# SPEC® CFP2006 Result

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## Fujitsu

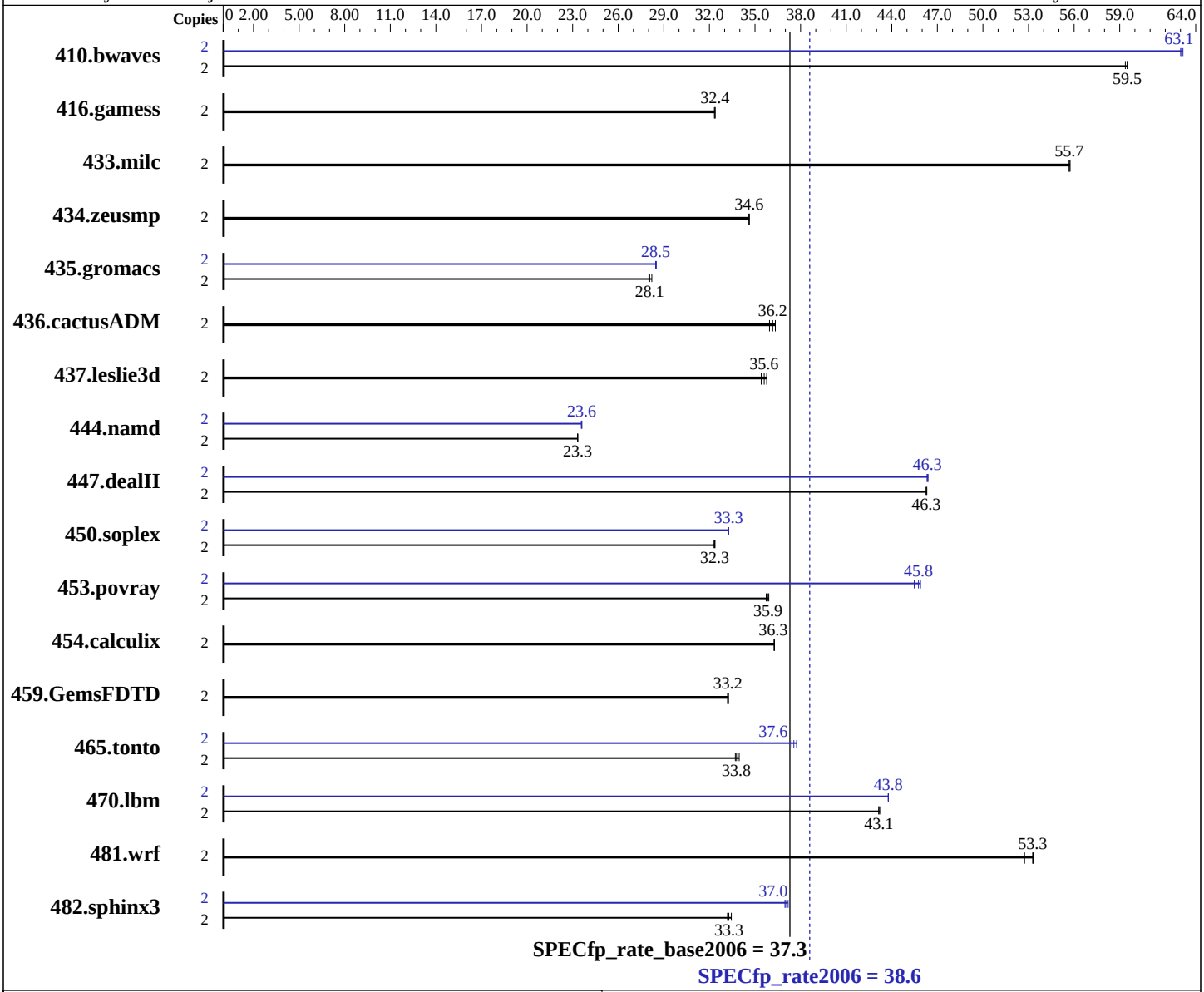
PRIMERGY BX920 S2, Intel Xeon E5503, 2.0 GHz

SPECfp®_rate2006 = 38.6

SPECfp_rate_base2006 = 37.3

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

**Test date:** Jun-2010
**Hardware Availability:** Aug-2010
**Software Availability:** Jan-2010




## Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5503 |
| CPU Characteristics: | |
| CPU MHz: | 2000 |
| FPU: | Integrated |
| CPU(s) enabled: | 2 cores, 1 chip, 2 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 11 (x86_64), Kernel 2.6.27.19-5-default |
| Compiler: | Intel C++ and Fortran Professional Compiler for IA32 and Intel 64, Version 11.1 Build 20091130 Package ID: l_cproc_p_11.1.064, l_cprof_p_11.1.064 |
| Auto Parallel: | No |
| File System: | ext3 |
| System State: | Multi-User Run Level 3 |

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L3 Cache: 4 MB I+D on chip per chip
Other Cache: None
Memory: 24 GB (3x8 GB PC3-10600R, 2 rank, CL9-9-9, ECC, see add'l detail in notes)
Disk Subsystem: 1 x SSD SATA, 64 GB
Other Hardware: None

Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: None

## Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 2 | 458 | 59.4 | **457** | **59.5** | 457 | 59.5 | 2 | 430 | 63.2 | 431 | 63.0 | **431** | **63.1** |
| 416.gamess | 2 | **1210** | **32.4** | 1209 | 32.4 | 1211 | 32.3 | 2 | **1210** | **32.4** | 1209 | 32.4 | 1211 | 32.3 |
| 433.milc | 2 | **330** | **55.7** | 329 | 55.7 | 330 | 55.7 | 2 | **330** | **55.7** | 329 | 55.7 | 330 | 55.7 |
| 434.zeusmp | 2 | **526** | **34.6** | 526 | 34.6 | 526 | 34.6 | 2 | **526** | **34.6** | 526 | 34.6 | 526 | 34.6 |
| 435.gromacs | 2 | **509** | **28.1** | 510 | 28.0 | 506 | 28.2 | 2 | **502** | **28.5** | 501 | 28.5 | 502 | 28.5 |
| 436.cactusADM | 2 | 665 | 36.0 | **661** | **36.2** | 658 | 36.3 | 2 | 665 | 36.0 | **661** | **36.2** | 658 | 36.3 |
| 437.leslie3d | 2 | **528** | **35.6** | 531 | 35.4 | 526 | 35.8 | 2 | **528** | **35.6** | 531 | 35.4 | 526 | 35.8 |
| 444.namd | 2 | **687** | **23.3** | 688 | 23.3 | 687 | 23.3 | 2 | 680 | 23.6 | 681 | 23.6 | **680** | **23.6** |
| 447.dealII | 2 | 494 | 46.3 | 495 | 46.3 | **494** | **46.3** | 2 | **494** | **46.3** | 494 | 46.3 | 493 | 46.4 |
| 450.soplex | 2 | 517 | 32.3 | 515 | 32.4 | **516** | **32.3** | 2 | 501 | 33.3 | **501** | **33.3** | 502 | 33.3 |
| 453.povray | 2 | 296 | 35.9 | 298 | 35.7 | **297** | **35.9** | 2 | **233** | **45.8** | 234 | 45.5 | 232 | 45.9 |
| 454.calculix | 2 | 455 | 36.3 | **455** | **36.3** | 455 | 36.3 | 2 | 455 | 36.3 | **455** | **36.3** | 455 | 36.3 |
| 459.GemsFDTD | 2 | 639 | 33.2 | **639** | **33.2** | 638 | 33.3 | 2 | 639 | 33.2 | **639** | **33.2** | 638 | 33.3 |
| 465.tonto | 2 | 580 | 34.0 | **583** | **33.8** | 584 | 33.7 | 2 | **524** | **37.6** | 526 | 37.4 | 522 | 37.7 |
| 470.lbm | 2 | 636 | 43.2 | 637 | 43.1 | **637** | **43.1** | 2 | 628 | 43.8 | **628** | **43.8** | 628 | 43.8 |
| 481.wrf | 2 | 419 | 53.3 | 424 | 52.7 | **419** | **53.3** | 2 | 419 | 53.3 | 424 | 52.7 | **419** | **53.3** |
| 482.sphinx3 | 2 | **1171** | **33.3** | 1166 | 33.4 | 1174 | 33.2 | 2 | **1053** | **37.0** | 1048 | 37.2 | 1054 | 37.0 |

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.
 numactl was used to bind copies to the cores
```

## 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

```
For information about Fujitsu please visit: http://www.fujitsu.com
Binaries were compiled on SLES 10 with Binutils 2.18.50.0.7.20080502
```

## 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:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static
```

C++ benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static
```

Continued on next page

## Base Optimization Flags (Continued)

Fortran benchmarks:
`-xSSE4.2 -ipo -O3 -no-prec-div -static`

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

## Peak Compiler Invocation

C benchmarks (except as noted below):
`icc -m64`

482.sphinx3: `icc -m32`

C++ benchmarks (except as noted below):
`icpc -m64`

450.soplex: `icpc -m32`

Fortran benchmarks:
`ifort -m64`

Benchmarks using both Fortran and C:
`icc -m64 ifort -m64`

## 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: -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 -ansi-alias -auto-ilp32

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

C++ benchmarks:

444.namd: -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) -fno-alias -auto-ilp32

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-

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

416.gamess: basepeak = yes

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: basepeak = yes

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 -inline-calloc -opt-malloc-options=3

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

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## Peak Optimization Flags (Continued)

436.cactusADM: `basepeak = yes`

454.calculix: `basepeak = yes`

481.wrf: `basepeak = yes`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100708.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100708.xml`


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

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