# SPEC® CFP2006 Result

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## Fujitsu

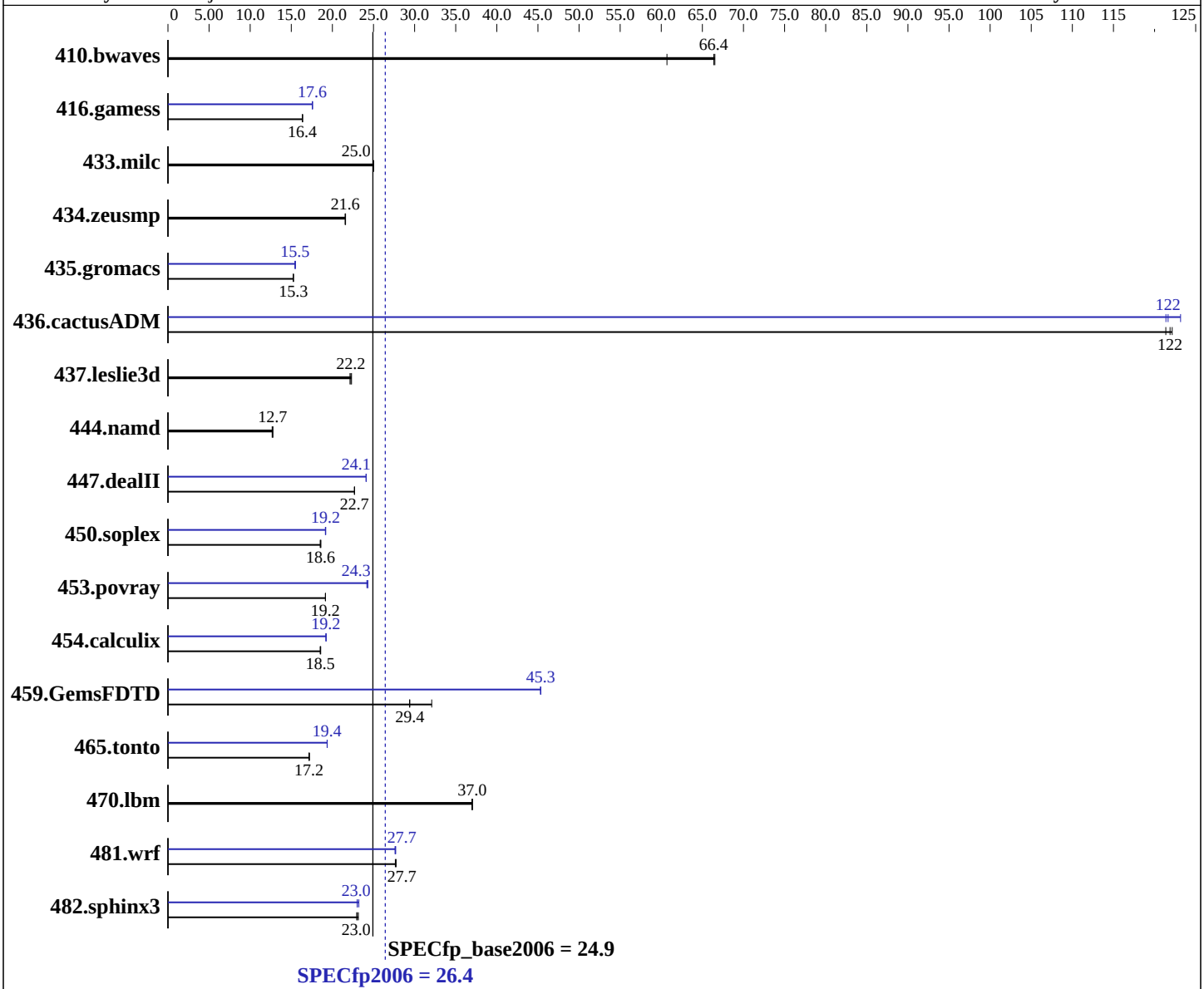
PRIMERGY BX620 S5, Intel Xeon E5506, 2.13 GHz

SPECfp®2006 = 26.4

SPECfp_base2006 = 24.9

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

**Test date:** Sep-2009
**Hardware Availability:** Apr-2009
**Software Availability:** Feb-2009




## Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5506 |
| CPU Characteristics: | |
| CPU MHz: | 2133 |
| 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: | 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 20090131 Package ID: l_cproc_p_11.0.080, l_cprof_p_11.0.080 |
| Auto Parallel: | Yes |
| File System: | ext3 |
| System State: | Multi-User Run Level 3 |
| Base Pointers: | 64-bit |

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L3 Cache: 4 MB I+D on chip per chip
Other Cache: None
Memory: 48 GB (12x4 GB PC3-8500R, 2 rank, CL7-7-7, ECC, see add'l detail in notes)
Disk Subsystem: 1 x 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 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 224 | 60.7 | 204 | 66.5 | **205** | **66.4** | 224 | 60.7 | 204 | 66.5 | **205** | **66.4** |
| 416.gamess | **1197** | **16.4** | 1196 | 16.4 | 1197 | 16.4 | 1115 | 17.6 | 1114 | 17.6 | **1114** | **17.6** |
| 433.milc | 367 | 25.0 | 368 | 24.9 | **367** | **25.0** | 367 | 25.0 | 368 | 24.9 | **367** | **25.0** |
| 434.zeusmp | 422 | 21.5 | **422** | **21.6** | 421 | 21.6 | 422 | 21.5 | **422** | **21.6** | 421 | 21.6 |
| 435.gromacs | 468 | 15.3 | 468 | 15.2 | **468** | **15.3** | 460 | 15.5 | 462 | 15.4 | **462** | **15.5** |
| 436.cactusADM | **98.0** | **122** | 97.8 | 122 | 98.5 | 121 | **98.2** | **122** | 98.5 | 121 | 97.0 | 123 |
| 437.leslie3d | 421 | 22.3 | **423** | **22.2** | 425 | 22.1 | 421 | 22.3 | **423** | **22.2** | 425 | 22.1 |
| 444.namd | 629 | 12.8 | **629** | **12.7** | 633 | 12.7 | 629 | 12.8 | **629** | **12.7** | 633 | 12.7 |
| 447.dealII | 504 | 22.7 | **504** | **22.7** | 505 | 22.7 | **474** | **24.1** | 475 | 24.1 | 474 | 24.1 |
| 450.soplex | 449 | 18.6 | **449** | **18.6** | 450 | 18.5 | 436 | 19.1 | **435** | **19.2** | 435 | 19.2 |
| 453.povray | **278** | **19.2** | 278 | 19.2 | 278 | 19.1 | 220 | 24.2 | 219 | 24.3 | **219** | **24.3** |
| 454.calculix | 446 | 18.5 | 444 | 18.6 | **445** | **18.5** | **429** | **19.2** | 429 | 19.2 | 429 | 19.2 |
| 459.GemsFDTD | **361** | **29.4** | 361 | 29.4 | 331 | 32.1 | **234** | **45.3** | 234 | 45.3 | 234 | 45.3 |
| 465.tonto | 571 | 17.2 | **574** | **17.2** | 574 | 17.1 | 508 | 19.4 | **508** | **19.4** | 508 | 19.4 |
| 470.lbm | 372 | 37.0 | 371 | 37.0 | **371** | **37.0** | 372 | 37.0 | 371 | 37.0 | **371** | **37.0** |
| 481.wrf | 404 | 27.7 | 403 | 27.7 | **403** | **27.7** | 404 | 27.6 | 403 | 27.7 | **404** | **27.7** |
| 482.sphinx3 | 849 | 23.0 | **846** | **23.0** | 842 | 23.2 | **846** | **23.0** | 847 | 23.0 | 839 | 23.2 |

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

## Operating System Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run

## Platform Notes

The system automatically configures the memory to run at 800 MHz.

## General Notes

OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to granularity=fine,scatter
KMP_STACKSIZE set to 200M
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:
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

C++ benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Fortran benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -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:
ifort

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
437.leslie3d: -DSPEC_CPU_LP64
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
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: basepeak = yes

470.lbm: basepeak = yes

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -static -unroll2

C++ benchmarks:

Continued on next page

## Peak Optimization Flags (Continued)

444.namd: basepeak = yes

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

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

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

Fortran benchmarks:

410.bwaves: basepeak = yes

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

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -unroll2 -Ob0 -opt-prefetch -parallel

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

Benchmarks using both Fortran and C:

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

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

454.calculix: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32

481.wrf: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -parallel -auto-ilp32

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20091013.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20091013.xml`


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