



[www.phoronix-test-suite.com](http://www.phoronix-test-suite.com)

## **memory-bench**

KVM VMware testing on Debian 10 via the Phoronix Test Suite.

### **Test Systems:**

#### **memory-bench**

#### **memory-benchmark**

Processor: AMD EPYC 7282 16-Core (8 Cores), Motherboard: QEMU Standard PC (i440FX + PIIX 1996) (rel-1.14.0-0-g155821a1990b-prebuilt.qemu.org BIOS), Chipset: Intel 440FX 82441FX PMC, Memory: 16384 MB + 14336 MB RAM, Disk: 859GB QEMU HDD, Graphics: VMware SVGA II, Network: Red Hat Virtio device

OS: Debian 10, Kernel: 4.19.0-16-amd64 (x86\_64), Compiler: GCC 8.3.0, File-System: ext4, System Layer: KVM VMware

Kernel Notes: Transparent Huge Pages: always

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: CPU Microcode: 0x830104d
```

Security Notes: itlb\_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: 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 Full AMD retroline IBPB: conditional IBRS\_FW STIBP: disabled RSB filling + srbs: Not affected + tsx\_async\_abort: Not affected

	memory-bench	memory-benchmark
<b>RAMspeed SMP - Add - Integer (MB/s)</b>	25999	
Standard Deviation	2.3%	
<b>RAMspeed SMP - Copy - Integer (MB/s)</b>	25035	
Standard Deviation	3.3%	
<b>RAMspeed SMP - Scale - Integer (MB/s)</b>	23144	
Standard Deviation	1%	
<b>RAMspeed SMP - Triad - Integer (MB/s)</b>	25496	
Standard Deviation	6.7%	
<b>RAMspeed SMP - Average - Integer (MB/s)</b>	25466	
Standard Deviation	3%	
<b>RAMspeed SMP - Add - Floating Point (MB/s)</b>	28025	
Standard Deviation	1.8%	
<b>RAMspeed SMP - Copy - Floating Point (MB/s)</b>	24908	
Standard Deviation	1%	
<b>RAMspeed SMP - Scale - Floating Point (MB/s)</b>	23997	
Standard Deviation	1.7%	
<b>RAMspeed SMP - Triad - Floating Point (MB/s)</b>	25641	
Standard Deviation	4.9%	
<b>RAMspeed SMP - Average - Floating Point (MB/s)</b>	25328	
Standard Deviation	1.2%	
<b>Stream - Copy (MB/s)</b>	68170	
Standard Deviation	5.3%	
<b>Stream - Scale (MB/s)</b>	45447	
Standard Deviation	7.4%	
<b>Stream - Triad (MB/s)</b>	51958	
Standard Deviation	2.5%	
<b>Stream - Add (MB/s)</b>	51891	
Standard Deviation	3.8%	
<b>Tinymembench - Standard Memcpy (MB/s)</b>	11156	
Standard Deviation	10.9%	
<b>Tinymembench - Standard Memset (MB/s)</b>	11803	
Standard Deviation	1.3%	
<b>CacheBench - Read Cache (MB/s)</b>	2122	
Standard Deviation	0.6%	
<b>CacheBench - Write Cache (MB/s)</b>	15405	
Standard Deviation	2.4%	
<b>MBW - Memory Copy - 1024 MiB (MiB/s)</b>	11008	
Standard Deviation	4.7%	
<b>MBW - M.C.F.B.S - 1024 MiB (MiB/s)</b>	7262	
Standard Deviation	1.6%	
<b>t-test1 - 1 (sec)</b>	33.146	
Standard Deviation	2.1%	

**t-test1 - 2 (sec)**

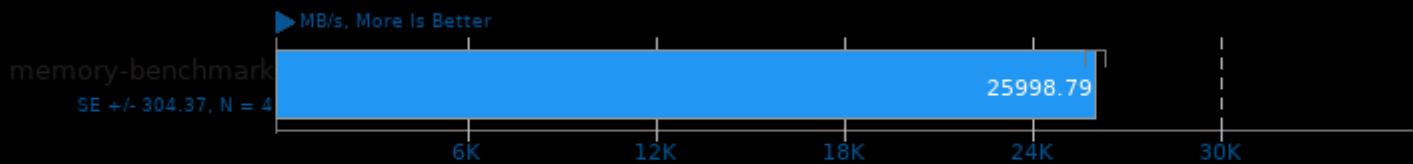
Standard Deviation

12.011

4.9%

## RAMspeed SMP 3.5.0

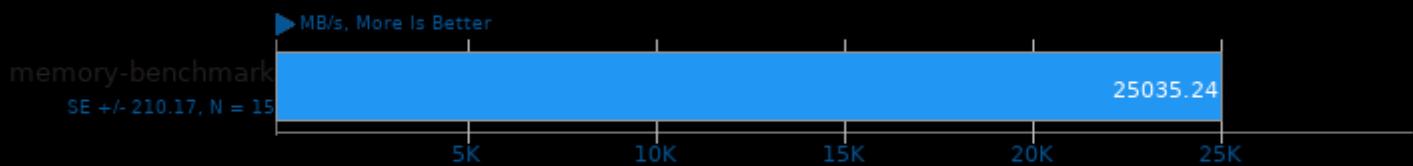
Type: Add - Benchmark: Integer



1. (CC) gcc options: -O3 -march=native

## RAMspeed SMP 3.5.0

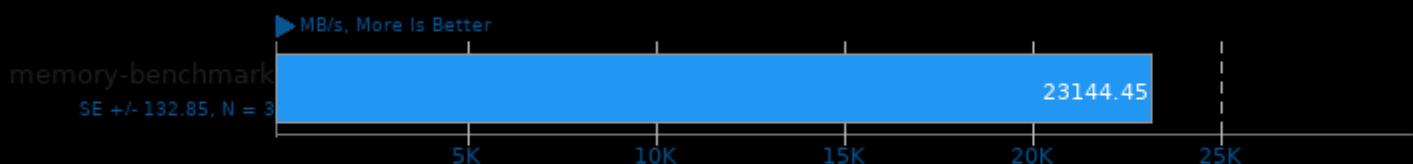
Type: Copy - Benchmark: Integer



1. (CC) gcc options: -O3 -march=native

## RAMspeed SMP 3.5.0

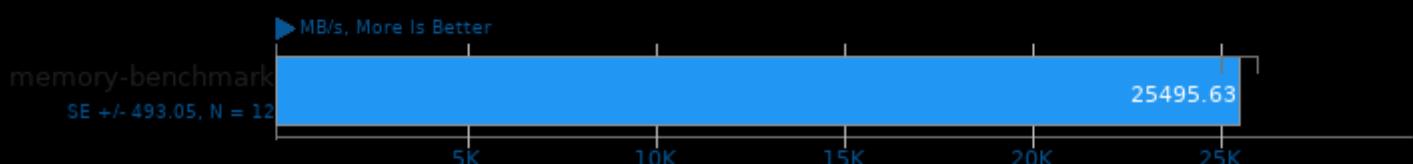
Type: Scale - Benchmark: Integer



1. (CC) gcc options: -O3 -march=native

## RAMspeed SMP 3.5.0

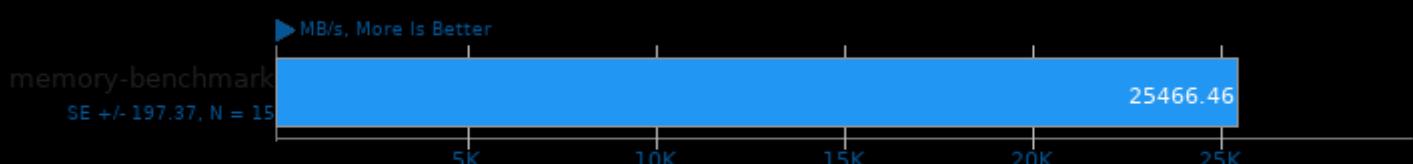
Type: Triad - Benchmark: Integer



1. (CC) gcc options: -O3 -march=native

## RAMspeed SMP 3.5.0

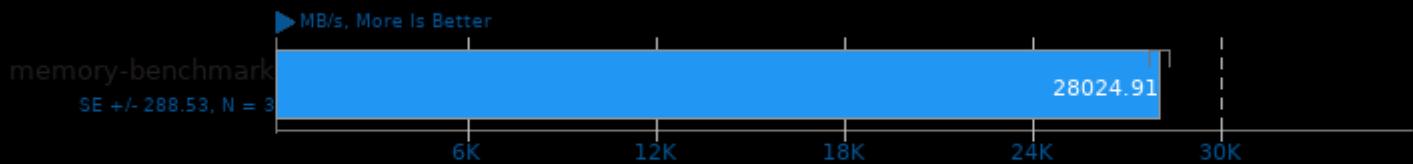
Type: Average - Benchmark: Integer



1. (CC) gcc options: -O3 -march=native

## RAMspeed SMP 3.5.0

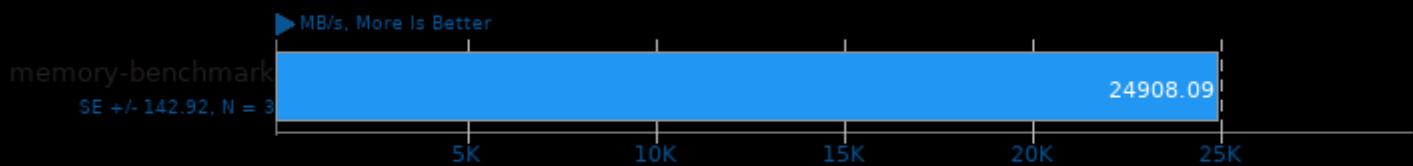
Type: Add - Benchmark: Floating Point



1. (CC) gcc options: -O3 -march=native

## RAMspeed SMP 3.5.0

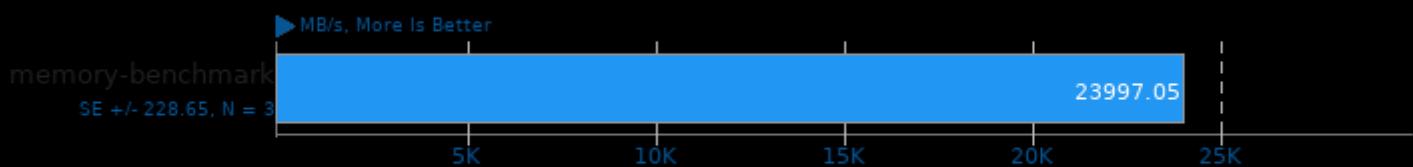
Type: Copy - Benchmark: Floating Point



1. (CC) gcc options: -O3 -march=native

## RAMspeed SMP 3.5.0

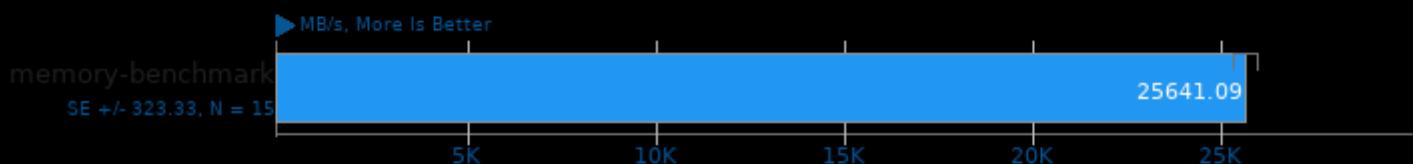
Type: Scale - Benchmark: Floating Point



1. (CC) gcc options: -O3 -march=native

## RAMspeed SMP 3.5.0

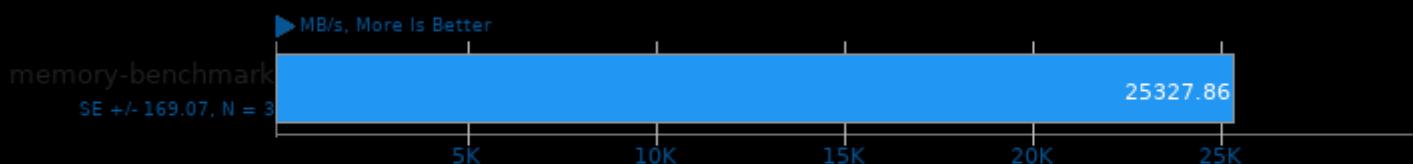
Type: Triad - Benchmark: Floating Point



1. (CC) gcc options: -O3 -march=native

## RAMspeed SMP 3.5.0

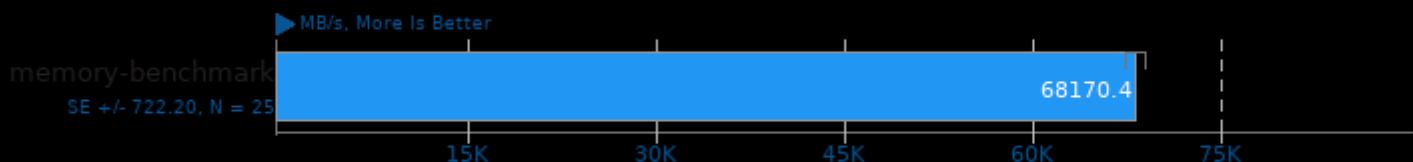
Type: Average - Benchmark: Floating Point



1. (CC) gcc options: -O3 -march=native

**Stream 2013-01-17**

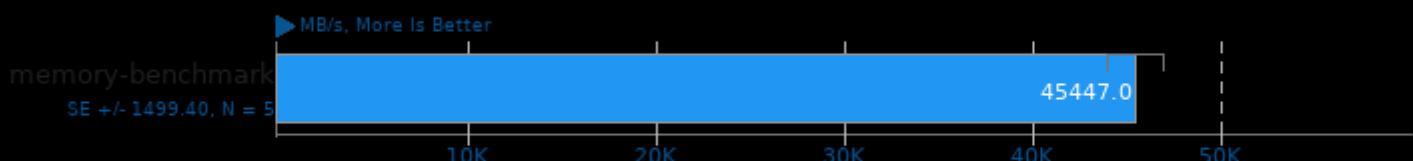
Type: Copy



1. (CC) gcc options: -O3 -march=native -fopenmp

**Stream 2013-01-17**

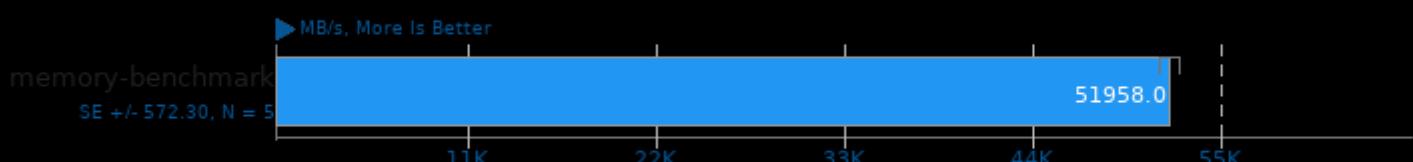
Type: Scale



1. (CC) gcc options: -O3 -march=native -fopenmp

**Stream 2013-01-17**

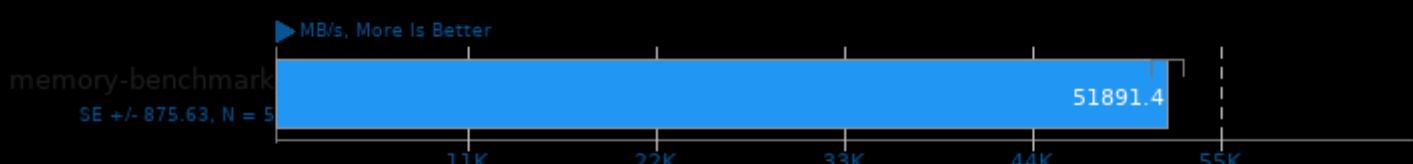
Type: Triad



1. (CC) gcc options: -O3 -march=native -fopenmp

**Stream 2013-01-17**

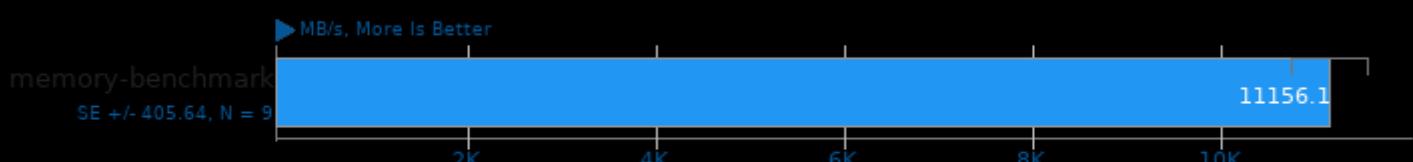
Type: Add



1. (CC) gcc options: -O3 -march=native -fopenmp

**Tinymembench 2018-05-28**

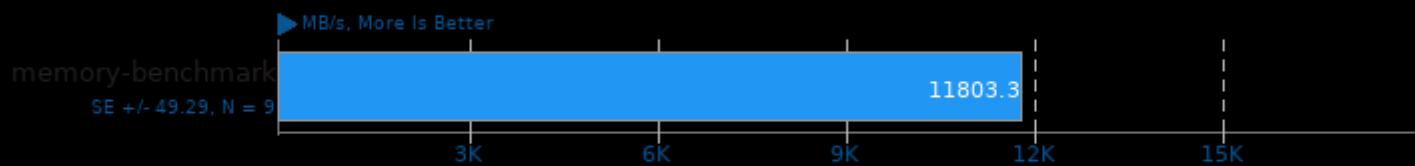
Standard Memcpy



1. (CC) gcc options: -O2 -lm

## Tinymembench 2018-05-28

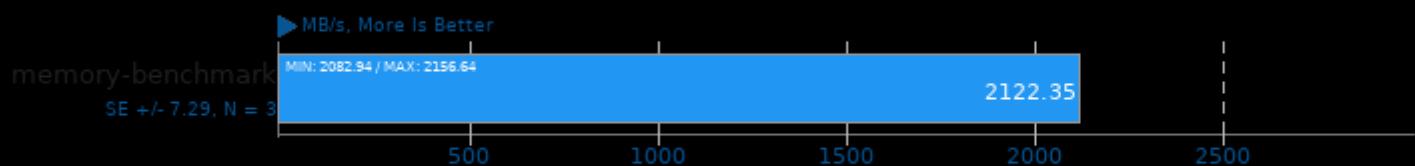
Standard Memset



1. (CC) gcc options: -O2 -lm

## CacheBench

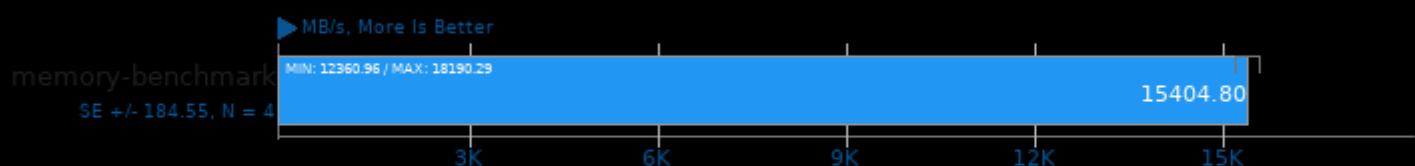
Read Cache



1. (CC) gcc options: -lrt

## CacheBench

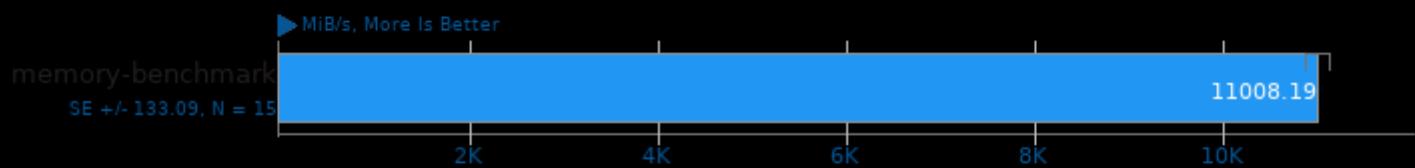
Write Cache



1. (CC) gcc options: -lrt

## MBW 2018-09-08

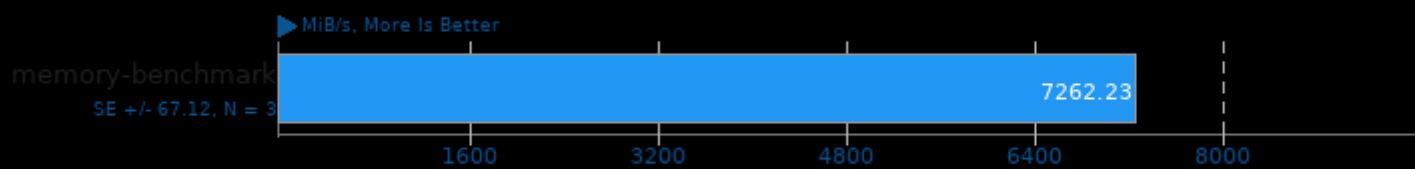
Test: Memory Copy - Array Size: 1024 MiB



1. (CC) gcc options: -O3 -march=native

## MBW 2018-09-08

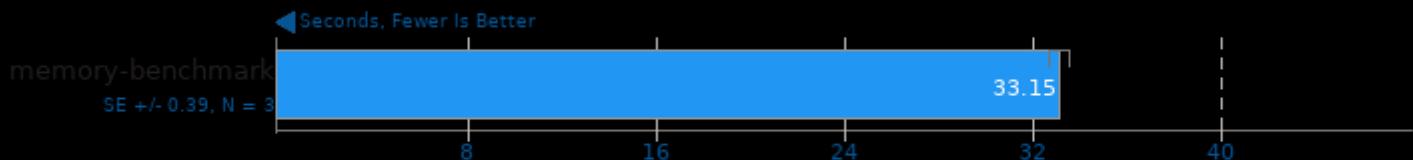
Test: Memory Copy, Fixed Block Size - Array Size: 1024 MiB



1. (CC) gcc options: -O3 -march=native

**t-test1 2017-01-13**

Threads: 1



1. (CC) gcc options: -pthread

**t-test1 2017-01-13**

Threads: 2



1. (CC) gcc options: -pthread

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