SPEC® CFP2006 Result

Fujitsu

CELSIUS R570, Intel Xeon E5520

$SPECfp®\_rate2006 =$ 158

$SPECfp\_rate\_base2006 =$ 154

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

Copies 0 10.0 20.0 30.0 40.0 50.0 60.0 70.0 80.0 90.0 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 255

Benchmark	Copies	Result
410.bwaves	8	164
	16	162
416.gamess	8	156
	16	156
433.milc	16	151
	16	152
434.zeusmp	16	168
	16	164
435.gromacs	16	158
	16	153
436.cactusADM	16	169
	16	179
437.leslie3d	8	111
	16	114
444.namd	16	145
	16	142
447.dealII	16	244
	16	226
450.soplex	8	115
	16	113
453.povray	16	250
	16	206
454.calculix	16	181
	16	181
459.GemsFDTD	8	105
	16	102
465.tonto	16	171
	16	164
470.lbm	8	110
	16	102
481.wrf	16	189
482.sphinx3	16	180
	16	173

SPECfp_rate_base2006 = 154

SPECfp_rate2006 = 158

Hardware

CPU Name:	Intel Xeon E5520
CPU Characteristics:	Intel Turbo Boost Technology up to 2.53 GHz
CPU MHz:	2267
FPU:	Integrated
CPU(s) enabled:	8 cores, 2 chips, 4 cores/chip, 2 threads/core
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

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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 Professional for Linux Build 20090131 Package ID: l_cproc_p_11.0.080, l_cprof_p_11.0.080
Auto Parallel:	No
File System:	ext3
System State:	Multi-User Run Level 3

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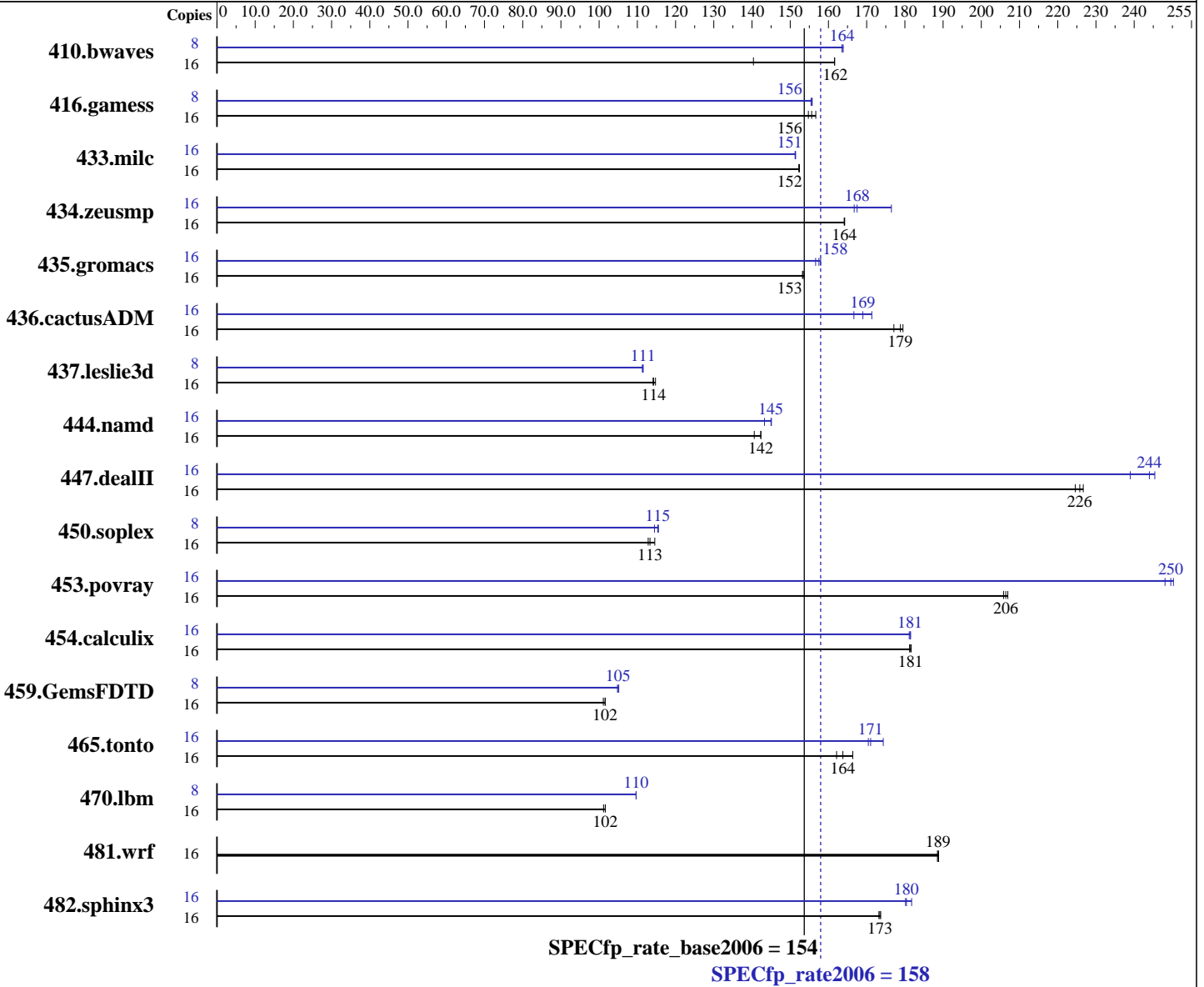**SPECfp_rate_base2006 =**   154

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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

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

Results Table

Benchmark	Base						Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	16	1549	140	**1346**	**162**	1345	162	8	**665**	**164**	663	164	665	164
416.gamess	16	1999	157	**2013**	**156**	2024	155	8	1006	156	1008	155	**1006**	**156**
433.milc	16	965	152	**964**	**152**	964	152	16	971	151	**970**	**151**	970	151
434.zeusmp	16	887	164	887	164	**887**	**164**	16	**869**	**168**	873	167	825	176
435.gromacs	16	**745**	**153**	746	153	743	154	16	**725**	**158**	723	158	729	157
436.cactusADM	16	1065	180	1079	177	**1069**	**179**	16	1116	171	1147	167	**1131**	**169**
437.leslie3d	16	1311	115	**1316**	**114**	1318	114	8	676	111	674	111	**674**	**111**
444.namd	16	**902**	**142**	913	141	902	142	16	**885**	**145**	884	145	896	143
447.dealII	16	807	227	815	225	**811**	**226**	16	**750**	**244**	746	245	766	239
450.soplex	16	1165	115	1183	113	**1178**	**113**	8	583	114	578	116	**578**	**115**
453.povray	16	411	207	**412**	**206**	414	206	16	343	248	340	250	**341**	**250**
454.calculix	16	728	181	727	182	**727**	**181**	16	727	182	729	181	**728**	**181**
459.GemsFDTD	16	1679	101	1671	102	**1672**	**102**	8	**808**	**105**	810	105	807	105
465.tonto	16	971	162	**961**	**164**	946	166	16	924	170	**920**	**171**	903	174
470.lbm	16	2173	101	2163	102	**2164**	**102**	8	**1002**	**110**	1002	110	1002	110
481.wrf	16	948	189	946	189	**947**	**189**	16	948	189	946	189	**947**	**189**
482.sphinx3	16	1800	173	1796	174	**1798**	**173**	16	**1728**	**180**	1716	182	1731	180

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 --localalloc --physcpubind was used to bind copies to the cores
    and their local memory. The complete list of parameters may be found
    in the config file.
```

Operating System Notes

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

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General Notes

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

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

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Test date: Apr-2009

Hardware Availability: Apr-2009

Software Availability: Feb-2009

Base Optimization Flags (Continued)

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

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

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 (except as noted below):
```
ifort
```

    437.leslie3d: `ifort -m32`

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

    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 -opt-prefetch`

      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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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 -auto-ilp32

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

      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-ic11.0-fp-linux64-revA.20090710.08.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.20090710.08.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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