# SPEC® CFP2006 Result

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## Fujitsu

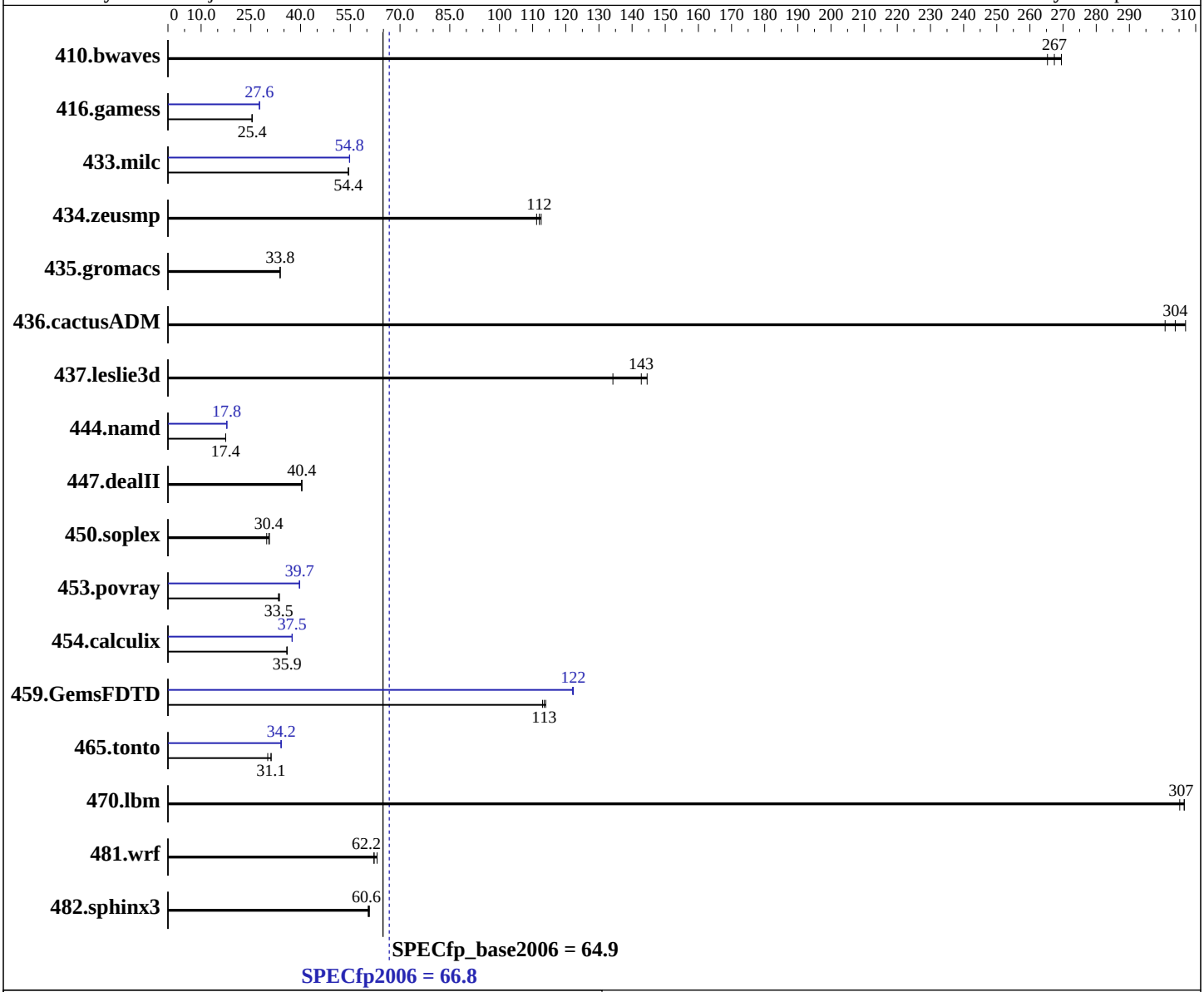
PRIMERGY RX300 S8, Intel Xeon E5-2609 v2, 2.50 GHz

SPECfp®2006 = 66.8

SPECfp_base2006 = 64.9

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

**Test date:** Sep-2013
**Hardware Availability:** Oct-2013
**Software Availability:** Sep-2013




## Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5-2609 v2 |
| CPU Characteristics: | |
| CPU MHz: | 2500 |
| FPU: | Integrated |
| CPU(s) enabled: | 8 cores, 2 chips, 4 cores/chip |
| 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)<br>2.6.32-358.11.1.el6.x86_64 |
| Compiler: | C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux;<br>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: 10 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC3-12800R-11, ECC, running at 1333 MHz and CL9)
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 | 51.2 | 265 | **50.8** | **267** | 50.4 | 269 | 51.2 | 265 | **50.8** | **267** | 50.4 | 269 |
| 416.gamess | 771 | 25.4 | 771 | 25.4 | **771** | **25.4** | 710 | 27.6 | **710** | **27.6** | 709 | 27.6 |
| 433.milc | 169 | 54.5 | **169** | **54.4** | 169 | 54.4 | **168** | **54.8** | 168 | 54.8 | 167 | 54.8 |
| 434.zeusmp | 81.8 | 111 | 80.8 | 113 | **81.2** | **112** | 81.8 | 111 | 80.8 | 113 | **81.2** | **112** |
| 435.gromacs | 211 | 33.8 | 211 | 33.8 | **211** | **33.8** | 211 | 33.8 | 211 | 33.8 | **211** | **33.8** |
| 436.cactusADM | 39.7 | 301 | 38.9 | 307 | **39.3** | **304** | 39.7 | 301 | 38.9 | 307 | **39.3** | **304** |
| 437.leslie3d | 70.0 | 134 | **65.8** | **143** | 65.0 | 145 | 70.0 | 134 | **65.8** | **143** | 65.0 | 145 |
| 444.namd | 460 | 17.4 | 460 | 17.4 | **460** | **17.4** | 452 | 17.8 | 451 | 17.8 | **452** | **17.8** |
| 447.dealII | 284 | 40.3 | **283** | **40.4** | 283 | 40.4 | 284 | 40.3 | **283** | **40.4** | 283 | 40.4 |
| 450.soplex | **274** | **30.4** | 280 | 29.8 | 273 | 30.6 | **274** | **30.4** | 280 | 29.8 | 273 | 30.6 |
| 453.povray | **159** | **33.5** | 158 | 33.6 | 160 | 33.3 | 134 | 39.6 | **134** | **39.7** | 134 | 39.7 |
| 454.calculix | 230 | 35.9 | 230 | 35.9 | **230** | **35.9** | 220 | 37.4 | **220** | **37.5** | 220 | 37.5 |
| 459.GemsFDTD | 93.9 | 113 | **93.5** | **113** | 93.1 | 114 | 86.8 | 122 | **86.8** | **122** | 87.0 | 122 |
| 465.tonto | 316 | 31.1 | **317** | **31.1** | 327 | 30.1 | 289 | 34.1 | 288 | 34.2 | **288** | **34.2** |
| 470.lbm | **44.8** | **307** | 44.8 | 307 | 45.0 | 305 | **44.8** | **307** | 44.8 | 307 | 45.0 | 305 |
| 481.wrf | 180 | 62.2 | **180** | **62.2** | 177 | 63.1 | 180 | 62.2 | **180** | **62.2** | 177 | 63.1 |
| 482.sphinx3 | 321 | 60.8 | 323 | 60.4 | **322** | **60.6** | 321 | 60.8 | 323 | 60.4 | **322** | **60.6** |

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,compact,1,0"
LD_LIBRARY_PATH = "/SPECcpu2006/libs/32:/SPECcpu2006/libs/64:/SPECcpu2006/sh"
OMP_NUM_THREADS = "8"

 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

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

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