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memory-tests

Intel Core i7-2600K testing with a ASUS P8H61-M LX (4601 BIOS) and Intel HD 3000 SNB GT2 on AlmaLinux 9.2 via the Phoronix Test Suite.

Test Systems:

R7 5700X, DDR4-3000 XMP

R7 5700X, DDR4-3200 OC tight timings

Processor: AMD Ryzen 7 5700X 8-Core @ 3.40GHz (8 Cores / 16 Threads), Motherboard: ASUS PRIME X370-PRO (6042 BIOS), Chipset: AMD Starship/Matisse, Memory: 32GB, Disk: 1024GB SPCC M.2 PCIe SSD + Western Digital WD_BLACK SN850X 2000GB + 2000GB SPCC M.2 PCIe SSD + 525GB Crucial CT525MX3 + 480GB SanDisk SDSSDHII + 1000GB CT1000MX500SSD1 + 2000GB SanDisk SDSSDH3, Graphics: AMD Radeon RX 7900 XT 20GB (2025/1249MHz), Audio: AMD Navi 31 HDMI/DP, Monitor: GA271 + LG SDQHD, Network: Intel I211

OS: Ubuntu 23.10, Kernel: 6.5.0-10-generic (x86_64), Desktop: GNOME Shell 45.0, Display Server: X Server 1.21.1.7 + Wayland, OpenGL: 4.6 Mesa 23.2.1-1ubuntu3 (LLVM 15.0.7 DRM 3.54), OpenCL: OpenCL 2.1 AMD-APP (3590.0),

Compiler: GCC 13.2.0, File-System: ext4, Screen Resolution: 2880x2560

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,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-defaulted --enable-offload-targets=nvptx-none=/build/gcc-13-XYspKM/gcc-13-13.2.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-13-XYspKM/gcc-13-13.2.0/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-ito-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 ondemand (Boost: Enabled) - CPU Microcode: 0xa20120a

Security Notes: gather_data_sampling: Not affected + itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + mmio_stale_data: Not affected + rebleed: Not affected + spec_rstack_overflow: Mitigation of safe RET no microcode + spec_store_bypass: Mitigation of SSB disabled via prctl + spectre_v1: Mitigation of usercopy/swaps barriers and __user pointer sanitization + spectre_v2: Mitigation of Retpolines IBPB: conditional IBRS_FW STIBP: always-on RSB filling PBRSB-elBRS: Not affected + srbds: Not affected + tsx_async_abort: Not affected

2 x 4 GB DDR3-1333MT

Processor: Intel Core i7-2600K @ 3.80GHz (4 Cores / 8 Threads), Motherboard: ASUS P8H61-M LX (4601 BIOS), Memory: 2 x 4 GB DDR3-1333MT/s Kingston, Disk: 480GB KINGSTON SA400S3, Graphics: Intel HD 3000 SNB GT2 (1350MHz), Audio: Realtek ALC887-VD, Monitor: DELL E1909W

OS: AlmaLinux 9.2, Kernel: 5.14.0-284.11.1.el9_2.x86_64 (x86_64), Desktop: GNOME Shell 40.10, Display Server: X Server 1.20.11, OpenGL: 3.3 Mesa 22.3.0, File-System: zfs, Screen Resolution: 1440x900

Kernel Notes: Transparent Huge Pages: always

Processor Notes: Scaling Governor: intel_cpufreq performance - CPU Microcode: 0x2f

Security Notes: itlb_multihit: KVM: Mitigation of VMX disabled + l1tf: Mitigation of PTE Inversion; VMX: conditional cache flushes SMT vulnerable + mds: Mitigation of Clear buffers; SMT vulnerable + meltdown: Mitigation of PTI + mmio_stale_data: Unknown: No mitigations + rebleed: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl + spectre_v1: Mitigation of usercopy/swaps barriers and __user pointer sanitization + spectre_v2: Mitigation of Retpolines IBPB: conditional IBRS_FW STIBP: conditional RSB filling PBRSB-elBRS: Not affected + srbds: Not affected + tsx_async_abort: Not affected

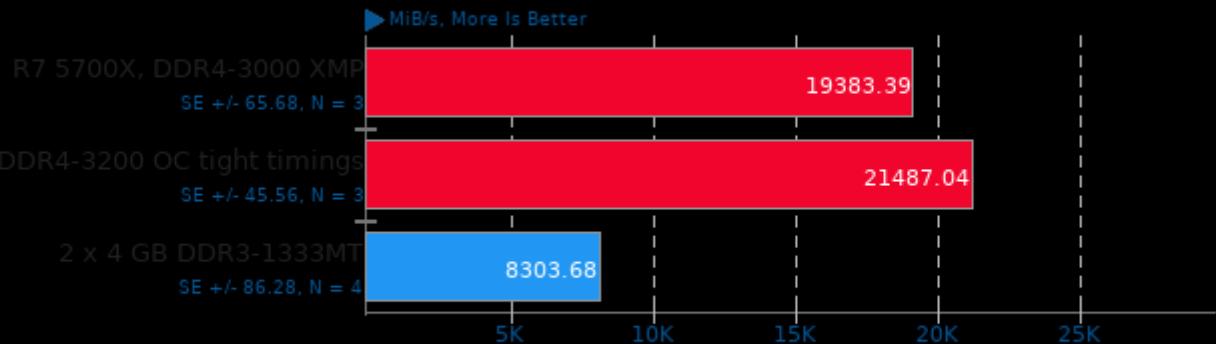
	R7 5700X, DDR4-3000	R7 5700X, DDR4-3200	2 x 4 GB
	XMP	OC tight timings	DDR3-1333MT
MBW - Memory Copy - 128 MiB (MiB/s)	19383	21487	8304
Normalized	90.21%	100%	38.65%
Standard Deviation	0.6%	0.4%	2.1%
MBW - Memory Copy - 512 MiB (MiB/s)	18722	20195	8447
Normalized	92.71%	100%	41.83%
Standard Deviation	0.9%	0.3%	0.5%
MBW - Memory Copy - 1024 MiB (MiB/s)	18765	20280	8395
Normalized	92.53%	100%	41.39%
Standard Deviation	0.6%	0.2%	1.2%
MBW - M.C.F.B.S - 128 MiB (MiB/s)	11824	13386	5341
Normalized	88.33%	100%	39.9%
Standard Deviation	0.6%	7.1%	1.3%
MBW - M.C.F.B.S - 512 MiB (MiB/s)	10482	11531	5578
Normalized	90.91%	100%	48.38%
Standard Deviation	2.4%	4.7%	0.3%
MBW - M.C.F.B.S - 1024 MiB (MiB/s)	11050	11810	5548
Normalized	93.56%	100%	46.98%
Standard Deviation	5.8%	5.1%	0.1%
MBW - Memory Copy - 4096 MiB (MiB/s)		20340	
Standard Deviation		0.2%	
MBW - M.C.F.B.S - 4096 MiB (MiB/s)		11657	

Standard Deviation

5.4%

MBW 2018-09-08

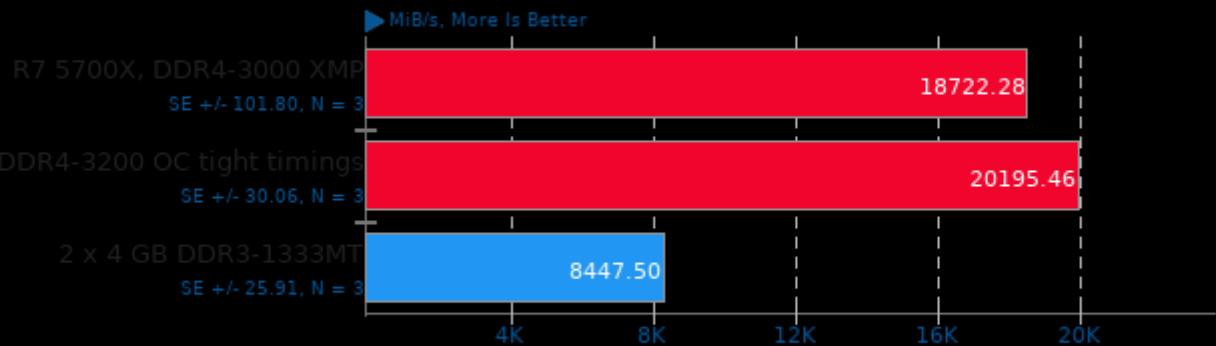
Test: Memory Copy - Array Size: 128 MiB



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

MBW 2018-09-08

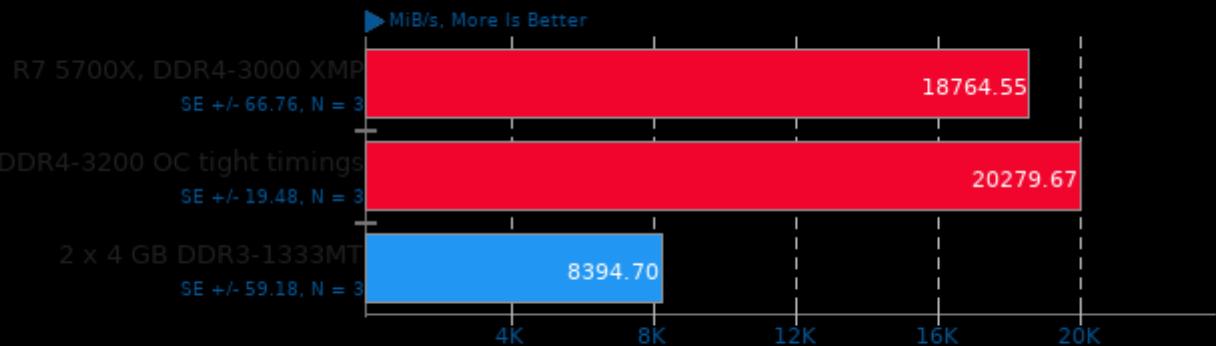
Test: Memory Copy - Array Size: 512 MiB



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

MBW 2018-09-08

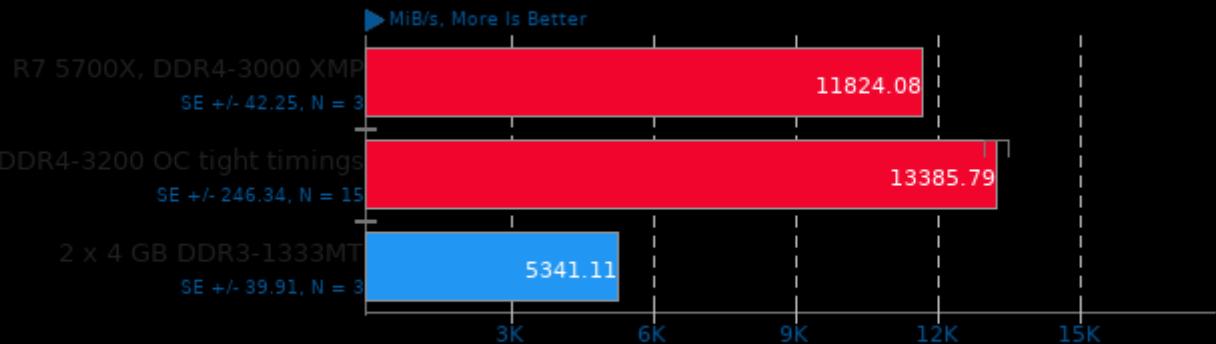
Test: Memory Copy - Array Size: 1024 MiB



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

MBW 2018-09-08

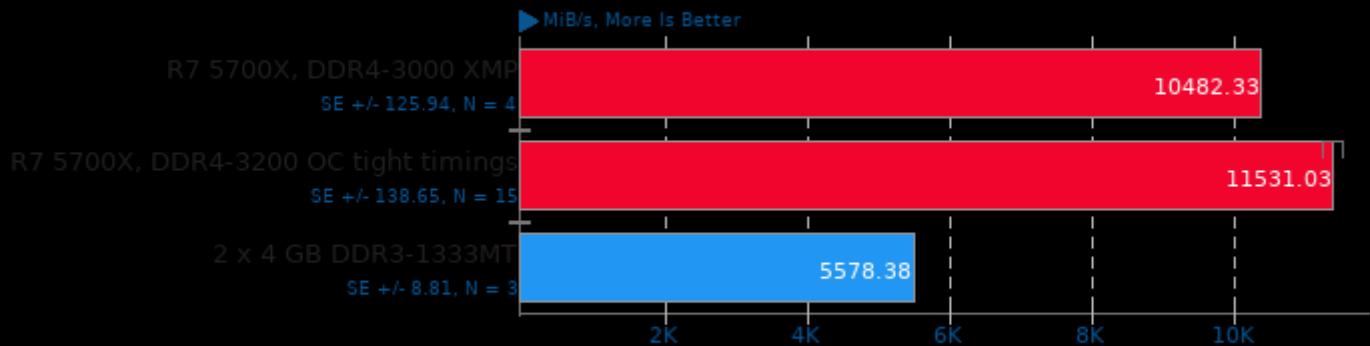
Test: Memory Copy, Fixed Block Size - Array Size: 128 MiB



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

MBW 2018-09-08

Test: Memory Copy, Fixed Block Size - Array Size: 512 MiB



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

MBW 2018-09-08

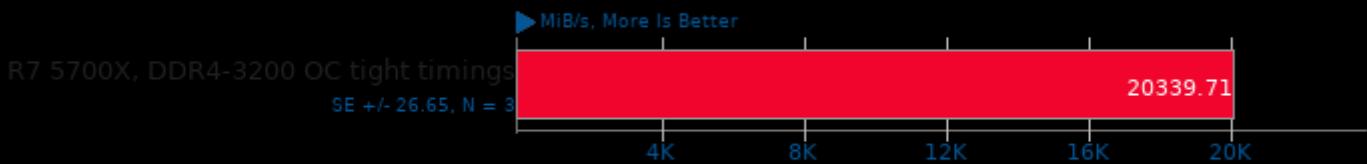
Test: Memory Copy, Fixed Block Size - Array Size: 1024 MiB



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

MBW 2018-09-08

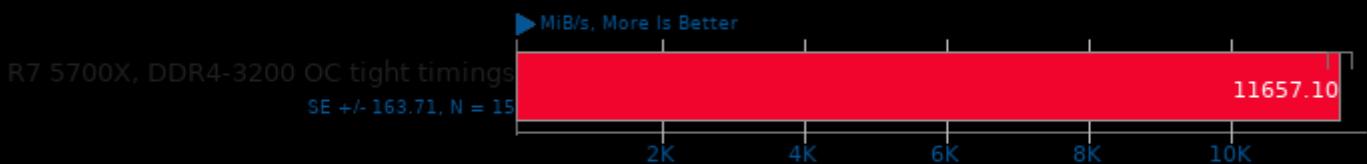
Test: Memory Copy - Array Size: 4096 MiB



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

MBW 2018-09-08

Test: Memory Copy, Fixed Block Size - Array Size: 4096 MiB



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

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