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AMD EPYC 7F32 8-Core testing with a Supermicro H12SSL-i v1.01 (2.0 BIOS) and ASPEED on Ubuntu 21.04 via the Phoronix Test Suite.

Automated Executive Summary

2 had the most wins, coming in first place for 36% of the tests.

Based on the geometric mean of all complete results, the fastest (2) was 1.405x the speed of the slowest (2b). 3 was 1x the speed of 2, 1 was 1x the speed of 3, 4 was 1x the speed of 1, 2e was 0.712x the speed of 4, 2c was 1x the speed of 2e, 2d was 1x the speed of 2c, 2a was 1x the speed of 2d, 2b was 1x the speed of 2a.

Test Systems:

1

2

3

4

Processor: AMD EPYC 72F3 8-Core @ 3.70GHz (8 Cores / 16 Threads), Motherboard: Supermicro H12SSL-i v1.01 (2.0 BIOS), Chipset: AMD Starship/Matisse, Memory: 8 x 16 GB DDR4-3200MT/s 18ASF2G72PDZ-3G2E1, Disk: 3841GB Micron_9300_MTFDHAL3T8TDP, Graphics: ASPEED, Network: 2 x Broadcom NetXtreme BCM5720 2-port PCIe

OS: Ubuntu 21.04, Kernel: 5.11.0-16-generic (x86_64), Desktop: GNOME Shell 3.38.4, Display Server: X Server 1.20.7, Vulkan: 1.0.2, Compiler: GCC 11.0.1 20210413, File-System: ext4, Screen Resolution: 1024x768

Kernel Notes: Transparent Huge Pages: madvise
Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0xa001119
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 IBRS_FW STIBP: always-on RSB filling + srbds: Not affected + tsx_async_abort: Not affected

2a

2b

2c

2d

2e

Processor: AMD EPYC 7F32 8-Core @ 3.70GHz (8 Cores / 16 Threads), Motherboard: Supermicro H12SSL-i v1.01 (2.0 BIOS), Chipset: AMD Starship/Matisse, Memory: 8 x 16 GB DDR4-3200MT/s 18ASF2G72PDZ-3G2E1, Disk: 3841GB Micron_9300_MTFDHAL3T8TDP, Graphics: ASPEED, Network: 2 x Broadcom NetXtreme BCM5720 2-port PCIe

OS: Ubuntu 21.04, Kernel: 5.11.0-16-generic (x86_64), Desktop: GNOME Shell 3.38.4, Display Server: X Server 1.20.7, Vulkan: 1.0.2, Compiler: GCC 11.0.1 20210413, File-System: ext4, Screen Resolution: 1024x768

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

	1	2	3	4	2a	2b	2c	2d	2e
Intel Memory Latency Checker - Max Bandwidth - All Reads (MB/s)	169234	168856	169213	**169340**	111601	111654	**111600**	111754	111609
Normalized	99.94%	99.71%	99.92%	100%	65.9%	65.93%	65.9%	65.99%	65.91%
Standard Deviation	0.1%	0.4%	0.1%	0%	0%	0.1%	0%	0.1%	0%

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Intel Memory Latency Checker - Max Bandwidth - 3:1 Reads-Writes (MB/s)	179616	179640	179739	**179784**	127324	127306	**127299**	127334	127322
Normalized	99.91%	99.92%	99.97%	100%	70.82%	70.81%	70.81%	70.83%	70.82%
Standard Deviation	0.1%	0.1%	0%	0%	0%	0%	0%	0.1%	0.1%
Intel Memory Latency Checker - Max Bandwidth - 2:1 Reads-Writes (MB/s)	172057	172118	**172163**	172098	**126643**	126653	126717	126709	126768
Normalized	99.94%	99.97%	100%	99.96%	73.56%	73.57%	73.6%	73.6%	73.63%
Standard Deviation	0.2%	0.1%	0.1%	0.1%	0%	0.1%	0%	0%	0%
Intel Memory Latency Checker - Max Bandwidth - 1:1 Reads-Writes (MB/s)	194637	**194661**	194649	194644	**132737**	132748	132772	132756	132750
Normalized	99.99%	100%	99.99%	99.99%	68.19%	68.19%	68.21%	68.2%	68.2%
Standard Deviation	0%	0%	0%	0%	0%	0%	0%	0%	0%
Intel Memory Latency Checker - Max Bandwidth - Stream-Triad Like (MB/s)	185407	185491	**185597**	185333	133674	133641	133679	**133620**	133648
Normalized	99.9%	99.94%	100%	99.86%	72.02%	72.01%	72.03%	71.99%	72.01%
Standard Deviation	0.2%	0.1%	0.1%	0.2%	0.1%	0%	0%	0.1%	0.1%
Intel Memory Latency Checker - P.I.B - All Reads	169087	**169451**	169177	169069	111595	111612	111660	**111583**	111620
Normalized	99.79%	100%	99.84%	99.77%	65.86%	65.87%	65.9%	65.85%	65.87%
Standard Deviation	0.4%	0%	0.1%	0.1%	0%	0%	0%	0%	0%
Intel Memory Latency Checker - P.I.B - 3:1	**179772**	179712	179631	179650	127304	127289	127289	**127250**	127253
Normalized	100%	99.97%	99.92%	99.93%	70.81%	70.81%	70.81%	70.78%	70.79%
Standard Deviation	0%	0%	0%	0%	0%	0%	0%	0%	0.1%
Intel Memory Latency Checker - P.I.B - 2:1	**172255**	172151	171997	172103	126727	126688	126683	126672	**126625**
Normalized	100%	99.94%	99.85%	99.91%	73.57%	73.55%	73.54%	73.54%	73.51%
Standard Deviation	0%	0.1%	0.1%	0.2%	0%	0.1%	0%	0%	0%
Intel Memory Latency Checker - P.I.B - 1:1	**192743**	192698	192698	192740	132805	132764	132759	132773	**132686**
Normalized	100%	99.98%	99.98%	100%	68.9%	68.88%	68.88%	68.89%	68.84%
Standard Deviation	0%	0%	0%	0%	0%	0%	0%	0%	0.1%

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Intel Memory Latency Checker - P.I.B - Stream-Triad Like (MB/s)	185384	**185632**	185531	185237	133653	133684	133645	**133629**	133630
Normalized	99.87%	100%	99.95%	99.79%	72%	72.02%	71.99%	71.99%	71.99%
Standard Deviation	0.3%	0.1%	0%	0.2%	0%	0.1%	0%	0%	0.1%
Intel Memory Latency Checker - Idle Latency (ns)	107.2	**107.1**	107.3	107.2	**129.9**	**129.9**	129.7	129.8	129.5
Normalized	99.91%	100%	99.81%	99.91%	82.45%	82.45%	82.58%	82.51%	82.7%
Standard Deviation	0.2%	0.5%	0.2%	0.2%	0%	0%	0.5%	0%	0.4%

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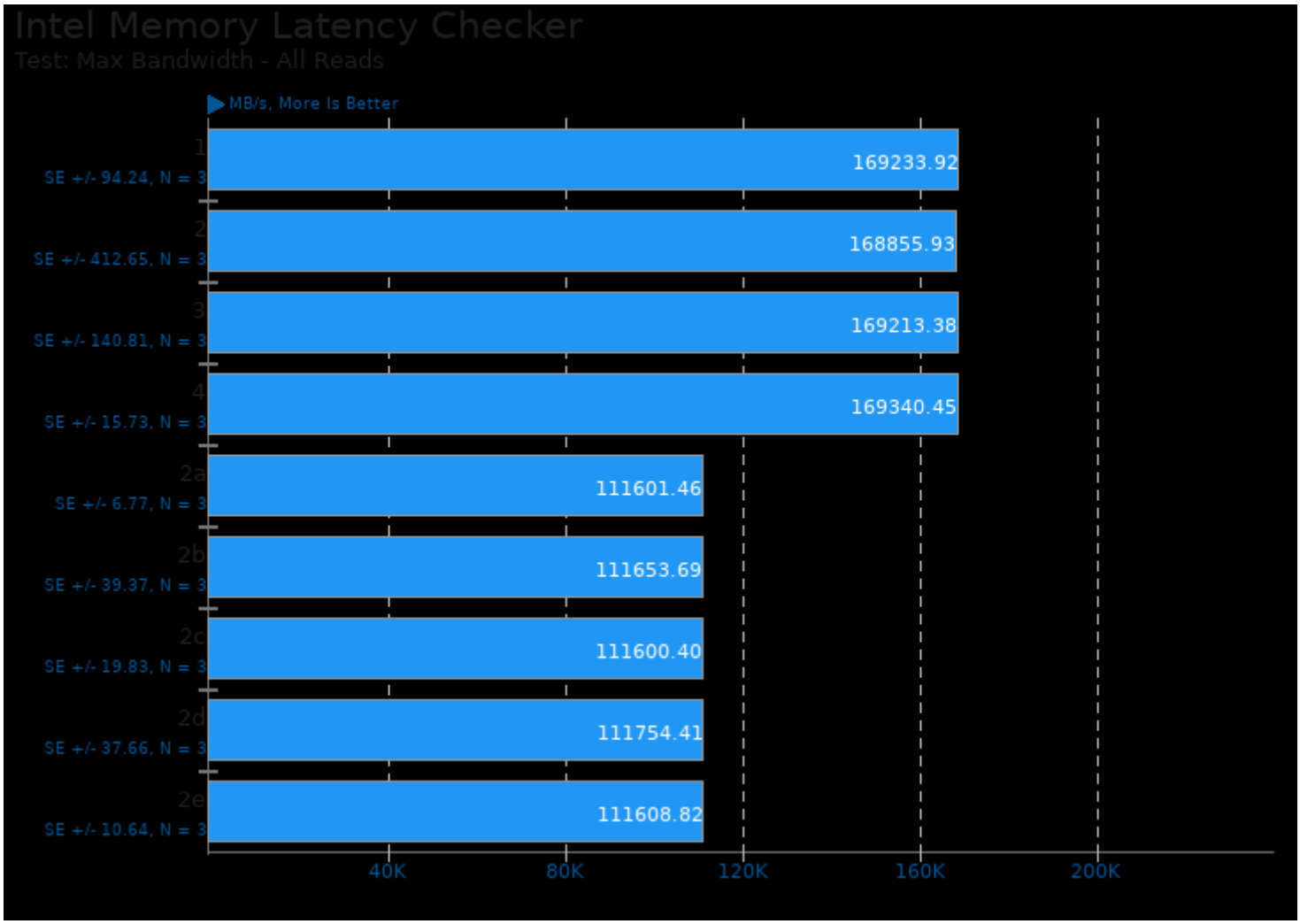
Intel Memory Latency Checker
Test: Max Bandwidth - All Reads
MB/s, More Is Better
1
SE +/- 94.24, N = 3
169233.92
2
SE +/- 412.65, N = 3
168855.93
3
SE +/- 140.81, N = 3
169213.38
4
SE +/- 15.73, N = 3
169340.45
2a
SE +/- 6.77, N = 3
111601.46
2b
SE +/- 39.37, N = 3
111653.69
2c
SE +/- 19.83, N = 3
111600.40
2d
SE +/- 37.66, N = 3
111754.41
2e
SE +/- 10.64, N = 3
111608.82
40K
80K
120K
160K
200K

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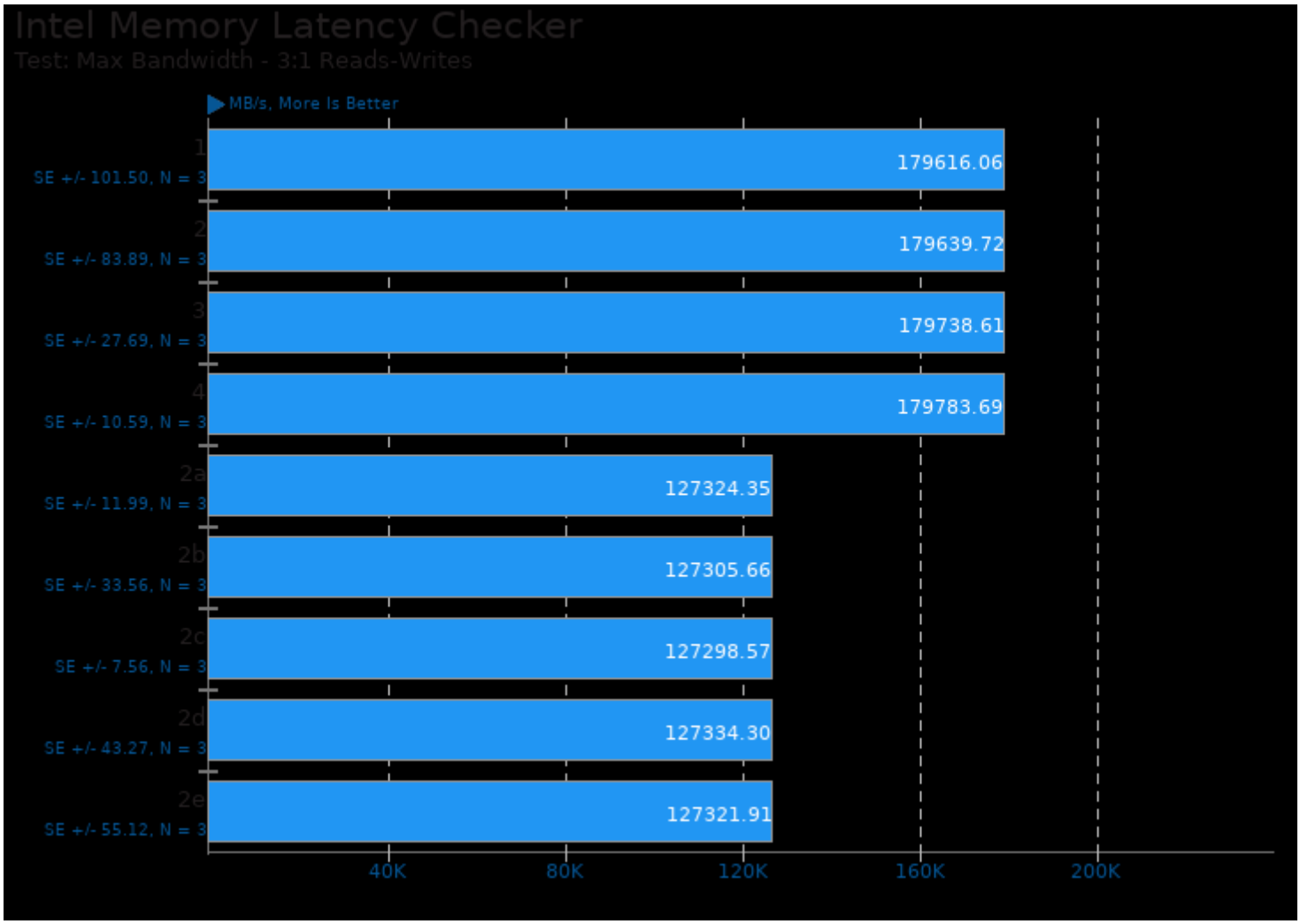
Intel Memory Latency Checker
Test: Max Bandwidth - 3:1 Reads-Writes
MB/s, More Is Better
1
SE +/- 101.50, N = 3
179616.06
2
SE +/- 83.89, N = 3
179639.72
3
SE +/- 27.69, N = 3
179738.61
4
SE +/- 10.59, N = 3
179783.69
2a
SE +/- 11.99, N = 3
127324.35
2b
SE +/- 33.56, N = 3
127305.66
2c
SE +/- 7.56, N = 3
127298.57
2d
SE +/- 43.27, N = 3
127334.30
2e
SE +/- 55.12, N = 3
127321.91
40K
80K
120K
160K
200K

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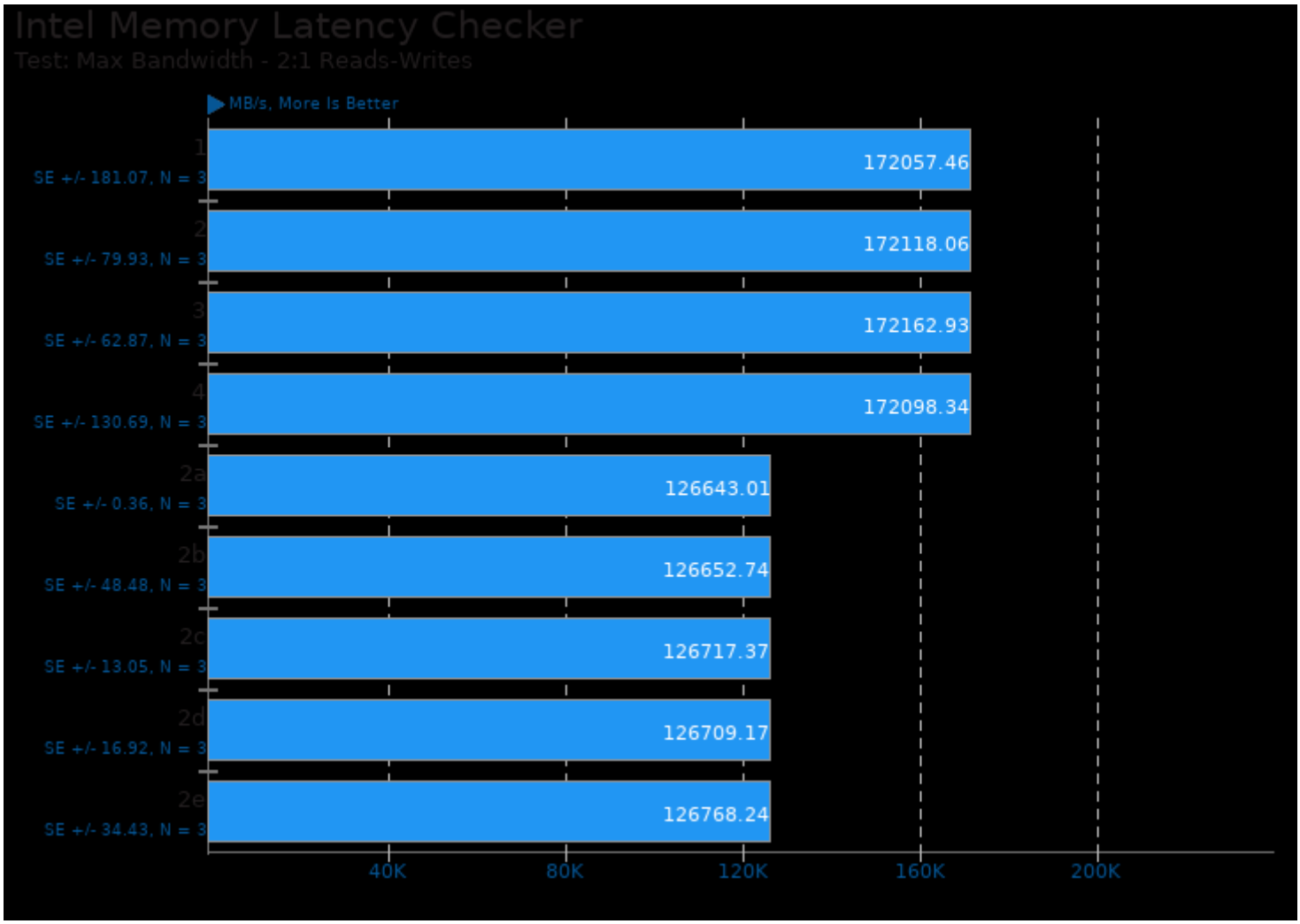
Intel Memory Latency Checker
Test: Max Bandwidth - 2:1 Reads-Writes
MB/s, More Is Better
1
SE +/- 181.07, N = 3
172057.46
2
SE +/- 79.93, N = 3
172118.06
3
SE +/- 62.87, N = 3
172162.93
4
SE +/- 130.69, N = 3
172098.34
2a
SE +/- 0.36, N = 3
126643.01
2b
SE +/- 48.48, N = 3
126652.74
2c
SE +/- 13.05, N = 3
126717.37
2d
SE +/- 16.92, N = 3
126709.17
2e
SE +/- 34.43, N = 3
126768.24
40K
80K
120K
160K
200K

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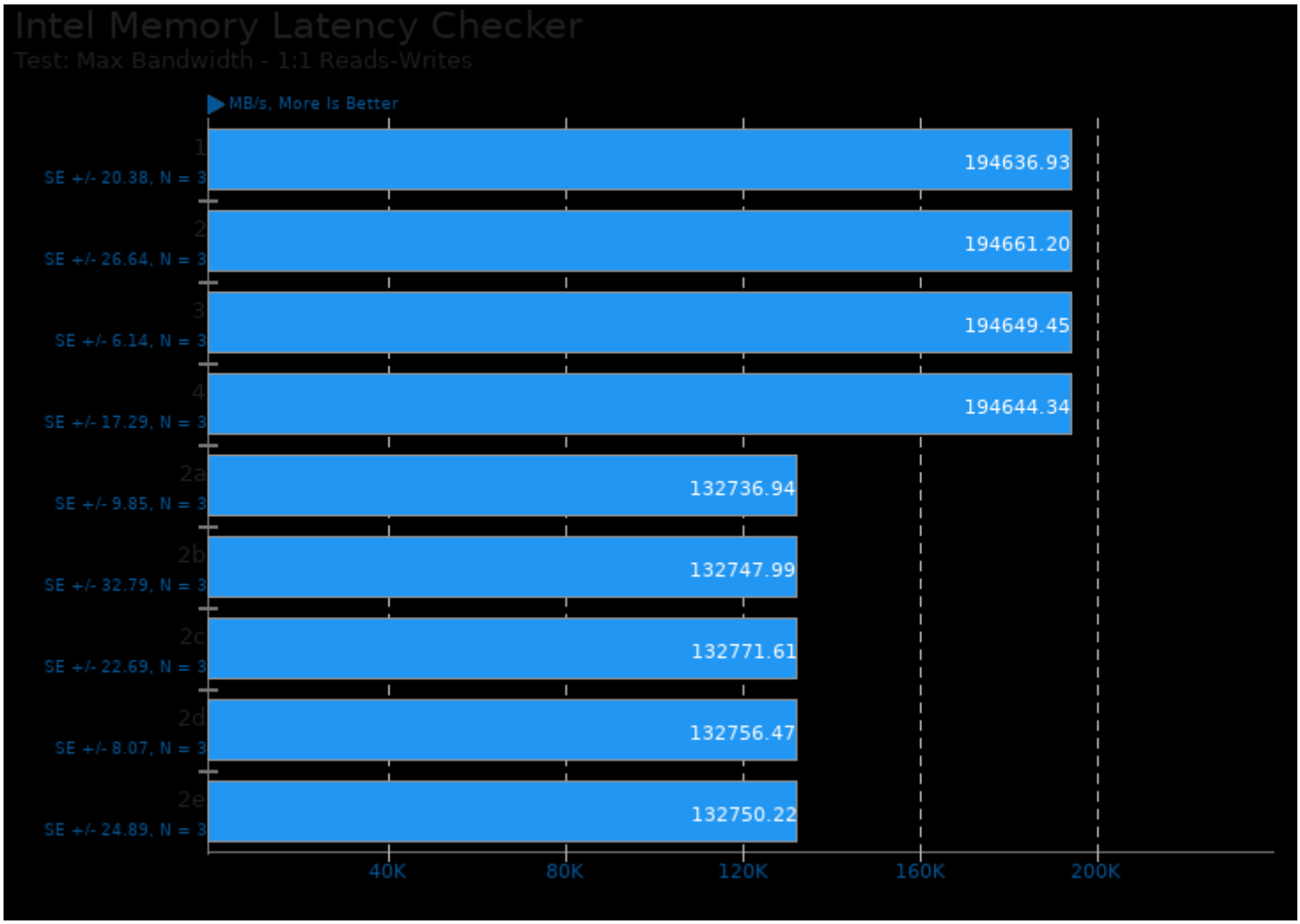
Intel Memory Latency Checker
Test: Max Bandwidth - 1:1 Reads-Writes
MB/s, More Is Better
1
SE +/- 20.38, N = 3
194636.93
2
SE +/- 26.64, N = 3
194661.20
3
SE +/- 6.14, N = 3
194649.45
4
SE +/- 17.29, N = 3
194644.34
2a
SE +/- 9.85, N = 3
132736.94
2b
SE +/- 32.79, N = 3
132747.99
2c
SE +/- 22.69, N = 3
132771.61
2d
SE +/- 8.07, N = 3
132756.47
2e
SE +/- 24.89, N = 3
132750.22
40K
80K
120K
160K
200K

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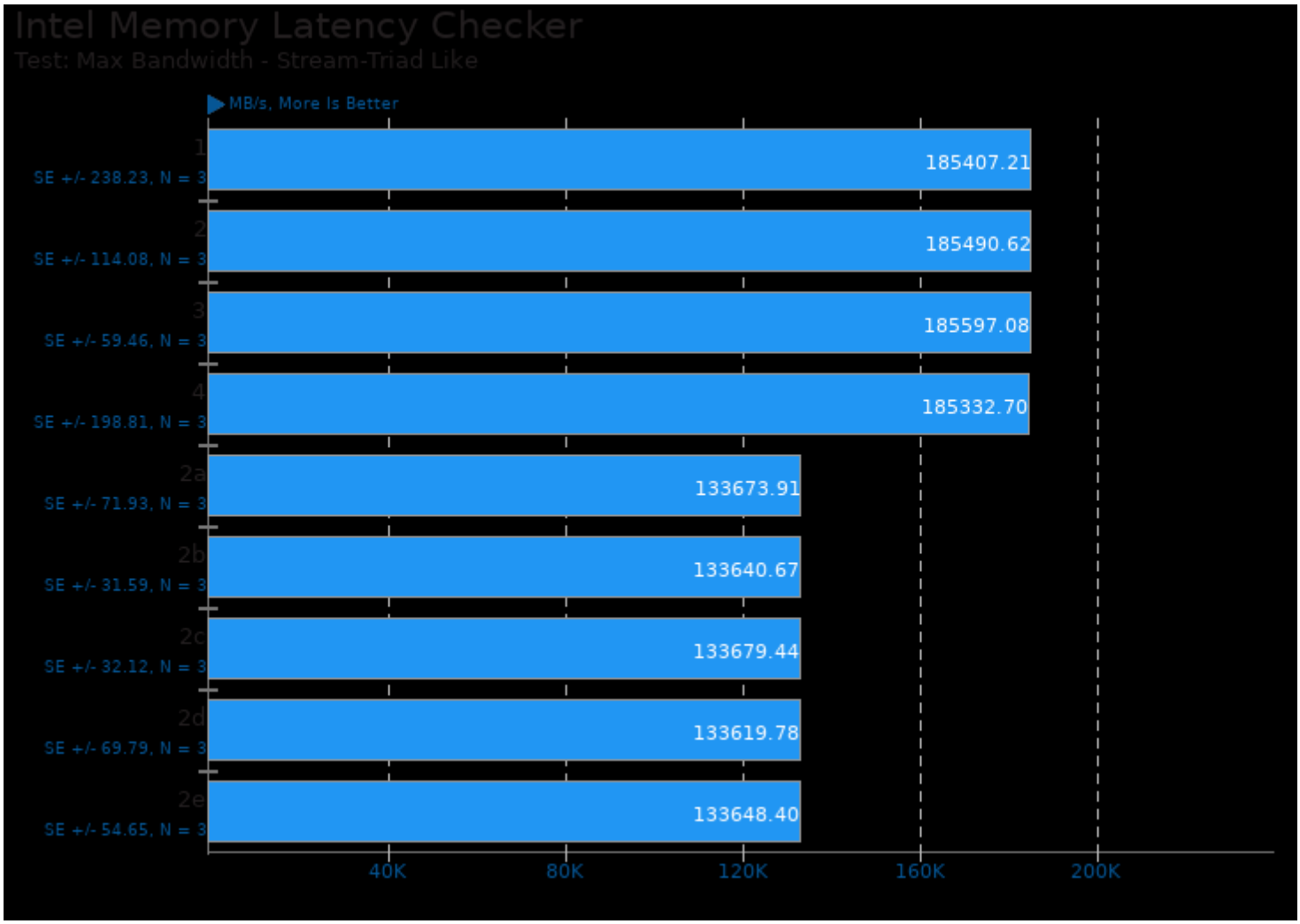
Intel Memory Latency Checker
Test: Max Bandwidth - Stream-Triad Like
MB/s, More Is Better
1
SE +/- 238.23, N = 3
185407.21
2
SE +/- 114.08, N = 3
185490.62
3
SE +/- 59.46, N = 3
185597.08
4
SE +/- 198.81, N = 3
185332.70
2a
SE +/- 71.93, N = 3
133673.91
2b
SE +/- 31.59, N = 3
133640.67
2c
SE +/- 32.12, N = 3
133679.44
2d
SE +/- 69.79, N = 3
133619.78
2e
SE +/- 54.65, N = 3
133648.40
40K
80K
120K
160K
200K

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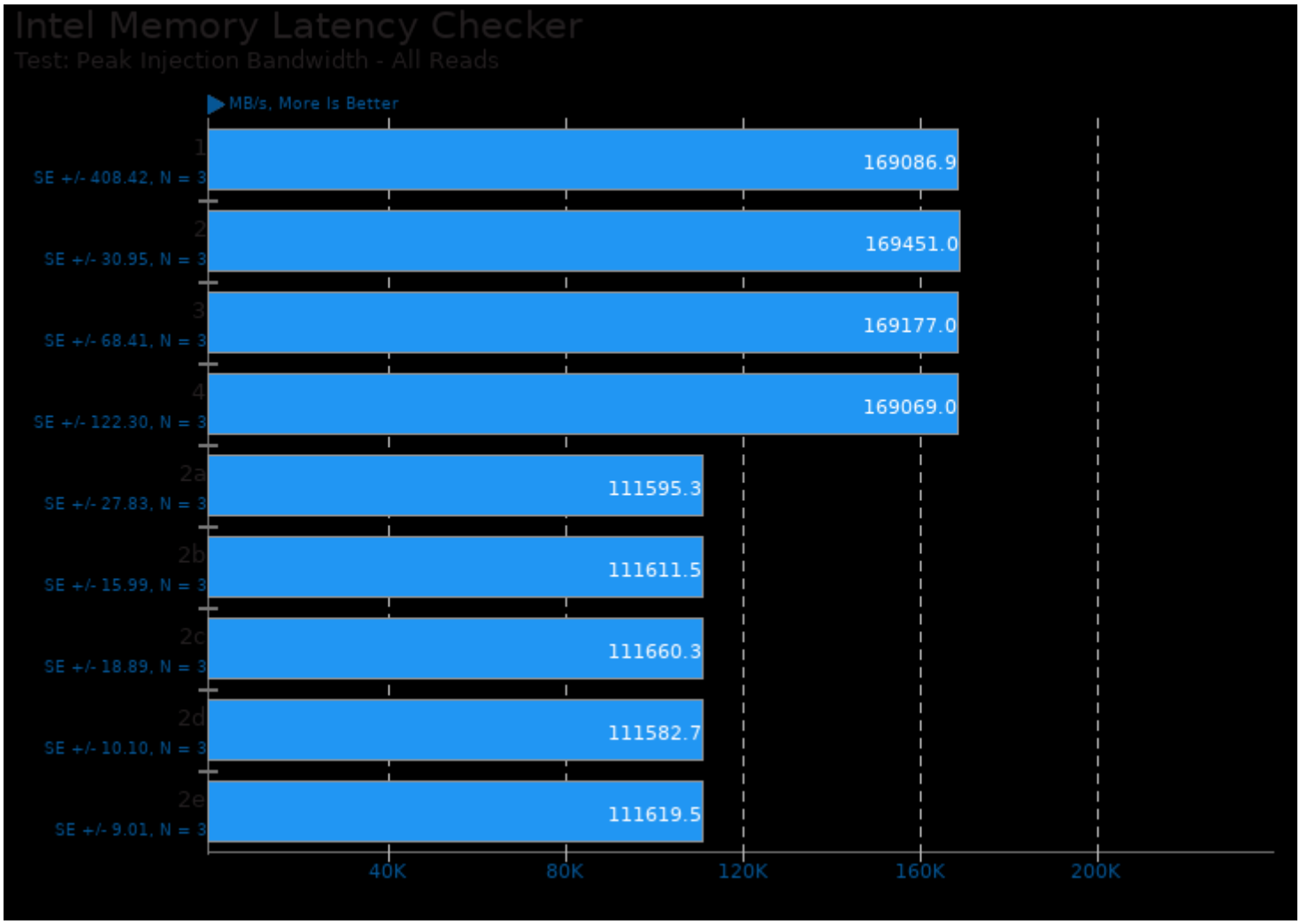
Intel Memory Latency Checker
Test: Peak Injection Bandwidth - All Reads
MB/s, More Is Better
1
SE +/- 408.42, N = 3
169086.9
2
SE +/- 30.95, N = 3
169451.0
3
SE +/- 68.41, N = 3
169177.0
4
SE +/- 122.30, N = 3
169069.0
2a
SE +/- 27.83, N = 3
111595.3
2b
SE +/- 15.99, N = 3
111611.5
2c
SE +/- 18.89, N = 3
111660.3
2d
SE +/- 10.10, N = 3
111582.7
2e
SE +/- 9.01, N = 3
111619.5
40K
80K
120K
160K
200K

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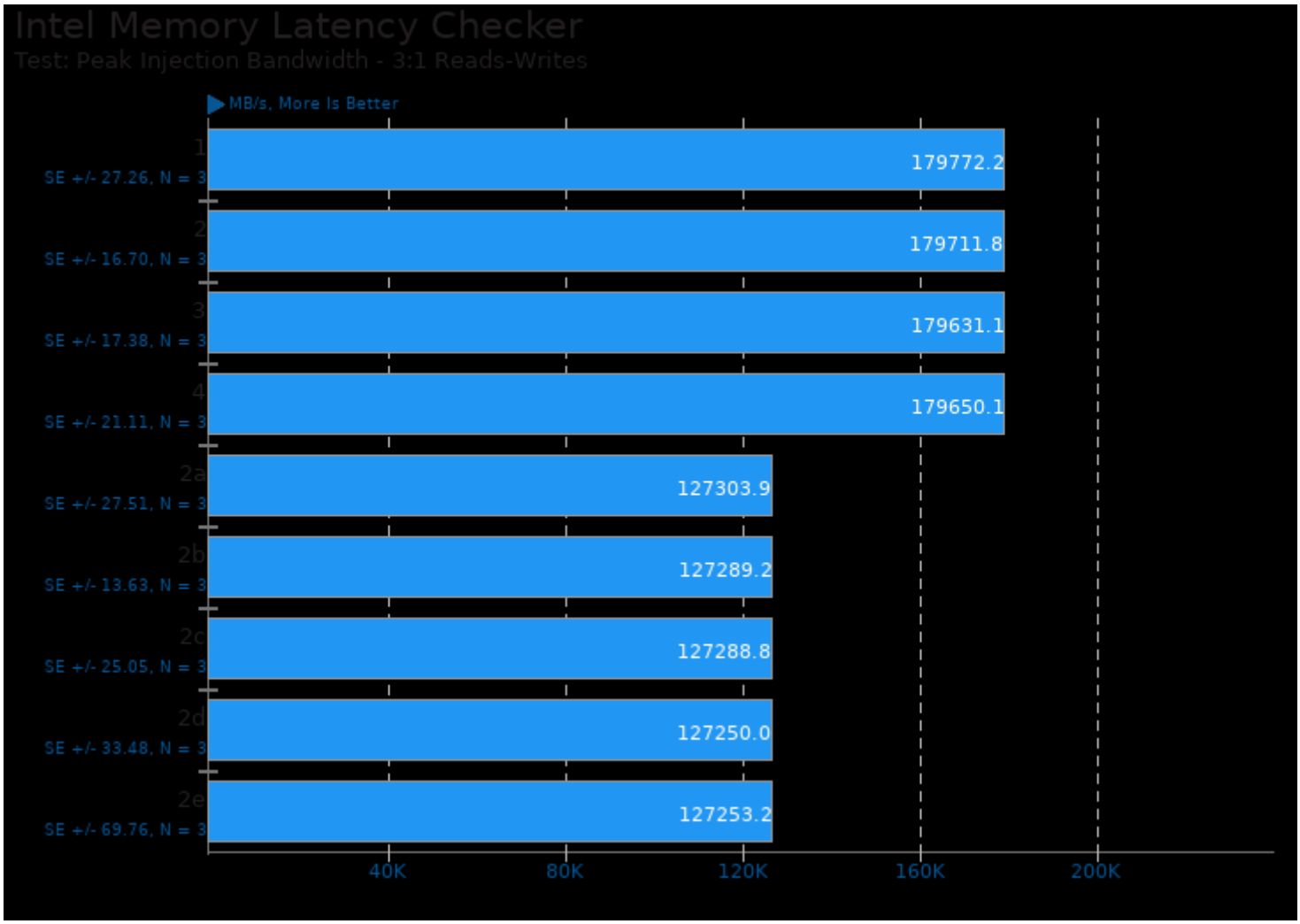
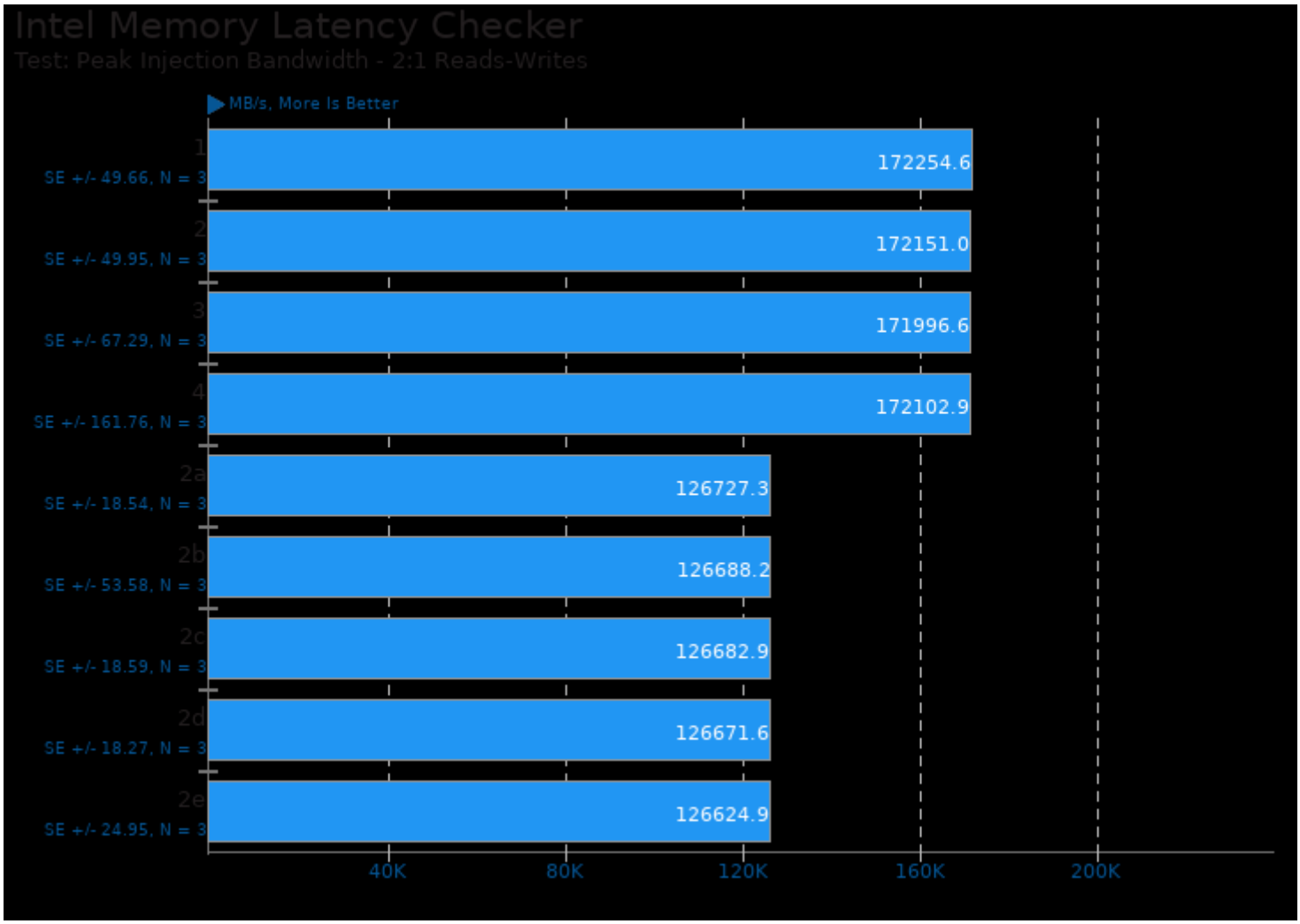

Intel Memory Latency Checker
Test: Peak Injection Bandwidth - 3:1 Reads-Writes
MB/s, More Is Better
1
SE +/- 27.26, N = 3
179772.2
2
SE +/- 16.70, N = 3
179711.8
3
SE +/- 17.38, N = 3
179631.1
4
SE +/- 21.11, N = 3
179650.1
2a
SE +/- 27.51, N = 3
127303.9
2b
SE +/- 13.63, N = 3
127289.2
2c
SE +/- 25.05, N = 3
127288.8
2d
SE +/- 33.48, N = 3
127250.0
2e
SE +/- 69.76, N = 3
127253.2
40K
80K
120K
160K
200K

mlc epyc


Intel Memory Latency Checker
Test: Peak Injection Bandwidth - 2:1 Reads-Writes
MB/s, More Is Better
1
SE +/- 49.66, N = 3
172254.6
2
SE +/- 49.95, N = 3
172151.0
3
SE +/- 67.29, N = 3
171996.6
4
SE +/- 161.76, N = 3
172102.9
2a
SE +/- 18.54, N = 3
126727.3
2b
SE +/- 53.58, N = 3
126688.2
2c
SE +/- 18.59, N = 3
126682.9
2d
SE +/- 18.27, N = 3
126671.6
2e
SE +/- 24.95, N = 3
126624.9
40K
80K
120K
160K
200K

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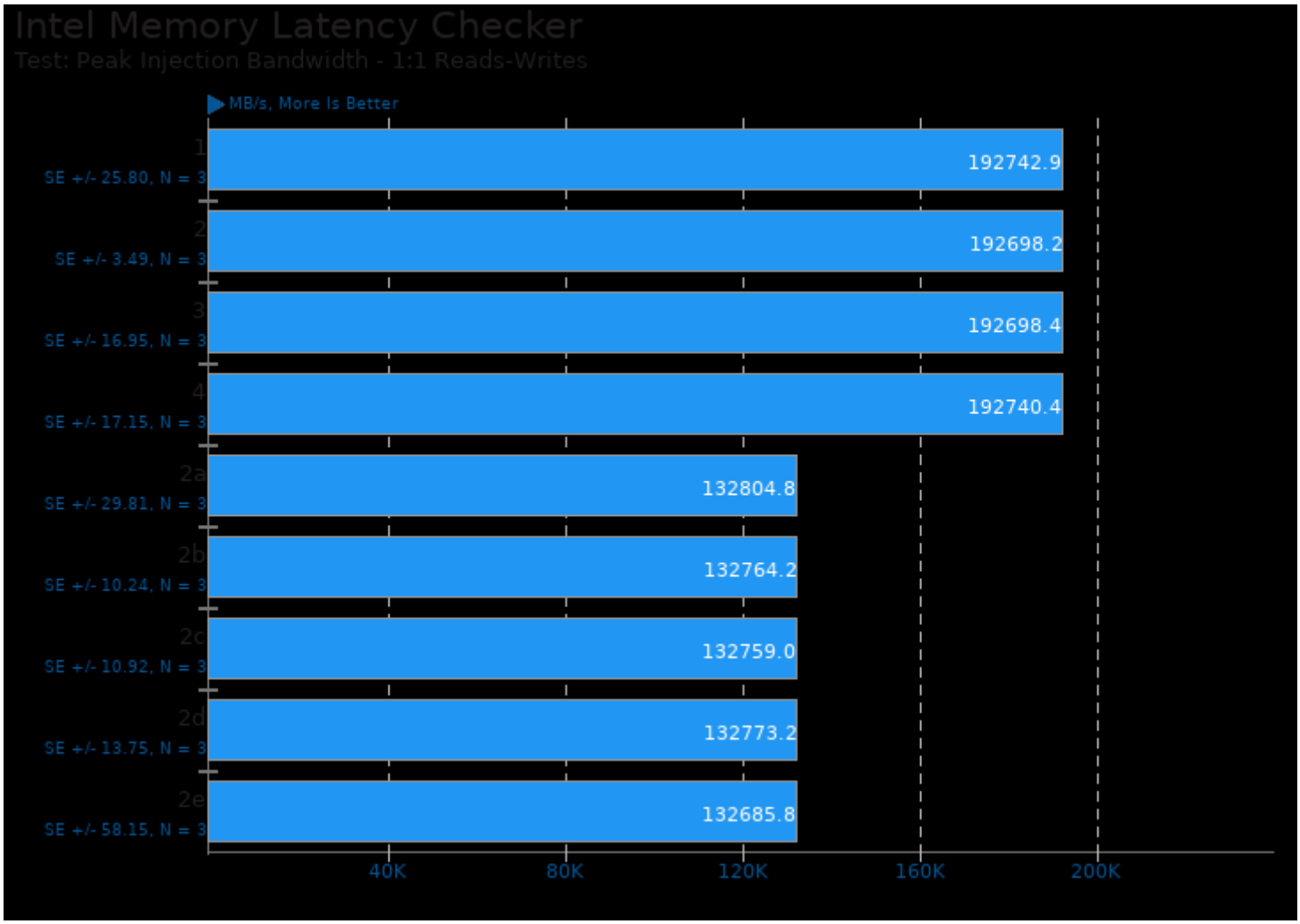
Intel Memory Latency Checker
Test: Peak Injection Bandwidth - 1:1 Reads-Writes
MB/s, More Is Better
1
SE +/- 25.80, N = 3
192742.9
2
SE +/- 3.49, N = 3
192698.2
3
SE +/- 16.95, N = 3
192698.4
4
SE +/- 17.15, N = 3
192740.4
2a
SE +/- 29.81, N = 3
132804.8
2b
SE +/- 10.24, N = 3
132764.2
2c
SE +/- 10.92, N = 3
132759.0
2d
SE +/- 13.75, N = 3
132773.2
2e
SE +/- 58.15, N = 3
132685.8
40K
80K
120K
160K
200K

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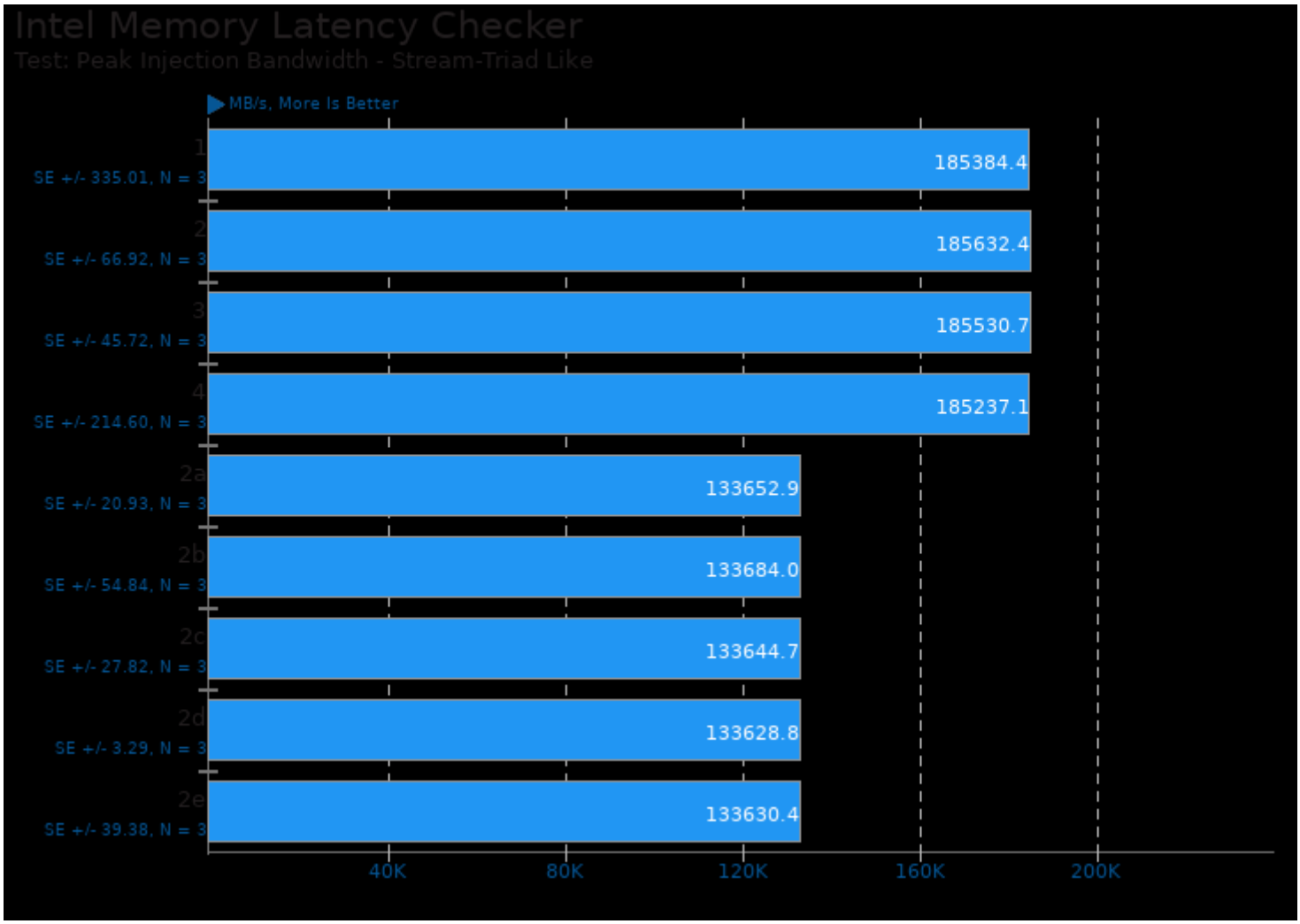
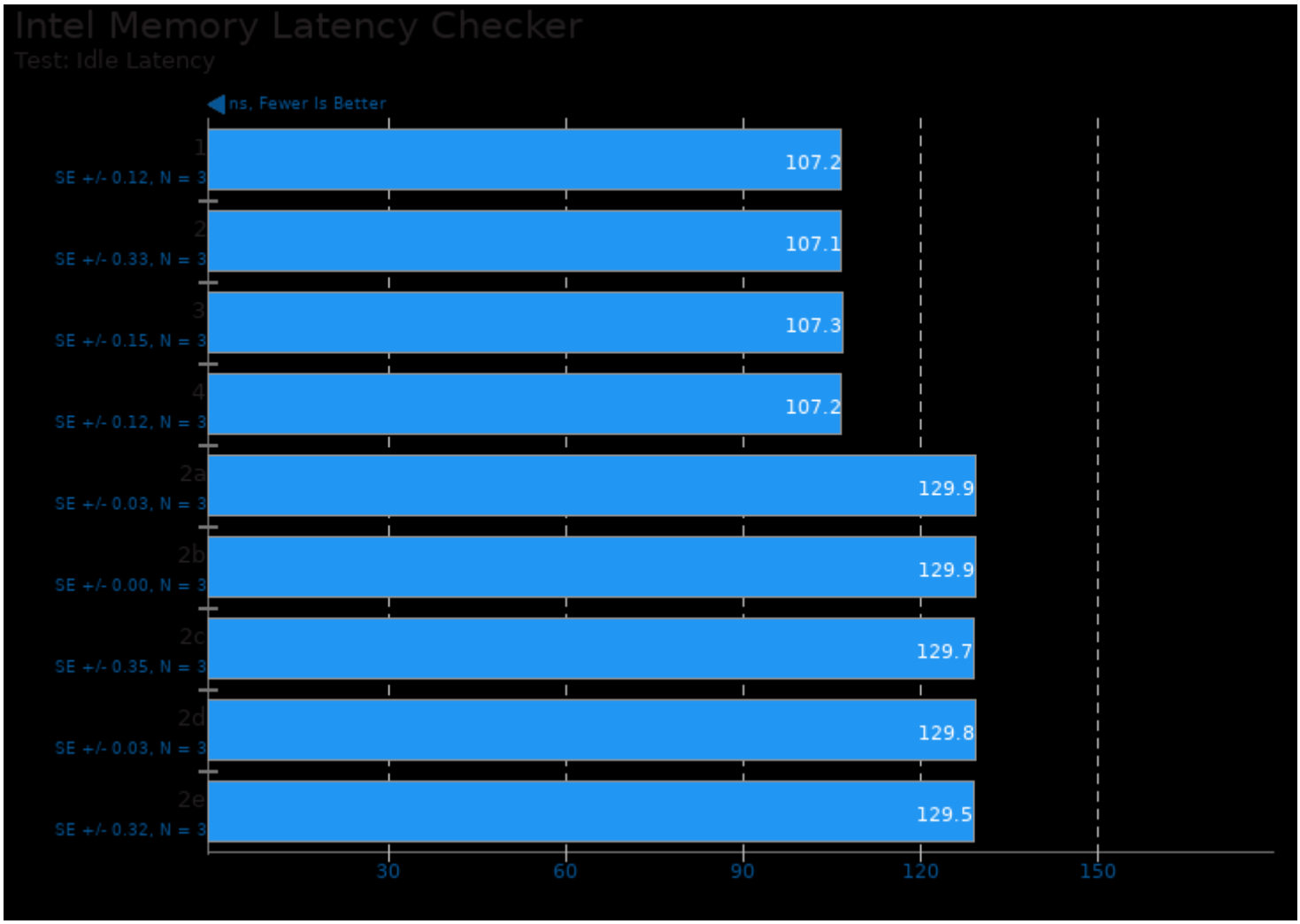

Intel Memory Latency Checker
Test: Peak Injection Bandwidth - Stream-Triad Like
MB/s, More Is Better
1
SE +/- 335.01, N = 3
185384.4
2
SE +/- 66.92, N = 3
185632.4
3
SE +/- 45.72, N = 3
185530.7
4
SE +/- 214.60, N = 3
185237.1
2a
SE +/- 20.93, N = 3
133652.9
2b
SE +/- 54.84, N = 3
133684.0
2c
SE +/- 27.82, N = 3
133644.7
2d
SE +/- 3.29, N = 3
133628.8
2e
SE +/- 39.38, N = 3
133630.4
40K
80K
120K
160K
200K



This file was automatically generated via the Phoronix Test Suite benchmarking software on Wednesday, 8 January 2025 03:08.