SPEC® CFP2006 Result

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Fujitsu

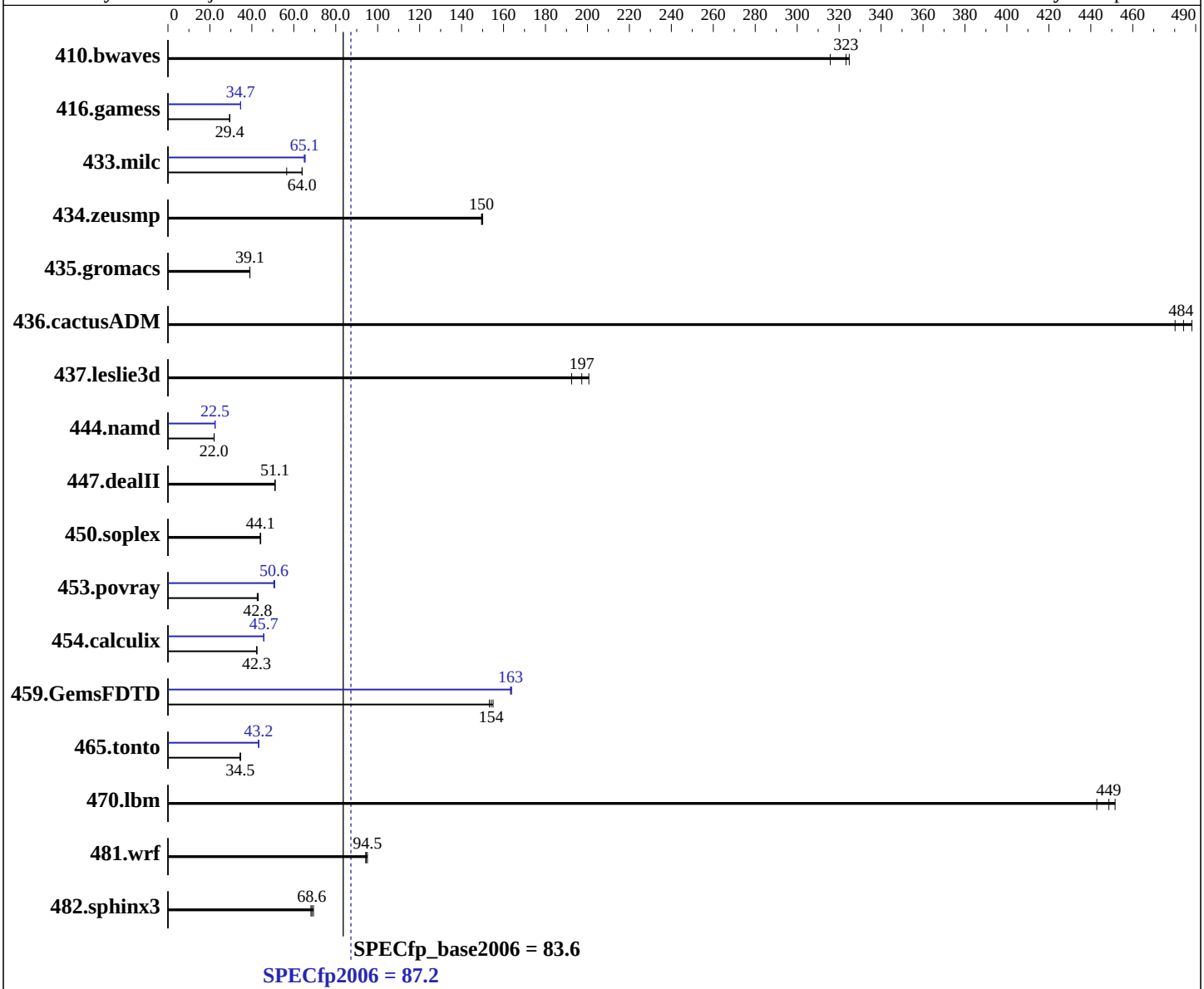
PRIMERGY RX2520 M1, Intel Xeon E5-2470 v2, 2.40 GHz

SPECfp®2006 = 87.2

SPECfp_base2006 = 83.6

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

Test date: Feb-2014
Hardware Availability: Feb-2014
Software Availability: Sep-2013



Hardware

CPU Name:	Intel Xeon E5-2470 v2
CPU Characteristics:	Intel Turbo Boost Technology up to 3.20 GHz
CPU MHz:	2400
FPU:	Integrated
CPU(s) enabled:	20 cores, 2 chips, 10 cores/chip, 2 threads/core
CPU(s) orderable:	1,2 chips
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 6.4 (Santiago) 2.6.32-358.11.1.el6.x86_64
Compiler:	C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux; Fortran: Version 14.0.0.080 of Intel Fortran Studio XE for Linux
Auto Parallel:	Yes
File System:	ext4

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L3 Cache: 25 MB I+D on chip per chip
Other Cache: None
Memory: 192 GB (12 x 16 GB 2Rx4 PC3L-12800R-11, ECC)
Disk Subsystem: 1 x SATA, 500 GB, 7200 RPM
Other Hardware: None

System State: Run level 5 (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	**42.0**	**323**	41.8	325	43.0	316	**42.0**	**323**	41.8	325	43.0	316
416.gamess	664	29.5	666	29.4	**665**	**29.4**	**565**	**34.7**	565	34.7	566	34.6
433.milc	143	64.0	162	56.6	**144**	**64.0**	140	65.4	**141**	**65.1**	141	65.0
434.zeusmp	60.8	150	**60.8**	**150**	60.6	150	60.8	150	**60.8**	**150**	60.6	150
435.gromacs	**183**	**39.1**	183	39.1	183	39.0	**183**	**39.1**	183	39.1	183	39.0
436.cactusADM	24.5	488	24.9	480	**24.7**	**484**	24.5	488	24.9	480	**24.7**	**484**
437.leslie3d	48.8	192	**47.6**	**197**	46.8	201	48.8	192	**47.6**	**197**	46.8	201
444.namd	**365**	**22.0**	365	22.0	364	22.1	357	22.5	357	22.5	**357**	**22.5**
447.dealII	224	51.1	**224**	**51.1**	224	51.0	224	51.1	**224**	**51.1**	224	51.0
450.soplex	189	44.2	189	44.0	**189**	**44.1**	189	44.2	189	44.0	**189**	**44.1**
453.povray	124	43.1	125	42.6	**124**	**42.8**	104	50.9	105	50.5	**105**	**50.6**
454.calculix	**195**	**42.3**	195	42.4	195	42.3	**181**	**45.7**	181	45.7	181	45.7
459.GemsFDTD	69.2	153	**68.8**	**154**	68.4	155	64.9	163	**64.9**	**163**	64.7	164
465.tonto	**285**	**34.5**	286	34.4	284	34.6	228	43.1	**228**	**43.2**	227	43.3
470.lbm	31.0	443	**30.6**	**449**	30.4	452	31.0	443	**30.6**	**449**	30.4	452
481.wrf	118	94.3	117	95.1	**118**	**94.5**	118	94.3	117	95.1	**118**	**94.5**
482.sphinx3	281	69.4	286	68.2	**284**	**68.6**	281	69.4	286	68.2	**284**	**68.6**

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
```

General Notes

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

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General Notes (Continued)

```
OMP_NUM_THREADS = "20"

 Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
 memory using RedHat EL 6.4
 Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled

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```

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:
`-xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch -ansi-alias`

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

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

Benchmarks using both Fortran and C:
`-xAVX -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: `-xAVX`(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`

C++ benchmarks:

Continued on next page

Peak Optimization Flags (Continued)

444.namd: -xAVX(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: -xAVX(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: -xAVX(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: -xAVX(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: -xAVX(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: -xAVX -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-ic14.0-official-linux64.20140128.html
http://www.spec.org/cpu2006/flags/Fujitsu-Platform.20131009.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml
http://www.spec.org/cpu2006/flags/Fujitsu-Platform.20131009.xml

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

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