



# SPEC<sup>®</sup> CFP2006 Result

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## Fujitsu Siemens Computers

**SPECfp<sup>®</sup>2006 = 23.7**

### CELSIUS R650, Intel Xeon X5460 processor

**SPECfp\_base2006 = 20.1**

CPU2006 license: 22

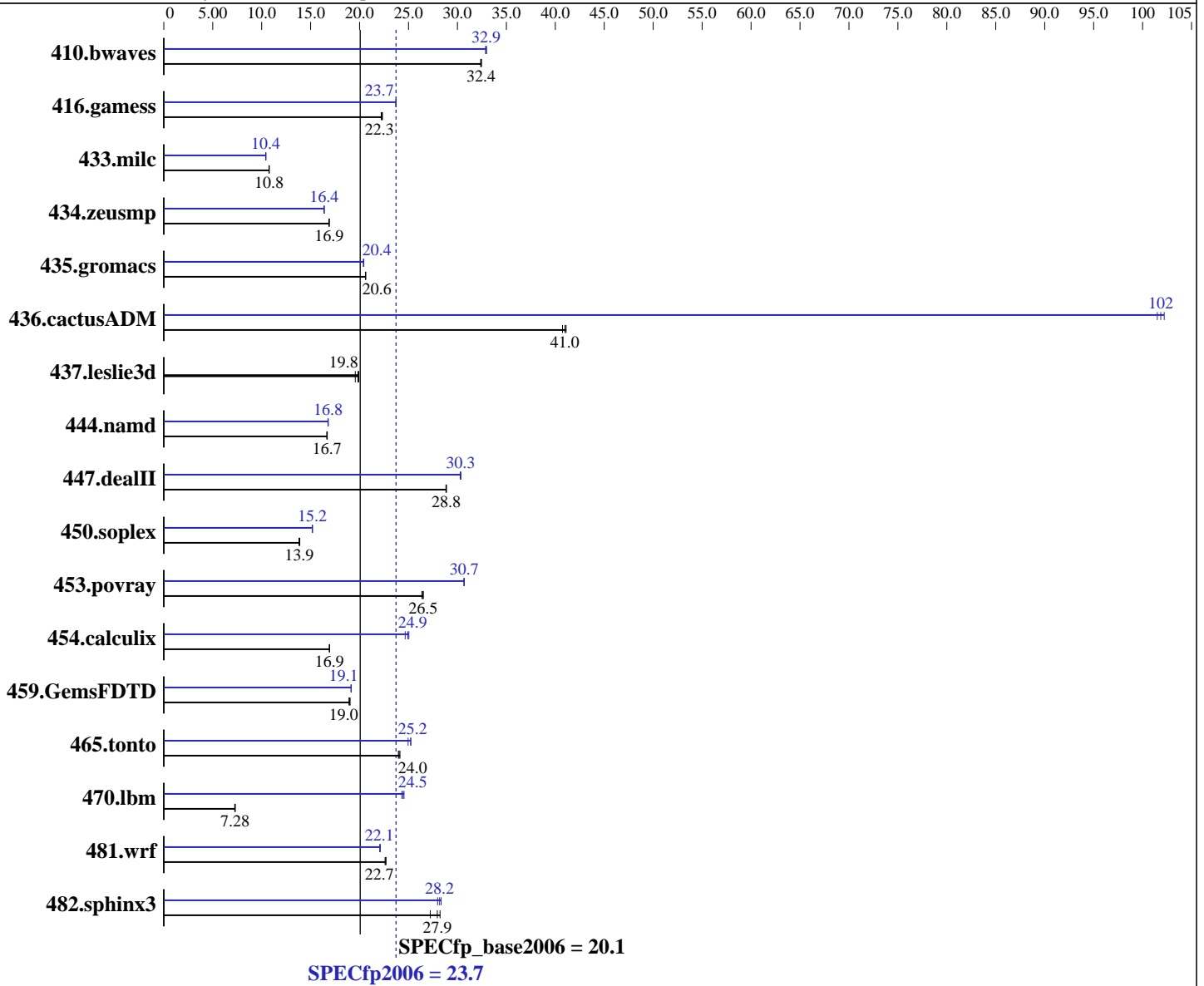
Test sponsor: Fujitsu Siemens Computers

Tested by: Fujitsu Siemens Computers

Test date: Nov-2007

Hardware Availability: Nov-2007

Software Availability: Nov-2007



### Hardware

CPU Name: Intel Xeon X5460  
 CPU Characteristics:  
 CPU MHz: 3166  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip  
 CPU(s) orderable: 1,2 chips  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 12 MB I+D on chip per chip, 6 MB shared / 2 cores

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### Software

Operating System: SuSE Linux Enterprise Server 10 (x86\_64)  
 kernel 2.6.16.21-0.8-smp  
 Compiler: Intel C++ and Fortran Compiler for Linux32 and Linux64 version 10.1  
 Build 20070824  
 Auto Parallel: Yes  
 File System: ext3  
 System State: Multi-User, Run Level 3  
 Base Pointers: 64-bit

Continued on next page



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## Hardware (Continued)

L3 Cache: None  
Other Cache: None  
Memory: 8 GB (8x1 GB PC2-5300F, 2 rank, CL5-5-5, ECC)  
Disk Subsystem: SATA II 7200 rpm  
Other Hardware: None

## Software (Continued)

Peak Pointers: 32/64-bit  
Other Software: binutils-2.17.tar.gz, Version 2.17

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	<b>419</b>	<b>32.4</b>	420	32.4	419	32.5	412	33.0	<b>413</b>	<b>32.9</b>	413	32.9
416.gamess	881	22.2	877	22.3	<b>877</b>	<b>22.3</b>	825	23.7	826	23.7	<b>825</b>	<b>23.7</b>
433.milc	<b>854</b>	<b>10.8</b>	852	10.8	854	10.8	880	10.4	882	10.4	<b>881</b>	<b>10.4</b>
434.zeusmp	<b>539</b>	<b>16.9</b>	538	16.9	540	16.9	555	16.4	555	16.4	<b>555</b>	<b>16.4</b>
435.gromacs	347	20.6	346	20.6	<b>346</b>	<b>20.6</b>	<b>350</b>	<b>20.4</b>	350	20.4	349	20.4
436.cactusADM	<b>292</b>	<b>41.0</b>	291	41.1	293	40.7	117	102	118	102	<b>117</b>	<b>102</b>
437.leslie3d	<b>474</b>	<b>19.8</b>	472	19.9	481	19.6	<b>474</b>	<b>19.8</b>	472	19.9	481	19.6
444.namd	480	16.7	481	16.7	<b>481</b>	<b>16.7</b>	478	16.8	477	16.8	<b>478</b>	<b>16.8</b>
447.dealII	396	28.9	397	28.8	<b>397</b>	<b>28.8</b>	378	30.3	<b>377</b>	<b>30.3</b>	377	30.4
450.soplex	600	13.9	604	13.8	<b>602</b>	<b>13.9</b>	549	15.2	<b>550</b>	<b>15.2</b>	550	15.2
453.povray	<b>201</b>	<b>26.5</b>	202	26.4	201	26.5	<b>173</b>	<b>30.7</b>	174	30.7	173	30.7
454.calculix	487	16.9	488	16.9	<b>487</b>	<b>16.9</b>	329	25.0	335	24.7	<b>331</b>	<b>24.9</b>
459.GemsFDTD	558	19.0	<b>558</b>	<b>19.0</b>	561	18.9	<b>554</b>	<b>19.1</b>	554	19.2	555	19.1
465.tonto	408	24.1	<b>409</b>	<b>24.0</b>	411	24.0	394	25.0	390	25.2	<b>390</b>	<b>25.2</b>
470.lbm	<b>1887</b>	<b>7.28</b>	1883	7.30	1896	7.25	560	24.5	565	24.3	<b>562</b>	<b>24.5</b>
481.wrf	494	22.6	<b>493</b>	<b>22.7</b>	492	22.7	<b>505</b>	<b>22.1</b>	505	22.1	506	22.1
482.sphinx3	716	27.2	691	28.2	<b>697</b>	<b>27.9</b>	688	28.3	<b>692</b>	<b>28.2</b>	697	28.0

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

## Platform Notes

BIOS configuration:  
Enhanced Speedstep Technology = Disable  
Hardware Prefetch = Enable, Adjacent Sector Prefetch = Enable  
SnoopFilter = Disable



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## General Notes

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

All binaries were built with 64-bit Intel compiler except:  
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.

For information about Fujitsu Siemens Computers in your country please see:  
<http://www.fujitsu-siemens.com/countries>

## 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.deallI: -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

```



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## Base Optimization Flags

C benchmarks:  
-fast -parallel

C++ benchmarks:  
-fast -parallel

Fortran benchmarks:  
-fast -parallel

Benchmarks using both Fortran and C:  
-fast -parallel

## Peak Compiler Invocation

C benchmarks (except as noted below):

```
/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070824/Linux32/bin/icc
-L/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070824/Linux32/lib
-I/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070824/Linux32/include
```

433.milc: icc

C++ benchmarks (except as noted below):

icpc

```
450.soplex: /home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070824/Linux32/bin/icpc
-L/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070824/Linux32/lib
-I/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070824/Linux32/include
```

Fortran benchmarks:

ifort

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
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64
```

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## Peak Portability Flags (Continued)

453.povray: -DSPEC\_CPU\_LP64  
 454.calculix: -DSPEC\_CPU\_LP64 -nofor\_main  
 459.GemsFDTD: -DSPEC\_CPU\_LP64  
 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 -parallel

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: basepeak = yes

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

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

Continued on next page



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## Peak Optimization Flags (Continued)

Benchmarks using both Fortran and C:

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 -parallel -prefetch -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-file-20070816.xml.20071009.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-file-20070816.xml.20071009.xml>

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