# SPEC® CFP2006 Result

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## Fujitsu

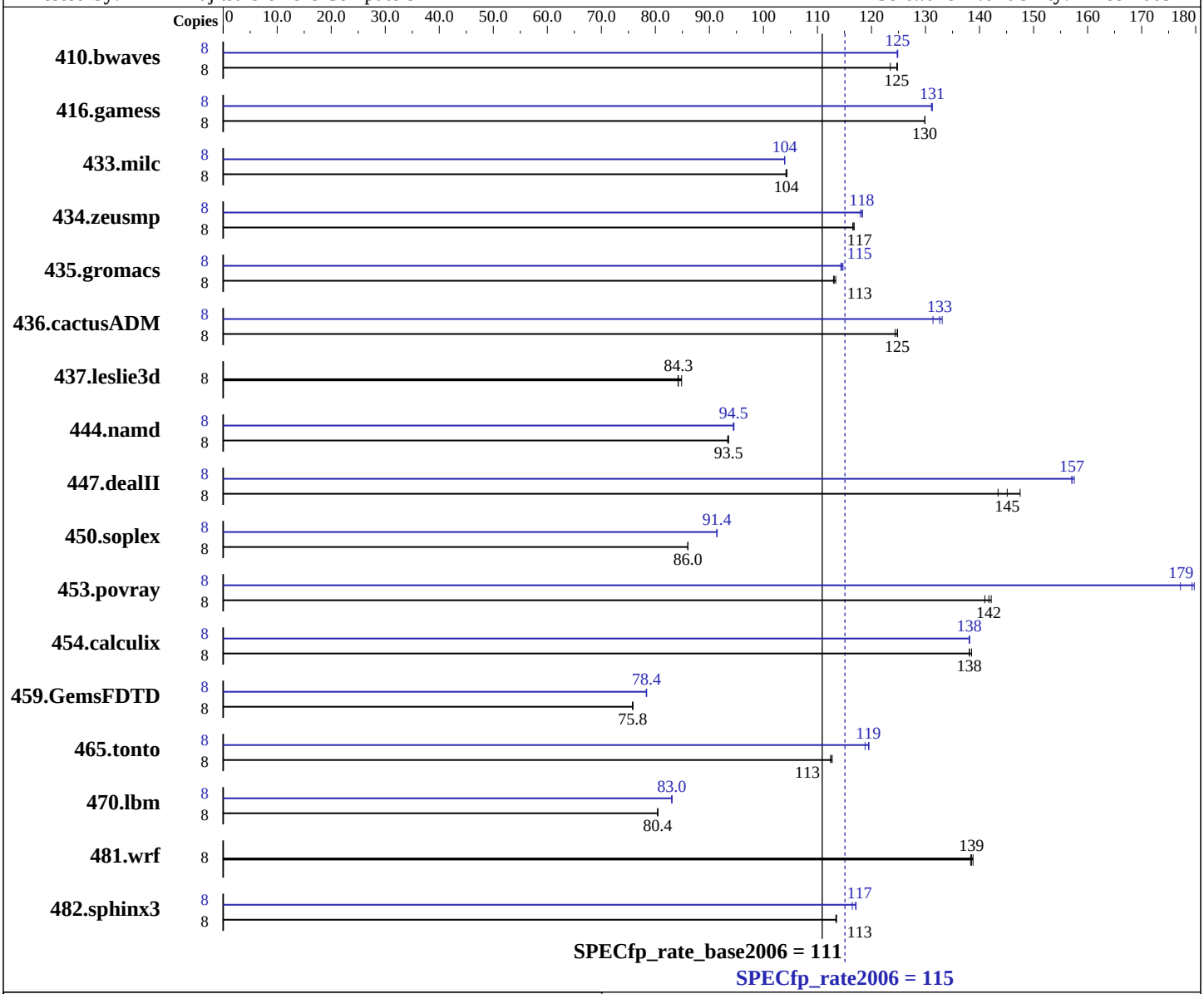
PRIMERGY RX300 S5, Intel Xeon E5504, 2.0 GHz

SPECfp®_rate2006 = 115

SPECfp_rate_base2006 = 111

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

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




## Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5504 |
| CPU Characteristics: | |
| CPU MHz: | 2000 |
| 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: | No |
| 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: 72 GB (18x4 GB PC3-10600R, 2 rank, CL9-9-9, ECC)
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 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 8 | 880 | 123 | **872** | **125** | 871 | 125 | 8 | **871** | **125** | 871 | 125 | 872 | 125 |
| 416.gamess | 8 | 1206 | 130 | **1206** | **130** | 1206 | 130 | 8 | 1193 | 131 | **1194** | **131** | 1195 | 131 |
| 433.milc | 8 | 704 | 104 | **704** | **104** | 705 | 104 | 8 | 707 | 104 | **707** | **104** | 706 | 104 |
| 434.zeusmp | 8 | 625 | 117 | 623 | 117 | **624** | **117** | 8 | **616** | **118** | 615 | 118 | 617 | 118 |
| 435.gromacs | 8 | 506 | 113 | **505** | **113** | 504 | 113 | 8 | **499** | **115** | 498 | 115 | 500 | 114 |
| 436.cactusADM | 8 | 766 | 125 | 769 | 124 | **766** | **125** | 8 | **721** | **133** | 718 | 133 | 728 | 131 |
| 437.leslie3d | 8 | 886 | 84.9 | **893** | **84.3** | 893 | 84.2 | 8 | 886 | 84.9 | **893** | **84.3** | 893 | 84.2 |
| 444.namd | 8 | 687 | 93.4 | **686** | **93.5** | 686 | 93.5 | 8 | 679 | 94.5 | 679 | 94.4 | **679** | **94.5** |
| 447.dealII | 8 | **631** | **145** | 620 | 148 | 638 | 143 | 8 | 581 | 158 | **583** | **157** | 583 | 157 |
| 450.soplex | 8 | 776 | 86.0 | 776 | 86.0 | **776** | **86.0** | 8 | 730 | 91.4 | 730 | 91.4 | **730** | **91.4** |
| 453.povray | 8 | 302 | 141 | 299 | 142 | **300** | **142** | 8 | **237** | **179** | 240 | 177 | 237 | 180 |
| 454.calculix | 8 | 476 | 139 | **478** | **138** | 478 | 138 | 8 | 478 | 138 | **478** | **138** | 478 | 138 |
| 459.GemsFDTD | 8 | 1119 | 75.8 | **1120** | **75.8** | 1120 | 75.8 | 8 | 1083 | 78.4 | 1084 | 78.3 | **1083** | **78.4** |
| 465.tonto | 8 | 698 | 113 | **699** | **113** | 700 | 112 | 8 | 659 | 120 | **659** | **119** | 663 | 119 |
| 470.lbm | 8 | **1367** | **80.4** | 1367 | 80.4 | 1366 | 80.4 | 8 | **1324** | **83.0** | 1323 | 83.1 | 1324 | 83.0 |
| 481.wrf | 8 | 646 | 138 | 644 | 139 | **645** | **139** | 8 | 646 | 138 | 644 | 139 | **645** | **139** |
| 482.sphinx3 | 8 | **1374** | **113** | 1375 | 113 | 1374 | 114 | 8 | **1332** | **117** | 1339 | 116 | 1331 | 117 |

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
```

## General Notes

```
This result was measured on the PRIMERGY TX300 S5. The PRIMERGY TX300 S5
and the PRIMERGY RX300 S5 are electronically equivalent.

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

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

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`

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: `-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`

470.lbm: `-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-ilp32`

Continued on next page

## Peak Optimization Flags (Continued)

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: -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: -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)

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

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 -auto-ilp32

Continued on next page

## Peak Optimization Flags (Continued)

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

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-ic11.0-fp-linux64-revA.20090710.04.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.20090710.04.xml`


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