SPEC® CFP2006 Result
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Fujitsu

CELSIUS W380, Intel Xeon X3440

$SPECfp®\_rate2006 =$ 82.9

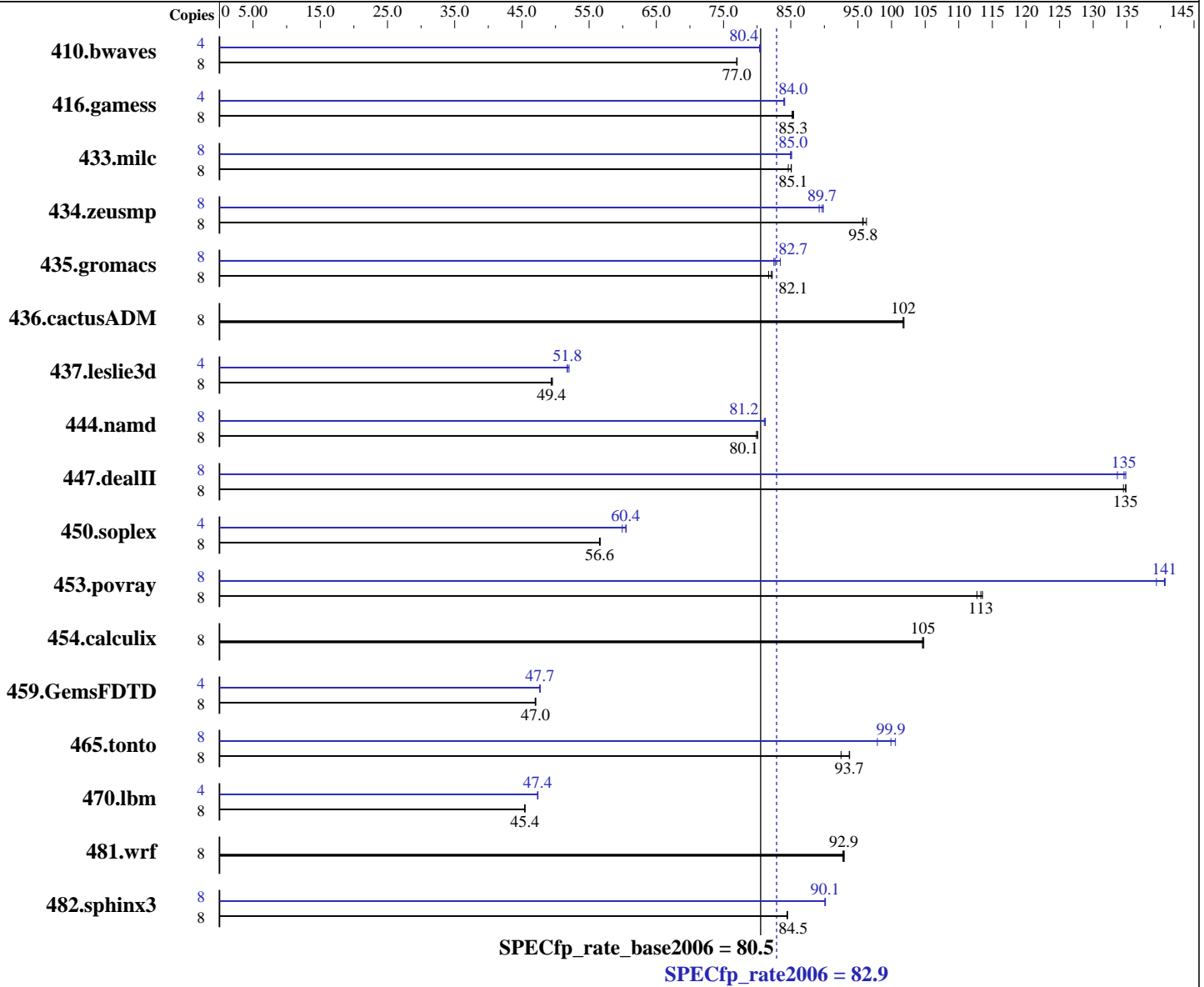$SPECfp\_rate\_base2006 =$ 80.5

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

Test date: Jan-2010
Hardware Availability: Feb-2010
Software Availability: Oct-2009

Benchmark	Copies	Result
410.bwaves	4	80.4
	8	77.0
416.gamess	4	84.0
	8	85.3
433.milc	8	85.0
	8	85.1
434.zeusmp	8	89.7
	8	95.8
435.gromacs	8	82.7
	8	82.1
436.cactusADM	8	102
437.leslie3d	4	51.8
	8	49.4
444.namd	8	81.2
	8	80.1
447.dealII	8	135
	8	135
450.soplex	4	60.4
	8	56.6
453.povray	8	141
	8	113
454.calculix	8	105
459.GemsFDTD	4	47.7
	8	47.0
465.tonto	8	99.9
	8	93.7
470.lbm	4	47.4
	8	45.4
481.wrf	8	92.9
482.sphinx3	8	90.1
	8	84.5

SPECfp_rate_base2006 = 80.5

SPECfp_rate2006 = 82.9

Hardware

CPU Name: Intel Xeon X3440
CPU Characteristics: Intel Turbo Boost Technology up to 2.93 GHz
CPU MHz: 2533
FPU: Integrated
CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip, 2 threads/core
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
Continued on next page

Software

Operating System: SUSE Linux Enterprise Server 11 (x86_64), kernel 2.6.27.19-5-default
Compiler: Intel C++ and Fortran Compiler for IA32 and Intel 64, Version 11.1
Build 20091012 Package ID: l_cproc_p_11.1.059, l_cprof_p_11.1.059
Auto Parallel: No
File System: ext3
System State: Multi-User Run Level 3
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L3 Cache:	8 MB I+D on chip per chip
Other Cache:	None
Memory:	8 GB (2x4 GB PC3-10600U, 2 rank, CL9)
Disk Subsystem:	1 x SATA II, 400 GB, 7200 rpm
Other Hardware:	None

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

Results Table

Benchmark	Base Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Peak Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	1412	77.0	1411	77.0	**1412**	**77.0**	4	676	80.4	**676**	**80.4**	675	80.5
416.gamess	8	1838	85.2	**1836**	**85.3**	1834	85.4	4	**932**	**84.0**	932	84.0	931	84.1
433.milc	8	868	84.6	863	85.1	**863**	**85.1**	8	863	85.1	864	85.0	**864**	**85.0**
434.zeusmp	8	756	96.3	761	95.7	**760**	**95.8**	8	**812**	**89.7**	810	89.9	816	89.2
435.gromacs	8	699	81.7	694	82.3	**696**	**82.1**	8	684	83.5	692	82.5	**691**	**82.7**
436.cactusADM	8	940	102	**940**	**102**	939	102	8	940	102	**940**	**102**	939	102
437.leslie3d	8	1524	49.4	**1521**	**49.4**	1518	49.6	4	**726**	**51.8**	727	51.8	723	52.0
444.namd	8	801	80.1	**801**	**80.1**	803	79.9	8	792	81.1	790	81.2	**790**	**81.2**
447.dealII	8	**679**	**135**	678	135	681	134	8	679	135	685	134	**680**	**135**
450.soplex	8	**1179**	**56.6**	1180	56.5	1178	56.7	4	557	59.9	**552**	**60.4**	551	60.5
453.povray	8	**376**	**113**	375	114	378	113	8	**303**	**141**	305	139	302	141
454.calculix	8	**630**	**105**	631	105	630	105	8	**630**	**105**	631	105	630	105
459.GemsFDTD	8	1804	47.1	1807	47.0	**1804**	**47.0**	4	**890**	**47.7**	890	47.7	890	47.7
465.tonto	8	851	92.5	840	93.8	**840**	**93.7**	8	783	101	804	97.9	**788**	**99.9**
470.lbm	8	2417	45.5	**2420**	**45.4**	2420	45.4	4	1161	47.3	**1160**	**47.4**	1160	47.4
481.wrf	8	**962**	**92.9**	963	92.8	961	93.0	8	**962**	**92.9**	963	92.8	961	93.0
482.sphinx3	8	1845	84.5	**1845**	**84.5**	1846	84.4	8	1731	90.1	**1730**	**90.1**	1729	90.2

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

```
   The config file option 'submit' was used.
    numactl was used to bind copies to the cores
```

Operating System Notes

```
    'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
```

Base Compiler Invocation

```
   C benchmarks:
        icc   -m64
```

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Base Compiler Invocation (Continued)

C++ benchmarks:
```
icpc  -m64
```

Fortran benchmarks:
```
ifort -m64
```

Benchmarks using both Fortran and C:
```
icc   -m64 ifort -m64
```

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
```

C++ benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static
```

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

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

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$SPECfp\_rate2006 =$ 82.9

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Peak Compiler Invocation

C benchmarks (except as noted below):
```
icc    -m64
```

    482.sphinx3: `icc -m32`

C++ benchmarks (except as noted below):
```
icpc    -m64
```

    450.soplex: `icpc -m32`

Fortran benchmarks:
```
ifort -m64
```

Benchmarks using both Fortran and C:
```
icc    -m64 ifort -m64
```

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 -opt-prefetch`

    470.lbm: `-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 -ansi-alias -auto-ilp32`

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Test date: Jan-2010

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Peak Optimization Flags (Continued)

          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-`

           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`

           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: `-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)`

           437.leslie3d: `-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 -opt-prefetch`

           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`

           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 -inline-calloc -opt-malloc-options=3`

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`

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$SPECfp\_rate2006 =$ 82.9

$SPECfp\_rate\_base2006 =$ 80.5

Peak Optimization Flags (Continued)

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: basepeak = yes

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revD.20100119.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revD.20100119.xml

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

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