SPEC® CFP2006 Result
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Fujitsu

PRIMERGY RX300 S8, Intel Xeon E5-2670 v2, 2.50 GHz

$SPECfp^{®}2006 =$ 99.8

$SPECfp\_base2006 =$ 95.5

CPU2006 license: 19	**Test date:** Oct-2013
Test sponsor: Fujitsu	**Hardware Availability:** Oct-2013
Tested by: Fujitsu	**Software Availability:** Sep-2013

0 20.0 50.0 80.0 100 120 140 160 180 200 220 240 260 280 300 320 340 360 380 400 420 440 460 480 500 520 540 560 580 600 620 650

- **410.bwaves** 459
- **416.gamess** 35.6 / 30.5
- **433.milc** 67.9 / 67.0
- **434.zeusmp** 167
- **435.gromacs** 40.5
- **436.cactusADM** 640
- **437.leslie3d** 331
- **444.namd** 23.3 / 22.7
- **447.dealII** 52.8
- **450.soplex** 45.6
- **453.povray** 52.1 / 43.7
- **454.calculix** 47.2 / 44.4
- **459.GemsFDTD** 220 / 201
- **465.tonto** 44.8 / 36.0
- **470.lbm** 602
- **481.wrf** 103
- **482.sphinx3** 72.2

SPECfp_base2006 = 95.5

SPECfp2006 = 99.8

Hardware

CPU Name:	Intel Xeon E5-2670 v2
CPU Characteristics:	Intel Turbo Boost Technology up to 3.30 GHz
CPU MHz:	2500
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

Continued on next page

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

Continued on next page

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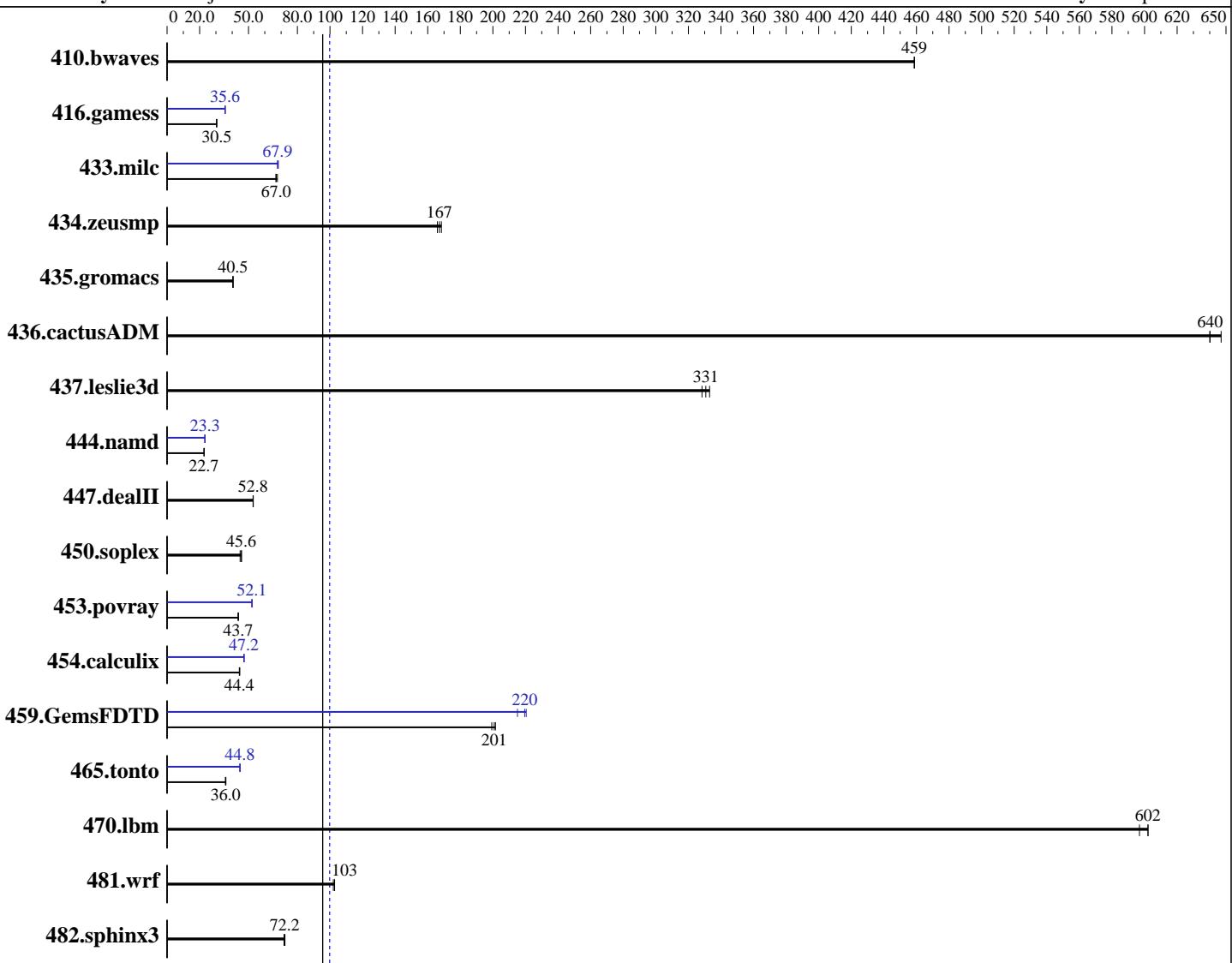**Test sponsor:** Fujitsu
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L3 Cache: 25 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC3-14900R-13, ECC)
Disk Subsystem: 1 x SATA, 450 GB, 15000 RPM
Other Hardware: None

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

Results Table

Benchmark	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
410.bwaves	**29.6**	**459**	29.6	459	29.6	459	**29.6**	**459**	29.6	459	29.6	459
416.gamess	**643**	**30.5**	642	30.5	644	30.4	550	35.6	**550**	**35.6**	548	35.7
433.milc	136	67.7	**137**	**67.0**	137	66.8	135	67.8	134	68.3	**135**	**67.9**
434.zeusmp	54.8	166	54.0	168	**54.4**	**167**	54.8	166	54.0	168	**54.4**	**167**
435.gromacs	177	40.4	**176**	**40.5**	176	40.5	177	40.4	**176**	**40.5**	176	40.5
436.cactusADM	18.7	640	**18.7**	**640**	18.5	647	18.7	640	**18.7**	**640**	18.5	647
437.leslie3d	28.2	333	28.6	328	**28.4**	**331**	28.2	333	28.6	328	**28.4**	**331**
444.namd	**354**	**22.7**	352	22.8	354	22.7	346	23.2	**345**	**23.3**	345	23.3
447.dealII	**217**	**52.8**	216	52.9	217	52.8	**217**	**52.8**	216	52.9	217	52.8
450.soplex	183	45.7	**183**	**45.6**	186	44.8	183	45.7	**183**	**45.6**	186	44.8
453.povray	122	43.6	121	43.8	**122**	**43.7**	**102**	**52.1**	102	52.2	102	52.0
454.calculix	185	44.7	**186**	**44.4**	186	44.4	175	47.2	174	47.3	**175**	**47.2**
459.GemsFDTD	53.2	199	52.6	202	**52.8**	**201**	**48.3**	**220**	49.3	215	48.1	220
465.tonto	**273**	**36.0**	272	36.1	275	35.8	**220**	**44.8**	219	44.8	220	44.7
470.lbm	**22.8**	**602**	23.0	597	22.8	602	**22.8**	**602**	23.0	597	22.8	602
481.wrf	109	103	**109**	**103**	109	102	109	103	**109**	**103**	109	102
482.sphinx3	269	72.4	272	71.8	**270**	**72.2**	269	72.4	272	71.8	**270**	**72.2**

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,compact,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
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
```

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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

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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.20130924.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.20130924.xml

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