# SPEC® CFP2006 Result

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## Fujitsu

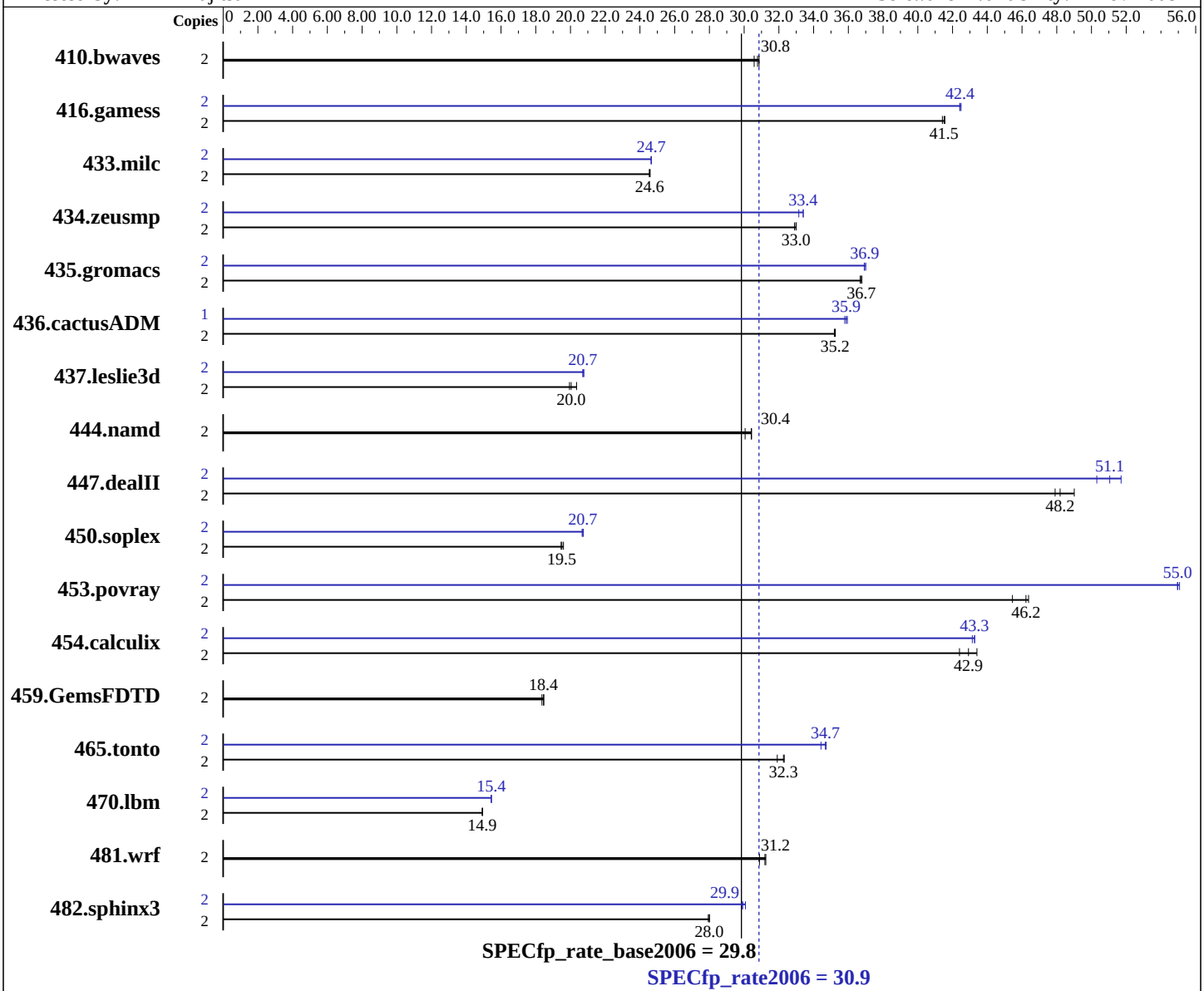
PRIMERGY RX100 S5, Intel Core 2 Duo E7400, 2.80 GHz

SPECfp®_rate2006 = 30.9

SPECfp_rate_base2006 = 29.8

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

**Test date:** Apr-2009
**Hardware Availability:** Apr-2009
**Software Availability:** Nov-2008




## Hardware

| | |
|---|---|
| CPU Name: | Intel Core 2 Duo E7400 |
| CPU Characteristics: | 1067 MHz system bus |
| CPU MHz: | 2800 |
| FPU: | Integrated |
| CPU(s) enabled: | 2 cores, 1 chip, 2 cores/chip |
| CPU(s) orderable: | 1 chip |
| Primary Cache: | 32 KB I + 32 KB D on chip per core |
| Secondary Cache: | 3 MB I+D on chip per chip |

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## Software

| | |
|---|---|
| Operating System: | SUSE Linux Enterprise Server 10 (x86_64) SP2, Kernel 2.6.16.60-0.21-smp |
| Compiler: | Intel C++ and Fortran Compiler 11.0 for Linux Build 20080930 Package ID: l_cproc_p_11.0.066, l_cprof_p_11.0.066 |
| Auto Parallel: | Yes |
| File System: | ext3 |
| System State: | Multi-User Run Level 3 |
| Base Pointers: | 64-bit |

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L3 Cache: None
Other Cache: None
Memory: 8 GB (4x2 GB PC2-6400E, 2 rank, CL6-6-6, ECC)
Disk Subsystem: 1x SATA, 250 GB, 7200 rpm
Other Hardware: None

Peak Pointers: 32/64-bit
Other Software: Binutils 2.18.50.0.7.20080502

## Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 2 | 881 | 30.9 | **883** | **30.8** | 889 | 30.6 | 2 | 881 | 30.9 | **883** | **30.8** | 889 | 30.6 |
| 416.gamess | 2 | 946 | 41.4 | **943** | **41.5** | 942 | 41.6 | 2 | 923 | 42.4 | **923** | **42.4** | 922 | 42.5 |
| 433.milc | 2 | **748** | **24.6** | 748 | 24.5 | 747 | 24.6 | 2 | 745 | 24.7 | 745 | 24.6 | **745** | **24.7** |
| 434.zeusmp | 2 | **552** | **33.0** | 552 | 33.0 | 553 | 32.9 | 2 | 545 | 33.4 | **545** | **33.4** | 549 | 33.1 |
| 435.gromacs | 2 | 389 | 36.7 | **389** | **36.7** | 388 | 36.8 | 2 | 386 | 37.0 | 387 | 36.9 | **387** | **36.9** |
| 436.cactusADM | 2 | 678 | 35.3 | 679 | 35.2 | **678** | **35.2** | 1 | 332 | 35.9 | **333** | **35.9** | 334 | 35.8 |
| 437.leslie3d | 2 | 943 | 19.9 | **938** | **20.0** | 924 | 20.4 | 2 | **907** | **20.7** | 905 | 20.8 | 908 | 20.7 |
| 444.namd | 2 | **527** | **30.4** | 527 | 30.4 | 534 | 30.1 | 2 | **527** | **30.4** | 527 | 30.4 | 534 | 30.1 |
| 447.dealII | 2 | 467 | 49.0 | 478 | 47.9 | **475** | **48.2** | 2 | 455 | 50.3 | 443 | 51.7 | **448** | **51.1** |
| 450.soplex | 2 | **855** | **19.5** | 857 | 19.5 | 851 | 19.6 | 2 | 804 | 20.7 | 807 | 20.7 | **806** | **20.7** |
| 453.povray | 2 | 234 | 45.4 | 229 | 46.4 | **230** | **46.2** | 2 | **194** | **55.0** | 193 | 55.1 | 194 | 55.0 |
| 454.calculix | 2 | 389 | 42.4 | 380 | 43.4 | **384** | **42.9** | 2 | 381 | 43.3 | **381** | **43.3** | 382 | 43.1 |
| 459.GemsFDTD | 2 | 1149 | 18.5 | **1150** | **18.4** | 1156 | 18.4 | 2 | 1149 | 18.5 | **1150** | **18.4** | 1156 | 18.4 |
| 465.tonto | 2 | 609 | 32.3 | **610** | **32.3** | 617 | 31.9 | 2 | **568** | **34.7** | 567 | 34.7 | 572 | 34.4 |
| 470.lbm | 2 | **1841** | **14.9** | 1842 | 14.9 | 1840 | 14.9 | 2 | 1780 | 15.4 | **1780** | **15.4** | 1780 | 15.4 |
| 481.wrf | 2 | **716** | **31.2** | 723 | 30.9 | 715 | 31.2 | 2 | **716** | **31.2** | 723 | 30.9 | 715 | 31.2 |
| 482.sphinx3 | 2 | **1393** | **28.0** | 1392 | 28.0 | 1395 | 27.9 | 2 | 1296 | 30.1 | **1303** | **29.9** | 1305 | 29.9 |

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

## Submit Notes

```
The config file option 'submit' was used.
 taskset has been used to bind processes to cores except
 for 436.cactusADM peak
```

## Operating System Notes

```
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to "physical,0"
KMP_STACKSIZE set to 64M
```

## Platform Notes

```
BIOS configuration:
Adjacent Sector Prefetch = Disable
```

## General Notes

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

## Base Compiler Invocation

C benchmarks:
icc

C++ benchmarks:
icpc

Fortran benchmarks:
ifort

Benchmarks using both Fortran and C:
icc ifort

## 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:
`-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch`

C++ benchmarks:
`-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch`

Fortran benchmarks:
`-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch`

Benchmarks using both Fortran and C:
`-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch`

## Peak Compiler Invocation

C benchmarks (except as noted below):
`icc`

482.sphinx3: `icc -m32`

C++ benchmarks (except as noted below):
`icpc`

450.soplex: `icpc -m32`

Fortran benchmarks (except as noted below):
`ifort`

437.leslie3d: `ifort -m32`

Benchmarks using both Fortran and C:
`icc ifort`

## Peak 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`
444.namd: `-DSPEC_CPU_LP64`
447.dealII: `-DSPEC_CPU_LP64`
453.povray: `-DSPEC_CPU_LP64`
454.calculix: `-DSPEC_CPU_LP64 -nofor_main`
459.GemsFDTD: `-DSPEC_CPU_LP64`

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## Peak Portability Flags (Continued)

465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX

## Peak Optimization Flags

C benchmarks:

433.milc: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static -fno-alias

470.lbm: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-ilp32

482.sphinx3: -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2

C++ benchmarks:

444.namd: basepeak = yes

447.dealII: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2 -ansi-alias -scalar-rep-

450.soplex: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-malloc-options=3

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2 -Ob0 -ansi-alias -scalar-rep-

434.zeusmp: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static

437.leslie3d: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-malloc-options=3 -opt-prefetch

459.GemsFDTD: basepeak = yes

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll4 -auto

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# Peak Optimization Flags (Continued)

Benchmarks using both Fortran and C:

435.gromacs: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-ilp32`

436.cactusADM: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2 -opt-prefetch -parallel -auto-ilp32`

454.calculix: `-xSSE4.1 -ipo -O3 -no-prec-div -static -auto-ilp32`

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-ic11.0-fp-linux64-revA.20090710.05.html
http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090710.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090710.05.xml
http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090710.xml


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