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osbench-513-vs-514

Intel Core i5-4670K testing with a MSI Z87-G41 PC Mate(MS-7850) v1.0 (V1.8 BIOS) and MSI AMD Radeon RX 470/480/570/570X/580/580X/590 8GB on Ubuntu 20.04 via the Phoronix Test Suite.

Test Systems:

5.13.13

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 + 1000GB My Passport 0740, 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: 5.13.13-051313+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), 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 RADV_PERFTEST=rt 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 + l1tf: 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

5.14.0

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 + 1000GB My Passport 0740, 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: 5.14-051400+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), 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 RADV_PERFTEST=rt 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 + l1tf: 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

5.4.142

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 + 1000GB My Passport 0740, 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: 5.4.142-0504142+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), 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 RADV_PERFTEST=rt 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 + l1tf: 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

5.4.0-84 20.04.3 LTS default

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 + 1000GB My Passport 0740, Graphics: MSI AMD Radeon RX 470/480/570/570X/580/580X/590 8GB (1303/2000MHz), Audio: Realtek ALC887-VD, Monitor: NS-PMG248, Network: Qualcomm Atheros AR93xx

OS: Ubuntu 20.04, Kernel: 5.4.0-84-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), 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: amdgpu.ppfeaturemask=0xffffffff amdgpu.dcfeaturemask=2 - 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 RADV_PERFTEST=rt 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 + l1tf: 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

	5.13.13	5.14.0	5.4.142	5.4.0-84 20.04.3 LTS default
OSBench - Create Files (us/Event)	11.282112	10.945941	**10.082868**	**11.711274**
Normalized	89.37%	92.12%	100%	86.1%
Standard Deviation	1.2%	0.8%	2.2%	0.9%
OSBench - Create Threads (us/Event)	7.488728	7.263025	**7.020632**	**8.409023**
Normalized	93.75%	96.66%	100%	83.49%
Standard Deviation	0.4%	0.7%	1.1%	0.1%
OSBench - Launch Programs	53.755442	52.066644	**51.740011**	**59.923331**
Normalized	96.25%	99.37%	100%	86.34%
Standard Deviation	0%	0.3%	0.4%	0.4%
OSBench - Create Processes	16.093254	16.073386	**14.732679**	**17.983913**
Normalized	91.55%	91.66%	100%	81.92%
Standard Deviation	0.8%	1.8%	1.6%	1.4%

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OSBench - Memory Allocations (Ns/Event)	**69.108009**	66.568374	**65.471649**	67.590078
Normalized	94.74%	98.35%	100%	96.87%
Standard Deviation	0.1%	0.4%	0.1%	0.1%

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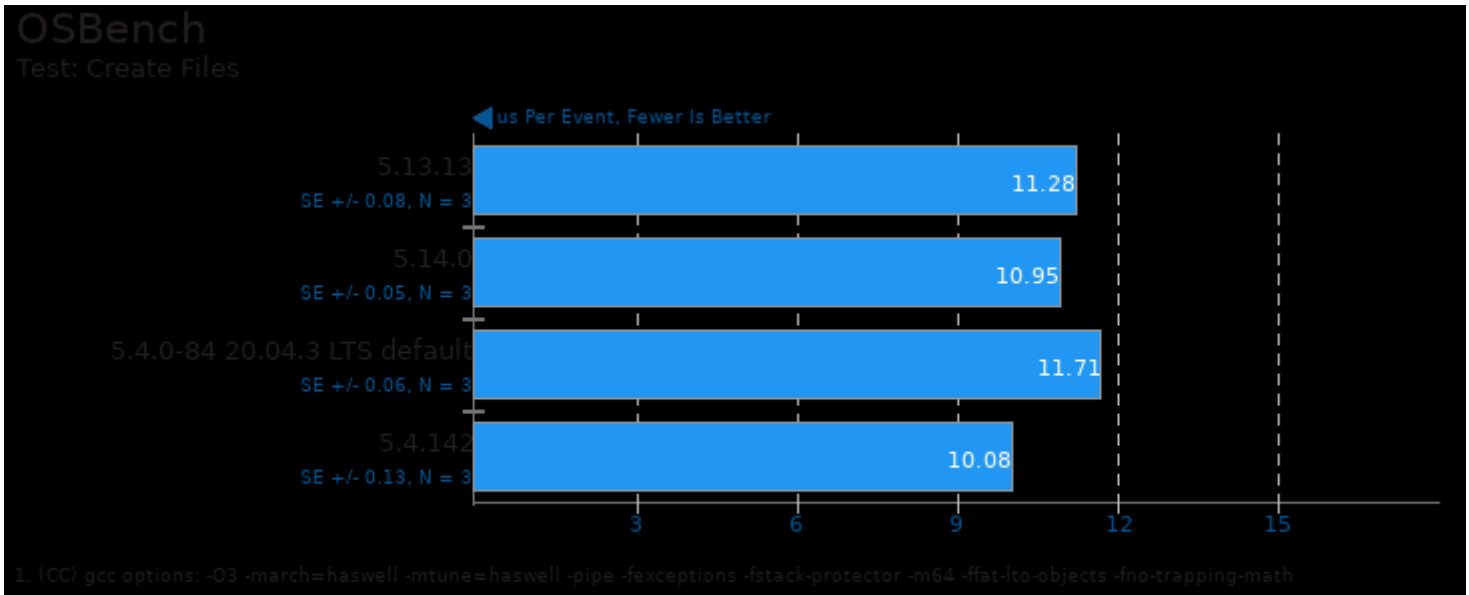

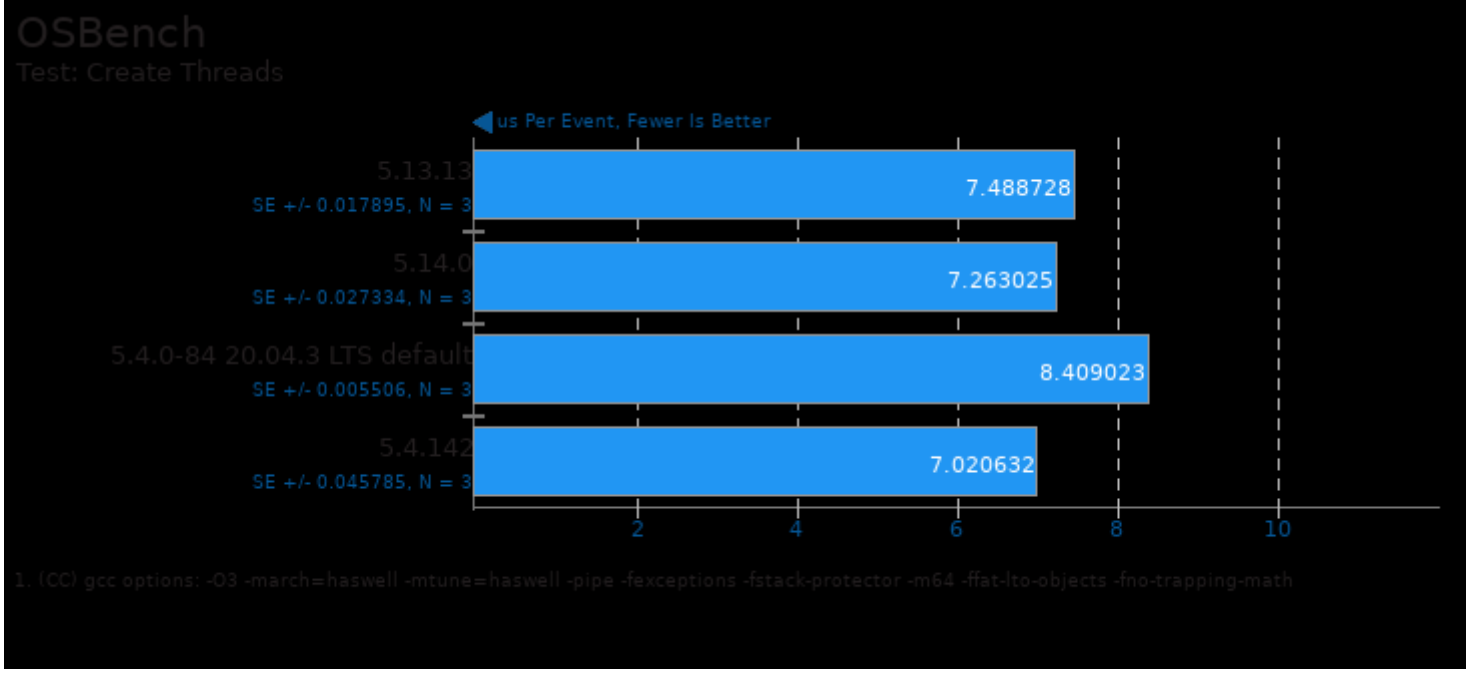

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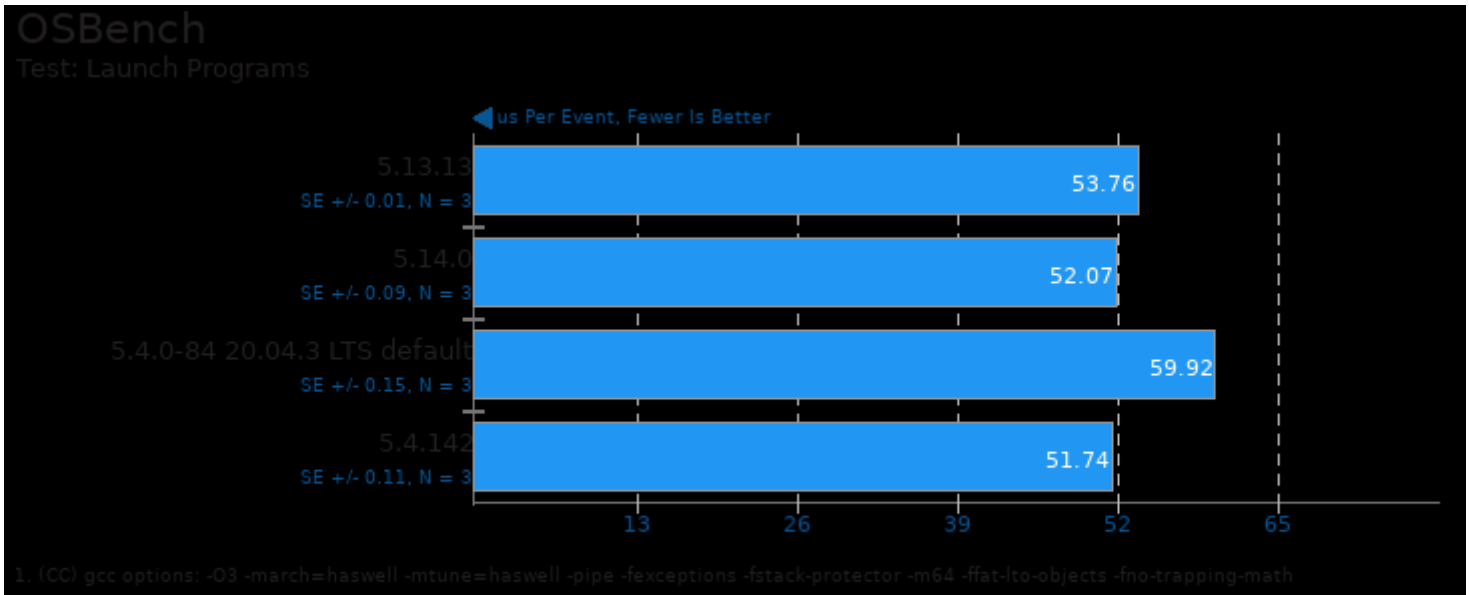

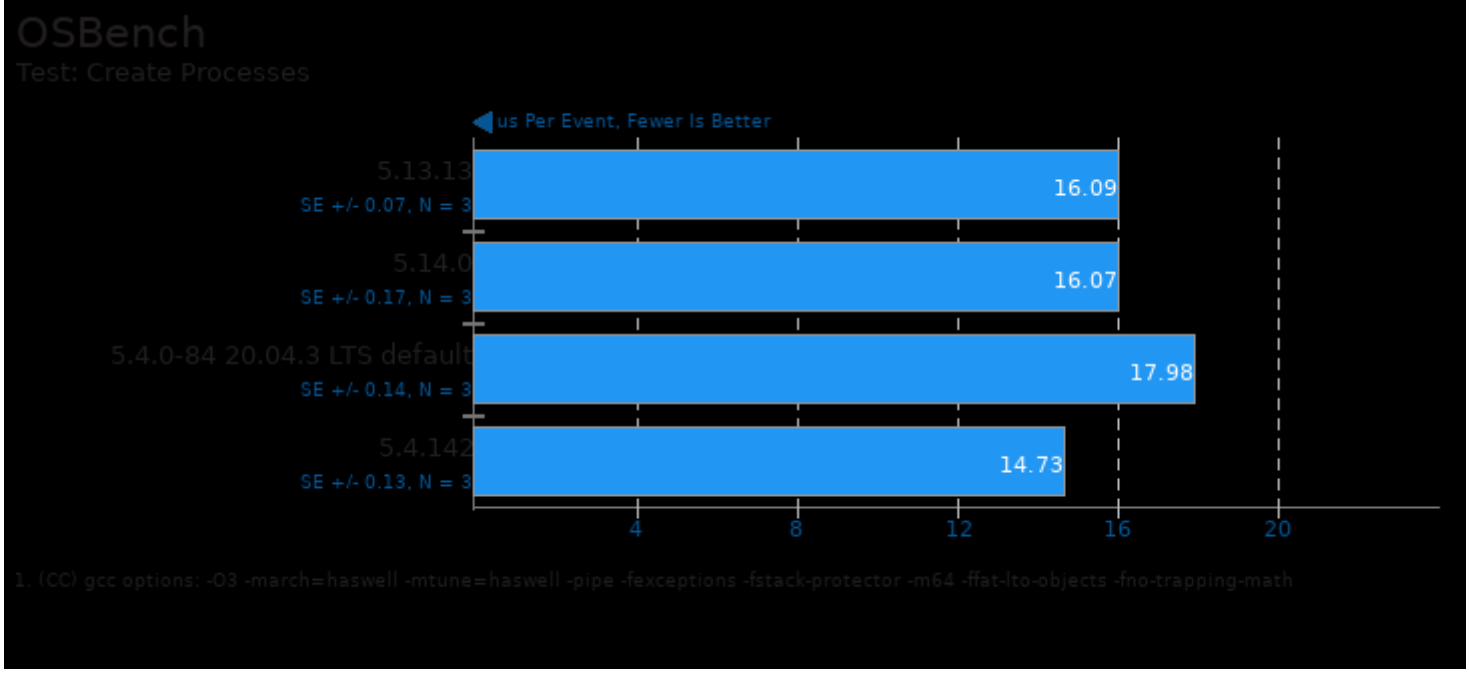

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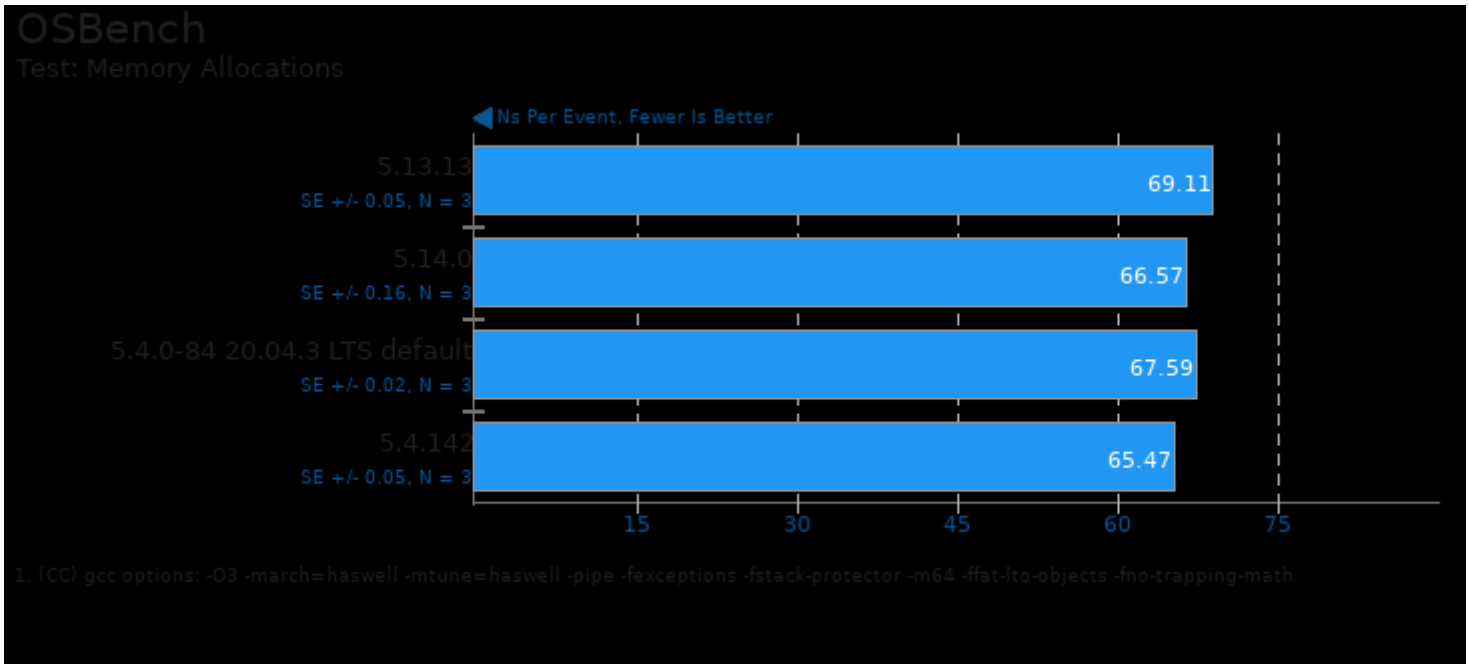

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