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cpu-intel

Intel Core i7-9700K testing with a Gigabyte Z390 I AORUS PRO WIFI-CF (F7 BIOS) and Gigabyte Intel UHD 630 on Ubuntu 20.04 via the Phoronix Test Suite.

Test Systems:

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Processor: Intel Core i7-9700K @ 4.90GHz (8 Cores), Motherboard: Gigabyte Z390 I AORUS PRO WIFI-CF (F7 BIOS), Chipset: Intel Cannon Lake PCH, Memory: 32GB, Disk: 500GB CT500P5SSD8 + 2000GB Samsung SSD 860, Graphics: Gigabyte Intel UHD 630 (1200MHz), Audio: Realtek ALC1220, Network: Intel I219-V + Intel-AC 9560

OS: Ubuntu 20.04, Kernel: 5.8.0-55-generic (x86_64), Desktop: GNOME Shell 3.36.9, Display Server: X Server 1.20.9, Vulkan: 1.2.145, Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 2560x1080

Kernel Notes: Transparent Huge Pages: madvise
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++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-9-HskZEa/gcc-9-9.3.0/debian/tmp-nvptx/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

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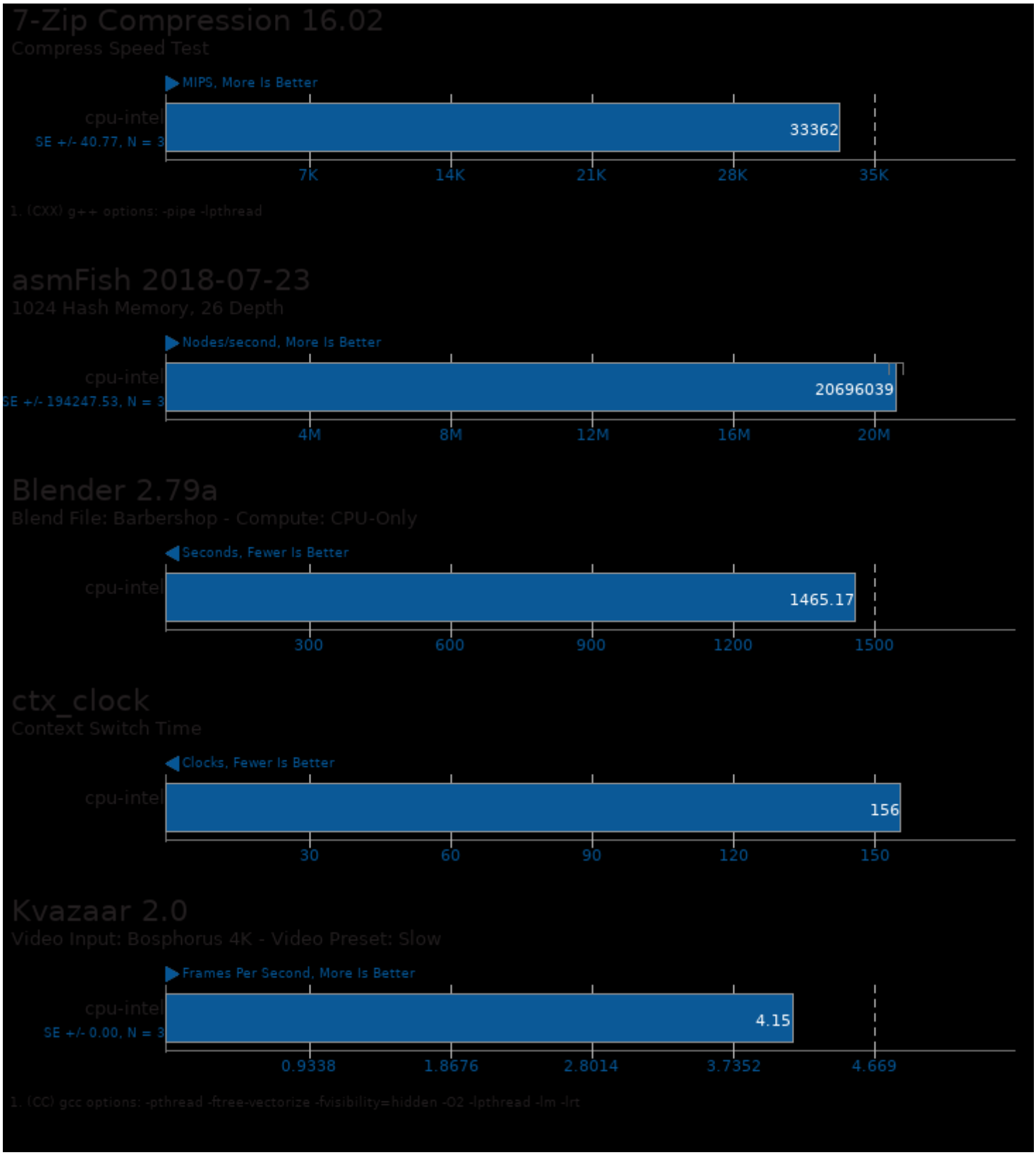
--with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0xea - Thermald 1.9.1
Security Notes: itlb_multihit: KVM: Mitigation of VMX disabled + 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 Enhanced IBRS IBPB: conditional RSB filling + srbds: Mitigation of TSX disabled + tsx_async_abort: Mitigation of TSX disabled

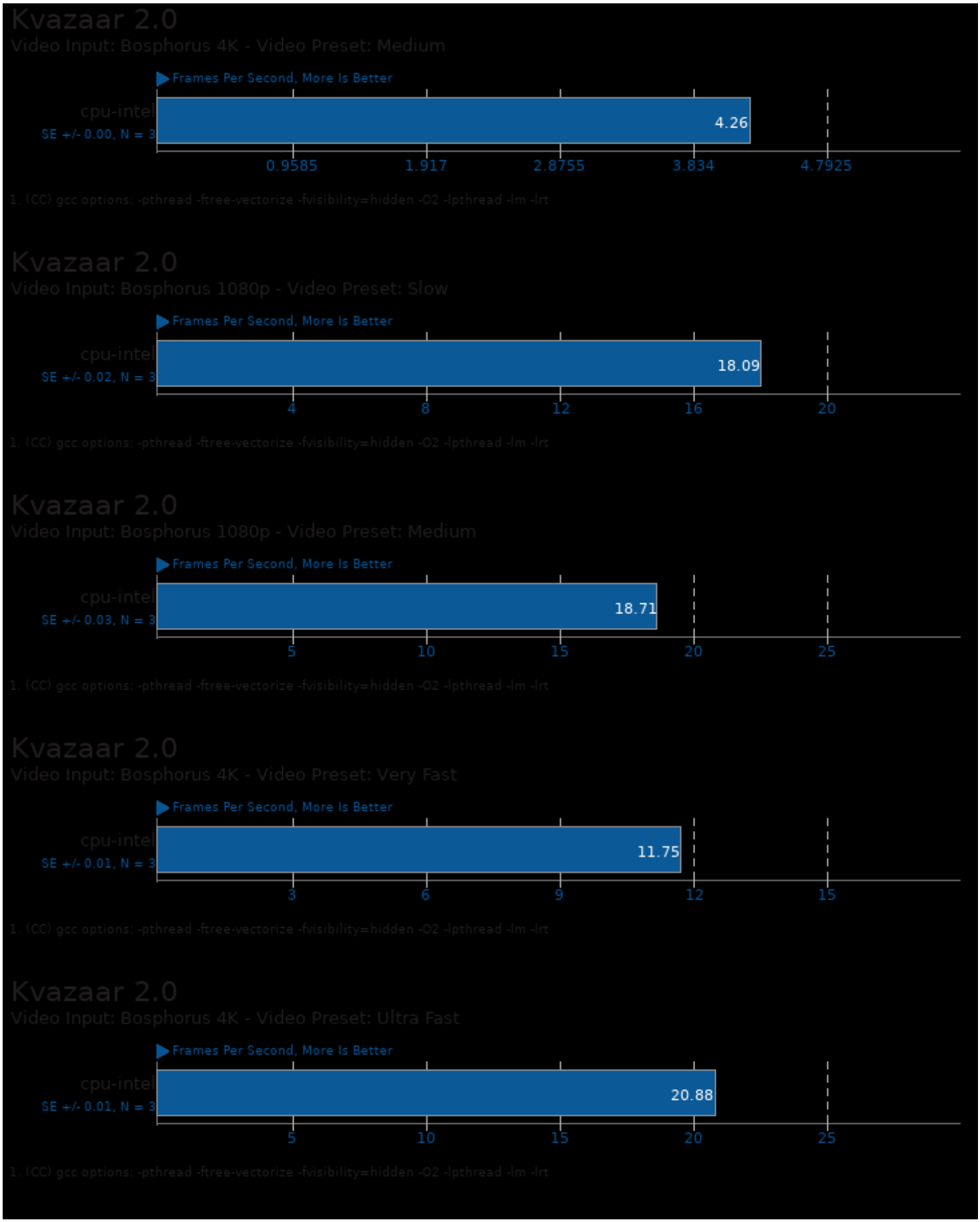
	cpu-intel
7-Zip Compression - C.S.T (MIPS)	33362
Standard Deviation	0.2%
asmFish - 1.H.M.2.D (Nodes/s)	20696039
Standard Deviation	1.6%
Blender - Barbershop - CPU-Only (sec)	1465
ctx_clock - C.S.T (Clocks)	156
Kvazaar - Bosphorus 4K - Slow (FPS)	4.15
Standard Deviation	0.1%
Kvazaar - Bosphorus 4K - Medium (FPS)	4.26
Standard Deviation	0.1%
Kvazaar - Bosphorus 1080p - Slow (FPS)	18.09
Standard Deviation	0.2%
Kvazaar - Bosphorus 1080p - Medium (FPS)	18.71
Standard Deviation	0.3%
Kvazaar - Bosphorus 4K - Very Fast (FPS)	11.75
Standard Deviation	0.1%
Kvazaar - Bosphorus 4K - Ultra Fast (FPS)	20.88
Standard Deviation	0.1%
Kvazaar - Bosphorus 1080p - Very Fast (FPS)	47.86
Standard Deviation	0.2%
Kvazaar - Bosphorus 1080p - Ultra Fast (FPS)	85.48
Standard Deviation	0.9%
NAMD - ATPase Simulation - 327,506 Atoms (days/ns)	2.07021
Standard Deviation	0.2%
OpenSSL - R.4.b.P (Signs/sec)	2621
Standard Deviation	1.5%
POV-Ray - Trace Time (sec)	58.880
Standard Deviation	0.3%
Radiance Benchmark - Serial (sec)	624.277
Radiance Benchmark - SMP Parallel (sec)	199.644
Rodinia - OpenMP LavaMD (sec)	37.491
Standard Deviation	0%
Rodinia - OpenMP CFD Solver (sec)	36.071
Standard Deviation	0.5%
Stockfish - Total Time (Nodes/s)	18923233
Standard Deviation	0.9%
Sysbench - CPU (Events/sec)	12246
Standard Deviation	0%
Timed Linux Kernel Compilation - Time To Compile (sec)	95.971
Standard Deviation	2%
x264 - H.2.V.E (FPS)	70.46
Standard Deviation	2.5%
x265 - Bosphorus 4K (FPS)	10.04

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Standard Deviation	0.7%
x265 - Bosphorus 1080p (FPS)	50.10
Standard Deviation	1.7%

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7-Zip Compression 16.02
Compress Speed Test
MIPS, More Is Better
cpu-intel
SE +/- 40.77, N = 3
33362
7K
14K
21K
28K
35K
1. (CXX) g++ options: -pipe -lpthread
asmFish 2018-07-23
1024 Hash Memory, 26 Depth
Nodes/second, More Is Better
cpu-intel
SE +/- 194247.53, N = 3
20696039
4M
8M
12M
16M
20M
Blender 2.79a
Blend File: Barbershop - Compute: CPU-Only
Seconds, Fewer Is Better
cpu-intel
1465.17
300
600
900
1200
1500
ctx_clock
Context Switch Time
Clocks, Fewer Is Better
cpu-intel
156
30
60
90
120
150
Kvazaar 2.0
Video Input: Bosphorus 4K - Video Preset: Slow
Frames Per Second, More Is Better
cpu-intel
SE +/- 0.00, N = 3
4.15
0.9338
1.8676
2.8014
3.7352
4.669
1. (CC) gcc options: -pthread -ftree-vectorize -fvisibility=hidden -O2 -lpthread -lm -lrt


Kvazaar 2.0
Video Input: Bosphorus 4K - Video Preset: Medium
Frames Per Second, More Is Better
cpu-intel
SE +/- 0.00, N = 3
4.26
0.9585
1.917
2.8755
3.834
4.7925
1. (CC) gcc options: -pthread -ftree-vectorize -fvisibility=hidden -O2 -lpthread -lm -lrt
Kvazaar 2.0
Video Input: Bosphorus 1080p - Video Preset: Slow
Frames Per Second, More Is Better
cpu-intel
SE +/- 0.02, N = 3
18.09
4
8
12
16
20
1. (CC) gcc options: -pthread -ftree-vectorize -fvisibility=hidden -O2 -lpthread -lm -lrt
Kvazaar 2.0
Video Input: Bosphorus 1080p - Video Preset: Medium
Frames Per Second, More Is Better
cpu-intel
SE +/- 0.03, N = 3
18.71
5
10
15
20
25
1. (CC) gcc options: -pthread -ftree-vectorize -fvisibility=hidden -O2 -lpthread -lm -lrt
Kvazaar 2.0
Video Input: Bosphorus 4K - Video Preset: Very Fast
Frames Per Second, More Is Better
cpu-intel
SE +/- 0.01, N = 3
11.75
3
6
9
12
15
1. (CC) gcc options: -pthread -ftree-vectorize -fvisibility=hidden -O2 -lpthread -lm -lrt
Kvazaar 2.0
Video Input: Bosphorus 4K - Video Preset: Ultra Fast
Frames Per Second, More Is Better
cpu-intel
SE +/- 0.01, N = 3
20.88
5
10
15
20
25
1. (CC) gcc options: -pthread -ftree-vectorize -fvisibility=hidden -O2 -lpthread -lm -lrt

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Kvazaar 2.0

Video Input: Bosphorus 1080p - Video Preset: Very Fast



1. (CC) gcc options: -pthread -ftree-vectorize -fvisibility=hidden -O2 -lpthread -lm -lrt

Kvazaar 2.0

Video Input: Bosphorus 1080p - Video Preset: Ultra Fast



1. (CC) gcc options: -pthread -ftree-vectorize -fvisibility=hidden -O2 -lpthread -lm -lrt

NAMD 2.13b1

ATPase Simulation - 327,506 Atoms



OpenSSL 1.1.1

RSA 4096-bit Performance



1. (CC) gcc options: -pthread -m64 -O3 -lssl -lcrypto -ldl

POV-Ray 3.7.0.7

Trace Time

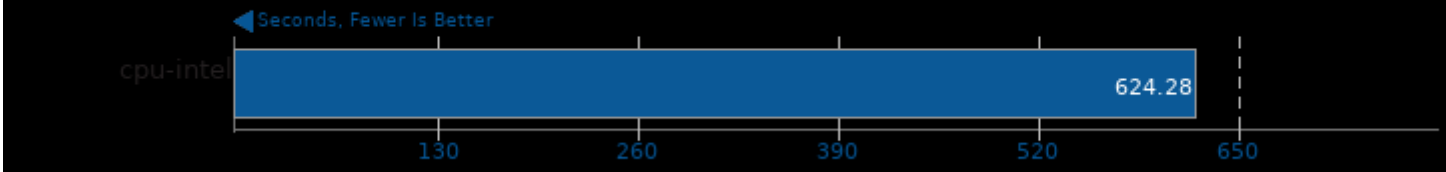


1. (CXX) g++ options: -pipe -O3 -ffast-math -march=native -pthread -lXpm -lSM -lICE -lX11 -ltiff -ljpeg -lpng -lz -lrt -lm -lboost_thread -lboost_system

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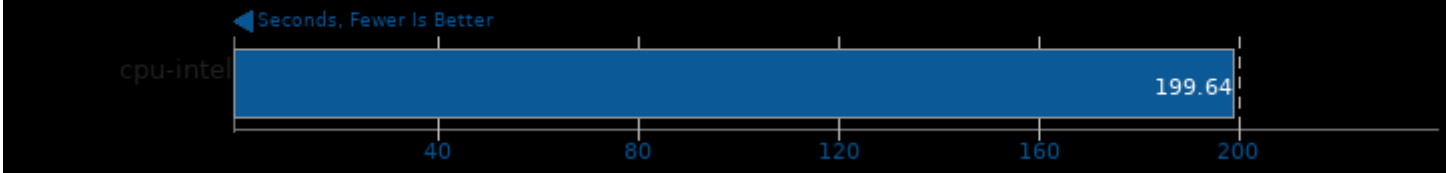
Radiance Benchmark 5.0

Test: Serial



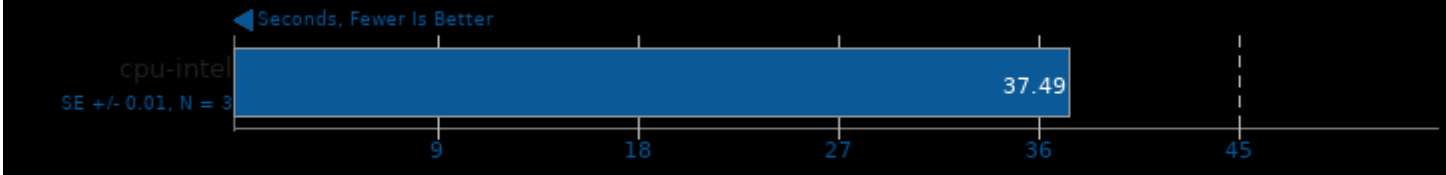
Radiance Benchmark 5.0

Test: SMP Parallel



Rodinia 2.4

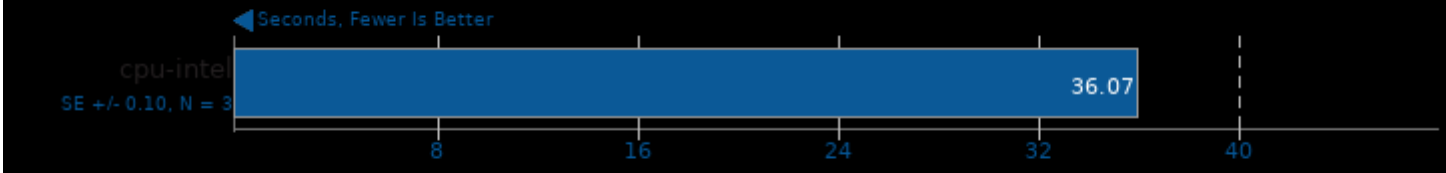
Test: OpenMP LavaMD



1. (CXX) g++ options: -O2 -lOpenCL

Rodinia 2.4

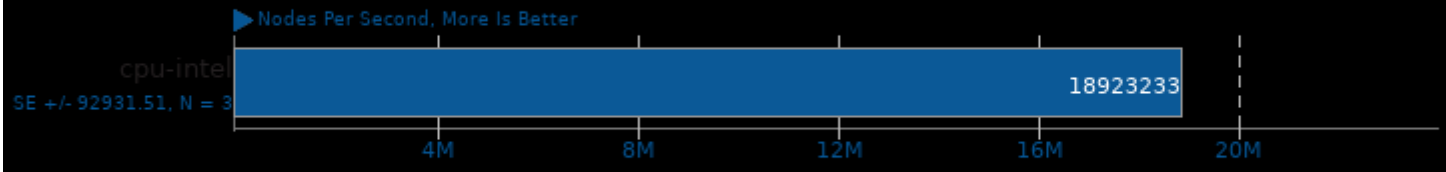
Test: OpenMP CFD Solver



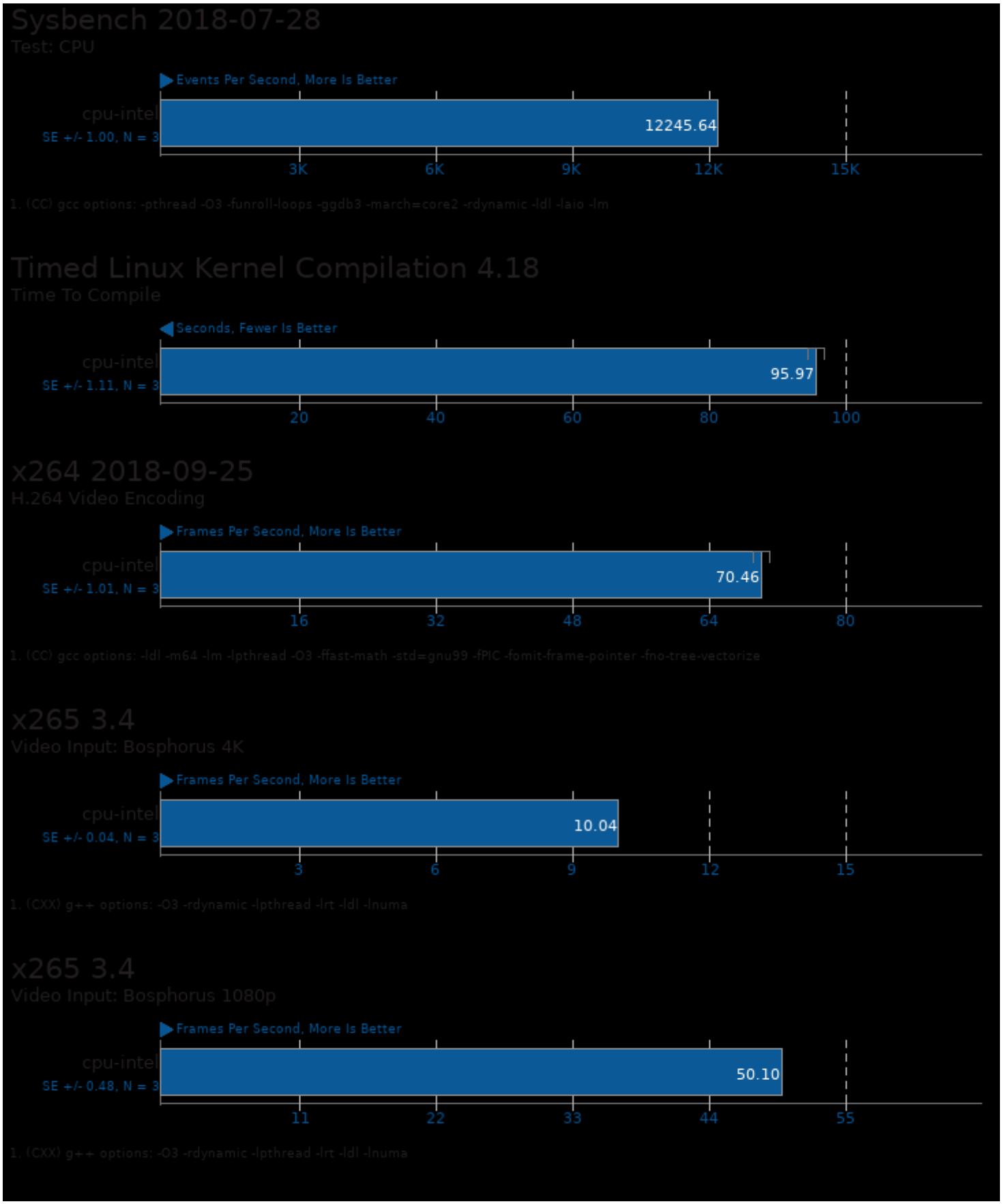
1. (CXX) g++ options: -O2 -lOpenCL

Stockfish 9

Total Time



1. (CXX) g++ options: -m64 -lpthread -fno-exceptions -std=c++11 -pedantic -O3 -msse -msse3 -mpopcnt -flto



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