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GL-VK-Simple

Intel Core i3-3217U testing with a Intel D33217GKE (GKPPT10H.86A.0040.2013.0325.1514 BIOS) and Intel HD 4000 IVB GT2 2GB on EndeavourOS rolling via the Phoronix Test Suite.

Test Systems:

Intel HD Graphics 4000 IVB GT2

Processor: Intel Core i3-3217U @ 1.70GHz (2 Cores / 4 Threads), Motherboard: Intel D33217GKE (GKPPT10H.86A.0040.2013.0325.1514 BIOS), Chipset: Intel 3rd Gen Core DRAM, Memory: 16GB, Disk: 256GB SAMSUNG SSD PM85, Graphics: Intel HD 4000 IVB GT2 2GB (1050MHz), Audio: Intel 7 /C216, Monitor: 32S305, Network: Intel 82579V + Intel 7260

OS: Arch rolling, Kernel: 5.19.3-arch1-1 (x86_64), Desktop: GNOME Shell 42.4, Display Server: X Server 1.21.1.4, OpenGL: 4.2 Mesa 22.1.6, OpenCL: OpenCL 2.0 beignet 1.4 (git-419c0417), Vulkan: 1.3.211, Compiler: GCC 12.2.0 + Clang 14.0.6 + LLVM 14.0.6, File-System: ext4, Screen Resolution: 1360x768

Kernel Notes: Transparent Huge Pages: always
Compiler Notes: --disable-libssp --disable-libstdcxx-pch --disable-werror --enable-__cxa_atexit --enable-bootstrap --enable-cet=auto --enable-checking=release

```
--enable-clocale=gnu      --enable-default-pie      --enable-default-ssp      --enable-gnu-indirect-function      --enable-gnu-unique-object
--enable-languages=c,c++,ada,fortran,go,lto,objc,obj-c++,d  --enable-libstdcxx-backtrace  --enable-link-serialization=1  --enable-lto  --enable-multilib  --enable-plugin
--enable-shared --enable-threads=posix --mandir=/usr/share/man --with-build-config=bootstrap-lto --with-linker-hash-style=gnu
Processor Notes: Scaling Governor: intel_cpfufreq schedutil - CPU Microcode: 0x21
Security Notes: itlb_multihit: KVM: Mitigation of PTE Inversion; VMX: conditional cache flushes SMT vulnerable + mds: Mitigation of Clear buffers; SMT vulnerable + meltdown: Mitigation of PTI + mmio_stale_data: Not affected + rebleed: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl + spectre_v1: Mitigation of usercopy/swaps barriers and __user pointer sanitization + spectre_v2: Mitigation of Retpolines IBPB: conditional IBRS_FW STIBP: conditional RSB filling PBRSB-eIBRS: Not affected + srbds: Not affected + tsx_async_abort: Not affected
```

AMD Radeon RAVEN2 Vega 2CU, Athlon 3050U

Processor: AMD Athlon Silver 3050U @ 2.30GHz (2 Cores), Motherboard: HP 879E v84.51 (F.65 BIOS), Chipset: AMD Raven/Raven2, Memory: 30GB, Disk: 512GB XPG GAMMIX S5, Graphics: AMD RAVEN2 2GB (1100/1067MHz), Audio: AMD Raven/Raven2/Fenghuang, Network: Realtek RTL8111/8168/8411 + Realtek RTL8821CE 802.11ac PCIe

OS: EndeavourOS rolling, Kernel: 5.19.5-AMD (x86_64), Desktop: KDE Plasma 5.25.4, Display Server: X Server 1.21.1.4, OpenGL: 4.6 Mesa 22.1.7 (LLVM 14.0.6 DRM 3.47), Vulkan: 1.3.211, Compiler: GCC 12.2.0 + Clang 14.0.6 + LLVM 14.0.6, File-System: ext4, Screen Resolution: 1920x1080

```
Kernel Notes: Transparent Huge Pages: always
Compiler Notes: --disable-libssp --disable-libstdcxx-pch --disable-werror --enable-__cxa_atexit --enable-bootstrap --enable-cet=auto --enable-checking=release
--enable-clocale=gnu      --enable-default-pie      --enable-default-ssp      --enable-gnu-indirect-function      --enable-gnu-unique-object
--enable-languages=c,c++,ada,fortran,go,lto,objc,obj-c++,d  --enable-libstdcxx-backtrace  --enable-link-serialization=1  --enable-lto  --enable-multilib  --enable-plugin
--enable-shared --enable-threads=posix --mandir=/usr/share/man --with-build-config=bootstrap-lto --with-linker-hash-style=gnu
Processor Notes: Scaling Governor: acpi-cpufreq schedutil (Boost: Enabled) - CPU Microcode: 0x8108109
Graphics Notes: GLAMOR - BAR1 / Visible vRAM Size: 2048 MB - vBIOS Version: 113-RAVEN2-117
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + mmio_stale_data: Not affected + rebleed: Mitigation of untrammed return thunk; SMT disabled + spec_store_bypass: Mitigation of SSB disabled via prctl + spectre_v1: Mitigation of usercopy/swaps barriers and __user pointer sanitization + spectre_v2: Mitigation of Retpolines IBPB: disabled RSB filling PBRSB-eIBRS: Not affected + srbds: Not affected + tsx_async_abort: Not affected
```

Intel HD Graphics 4000 IVB GT2 - Arch 5.19 Kernel

Processor: Intel Core i3-3217U @ 1.70GHz (2 Cores / 4 Threads), Motherboard: Intel D33217GKE (GKPPT10H.86A.0040.2013.0325.1514 BIOS), Chipset: Intel 3rd Gen Core DRAM, Memory: 16GB, Disk: 256GB SAMSUNG SSD PM85, Graphics: Intel HD 4000 IVB GT2 2GB (1050MHz), Audio: Intel 7 /C216, Monitor: 32S305, Network: Intel 82579V + Intel 7260

OS: EndeavourOS rolling, Kernel: 5.19.5-arch1-1 (x86_64), Desktop: GNOME Shell 42.4, Display Server: X Server 1.21.1.4, OpenGL: 4.2 Mesa 22.1.7, Vulkan: 1.3.211, Compiler: GCC 12.2.0 + Clang 14.0.6 + LLVM 14.0.6, File-System: ext4, Screen Resolution: 1360x768

```
Kernel Notes: Transparent Huge Pages: always
Compiler Notes: --disable-libssp --disable-libstdcxx-pch --disable-werror --enable-__cxa_atexit --enable-bootstrap --enable-cet=auto --enable-checking=release
--enable-clocale=gnu      --enable-default-pie      --enable-default-ssp      --enable-gnu-indirect-function      --enable-gnu-unique-object
--enable-languages=c,c++,ada,fortran,go,lto,objc,obj-c++,d  --enable-libstdcxx-backtrace  --enable-link-serialization=1  --enable-lto  --enable-multilib  --enable-plugin
--enable-shared --enable-threads=posix --mandir=/usr/share/man --with-build-config=bootstrap-lto --with-linker-hash-style=gnu
Processor Notes: Scaling Governor: intel_cpfufreq performance - CPU Microcode: 0x21
Graphics Notes: SNA
Security Notes: itlb_multihit: KVM: Mitigation of VMX disabled + l1tf: Mitigation of PTE Inversion; VMX: conditional cache flushes SMT vulnerable + mds: Mitigation of Clear buffers; SMT vulnerable + meltdown: Mitigation of PTI + mmio_stale_data: Not affected + rebleed: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl + spectre_v1: Mitigation of usercopy/swaps barriers and __user pointer sanitization + spectre_v2: Mitigation of Retpolines IBPB: conditional IBRS_FW STIBP: conditional RSB filling PBRSB-eIBRS: Not affected + srbds: Not affected + tsx_async_abort: Not affected
```

Intel HD Graphics 4000 IVB GT2 - AUR Clear 5.19 Kernel

Processor: Intel Core i3-3217U @ 1.70GHz (2 Cores / 4 Threads), Motherboard: Intel D33217GKE (GKPPT10H.86A.0040.2013.0325.1514 BIOS), Chipset: Intel 3rd Gen Core DRAM, Memory: 16GB, Disk: 256GB SAMSUNG SSD PM85, Graphics: Intel HD 4000 IVB GT2 2GB (1050MHz), Audio: Intel 7 /C216, Monitor: 32S305, Network: Intel 82579V + Intel 7260

OS: EndeavourOS rolling, Kernel: 5.19.5-1-clear (x86_64), Desktop: GNOME Shell 42.4, Display Server: X Server

1.21.1.4, OpenGL: 4.2 Mesa 22.1.7, Vulkan: 1.3.211, Compiler: GCC 12.2.0 + Clang 14.0.6 + LLVM 14.0.6, File-System: ext4, Screen Resolution: 1360x768

Kernel Notes: Transparent Huge Pages: always
Compiler Notes: --disable-libssp --disable-libstdcxx-pch --disable-werror --enable-__cxa_atexit --enable-bootstrap --enable-cet=auto --enable-checking=release --enable-clocale-gnu --enable-default-pie --enable-default-ssp --enable-gnu-indirect-function --enable-gnu-unique-object --enable-languages=c,c++,ada,fortran,go,ito,objc,objc++,d --enable-libstdcxx-backtrace --enable-link-serialization=1 --enable-lto --enable-multilib --enable-plugin --enable-shared --enable-threads=posix --mandir=/usr/share/man --with-build-config=bootstrap-lto --with-linker-hash-style=gnu
Processor Notes: Scaling Governor: intel_cpfufreq performance - CPU Microcode: 0x21

Graphics Notes: SNA
Security Notes: itlb_multihit: KVM: Mitigation of VMX disabled + l1tf: Mitigation of PTE Inversion; VMX: conditional cache flushes SMT vulnerable + mds: Mitigation of Clear buffers; SMT vulnerable + meltdown: Mitigation of PTI + mmio_stale_data: Not affected + rebleed: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl + spectre_v1: Mitigation of usercopy/swaps barriers and __user pointer sanitization + spectre_v2: Mitigation of Retpolines IBPB: conditional IBRS_FW STIBP: conditional RSB filling PBRSB-eIBRS: Not affected + srbds: Not affected + tsx_async_abort: Not affected

Intel HD Graphics 4000 IVB GT2 - AUR Liquorix 5.19 Kernel

Processor: Intel Core i3-3217U (2 Cores / 4 Threads), Motherboard: Intel D33217GKE (GKPPT10H.86A.0040.2013.0325.1514 BIOS), Chipset: Intel 3rd Gen Core DRAM, Memory: 16GB, Disk: 256GB SAMSUNG SSD PM85, Graphics: Intel HD 4000 IVB GT2 2GB (1050MHz), Audio: Intel 7 /C216, Monitor: 32S305, Network: Intel 82579V + Intel 7260

OS: EndeavourOS rolling, Kernel: 5.19.4-lqx1-2-lqx (x86_64), Desktop: GNOME Shell 42.4, Display Server: X Server 1.21.1.4, OpenGL: 4.2 Mesa 22.1.7, Vulkan: 1.3.211, Compiler: GCC 12.2.0 + Clang 14.0.6 + LLVM 14.0.6, File-System: ext4, Screen Resolution: 1360x768

Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --disable-libssp --disable-libstdcxx-pch --disable-werror --enable-__cxa_atexit --enable-bootstrap --enable-cet=auto --enable-checking=release --enable-clocale-gnu --enable-default-pie --enable-default-ssp --enable-gnu-indirect-function --enable-gnu-unique-object --enable-languages=c,c++,ada,fortran,go,ito,objc,objc++,d --enable-libstdcxx-backtrace --enable-link-serialization=1 --enable-lto --enable-multilib --enable-plugin --enable-shared --enable-threads=posix --mandir=/usr/share/man --with-build-config=bootstrap-lto --with-linker-hash-style=gnu
Processor Notes: CPU Microcode: 0x21

Graphics Notes: SNA
Security Notes: itlb_multihit: KVM: Mitigation of VMX disabled + l1tf: Mitigation of PTE Inversion; VMX: conditional cache flushes SMT vulnerable + mds: Mitigation of Clear buffers; SMT vulnerable + meltdown: Mitigation of PTI + mmio_stale_data: Not affected + rebleed: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl + spectre_v1: Mitigation of usercopy/swaps barriers and __user pointer sanitization + spectre_v2: Mitigation of Retpolines IBPB: conditional IBRS_FW STIBP: conditional RSB filling PBRSB-eIBRS: Not affected + srbds: Not affected + tsx_async_abort: Not affected

AMD Radeon RX 6900 XT - AUR Xanmod 5.19 Kernel

Processor: AMD Ryzen 7 5700X 8-Core @ 3.40GHz (8 Cores / 16 Threads), Motherboard: ASRock B550 Phantom Gaming-ITX/ax (P2.30 BIOS), Chipset: AMD Starship/Matisse, Memory: 32GB, Disk: 1000GB Samsung SSD 980 PRO 1TB + 2000GB Samsung SSD 970 EVO Plus 2TB, Graphics: AMD Radeon RX 6900 XT 16GB (2720/1000MHz), Audio: AMD Navi 21/23, Monitor: LC27G7xT, Network: Intel I225-V + Intel Wi-Fi 6 AX200

OS: EndeavourOS rolling, Kernel: 5.19.6-xanmod1-1-x64v2 (x86_64), Desktop: GNOME Shell 42.4, Display Server: X Server 1.21.1.4, OpenGL: 4.6 Mesa 22.1.7 (LLVM 14.0.6 DRM 3.47), Vulkan: 1.3.211, Compiler: GCC 12.2.0 + Clang 14.0.6 + LLVM 14.0.6, File-System: ext4, Screen Resolution: 2560x1440

Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --disable-libssp --disable-libstdcxx-pch --disable-werror --enable-__cxa_atexit --enable-bootstrap --enable-cet=auto --enable-checking=release --enable-clocale-gnu --enable-default-pie --enable-default-ssp --enable-gnu-indirect-function --enable-gnu-unique-object --enable-languages=c,c++,ada,fortran,go,ito,objc,objc++,d --enable-libstdcxx-backtrace --enable-link-serialization=1 --enable-lto --enable-multilib --enable-plugin --enable-shared --enable-threads=posix --mandir=/usr/share/man --with-build-config=bootstrap-lto --with-linker-hash-style=gnu
Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0xa201205

Graphics Notes: GLAMOR - BAR1 / Visible vRAM Size: 256 MB - vBIOS Version: 113-D41213-XTXH
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + mmio_stale_data: Not affected + rebleed: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl + spectre_v1: Mitigation of usercopy/swaps barriers and __user pointer sanitization + spectre_v2: Mitigation of Retpolines IBPB: conditional IBRS_FW STIBP: always-on RSB filling PBRSB-eIBRS: Not affected + srbds: Not affected + tsx_async_abort: Not affected

Intel HD Graphics 4000 IVB GT2 - AUR Xanmod-Edge 5.19 Kernel

Processor: Intel Core i3-3217U @ 1.70GHz (2 Cores / 4 Threads), Motherboard: Intel D33217GKE

(GKPPT10H.86A.0040.2013.0325.1514 BIOS), Chipset: Intel 3rd Gen Core DRAM, Memory: 16GB, Disk: 256GB SAMSUNG SSD PM85, Graphics: Intel HD 4000 IVB GT2 2GB (1050MHz), Audio: Intel 7 /C216, Monitor: 32S305, Network: Intel 82579V + Intel 7260

OS: EndeavourOS rolling, Kernel: 5.19.6-xanmod1-1-x64v2 (x86_64), Desktop: GNOME Shell 42.4, Display Server: X Server 1.21.1.4, OpenGL: 4.2 Mesa 22.1.7, OpenCL: OpenCL 2.0 beignet 1.4 (git-419c0417), Vulkan: 1.3.211, Compiler: GCC 12.2.0 + Clang 14.0.6 + LLVM 14.0.6, File-System: ext4, Screen Resolution: 1360x768

Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --disable-libssp --disable-libstdcxx-pch --disable-werror --enable-__cxa_atexit --enable-bootstrap --enable-cet=auto --enable-checking=release --enable-clocale-gnu --enable-default-pie --enable-default-ssp --enable-gnu-indirect-function --enable-gnu-unique-object --enable-languages=c,c++,ada,fortran,go,lto,objc,obj-c++,d --enable-libstdcxx-backtrace --enable-link-serialization=1 --enable-lto --enable-multilib --enable-plugin --enable-shared --enable-threads=posix --mandir=/usr/share/man --with-build-config=bootstrap-lto --with-linker-hash-style=gnu
Processor Notes: Scaling Governor: intel_cpufreq performance - CPU Microcode: 0x21

Graphics Notes: SNA

Security Notes: itlb_multihit: KVM: Mitigation of VMX disabled + l1tf: Mitigation of PTE Inversion; VMX: conditional cache flushes SMT vulnerable + mds: Mitigation of Clear buffers; SMT vulnerable + meltdown: Mitigation of PTI + mmio_stale_data: Unknown: No mitigations + rebleed: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl + spectre_v1: Mitigation of usercopy/swaps barriers and __user pointer sanitization + spectre_v2: Mitigation of Retpolines IBPB: conditional IBRS_FW STIBP: conditional RSB filling PBRSB-eIBRS: Not affected + srbds: Not affected + tsx_async_abort: Not affected

Intel HD Graphics 4000 IVB GT2 - AUR Liquorix 5.19 Kernel - HASVK initial commit

Processor: Intel Core i3-3217U (2 Cores / 4 Threads), Motherboard: Intel D33217GKE (GKPPT10H.86A.0040.2013.0325.1514 BIOS), Chipset: Intel 3rd Gen Core DRAM, Memory: 16GB, Disk: 256GB SAMSUNG SSD PM85, Graphics: Intel HD 4000 IVB GT2 2GB (1050MHz), Audio: Intel 7 /C216, Monitor: 32S305, Network: Intel 82579V + Intel 7260

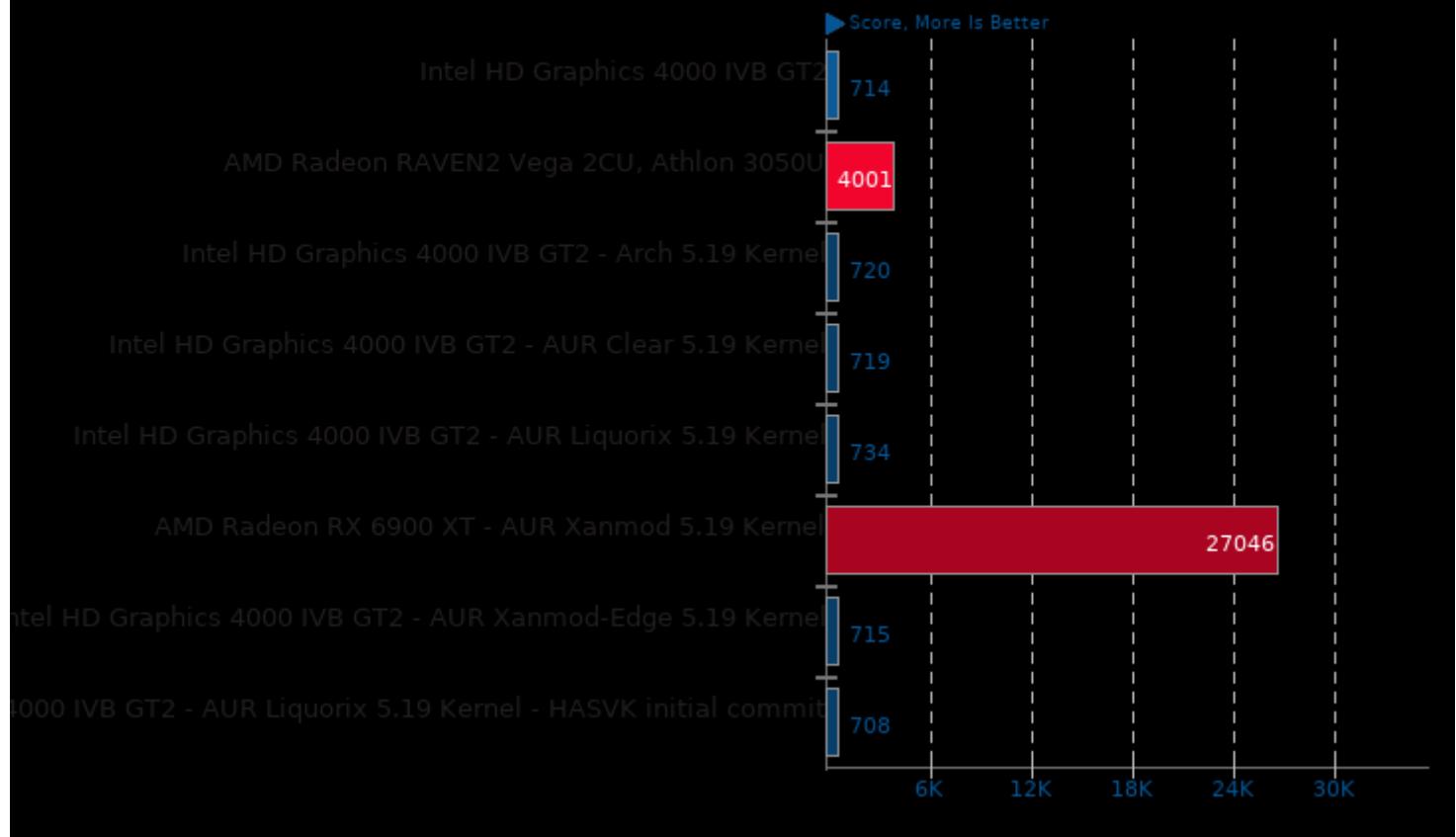
OS: EndeavourOS rolling, Kernel: 5.19.6-lqx1-1-lqx (x86_64), Desktop: GNOME Shell 42.4, Display Server: X Server 1.21.1.4, OpenGL: 4.2 Mesa 22.3.0-devel (git-136a26f271), OpenCL: OpenCL 2.0 beignet 1.4 (git-419c0417), Vulkan: 1.2.226, Compiler: GCC 12.2.0 + Clang 14.0.6 + LLVM 14.0.6, File-System: ext4, Screen Resolution: 1360x768

Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --disable-libssp --disable-libstdcxx-pch --disable-werror --enable-__cxa_atexit --enable-bootstrap --enable-cet=auto --enable-checking=release --enable-clocale-gnu --enable-default-pie --enable-default-ssp --enable-gnu-indirect-function --enable-gnu-unique-object --enable-languages=c,c++,ada,fortran,go,lto,objc,obj-c++,d --enable-libstdcxx-backtrace --enable-link-serialization=1 --enable-lto --enable-multilib --enable-plugin --enable-shared --enable-threads=posix --mandir=/usr/share/man --with-build-config=bootstrap-lto --with-linker-hash-style=gnu
Processor Notes: CPU Microcode: 0x21
Graphics Notes: SNA
Security Notes: itlb_multihit: KVM: Mitigation of VMX disabled + l1tf: Mitigation of PTE Inversion; VMX: conditional cache flushes SMT vulnerable + mds: Mitigation of Clear buffers; SMT vulnerable + meltdown: Mitigation of PTI + mmio_stale_data: Unknown: No mitigations + rebleed: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl + spectre_v1: Mitigation of usercopy/swaps barriers and __user pointer sanitization + spectre_v2: Mitigation of Retpolines IBPB: conditional IBRS_FW STIBP: conditional RSB filling PBRSB-eIBRS: Not affected + srbds: Not affected + tsx_async_abort: Not affected

	Intel HD Graphics	AMD RAVEN2	Intel HD Graphics	Intel HD 4000 IVB	Intel HD Graphics	AMD RADEON RX	Intel HD Graphics	Intel HD Graphics
GT2	Vega 2CU, Athlon 3050U	GT2 - Arch	GT2 - AUR	GT2 - AUR	AUR	GT2 - AUR	GT2 - AUR	GT2 - AUR
GLmark2 - 800 x 600 (Score)	714	4001	720	719	734	27046	715	708
Normalized	2.64%	14.79%	2.66%	2.66%	2.71%	100%	2.64%	2.62%
VKMark - 800 x 600 - Immediate (VKMark Score)	684	3554	688	700	710	29733	703	705
Normalized	2.3%	11.95%	2.31%	2.35%	2.39%	100%	2.36%	2.37%
Standard Deviation	0.3%	0.4%	2%	0.2%	0.8%	0.2%	0.4%	0.3%

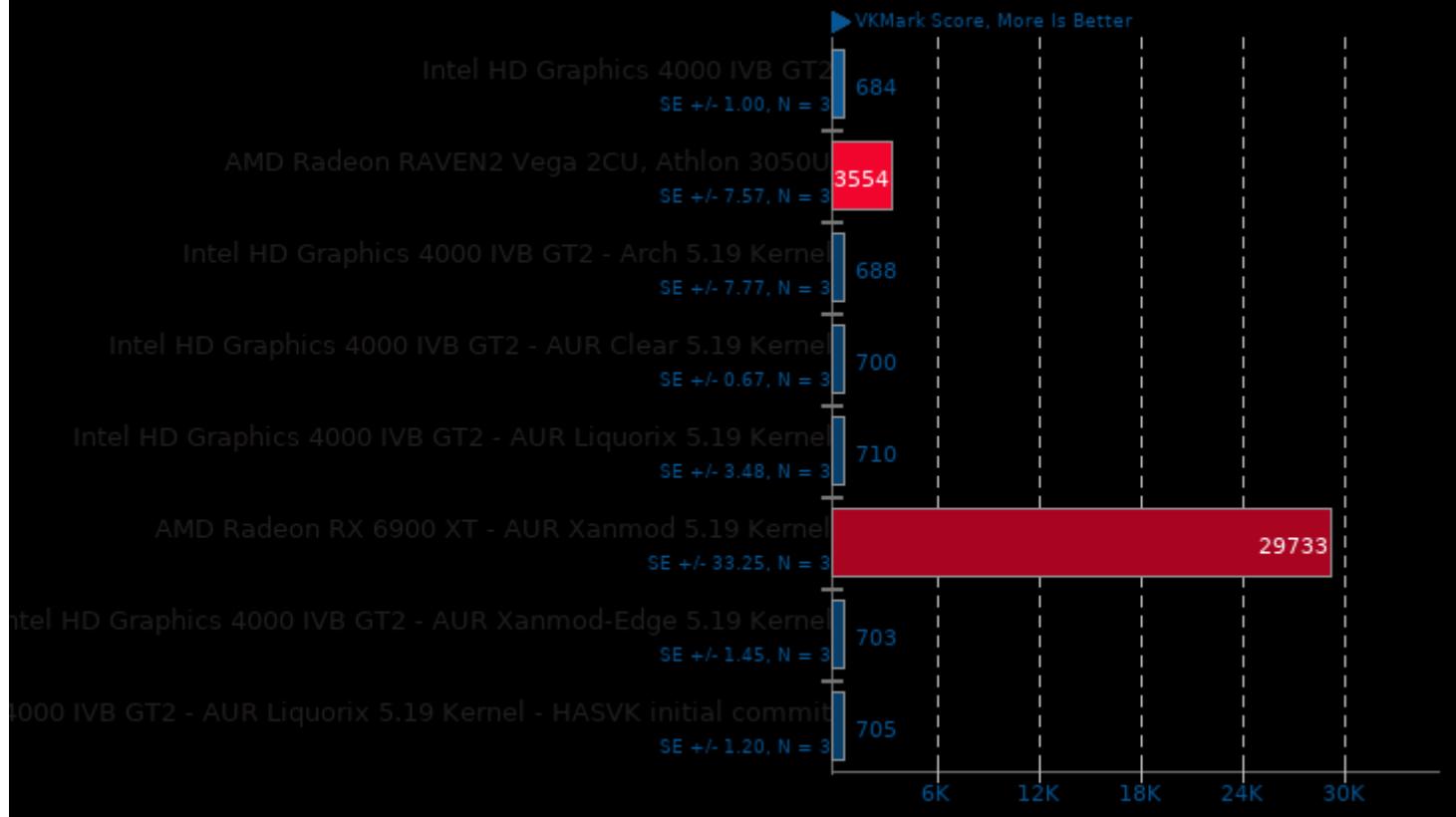
GLmark2

Resolution: 800 x 600



VKMark 2022-05-16

Resolution: 800 x 600 - Present Mode: Immediate



1. (CXX) g++ options: -pthread -ldl -std=c++14 -O0 -MD -MQ -MF

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