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hv-r430-01

KVM testing on Ubuntu 22.04 via the Phoronix Test Suite.

Automated Executive Summary

E5-2460v3 2.60GHz host had the most wins, coming in first place for 73% of the tests.

Based on the geometric mean of all complete results, the fastest (E5-2460v3 2.60GHz host) was 2.052x the speed of the slowest (E5-2648Lv4). E5-2648Lv4 1.8GHz host was 0.916x the speed of E5-2460v3 2.60GHz host, E5-2460v3 2.60GHz was 0.772x the speed of E5-2648Lv4 1.8GHz host, E5-2648Lv4 was 0.689x the speed of E5-2460v3 2.60GHz.

The results with the greatest spread from best to worst included:

Stress-NG (Test: Malloc) at 5.215x
Stress-NG (Test: Mutex) at 2.975x
Stress-NG (Test: Vector Math) at 2.924x
Stress-NG (Test: CPU Stress) at 2.714x
Stress-NG (Test: SENDFILE) at 2.641x
Stress-NG (Test: Glibc C String Functions) at 2.496x
Stress-NG (Test: Semaphores) at 2.452x
Stress-NG (Test: Glibc Qsort Data Sorting) at 2.412x
Stress-NG (Test: Matrix Math) at 2.355x

Stress-NG (Test: Context Switching) at 2.341x.

Test Systems:

E5-2460v3 2.60GHz

Processor: Common KVM (32 Cores), Motherboard: QEMU Standard PC (i440FX + PIIX 1996) (rel-1.16.0-0-gd239552ce722-prebuilt.qemu.org BIOS), Chipset: Intel 440FX 82441FX PMC, Memory: 16GB, Disk: 17GB QEMU HDD, Graphics: bochs-drmdrmfb, Monitor: QEMU Monitor, Network: Red Hat Virtio device

OS: Ubuntu 22.04, Kernel: 5.15.0-56-generic (x86_64), Vulkan: 1.2.204, Compiler: GCC 11.3.0, File-System: ext4, Screen Resolution: 1280x800, System Layer: KVM

Kernel Notes: Transparent Huge Pages: madvise
 Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --enable-cet --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-xKiWfi/gcc-11-11.3.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-11-xKiWfi/gcc-11-11.3.0/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: CPU Microcode: 0x1

Security Notes: itlb_multihit: KVM: Mitigation of VMX unsupported + l1tf: Mitigation of PTE Inversion + mds: Vulnerable: Clear buffers attempted no microcode; SMT Host state unknown + meltdown: Mitigation of PTI + mmio_stale_data: Unknown: No mitigations + rebleed: Not affected + spec_store_bypass: Vulnerable + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Retpolines STIBP: disabled RSB filling PBRSB-eIBRS: Not affected + srbds: Not affected + tsx_async_abort: Not affected

E5-2460v3 2.60GHz host

Processor: Intel Xeon E5-2640 v3 (32 Cores), Motherboard: QEMU Standard PC (i440FX + PIIX 1996) (rel-1.16.0-0-gd239552ce722-prebuilt.qemu.org BIOS), Chipset: Intel 440FX 82441FX PMC, Memory: 16GB, Disk: 17GB QEMU HDD, Graphics: bochs-drmdrmfb, Monitor: QEMU Monitor, Network: Red Hat Virtio device

OS: Ubuntu 22.04, Kernel: 5.15.0-56-generic (x86_64), Vulkan: 1.2.204, Compiler: GCC 11.3.0, File-System: ext4, Screen Resolution: 1280x800, System Layer: KVM

Kernel Notes: Transparent Huge Pages: madvise
 Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --enable-cet --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-xKiWfi/gcc-11-11.3.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-11-xKiWfi/gcc-11-11.3.0/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: CPU Microcode: 0x46

Security Notes: itlb_multihit: Not affected + l1tf: Mitigation of PTE Inversion; VMX: flush not necessary SMT disabled + mds: Mitigation of Clear buffers; SMT Host state unknown + meltdown: Mitigation of PTI + mmio_stale_data: Vulnerable: Clear buffers attempted no microcode; SMT Host state unknown + rebleed: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Retpolines IBPB: conditional IBRS_FW STIBP: disabled RSB filling PBRSB-eIBRS: Not affected + srbds: Not affected + tsx_async_abort: Not affected

E5-2648Lv4

Processor: Intel Xeon E5-2648L v4 (16 Cores), Motherboard: QEMU Standard PC (i440FX + PIIX 1996) (rel-1.16.0-0-gd239552ce722-prebuilt.qemu.org BIOS), Chipset: Intel 440FX 82441FX PMC, Memory: 16GB, Disk: 17GB QEMU HDD, Graphics: bochs-drmdrmfb, Monitor: QEMU Monitor, Network: Red Hat Virtio device

OS: Ubuntu 22.04, Kernel: 5.15.0-56-generic (x86_64), Vulkan: 1.2.204, Compiler: GCC 11.3.0, File-System: ext4, Screen Resolution: 1280x800, System Layer: KVM

Kernel Notes: Transparent Huge Pages: madvise
 Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --enable-cet --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-xKiWfi/gcc-11-11.3.0/debian/tmp-nvptx/usr,amdgn-amdhsa=/build/gcc-11-xKiWfi/gcc-11-11.3.0/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: CPU Microcode: 0xb00003e

Security Notes: itlb_multihit: Not affected + l1tf: Mitigation of PTE Inversion; VMX: flush not necessary SMT disabled + mds: Mitigation of Clear buffers; SMT Host state unknown + meltdown: Mitigation of PTI + mmio_stale_data: Vulnerable: Clear buffers attempted no microcode; SMT Host state unknown + rebleed: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swaps barriers and __user pointer sanitization + spectre_v2: Mitigation of Retpolines IBPB: conditional IBRS_FW STIBP: disabled RSB filling PBRSB-eIBRS: Not affected + srbd: Not affected + tsx_async_abort: Mitigation of Clear buffers; SMT Host state unknown

E5-2648Lv4 1.8GHz host

Processor: Intel Xeon E5-2648L v4 (32 Cores), Motherboard: QEMU Standard PC (i440FX + PIIX 1996) (rel-1.16.0-0-gd239552ce722-prebuilt.qemu.org BIOS), Chipset: Intel 440FX 82441FX PMC, Memory: 16GB, Disk: 17GB QEMU HDD, Graphics: bochs-drmfb, Monitor: QEMU Monitor, Network: Red Hat Virtio device

OS: Ubuntu 22.04, Kernel: 5.15.0-56-generic (x86_64), Vulkan: 1.2.204, Compiler: GCC 11.3.0, File-System: ext4, Screen Resolution: 1280x800, System Layer: KVM

Kernel Notes: Transparent Huge Pages: madvise
 Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --enable-cet --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-xKiWfi/gcc-11-11.3.0/debian/tmp-nvptx/usr,amdgn-amdhsa=/build/gcc-11-xKiWfi/gcc-11-11.3.0/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: CPU Microcode: 0xb00003e

Security Notes: itlb_multihit: Not affected + l1tf: Mitigation of PTE Inversion; VMX: flush not necessary SMT disabled + mds: Mitigation of Clear buffers; SMT Host state unknown + meltdown: Mitigation of PTI + mmio_stale_data: Vulnerable: Clear buffers attempted no microcode; SMT Host state unknown + rebleed: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swaps barriers and __user pointer sanitization + spectre_v2: Mitigation of Retpolines IBPB: conditional IBRS_FW STIBP: disabled RSB filling PBRSB-eIBRS: Not affected + srbd: Not affected + tsx_async_abort: Mitigation of Clear buffers; SMT Host state unknown

	E5-2460v3 2.60GHz	E5-2460v3 2.60GHz host	E5-2648Lv4 1.8GHz host
Stress-NG - MMAP (Bogo Ops/s)	58.00	52.16	24.57
Normalized	100%	89.93%	42.36%
Standard Deviation	48.2%	63.6%	35.3%
Stress-NG - NUMA (Bogo Ops/s)	71.74	159.47	80.41
Normalized	44.99%	100%	50.42%
Standard Deviation	2.6%	1.4%	1.1%
Stress-NG - Futex (Bogo Ops/s)		1027159	549464
Normalized		100%	53.49%
Standard Deviation		2.3%	2.7%
Stress-NG - MEMFD (Bogo Ops/s)		169.70	104.05
Normalized		86.33%	52.93%
Standard Deviation		48.8%	46.1%
Stress-NG - Mutex (Bogo Ops/s)		3478040	1169039
Normalized		100%	33.61%
			2349124
			67.54%

Standard Deviation	0.6%	1%	1%
Stress-NG - Atomic (Bogo Ops/s)	133182	58091	67367
Normalized	100%	43.62%	50.58%
Standard Deviation	1.4%	0.6%	2.3%
Stress-NG - Crypto (Bogo Ops/s)	11392	5379	10862
Normalized	100%	47.21%	95.34%
Standard Deviation	6.5%	0.2%	0.7%
Stress-NG - Malloc (Bogo Ops/s)	7579511	1453426	5518844
Normalized	100%	19.18%	72.81%
Standard Deviation	0.3%	0.3%	0.3%
Stress-NG - Forking (Bogo Ops/s)	28481	17703	25808
Normalized	100%	62.16%	90.62%
Standard Deviation	1.4%	0.7%	0.9%
Stress-NG - IO_uring (Bogo Ops/s)	671.59	706.07	896.41
Normalized	74.92%	78.77%	100%
Standard Deviation	21.5%	22.9%	5.8%
Stress-NG - SENDFILE (Bogo Ops/s)	127490	48274	96151
Normalized	100%	37.86%	75.42%
Standard Deviation	0.6%	0.7%	0.3%
Stress-NG - CPU Cache (Bogo Ops/s)	101.87	35.20	48.50
Normalized	100%	34.55%	47.61%
Standard Deviation	6.6%	12.5%	11.1%
Stress-NG - CPU Stress (Bogo Ops/s)	18178	6697	13546
Normalized	100%	36.84%	74.52%
Standard Deviation	1.7%	0.3%	0.1%
Stress-NG - Semaphores (Bogo	1653103	674116	1346675
Normalized	100%	40.78%	81.46%
Standard Deviation	0.1%	0.8%	0.5%
Stress-NG - Matrix Math (Bogo Ops/s)	45816	19458	39457
Normalized	100%	42.47%	86.12%
Standard Deviation	0.1%	0.3%	0.1%
Stress-NG - Vector Math (Bogo Ops/s)	33989	11623	23403
Normalized	100%	34.2%	68.85%
Standard Deviation	4.5%	0.6%	0.6%
Stress-NG - x86_64 RdRand (Bogo Ops/s)	485990	242961	485486
Normalized	100%	49.99%	99.9%
Standard Deviation	0%	0%	0%
Stress-NG - Memory Copying (Bogo Ops/s)	1173	1294	2105
Normalized	55.71%	61.46%	100%
Standard Deviation	2.5%	0.1%	0.7%
Stress-NG - Socket Activity (Bogo	4637	3463	5822
Normalized	79.66%	59.49%	100%
Standard Deviation	0.3%	0.5%	1.1%
Stress-NG - Context Switching (Bogo Ops/s)	925113	1082404	2165906
Normalized	42.71%	49.97%	100%
Standard Deviation	2%	0.6%	1.2%
Stress-NG - G.C.S.F (Bogo Ops/s)	1196671	479515	987819
Normalized	100%	40.07%	82.55%
Standard Deviation	0.3%	2.1%	0.3%
Stress-NG - G.Q.D.S (Bogo Ops/s)	134.52	55.78	113.08
Normalized	100%	41.47%	84.06%
Standard Deviation	1.2%	0.5%	0.3%

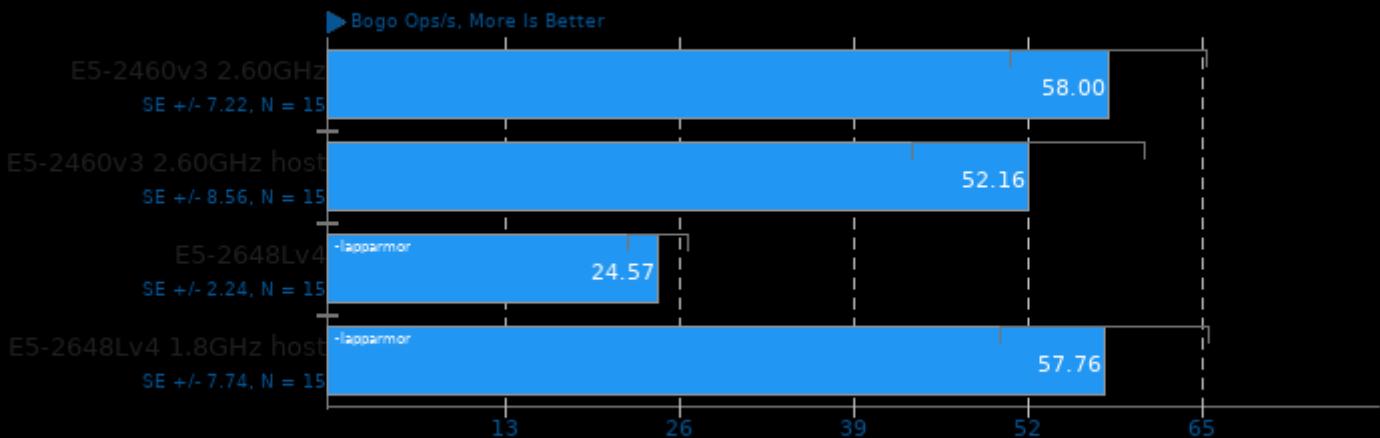
Stress-NG - S.V.M.P (Bogo Ops/s)**Normalized
Standard Deviation****2533290**100%
0.4%

2297529

90.69%
0.3%**1566127**61.82%
0.6%

Stress-NG 0.14.06

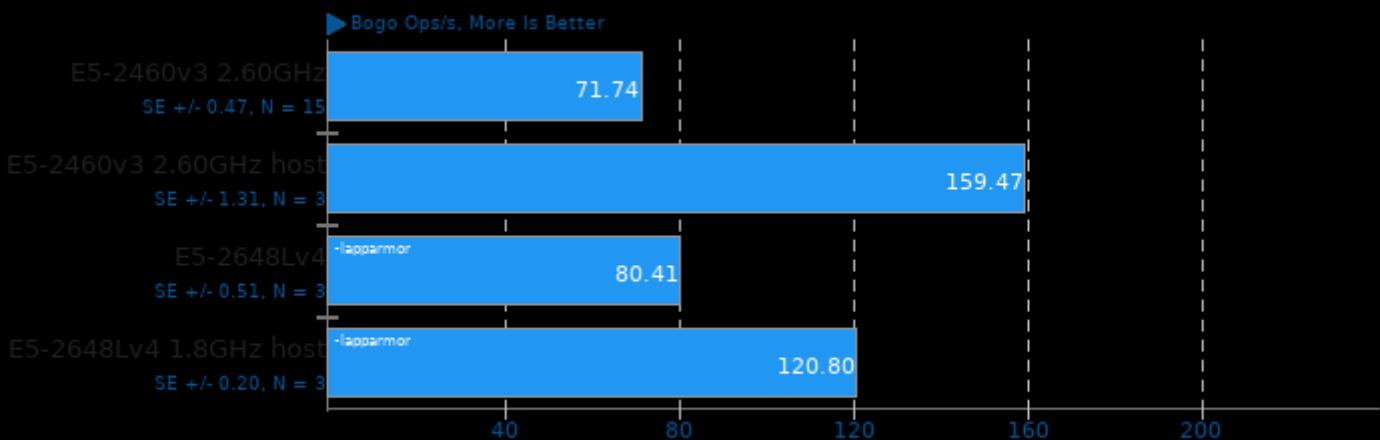
Test: MMAP



1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-lld=gold -latomic -lc -lcrypt -ldl -lrt -pthread

Stress-NG 0.14.06

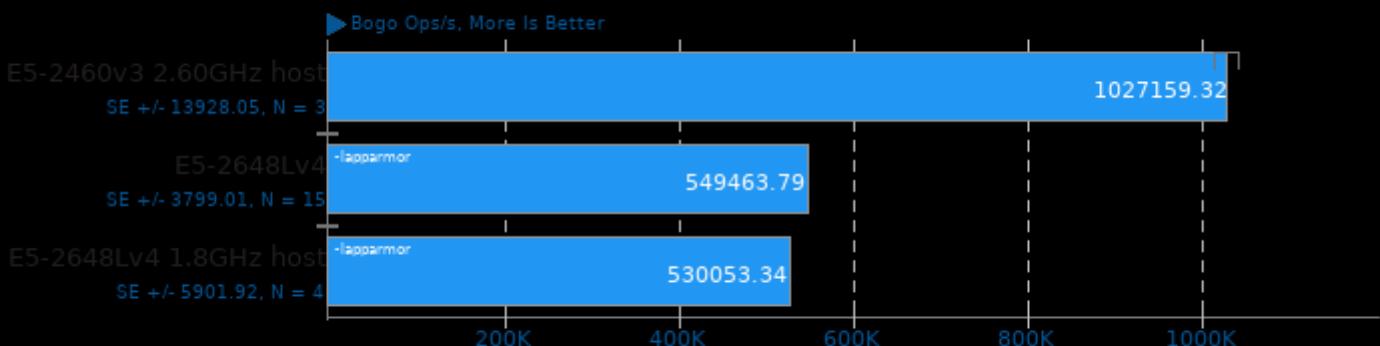
Test: NUMA



1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-lld=gold -latomic -lc -lcrypt -ldl -lrt -pthread

Stress-NG 0.14.06

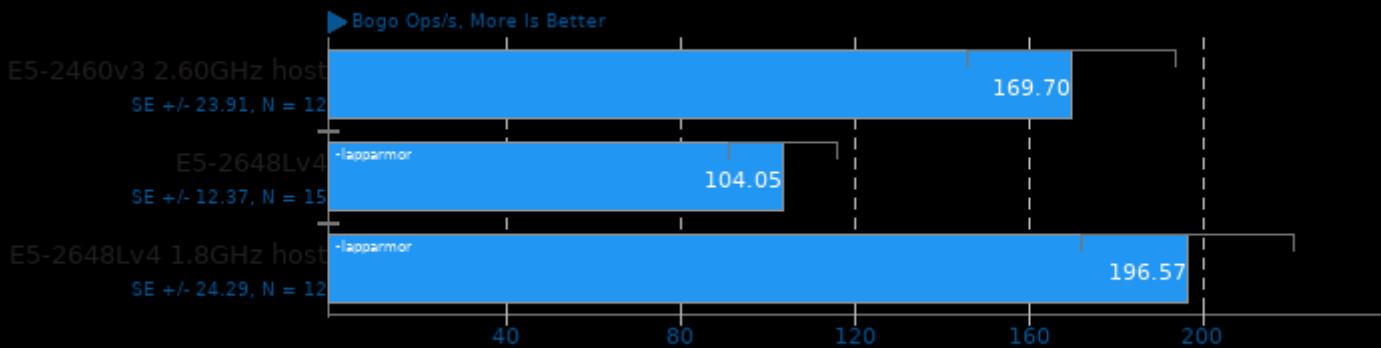
Test: Futex



1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-lld=gold -latomic -lc -lcrypt -ldl -lrt -pthread

Stress-NG 0.14.06

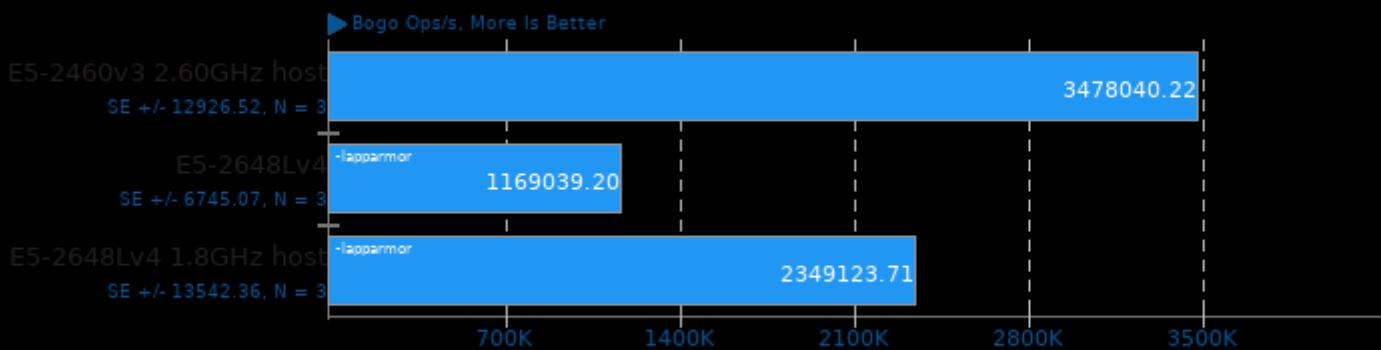
Test: MEMFD



1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-lld=gold -latomic -lc -lcrypt -ldl -lrt -pthread

Stress-NG 0.14.06

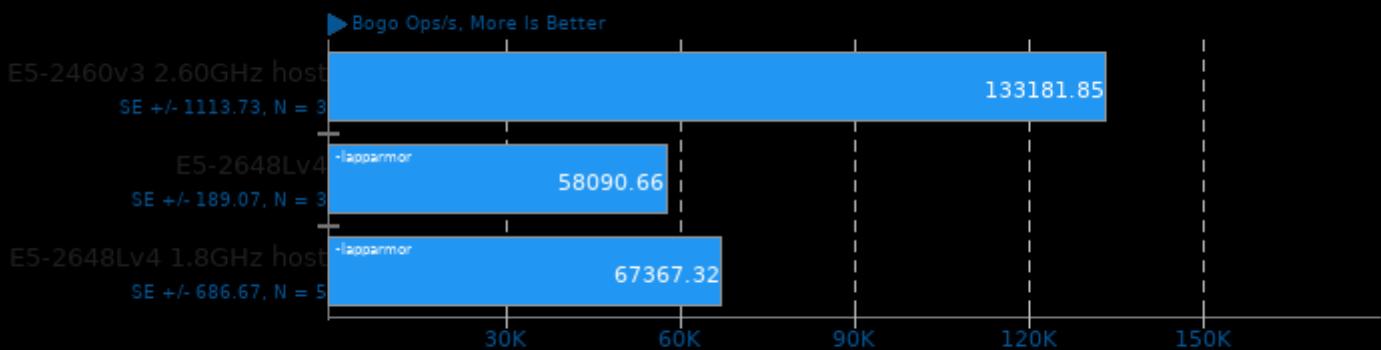
Test: Mutex



1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-lld=gold -latomic -lc -lcrypt -ldl -lrt -pthread

Stress-NG 0.14.06

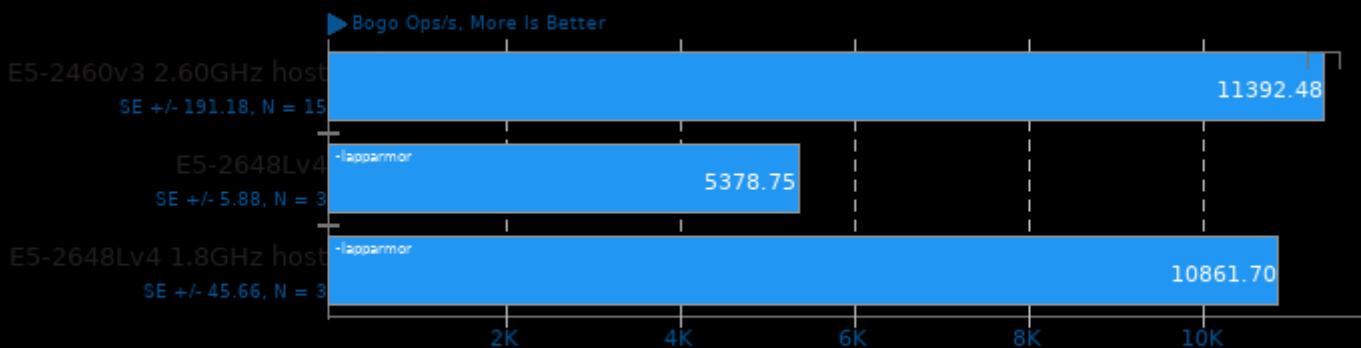
Test: Atomic



1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-lld=gold -latomic -lc -lcrypt -ldl -lrt -pthread

Stress-NG 0.14.06

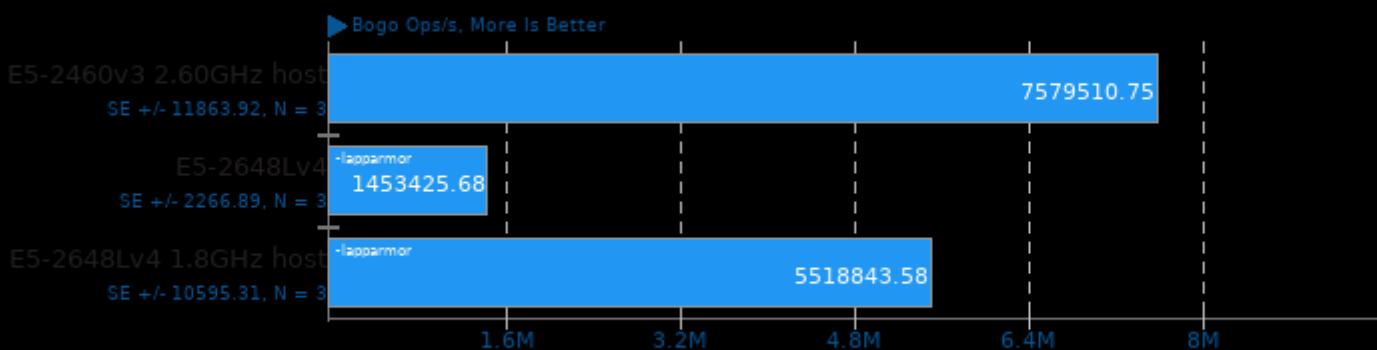
Test: Crypto



1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-lld=gold -latomic -lc -lcrypt -ldl -lrt -pthread

Stress-NG 0.14.06

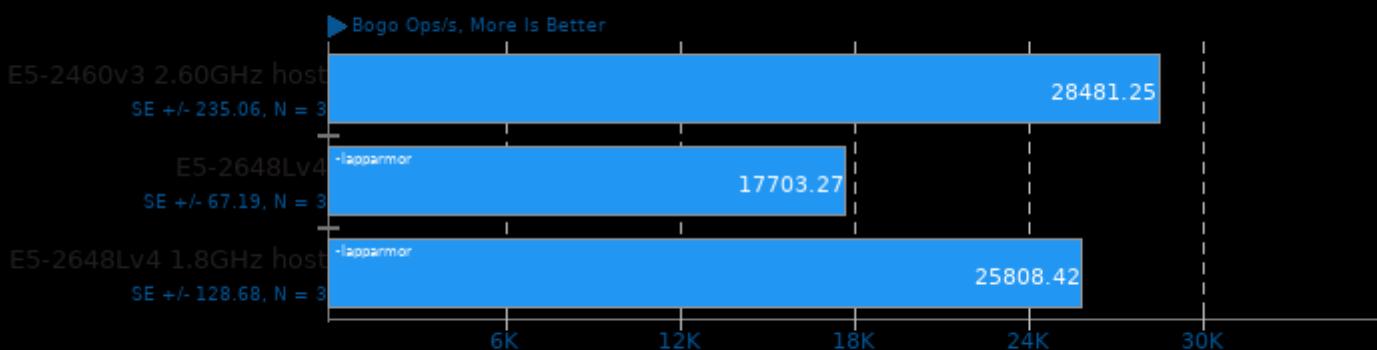
Test: Malloc



1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-lld=gold -latomic -lc -lcrypt -ldl -lrt -pthread

Stress-NG 0.14.06

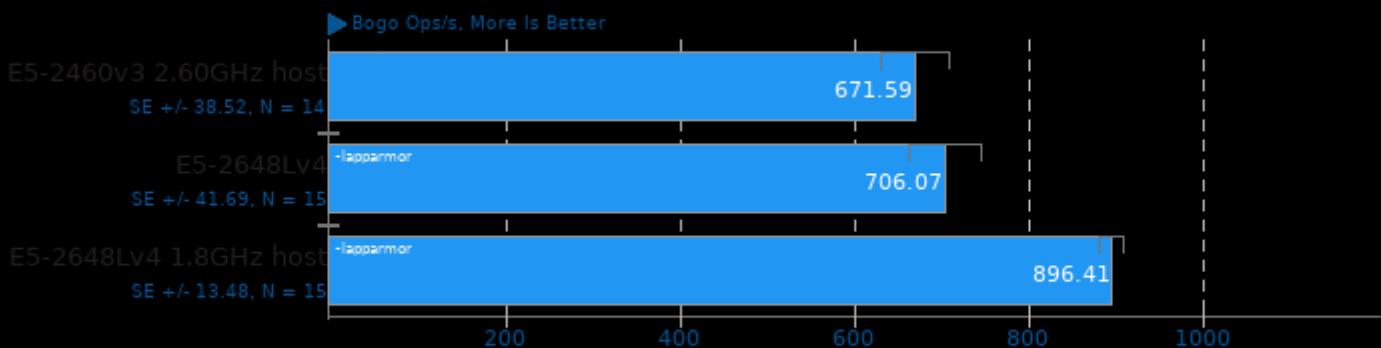
Test: Forking



1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-lld=gold -latomic -lc -lcrypt -ldl -lrt -pthread

Stress-NG 0.14.06

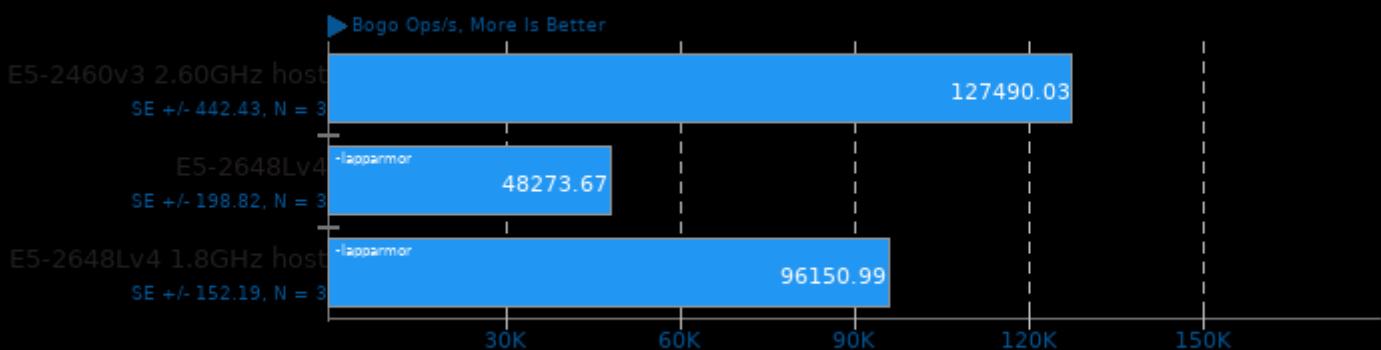
Test: IO_uring



1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-lld=gold -latomic -lc -lcrypt -ldl -lrt -pthread

Stress-NG 0.14.06

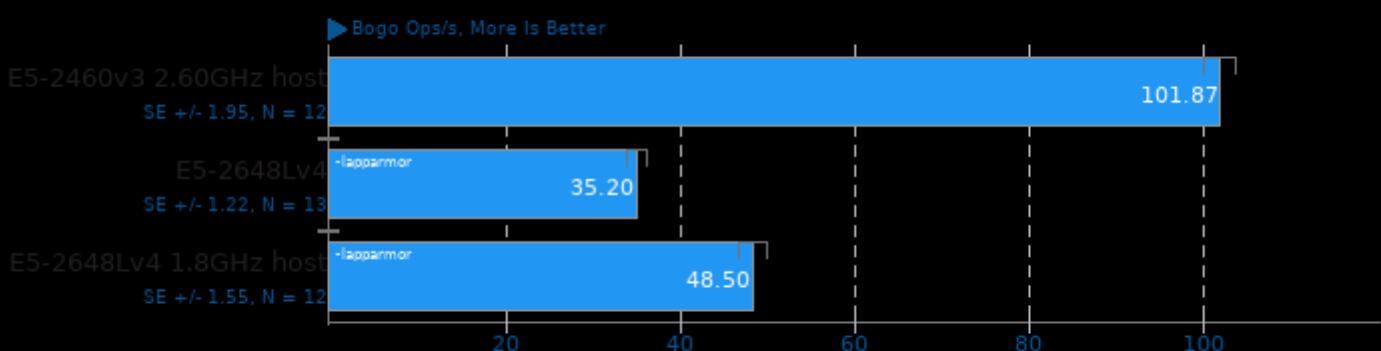
Test: SENDFILE



1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-lld=gold -latomic -lc -lcrypt -ldl -lrt -pthread

Stress-NG 0.14.06

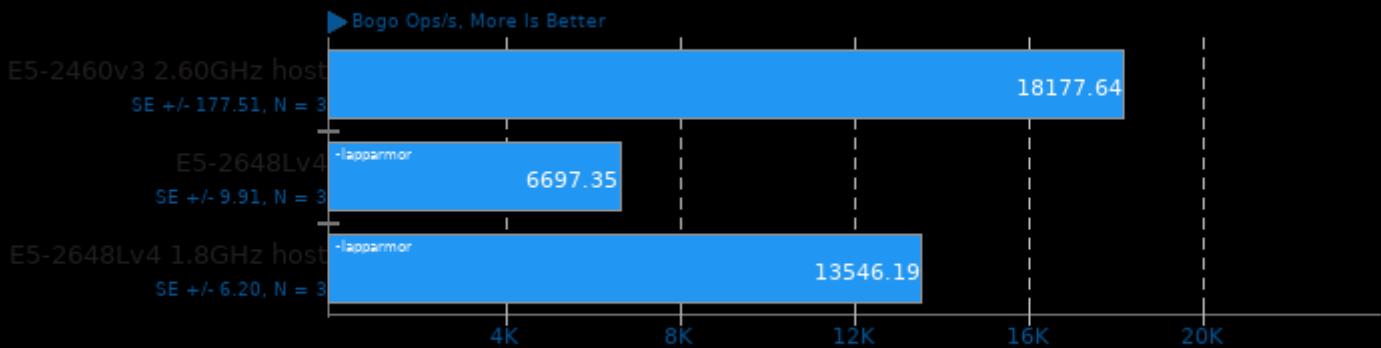
Test: CPU Cache



1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-lld=gold -latomic -lc -lcrypt -ldl -lrt -pthread

Stress-NG 0.14.06

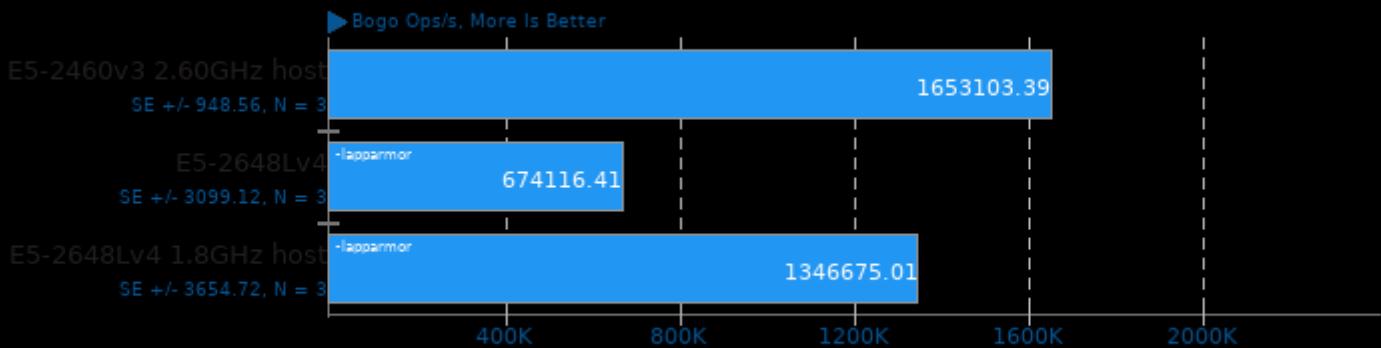
Test: CPU Stress



1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-lld=gold -latomic -lc -lcrypt -ldl -lrt -pthread

Stress-NG 0.14.06

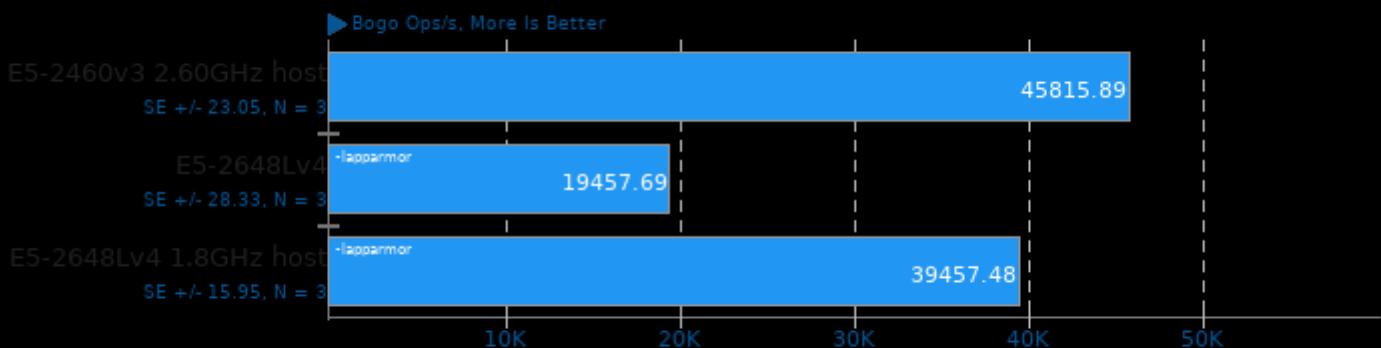
Test: Semaphores



1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-lld=gold -latomic -lc -lcrypt -ldl -lrt -pthread

Stress-NG 0.14.06

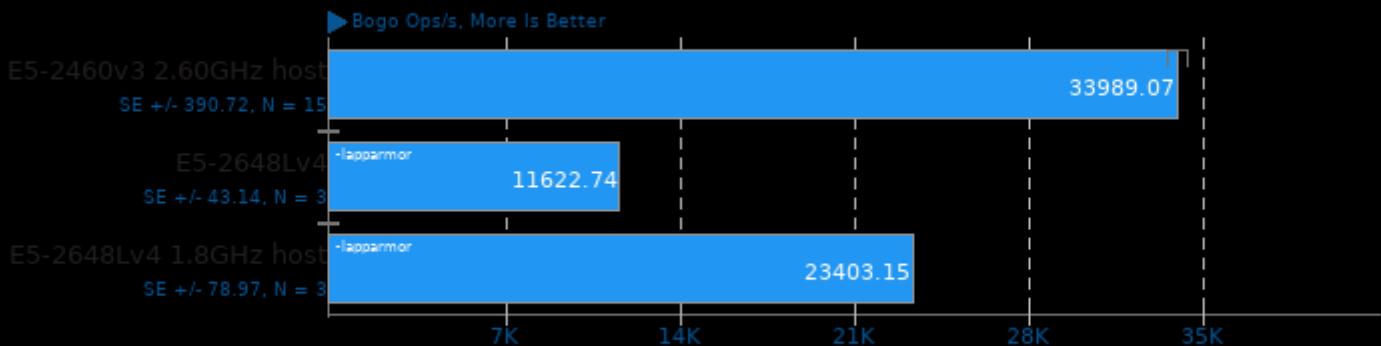
Test: Matrix Math



1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-lld=gold -latomic -lc -lcrypt -ldl -lrt -pthread

Stress-NG 0.14.06

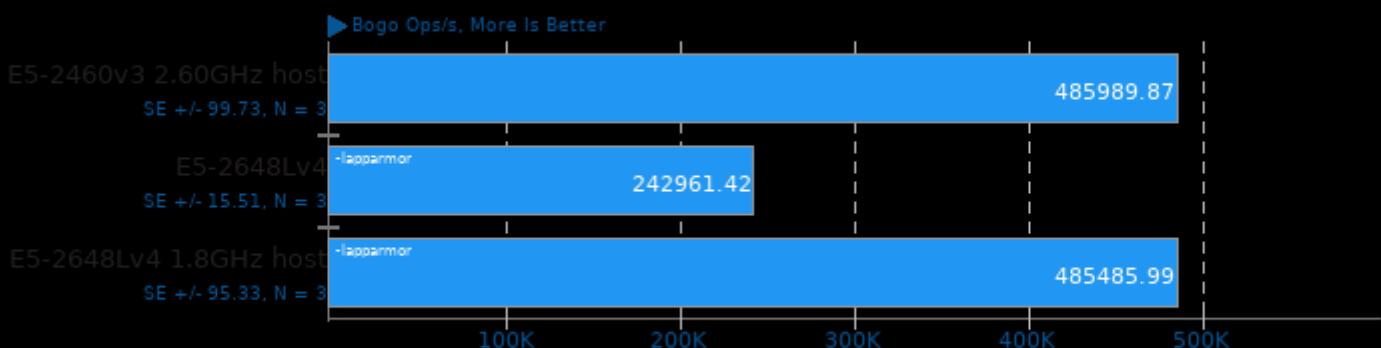
Test: Vector Math



1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-ld=gold -latomic -lc -lcrypt -ldl -lrt -pthread

Stress-NG 0.14.06

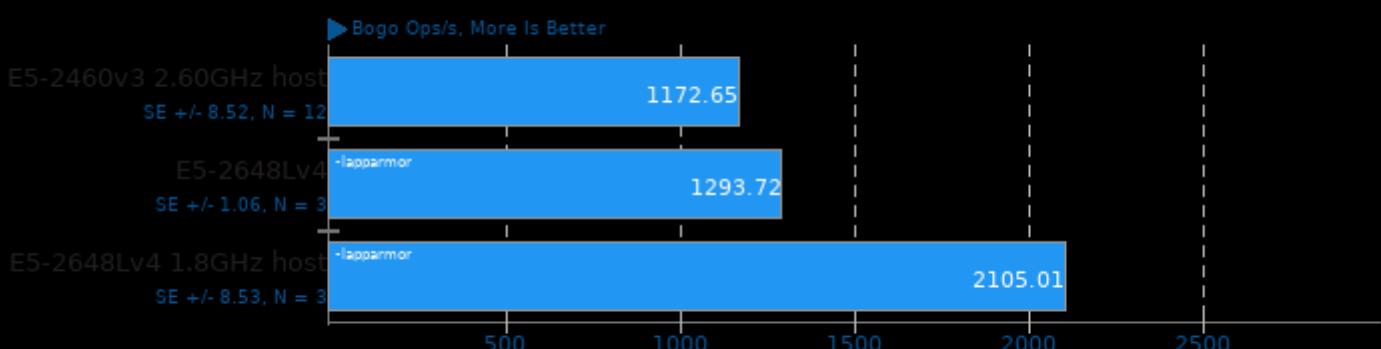
Test: x86_64 RdRand



1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-ld=gold -latomic -lc -lcrypt -ldl -lrt -pthread

Stress-NG 0.14.06

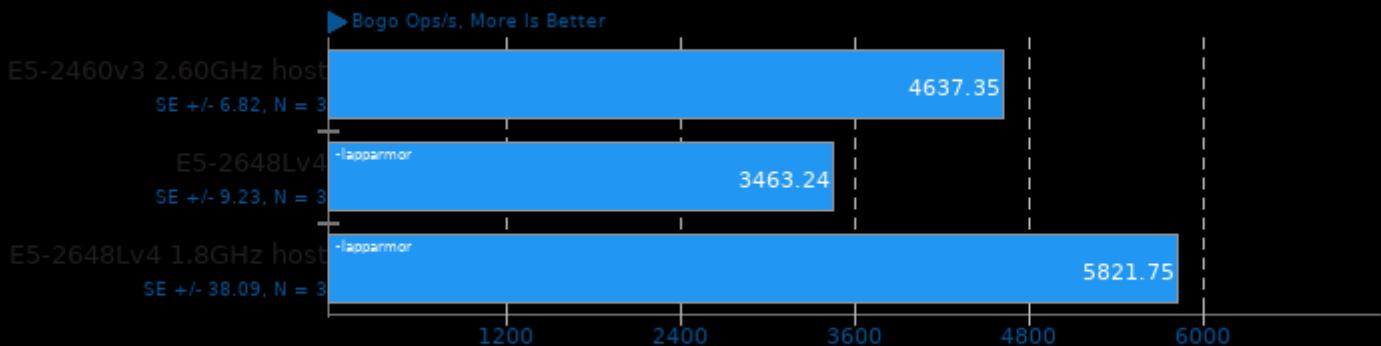
Test: Memory Copying



1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-ld=gold -latomic -lc -lcrypt -ldl -lrt -pthread

Stress-NG 0.14.06

Test: Socket Activity



1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-lld=gold -latomic -lc -lcrypt -ldl -lrt -pthread

Stress-NG 0.14.06

Test: Context Switching



1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-lld=gold -latomic -lc -lcrypt -ldl -lrt -pthread

Stress-NG 0.14.06

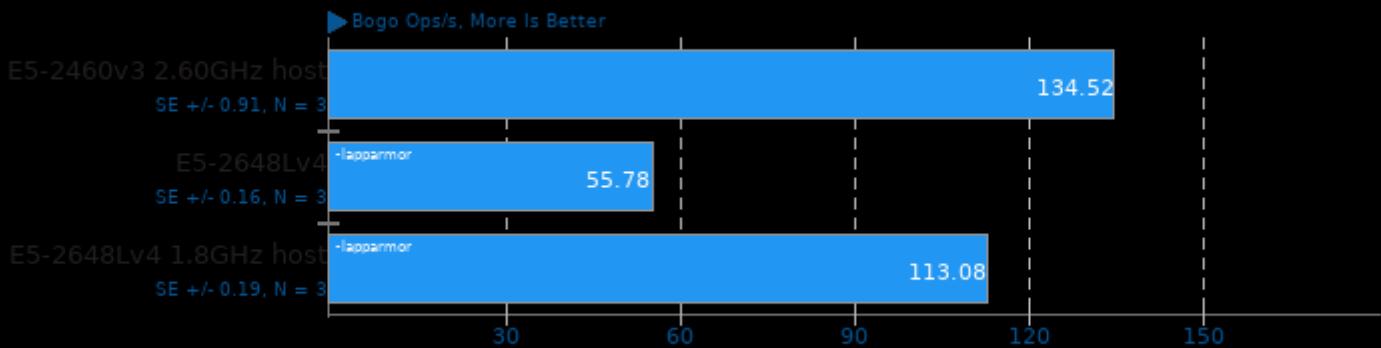
Test: Glibc C String Functions



1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-lld=gold -latomic -lc -lcrypt -ldl -lrt -pthread

Stress-NG 0.14.06

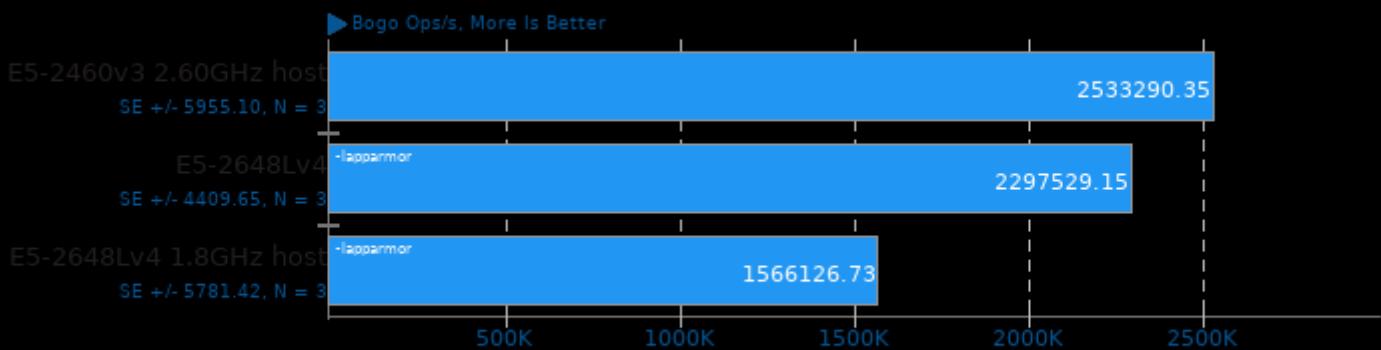
Test: Glibc Qsort Data Sorting



1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-lld=gold -latomic -lc -lcrypt -ldl -lrt -pthread

Stress-NG 0.14.06

Test: System V Message Passing



1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-lld=gold -latomic -lc -lcrypt -ldl -lrt -pthread

This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 12:36.