SPEC® CFP2006 Result

Fujitsu Siemens Computers

CELSIUS R650, Intel Xeon X5460 processor

$SPECfp^{®}2006 =$ 23.7

$SPECfp\_base2006 =$ 20.1
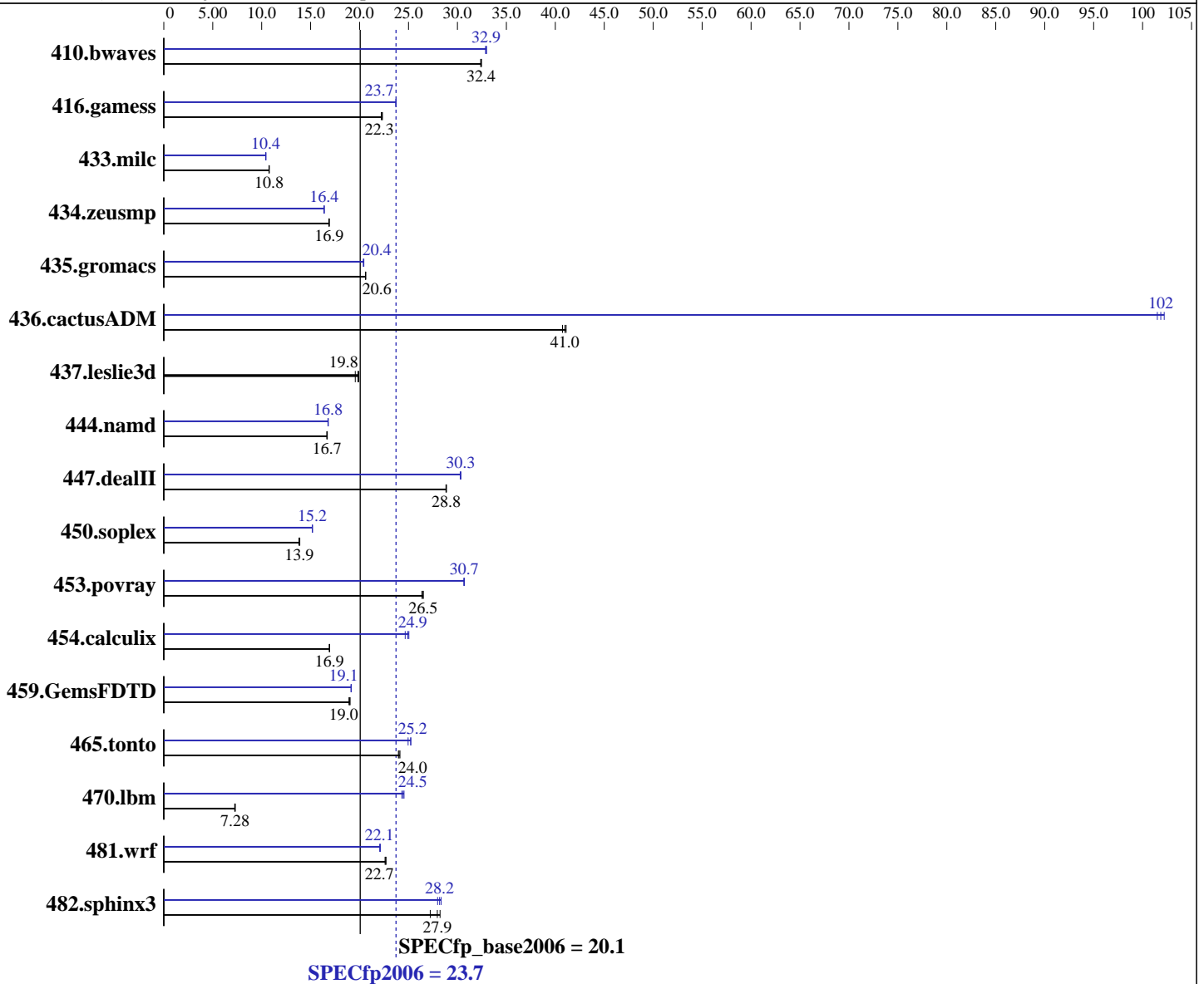
CPU2006 license: 22
Test sponsor: Fujitsu Siemens Computers
Tested by: Fujitsu Siemens Computers

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

Benchmark	Peak	Base
410.bwaves	32.9	32.4
416.gamess	23.7	22.3
433.milc	10.4	10.8
434.zeusmp	16.4	16.9
435.gromacs	20.4	20.6
436.cactusADM	102	41.0
437.leslie3d		19.8
444.namd	16.8	16.7
447.dealII	30.3	28.8
450.soplex	15.2	13.9
453.povray	30.7	26.5
454.calculix	24.9	16.9
459.GemsFDTD	19.1	19.0
465.tonto	25.2	24.0
470.lbm	24.5	7.28
481.wrf	22.1	22.7
482.sphinx3	28.2	27.9

SPECfp_base2006 = 20.1
SPECfp2006 = 23.7

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

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

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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

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

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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.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):
```
/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
```

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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.20090714.13.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.20090714.13.xml`

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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