



## 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

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--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 schedutil - CPU Microcode: 0x21
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 + retbleed: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Retpolines IBPB: conditional IBRS_FW STIBP: conditional RSB filling PBRSE-elBRS: Not affected + srbds: Not affected + tsx_async_abort: Not affected
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## 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

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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 + retbleed: Mitigation of untrained return thunk; SMT disabled + spec_store_bypass: Mitigation of SSB disabled via prctl + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Retpolines IBPB: conditional STIBP: disabled RSB filling PBRSE-elBRS: Not affected + srbds: Not affected + tsx_async_abort: Not affected
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## 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_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: Not affected + retbleed: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Retpolines IBPB: conditional IBRS_FW STIBP: conditional RSB filling PBRSE-elBRS: 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,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 + 11tf: 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 + retbleed: 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 PBRBS-eIBRS: Not affected + srbds: Not affected + tsx\_async\_abort: Not affected

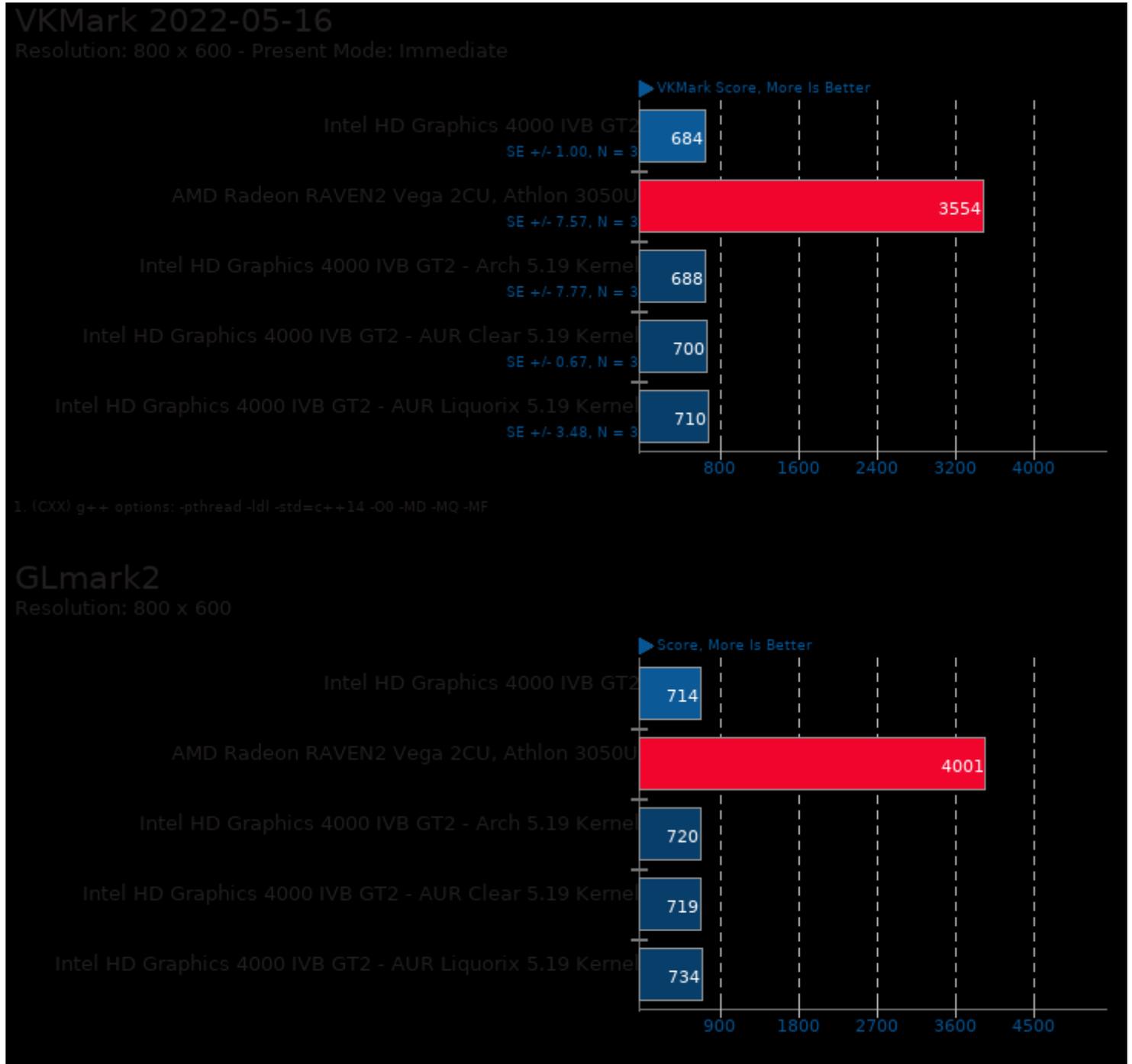
## Intel HD Graphics 4000 IVB GT2 - AUR Liquorix 5.19 Kernel

Processor: Intel Core i3-3217U (2 Cores / 4 Threads), Motherboard: Intel D33217GKE (GKPP10H.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,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 + 11tf: 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 + retbleed: 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 PBRBS-eIBRS: Not affected + srbds: Not affected + tsx\_async\_abort: Not affected

	Intel HD Graphics 4000 IVB GT2	AMD Radeon RAVEN2 Vega 2CU, Athlon 3050U	Intel HD Graphics 4000 IVB GT2 - Arch 5.19 Kernel	Intel HD Graphics 4000 IVB GT2 - AUR Clear 5.19 Kernel	Intel HD Graphics 4000 IVB GT2 - AUR Liquorix 5.19 Kernel
<b>VKMark - 800 x 600 - Immediate (VKMark Score)</b>	<b>684</b>	<b>3554</b>	688	700	710
Normalized	19.25%	100%	19.36%	19.7%	19.98%
Standard Deviation	0.3%	0.4%	2%	0.2%	0.8%
<b>GLmark2 - 800 x 600 (Score)</b>	<b>714</b>	<b>4001</b>	720	719	734
Normalized	17.85%	100%	18%	17.97%	18.35%



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