# SPEC® CFP2006 Result

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## Fujitsu

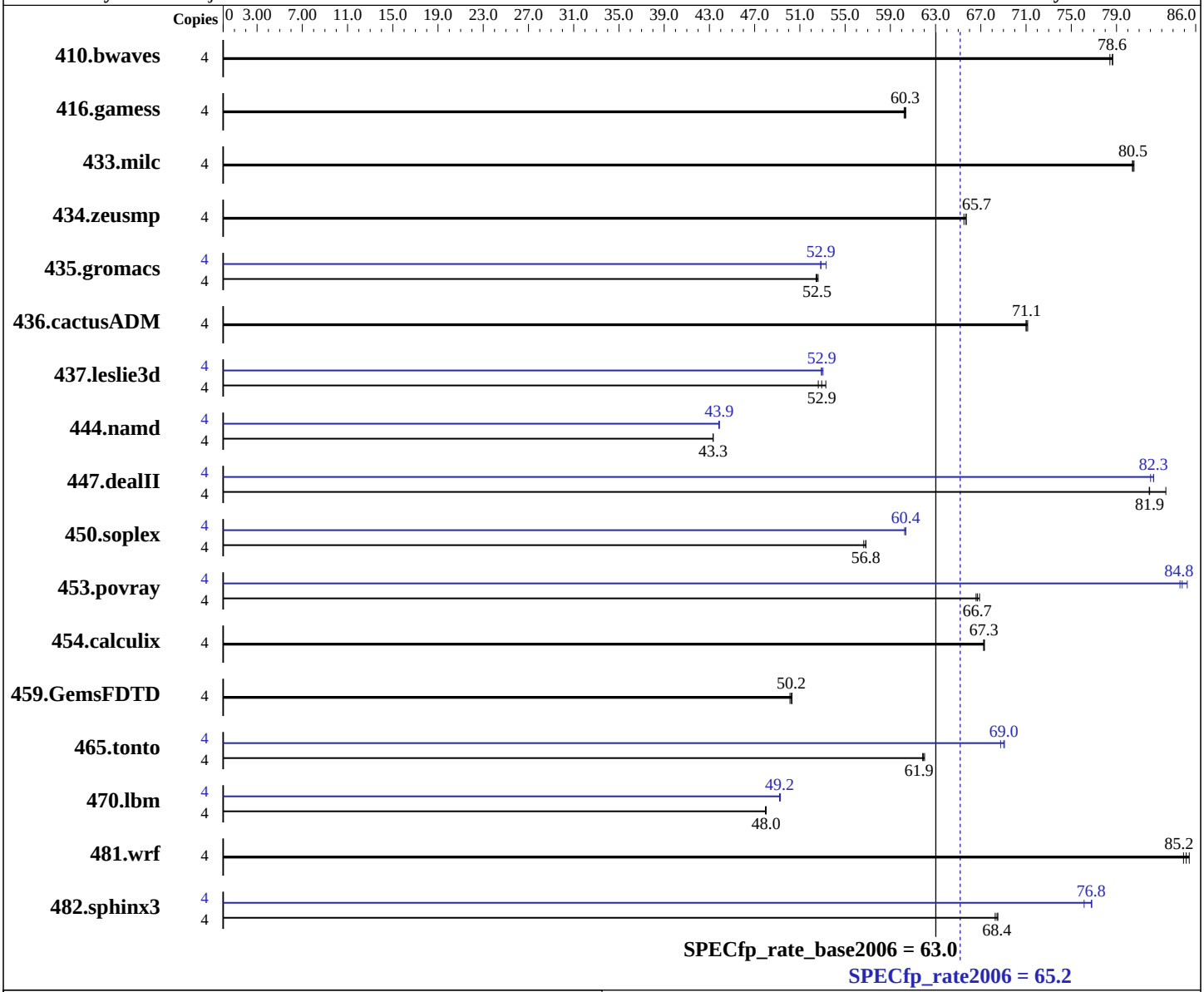
PRIMERGY BX620 S6, Intel Xeon L5609, 1.87 GHz

SPECfp®_rate2006 = 65.2

SPECfp_rate_base2006 = 63.0

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

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




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon L5609 |
| CPU Characteristics: | |
| CPU MHz: | 1867 |
| FPU: | Integrated |
| CPU(s) enabled: | 4 cores, 1 chip, 4 cores/chip |
| CPU(s) orderable: | 1,2,3,4 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) with SP1, Kernel 2.6.32.12-0.7-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: | Run level 3 (multi-user) |

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L3 Cache: 12 MB I+D on chip per chip
Other Cache: None
Memory: 24 GB (6 x 4 GB 2Rx4 PC3-10600R, ECC, running at 1067 MHz and CL7)
Disk Subsystem: 1 x SAS, 300 GB, 10000 RPM
Other Hardware: --

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 | 4 | 693 | 78.4 | **691** | **78.6** | 691 | 78.7 | 4 | 693 | 78.4 | **691** | **78.6** | 691 | 78.7 |
| 416.gamess | 4 | **1299** | **60.3** | 1298 | 60.4 | 1301 | 60.2 | 4 | **1299** | **60.3** | 1298 | 60.4 | 1301 | 60.2 |
| 433.milc | 4 | **456** | **80.5** | 457 | 80.4 | 456 | 80.5 | 4 | **456** | **80.5** | 457 | 80.4 | 456 | 80.5 |
| 434.zeusmp | 4 | 554 | 65.7 | 556 | 65.5 | **554** | **65.7** | 4 | 554 | 65.7 | 556 | 65.5 | **554** | **65.7** |
| 435.gromacs | 4 | **544** | **52.5** | 543 | 52.6 | 545 | 52.4 | 4 | 541 | 52.8 | 536 | 53.3 | **540** | **52.9** |
| 436.cactusADM | 4 | 672 | 71.1 | 673 | 71.0 | **673** | **71.1** | 4 | 672 | 71.1 | 673 | 71.0 | **673** | **71.1** |
| 437.leslie3d | 4 | **710** | **52.9** | 714 | 52.6 | 706 | 53.3 | 4 | **710** | **52.9** | 709 | 53.0 | 711 | 52.9 |
| 444.namd | 4 | 740 | 43.3 | **740** | **43.3** | 741 | 43.3 | 4 | 731 | 43.9 | 732 | 43.8 | **731** | **43.9** |
| 447.dealII | 4 | **559** | **81.9** | 549 | 83.4 | 559 | 81.9 | 4 | **556** | **82.3** | 556 | 82.3 | 558 | 82.0 |
| 450.soplex | 4 | 589 | 56.6 | **587** | **56.8** | 587 | 56.8 | 4 | 553 | 60.4 | **553** | **60.4** | 554 | 60.3 |
| 453.povray | 4 | 318 | 66.9 | **319** | **66.7** | 320 | 66.6 | 4 | 251 | 84.6 | **251** | **84.8** | 250 | 85.3 |
| 454.calculix | 4 | **491** | **67.3** | 490 | 67.3 | 491 | 67.3 | 4 | **491** | **67.3** | 490 | 67.3 | 491 | 67.3 |
| 459.GemsFDTD | 4 | **845** | **50.2** | 844 | 50.3 | 847 | 50.1 | 4 | **845** | **50.2** | 844 | 50.3 | 847 | 50.1 |
| 465.tonto | 4 | 636 | 61.9 | 635 | 62.0 | **636** | **61.9** | 4 | 573 | 68.8 | 570 | 69.1 | **570** | **69.0** |
| 470.lbm | 4 | 1145 | 48.0 | **1145** | **48.0** | 1146 | 48.0 | 4 | 1115 | 49.3 | **1117** | **49.2** | 1117 | 49.2 |
| 481.wrf | 4 | **525** | **85.2** | 523 | 85.4 | 526 | 84.9 | 4 | **525** | **85.2** | 523 | 85.4 | 526 | 84.9 |
| 482.sphinx3 | 4 | **1139** | **68.4** | 1138 | 68.5 | 1142 | 68.3 | 4 | 1024 | 76.1 | 1015 | 76.8 | **1016** | **76.8** |

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

```
BIOS configuration:
Data Reuse Optimization = Disable
```

## 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
```

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## 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: basepeak = yes

416.gamess: basepeak = yes

434.zeusmp: basepeak = yes

437.leslie3d: -xSSE4.2 -ipo -O3 -no-prec-div -static

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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