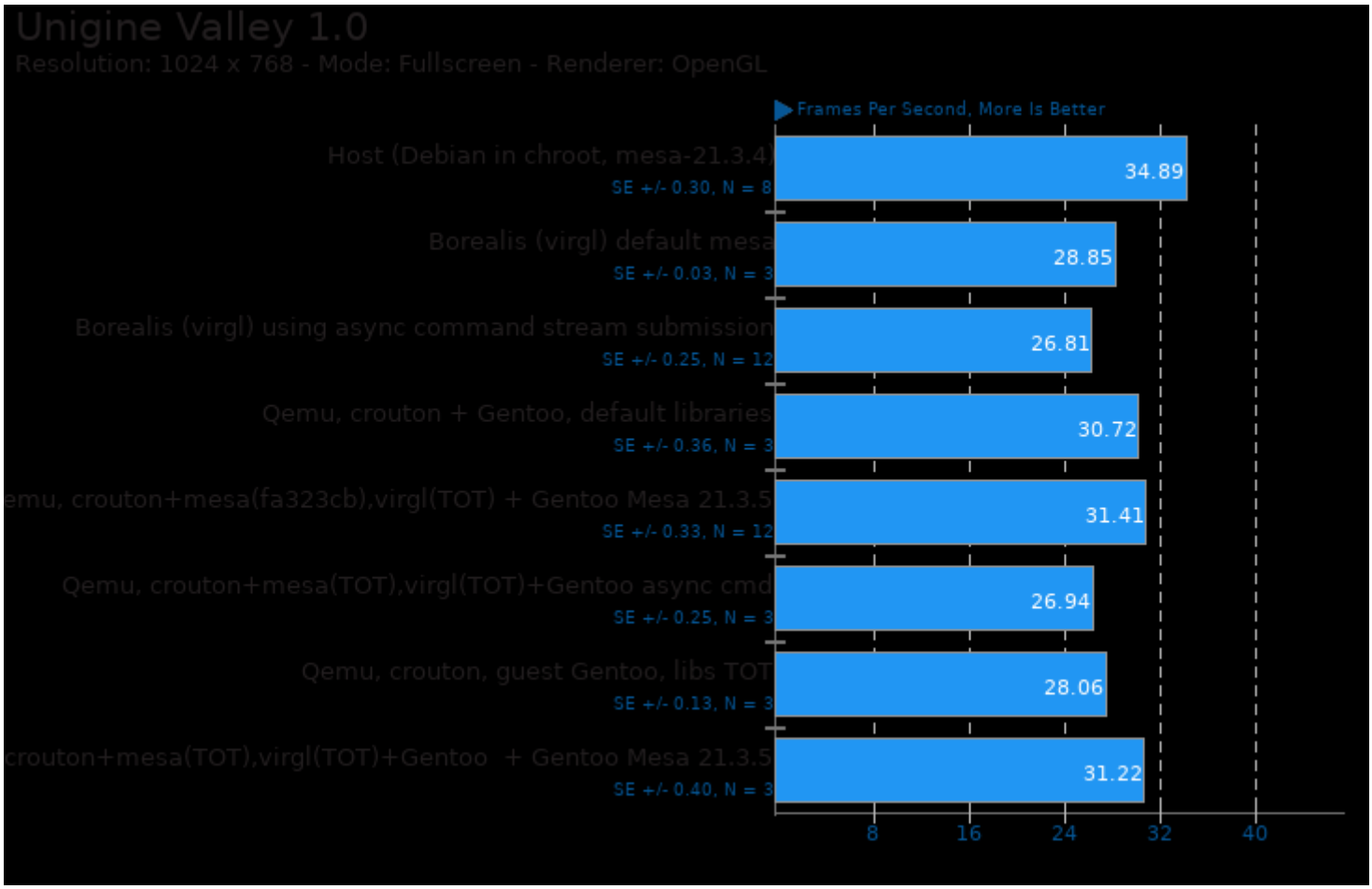


Volteer Chromebook testing

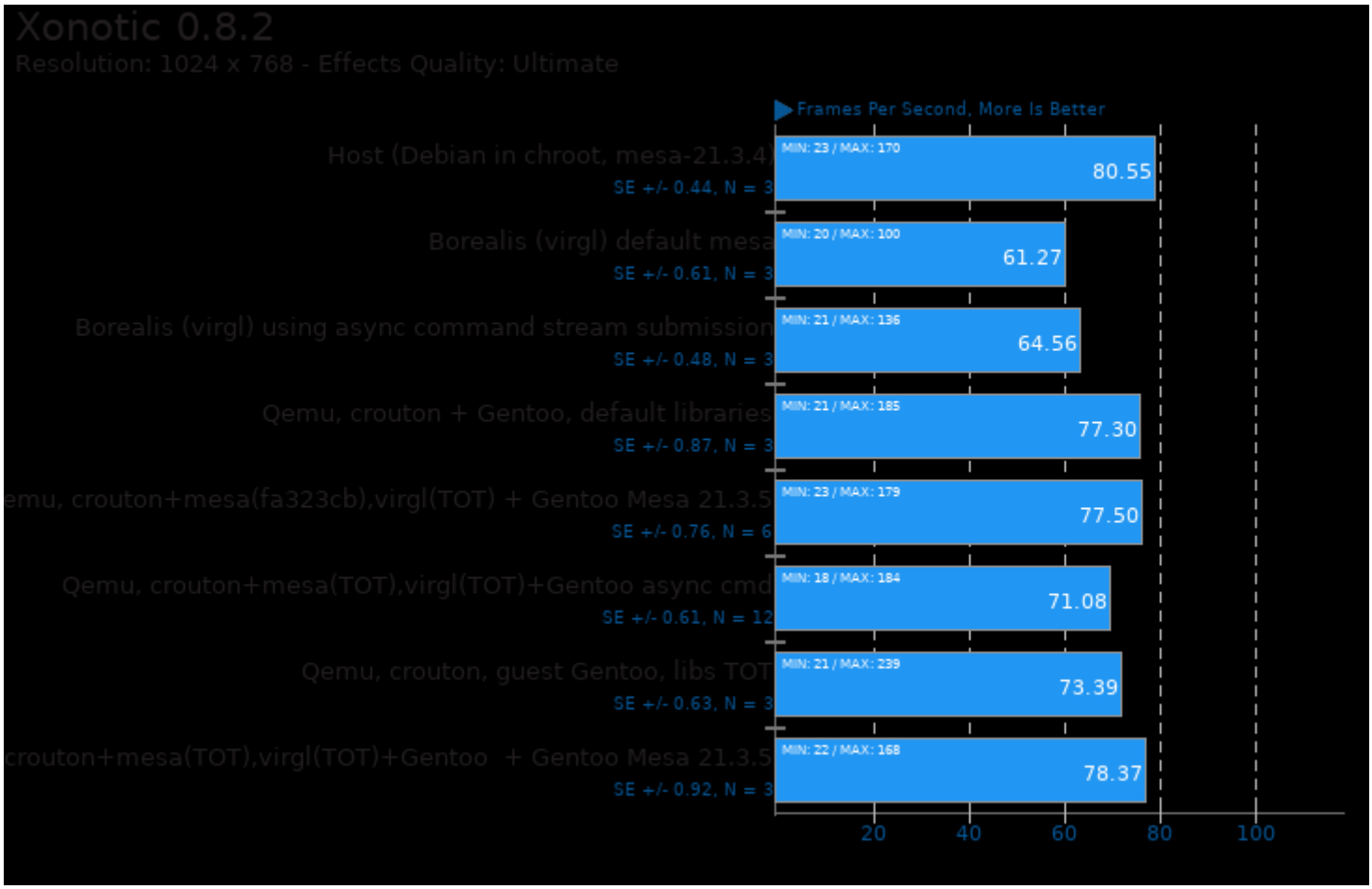



Unigine Tropics 1.3
Resolution: 1024 x 768 - Mode: Fullscreen
Frames Per Second, More Is Better
Host (Debian in chroot, mesa-21.3.4
SE +/- 0.59, N = 12
80.43
Borealis (virgl) default mesa
SE +/- 0.86, N = 3
61.67
Borealis (virgl) using async command stream submission
SE +/- 0.27, N = 3
61.51
Qemu, crouton + Gentoo, default libraries
SE +/- 0.57, N = 12
62.69
emu, crouton+mesa(fa323cb),virgl(TOT) + Gentoo Mesa 21.3.5
SE +/- 0.87, N = 12
65.47
Qemu, crouton+mesa(TOT),virgl(TOT)+Gentoo async cmd
SE +/- 0.46, N = 3
60.93
Qemu, crouton, guest Gentoo, libs TOT
SE +/- 0.18, N = 3
63.95
crouton+mesa(TOT),virgl(TOT)+Gentoo + Gentoo Mesa 21.3.5
SE +/- 0.06, N = 3
65.59
20
40
60
80
100

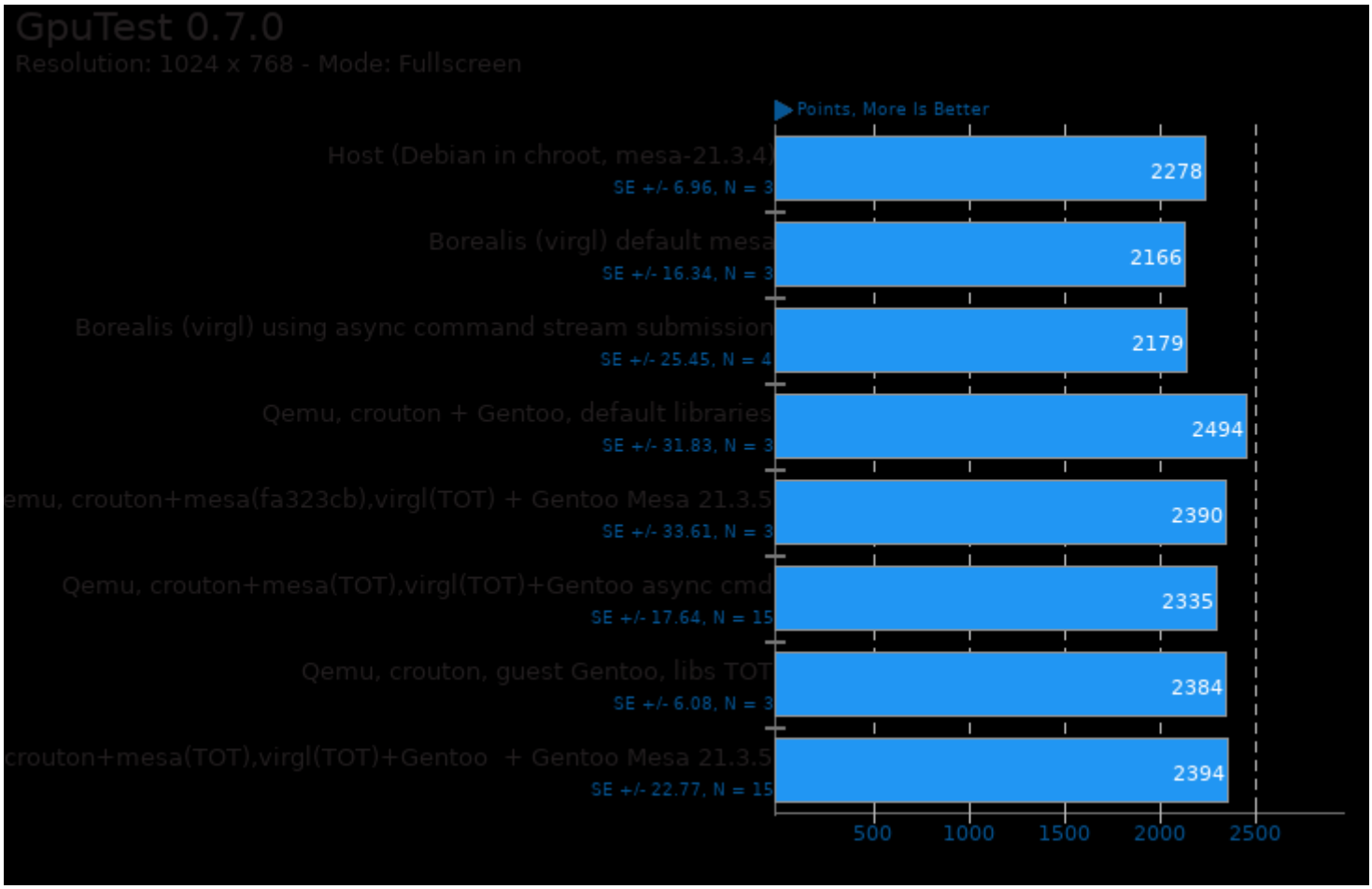
Volteer Chromebook testing



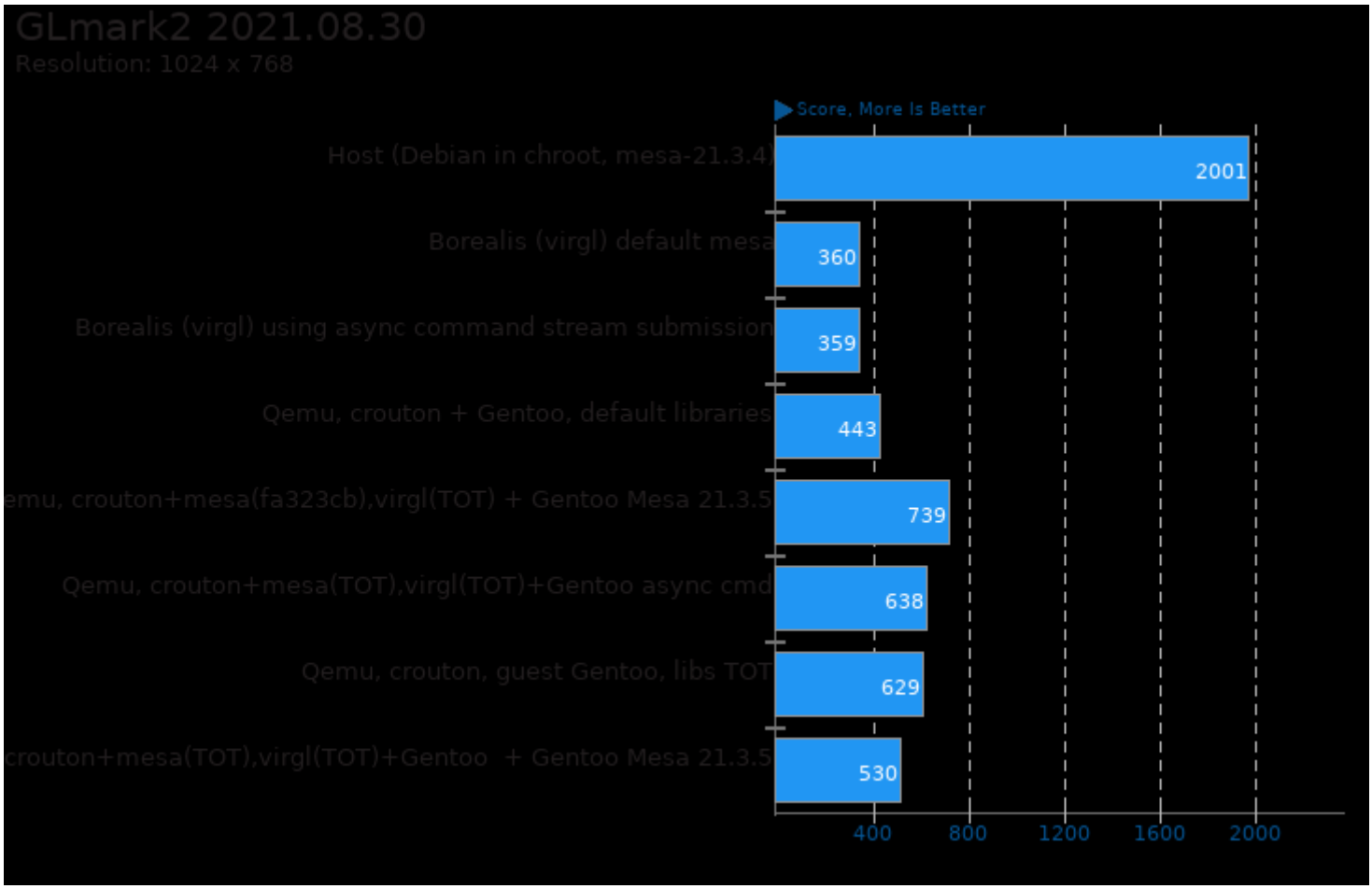
Volteer Chromebook testing



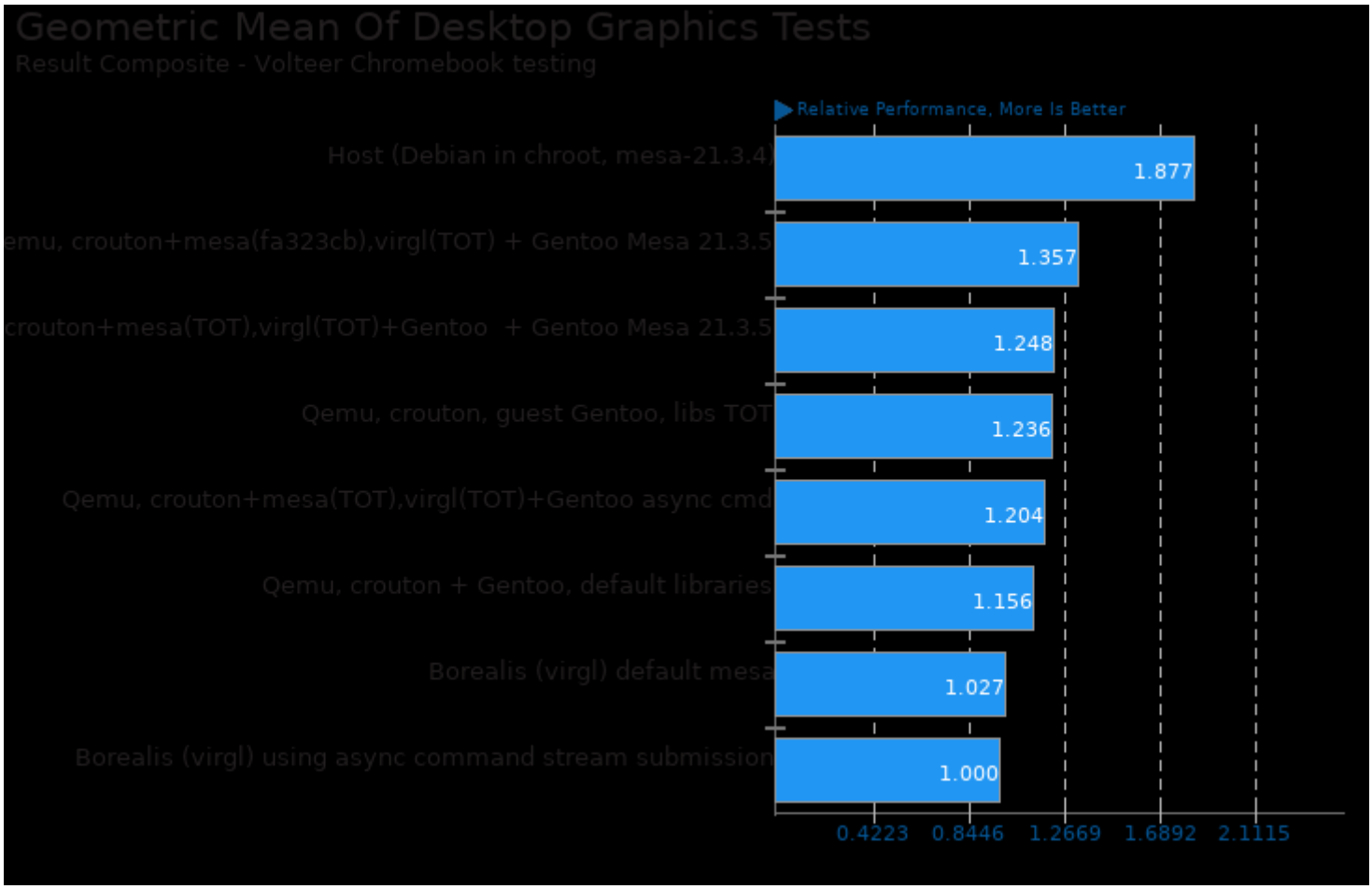
Volteer Chromebook testing



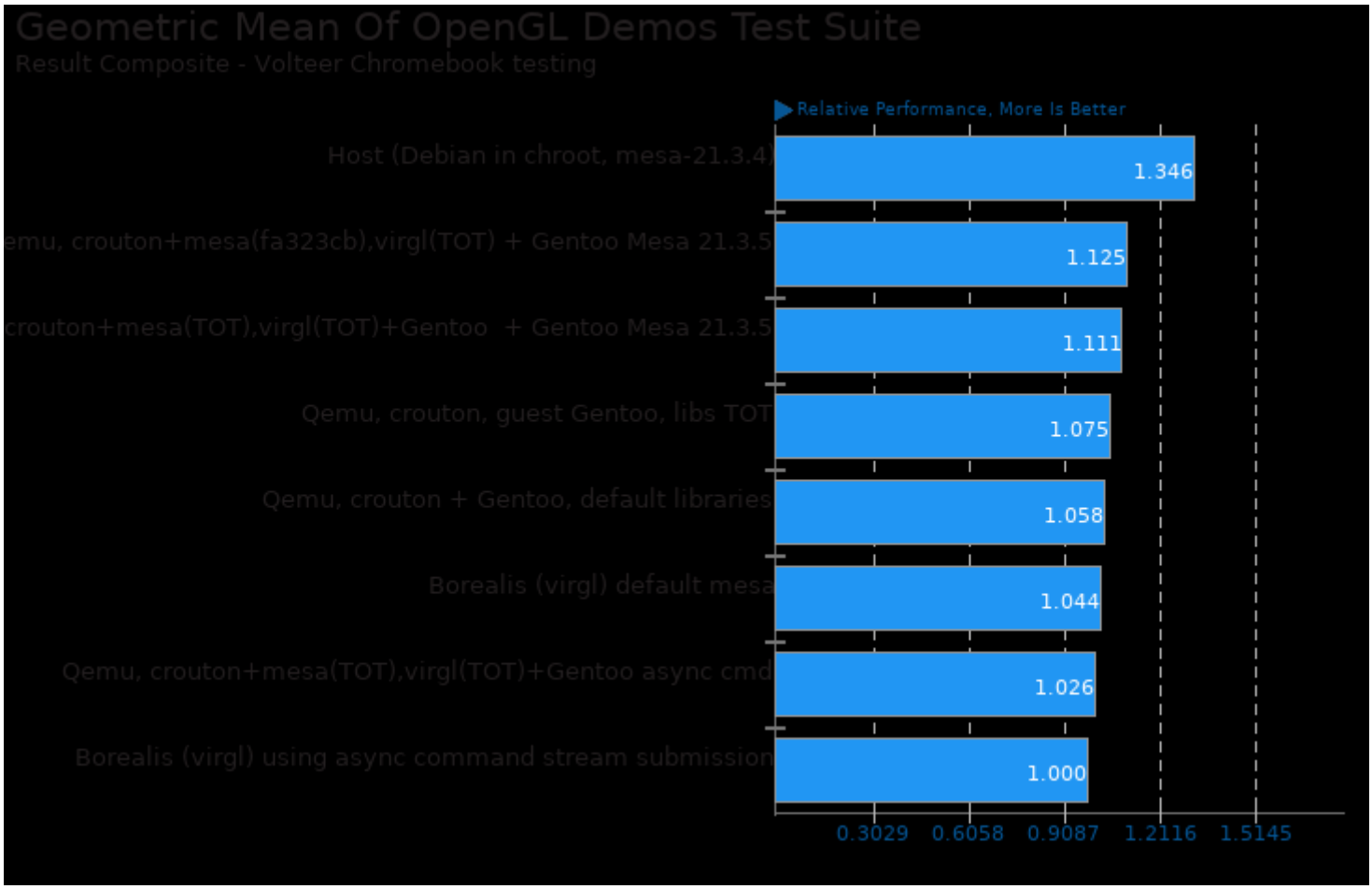
Volteer Chromebook testing



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

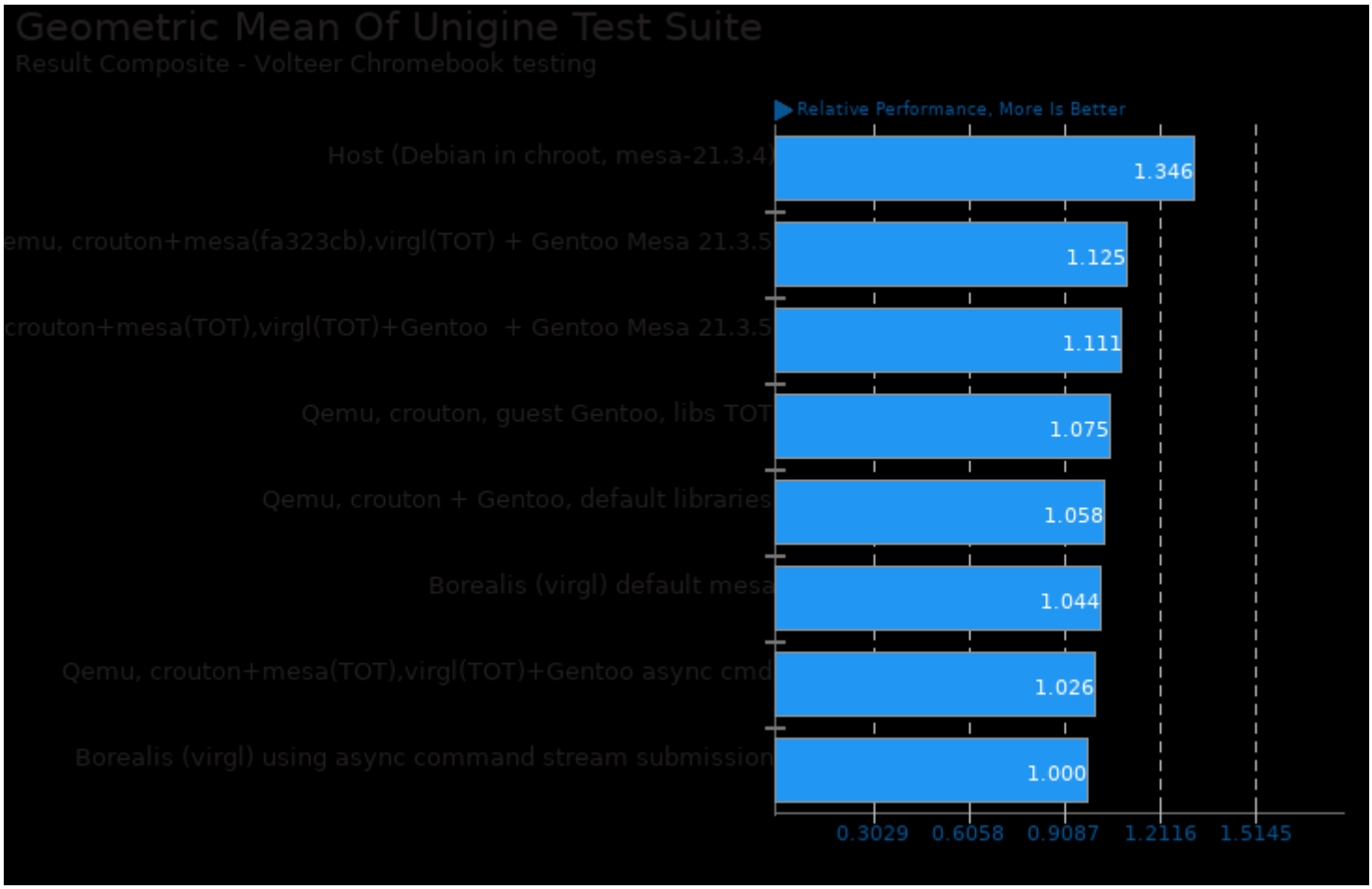


Geometric mean based upon tests: pts/xonotic, pts/unigine-valley, pts/unigine-heaven and pts/glmark2



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

Volteer Chromebook testing



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 Thursday, 28 March 2024 20:17.