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Zstd_compress_test

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Automated Executive Summary

AMD Ryzen 7 3700X had the most wins, coming in first place for 58% of the tests.

Based on the geometric mean of all complete results, the fastest (lqx-5-17-11) was 1.022x the speed of the slowest (Zstd_first). AMD Ryzen 7 3700X was 0.99x the speed of lqx-5-17-11, arch-5-17-19 was 0.995x the speed of AMD Ryzen 7 3700X, Zstd_first was 0.993x the speed of arch-5-17-19.

Test Systems:

Zstd_first

Processor: AMD Ryzen 7 3700X 8-Core @ 3.60GHz (8 Cores / 16 Threads), Motherboard: ASRock X570 Taichi (P3.00 BIOS), Chipset: AMD Starship/Matisse, Memory: 32GB, Disk: 250GB Samsung SSD 860 + 500GB Samsung SSD 860 + 1000GB Samsung SSD 860 + 16GB Silicon-Power16G, Graphics: Gigabyte NVIDIA GeForce RTX 2070 SUPER 8GB,

Audio: NVIDIA TU104 HD Audio, Monitor: PHL 221V8, Network: Intel I211 + Intel Wi-Fi 6 AX200

OS: Arch rolling, Kernel: 5.15.12-arch1-1 (x86_64), Desktop: KDE Plasma 5.23.5, Display Server: X Server 1.21.1.3, Display Driver: NVIDIA 495.46, OpenGL: 4.6.0, Vulkan: 1.2.186, Compiler: GCC 11.1.0 + Clang 13.0.0, File-System: btrfs, Screen Resolution: 1920x1080

Kernel Notes: Transparent Huge Pages: madvise
Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0x8701013
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/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB: conditional STIBP: conditional RSB filling + srbds: Not affected + tsx_async_abort: Not affected

AMD Ryzen 7 3700X

Processor: AMD Ryzen 7 3700X 8-Core @ 3.60GHz (8 Cores / 16 Threads), Motherboard: ASRock X570 Taichi (P3.00 BIOS), Chipset: AMD Starship/Matisse, Memory: 32GB, Disk: 250GB Samsung SSD 860 + 500GB Samsung SSD 860 + 1000GB Samsung SSD 860 + 16GB Silicon-Power16G, Graphics: Gigabyte NVIDIA GeForce RTX 2070 SUPER 8GB, Audio: NVIDIA TU104 HD Audio, Monitor: PHL 221V8, Network: Intel I211 + Intel Wi-Fi 6 AX200

OS: Arch rolling, Kernel: 5.16.1-arch1-1 (x86_64), Desktop: KDE Plasma 5.23.5, Display Server: X Server 1.21.1.3, Display Driver: NVIDIA 495.46, OpenGL: 4.6.0, Vulkan: 1.2.186, Compiler: GCC 11.1.0 + Clang 13.0.0, File-System: btrfs, Screen Resolution: 1920x1080

Kernel Notes: Transparent Huge Pages: madvise
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arch-5-17-19

Processor: AMD Ryzen 7 3700X 8-Core @ 3.60GHz (8 Cores / 16 Threads), Motherboard: ASRock X570 Taichi (P3.00 BIOS), Chipset: AMD Starship/Matisse, Memory: 32GB, Disk: 250GB Samsung SSD 860 + 500GB Samsung SSD 860 + 1000GB Samsung SSD 860 + 16GB Silicon-Power16G, Graphics: Gigabyte NVIDIA GeForce RTX 2070 SUPER 8GB, Audio: NVIDIA TU104 HD Audio, Monitor: Q27G2WG4 + PHL 221V8, Network: Intel I211 + Intel Wi-Fi 6 AX200

OS: Arch rolling, Kernel: 5.17.9-arch1-1 (x86_64), Display Server: X Server 1.21.1.3, Display Driver: NVIDIA 515.43.04, OpenGL: 4.6.0, Vulkan: 1.3.205, Compiler: GCC 12.1.0 + Clang 13.0.1 + LLVM 13.0.1, File-System: btrfs, Screen Resolution: 4480x1440

Kernel Notes: Transparent Huge Pages: madvise
Environment Notes: DEBUGINFOD_URLS=https://debuginfod.archlinux.org
Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0x8701013
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Retpolines IBPB: conditional STIBP: conditional RSB filling + srbds: Not affected + tsx_async_abort: Not affected

lqx-5-17-11

Processor: AMD Ryzen 7 3700X 8-Core @ 3.60GHz (8 Cores / 16 Threads), Motherboard: ASRock X570 Taichi (P3.00 BIOS), Chipset: AMD Starship/Matisse, Memory: 32GB, Disk: 250GB Samsung SSD 860 + 500GB Samsung SSD 860 + 1000GB Samsung SSD 860 + 16GB Silicon-Power16G, Graphics: Gigabyte NVIDIA GeForce RTX 2070 SUPER 8GB, Audio: NVIDIA TU104 HD Audio, Monitor: Q27G2WG4 + PHL 221V8, Network: Intel I211 + Intel Wi-Fi 6 AX200

OS: Arch rolling, Kernel: 5.17.11-lqx1-1-lqx (x86_64), Display Server: X Server 1.21.1.3, Display Driver: NVIDIA 515.43.04, OpenGL: 4.6.0, Vulkan: 1.3.205, Compiler: GCC 12.1.0 + Clang 13.0.1 + LLVM 13.0.1, File-System: btrfs,

Zstd_compress_test

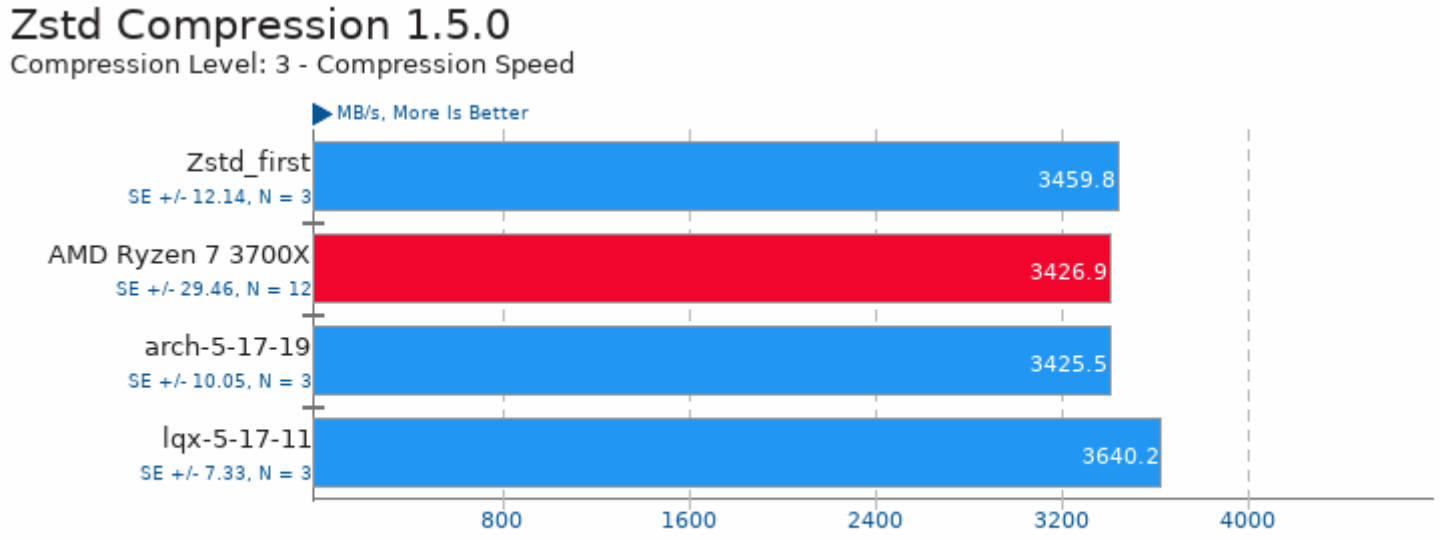
Screen Resolution: 4480x1440

Kernel Notes: Transparent Huge Pages: madvise
Environment Notes: DEBUGINFOD_URLS=https://debuginfod.archlinux.org
Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0x8701013
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Retpolines IBPB: conditional STIBP: conditional RSB filling + srbds: Not affected + tsx_async_abort: Not affected

	Zstd_first	AMD Ryzen 7 3700X	arch-5-17-19	lqx-5-17-11
Zstd Compression - 3 - Compression Speed (MB/s)	3460	3427	**3426**	**3640**
Normalized	95.04%	94.14%	94.1%	100%
Standard Deviation	0.6%	3%	0.5%	0.3%
Zstd Compression - 3 - D.S (MB/s)	3969	**4041**	4002	**3959**
Normalized	98.2%	100%	99.03%	97.98%
Standard Deviation	0.2%	0.2%	0.2%	0.3%
Zstd Compression - 8 - Compression Speed (MB/s)	**710.9**	**729.4**	714.8	712.4
Normalized	97.46%	100%	98%	97.67%
Standard Deviation	1.3%	2.5%	1.1%	2.2%
Zstd Compression - 8 - D.S (MB/s)	4104	**4154**	4121	**4073**
Normalized	98.79%	100%	99.22%	98.05%
Standard Deviation	0.3%	0.4%	0.3%	0.4%
Zstd Compression - 19 - Compression Speed (MB/s)	39.8	**39.9**	**39.9**	**39.7**
Normalized	99.75%	100%	100%	99.5%
Standard Deviation	2%	0.9%	0.4%	0.6%
Zstd Compression - 19 - D.S (MB/s)	3640	**3696**	3648	**3605**
Normalized	98.5%	100%	98.69%	97.54%
Standard Deviation	0.4%	0.2%	0.7%	0.4%
Zstd Compression - 3, Long Mode - Compression Speed (MB/s)	**1046**	1053	1062	**1122**
Normalized	93.2%	93.82%	94.6%	100%
Standard Deviation	0.3%	0.3%	0.2%	0.3%
Zstd Compression - 8, Long Mode - Compression Speed (MB/s)	**879.1**	884.6	898.0	**979.2**
Normalized	89.39%	89.95%	91.32%	99.57%
Standard Deviation	0.9%	0.7%	0.9%	0.2%
Zstd Compression - 8, Long Mode - D.S (MB/s)	**4416**	**4476**	4437	
Normalized	98.67%	100%	99.14%	
Standard Deviation	0.2%	0.2%	0.8%	
Zstd Compression - 19, Long Mode - Compression Speed (MB/s)	**35.0**	35.8	35.8	**36.0**
Normalized	97.22%	99.44%	99.44%	100%
Standard Deviation	0.9%	1%	0.9%	1.3%

Zstd_compress_test

Zstd Compression - 19, Long Mode - D.S (MB/s)	3658	**3714**	3643	**3595**
Normalized	98.5%	100%	98.08%	96.79%
Standard Deviation	0.5%	0.9%	0.3%	0.3%
Zstd Compression - 3, Long Mode - D.S (MB/s)			**4318**	**4264**
Normalized			100%	98.75%
Standard Deviation			0%	0.3%



1. (CC) gcc options: -O3 -pthread -lz -llzma -llz4

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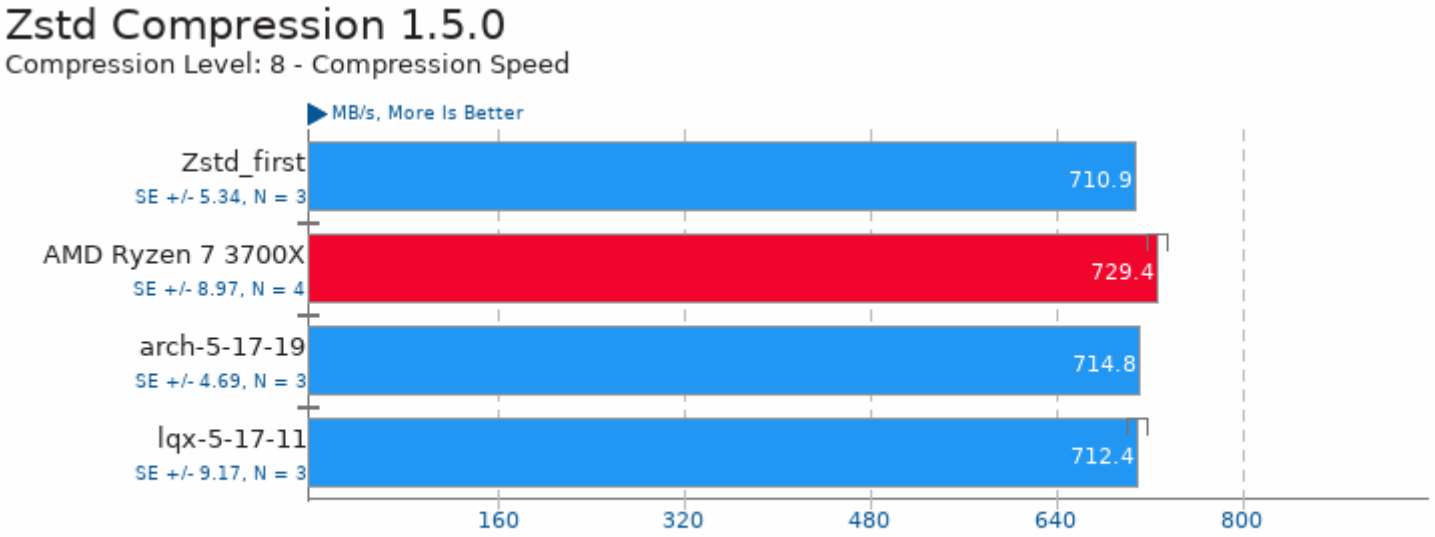

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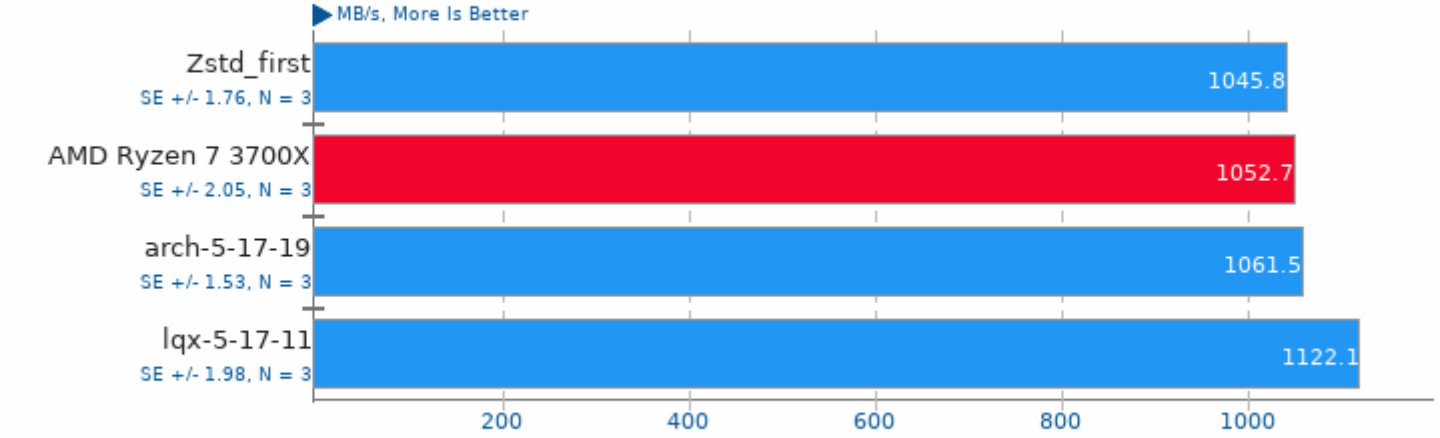
Zstd Compression 1.5.0

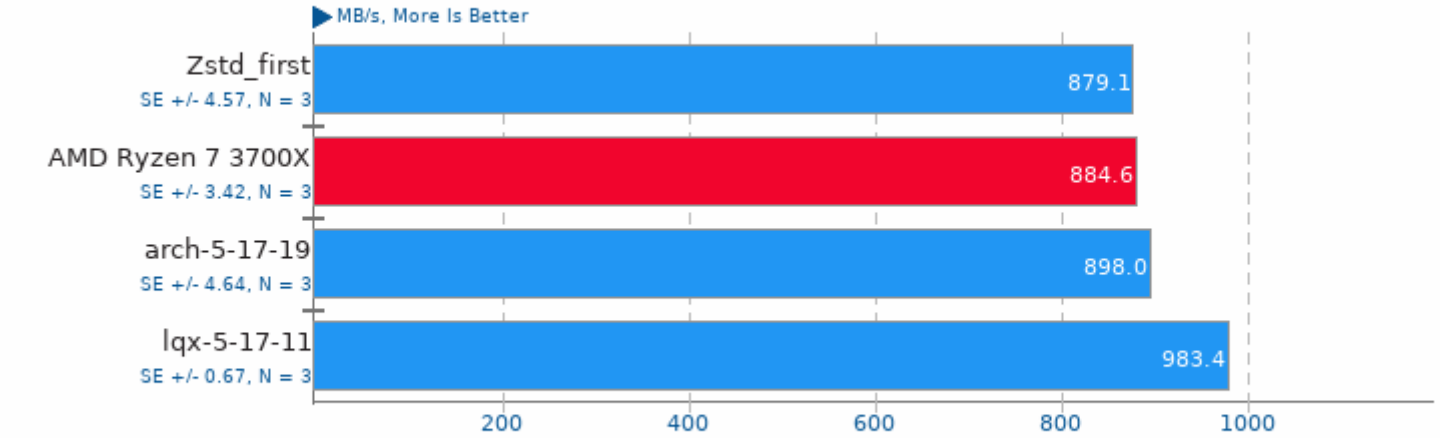
Compression Level: 3, Long Mode - Compression Speed



1. (CC) gcc options: -O3 -pthread -lz -llzma -llz4

Zstd Compression 1.5.0

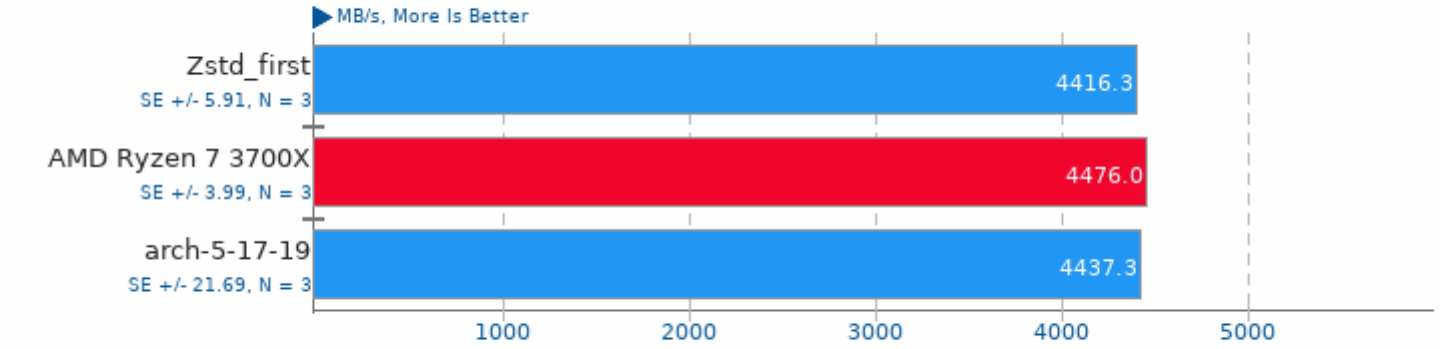
Compression Level: 8, Long Mode - Compression Speed



1. (CC) gcc options: -O3 -pthread -lz -llzma -llz4

Zstd Compression 1.5.0

Compression Level: 8, Long Mode - Decompression Speed



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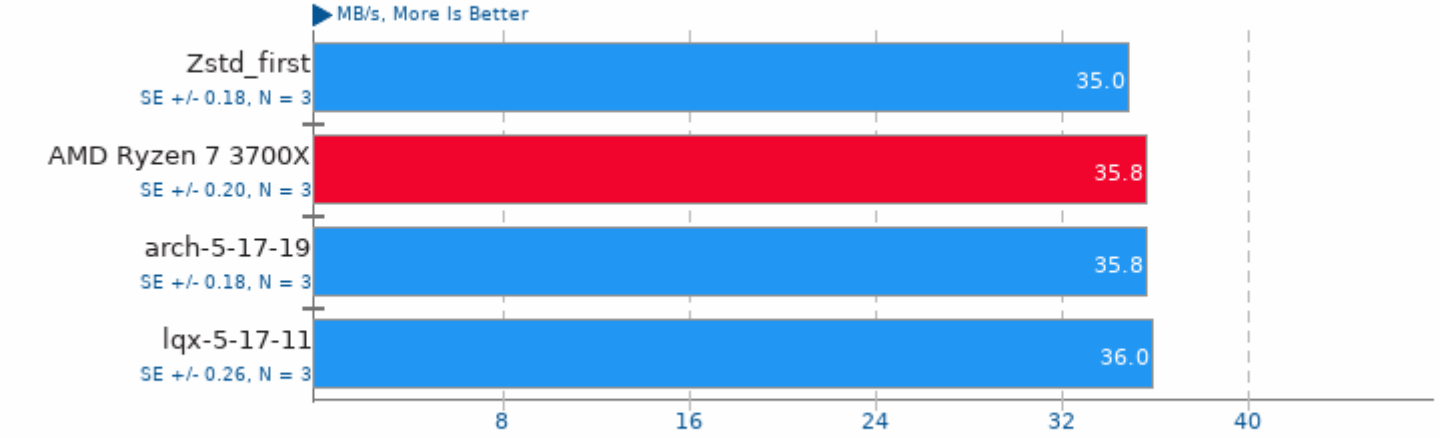
Zstd Compression 1.5.0

Compression Level: 19, Long Mode - Compression Speed



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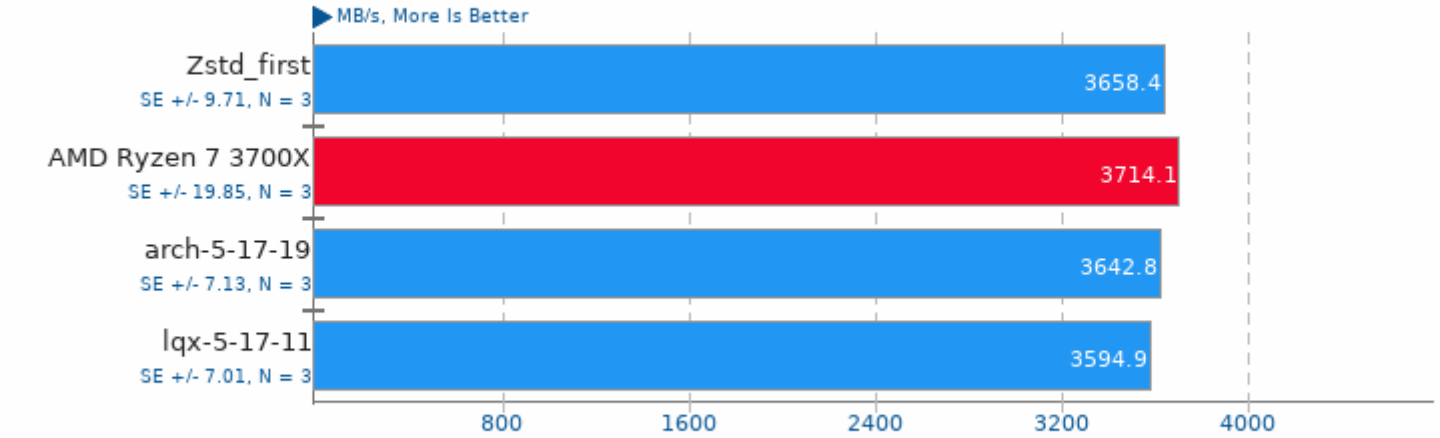
Zstd Compression 1.5.0

Compression Level: 19, Long Mode - Decompression Speed



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Zstd Compression 1.5.0

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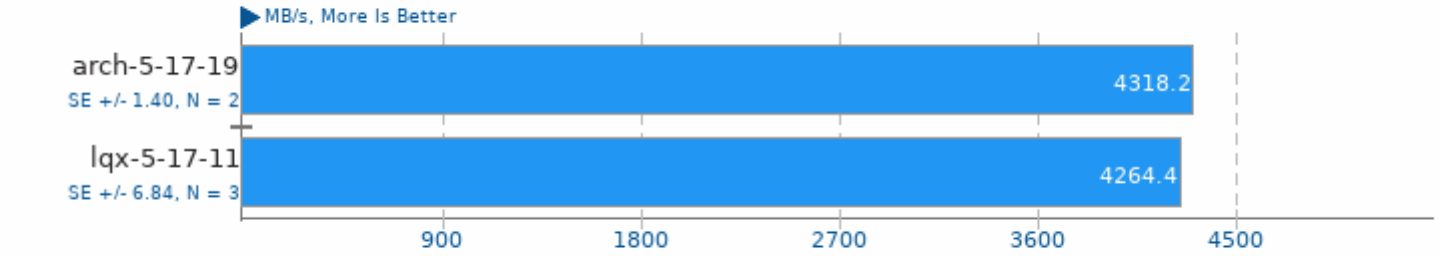

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