www.phoronix-test-suite.com

J1900 Processor Benchmarks

Running pts/npb-1.2.0, pts/ffte-1.0.1, pts/hmmer-1.1.0, pts/mrbayes-1.2.0, pts/fhourstones-1.1.0, pts/byte-1.2.0, pts/ttsiod-renderer-1.4.0, pts/primesieve-1.2.0, pts/sample-program-1.1.0 via the Phoronix Test Suite.

Automated Executive Summary

i7-4700MQ had the most wins, coming in first place for 81% of the tests.

Based on the geometric mean of all complete results, the fastest (i7-4700MQ) was 2.701x the speed of the slowest (Celeron J1900 Xubuntu).

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

Sample Pi Program (Phoronix Test Suite v5.0.1) at 4.872x
NAS Parallel Benchmarks (Test / Class: EP.C) at 4.503x
BYTE Unix Benchmark (Computational Test: Dhrystone 2) at 4.422x
Timed MrBayes Analysis (Primate Phylogeny Analysis) at 4.194x
TTSIOD 3D Renderer (Phong Rendering With Soft-Shadow Mapping) at 3.903x
Timed HMMer Search (Pfam Database Search) at 3.2x
Primesieve (1e12 Prime Number Generation) at 2.827x
NAS Parallel Benchmarks (Test / Class: FT.A) at 2.773x
Fhourstones (Complex Connect-4 Solving) at 2.569x

NAS Parallel Benchmarks (Test / Class: MG.B) at 1.851x.

Test Systems:

Celeron J1900 Xubuntu

Processor: Intel Celeron J1900 @ 2.90GHz (4 Cores), Motherboard: ASRock Q1900B-ITX, Chipset: Intel ValleyView SSA-CUnit, Memory: 16384MB, Disk: 120GB GOODRAM C50, Graphics: Intel ValleyView Gen7 (854MHz), Audio: Intel ValleyView HD Audio, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 14.04, Kernel: 3.15.0-031500rc2-generic (x86_64), Desktop: Xfce 4.10, Display Server: X Server 1.15.1, Display Driver: intel 2.99.911, OpenGL: 3.3 Mesa 10.2.0-devel (git-3a2885f trusty-oibaf-ppa), Compiler: GCC 4.8.2, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-linux-gnu --disable-browser-plugin --disable-libmudflap --disable-werror --enable-checking=release --enable-clocale=gnu --enable-gnu-unique-object --enable-gtk-cairo --enable-java-awt=gtk --enable-java-home --enable-languages=c,c++,java,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-nls --enable-objc-gc --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-arch-directory=amd64 --with-multilib-list=m32,m64,mx32 --with-tune=generic -v
Processor Notes: Scaling Governor: intel_pstate performance

i7-4700MQ

Processor: Intel Core i7-4700MQ @ 2.40GHz (8 Cores), Motherboard: MSI MS-1758, Chipset: Intel Xeon E3-1200 v3/4th, Memory: 16384MB, Disk: 120GB INTEL SSDSC2CT12 + 1000GB HGST HTS721010A9, Graphics: Intel HD 4600, Audio: Intel Xeon E3-1200 v3/4th, Network: Qualcomm Atheros AR8161 Gigabit + Realtek RTL8723AE PCIe Wireless

OS: Ubuntu 14.04, Kernel: 3.13.0-24-generic (x86_64), Desktop: KDE 4.13.0, Display Server: X Server 1.15.1, Display Driver: intel 2.99.911, OpenGL: 3.3 Mesa 10.2.0-devel (git-9339f8a trusty-oibaf-ppa), Compiler: GCC 4.8.2, File-System: ext4, Screen Resolution: 1920x1080

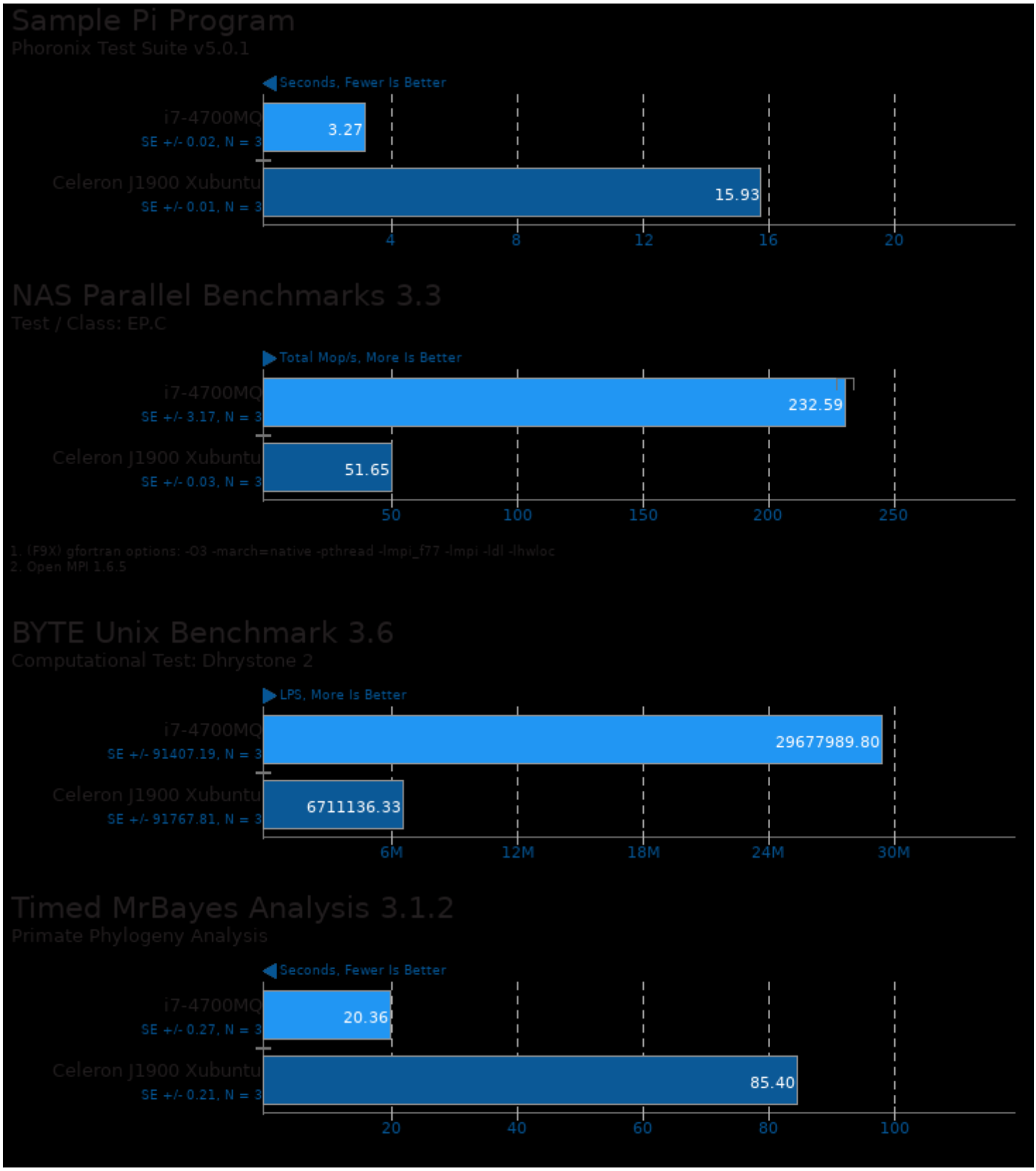
Compiler Notes: --build=x86_64-linux-gnu --disable-browser-plugin --disable-libmudflap --disable-werror --enable-checking=release --enable-clocale=gnu --enable-gnu-unique-object --enable-gtk-cairo --enable-java-awt=gtk --enable-java-home --enable-languages=c,c++,java,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-nls --enable-objc-gc --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-arch-directory=amd64 --with-multilib-list=m32,m64,mx32 --with-tune=generic -v
Processor Notes: Scaling Governor: acpi-cpufreq ondemand

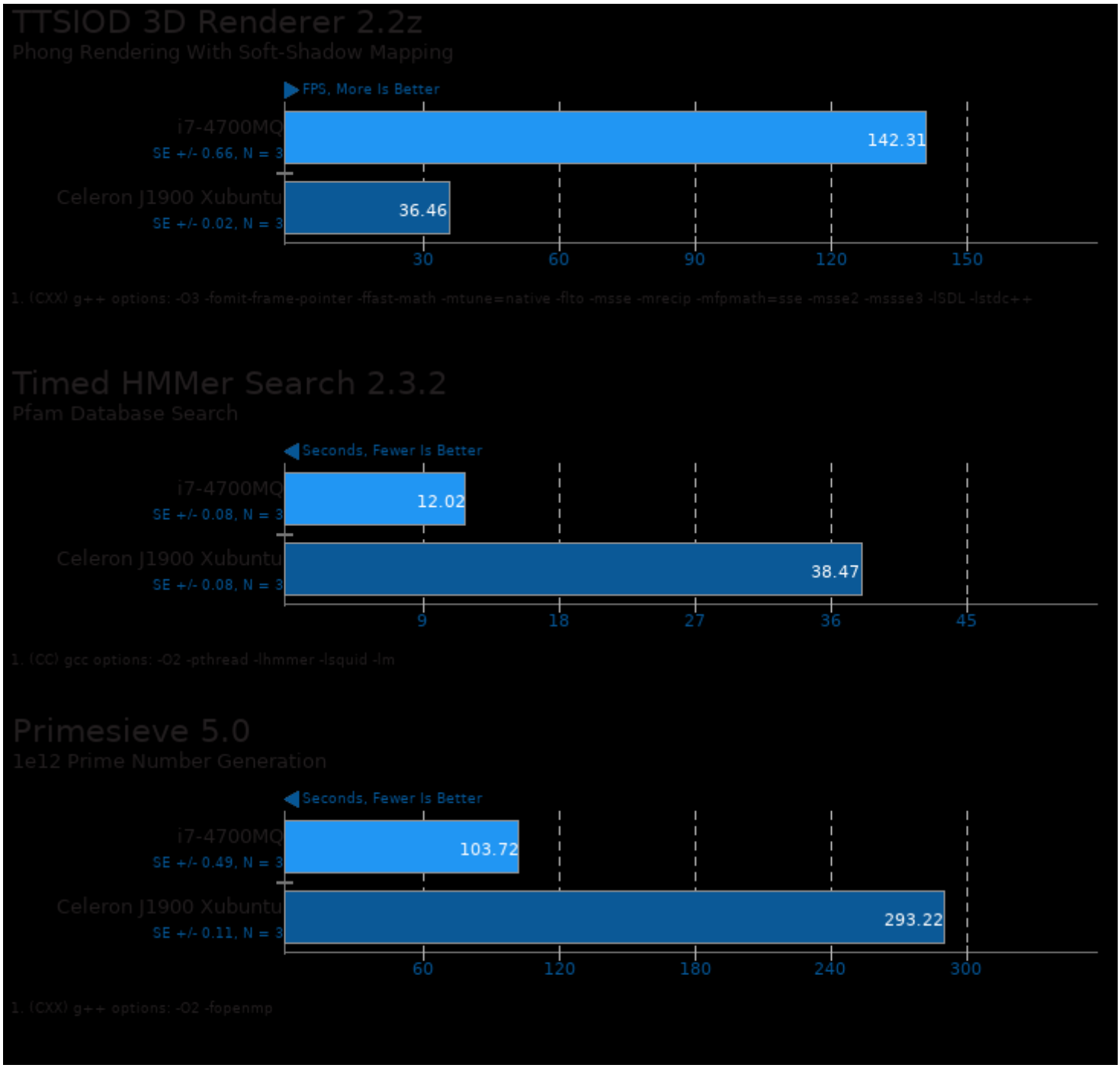
	Celeron J1900 Xubuntu	i7-4700MQ
Sample Pi Program - P.T.S.v.0.1 (sec)	**15.93**	**3.27**
Normalized	20.53%	100%
Standard Deviation	0.1%	1.2%
NAS Parallel Benchmarks - EP.C (Mop/s)	**51.65**	**232.59**
Normalized	22.21%	100%
Standard Deviation	0.1%	2.4%
BYTE Unix Benchmark - Dhrystone 2 (LPS)	**6711136**	**29677990**
Normalized	22.61%	100%

J1900 Processor Benchmarks

Standard Deviation	2.4%	0.5%
Timed MrBayes Analysis - P.P.A (sec)	**85.40**	**20.36**
Normalized	23.84%	100%
Standard Deviation	0.4%	2.3%
TTSIOD 3D Renderer - P.R.W.S.S.M (FPS)	**36.46**	**142.31**
Normalized	25.62%	100%
Standard Deviation	0.1%	0.8%
Timed HMMer Search - P.D.S (sec)	**38.47**	**12.02**
Normalized	31.25%	100%
Standard Deviation	0.4%	1.2%
Primesieve - 1.P.N.G (sec)	**293.22**	**103.72**
Normalized	35.37%	100%
Standard Deviation	0.1%	0.8%
NAS Parallel Benchmarks - FT.A (Mop/s)	**1303**	**3615**
Normalized	36.06%	100%
Standard Deviation	0.4%	2.1%
Fhourstones - C.C.4.S (Kpos / sec)	**4258**	**10941**
Normalized	38.92%	100%
Standard Deviation	0%	1.8%
NAS Parallel Benchmarks - MG.B (Mop/s)	**1859**	**3441**
Normalized	54.01%	100%
Standard Deviation	0.9%	2.7%
BYTE Unix Benchmark - F.P.A (LPS)	1	1
Standard Deviation	0%	0%
BYTE Unix Benchmark - R.A (LPS)	1	1
Standard Deviation	0%	0%
BYTE Unix Benchmark - Integer Arithmetic (LPS)	1	1
Standard Deviation	0%	0%
FFTE - N.6.1.C.F.R (MFLOPS)	1437	
Standard Deviation	0%	
NAS Parallel Benchmarks - SP.A (Mop/s)	**539.63**	**1789**
Normalized	30.16%	100%
Standard Deviation	8%	3.3%
NAS Parallel Benchmarks - LU.A (Mop/s)	**2187**	**7939**
Normalized	27.54%	100%
Standard Deviation	0.2%	8%
NAS Parallel Benchmarks - BT.A (Mop/s)	**663.05**	**2337**
Normalized	28.38%	100%
Standard Deviation	9.5%	2.9%

J1900 Processor Benchmarks

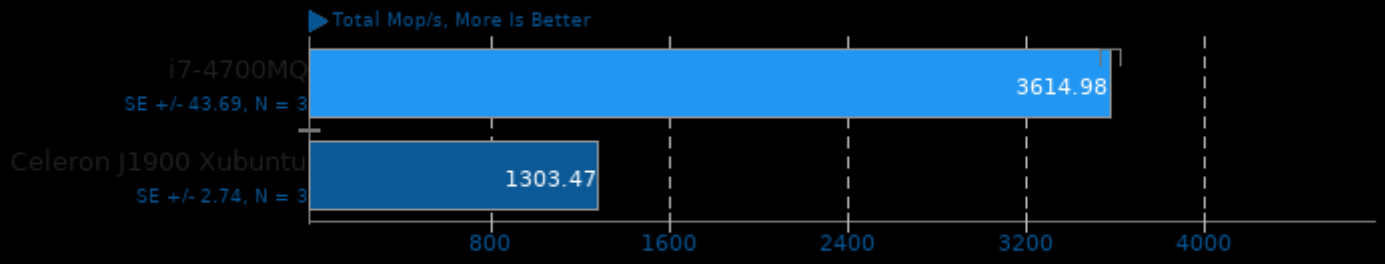



TTSIOD 3D Renderer 2.2z
Phong Rendering With Soft-Shadow Mapping
FPS, More Is Better
i7-4700MQ
SE +/- 0.66, N = 3
142.31
Celeron J1900 Xubuntu
SE +/- 0.02, N = 3
36.46
30
60
90
120
150
1. (CXX) g++ options: -O3 -fomit-frame-pointer -ffast-math -mtune=native -flto -msse -mrecip -mfpmath=sse -msse2 -mssse3 -lSDL -lstdc++
Timed HMMer Search 2.3.2
Pfam Database Search
Seconds, Fewer Is Better
i7-4700MQ
SE +/- 0.08, N = 3
12.02
Celeron J1900 Xubuntu
SE +/- 0.08, N = 3
38.47
9
18
27
36
45
1. (CC) gcc options: -O2 -pthread -lhmmer -lsquid -lm
Primesieve 5.0
1e12 Prime Number Generation
Seconds, Fewer Is Better
i7-4700MQ
SE +/- 0.49, N = 3
103.72
Celeron J1900 Xubuntu
SE +/- 0.11, N = 3
293.22
60
120
180
240
300
1. (CXX) g++ options: -O2 -fopenmp

J1900 Processor Benchmarks

NAS Parallel Benchmarks 3.3

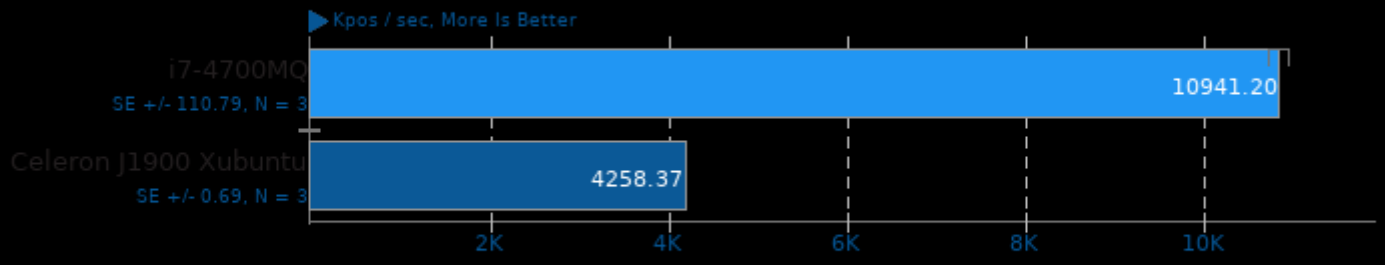
Test / Class: FT.A



1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_f77 -lmpi -ldl -lhwloc
2. Open MPI 1.6.5

Fhourstones 3.1

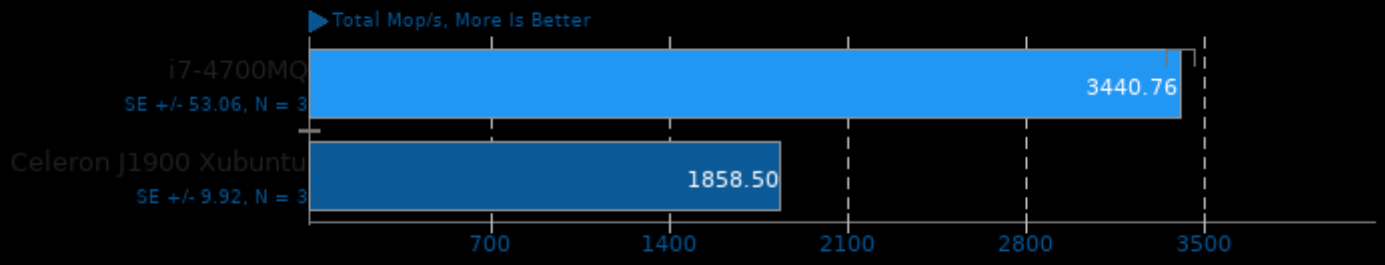
Complex Connect-4 Solving



1. (CC) gcc options: -O3

NAS Parallel Benchmarks 3.3

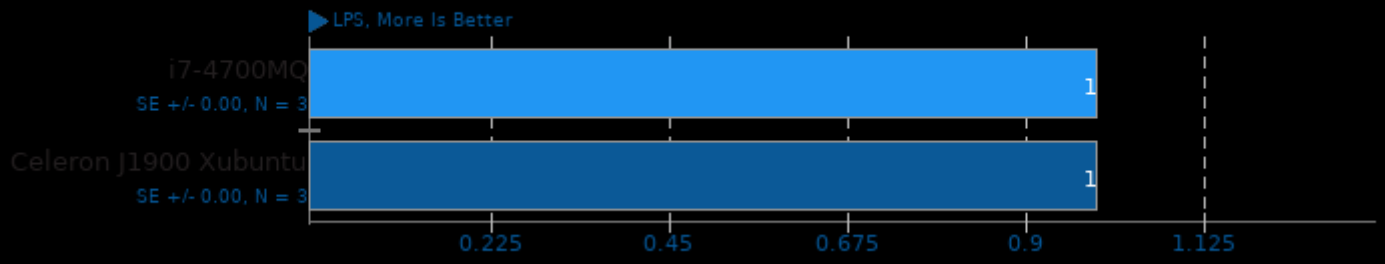
Test / Class: MG.B



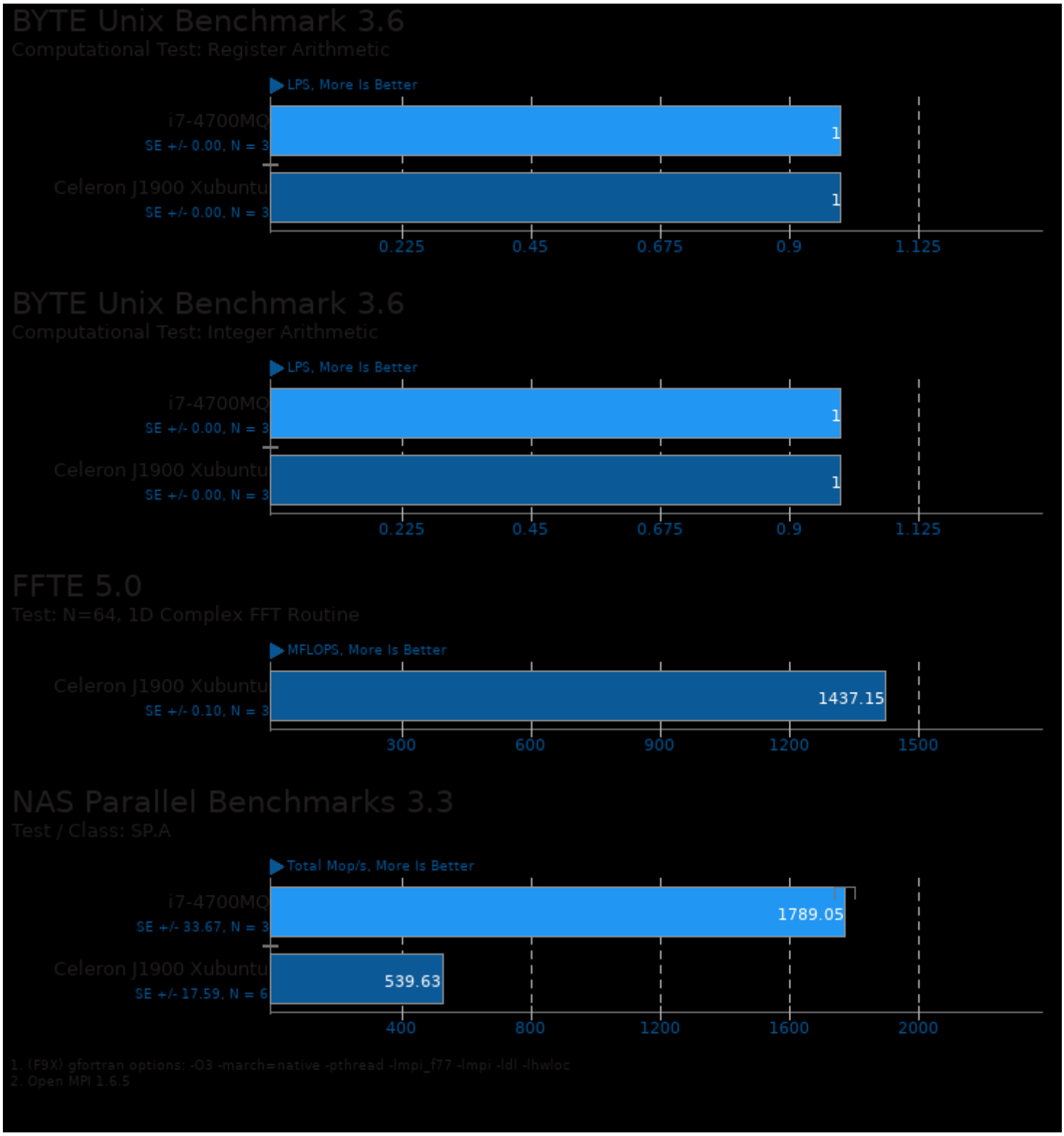
1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_f77 -lmpi -ldl -lhwloc
2. Open MPI 1.6.5

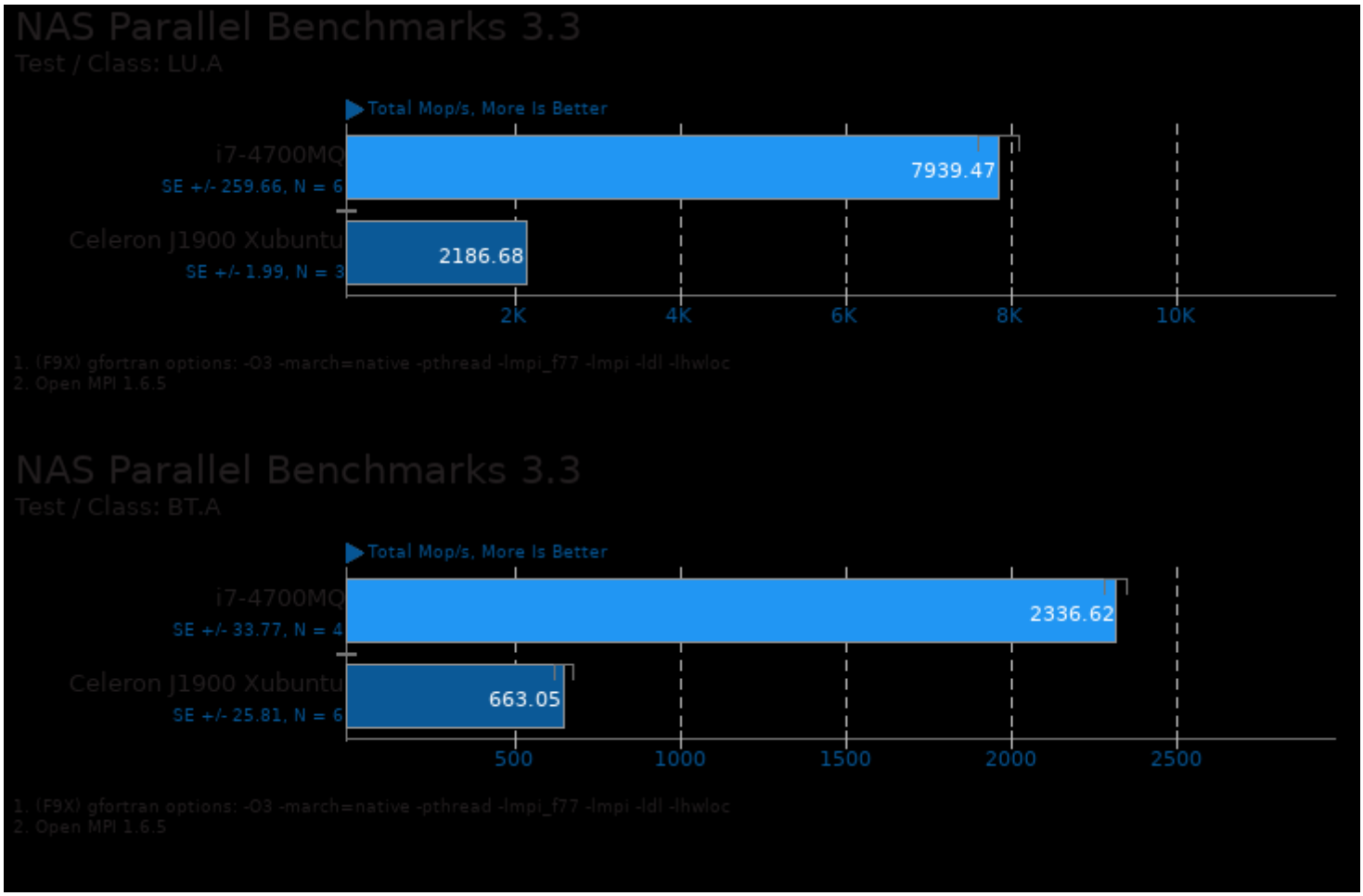
BYTE Unix Benchmark 3.6

Computational Test: Floating-Point Arithmetic

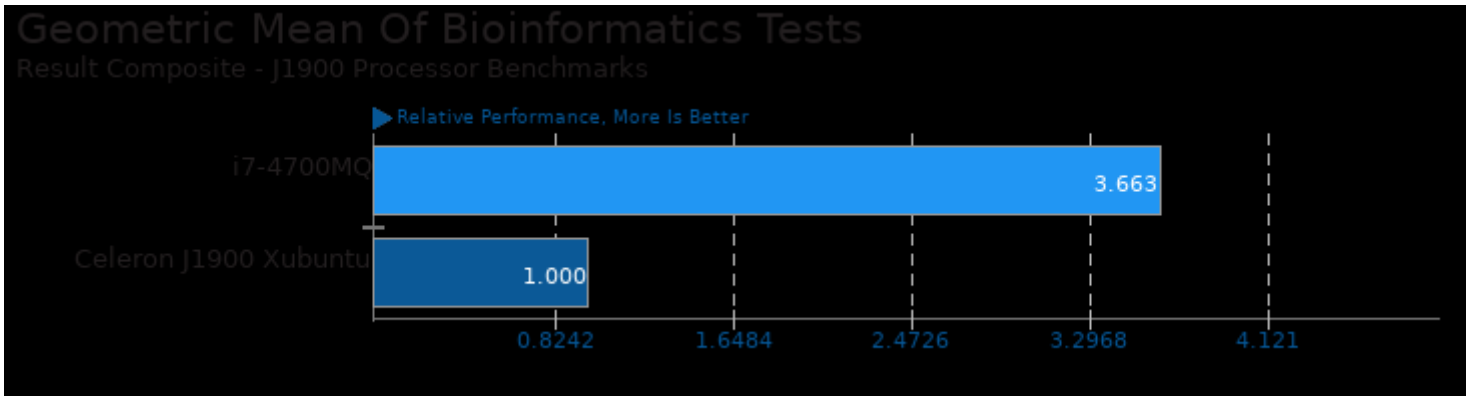


J1900 Processor Benchmarks

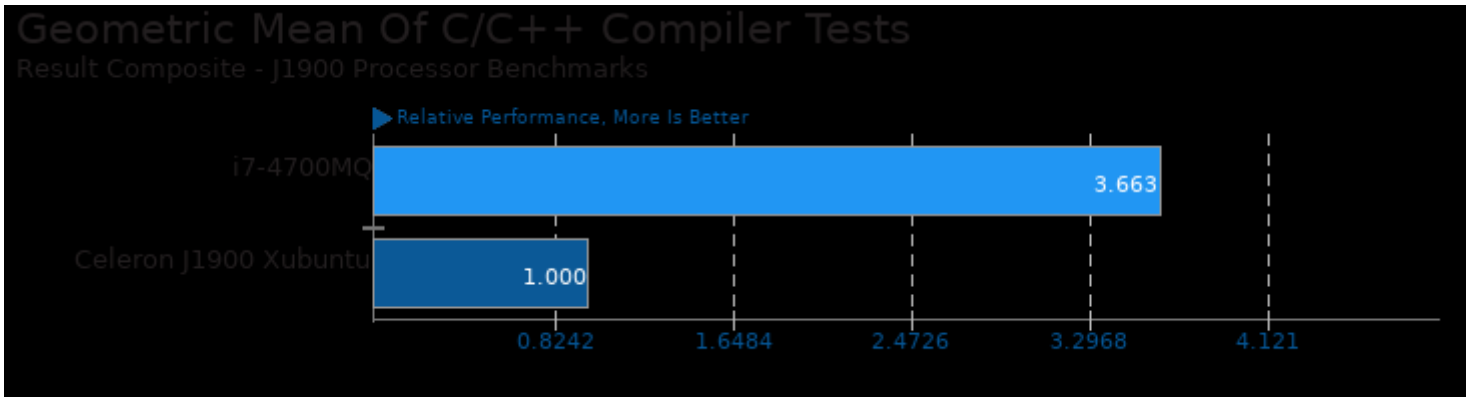



NAS Parallel Benchmarks 3.3
Test / Class: LU.A
Total Mop/s, More Is Better
i7-4700MQ
SE +/- 259.66, N = 6
7939.47
Celeron J1900 Xubuntu
SE +/- 1.99, N = 3
2186.68
2K
4K
6K
8K
10K
1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_f77 -lmpi -ldl -lhwloc
2. Open MPI 1.6.5
NAS Parallel Benchmarks 3.3
Test / Class: BT.A
Total Mop/s, More Is Better
i7-4700MQ
SE +/- 33.77, N = 4
2336.62
Celeron J1900 Xubuntu
SE +/- 25.81, N = 6
663.05
500
1000
1500
2000
2500
1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_f77 -lmpi -ldl -lhwloc
2. Open MPI 1.6.5

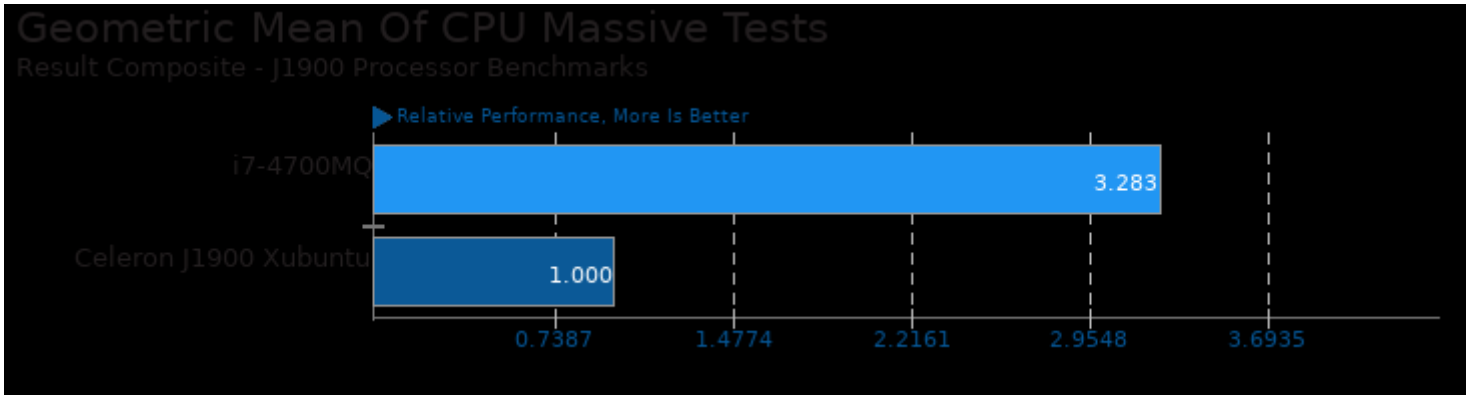
These geometric means are based upon test groupings / test suites for this result file.



Geometric mean based upon tests: pts/mrbayes and pts/hmmer

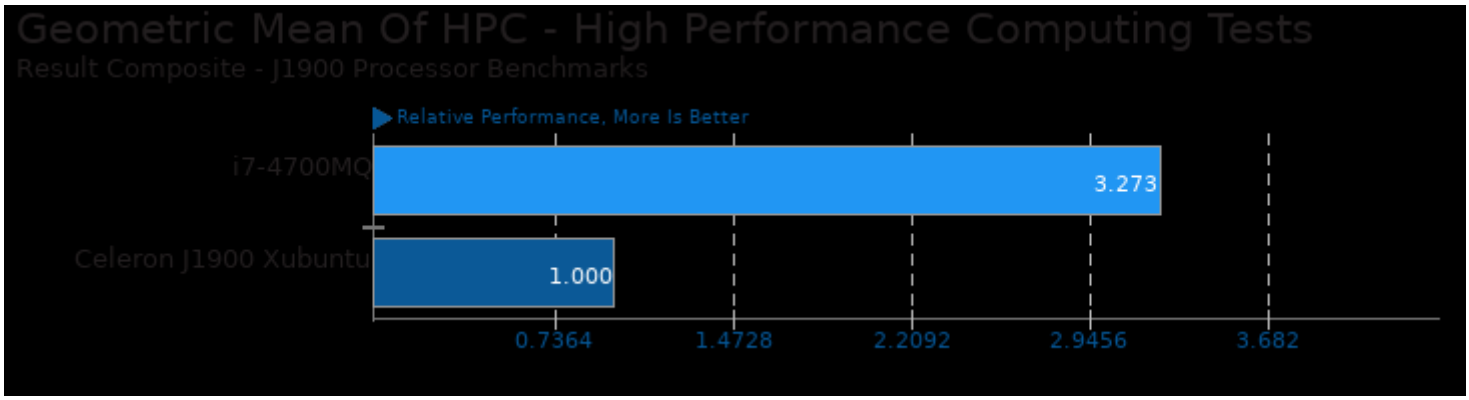


Geometric mean based upon tests: pts/hmmer and pts/mrbayes

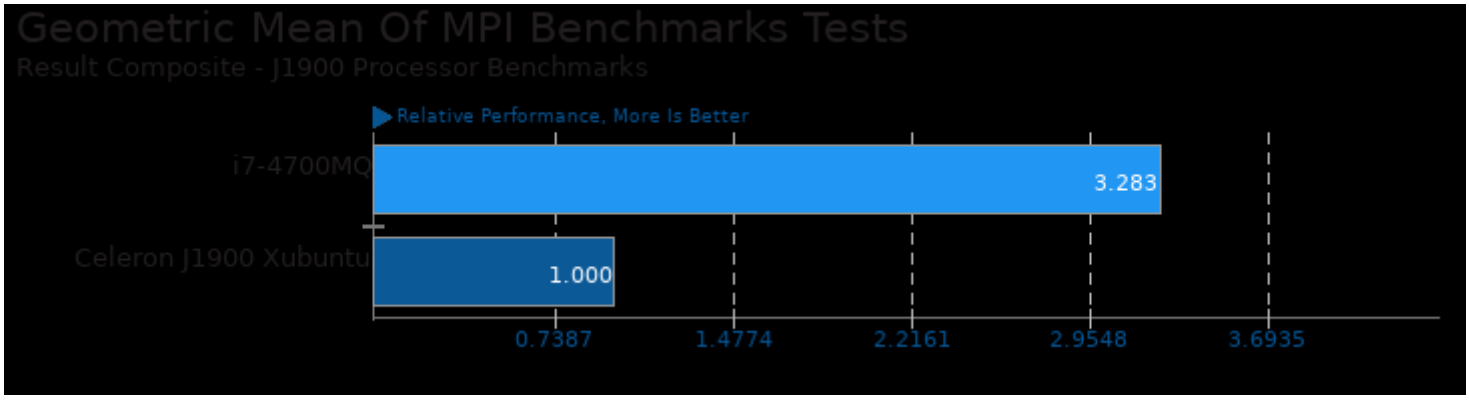


Geometric mean based upon tests: pts/hmmer, pts/mrbayes, pts/npb, pts/primesieve and pts/ttsiod-renderer

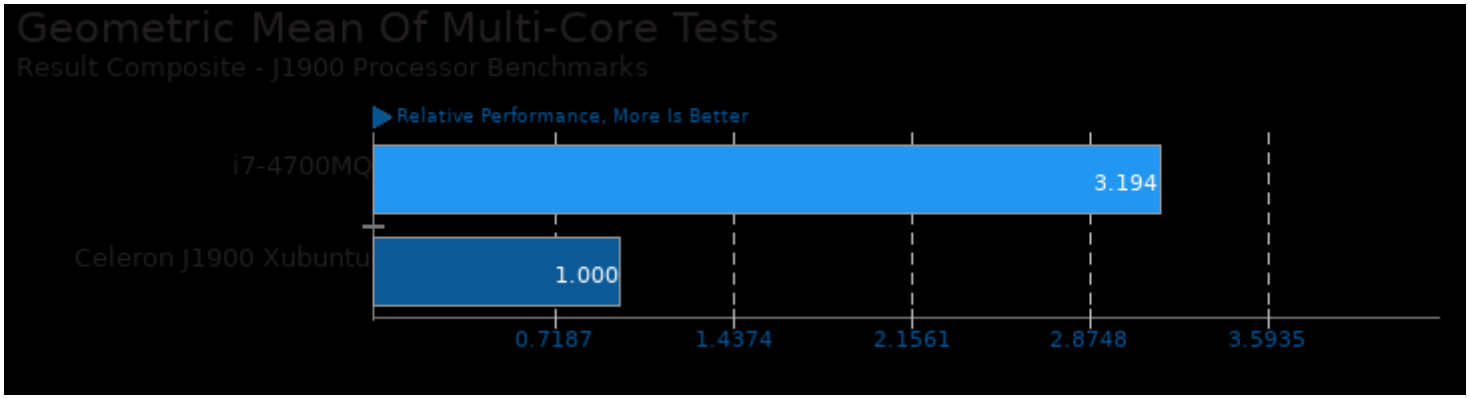
J1900 Processor Benchmarks



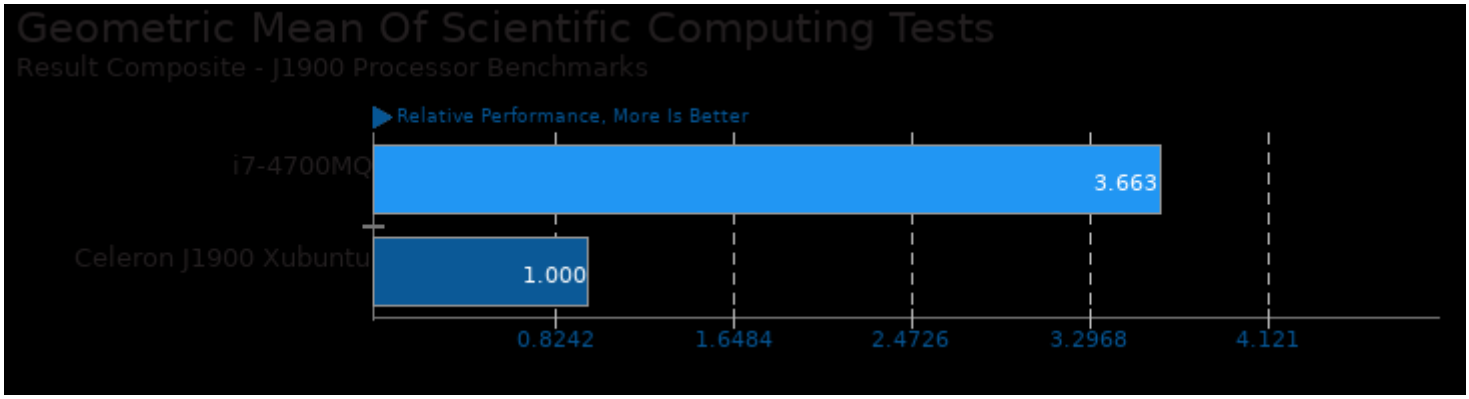
Geometric mean based upon tests: pts/npb, pts/ffte, pts/mrbayes and pts/hmmer



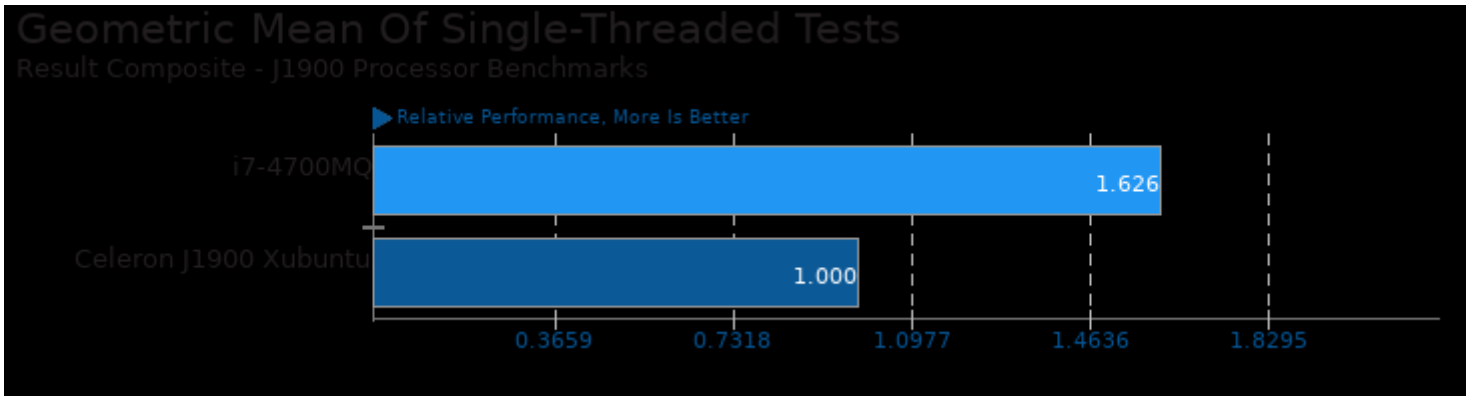
Geometric mean based upon tests: pts/mrbayes and pts/npb



Geometric mean based upon tests: pts/primesieve, pts/npb and pts/ttsiod-renderer



Geometric mean based upon tests: pts/ffte, pts/mrbayes and pts/hmmer



Geometric mean based upon tests: pts/fhourstones and pts/byte

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