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2200g-ior-onnx

AMD Ryzen 3 2200G testing with a ASUS PRIME B350M-E (5220 BIOS) and ASUS AMD Radeon Vega / Mobile 2GB on Ubuntu 20.10 via the Phoronix Test Suite.

Automated Executive Summary

1 had the most wins, coming in first place for 47% of the tests.

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

IOR (Block Size: 2MB - Disk Target: Default Test Directory) at 1.027x
QMCPACK (Input: simple-H2O) at 1.017x
IOR (Block Size: 256MB - Disk Target: Default Test Directory) at 1.014x
Etcpak (Configuration: ETC1) at 1.011x
IOR (Block Size: 64MB - Disk Target: Default Test Directory) at 1.009x
ONNX Runtime (Model: yolov4 - Device: OpenMP CPU) at 1.008x
IOR (Block Size: 16MB - Disk Target: Default Test Directory) at 1.007x
Etcpak (Configuration: ETC2) at 1.006x
ONNX Runtime (Model: shufflenet-v2-10 - Device: OpenMP CPU) at 1.005x
IOR (Block Size: 4MB - Disk Target: Default Test Directory) at 1.003x.

Test Systems:

1

1a

2

3

Processor: AMD Ryzen 3 2200G @ 3.50GHz (4 Cores), Motherboard: ASUS PRIME B350M-E (5220 BIOS), Chipset: AMD Raven/Raven2, Memory: 6GB, Disk: Samsung SSD 970 EVO 250GB, Graphics: ASUS AMD Radeon Vega / Mobile 2GB (1100/1600MHz), Audio: AMD Raven/Raven2/Fenghuang, Monitor: G237HL, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 20.10, Kernel: 5.8.0-38-generic (x86_64), Desktop: GNOME Shell 3.38.1, Display Server: X Server 1.20.9, Display Driver: modesetting 1.20.9, OpenGL: 4.6 Mesa 20.2.6 (LLVM 11.0.0), Vulkan: 1.2.131, Compiler: GCC 10.2.0, File-System: ext4, Screen Resolution: 1920x1080

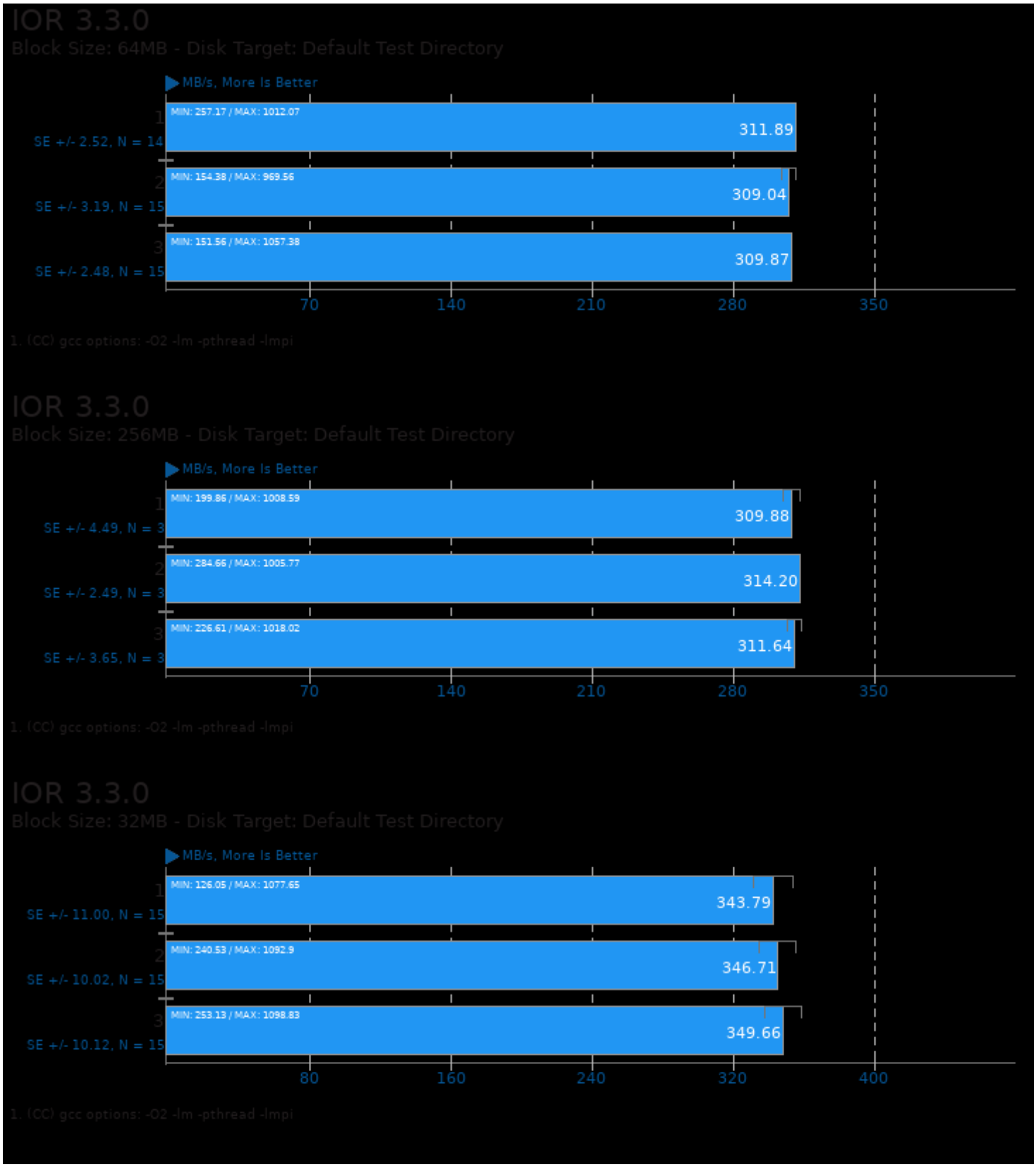
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-10-JvwpWM/gcc-10-10.2.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-10-JvwpWM/gcc-10-10.2.0/debian/tmp-gcn/usr,hsa --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=auto --with-tune=generic --without-cuda-driver -v
Disk Notes: NONE / errors=remount-ro,relatime,rw / Block Size: 4096
Processor Notes: Scaling Governor: acpi-cpufreq ondemand (Boost: Enabled) - CPU Microcode: 0x8101016
Python Notes: Python 3.8.6
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: disabled RSB filling + srbds: Not affected + tsx_async_abort: Not affected

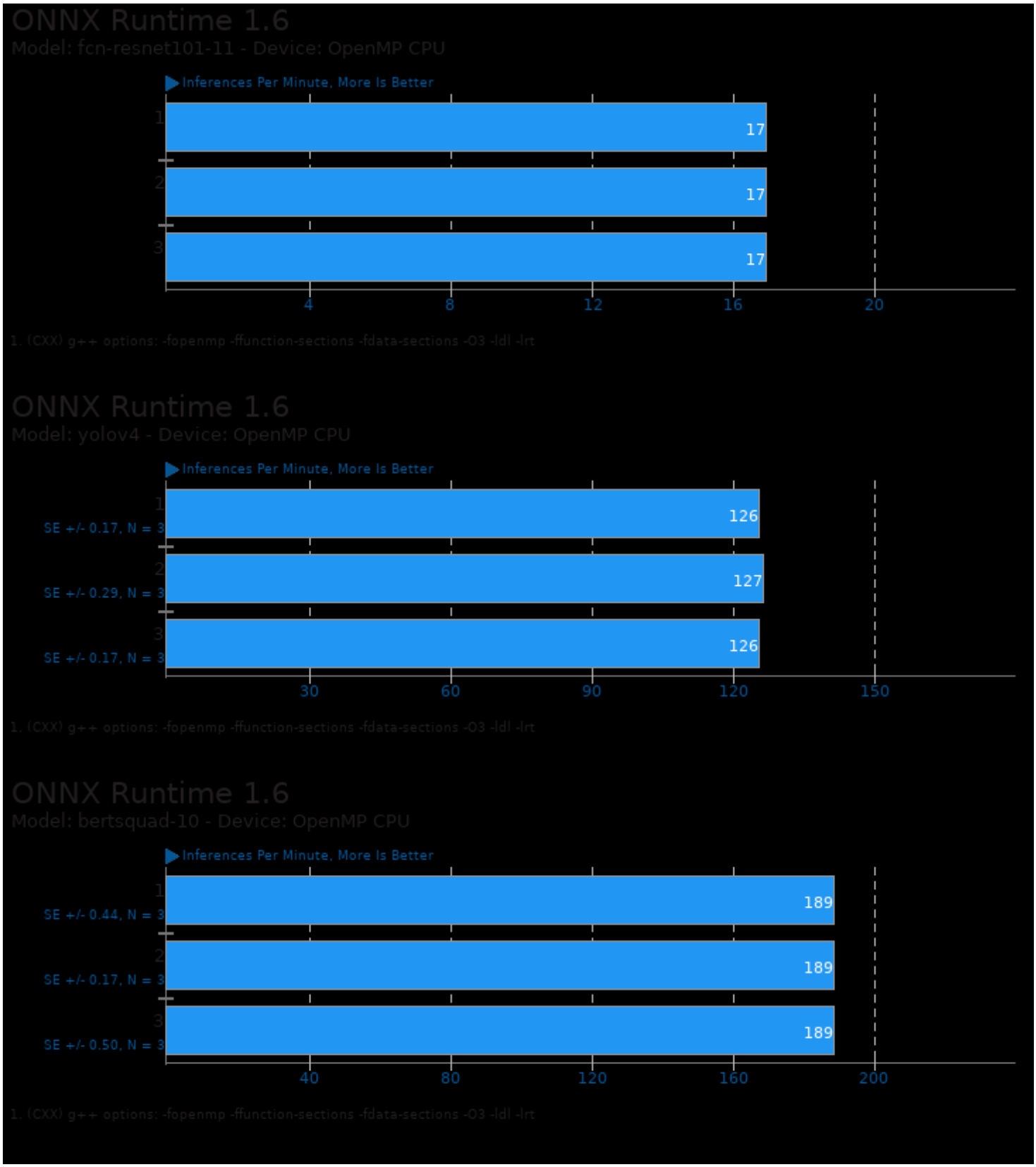
	1	1a	2	3
IOR - 64MB (MB/s)	**311.89**		**309.04**	309.87
Normalized	100%		99.09%	99.35%
Standard Deviation	3%		4%	3.1%
IOR - 256MB (MB/s)	**309.88**		**314.20**	311.64
Normalized	98.63%		100%	99.19%
Standard Deviation	2.5%		1.4%	2%
IOR - 32MB (MB/s)	**343.79**		346.71	**349.66**
Normalized	98.32%		99.16%	100%
Standard Deviation	12.4%		11.2%	11.2%
ONNX Runtime - fcn-resnet101-11 - OpenMP CPU (Inferences/min)	17		17	17
ONNX Runtime - yolov4 - OpenMP CPU (Inferences/min)	**126**		**127**	**126**
Normalized	99.21%		100%	99.21%
Standard Deviation	0.2%		0.4%	0.2%

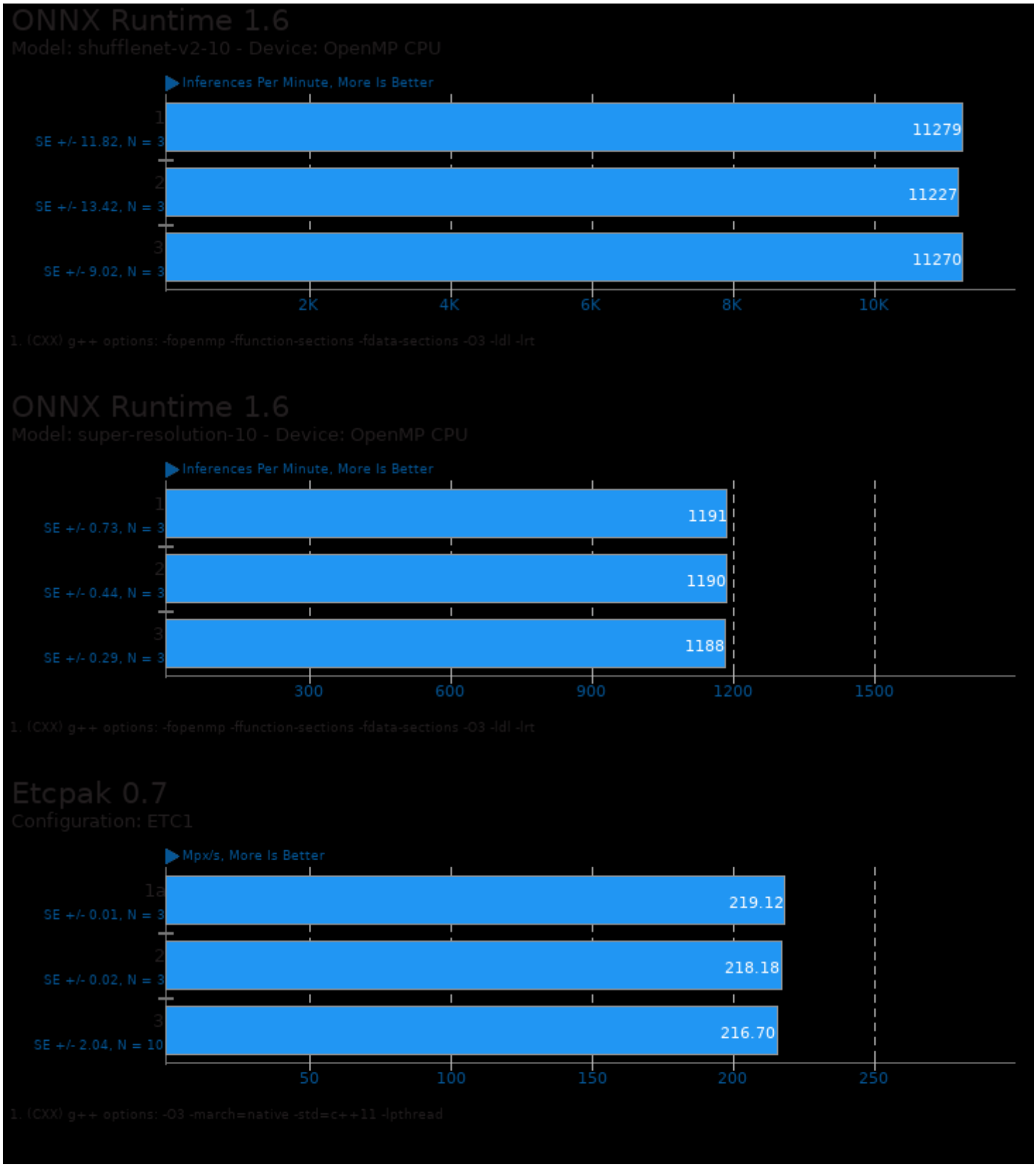
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ONNX Runtime - bertsquad-10 - OpenMP CPU (Inferences/min)	189		189	189
Standard Deviation	0.4%		0.2%	0.5%
ONNX Runtime - shufflenet-v2-10 - OpenMP CPU (Inferences/min)	**11279**		**11227**	11270
Normalized	100%		99.54%	99.92%
Standard Deviation	0.2%		0.2%	0.1%
ONNX Runtime - super-resolution-10 - OpenMP CPU (Inferences/min)	**1191**		1190	**1188**
Normalized	100%		99.92%	99.75%
Standard Deviation	0.1%		0.1%	0%
Etcpak - ETC1 (Mpx/s)		**219.116**	218.179	**216.701**
Normalized		100%	99.57%	98.9%
Standard Deviation		0%	0%	3%
QMCPACK - simple-H2O (Execution Time - sec)	31.658		**32.044**	**31.509**
Normalized	99.53%		98.33%	100%
Standard Deviation	2.3%		2.7%	2.6%
Etcpak - ETC2 (Mpx/s)		**136.386**	136.363	**135.508**
Normalized		100%	99.98%	99.36%
Standard Deviation		0%	0%	1.1%
Etcpak - ETC1 + Dithering (Mpx/s)		203.062	**203.066**	**202.535**
Normalized		100%	100%	99.74%
Standard Deviation		0%	0%	0.3%
IOR - 16MB (MB/s)	**683.80**		679.38	**679.23**
Normalized	100%		99.35%	99.33%
Standard Deviation	0.9%		1.3%	2.8%
IOR - 8MB (MB/s)	**879.41**		877.96	**876.75**
Normalized	100%		99.84%	99.7%
Standard Deviation	1.2%		1.6%	0.5%
Etcpak - DXT1 (Mpx/s)		1426	**1425**	**1428**
Normalized		99.81%	99.76%	100%
Standard Deviation		0.2%	0%	0%
IOR - 2MB (MB/s)	**565.79**		**580.79**	573.91
Normalized	97.42%		100%	98.82%
Standard Deviation	2.6%		1.7%	3%
IOR - 4MB (MB/s)	**743.09**		**740.61**	741.93
Normalized	100%		99.67%	99.84%
Standard Deviation	1.7%		0.8%	2.5%

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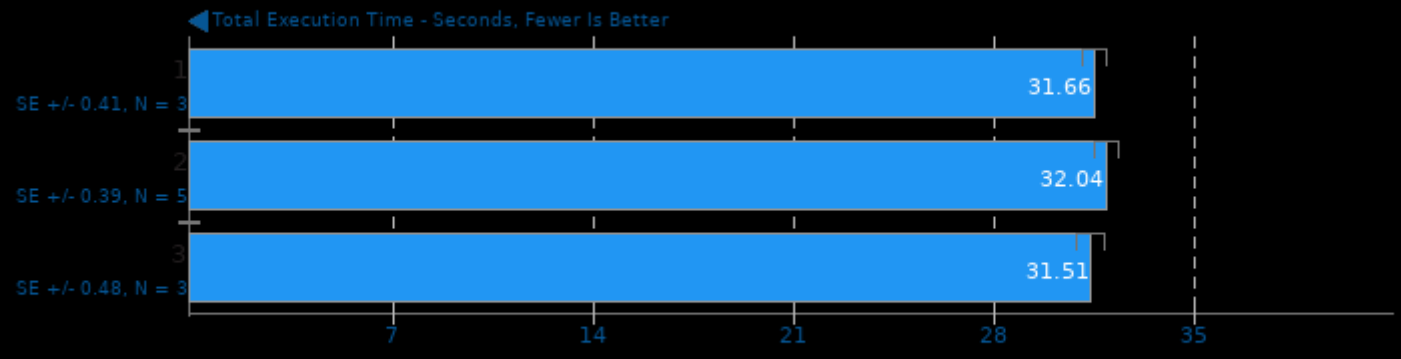



ONNX Runtime 1.6
Model: fcn-resnet101-11 - Device: OpenMP CPU
Inferences Per Minute, More Is Better
1
2
3
17
17
17
4
8
12
16
20
1. (CXX) g++ options: -fopenmp -ffunction-sections -fdata-sections -O3 -ldl -lrt
ONNX Runtime 1.6
Model: yolov4 - Device: OpenMP CPU
Inferences Per Minute, More Is Better
1
2
3
SE +/- 0.17, N = 3
SE +/- 0.29, N = 3
SE +/- 0.17, N = 3
126
127
126
30
60
90
120
150
1. (CXX) g++ options: -fopenmp -ffunction-sections -fdata-sections -O3 -ldl -lrt
ONNX Runtime 1.6
Model: bertsquad-10 - Device: OpenMP CPU
Inferences Per Minute, More Is Better
1
2
3
SE +/- 0.44, N = 3
SE +/- 0.17, N = 3
SE +/- 0.50, N = 3
189
189
189
40
80
120
160
200
1. (CXX) g++ options: -fopenmp -ffunction-sections -fdata-sections -O3 -ldl -lrt


ONNX Runtime 1.6
Model: shufflenet-v2-10 - Device: OpenMP CPU
Inferences Per Minute, More Is Better
1
SE +/- 11.82, N = 3
11279
2
SE +/- 13.42, N = 3
11227
3
SE +/- 9.02, N = 3
11270
2K
4K
6K
8K
10K
1. (CXX) g++ options: -fopenmp -ffunction-sections -fdata-sections -O3 -ldl -lrt
ONNX Runtime 1.6
Model: super-resolution-10 - Device: OpenMP CPU
Inferences Per Minute, More Is Better
1
SE +/- 0.73, N = 3
1191
2
SE +/- 0.44, N = 3
1190
3
SE +/- 0.29, N = 3
1188
300
600
900
1200
1500
1. (CXX) g++ options: -fopenmp -ffunction-sections -fdata-sections -O3 -ldl -lrt
Etcpak 0.7
Configuration: ETC1
Mpx/s, More Is Better
1a
SE +/- 0.01, N = 3
219.12
2
SE +/- 0.02, N = 3
218.18
3
SE +/- 2.04, N = 10
216.70
50
100
150
200
250
1. (CXX) g++ options: -O3 -march=native -std=c++11 -lpthread

QMCPACK 3.10

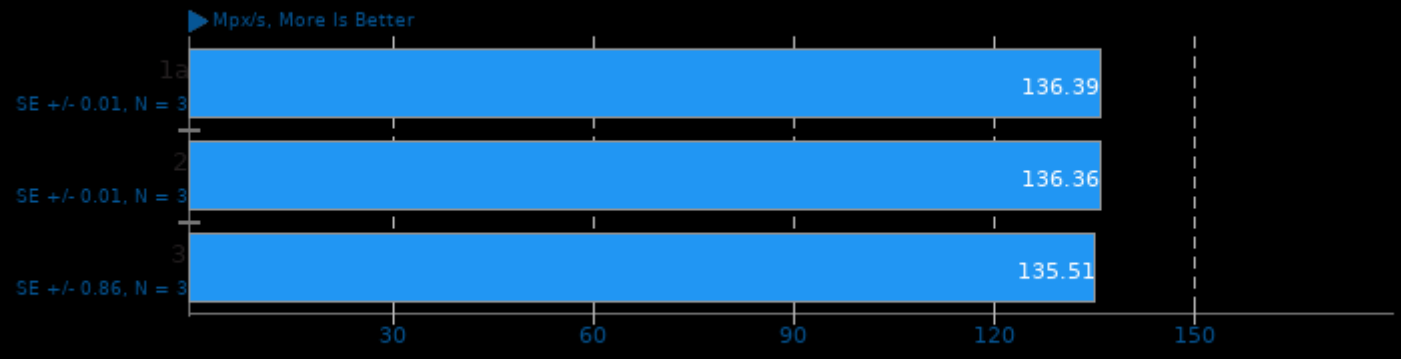
Input: simple-H2O



1. (CXX) g++ options: -fopenmp -finline-limit=1000 -fstrict-aliasing -funroll-all-loops -march=native -O3 -fomit-frame-pointer -ffast-math -pthread -lm

Etcpak 0.7

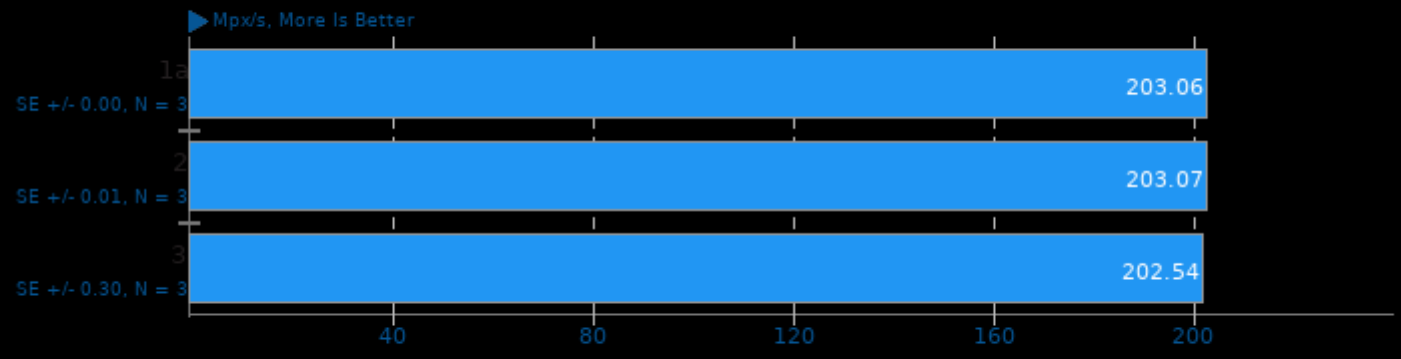
Configuration: ETC2



1. (CXX) g++ options: -O3 -march=native -std=c++11 -lpthread

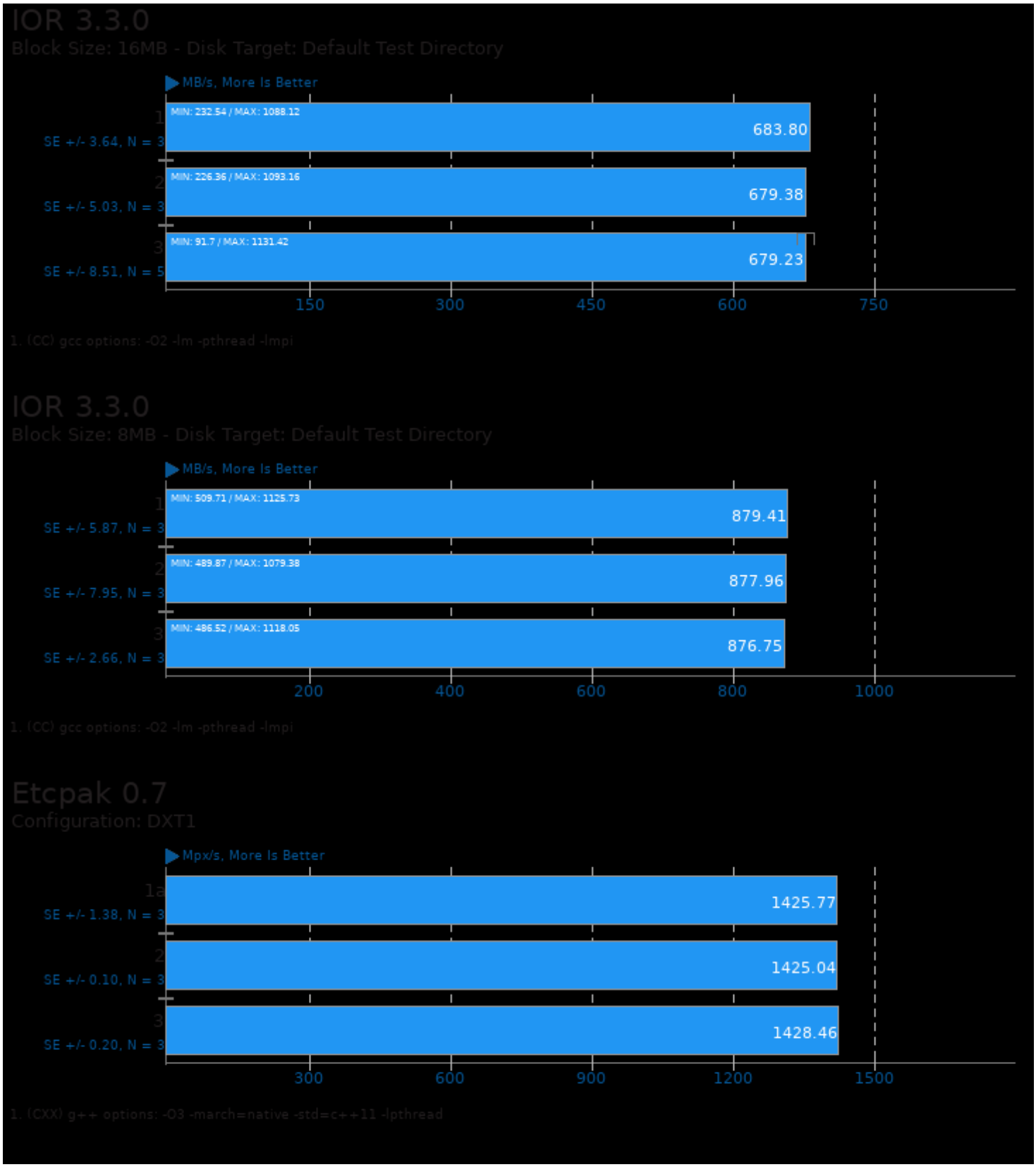
Etcpak 0.7

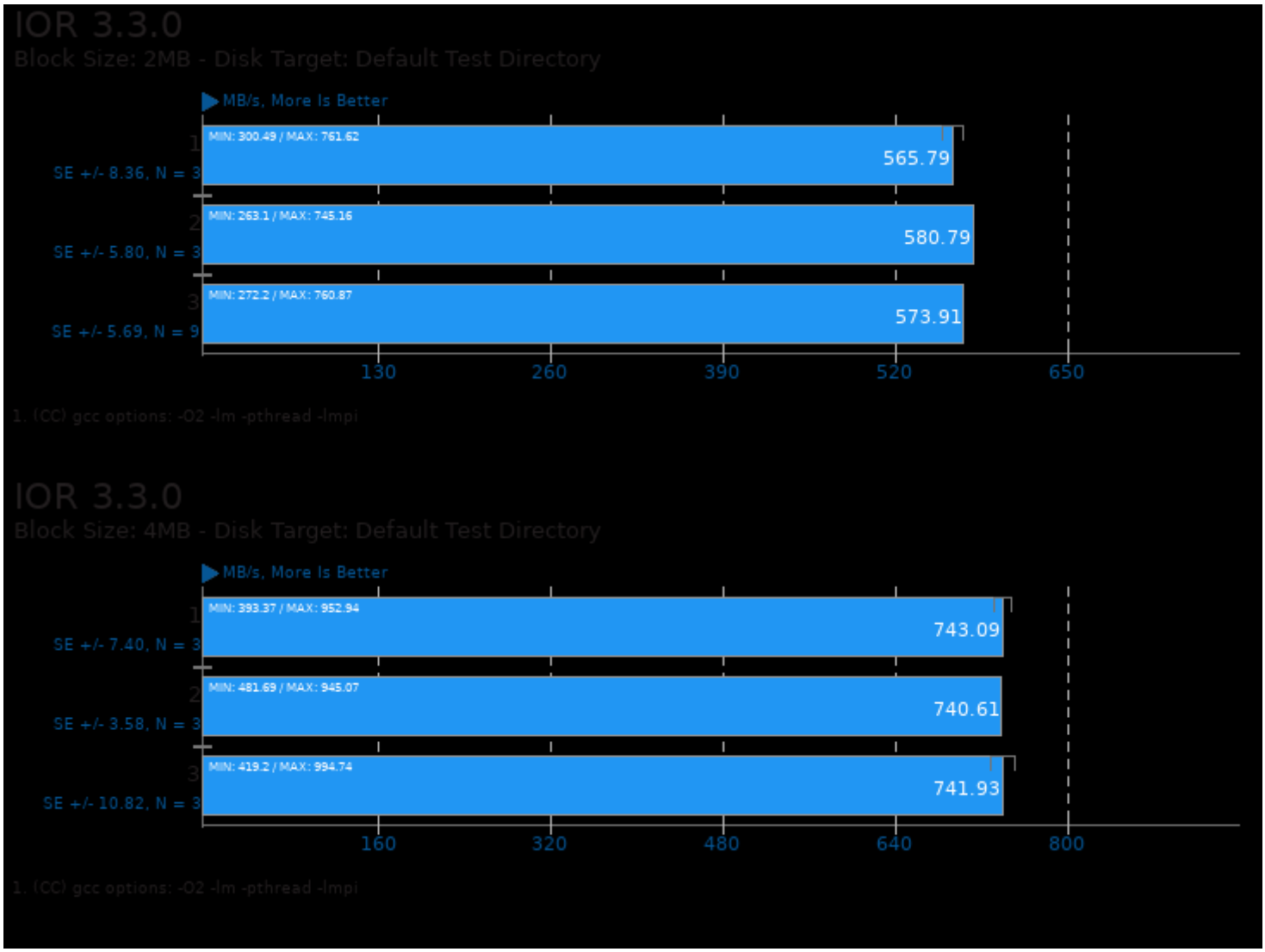
Configuration: ETC1 + Dithering



1. (CXX) g++ options: -O3 -march=native -std=c++11 -lpthread

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