# SPEC® CFP2006 Result

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## Fujitsu

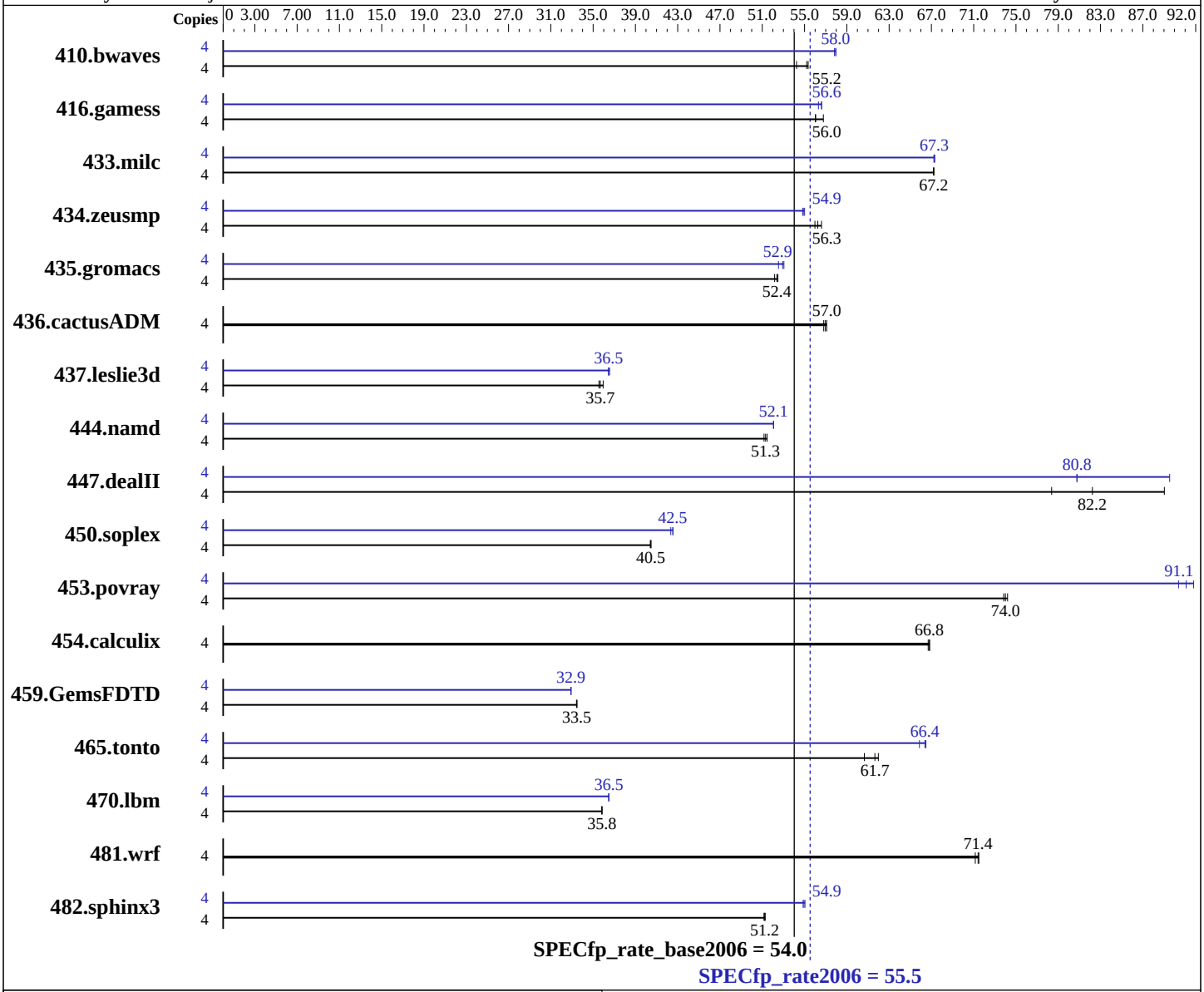
## CELSIUS W380, Intel Core i5-660

**SPECfp®_rate2006 = 55.5**

**SPECfp_rate_base2006 = 54.0**

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

**Test date:** Jan-2010
**Hardware Availability:** Jan-2010
**Software Availability:** Oct-2009




### Hardware

| | |
|---|---|
| CPU Name: | Intel Core i5-660 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.6 GHz |
| CPU MHz: | 3333 |
| FPU: | Integrated |
| CPU(s) enabled: | 2 cores, 1 chip, 2 cores/chip, 2 threads/core |
| CPU(s) orderable: | 1 chip |
| 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 Compiler for IA32 and Intel 64, Version 11.1 Build 20091012 Package ID: l_cproc_p_11.1.059, l_cprof_p_11.1.059 |
| 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: 8 GB (2x4 GB PC3-10600U, 2 rank, CL9)
Disk Subsystem: 1 x SATA II, 400 GB, 7200 rpm
Other Hardware: None

Base Pointers: 64-bit
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 | 4 | 1002 | 54.2 | **985** | **55.2** | 982 | 55.3 | 4 | 940 | 57.8 | **938** | **58.0** | 938 | 58.0 |
| 416.gamess | 4 | 1379 | 56.8 | **1397** | **56.0** | 1398 | 56.0 | 4 | 1383 | 56.6 | **1384** | **56.6** | 1391 | 56.3 |
| 433.milc | 4 | 546 | 67.2 | 546 | 67.2 | **546** | **67.2** | 4 | **546** | **67.3** | 546 | 67.3 | 546 | 67.2 |
| 434.zeusmp | 4 | 650 | 56.0 | 643 | 56.6 | **647** | **56.3** | 4 | 662 | 55.0 | 664 | 54.8 | **663** | **54.9** |
| 435.gromacs | 4 | **545** | **52.4** | 544 | 52.5 | 547 | 52.2 | 4 | 538 | 53.0 | **540** | **52.9** | 544 | 52.5 |
| 436.cactusADM | 4 | **839** | **57.0** | 837 | 57.1 | 841 | 56.8 | 4 | **839** | **57.0** | 837 | 57.1 | 841 | 56.8 |
| 437.leslie3d | 4 | 1046 | 35.9 | **1054** | **35.7** | 1058 | 35.5 | 4 | **1031** | **36.5** | 1032 | 36.4 | 1028 | 36.6 |
| 444.namd | 4 | 623 | 51.5 | 627 | 51.2 | **625** | **51.3** | 4 | 616 | 52.1 | 616 | 52.1 | **616** | **52.1** |
| 447.dealII | 4 | 584 | 78.4 | 514 | 89.0 | **556** | **82.2** | 4 | **566** | **80.8** | 567 | 80.8 | 511 | 89.5 |
| 450.soplex | 4 | 826 | 40.4 | 824 | 40.5 | **824** | **40.5** | 4 | 788 | 42.3 | **784** | **42.5** | 784 | 42.6 |
| 453.povray | 4 | **288** | **74.0** | 288 | 73.8 | 287 | 74.2 | 4 | 232 | 91.8 | 235 | 90.4 | **234** | **91.1** |
| 454.calculix | 4 | 495 | 66.7 | **494** | **66.8** | 494 | 66.8 | 4 | 495 | 66.7 | **494** | **66.8** | 494 | 66.8 |
| 459.GemsFDTD | 4 | **1268** | **33.5** | 1268 | 33.5 | 1270 | 33.4 | 4 | 1290 | 32.9 | 1290 | 32.9 | **1290** | **32.9** |
| 465.tonto | 4 | 649 | 60.7 | **638** | **61.7** | 635 | 62.0 | 4 | 598 | 65.9 | 592 | 66.5 | **593** | **66.4** |
| 470.lbm | 4 | 1534 | 35.8 | 1534 | 35.8 | **1534** | **35.8** | 4 | 1507 | 36.5 | **1506** | **36.5** | 1506 | 36.5 |
| 481.wrf | 4 | 628 | 71.2 | **626** | **71.4** | 625 | 71.5 | 4 | 628 | 71.2 | **626** | **71.4** | 625 | 71.5 |
| 482.sphinx3 | 4 | 1524 | 51.2 | 1520 | 51.3 | **1522** | **51.2** | 4 | 1421 | 54.9 | 1416 | 55.0 | **1419** | **54.9** |

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
```

## Base Compiler Invocation

C benchmarks:

```
icc   -m64
```

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## Base Compiler Invocation (Continued)

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

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`

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## 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: -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 -opt-prefetch

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:

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

Continued on next page

## 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-revD.20100119.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revD.20100119.xml`


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