# SPEC® CFP2006 Result

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## Fujitsu

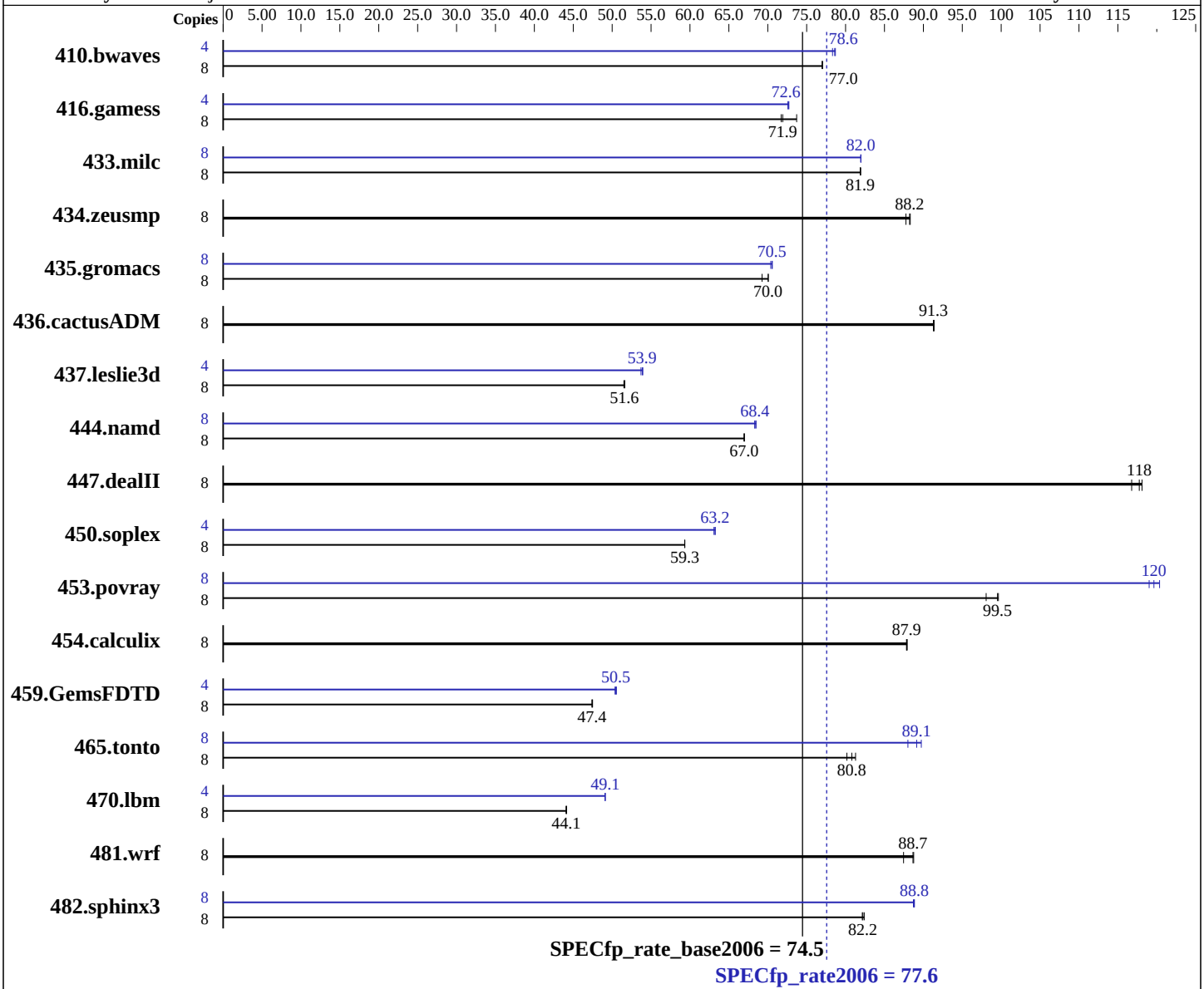
PRIMERGY BX620 S6, Intel Xeon L5630, 2.13 GHz

SPECfp®_rate2006 = 77.6

SPECfp_rate_base2006 = 74.5

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

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




## Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon L5630 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 2.40 GHz |
| CPU MHz: | 2133 |
| FPU: | Integrated |
| CPU(s) enabled: | 4 cores, 1 chip, 4 cores/chip, 2 threads/core |
| 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) 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 (6x4 GB PC3-10600R, 2 rank, CL9-9-9, ECC, see add'l detail in notes)
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 | 8 | 1411 | 77.0 | **1412** | **77.0** | 1412 | 77.0 | 4 | 694 | 78.3 | 691 | 78.7 | **692** | **78.6** |
| 416.gamess | 8 | 2184 | 71.7 | 2125 | 73.7 | **2178** | **71.9** | 4 | 1077 | 72.7 | **1078** | **72.6** | 1079 | 72.6 |
| 433.milc | 8 | 897 | 81.9 | 896 | 81.9 | **897** | **81.9** | 8 | **896** | **82.0** | 896 | 82.0 | 896 | 82.0 |
| 434.zeusmp | 8 | 824 | 88.3 | **825** | **88.2** | 830 | 87.8 | 8 | 824 | 88.3 | **825** | **88.2** | 830 | 87.8 |
| 435.gromacs | 8 | **815** | **70.0** | 815 | 70.1 | 825 | 69.3 | 8 | **810** | **70.5** | 812 | 70.4 | 809 | 70.6 |
| 436.cactusADM | 8 | 1047 | 91.3 | **1047** | **91.3** | 1046 | 91.4 | 8 | 1047 | 91.3 | **1047** | **91.3** | 1046 | 91.4 |
| 437.leslie3d | 8 | 1457 | 51.6 | 1460 | 51.5 | **1458** | **51.6** | 4 | 697 | 53.9 | **698** | **53.9** | 700 | 53.7 |
| 444.namd | 8 | **958** | **67.0** | 958 | 67.0 | 958 | 67.0 | 8 | 939 | 68.3 | 937 | 68.5 | **938** | **68.4** |
| 447.dealII | 8 | **777** | **118** | 784 | 117 | 775 | 118 | 8 | **777** | **118** | 784 | 117 | 775 | 118 |
| 450.soplex | 8 | 1124 | 59.3 | 1125 | 59.3 | **1124** | **59.3** | 4 | **528** | **63.2** | 529 | 63.1 | 527 | 63.3 |
| 453.povray | 8 | **428** | **99.5** | 434 | 98.1 | 427 | 99.6 | 8 | 354 | 120 | 358 | 119 | **356** | **120** |
| 454.calculix | 8 | **751** | **87.9** | 751 | 87.9 | 751 | 87.8 | 8 | **751** | **87.9** | 751 | 87.9 | 751 | 87.8 |
| 459.GemsFDTD | 8 | 1788 | 47.5 | 1790 | 47.4 | **1790** | **47.4** | 4 | 843 | 50.4 | **841** | **50.5** | 840 | 50.5 |
| 465.tonto | 8 | 968 | 81.3 | 982 | 80.2 | **974** | **80.8** | 8 | 877 | 89.7 | 894 | 88.0 | **883** | **89.1** |
| 470.lbm | 8 | 2490 | 44.1 | **2492** | **44.1** | 2494 | 44.1 | 4 | 1119 | 49.1 | **1119** | **49.1** | 1120 | 49.1 |
| 481.wrf | 8 | 1007 | 88.8 | 1022 | 87.5 | **1008** | **88.7** | 8 | 1007 | 88.8 | 1022 | 87.5 | **1008** | **88.7** |
| 482.sphinx3 | 8 | 1892 | 82.4 | **1896** | **82.2** | 1898 | 82.1 | 8 | **1755** | **88.8** | 1755 | 88.8 | 1758 | 88.7 |

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 1067 MHz.
BIOS configuration:
Data Reuse Optimization = Disable
Performance/Power Setting = Traditional
```

## 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: -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 -opt-prefetch

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: basepeak = yes

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: basepeak = yes

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

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

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:

Continued on next page

## Peak Optimization Flags (Continued)

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: `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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