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# zbook finance

Intel Core i9-10885H testing with a HP 8736 (S91 Ver. 01.02.01 BIOS) and NVIDIA Quadro RTX 5000 with Max-Q Design 16GB on Ubuntu 20.04 via the Phoronix Test Suite.

**Automated Executive Summary**

*4 had the most wins, coming in first place for 50% of the tests.*

*Based on the geometric mean of all complete results, the fastest (1) was 1.01x the speed of the slowest (2). 1 was 1x the speed of 4 and 2 was 0.99x the speed of 1.*

## Test Systems:

### 1

Processor: Intel Core i9-10885H @ 5.30GHz (8 Cores / 16 Threads), Motherboard: HP 8736 (S91 Ver. 01.02.01 BIOS), Chipset: Intel Comet Lake PCH, Memory: 32GB, Disk: 2048GB Kioxia KXG50PNV2T04, Graphics: NVIDIA Quadro RTX 5000 with Max-Q Design 16GB (600/6000MHz), Audio: Intel Comet Lake PCH cAVS, Network: Intel Wi-Fi 6 AX201

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OS: Ubuntu 20.04, Kernel: 5.6.0-1042-oem (x86_64), Desktop: GNOME Shell 3.36.4, Display Server: X Server 1.20.9, Display Driver: NVIDIA 450.102.04, OpenGL: 4.6.0, OpenCL: OpenCL 1.2 CUDA 11.0.228, Vulkan: 1.2.133, Compiler: GCC 9.3.0 + CUDA 10.1, 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++,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 --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: 0xe0 - Thermald 1.9.1
OpenCL Notes: GPU Compute Cores: 3072
Security Notes: itlb_multihit: KVM: Mitigation of Split huge pages + 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: Not affected + tsx_async_abort: Not affected

## 2

## 4

Processor: Intel Core i9-10885H @ 5.30GHz (8 Cores / 16 Threads), Motherboard: HP 8736 (S91 Ver. 01.02.01 BIOS), Chipset: Intel Comet Lake PCH, Memory: 32GB, Disk: 2048GB Kioxia KXG50PNV2T04, Graphics: NVIDIA Quadro RTX 5000 with Max-Q Design 16GB (300/405MHz), Audio: Intel Comet Lake PCH cAVS, Network: Intel Wi-Fi 6 AX201

OS: Ubuntu 20.04, Kernel: 5.6.0-1042-oem (x86_64), Desktop: GNOME Shell 3.36.4, Display Server: X Server 1.20.9, Display Driver: NVIDIA 450.102.04, OpenGL: 4.6.0, OpenCL: OpenCL 1.2 CUDA 11.0.228, Vulkan: 1.2.133, Compiler: GCC 9.3.0 + CUDA 10.1, File-System: ext4, Screen Resolution: 1920x1080

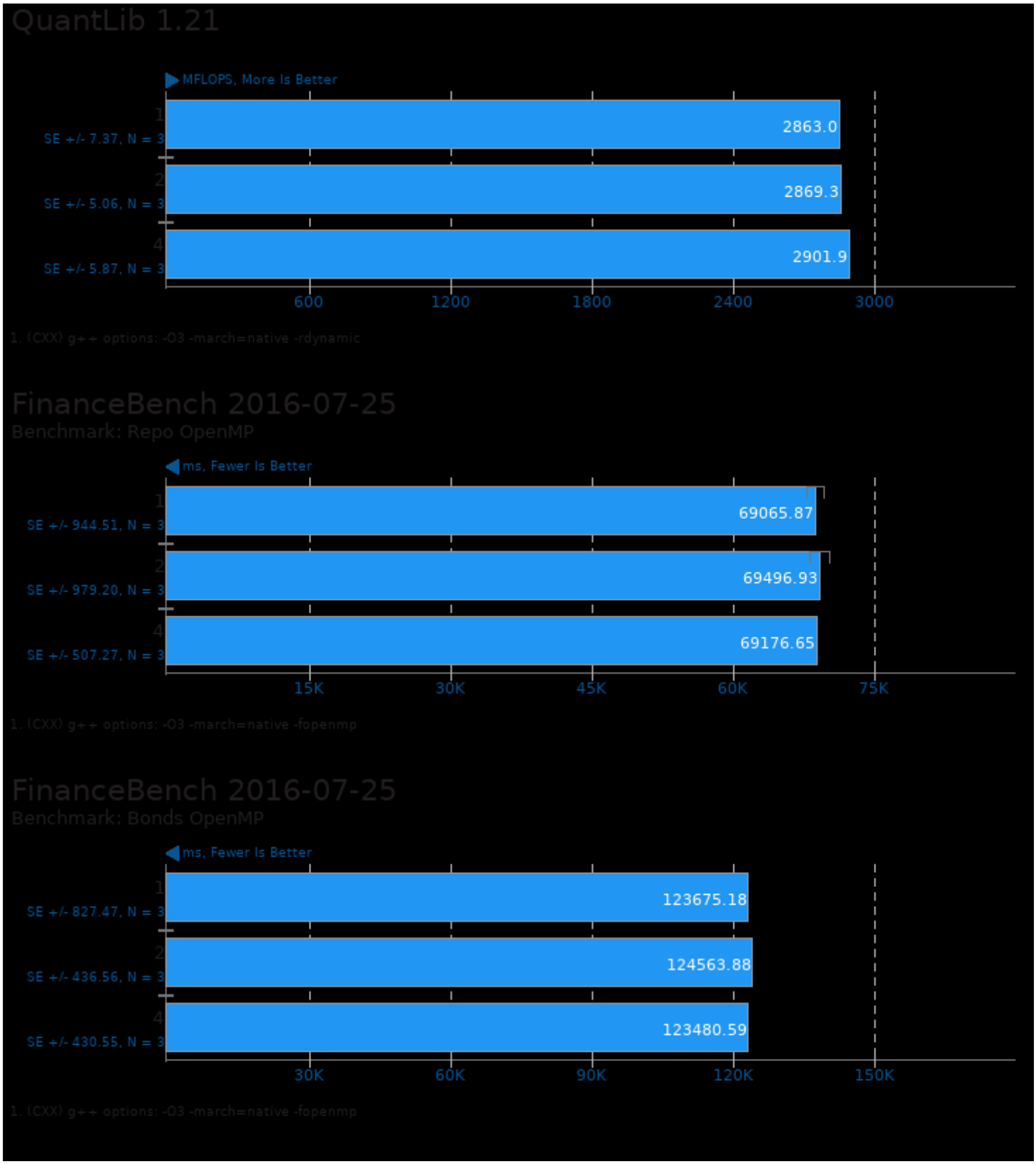
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --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 --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: 0xe0 - Thermald 1.9.1
OpenCL Notes: GPU Compute Cores: 3072
Security Notes: itlb_multihit: KVM: Mitigation of Split huge pages + 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: Not affected + tsx_async_abort: Not affected

| | 1 | 2 | 4 |
|---|---|---|---|
| **QuantLib (MFLOPS)** | **2863** | 2869 | **2902** |
| **Normalized** | 98.66% | 98.88% | 100% |
| **Standard Deviation** | 0.4% | 0.3% | 0.4% |
| **FinanceBench - Repo OpenMP (ms)** | **69066** | **69497** | 69177 |
| **Normalized** | 100% | 99.38% | 99.84% |
| **Standard Deviation** | 2.4% | 2.4% | 1.3% |
| **FinanceBench - Bonds OpenMP (ms)** | 123675 | **124564** | **123481** |
| **Normalized** | 99.84% | 99.13% | 100% |
| **Standard Deviation** | 1.2% | 0.6% | 0.6% |
| **FinanceBench - Monte-Carlo OpenCL (ms)** | **1649** | 1650 | **1653** |
| **Normalized** | 100% | 99.94% | 99.79% |
| **Standard Deviation** | 0.1% | 0% | 0.1% |
| **FinanceBench - Monte-Carlo OpenMP (ms)** | 56069 | **56410** | **55927** |
| **Normalized** | 99.75% | 99.14% | 100% |
| **Standard Deviation** | 2% | 1.3% | 1.9% |

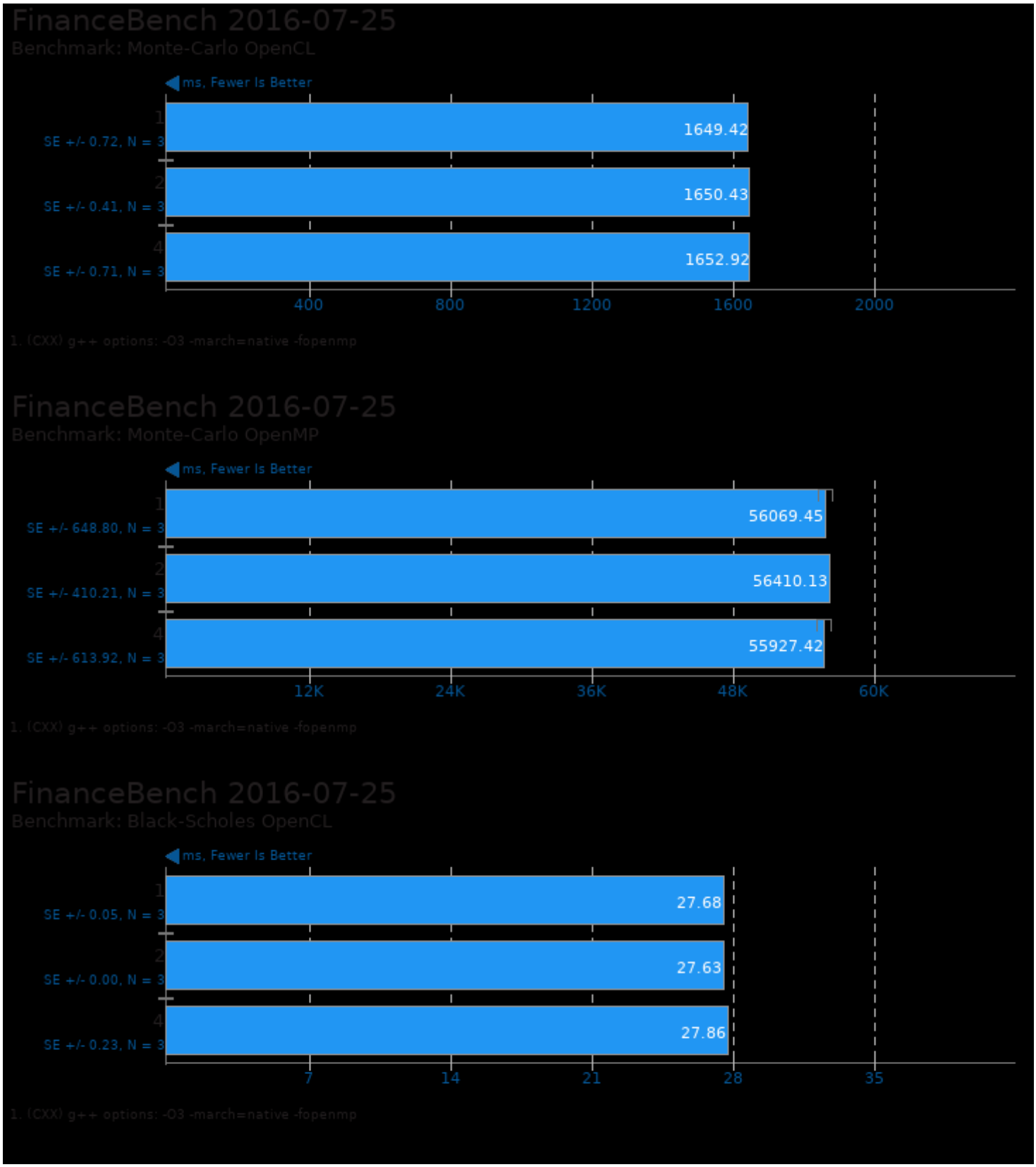
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| | | | |
|---|---|---|---|
| **FinanceBench - B.S.O (ms)** | 27.684667 | **27.633333** | **27.864000** |
| **Normalized** | 99.81% | 100% | 99.17% |
| **Standard Deviation** | 0.3% | 0% | 1.4% |

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These geometric means are based upon test groupings / test suites for this result file.




Geometric mean based upon tests: pts/financebench and pts/quantlib

*This file was automatically generated via the Phoronix Test Suite benchmarking software on Friday, 29 March 2024 01:21.*