SPEC® CFP2006 Result
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Bull SAS

bullx B500
(Intel Xeon X5570, 2.93 GHz)

$SPECfp®\_rate2006 =$ 196

$SPECfp\_rate\_base2006 =$ 189

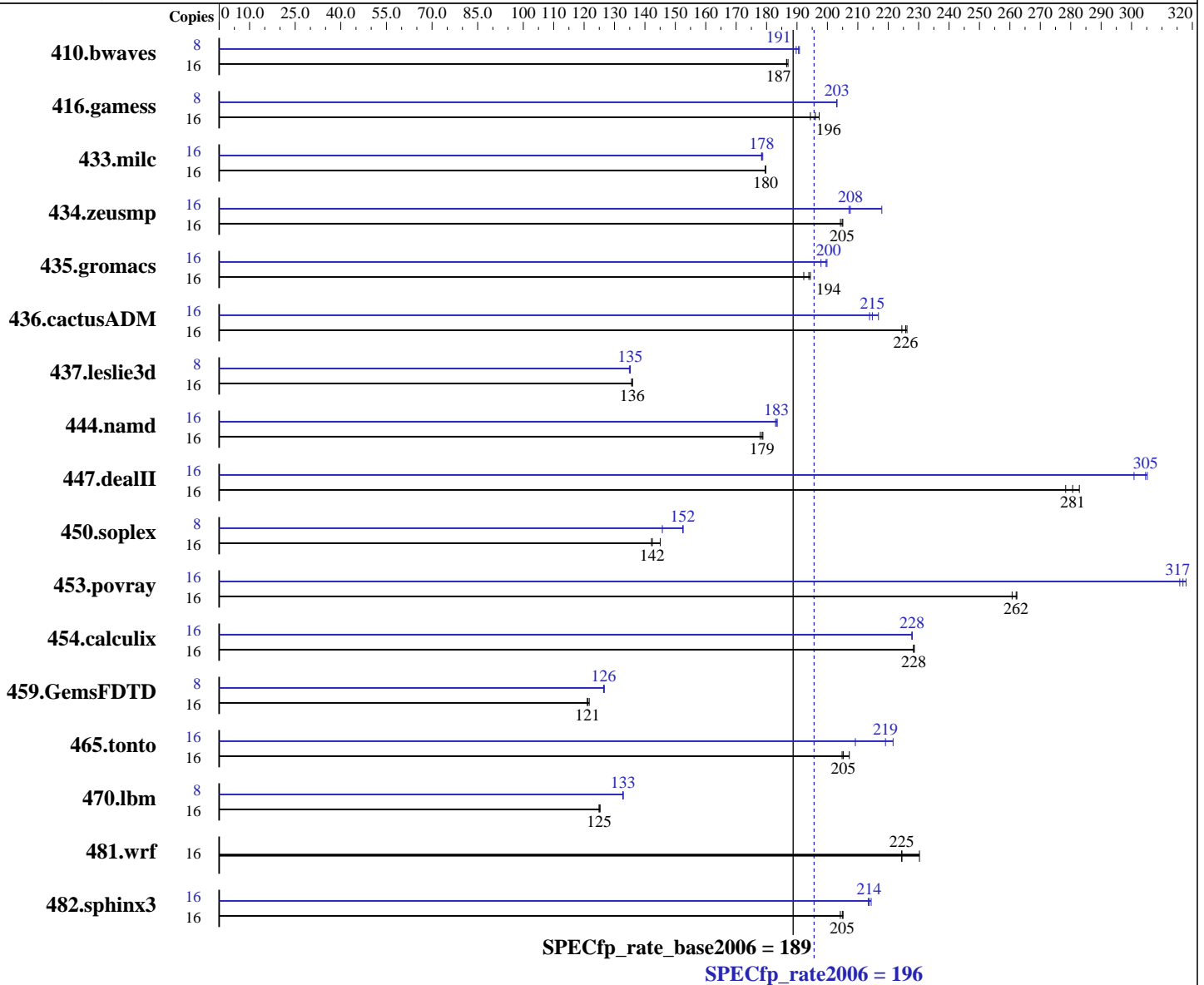|	
CPU2006 license: 20	**Test date:** Jun-2009
Test sponsor: Bull SAS	**Hardware Availability:** Aug-2009
Tested by: Bull SAS	**Software Availability:** Feb-2009

Copies   0 10.0   25.0   40.0   55.0   70.0   85.0   100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300   320

Benchmark	Copies	Value
410.bwaves	8	191
	16	187
416.gamess	8	203
	16	196
433.milc	16	178
	16	180
434.zeusmp	16	208
	16	205
435.gromacs	16	200
	16	194
436.cactusADM	16	215
	16	226
437.leslie3d	8	135
	16	136
444.namd	16	183
	16	179
447.dealII	16	305
	16	281
450.soplex	8	152
	16	142
453.povray	16	317
	16	262
454.calculix	16	228
	16	228
459.GemsFDTD	8	126
	16	121
465.tonto	16	219
	16	205
470.lbm	8	133
	16	125
481.wrf	16	225
482.sphinx3	16	214
	16	205

SPECfp_rate_base2006 = 189

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Hardware

CPU Name:	Intel Xeon X5570
CPU Characteristics:	Intel Turbo Boost Technology up to 3.33 GHz
CPU MHz:	2933
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

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:	No
File System:	ReiserFS
System State:	Run level 3 (multi-user)
Base Pointers:	64-bit

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L3 Cache:	8 MB I+D on chip per chip	Peak Pointers:	32/64-bit
Other Cache:	None	Other Software:	Binutils 2.18.50.0.7.20080502
Memory:	24 GB (6 x 4 GB PC3-10600R, CL9, ECC)		
Disk Subsystem:	1x32 GB SATAII, SSD		
Other Hardware:	None		

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	16	**1165**	**187**	1162	187	1165	187	8	**571**	**191**	570	191	573	190
416.gamess	16	**1598**	**196**	1588	197	1611	194	8	**771**	**203**	771	203	771	203
433.milc	16	818	180	817	180	**817**	**180**	16	**823**	**178**	824	178	822	179
434.zeusmp	16	710	205	713	204	**711**	**205**	16	668	218	**702**	**208**	703	207
435.gromacs	16	588	194	**589**	**194**	594	192	16	**572**	**200**	577	198	572	200
436.cactusADM	16	845	226	**847**	**226**	852	224	16	894	214	**890**	**215**	882	217
437.leslie3d	16	1107	136	1109	136	**1107**	**136**	8	556	135	**556**	**135**	558	135
444.namd	16	718	179	**719**	**179**	721	178	16	701	183	**700**	**183**	699	184
447.dealII	16	647	283	658	278	**652**	**281**	16	**601**	**305**	608	301	600	305
450.soplex	16	**937**	**142**	939	142	920	145	8	458	146	437	153	**438**	**152**
453.povray	16	326	261	325	262	**325**	**262**	16	269	316	**269**	**317**	268	318
454.calculix	16	**578**	**228**	577	229	578	228	16	579	228	580	228	**579**	**228**
459.GemsFDTD	16	1395	122	1402	121	**1401**	**121**	8	**671**	**126**	671	126	670	127
465.tonto	16	769	205	760	207	**767**	**205**	16	**719**	**219**	710	222	753	209
470.lbm	16	1755	125	**1759**	**125**	1760	125	8	828	133	**828**	**133**	827	133
481.wrf	16	776	230	**796**	**225**	796	224	16	776	230	**796**	**225**	796	224
482.sphinx3	16	1520	205	**1522**	**205**	1527	204	16	1461	213	1455	214	**1459**	**214**

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

Platform Notes

    BIOS setting:
    NUMA configuration : Enabled

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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
```

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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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`

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`

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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 -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
```

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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Peak Optimization Flags (Continued)

```
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 files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revG.html
http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090710.01.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revG.xml
http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090710.01.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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