SPEC® CFP2006 Result

Fujitsu

CELSIUS R570, Intel Xeon E5530

$SPECfp^{®}2006 =$ 33.0

$SPECfp\_base2006 =$ 31.1

CPU2006 license: 19
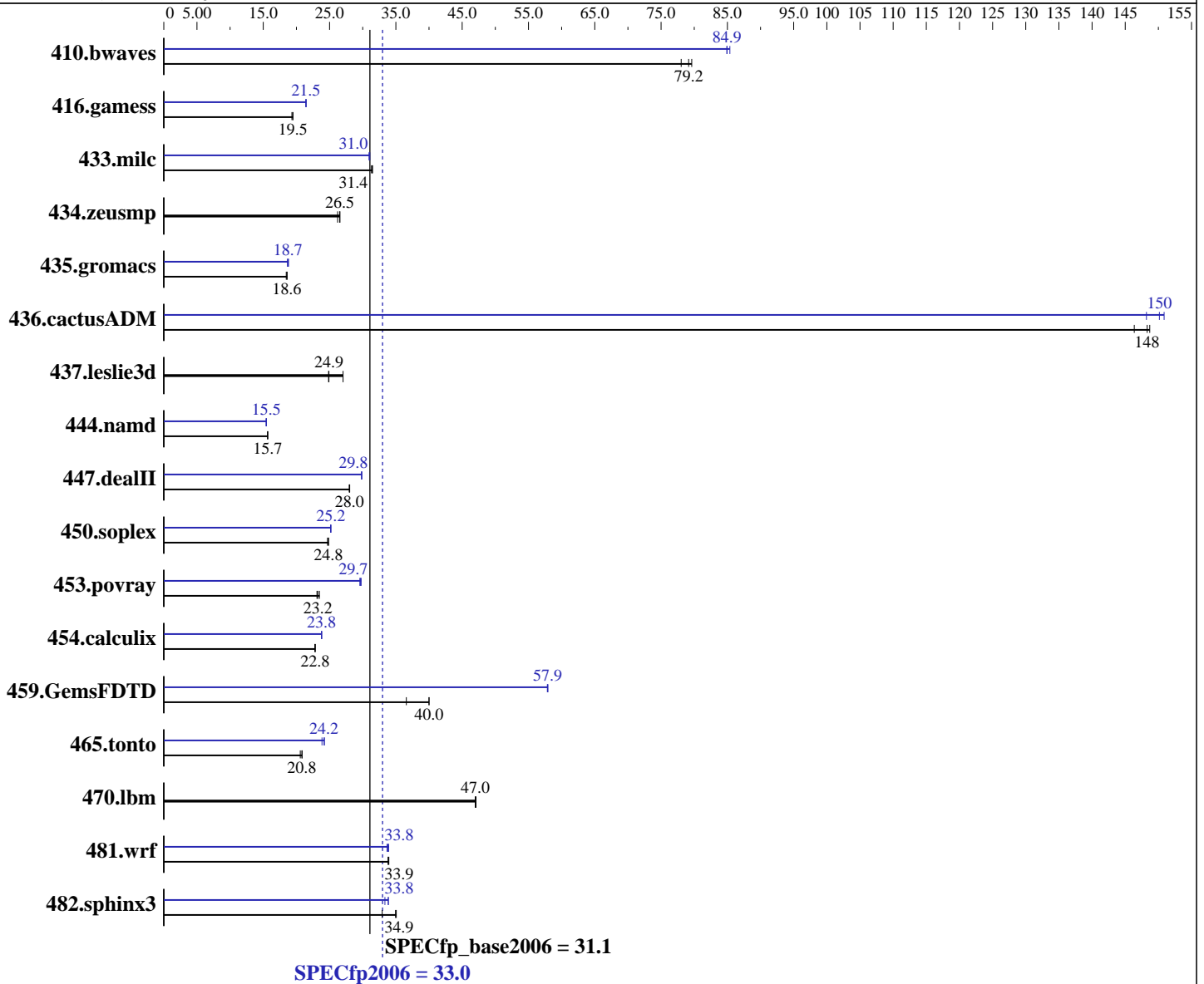**Test sponsor:** Fujitsu
Tested by: Fujitsu

Test date: Oct-2009
Hardware Availability: Apr-2009
Software Availability: Feb-2009

Benchmark	Result (blue)	Result (black base)
410.bwaves	84.9	79.2
416.gamess	21.5	19.5
433.milc	31.0	31.4
434.zeusmp		26.5
435.gromacs	18.7	18.6
436.cactusADM	150	148
437.leslie3d		24.9
444.namd	15.5	15.7
447.dealII	29.8	28.0
450.soplex	25.2	24.8
453.povray	29.7	23.2
454.calculix	23.8	22.8
459.GemsFDTD	57.9	40.0
465.tonto	24.2	20.8
470.lbm		47.0
481.wrf	33.8	33.9
482.sphinx3	33.8	34.9

SPECfp_base2006 = 31.1

SPECfp2006 = 33.0

Hardware

CPU Name:	Intel Xeon E5530
CPU Characteristics:	Intel Turbo Boost Technology up to 2.67 GHz
CPU MHz:	2400
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:	256 KB I+D on chip per core

Continued on next page

Software

Operating System:	SuSe Linux Enterprise Server 10 (x86_64) SP2, kernel 2.6.16.60-0.21-smp
Compiler:	Intel C++ and Fortran Compiler 11.0 for Linux Build 20090131 Package ID: l_cproc_p_11.0.080, l_cprof_p_11.0.080
Auto Parallel:	Yes
File System:	ext3
System State:	Multi-User Run Level 3
Base Pointers:	64-bit

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L3 Cache:	8 MB I+D on chip per chip
Other Cache:	None
Memory:	24 GB (6x4 GB PC3 10600R, 2 rank, ECC, running at 1066 MHz)
Disk Subsystem:	1 x SATA II, 400 GB, 7200 rpm
Other Hardware:	None

Peak Pointers:	32/64-bit
Other Software:	Binutils 2.18.50.0.7.20080502

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	174	78.0	171	79.6	**172**	**79.2**	159	85.4	**160**	**84.9**	160	84.9
416.gamess	1014	19.3	1005	19.5	**1006**	**19.5**	914	21.4	**912**	**21.5**	912	21.5
433.milc	292	31.5	293	31.3	**292**	**31.4**	295	31.1	**296**	**31.0**	297	31.0
434.zeusmp	347	26.2	343	26.6	**343**	**26.5**	347	26.2	343	26.6	**343**	**26.5**
435.gromacs	384	18.6	387	18.5	**384**	**18.6**	383	18.6	**381**	**18.7**	380	18.8
436.cactusADM	80.4	149	81.6	146	**80.6**	**148**	**79.6**	**150**	80.6	148	79.2	151
437.leslie3d	378	24.8	**377**	**24.9**	348	27.0	378	24.8	**377**	**24.9**	348	27.0
444.namd	512	15.7	**512**	**15.7**	512	15.7	519	15.4	519	15.5	**519**	**15.5**
447.dealII	409	28.0	**408**	**28.0**	408	28.0	383	29.9	**383**	**29.8**	384	29.8
450.soplex	336	24.8	338	24.7	**336**	**24.8**	332	25.2	**331**	**25.2**	331	25.2
453.povray	**229**	**23.2**	227	23.5	230	23.1	179	29.8	180	29.6	**179**	**29.7**
454.calculix	**362**	**22.8**	362	22.8	361	22.8	**347**	**23.8**	347	23.8	347	23.8
459.GemsFDTD	**265**	**40.0**	265	40.0	290	36.6	183	57.9	183	57.8	**183**	**57.9**
465.tonto	472	20.9	478	20.6	**473**	**20.8**	**407**	**24.2**	406	24.2	412	23.9
470.lbm	292	47.1	**292**	**47.0**	292	47.0	292	47.1	**292**	**47.0**	292	47.0
481.wrf	**330**	**33.9**	330	33.8	329	33.9	332	33.7	329	33.9	**330**	**33.8**
482.sphinx3	**558**	**34.9**	592	32.9	556	35.1	584	33.4	576	33.9	**576**	**33.8**

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:
Hyper-Threading Technology set to Disabled.

General Notes

OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to granularity=fine,scatter
KMP_STACKSIZE set to 200M

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General Notes (Continued)

For information about Fujitsu please visit:
http://www.fujitsu.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:
    -xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

C++ benchmarks:
    -xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

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CELSIUS R570, Intel Xeon E5530

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$SPECfp_base2006 = $ 31.1

Base Optimization Flags (Continued)

Fortran benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
```

Benchmarks using both Fortran and C:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
```

Peak Compiler Invocation

C benchmarks (except as noted below):
```
icc
```

    482.sphinx3: `icc -m32`

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

    450.soplex: `icpc -m32`

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`
  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`

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Peak Optimization Flags

C benchmarks:

> 433.milc: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
> -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
> -fno-alias

> 470.lbm: basepeak = yes

> 482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -static -unroll2

C++ benchmarks:

> 444.namd: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
> -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
> -fno-alias -auto-ilp32

> 447.dealII: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
> -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
> -unroll2 -ansi-alias -scalar-rep- -opt-prefetch

> 450.soplex: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
> -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
> -opt-malloc-options=3

> 453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
> -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
> -unroll4 -ansi-alias

Fortran benchmarks:

> 410.bwaves: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch
> -parallel

> 416.gamess: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
> -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
> -unroll2 -Ob0 -ansi-alias -scalar-rep-

> 434.zeusmp: basepeak = yes

> 437.leslie3d: basepeak = yes

> 459.GemsFDTD: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
> -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
> -unroll2 -Ob0 -opt-prefetch -parallel

> 465.tonto: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
> -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
> -unroll4 -auto

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CPU2006 license: 19	**Test date:** Oct-2009
Test sponsor: Fujitsu	**Hardware Availability:** Apr-2009
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Peak Optimization Flags (Continued)

Benchmarks using both Fortran and C:

```
   435.gromacs: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
                -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
                -opt-prefetch -auto-ilp32

 436.cactusADM: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
                -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
                -unroll2 -opt-prefetch -parallel -auto-ilp32

   454.calculix: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32

       481.wrf: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch
                -parallel -auto-ilp32
```

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090710.17.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090710.17.xml

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

Tested with SPEC CPU2006 v1.1.
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