



SPEC® CFP2006 Result

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M Computers s.r.o.

SPECfp®_rate2006 = 772

MIC HD S7200AP (Intel Xeon Phi 7210, 1.30GHz)

SPECfp_rate_base2006 = 748

CPU2006 license: 4204

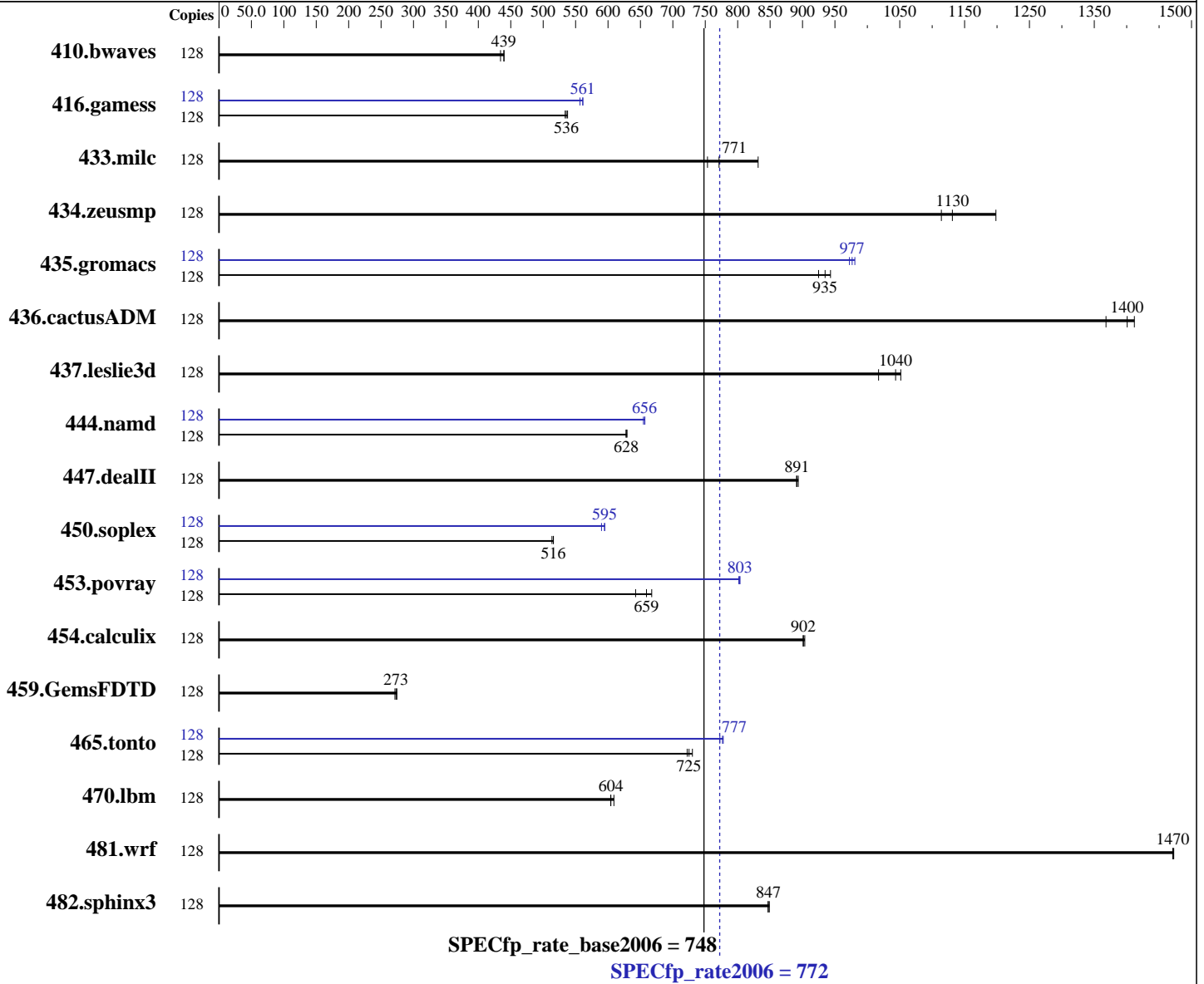
Test date: Dec-2016

Test sponsor: M Computers s.r.o.

Hardware Availability: Sep-2016

Tested by: M Computers s.r.o.

Software Availability: Feb-2016



Hardware

CPU Name: Intel Xeon Phi 7210
 CPU Characteristics: Intel Turbo Boost Technology up to 1.50 GHz
 CPU MHz: 1300
 FPU: Integrated
 CPU(s) enabled: 64 cores, 1 chip, 64 cores/chip, 4 threads/core
 CPU(s) orderable: 1 chip
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 1 MB I+D on chip per two cores

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Software

Operating System: CentOS 7.2
 3.10.0-327.18.2.el7.x86_64
 Compiler: C/C++: Version 16.0.2.181 of Intel C++ Studio XE for Linux;
 Fortran: Version 16.0.2.181 of Intel Fortran Studio XE for Linux
 Auto Parallel: No
 File System: ext4
 System State: Run level 3 (multi-user)

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L3 Cache: None
Other Cache: None
Memory: 192 GB (6 x 32 GB 2Rx4 PC4-2400T-R, running at 1200MHz)
Disk Subsystem: 800 GB SSD
Other Hardware: 16 GB MCDRAM

Base Pointers: 32/64-bit
Peak Pointers: 32/64-bit
Other Software: None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	128	4006	434	3956	440	3960	439	128	4006	434	3956	440	3960	439
416.gamess	128	4694	534	4679	536	4661	538	128	4467	561	4501	557	4466	561
433.milc	128	1413	832	1524	771	1560	753	128	1413	832	1524	771	1560	753
434.zeusmp	128	1045	1110	1030	1130	972	1200	128	1045	1110	1030	1130	972	1200
435.gromacs	128	969	943	978	935	988	925	128	936	977	940	972	932	981
436.cactusADM	128	1083	1410	1118	1370	1092	1400	128	1083	1410	1118	1370	1092	1400
437.leslie3d	128	1153	1040	1183	1020	1144	1050	128	1153	1040	1183	1020	1144	1050
444.namd	128	1635	628	1634	628	1631	629	128	1568	655	1564	656	1563	657
447.dealII	128	1644	891	1639	894	1643	891	128	1644	891	1639	894	1643	891
450.soplex	128	2079	514	2070	516	2070	516	128	1794	595	1809	590	1795	595
453.povray	128	1060	643	1033	659	1020	667	128	849	802	848	803	848	803
454.calculix	128	1169	903	1171	902	1172	901	128	1169	903	1171	902	1172	901
459.GemsFDTD	128	4973	273	5005	271	4950	274	128	4973	273	5005	271	4950	274
465.tonto	128	1725	730	1744	722	1737	725	128	1630	773	1622	777	1619	778
470.lbm	128	2911	604	2887	609	2910	604	128	2911	604	2887	609	2910	604
481.wrf	128	972	1470	971	1470	972	1470	128	972	1470	971	1470	972	1470
482.sphinx3	128	2946	847	2945	847	2939	849	128	2946	847	2945	847	2939	849

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

The taskset mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

Platform Notes

BIOS Configuration:
CPU and Power Performance Policy = Performance
Patrol Scrub = Disabled

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Platform Notes (Continued)

Set Fan Profile = Performance
Fan PWM Offset = 100
Cluster mode = Quadrant
Memory mode = Cache
Processor C6 = Disabled

General Notes

Environment variables set by runspec before the start of the run:

```
LD_LIBRARY_PATH = "/spec/libs/32:/spec/libs/64:/spec/sh:/opt/intel/compilers_and_libraries_2016.2.181/linux/compiler/lib/intel64_lin"
```

Binaries compiled on a system with
1x Intel 2nd Generation Xeon Phi CPU
+ 192GB memory using CentOS 7.2
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/transparent_hugepage/enabled

Base Compiler Invocation

C benchmarks:

```
icc -m64
```

C++ benchmarks:

```
icpc -m64
```

Fortran benchmarks:

```
ifort -m64
```

Benchmarks using both Fortran and C:

```
icc -m64 ifort -m64
```

Base Portability Flags

```
410.bwaves: -DSPEC_CPU_LP64
416.gamess: -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64
450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64
```

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Base Portability Flags (Continued)

465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
482.sphinx3: -DSPEC_CPU_LP64

Base Optimization Flags

C benchmarks:

-xMIC-AVX512 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias

C++ benchmarks:

-xMIC-AVX512 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias

Fortran benchmarks:

-xMIC-AVX512 -ipo -O3 -no-prec-div -opt-prefetch

Benchmarks using both Fortran and C:

-xMIC-AVX512 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias

Peak Compiler Invocation

C benchmarks:

icc -m64

C++ benchmarks (except as noted below):

icpc -m64

450.soplex: icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

Peak Portability Flags

410.bwaves: -DSPEC_CPU_LP64
416.gamess: -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64

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Peak Portability Flags (Continued)

```

434.zeusmp: -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64
450.soplex: -D_FILE_OFFSET_BITS=64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
482.sphinx3: -DSPEC_CPU_LP64

```

Peak Optimization Flags

C benchmarks:

433.milc: basepeak = yes

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: -xMIC-AVX512 -ipo -O3 -no-prec-div -prof-gen(pass 1)
-prof-use(pass 2) -par-num-threads=1(pass 1) -fno-alias
-auto-ilp32

447.dealII: basepeak = yes

450.soplex: -xMIC-AVX512 -ipo -O3 -no-prec-div -prof-gen(pass 1)
-prof-use(pass 2) -par-num-threads=1(pass 1)
-opt-malloc-options=3

453.povray: -xMIC-AVX512 -ipo -O3 -no-prec-div -prof-gen(pass 1)
-prof-use(pass 2) -par-num-threads=1(pass 1) -unroll4
-ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xMIC-AVX512 -ipo -O3 -no-prec-div -prof-gen(pass 1)
-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll2
-inline-level=0 -scalar-rep-

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Peak Optimization Flags (Continued)

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: basepeak = yes

465.tonto: -xMIC-AVX512 -ipo -O3 -no-prec-div -prof-gen(pass 1)
-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll4 -auto
-inline-calloc -opt-malloc-options=3

Benchmarks using both Fortran and C:

435.gromacs: -xMIC-AVX512 -ipo -O3 -no-prec-div -prof-gen(pass 1)
-prof-use(pass 2) -par-num-threads=1(pass 1) -opt-prefetch
-auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: basepeak = yes

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/MComputers-Platform-Settings-V1.2-KNL-revA.html>

<http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64-revB.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/MComputers-Platform-Settings-V1.2-KNL-revA.xml>

<http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64-revB.xml>

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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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