# SPEC® CFP2006 Result

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## Fujitsu Siemens Computers

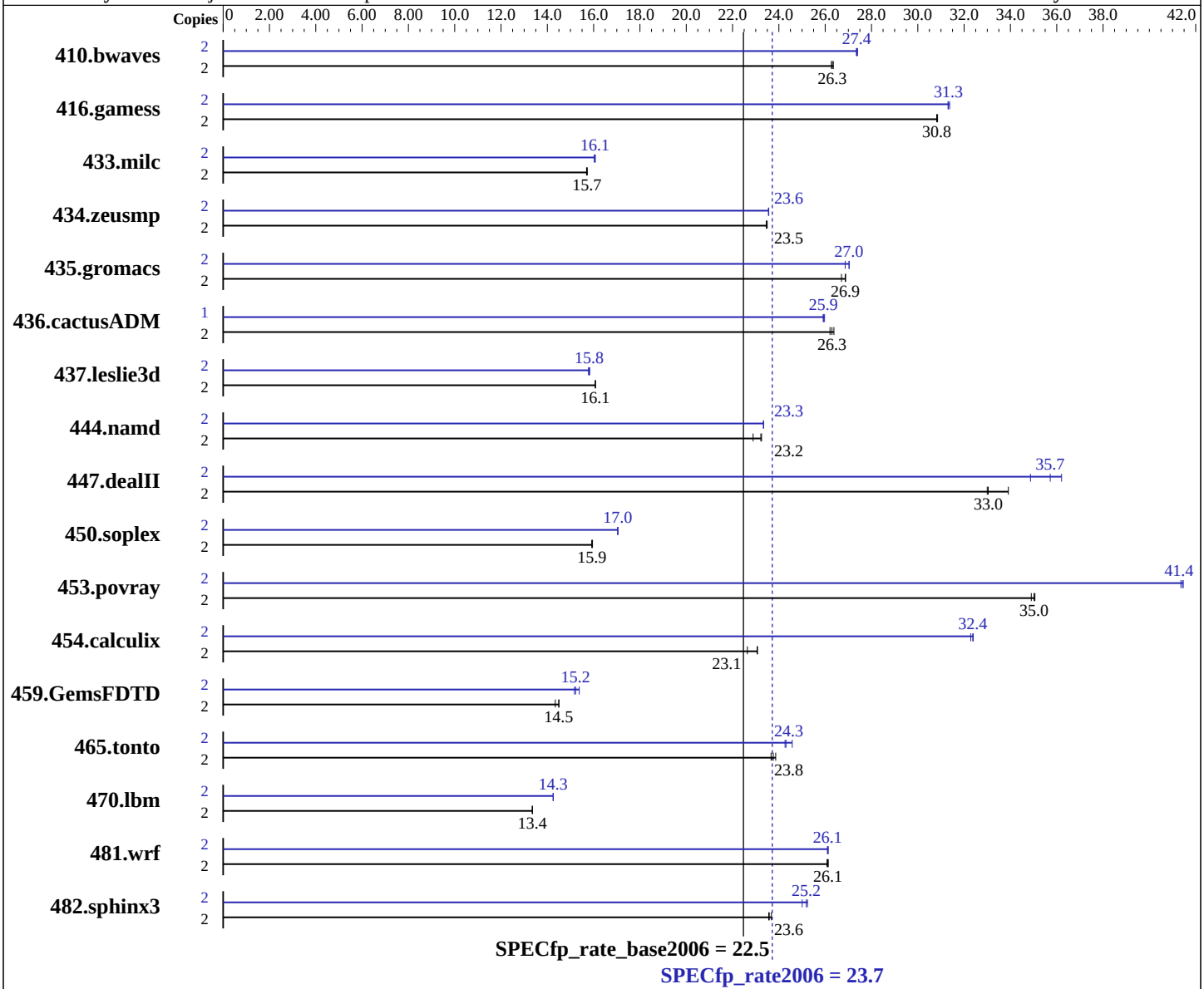
PRIMERGY RX100 S5, Intel Core 2 Duo E4500, 2.20 GHz

SPECfp®_rate2006 = 23.7

SPECfp_rate_base2006 = 22.5

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

**Test date:** Jan-2008
**Hardware Availability:** Jan-2008
**Software Availability:** Nov-2007




### Hardware

| | |
|---|---|
| CPU Name: | Intel Core 2 Duo E4500 |
| CPU Characteristics: | 800 MHz system bus |
| CPU MHz: | 2200 |
| FPU: | Integrated |
| CPU(s) enabled: | 2 cores, 1 chip, 2 cores/chip |
| CPU(s) orderable: | 1 chip |
| Primary Cache: | 32 KB I + 32 KB D on chip per core |
| Secondary Cache: | 2 MB I+D on chip per chip |

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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: 8 GB (4x2 GB PC2-6400E, 2 rank, CAS 6-6-6, with ECC)
Disk Subsystem: Western Digital WD5000AAKS (SATA, 500GB, 7200rpm)
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 | 2 | **1033** | **26.3** | 1031 | 26.4 | 1035 | 26.3 | 2 | 994 | 27.3 | 992 | 27.4 | **993** | **27.4** |
| 416.gamess | 2 | 1271 | 30.8 | 1269 | 30.9 | **1270** | **30.8** | 2 | 1248 | 31.4 | **1250** | **31.3** | 1251 | 31.3 |
| 433.milc | 2 | **1169** | **15.7** | 1170 | 15.7 | 1168 | 15.7 | 2 | 1146 | 16.0 | 1143 | 16.1 | **1143** | **16.1** |
| 434.zeusmp | 2 | **776** | **23.5** | 775 | 23.5 | 776 | 23.5 | 2 | 773 | 23.6 | 772 | 23.6 | **773** | **23.6** |
| 435.gromacs | 2 | **532** | **26.9** | 531 | 26.9 | 535 | 26.7 | 2 | **528** | **27.0** | 528 | 27.0 | 532 | 26.9 |
| 436.cactusADM | 2 | 912 | 26.2 | **909** | **26.3** | 906 | 26.4 | 1 | 460 | 26.0 | 461 | 25.9 | **461** | **25.9** |
| 437.leslie3d | 2 | 1170 | 16.1 | **1170** | **16.1** | 1170 | 16.1 | 2 | **1189** | **15.8** | 1192 | 15.8 | 1188 | 15.8 |
| 444.namd | 2 | **691** | **23.2** | 701 | 22.9 | 690 | 23.3 | 2 | 687 | 23.3 | **687** | **23.3** | 687 | 23.3 |
| 447.dealII | 2 | 675 | 33.9 | **692** | **33.0** | 693 | 33.0 | 2 | 632 | 36.2 | **641** | **35.7** | 656 | 34.9 |
| 450.soplex | 2 | 1048 | 15.9 | **1047** | **15.9** | 1046 | 16.0 | 2 | **979** | **17.0** | 979 | 17.0 | 978 | 17.0 |
| 453.povray | 2 | 305 | 34.9 | **304** | **35.0** | 303 | 35.1 | 2 | 257 | 41.5 | 257 | 41.4 | **257** | **41.4** |
| 454.calculix | 2 | 729 | 22.6 | 715 | 23.1 | **716** | **23.1** | 2 | 509 | 32.4 | 511 | 32.3 | **510** | **32.4** |
| 459.GemsFDTD | 2 | 1479 | 14.3 | **1464** | **14.5** | 1463 | 14.5 | 2 | 1399 | 15.2 | **1394** | **15.2** | 1380 | 15.4 |
| 465.tonto | 2 | 825 | 23.9 | **828** | **23.8** | 832 | 23.7 | 2 | 801 | 24.6 | 811 | 24.3 | **810** | **24.3** |
| 470.lbm | 2 | 2058 | 13.4 | 2058 | 13.4 | **2058** | **13.4** | 2 | 1928 | 14.3 | 1928 | 14.3 | **1928** | **14.3** |
| 481.wrf | 2 | **856** | **26.1** | 855 | 26.1 | 857 | 26.1 | 2 | 855 | 26.1 | **856** | **26.1** | 856 | 26.1 |
| 482.sphinx3 | 2 | 1654 | 23.6 | 1646 | 23.7 | **1653** | **23.6** | 2 | 1559 | 25.0 | 1544 | 25.2 | **1548** | **25.2** |

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
'OMP_NUM_THREADS' set to number of cores (default)
```

## 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:
```

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## General Notes (Continued)

```
Hardware Prefetch = Enable, Adjacent Sector Prefetch = Disable

For information about Fujitsu Siemens Computers please see:
http://www.fujitsu-siemens.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:
`-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.20090714.01.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.20090714.01.xml`


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