SPEC® CFP2006 Result

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Fujitsu Siemens Computers

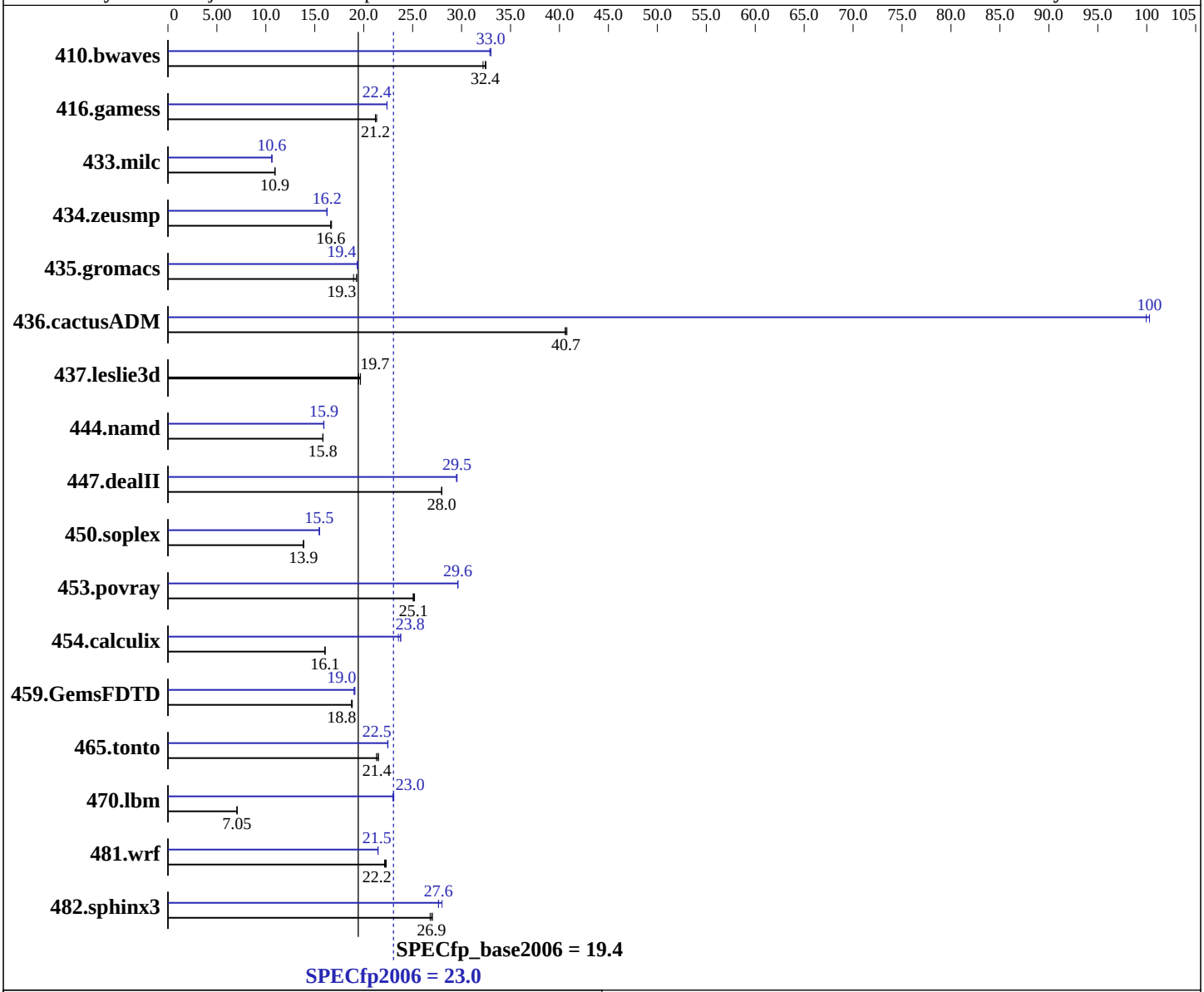
CELSIUS R550, Intel Xeon X5450 processor

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



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

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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 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
```

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`

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:

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 -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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