SPEC® CFP2006 Result

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Fujitsu

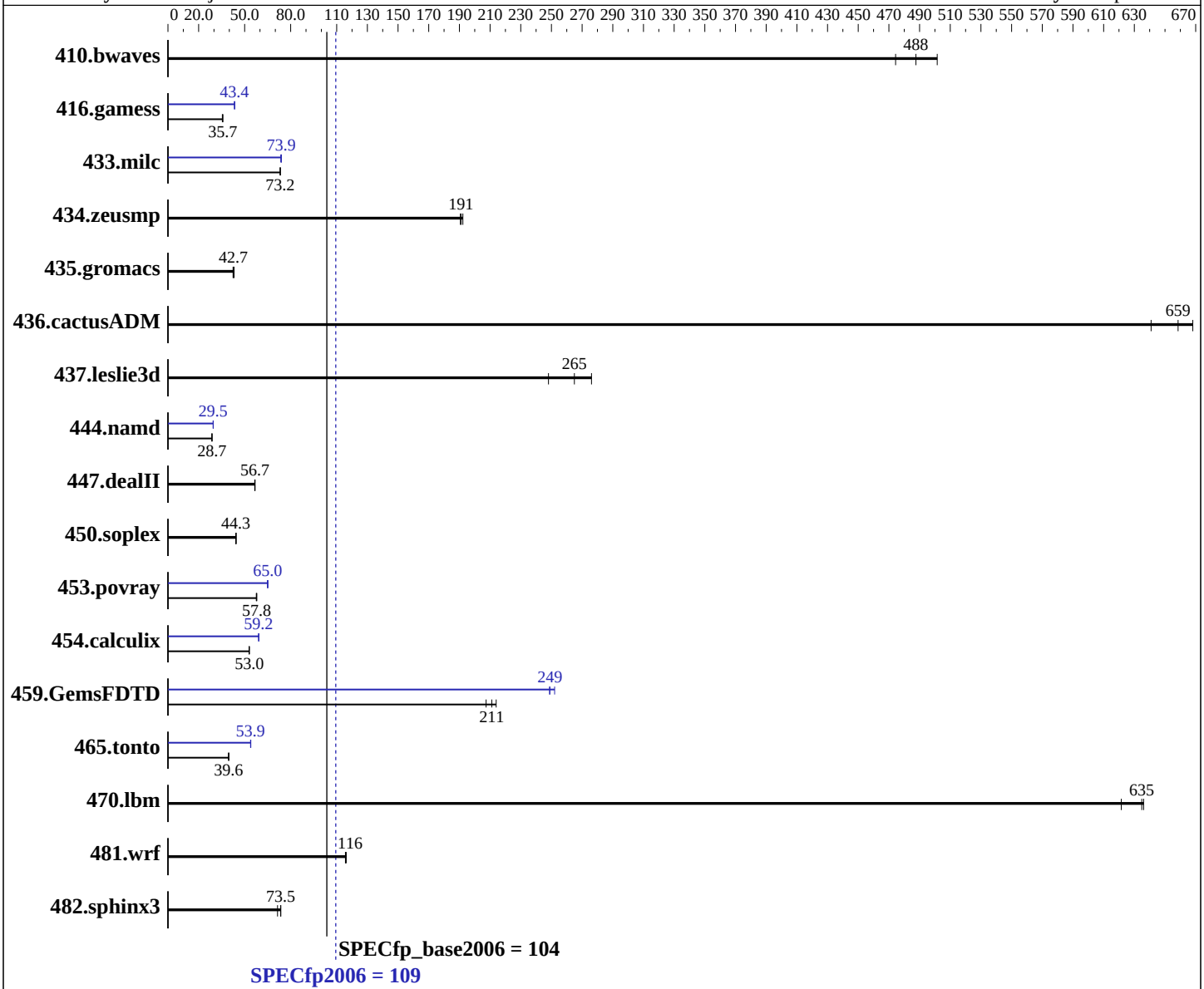
PRIMERGY CX2550 M1, Intel Xeon E5-2640 v3, 2.6 GHz

SPECfp®2006 = 109

SPECfp_base2006 = 104

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

Test date: Oct-2014
Hardware Availability: Sep-2014
Software Availability: Sep-2014



Hardware

CPU Name:	Intel Xeon E5-2640 v3
CPU Characteristics:	Intel Turbo Boost Technology up to 3.40 GHz
CPU MHz:	2600
FPU:	Integrated
CPU(s) enabled:	16 cores, 2 chips, 8 cores/chip, 2 threads/core
CPU(s) orderable:	1,2 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 7.0 (Maipo) Kernel 3.10.0-123.8.1.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:	Yes
File System:	xfs

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L3 Cache: 20 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R, running at 1866 MHz)
Disk Subsystem: 1 x SATA, 500 GB, 7200 RPM
Other Hardware: None

System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	27.1	502	28.6	474	**27.9**	**488**	27.1	502	28.6	474	**27.9**	**488**
416.gamess	552	35.4	**548**	**35.7**	548	35.7	451	43.4	**451**	**43.4**	451	43.4
433.milc	125	73.3	**125**	**73.2**	126	73.1	**124**	**73.9**	125	73.5	124	73.9
434.zeusmp	47.7	191	47.3	192	**47.6**	**191**	47.7	191	47.3	192	**47.6**	**191**
435.gromacs	**167**	**42.7**	168	42.4	166	43.1	**167**	**42.7**	168	42.4	166	43.1
436.cactusADM	**18.1**	**659**	18.6	641	17.9	668	**18.1**	**659**	18.6	641	17.9	668
437.leslie3d	34.0	276	**35.5**	**265**	37.9	248	34.0	276	**35.5**	**265**	37.9	248
444.namd	**279**	**28.7**	279	28.7	280	28.7	**272**	**29.5**	272	29.5	272	29.5
447.dealII	202	56.6	201	56.8	**202**	**56.7**	202	56.6	201	56.8	**202**	**56.7**
450.soplex	**188**	**44.3**	187	44.5	189	44.2	**188**	**44.3**	187	44.5	189	44.2
453.povray	**92.1**	**57.8**	91.9	57.9	92.4	57.6	**81.8**	**65.0**	82.0	64.8	81.6	65.2
454.calculix	156	52.9	**156**	**53.0**	156	53.0	139	59.2	140	59.1	**139**	**59.2**
459.GemsFDTD	49.6	214	51.2	207	**50.3**	**211**	42.1	252	**42.6**	**249**	42.7	249
465.tonto	249	39.5	**248**	**39.6**	248	39.7	**183**	**53.9**	183	53.9	182	54.0
470.lbm	**21.6**	**635**	21.6	636	22.1	622	**21.6**	**635**	21.6	636	22.1	622
481.wrf	96.1	116	96.5	116	**96.5**	**116**	96.1	116	96.5	116	**96.5**	**116**
482.sphinx3	**265**	**73.5**	273	71.4	265	73.5	**265**	**73.5**	273	71.4	265	73.5

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

Operating System Notes

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

Platform Notes

```
BIOS configuration:
Energy Performance = Performance
Utilization Profile = Unbalanced
QPI snoop mode: Cluster on Die
    COD Enable = Enabled, Early Snoop = Disabled
CPU C1E Support = Disabled
QPI Link Frequency Select = 6.4 GT/s
```

General Notes

```
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact,1,0"
LD_LIBRARY_PATH = "/home/SPECcpu2006/libs/32:/home/SPECcpu2006/libs/64:/home/SPECcpu2006/sh"
OMP_NUM_THREADS = "16"

 Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB
 memory using RedHat EL 7.0

 This result was measured on the PRIMERGY CX2550 M1. The PRIMERGY CX2550 M1
 and the PRIMERGY CX2570 M1 are electronically equivalent.
 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 -parallel -opt-prefetch -ansi-alias`

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

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

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

470.lbm: `basepeak = yes`

482.sphinx3: `basepeak = yes`

Continued on next page

Peak Optimization Flags (Continued)

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: -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 -opt-prefetch -parallel

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) -inline-calloc -opt-malloc-options=3 -auto -unroll4

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias

481.wrf: basepeak = yes

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.html
http://www.spec.org/cpu2006/flags/Default-Platform-Flags.20141216.html

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

http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/Default-Platform-Flags.20141216.xml

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

Tested with SPEC CPU2006 v1.2.
Report generated on Tue Dec 16 13:11:12 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 16 December 2014.