SPEC® CFP2006 Result

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Fujitsu

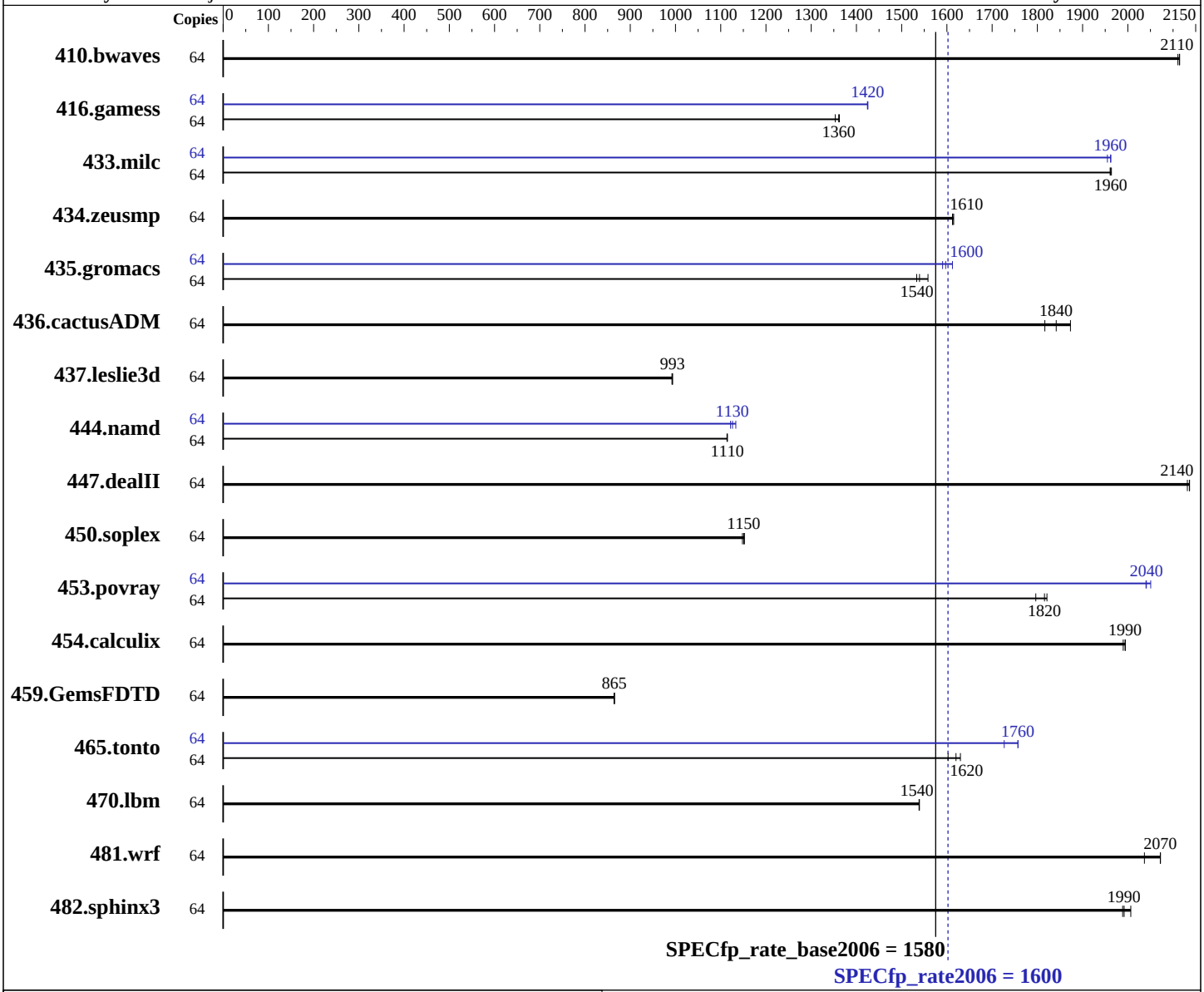
PRIMEQUEST 2800E2, Intel Xeon E7-8893 v3, 3.20 GHz

SPECfp®_rate2006 = 1600

SPECfp_rate_base2006 = 1580

CPU2006 license: 19
Test sponsor: Fujitsu
Tested by: Fujitsu

Test date: Apr-2015
Hardware Availability: May-2015
Software Availability: Mar-2015



Hardware

CPU Name:	Intel Xeon E7-8893 v3
CPU Characteristics:	Intel Turbo Boost Technology up to 3.50 GHz
CPU MHz:	3200
FPU:	Integrated
CPU(s) enabled:	32 cores, 8 chips, 4 cores/chip, 2 threads/core
CPU(s) orderable:	1,2,4,6,8 chip
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core

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Software

Operating System:	Red Hat Enterprise Linux Server release 7.1 (Maipo) 3.10.0-229.el7.x86_64
Compiler:	C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux; Fortran: Version 15.0.0.090 of Intel Fortran Studio XE for Linux
Auto Parallel:	No
File System:	ext4

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L3 Cache: 45 MB I+D on chip per chip
Other Cache: None
Memory: 2 TB (128 x 16 GB 2Rx4 PC4-2133P-R, running at 1600 MHz)
Disk Subsystem: 2 x SATA, 600 GB, 10000 RPM
Other Hardware: None

System State: Run level 3 (multi-user)
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	64	411	2110	412	2110	**411**	**2110**	64	411	2110	412	2110	**411**	**2110**
416.gamess	64	926	1350	920	1360	**921**	**1360**	64	**880**	**1420**	879	1430	880	1420
433.milc	64	299	1960	300	1960	**299**	**1960**	64	301	1950	299	1960	**299**	**1960**
434.zeusmp	64	**361**	**1610**	361	1610	361	1610	64	**361**	**1610**	361	1610	361	1610
435.gromacs	64	293	1560	**297**	**1540**	298	1530	64	287	1590	**286**	**1600**	283	1610
436.cactusADM	64	421	1820	**415**	**1840**	408	1870	64	421	1820	**415**	**1840**	408	1870
437.leslie3d	64	606	992	606	993	**606**	**993**	64	606	992	606	993	**606**	**993**
444.namd	64	461	1110	460	1110	**461**	**1110**	64	**456**	**1130**	453	1130	458	1120
447.dealII	64	343	2140	343	2130	**343**	**2140**	64	343	2140	343	2130	**343**	**2140**
450.soplex	64	463	1150	465	1150	**464**	**1150**	64	463	1150	465	1150	**464**	**1150**
453.povray	64	190	1800	187	1820	**188**	**1820**	64	167	2040	166	2050	**167**	**2040**
454.calculix	64	265	1990	265	1990	**265**	**1990**	64	265	1990	265	1990	**265**	**1990**
459.GemsFDTD	64	785	865	786	864	**785**	**865**	64	785	865	786	864	**785**	**865**
465.tonto	64	386	1630	**389**	**1620**	393	1600	64	365	1730	358	1760	**358**	**1760**
470.lbm	64	571	1540	572	1540	**571**	**1540**	64	571	1540	572	1540	**571**	**1540**
481.wrf	64	345	2070	351	2040	**345**	**2070**	64	345	2070	351	2040	**345**	**2070**
482.sphinx3	64	627	1990	**626**	**1990**	622	2010	64	627	1990	**626**	**1990**	622	2010

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

Submit Notes

```
The numactl 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:
Energy Performance = Performance
```

General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/home/SPECcpu2006/libs/32:/home/SPECcpu2006/libs/64:/home/SPECcpu2006/sh"

 Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB
 memory using RedHat EL 7.0
 Filesystem page cache cleared with:
 echo 1>       /proc/sys/vm/drop_caches
 runspec command invoked through numactl i.e.:
 numactl --interleave=all runspec <etc>

 For information about Fujitsu please visit: http://www.fujitsu.com
```

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
       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:
`-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias`

C++ benchmarks:
`-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias`

Fortran benchmarks:
`-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch`

Benchmarks using both Fortran and C:
`-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias`

Peak Compiler Invocation

C benchmarks:
`icc -m64`

C++ benchmarks:
`icpc -m64`

Fortran benchmarks:
`ifort -m64`

Benchmarks using both Fortran and C:
`icc -m64 ifort -m64`

Peak Portability Flags

`Same as Base Portability Flags`

Peak Optimization Flags

C benchmarks:

433.milc: `-xCORE-AVX2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2) `-no-prec-div`(pass 2) `-prof-use`(pass 2) `-auto-ilp32`

470.lbm: `basepeak = yes`

Continued on next page

Peak Optimization Flags (Continued)

482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -fno-alias -auto-ilp32

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll2 -inline-level=0 -scalar-rep-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: basepeak = yes

465.tonto: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -auto -inline-calloc -opt-malloc-options=3

Benchmarks using both Fortran and C:

435.gromacs: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -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/Fujitsu-Platform-Settings-V1.2-HSW-RevA.html
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.html

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

http://www.spec.org/cpu2006/flags/Fujitsu-Platform-Settings-V1.2-HSW-RevA.xml
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml

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For other inquiries, please contact webmaster@spec.org.

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