



## osbench-sept-2021

Intel Core i5-4670K testing with a MSI Z87-G41 PC Mate(MS-7850) v1.0 (V1.8 BIOS) and llvmpipe on Ubuntu 20.04 via the Phoronix Test Suite.

### Test Systems:

#### 5.4.147 gcc-8.4.0-3ubuntu2

Processor: Intel Core i5-4670K @ 4.30GHz (4 Cores), Motherboard: MSI Z87-G41 PC Mate(MS-7850) v1.0 (V1.8 BIOS), Chipset: Intel 4th Gen Core DRAM, Memory: 32GB, Disk: 3 x 500GB Samsung SSD 860 + 1000GB Samsung SSD 860, Graphics: MSI AMD Radeon RX 470/480/570/570X/580/580X/590 8GB (1303/2050MHz), Audio: Realtek ALC887-VD, Monitor: NS-PMG248, Network: Qualcomm Atheros AR93xx

OS: Ubuntu 20.04, Kernel: 5.4.147-0504147+customidle-generic (x86\_64), Desktop: GNOME Shell 3.36.9, Display Server: X Server 1.20.11, OpenGL: 4.6 Mesa 21.2.1 kisak-mesa PPA (LLVM 12.0.1), OpenCL: OpenCL 2.1 AMD-APP (3302.5), Vulkan: 1.2.182, Compiler: GCC 8.4.0 + Clang 12.0.1-1-kisak-f + LLVM 10.0.0, File-System: ext4, Screen Resolution: 3840x1080

Kernel Notes: Transparent Huge Pages: madvise

Environment Notes: RADV\_DEBUG=zerovram CXXFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -fno-semantic-interposition -ffat-lto-objects -fno-trapping-math -fvisibility-inlines-hidden -fno-tree-loop-vectorize" MESA\_DISK\_CACHE\_SINGLE\_FILE=1 CFFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -fno-semantic-interposition -ffat-lto-objects -fno-trapping-math -fno-tree-loop-vectorize" AMD\_DEBUG=zerovram WINEDEBUG=all,fixme-all FFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -fno-semantic-interposition -ffat-lto-objects -fno-trapping-math -fno-tree-loop-vectorize" AMD\_DEBUG=zerovram WINEDEBUG=all,fixme-all FFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -fno-semantic-interposition -ffat-lto-objects -fno-trapping-math -fno-tree-loop-vectorize"

Compiler Notes: --build=x86\_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --enable-plugin --enable-shared --enable-threads=posix --host=x86\_64-linux-gnu --program-prefix=x86\_64-linux-gnu --target=x86\_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v

Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0x22

Security Notes: itlb\_multihit: KVM: Vulnerable + 1tft: Mitigation of PTE Inversion; VMX: vulnerable SMT disabled + mds: Vulnerable; SMT disabled + meltdown: Vulnerable + spec\_store\_bypass: Vulnerable + spectre\_v1: Vulnerable: \_\_user pointer sanitization and uscopy barriers only; no swappgs barriers + spectre\_v2: Vulnerable STIBP: disabled + srbds: Vulnerable: No microcode + tsx\_async\_abort: Not affected

## 5.4.147 gcc-7.5.0-6ubuntu2

Processor: Intel Core i5-4670K @ 4.30GHz (4 Cores), Motherboard: MSI Z87-G41 PC Mate(MS-7850) v1.0 (V1.8 BIOS), Chipset: Intel 4th Gen Core DRAM, Memory: 32GB, Disk: 3 x 500GB Samsung SSD 860 + 1000GB Samsung SSD 860, Graphics: MSI AMD Radeon RX 470/480/570/570X/580/580X/590 8GB (1303/2050MHz), Audio: Realtek ALC887-VD, Monitor: NS-PMG248, Network: Qualcomm Atheros AR93xx

OS: Ubuntu 20.04, Kernel: 5.4.147-0504147+customidle-generic (x86\_64), Desktop: GNOME Shell 3.36.9, Display Server: X Server 1.20.11, OpenGL: 4.6 Mesa 21.2.1 kisak-mesa PPA (LLVM 12.0.1), OpenCL: OpenCL 2.1 AMD-APP (3302.5), Vulkan: 1.2.182, Compiler: GCC 7.5.0 + Clang 12.0.1-1~kisak~f + LLVM 10.0.0, File-System: ext4, Screen Resolution: 3840x1080

Kernel Notes: Transparent Huge Pages: madvise

Environment Notes: RADV\_DEBUG=zerovram CXXFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -fno-semantic-interposition -ffat-lto-objects -fno-trapping-math -fvisibility-inlines-hidden -fno-tree-loop-vectorize" MESA\_DISK\_CACHE\_SINGLE\_FILE=1 CFFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -fno-semantic-interposition -ffat-lto-objects -fno-trapping-math -fno-tree-loop-vectorize" AMD\_DEBUG=zerovram WINEDEBUG=all,fixme-all FFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -fno-semantic-interposition -ffat-lto-objects -fno-trapping-math -fno-tree-loop-vectorize"

Compiler Notes: --build=x86\_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --enable-plugin --enable-shared --enable-threads=posix --host=x86\_64-linux-gnu --program-prefix=x86\_64-linux-gnu --target=x86\_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib --with-tune=generic --without-cuda-driver -v

Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0x22

Security Notes: itlb\_multihit: KVM: Vulnerable + 1tft: Mitigation of PTE Inversion; VMX: vulnerable SMT disabled + mds: Vulnerable; SMT disabled + meltdown: Vulnerable + spec\_store\_bypass: Vulnerable + spectre\_v1: Vulnerable: \_\_user pointer sanitization and uscopy barriers only; no swappgs barriers + spectre\_v2: Vulnerable STIBP: disabled + srbds: Vulnerable: No microcode + tsx\_async\_abort: Not affected

## 5.4.147 gcc-11.1.0-1ubuntu120.04

Processor: Intel Core i5-4670K @ 4.30GHz (4 Cores), Motherboard: MSI Z87-G41 PC Mate(MS-7850) v1.0 (V1.8 BIOS), Chipset: Intel 4th Gen Core DRAM, Memory: 32GB, Disk: 3 x 500GB Samsung SSD 860 + 1000GB Samsung SSD 860, Graphics: MSI AMD Radeon RX 470/480/570/570X/580/580X/590 8GB (1303/2050MHz), Audio: Realtek ALC887-VD, Monitor: NS-PMG248, Network: Qualcomm Atheros AR93xx

OS: Ubuntu 20.04, Kernel: 5.4.147-0504147+customidle-generic (x86\_64), Desktop: GNOME Shell 3.36.9, Display Server: X Server 1.20.11, OpenGL: 4.6 Mesa 21.2.1 kisak-mesa PPA (LLVM 12.0.1), OpenCL: OpenCL 2.1 AMD-APP (3302.5), Vulkan: 1.2.182, Compiler: GCC 11.1.0 + Clang 12.0.1-1~kisak~f + LLVM 10.0.0, File-System: ext4, Screen Resolution: 3840x1080

Kernel Notes: Transparent Huge Pages: madvise

Environment Notes: RADV\_DEBUG=zerovram CXXFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -fno-semantic-interposition -ffat-lto-objects -fno-trapping-math -fvisibility-inlines-hidden -fno-tree-loop-vectorize" MESA\_DISK\_CACHE\_SINGLE\_FILE=1 CFFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -malign-data=abi -fno-semantic-interposition -ftree-vectorize -fno-tree-loop-vectorize" CFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -fno-semantic-interposition -ffat-lto-objects -fno-trapping-math -fno-tree-loop-vectorize" AMD\_DEBUG=zerovram WINEDEBUG=all,fixme-all FFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -malign-data=abi -fno-semantic-interposition -ftree-vectorize -fno-tree-loop-vectorize"

Compiler Notes: --build=x86\_64-linux-gnu --disable-cet --disable-vtable-verify --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-link-serialization=2 --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-11-2V7zgg/gcc-11-11.1.0/debian/tmp-nvptx/usr,amdgc-nvptx-amdhsa=/build/gcc-11-2V7zgg/gcc-11-11.1.0/debian/tmp-gcn/usr --enable-plugin --enable-shared --enable-threads=posix --host=x86\_64-linux-gnu --program-prefix=x86\_64-linux-gnu --target=x86\_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-build-config=bootstrap-lto-lean --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v

Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0x22

Security Notes: itlb\_multihit: KVM: Vulnerable + 1t1f: Mitigation of PTE Inversion; VMX: vulnerable SMT disabled + mds: Vulnerable; SMT disabled + meltdown: Vulnerable + spec\_store\_bypass: Vulnerable + spectre\_v1: Vulnerable: \_\_user pointer sanitization and usercopy barriers only; no swapgs barriers + spectre\_v2: Vulnerable STIBP: disabled + srbds: Vulnerable: No microcode + tsx\_async\_abort: Not affected

### 5.4.147 gcc-9.3.0-17ubuntu120.04

Processor: Intel Core i5-4670K @ 4.30GHz (4 Cores), Motherboard: MSI Z87-G41 PC Mate(MS-7850) v1.0 (V1.8 BIOS), Chipset: Intel 4th Gen Core DRAM, Memory: 32GB, Disk: 3 x 500GB Samsung SSD 860 + 1000GB Samsung SSD 860, Graphics: MSI AMD Radeon RX 470/480/570/570X/580/580X/590 8GB (1303/2050MHz), Audio: Realtek ALC887-VD, Monitor: NS-PMG248, Network: Qualcomm Atheros AR93xx

OS: Ubuntu 20.04, Kernel: 5.4.147-0504147+customidle-generic (x86\_64), Desktop: GNOME Shell 3.36.9, Display Server: X Server 1.20.11, OpenGL: 4.6 Mesa 21.2.1 kisak-mesa PPA (LLVM 12.0.1), OpenCL: OpenCL 2.1 AMD-APP (3302.5), Vulkan: 1.2.182, Compiler: GCC 9.3.0 + Clang 12.0.1-1~kisak~f + LLVM 10.0.0, File-System: ext4, Screen Resolution: 3840x1080

Kernel Notes: Transparent Huge Pages: madvise

Environment Notes: RADV\_DEBUG=zerovram CXXFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -fno-semantic-interposition -ffat-lto-objects -fno-trapping-math -fvisibility-inlines-hidden -fno-tree-loop-vectorize" MESA\_DISK\_CACHE\_SINGLE\_FILE=1 CFFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -malign-data=abi -fno-semantic-interposition -ftree-vectorize -fno-tree-loop-vectorize" CFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -fno-semantic-interposition -ffat-lto-objects -fno-trapping-math -fno-tree-loop-vectorize" AMD\_DEBUG=zerovram WINEDEBUG=all,fixme-all FFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -malign-data=abi -fno-semantic-interposition -ftree-vectorize -fno-tree-loop-vectorize"

Compiler Notes: --build=x86\_64-linux-gnu --disable-vtable-verify --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-9-HskZEa/gcc-9-9.3.0/debian/tmp-nvptx/usr,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86\_64-linux-gnu --program-prefix=x86\_64-linux-gnu --target=x86\_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v

Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0x22

Security Notes: itlb\_multihit: KVM: Vulnerable + 1t1f: Mitigation of PTE Inversion; VMX: vulnerable SMT disabled + mds: Vulnerable; SMT disabled + meltdown: Vulnerable + spec\_store\_bypass: Vulnerable + spectre\_v1: Vulnerable: \_\_user pointer sanitization and usercopy barriers only; no swapgs barriers + spectre\_v2: Vulnerable STIBP: disabled + srbds: Vulnerable: No microcode + tsx\_async\_abort: Not affected

### 5.4.147 gcc-10.3.0-1ubuntu120.04

Processor: Intel Core i5-4670K @ 4.30GHz (4 Cores), Motherboard: MSI Z87-G41 PC Mate(MS-7850) v1.0 (V1.8 BIOS), Chipset: Intel 4th Gen Core DRAM, Memory: 32GB, Disk: 3 x 500GB Samsung SSD 860 + 1000GB Samsung SSD 860, Graphics: MSI AMD Radeon RX 470/480/570/570X/580/580X/590 8GB (1303/2050MHz), Audio: Realtek ALC887-VD, Monitor: NS-PMG248, Network: Qualcomm Atheros AR93xx

OS: Ubuntu 20.04, Kernel: 5.4.147-0504147+customidle-generic (x86\_64), Desktop: GNOME Shell 3.36.9, Display Server: X Server 1.20.11, OpenGL: 4.6 Mesa 21.2.1 kisak-mesa PPA (LLVM 12.0.1), OpenCL: OpenCL 2.1 AMD-APP (3302.5), Vulkan: 1.2.182, Compiler: GCC 10.3.0 + Clang 12.0.1-1~kisak~f + LLVM 10.0.0, File-System: ext4, Screen Resolution: 3840x1080

Kernel Notes: Transparent Huge Pages: madvise  
 Environment Notes: RADV\_DEBUG=zerovram CXXFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -fno-semantic-interposition -ffat-lto-objects -fno-trapping-math -fvisibility-inlines-hidden -fno-tree-loop-vectorize" MESA\_DISK\_CACHE\_SINGLE\_FILE=1 CFFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -fno-semantic-interposition -ffat-lto-objects -fno-trapping-math -fno-tree-loop-vectorize" AMD\_DEBUG=zerovram WINEDEBUG=all,fixme-all FFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -fno-semantic-interposition -ftree-vectorize -fno-tree-loop-vectorize"  
 Compiler Notes: --build=x86\_64-linux-gnu --disable-vtable-verify --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-link-mutex --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-10-S4I5Pr/gcc-10-10.3.0/debian/tmp-nvptx/usr,amdgc-nv-none=/build/gcc-10-S4I5Pr/gcc-10-10.3.0/debian/tmp-gcn/usr,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86\_64-linux-gnu --program-prefix=x86\_64-linux-gnu- --target=x86\_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-build-config=bootstrap-lto-lean --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v  
 Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0x22  
 Security Notes: itlb\_multihit: KVM: Vulnerable + 11tf: Mitigation of PTE Inversion; VMX: vulnerable SMT disabled + mds: Vulnerable; SMT disabled + meltdown: Vulnerable + spec\_store\_bypass: Vulnerable + spectre\_v1: Vulnerable: \_\_user pointer sanitization and usercopy barriers only; no swappgs barriers + spectre\_v2: Vulnerable STIBP: disabled + srbds: Vulnerable: No microcode + tsx\_async\_abort: Not affected

## 5.15-rc2 gcc-9.3.0-17ubuntu120.04

Processor: Intel Core i5-4670K @ 4.30GHz (4 Cores), Motherboard: MSI Z87-G41 PC Mate(MS-7850) v1.0 (V1.8 BIOS), Chipset: Intel 4th Gen Core DRAM, Memory: 32GB, Disk: 3 x 500GB Samsung SSD 860 + 1000GB Samsung SSD 860, Graphics: MSI AMD Radeon RX 470/480/570/570X/580/580X/590 8GB (1303/2050MHz), Audio: Realtek ALC887-VD, Monitor: NS-PMG248, Network: Qualcomm Atheros AR93xx

OS: Ubuntu 20.04, Kernel: 5.15-rc2-051500rc2+customidle-generic (x86\_64), Desktop: GNOME Shell 3.36.9, Display Server: X Server 1.20.11, OpenGL: 4.6 Mesa 21.2.1 kisak-mesa PPA (LLVM 12.0.1), OpenCL: OpenCL 2.1 AMD-APP (3302.5), Vulkan: 1.2.182, Compiler: GCC 9.3.0 + Clang 12.0.1-1~kisak~f + LLVM 10.0.0, File-System: ext4, Screen Resolution: 3840x1080

Kernel Notes: Transparent Huge Pages: madvise  
 Environment Notes: RADV\_DEBUG=zerovram CXXFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -fno-semantic-interposition -ffat-lto-objects -fno-trapping-math -fvisibility-inlines-hidden -fno-tree-loop-vectorize" MESA\_DISK\_CACHE\_SINGLE\_FILE=1 CFFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -fno-semantic-interposition -ffat-lto-objects -fno-trapping-math -fno-tree-loop-vectorize" AMD\_DEBUG=zerovram WINEDEBUG=all,fixme-all FFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -fno-semantic-interposition -ftree-vectorize -fno-tree-loop-vectorize"  
 Compiler Notes: --build=x86\_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-9-HskZEa/gcc-9-9.3.0/debian/tmp-nvptx/usr,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86\_64-linux-gnu --program-prefix=x86\_64-linux-gnu- --target=x86\_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v  
 Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0x22  
 Security Notes: itlb\_multihit: KVM: Mitigation of VMX disabled + 11tf: Mitigation of PTE Inversion; VMX: vulnerable SMT disabled + mds: Vulnerable; SMT disabled + meltdown: Vulnerable + spec\_store\_bypass: Vulnerable + spectre\_v1: Vulnerable: \_\_user pointer sanitization and usercopy barriers only; no swappgs barriers + spectre\_v2: Vulnerable STIBP: disabled + srbds: Vulnerable: No microcode + tsx\_async\_abort: Not affected

## 5.15-rc2 gcc-11.1.0-1ubuntu120.04

Processor: Intel Core i5-4670K @ 4.30GHz (4 Cores), Motherboard: MSI Z87-G41 PC Mate(MS-7850) v1.0 (V1.8 BIOS), Chipset: Intel 4th Gen Core DRAM, Memory: 32GB, Disk: 3 x 500GB Samsung SSD 860 + 1000GB Samsung SSD 860, Graphics: MSI AMD Radeon RX 470/480/570/570X/580/580X/590 8GB (1303/2050MHz), Audio: Realtek ALC887-VD, Monitor: NS-PMG248, Network: Qualcomm Atheros AR93xx

OS: Ubuntu 20.04, Kernel: 5.15-rc2-051500rc2+customidle-generic (x86\_64), Desktop: GNOME Shell 3.36.9, Display Server: X Server 1.20.11, OpenGL: 4.6 Mesa 21.2.1 kisak-mesa PPA (LLVM 12.0.1), OpenCL: OpenCL 2.1 AMD-APP (3302.5), Vulkan: 1.2.182, Compiler: GCC 11.1.0 + Clang 12.0.1-1~kisak~f + LLVM 10.0.0, File-System: ext4, Screen Resolution: 3840x1080

Kernel Notes: Transparent Huge Pages: madvise  
 Environment Notes: RADV\_DEBUG=zerovram CXXFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -fno-semantic-interposition -ffat-lto-objects -fno-trapping-math -fvisibility-inlines-hidden -fno-tree-loop-vectorize" MESA\_DISK\_CACHE\_SINGLE\_FILE=1 CFFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -fno-semantic-interposition -ffat-lto-objects -fno-trapping-math -fno-tree-loop-vectorize" AMD\_DEBUG=zerovram WINEDEBUG=all,fixme-all FFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -fno-semantic-interposition -ffat-lto-objects -fno-trapping-math -fno-tree-loop-vectorize" AMD\_DEBUG=zerovram WINEDEBUG=all,fixme-all FFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -fno-semantic-interposition -ffat-lto-objects -fno-trapping-math -fno-tree-loop-vectorize"  
 Compiler Notes: --build=x86\_64-linux-gnu --disable-cet --disable-vtable-verify --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-link-serialization=2 --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-11-2V7zgg/gcc-11-11.1.0/debian/tmp-nvptx/usr,amdgc-n-amdhsa=/build/gcc-11-2V7zgg/gcc-11-11.1.0/debian/tmp-gcn/usr --enable-plugin --enable-shared --enable-threads=posix --host=x86\_64-linux-gnu --program-prefix=x86\_64-linux-gnu- --target=x86\_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-build-config=bootstrap-lto-lean --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v  
 Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0x22  
 Security Notes: itlb\_multihit: KVM: Mitigation of VMX disabled + 11tf: Mitigation of PTE Inversion; VMX: vulnerable SMT disabled + mds: Vulnerable; SMT disabled + meltdown: Vulnerable + spec\_store\_bypass: Vulnerable + spectre\_v1: Vulnerable: \_\_user pointer sanitization and usercopy barriers only; no swappgs barriers + spectre\_v2: Vulnerable STIBP: disabled + srbds: Vulnerable: No microcode + tsx\_async\_abort: Not affected

### 5.4.147 gcc-9.3.0-17ubuntu120.04 2nd-run

Processor: Intel Core i5-4670K @ 4.30GHz (4 Cores), Motherboard: MSI Z87-G41 PC Mate(MS-7850) v1.0 (V1.8 BIOS), Chipset: Intel 4th Gen Core DRAM, Memory: 32GB, Disk: 3 x 500GB Samsung SSD 860 + 1000GB Samsung SSD 860, Graphics: MSI AMD Radeon RX 470/480/570/570X/580/580X/590 8GB (1303/2050MHz), Audio: Realtek ALC887-VD, Monitor: NS-PMG248, Network: Qualcomm Atheros AR93xx

OS: Ubuntu 20.04, Kernel: 5.4.147-0504147+customidle-generic (x86\_64), Desktop: GNOME Shell 3.36.9, Display Server: X Server 1.20.11, OpenGL: 4.6 Mesa 21.2.1 kisak-mesa PPA (LLVM 12.0.1), OpenCL: OpenCL 2.1 AMD-APP (3302.5), Vulkan: 1.2.182, Compiler: GCC 9.3.0 + Clang 12.0.1-1~kisak~f + LLVM 10.0.0, File-System: ext4, Screen Resolution: 3840x1080

Kernel Notes: Transparent Huge Pages: madvise  
 Environment Notes: RADV\_DEBUG=zerovram CXXFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -fno-semantic-interposition -ffat-lto-objects -fno-trapping-math -fvisibility-inlines-hidden -fno-tree-loop-vectorize" MESA\_DISK\_CACHE\_SINGLE\_FILE=1 CFFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -fno-semantic-interposition -ffat-lto-objects -fno-trapping-math -fno-tree-loop-vectorize" AMD\_DEBUG=zerovram WINEDEBUG=all,fixme-all FFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -fno-semantic-interposition -ffat-lto-objects -fno-trapping-math -fno-tree-loop-vectorize"  
 Compiler Notes: --build=x86\_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-9-HskZEa/gcc-9-9.3.0/debian/tmp-nvptx/usr,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86\_64-linux-gnu --program-prefix=x86\_64-linux-gnu- --target=x86\_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v  
 Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0x22  
 Security Notes: itlb\_multihit: KVM: Vulnerable + 11tf: Mitigation of PTE Inversion; VMX: vulnerable SMT disabled + mds: Vulnerable; SMT disabled + meltdown: Vulnerable + spec\_store\_bypass: Vulnerable + spectre\_v1: Vulnerable: \_\_user pointer sanitization and usercopy barriers only; no swappgs barriers + spectre\_v2: Vulnerable STIBP: disabled + srbds: Vulnerable: No microcode + tsx\_async\_abort: Not affected

### 5.14.7 gcc-9.3.0-17ubuntu120.04

Processor: Intel Core i5-4670K @ 4.30GHz (4 Cores), Motherboard: MSI Z87-G41 PC Mate(MS-7850) v1.0 (V1.8 BIOS), Chipset: Intel 4th Gen Core DRAM, Memory: 32GB, Disk: 3 x 500GB Samsung SSD 860 + 1000GB Samsung SSD 860, Graphics: MSI AMD Radeon RX 470/480/570/570X/580/580X/590 8GB (1303/2050MHz), Audio: Realtek ALC887-VD, Monitor: NS-PMG248, Network: Qualcomm Atheros AR93xx

OS: Ubuntu 20.04, Kernel: 5.14.7-051407+customidle-generic (x86\_64), Desktop: GNOME Shell 3.36.9, Display Server: X Server 1.20.11, OpenGL: 4.6 Mesa 21.2.2 kisak-mesa PPA (LLVM 12.0.1), OpenCL: OpenCL 2.1 AMD-APP (3302.5), Vulkan: 1.2.182, Compiler: GCC 9.3.0 + Clang 12.0.1-1~kisak~f + LLVM 10.0.0, File-System: ext4, Screen Resolution: 3840x1080

Kernel Notes: Transparent Huge Pages: madvise

Environment Notes: RADV\_DEBUG=zerovram CXXFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -fno-semantic-interposition -ffat-lto-objects -fno-trapping-math -fvisibility-inlines-hidden -fno-tree-loop-vectorize" MESA\_DISK\_CACHE\_SINGLE\_FILE=1 CFFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -fno-semantic-interposition -ffat-lto-objects -fno-trapping-math -fno-tree-loop-vectorize" AMD\_DEBUG=zerovram WINEDEBUG=all,fixme-all FFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -fno-trapping-math -fno-tree-loop-vectorize" AMD\_DEBUG=zerovram WINEDEBUG=all,fixme-all FFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -fno-trapping-math -fno-tree-loop-vectorize"

Compiler Notes: --build=x86\_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-9-HskZEa/gcc-9-9.3.0/debian/tmp-nvptx/usr,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86\_64-linux-gnu --program-prefix=x86\_64-linux-gnu- --target=x86\_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v

Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0x22

Security Notes: itlb\_multihit: KVM: Mitigation of VMX disabled + 1t1f: Mitigation of PTE Inversion; VMX: vulnerable SMT disabled + mds: Vulnerable; SMT disabled + meltdown: Vulnerable + spec\_store\_bypass: Vulnerable + spectre\_v1: Vulnerable: \_\_user pointer sanitization and usercopy barriers only; no swappgs barriers + spectre\_v2: Vulnerable STIBP: disabled + srbds: Vulnerable: No microcode + tsx\_async\_abort: Not affected

## 5.15-rc2 gcc-9 secondrun

Processor: Intel Core i5-4670K @ 4.30GHz (4 Cores), Motherboard: MSI Z87-G41 PC Mate(MS-7850) v1.0 (V1.8 BIOS), Chipset: Intel 4th Gen Core DRAM, Memory: 32GB, Disk: 3 x 500GB Samsung SSD 860 + 1000GB Samsung SSD 860, Graphics: MSI AMD Radeon RX 470/480/570/570X/580/580X/590 8GB (1303/2050MHz), Audio: Realtek ALC887-VD, Monitor: NS-PMG248, Network: Qualcomm Atheros AR93xx

OS: Ubuntu 20.04, Kernel: 5.15-rc2-051500rc2+customidle-generic (x86\_64), Desktop: GNOME Shell 3.36.9, Display Server: X Server 1.20.11, OpenGL: 4.6 Mesa 21.2.2 kisak-mesa PPA (LLVM 12.0.1), OpenCL: OpenCL 2.1 AMD-APP (3302.5), Vulkan: 1.2.182, Compiler: GCC 9.3.0 + Clang 12.0.1-1~kisak~f + LLVM 10.0.0, File-System: ext4, Screen Resolution: 3840x1080

Kernel Notes: Transparent Huge Pages: madvise

Environment Notes: RADV\_DEBUG=zerovram CXXFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -fno-semantic-interposition -ffat-lto-objects -fno-trapping-math -fvisibility-inlines-hidden -fno-tree-loop-vectorize" MESA\_DISK\_CACHE\_SINGLE\_FILE=1 CFFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -fno-semantic-interposition -ffat-lto-objects -fno-trapping-math -fno-tree-loop-vectorize" AMD\_DEBUG=zerovram WINEDEBUG=all,fixme-all FFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -fno-trapping-math -fno-tree-loop-vectorize" AMD\_DEBUG=zerovram WINEDEBUG=all,fixme-all FFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -fno-trapping-math -fno-tree-loop-vectorize"

Compiler Notes: --build=x86\_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-9-HskZEa/gcc-9-9.3.0/debian/tmp-nvptx/usr,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86\_64-linux-gnu --program-prefix=x86\_64-linux-gnu- --target=x86\_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v

Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0x22

Security Notes: itlb\_multihit: KVM: Mitigation of VMX disabled + 1t1f: Mitigation of PTE Inversion; VMX: vulnerable SMT disabled + mds: Vulnerable; SMT disabled + meltdown: Vulnerable + spec\_store\_bypass: Vulnerable + spectre\_v1: Vulnerable: \_\_user pointer sanitization and usercopy barriers only; no swappgs barriers + spectre\_v2: Vulnerable STIBP: disabled + srbds: Vulnerable: No microcode + tsx\_async\_abort: Not affected

## 5.4.147 gcc-9 3rd-run

Processor: Intel Core i5-4670K @ 4.30GHz (4 Cores), Motherboard: MSI Z87-G41 PC Mate(MS-7850) v1.0 (V1.8 BIOS), Chipset: Intel 4th Gen Core DRAM, Memory: 32GB, Disk: 3 x 500GB Samsung SSD 860 + 1000GB Samsung SSD 860, Graphics: MSI AMD Radeon RX 470/480/570/570X/580/580X/590 8GB (1303/2050MHz), Audio: Realtek ALC887-VD, Monitor: NS-PMG248, Network: Qualcomm Atheros AR93xx

OS: Ubuntu 20.04, Kernel: 5.4.147-0504147+customidle-generic (x86\_64), Desktop: GNOME Shell 3.36.9, Display Server: X Server 1.20.11, OpenGL: 4.6 Mesa 21.2.2 kisak-mesa PPA (LLVM 12.0.1), OpenCL: OpenCL 2.1 AMD-APP (3302.5), Vulkan: 1.2.182, Compiler: GCC 9.3.0 + Clang 12.0.1-1~kisak~f + LLVM 10.0.0, File-System: ext4, Screen Resolution: 3840x1080

Kernel Notes: Transparent Huge Pages: madvise

Environment Notes: RADV\_DEBUG=zerovram CXXFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -fno-semantic-interposition -ffat-lto-objects -fno-trapping-math -fvisibility-inlines-hidden -fno-tree-loop-vectorize" MESA\_DISK\_CACHE\_SINGLE\_FILE=1 CFFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -malign-data=abi -fno-semantic-interposition -ftree-vectorize -fno-tree-loop-vectorize" CFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -fno-semantic-interposition -ffat-lto-objects -fno-trapping-math -fno-tree-loop-vectorize" AMD\_DEBUG=zerovram WINEDEBUG=all,fixme-all FFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -malign-data=abi -fno-semantic-interposition -ftree-vectorize -fno-tree-loop-vectorize"

Compiler Notes: --build=x86\_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-9-HskZEa/gcc-9-9.3.0/debian/tmp-nvptx/usr,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86\_64-linux-gnu --program-prefix=x86\_64-linux-gnu- --target=x86\_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v

Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0x22

Security Notes: itlb\_multihit: KVM: Vulnerable + 11tf: Mitigation of PTE Inversion; VMX: vulnerable SMT disabled + mds: Vulnerable; SMT disabled + meltdown: Vulnerable + spec\_store\_bypass: Vulnerable + spectre\_v1: Vulnerable: \_\_user pointer sanitization and usercopy barriers only; no swappgs barriers + spectre\_v2: Vulnerable STIBP: disabled + srbds: Vulnerable: No microcode + tsx\_async\_abort: Not affected

### 5.4.148 gcc-9.3.0-17ubuntu120.04

Processor: Intel Core i5-4670K @ 4.30GHz (4 Cores), Motherboard: MSI Z87-G41 PC Mate(MS-7850) v1.0 (V1.8 BIOS), Chipset: Intel 4th Gen Core DRAM, Memory: 32GB, Disk: 3 x 500GB Samsung SSD 860 + 1000GB Samsung SSD 860, Graphics: MSI AMD Radeon RX 470/480/570/570X/580/580X/590 8GB (1303/2050MHz), Audio: Realtek ALC887-VD, Monitor: NS-PMG248, Network: Qualcomm Atheros AR93xx

OS: Ubuntu 20.04, Kernel: 5.4.148-0504148+customidle-generic (x86\_64), Desktop: GNOME Shell 3.36.9, Display Server: X Server 1.20.11, OpenGL: 4.6 Mesa 21.2.2 kisak-mesa PPA (LLVM 12.0.1), OpenCL: OpenCL 2.1 AMD-APP (3302.5), Vulkan: 1.2.182, Compiler: GCC 9.3.0 + Clang 12.0.1-1~kissak~f + LLVM 10.0.0, File-System: ext4, Screen Resolution: 3840x1080

Kernel Notes: Transparent Huge Pages: madvise

Environment Notes: RADV\_DEBUG=zerovram CXXFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -fno-semantic-interposition -ffat-lto-objects -fno-trapping-math -fvisibility-inlines-hidden -fno-tree-loop-vectorize" MESA\_DISK\_CACHE\_SINGLE\_FILE=1 CFFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -malign-data=abi -fno-semantic-interposition -ftree-vectorize -fno-tree-loop-vectorize" CFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -fno-semantic-interposition -ffat-lto-objects -fno-trapping-math -fno-tree-loop-vectorize" AMD\_DEBUG=zerovram WINEDEBUG=all,fixme-all FFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -malign-data=abi -fno-semantic-interposition -ftree-vectorize -fno-tree-loop-vectorize"

Compiler Notes: --build=x86\_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-9-HskZEa/gcc-9-9.3.0/debian/tmp-nvptx/usr,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86\_64-linux-gnu --program-prefix=x86\_64-linux-gnu- --target=x86\_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v

Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0x22

Security Notes: itlb\_multihit: KVM: Vulnerable + 11tf: Mitigation of PTE Inversion; VMX: vulnerable SMT disabled + mds: Vulnerable; SMT disabled + meltdown: Vulnerable + spec\_store\_bypass: Vulnerable + spectre\_v1: Vulnerable: \_\_user pointer sanitization and usercopy barriers only; no swappgs barriers + spectre\_v2: Vulnerable STIBP: disabled + srbds: Vulnerable: No microcode + tsx\_async\_abort: Not affected

### 5.15-rc2 gcc-9 after patch

Processor: Intel Core i5-4670K @ 4.30GHz (4 Cores), Motherboard: MSI Z87-G41 PC Mate(MS-7850) v1.0 (V1.8 BIOS), Chipset: Intel 4th Gen Core DRAM, Memory: 32GB, Disk: 3 x 500GB Samsung SSD 860 + 1000GB Samsung SSD 860, Graphics: llvmpipe, Audio: Realtek ALC887-VD, Network: Qualcomm Atheros AR93xx

OS: Ubuntu 20.04, Kernel: 5.15-rc2-051500rc2+customidle-generic (x86\_64), Desktop: GNOME Shell 3.36.9, Display Server: X Server 1.20.11, OpenGL: 4.5 Mesa 21.2.2 kisak-mesa PPA (LLVM 12.0.1 256 bits), OpenCL: OpenCL 2.1 AMD-APP (3302.5), Compiler: GCC 9.3.0 + Clang 12.0.1-1~kissak~f + LLVM 10.0.0, File-System: ext4, Screen Resolution: 640x480

Kernel Notes: Transparent Huge Pages: madvise

Environment Notes: RADV\_DEBUG=zerovram CXXFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -fno-semantic-interposition -ffat-lto-objects -fno-trapping-math -fvisibility-inlines-hidden -fno-tree-loop-vectorize" MESA\_DISK\_CACHE\_SINGLE\_FILE=1 CFFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -malign-data=abi -fno-semantic-interposition -ftree-vectorize -fno-tree-loop-vectorize" CFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -fno-semantic-interposition -ffat-lto-objects -fno-trapping-math -fno-tree-loop-vectorize" AMD\_DEBUG=zerovram WINEDEBUG=all,fixme-all FFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -malign-data=abi -fno-semantic-interposition -ftree-vectorize -fno-tree-loop-vectorize"

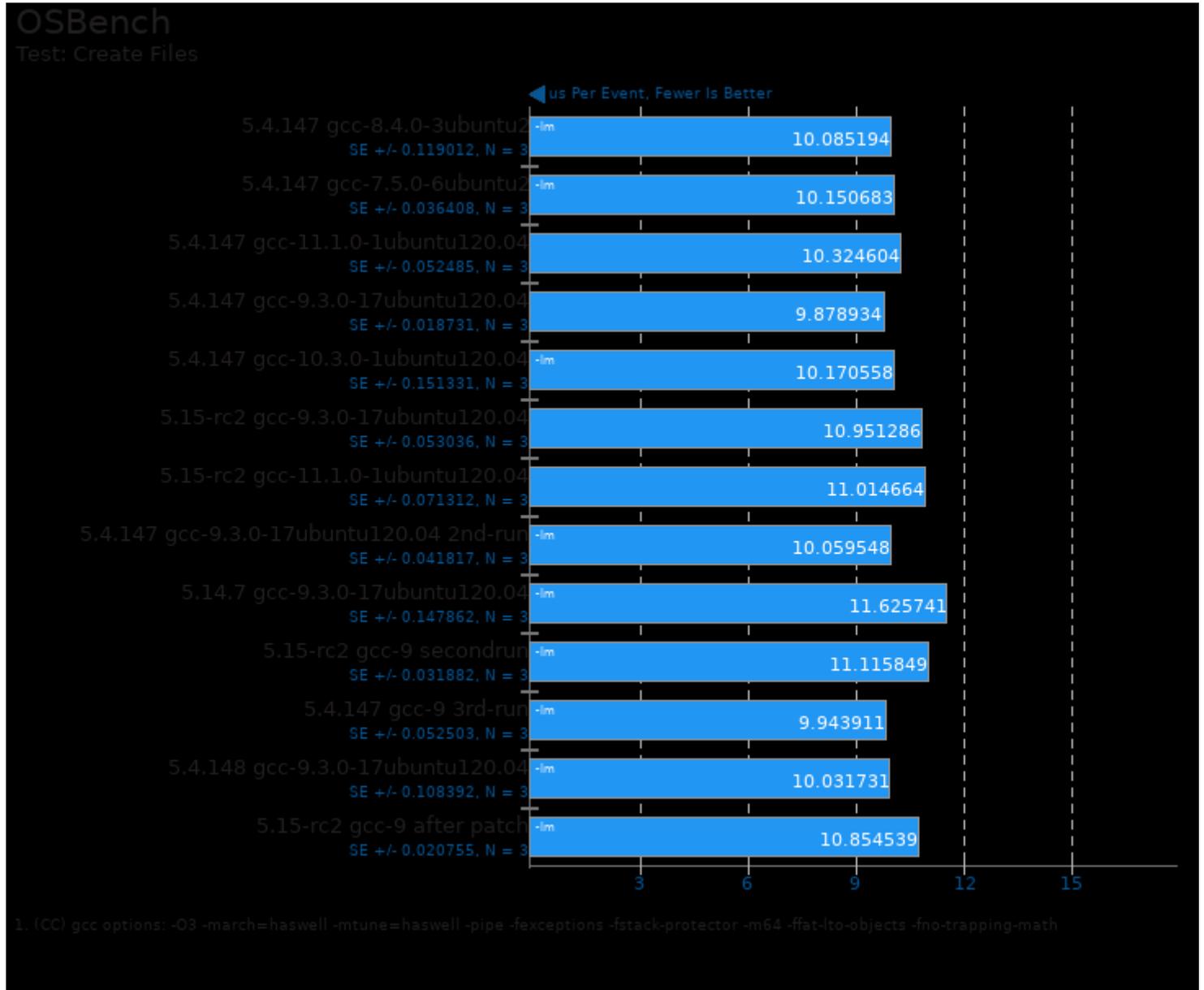
-feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -malign-data=abi -fno-semantic-interposition -ftree-vectorize -fno-tree-loop-vectorize" CFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -fno-semantic-interposition -ffat-lto-objects -fno-trapping-math -fno-tree-loop-vectorize" AMD\_DEBUG=zerovram WINEDEBUG=all,fixme-all FFLAGS="-O3 -march=haswell -mtune=haswell -pipe -feliminate-unused-debug-types -fexceptions -fstack-protector --param=ssp-buffer-size=32 -m64 -fasynchronous-unwind-tables -ftree-loop-distribute-patterns -malign-data=abi -fno-semantic-interposition -ftree-vectorize -fno-tree-loop-vectorize"

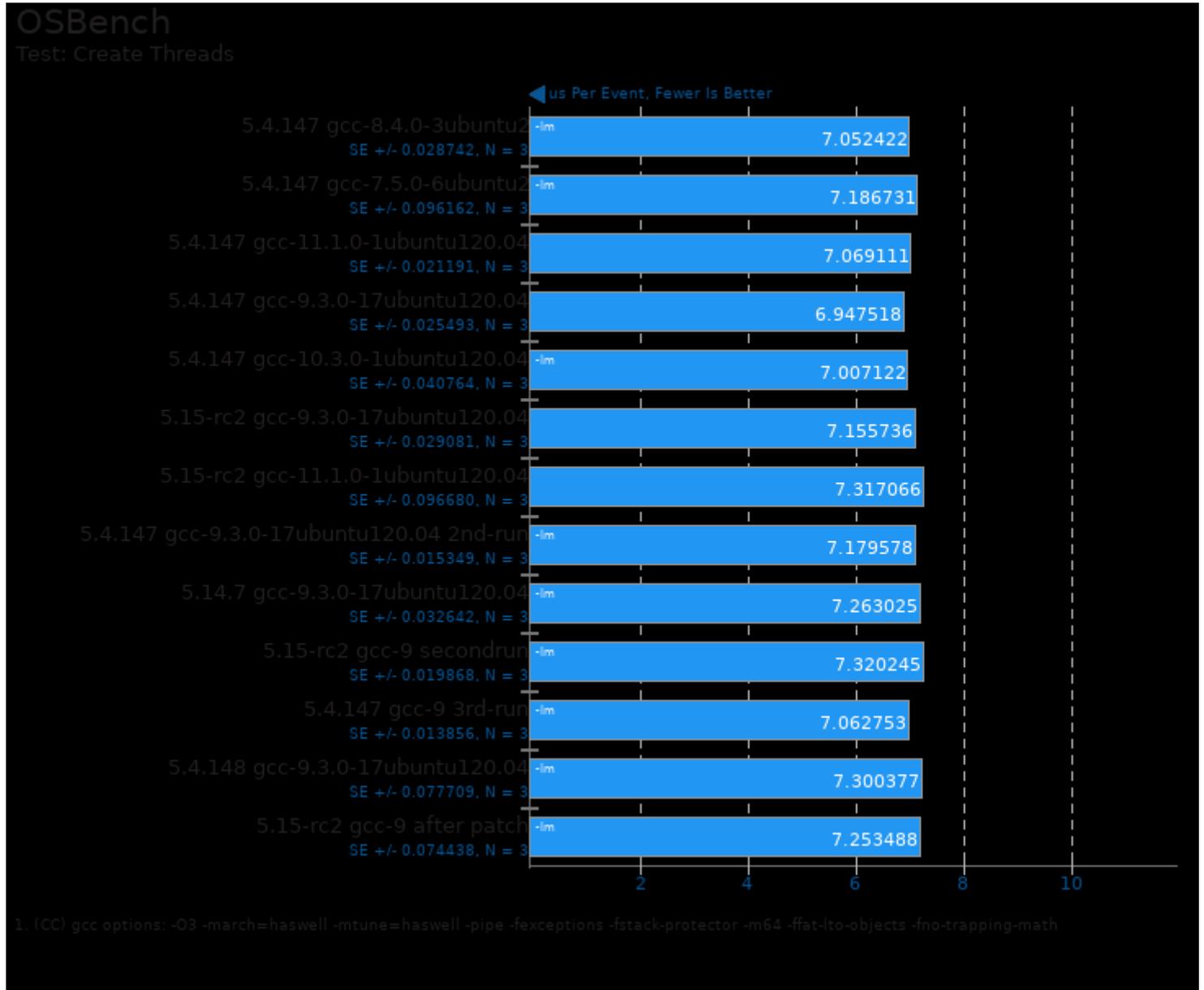
Compiler Notes: --build=x86\_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-9-HskZEA/gcc-9-9.3.0/debian/tmp-nvptx/usr,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86\_64-linux-gnu --program-prefix=x86\_64-linux-gnu- --target=x86\_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v

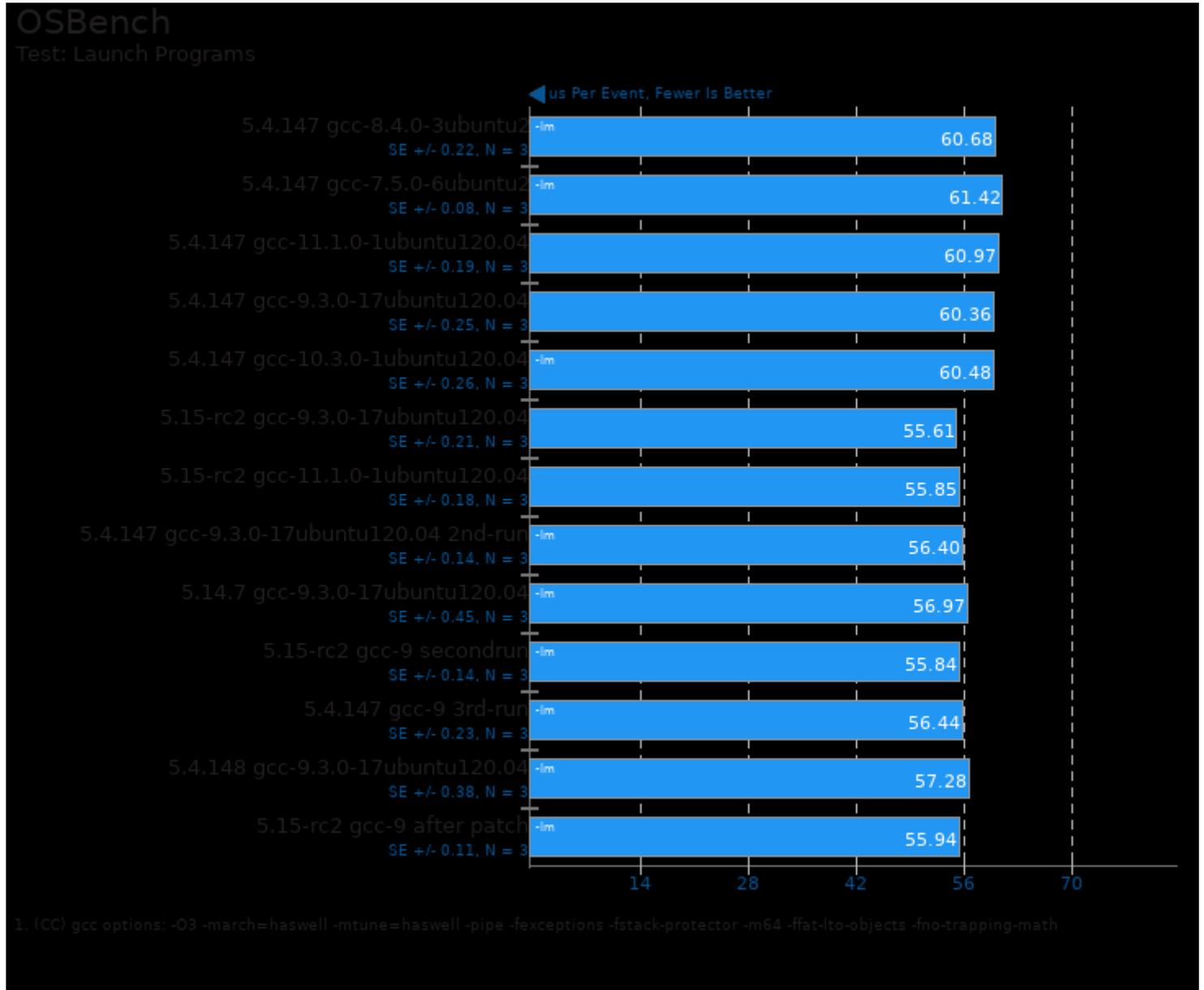
Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0x22

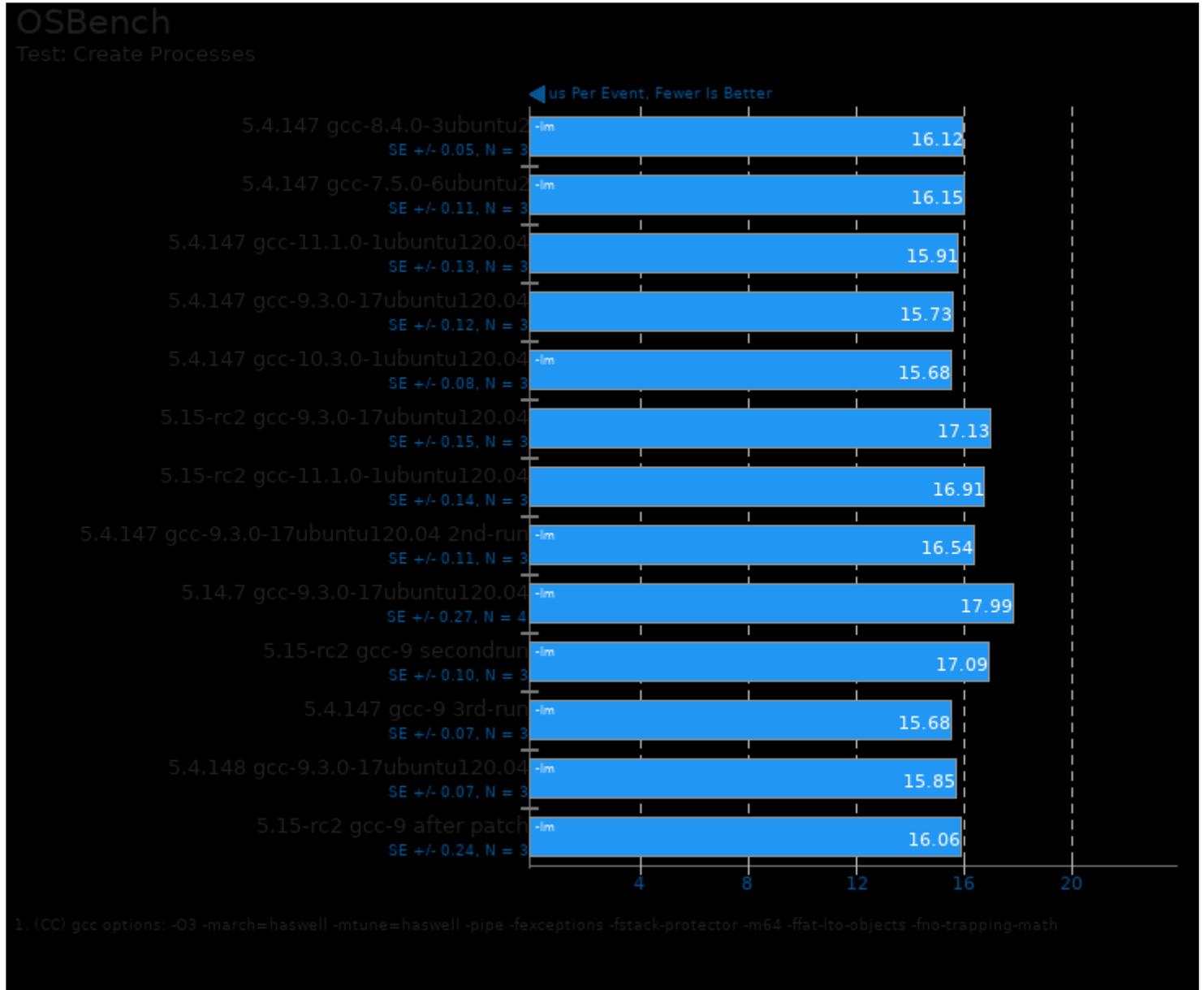
Security Notes: itlb\_multihit: KVM: Mitigation of VMX disabled + 1tft: Mitigation of PTE Inversion; VMX: vulnerable SMT disabled + mds: Vulnerable; SMT disabled + meltdown: Vulnerable + spec\_store\_bypass: Vulnerable + spectre\_v1: Vulnerable: \_\_user pointer sanitization and usercopy barriers only; no swapgs barriers + spectre\_v2: Vulnerable STIBP: disabled + srbds: Vulnerable: No microcode + tsx\_async\_abort: Not affected

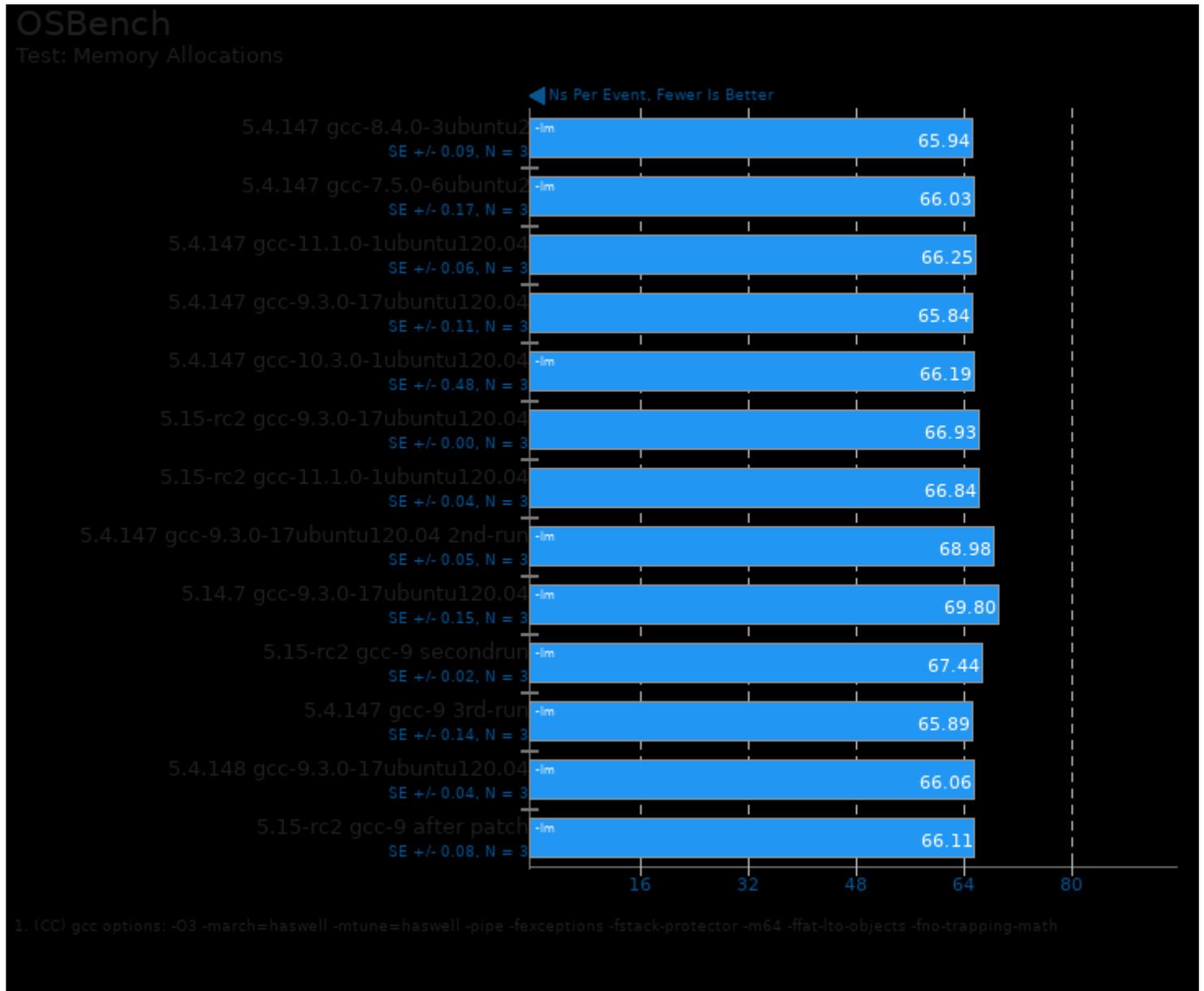
	5.4.147 gcc-8.4 .0-3sub untu2	5.4.147 gcc-7.5 .0-6ub untu2	5.4.147 gcc-11.0-1u buntu1 20.04	5.4.147 gcc-9.3 .0-17u buntu1 20.04	5.4.147 gcc-10.2 3.0-1u buntu1 20.04	5.15-rc 2 gcc-9.3 .0-17u buntu1 20.04	5.15-rc 2 gcc-11.0-1u buntu1 20.04	5.4.147 gcc-9.3 .0-17u buntu1 20.04	5.14.7 gcc-9.3 .0-17u buntu1 20.04	5.15-rc 2 gcc-9 drun	5.4.147 gcc-9 3rd-ru n	5.4.148 gcc-9.3 .0-17u buntu1 20.04	5.15-rc 2 gcc-9 after patch
<b>OSBench -</b>	10.085	10.150	10.324	<b>9.8789</b>	10.170	10.951	11.014	10.059	<b>11.625</b>	11.115	9.9439	10.031	10.854
<b>Create Files (us/Event)</b>	194	683	604	<b>34</b>	558	286	664	548	<b>741</b>	849	11	731	539
<b>Normalized</b>	97.95%	97.32%	95.68%	100%	97.13%	90.21%	89.69%	98.2%	84.97%	88.87%	99.35%	98.48%	91.01%
<b>Standard Deviation</b>	2%	0.6%	0.9%	0.3%	2.6%	0.8%	1.1%	0.7%	2.2%	0.5%	0.9%	1.9%	0.3%
<b>OSBench -</b>	7.0524	7.1867	7.0691	<b>6.9475</b>	7.0071	7.1557	7.3170	7.1795	7.2630	<b>7.3202</b>	7.0627	7.3003	7.2534
<b>Create Threads (us/Event)</b>	22	31	11	<b>18</b>	22	36	66	78	25	<b>45</b>	53	77	88
<b>Normalized</b>	98.51%	96.67%	98.28%	100%	99.15%	97.09%	94.95%	96.77%	95.66%	94.91%	98.37%	95.17%	95.78%
<b>Standard Deviation</b>	0.7%	2.3%	0.5%	0.6%	1%	0.7%	2.3%	0.4%	0.8%	0.5%	0.3%	1.8%	1.8%
<b>OSBench -</b>	60.680	<b>61.419</b>	60.970	60.356	60.476	<b>55.607</b>	55.852	56.403	56.970	55.843	56.444	57.280	55.940
<b>Launch Programs (us/Event)</b>	707	<b>805</b>	783	458	462	<b>160</b>	731	478	120	195	009	064	151
<b>Normalized</b>	91.64%	90.54%	91.2%	92.13%	91.95%	100%	99.56%	98.59%	97.61%	99.58%	98.52%	97.08%	99.4%
<b>Standard Deviation</b>	0.6%	0.2%	0.5%	0.7%	0.8%	0.7%	0.6%	0.4%	1.4%	0.4%	0.7%	1.1%	0.4%
<b>OSBench -</b>	16.116	16.146	15.909	15.726	15.680	17.132	16.909	16.535	<b>17.985</b>	17.093	<b>15.679</b>	15.846	16.060
<b>Create Processes (us/Event)</b>	301	501	672	089	790	759	440	918	<b>106</b>	817	<b>995</b>	888	670
<b>Normalized</b>	97.29%	97.11%	98.56%	99.71%	99.99%	91.52%	92.73%	94.82%	87.18%	91.73%	100%	98.95%	97.63%
<b>Standard Deviation</b>	0.6%	1.2%	1.4%	1.3%	0.8%	1.5%	1.4%	1.2%	3%	1%	0.7%	0.8%	2.6%
<b>OSBench -</b>	65.944	66.027	66.248	<b>65.841</b>	66.193	66.928	66.842	68.982	<b>69.803</b>	67.444	65.891	66.059	66.107
<b>Memory Allocations (Ns/Event)</b>	751	959	655	<b>675</b>	978	307	556	045	<b>079</b>	324	266	589	353
<b>Normalized</b>	99.84%	99.72%	99.39%	100%	99.47%	98.38%	98.5%	95.45%	94.32%	97.62%	99.92%	99.67%	99.6%
<b>Standard Deviation</b>	0.2%	0.5%	0.2%	0.3%	1.3%	0%	0.1%	0.1%	0.4%	0.1%	0.4%	0.1%	0.2%











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