SPEC® CFP2006 Result
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Fujitsu Siemens Computers

CELSIUS R550, Intel Xeon X5450 processor

$SPECfp®2006 =$ 23.0

$SPECfp\_base2006 =$ 19.4
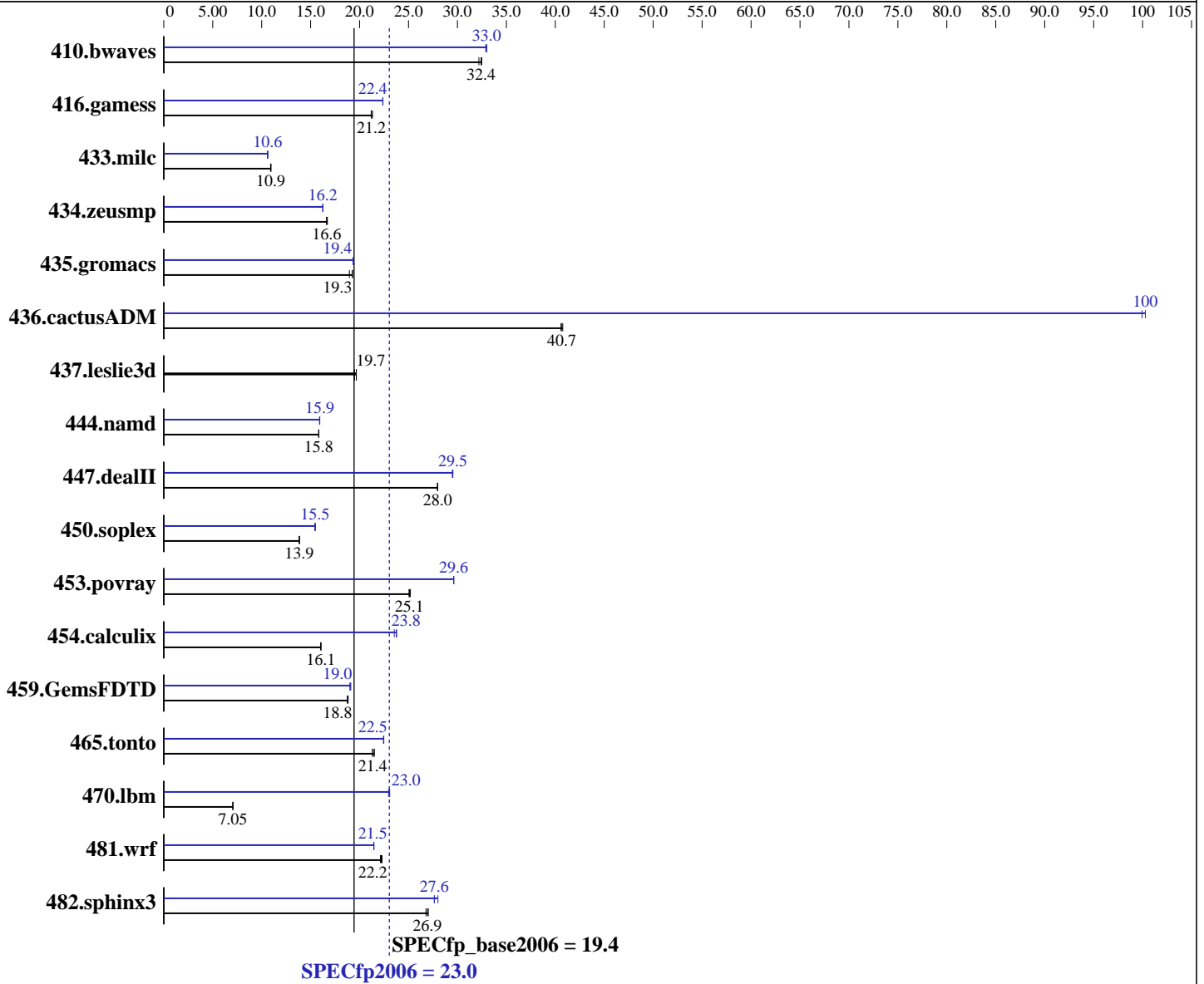
CPU2006 license: 22
Test sponsor: Fujitsu Siemens Computers
Tested by: Fujitsu Siemens Computers

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

Benchmark	Peak	Base
410.bwaves	33.0	32.4
416.gamess	22.4	21.2
433.milc	10.6	10.9
434.zeusmp	16.2	16.6
435.gromacs	19.4	19.3
436.cactusADM	100	40.7
437.leslie3d		19.7
444.namd	15.9	15.8
447.dealII	29.5	28.0
450.soplex	15.5	13.9
453.povray	29.6	25.1
454.calculix	23.8	16.1
459.GemsFDTD	19.0	18.8
465.tonto	22.5	21.4
470.lbm	23.0	7.05
481.wrf	21.5	22.2
482.sphinx3	27.6	26.9

SPECfp_base2006 = 19.4
SPECfp2006 = 23.0

Hardware

CPU Name:	Intel Xeon X5450
CPU Characteristics:	
CPU MHz:	3000
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

Continued on next page

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 20070913
Auto Parallel:	Yes
File System:	ext3
System State:	Multi-User Run Level 3
Base Pointers:	64-bit
Peak Pointers:	32/64-bit

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L3 Cache: None
Other Cache: None
Memory: 8 GB (4x2 GB PC2-5300F, 2 rank, CL5-5-5, ECC)
Disk Subsystem: 1 x 400 GB SATA II 7200 RPM
Other Hardware: None

Other Software: binutils-2.17.50.0.5-0.1.x86_64

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	422	32.2	418	32.5	**419**	**32.4**	**412**	**33.0**	413	32.9	412	33.0
416.gamess	918	21.3	**923**	**21.2**	924	21.2	875	22.4	**875**	**22.4**	874	22.4
433.milc	**841**	**10.9**	841	10.9	838	11.0	864	10.6	**865**	**10.6**	866	10.6
434.zeusmp	547	16.6	**547**	**16.6**	544	16.7	559	16.3	560	16.2	**560**	**16.2**
435.gromacs	377	19.0	**371**	**19.3**	371	19.3	369	19.3	368	19.4	**369**	**19.4**
436.cactusADM	**294**	**40.7**	293	40.8	294	40.6	**119**	**100**	120	99.9	119	100
437.leslie3d	**478**	**19.7**	478	19.7	482	19.5	**478**	**19.7**	478	19.7	482	19.5
444.namd	506	15.8	507	15.8	**507**	**15.8**	**503**	**15.9**	503	15.9	504	15.9
447.dealII	409	28.0	**409**	**28.0**	409	28.0	**387**	**29.5**	387	29.5	388	29.5
450.soplex	603	13.8	**602**	**13.9**	602	13.9	**539**	**15.5**	539	15.5	540	15.4
453.povray	212	25.1	**212**	**25.1**	211	25.2	180	29.6	**180**	**29.6**	180	29.6
454.calculix	**514**	**16.1**	515	16.0	514	16.1	347	23.8	350	23.5	**347**	**23.8**
459.GemsFDTD	563	18.8	**565**	**18.8**	566	18.8	558	19.0	**557**	**19.0**	555	19.1
465.tonto	457	21.5	462	21.3	**459**	**21.4**	438	22.5	438	22.5	**438**	**22.5**
470.lbm	1943	7.07	1949	7.05	**1948**	**7.05**	**596**	**23.0**	595	23.1	598	23.0
481.wrf	**503**	**22.2**	505	22.1	501	22.3	520	21.5	**520**	**21.5**	521	21.5
482.sphinx3	721	27.0	**723**	**26.9**	728	26.8	696	28.0	**705**	**27.6**	705	27.6

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).

Platform Notes

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

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General Notes

```
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 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
```

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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):
```
/opt/intel/cc/10.1.008/bin/icc -L/opt/intel/cc/10.1.008/lib
-I/opt/intel/cc/10.1.008/include
```

433.milc: `icc`

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

450.soplex: `/opt/intel/cc/10.1.008/bin/icpc -L/opt/intel/cc/10.1.008/lib`
`-I/opt/intel/cc/10.1.008/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`
453.povray: `-DSPEC_CPU_LP64`
454.calculix: `-DSPEC_CPU_LP64 -nofor_main`

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Peak Portability Flags (Continued)

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`

Benchmarks using both Fortran and C:

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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 -parallel -prefetch -auto-ilp32`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/flags-ic101-linux-intel64.20090714.00.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/flags-ic101-linux-intel64.20090714.00.xml`

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