SPEC® CFP2006 Result

Fujitsu

CELSIUS M470, Intel Xeon W3565

$SPECfp^{®}2006 =$ 38.4

SPECfp_base2006 =   37.2

CPU2006 license: 19	**Test date:** Nov-2009
Test sponsor: Fujitsu	**Hardware Availability:** Nov-2009
Tested by: Fujitsu	**Software Availability:** Feb-2009

Benchmark results:

- **410.bwaves** — 78.4 / 78.4
- **416.gamess** — 28.3 / 26.8
- **433.milc** — 36.7 / 37.1
- **434.zeusmp** — 35.0
- **435.gromacs** — 24.6 / 24.6
- **436.cactusADM** — 113 / 106
- **437.leslie3d** — 32.3
- **444.namd** — 20.4 / 20.6
- **447.dealII** — 37.5 / 36.2
- **450.soplex** — 30.7 / 29.8
- **453.povray** — 38.9 / 30.4
- **454.calculix** — 30.8 / 30.2
- **459.GemsFDTD** — 40.4 / 39.3
- **465.tonto** — 31.6 / 27.8
- **470.lbm** — 49.7
- **481.wrf** — 44.2 / 44.3
- **482.sphinx3** — 42.7 / 44.2

SPECfp_base2006 = 37.2

SPECfp2006 = 38.4

Hardware

CPU Name:	Intel Xeon W3565
CPU Characteristics:	Intel Turbo Boost Technology up to 3.46 GHz
CPU MHz:	3200
FPU:	Integrated
CPU(s) enabled:	4 cores, 1 chip, 4 cores/chip
CPU(s) orderable:	1 chip
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core

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Software

Operating System:	SuSe Linux Enterprise Server 11 (x86_64), kernel 2.6.27.19-5-default
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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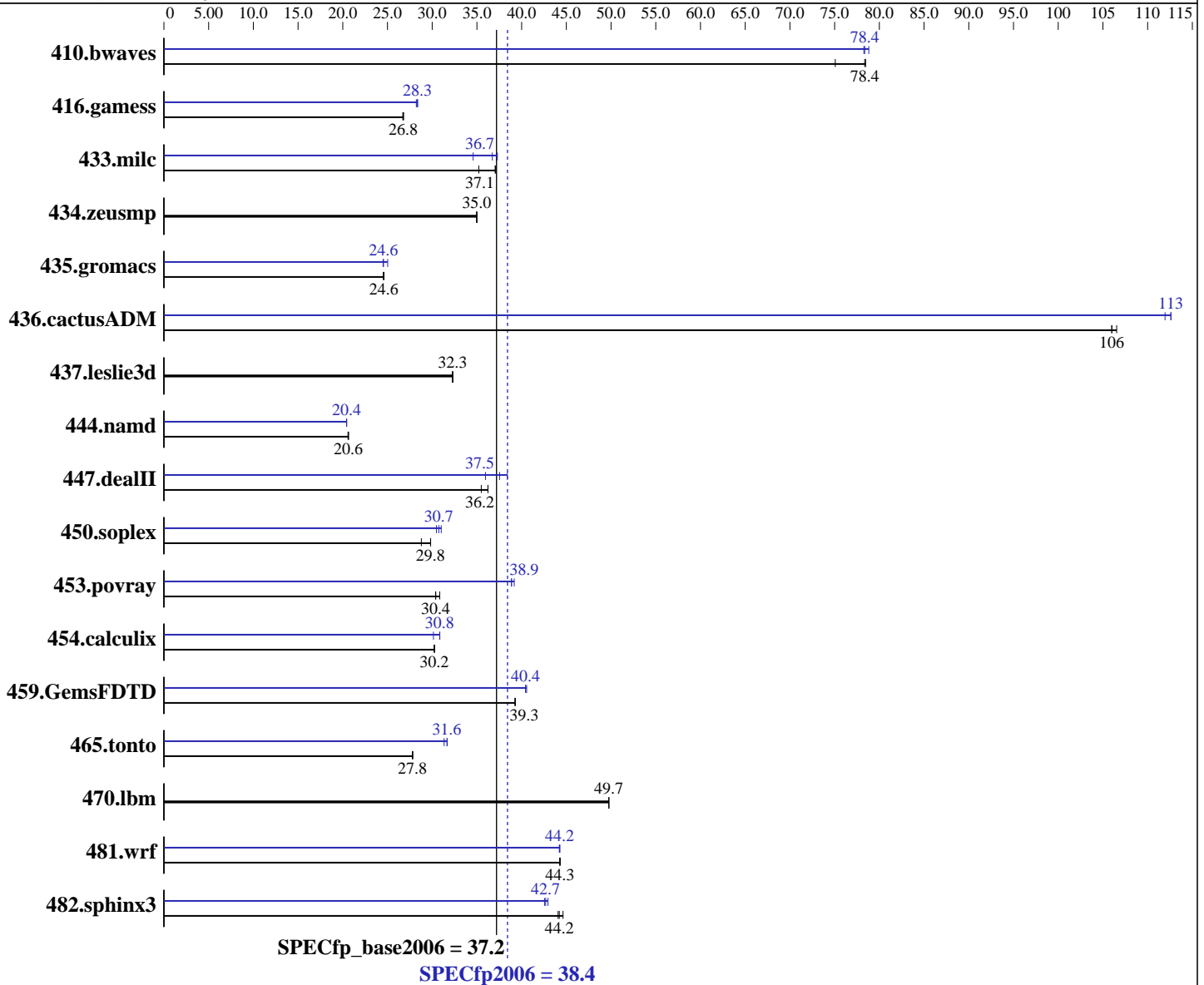**Test sponsor:** Fujitsu
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L3 Cache:	8 MB I+D on chip per chip
Other Cache:	None
Memory:	12 GB (6x2 GB PC3 10600E, 2 rank, CL9, ECC, running at 1066 MHz)
Disk Subsystem:	1 x SATA II, 400 GB, 7200 rpm
Other Hardware:	None
Peak Pointers:	32/64-bit
Other 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	181	75.1	**173**	**78.4**	173	78.5	174	78.3	**173**	**78.4**	172	78.8
416.gamess	**731**	**26.8**	731	26.8	733	26.7	690	28.4	694	28.2	**691**	**28.3**
433.milc	248	37.1	**248**	**37.1**	261	35.2	246	37.3	265	34.6	**250**	**36.7**
434.zeusmp	**260**	**35.0**	260	35.0	260	35.0	**260**	**35.0**	260	35.0	260	35.0
435.gromacs	290	24.6	**290**	**24.6**	291	24.5	285	25.0	291	24.5	**291**	**24.6**
436.cactusADM	113	106	**113**	**106**	112	107	107	112	106	113	**106**	**113**
437.leslie3d	291	32.3	**291**	**32.3**	291	32.2	291	32.3	**291**	**32.3**	291	32.2
444.namd	**389**	**20.6**	389	20.6	390	20.6	393	20.4	392	20.4	**393**	**20.4**
447.dealII	316	36.2	**316**	**36.2**	322	35.5	**305**	**37.5**	318	36.0	298	38.4
450.soplex	280	29.8	290	28.8	**280**	**29.8**	269	31.0	**271**	**30.7**	274	30.5
453.povray	175	30.4	**175**	**30.4**	172	30.8	**137**	**38.9**	137	38.9	136	39.2
454.calculix	273	30.2	273	30.3	**273**	**30.2**	267	30.9	274	30.1	**268**	**30.8**
459.GemsFDTD	**270**	**39.3**	270	39.3	270	39.3	262	40.6	**262**	**40.4**	262	40.4
465.tonto	354	27.8	**354**	**27.8**	354	27.8	311	31.7	**311**	**31.6**	314	31.3
470.lbm	276	49.8	276	49.7	**276**	**49.7**	276	49.8	276	49.7	**276**	**49.7**
481.wrf	**252**	**44.3**	252	44.3	252	44.3	**252**	**44.2**	253	44.2	252	44.3
482.sphinx3	437	44.6	**441**	**44.2**	442	44.1	454	42.9	458	42.6	**457**	**42.7**

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
KMP_AFFINITY set to granularity=fine,scatter
KMP_STACKSIZE set to 200M
```

Platform Notes

```
BIOS configuration:
Hyper-Threading Technology = Disabled
Memory speed set to "Max Performance" (Switch in "Advanced Memory Options")
```

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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
```

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
```

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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
```

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`

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Peak Optimization Flags (Continued)

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
```

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
```

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Peak Optimization Flags (Continued)

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.20090915.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.20090915.xml

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

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