# SPEC® CFP2006 Result

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## Fujitsu Siemens Computers

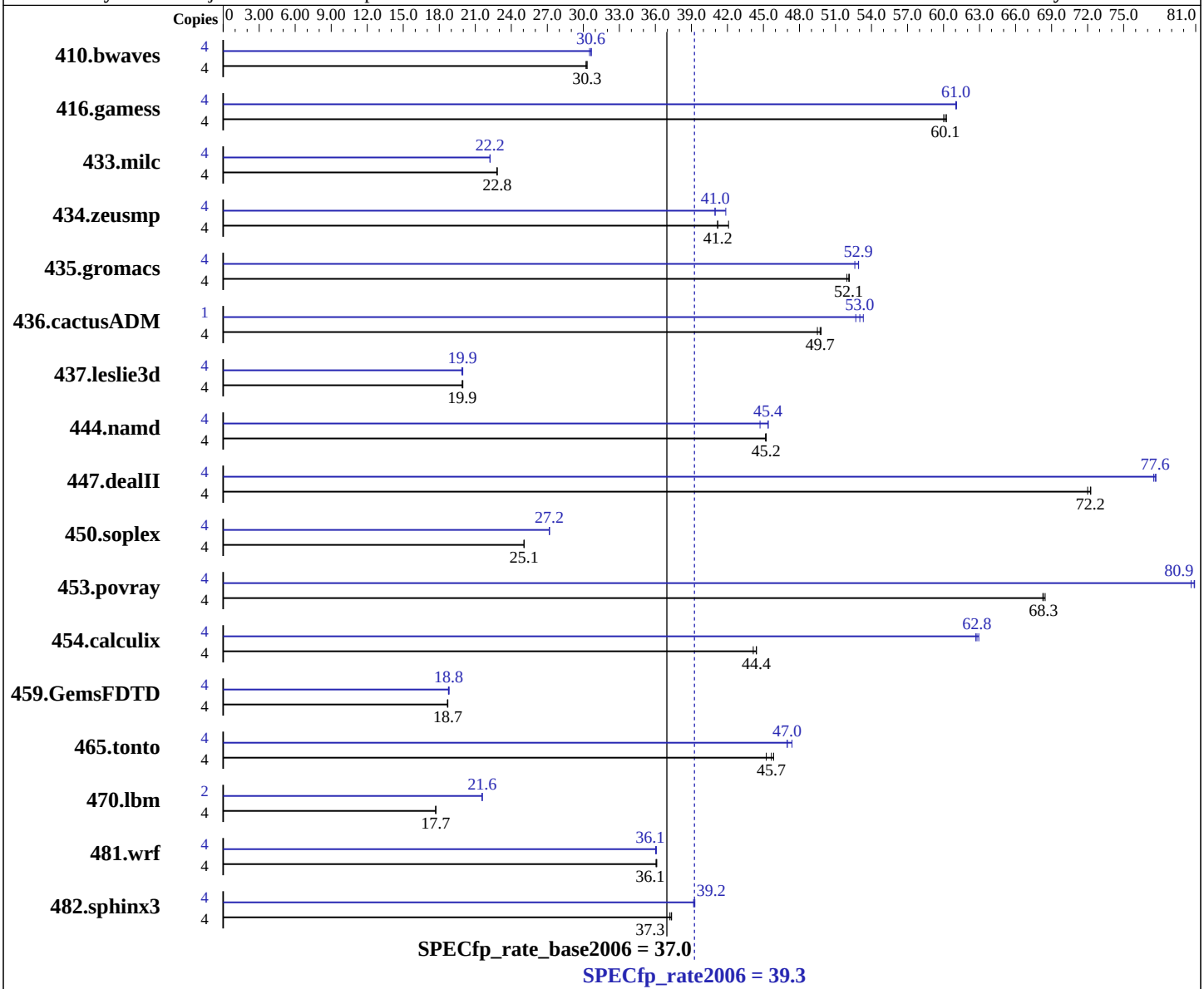
PRIMERGY TX150 S6, Intel Xeon processor X3210, 2.13 GHz

**SPECfp®_rate2006 = 39.3**

**SPECfp_rate_base2006 = 37.0**

**CPU2006 license:** 22
**Test sponsor:** Fujitsu Siemens Computers
**Tested by:** Fujitsu Siemens Computers

**Test date:** Oct-2007
**Hardware Availability:** Dec-2007
**Software Availability:** Nov-2007




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon X3210 |
| CPU Characteristics: | 1066 MHz system bus |
| CPU MHz: | 2133 |
| FPU: | Integrated |
| CPU(s) enabled: | 4 cores, 1 chip, 4 cores/chip |
| CPU(s) orderable: | 1 chip |
| Primary Cache: | 32 KB I + 32 KB D on chip per core |
| Secondary Cache: | 8 MB I+D on chip per chip, 4 MB shared / 2 cores |

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### Software

| | |
|---|---|
| Operating System: | SUSE Linux Enterprise Server 10 (x86_64) SP1, Kernel 2.6.16.46-0.12-smp |
| Compiler: | Intel C++ and Fortran Compiler for Linux32 and Linux64 Version 10.1 - Build 20070725 |
| Auto Parallel: | Yes |
| File System: | ext2 |
| System State: | Multiuser, Runlevel 3 |
| Base Pointers: | 64-bit |

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L3 Cache: None
Other Cache: None
Memory: 4 GB (4x1 GB PC2-6400E, 2 rank, CAS 6-6-6, with ECC)
Disk Subsystem: Fujitsu MAY2036RC (SAS, 36GB, 10000rpm)
Other Hardware: None

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 | 1799 | 30.2 | 1794 | 30.3 | **1794** | **30.3** | 4 | 1781 | 30.5 | 1772 | 30.7 | **1775** | **30.6** |
| 416.gamess | 4 | 1305 | 60.0 | **1302** | **60.1** | 1300 | 60.2 | 4 | 1282 | 61.1 | **1283** | **61.0** | 1283 | 61.0 |
| 433.milc | 4 | 1609 | 22.8 | **1609** | **22.8** | 1610 | 22.8 | 4 | 1651 | 22.2 | **1652** | **22.2** | 1652 | 22.2 |
| 434.zeusmp | 4 | **884** | **41.2** | 884 | 41.2 | 865 | 42.1 | 4 | 889 | 41.0 | 869 | 41.9 | **888** | **41.0** |
| 435.gromacs | 4 | 550 | 52.0 | 548 | 52.2 | **548** | **52.1** | 4 | 540 | 52.9 | **540** | **52.9** | 543 | 52.6 |
| 436.cactusADM | 4 | 960 | 49.8 | 966 | 49.5 | **961** | **49.7** | 1 | 224 | 53.3 | 227 | 52.7 | **225** | **53.0** |
| 437.leslie3d | 4 | 1883 | 20.0 | 1888 | 19.9 | **1887** | **19.9** | 4 | 1892 | 19.9 | **1885** | **19.9** | 1884 | 20.0 |
| 444.namd | 4 | 710 | 45.2 | **709** | **45.2** | 709 | 45.2 | 4 | 717 | 44.7 | 707 | 45.4 | **707** | **45.4** |
| 447.dealII | 4 | **633** | **72.2** | 633 | 72.3 | 636 | 72.0 | 4 | **589** | **77.6** | 589 | 77.7 | 590 | 77.5 |
| 450.soplex | 4 | **1331** | **25.1** | 1331 | 25.1 | 1332 | 25.1 | 4 | 1228 | 27.2 | 1228 | 27.2 | **1228** | **27.2** |
| 453.povray | 4 | **311** | **68.3** | 312 | 68.3 | 311 | 68.5 | 4 | 263 | 80.9 | 264 | 80.6 | **263** | **80.9** |
| 454.calculix | 4 | **743** | **44.4** | 747 | 44.2 | 743 | 44.4 | 4 | 524 | 62.9 | **526** | **62.8** | 526 | 62.7 |
| 459.GemsFDTD | 4 | **2268** | **18.7** | 2273 | 18.7 | 2268 | 18.7 | 4 | **2260** | **18.8** | 2255 | 18.8 | 2262 | 18.8 |
| 465.tonto | 4 | 870 | 45.2 | 858 | 45.9 | **862** | **45.7** | 4 | 838 | 47.0 | **838** | **47.0** | 831 | 47.4 |
| 470.lbm | 4 | 3103 | 17.7 | 3104 | 17.7 | **3104** | **17.7** | 2 | 1273 | 21.6 | 1274 | 21.6 | **1274** | **21.6** |
| 481.wrf | 4 | 1239 | 36.1 | **1239** | **36.1** | 1237 | 36.1 | 4 | **1239** | **36.1** | 1240 | 36.0 | 1238 | 36.1 |
| 482.sphinx3 | 4 | 2095 | 37.2 | **2089** | **37.3** | 2087 | 37.4 | 4 | **1987** | **39.2** | 1990 | 39.2 | 1984 | 39.3 |

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Operating System Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run

## General Notes

This result has been produced with binaries provided and compiled by Intel.

All binaries were built with 64-bit Intel compiler except:
437.leslie3d, 450.soplex, 470.lbm and 482.sphinx3 in peak were built with
32-bit Intel compiler by changing the path for include and library files.

BIOS configuration:
Hardware Prefetch = Disable, Adjacent Sector Prefetch = Enable

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## General Notes (Continued)

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For information about Fujitsu Siemens Computers please see:
http://www.fujitsu-siemens.com
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## 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:
-fast

C++ benchmarks:
-fast

Continued on next page

## Base Optimization Flags (Continued)

Fortran benchmarks:
-fast

Benchmarks using both Fortran and C:
-fast

## Peak Compiler Invocation

C benchmarks (except as noted below):
/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/bin/icc
-L/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/lib
-I/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/include

433.milc: icc

C++ benchmarks (except as noted below):
icpc

450.soplex: /home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/bin/icpc
-L/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/lib
-I/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/include

Fortran benchmarks (except as noted below):
ifort

437.leslie3d: /home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/bin/ifort
-L/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/lib
-I/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/include

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
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

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## Peak Portability Flags (Continued)

465.tonto: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX

## Peak Optimization Flags

C benchmarks:

433.milc: -prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias -auto-ilp32

470.lbm: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -scalar-rep- -prefetch -opt-malloc-options=3

482.sphinx3: -fast -unroll2

C++ benchmarks:

444.namd: -prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias -auto-ilp32

447.dealII: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -ansi-alias -scalar-rep-

450.soplex: -prof-gen(pass 1) -prof-use(pass 2) -fast -opt-malloc-options=3

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: -fast -prefetch

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0 -ansi-alias -scalar-rep-

434.zeusmp: -prof-gen(pass 1) -prof-use(pass 2) -fast

437.leslie3d: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch -opt-malloc-options=3

459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0 -prefetch

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4 -auto

Benchmarks using both Fortran and C:

Continued on next page

## Peak Optimization Flags (Continued)

435.gromacs: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -prefetch -auto-ilp32`

436.cactusADM: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -unroll2 -prefetch -parallel -auto-ilp32`

454.calculix: `-fast -unroll-aggressive -auto-ilp32`

481.wrf: `-fast -auto-ilp32`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/Intel-ic10.1-FP-intel64-linux-flags.20090714.05.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/Intel-ic10.1-FP-intel64-linux-flags.20090714.05.xml`


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