



SPEC® CFP2006 Result

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Bull SAS

NovaScale T860 E1
(Intel Xeon E5410, 2.33 GHz)

SPECfp®2006 = 19.6

SPECfp_base2006 = 16.6

CPU2006 license: 20

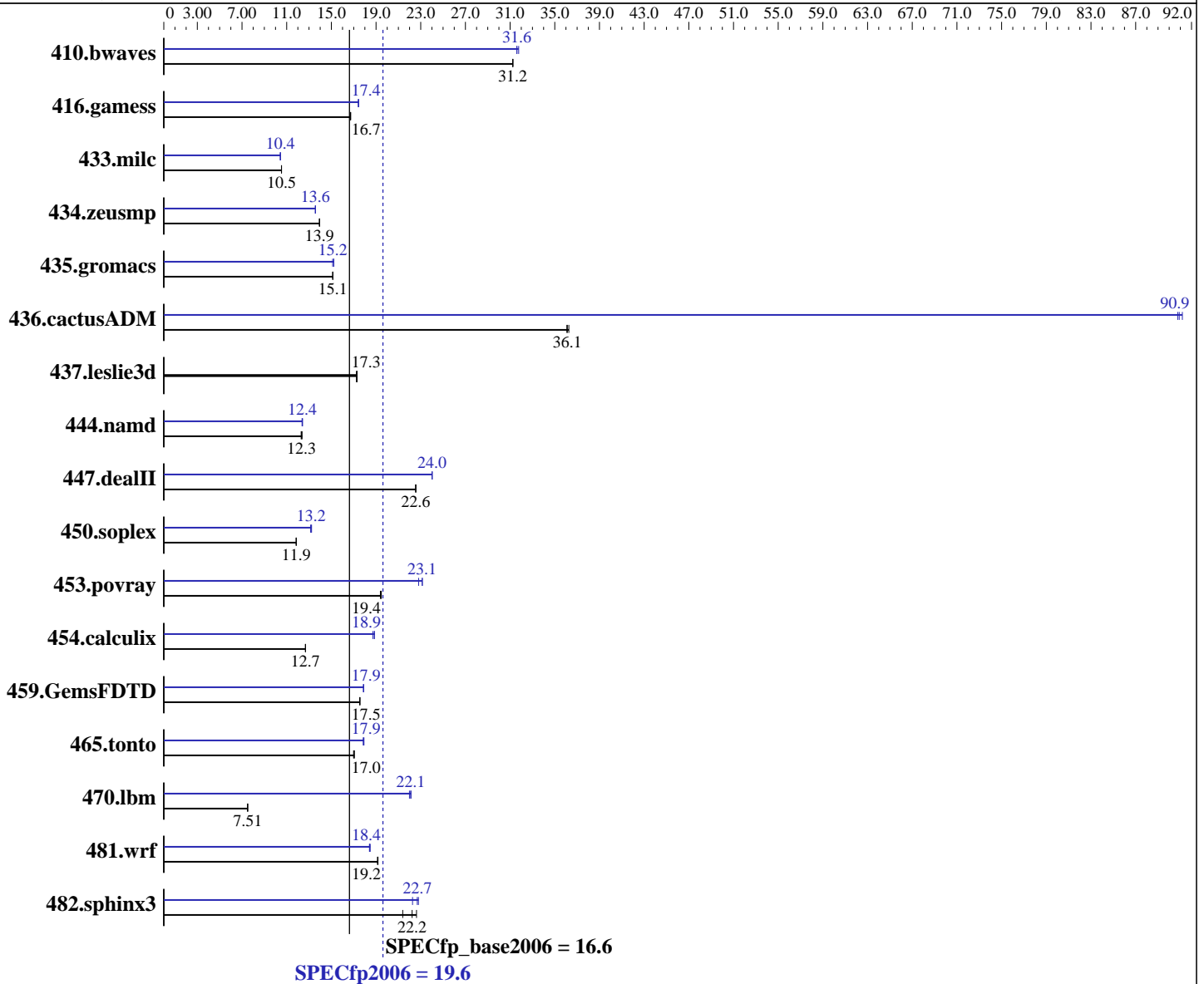
Test sponsor: Bull SAS

Tested by: Bull SAS

Test date: Jul-2008

Hardware Availability: Jan-2008

Software Availability: Nov-2007



Hardware

CPU Name: Intel Xeon E5410
 CPU Characteristics: 1333 MHz system bus
 CPU MHz: 2333
 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: 12 MB I+D on chip per chip, 6 MB shared / 2 cores

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Software

Operating System: SUSE LINUX Enterprise Server 10
 (x86_64) SP1, Kernel 2.6.16.46-0.12-smp
 Compiler: Intel C++ and Fortran Compiler 10.1 for Linux
 Build 20070913 Package ID: l_cc_p_10.1.008,
 l_fc_p_10.1.008
 Auto Parallel: Yes
 File System: ext2
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit

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L3 Cache: None
Other Cache: None
Memory: 16 GB (8x2 GB) FB-DIMM PC2-5300F ECC CL5
Disk Subsystem: 1x73 GB SAS, 15000 RPM
Other Hardware: None

Peak Pointers: 32/64-bit
Other Software: Binutils 2.17.50.0.15

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	435	31.2	435	31.3	<u>435</u>	<u>31.2</u>	428	31.8	430	31.6	<u>430</u>	<u>31.6</u>
416.gamess	1172	16.7	1171	16.7	<u>1171</u>	<u>16.7</u>	1124	17.4	1123	17.4	<u>1124</u>	<u>17.4</u>
433.milc	<u>871</u>	<u>10.5</u>	871	10.5	872	10.5	<u>880</u>	<u>10.4</u>	880	10.4	879	10.4
434.zeusmp	<u>653</u>	<u>13.9</u>	653	13.9	653	13.9	<u>671</u>	<u>13.6</u>	670	13.6	671	13.6
435.gromacs	472	15.1	472	15.1	<u>472</u>	<u>15.1</u>	<u>469</u>	<u>15.2</u>	472	15.1	469	15.2
436.cactusADM	330	36.3	331	36.1	<u>331</u>	<u>36.1</u>	132	90.8	<u>131</u>	<u>90.9</u>	131	91.2
437.leslie3d	<u>544</u>	<u>17.3</u>	543	17.3	545	17.2	<u>544</u>	<u>17.3</u>	543	17.3	545	17.2
444.namd	652	12.3	648	12.4	<u>650</u>	<u>12.3</u>	646	12.4	<u>646</u>	<u>12.4</u>	648	12.4
447.dealII	507	22.6	<u>507</u>	<u>22.6</u>	507	22.6	476	24.0	476	24.0	<u>476</u>	<u>24.0</u>
450.soplex	703	11.9	<u>703</u>	<u>11.9</u>	704	11.8	630	13.2	<u>632</u>	<u>13.2</u>	634	13.1
453.povray	<u>274</u>	<u>19.4</u>	273	19.5	274	19.4	<u>230</u>	<u>23.1</u>	233	22.8	230	23.1
454.calculix	651	12.7	650	12.7	<u>651</u>	<u>12.7</u>	<u>438</u>	<u>18.9</u>	437	18.9	441	18.7
459.GemsFDTD	604	17.6	<u>605</u>	<u>17.5</u>	605	17.5	594	17.9	<u>593</u>	<u>17.9</u>	593	17.9
465.tonto	577	17.1	<u>578</u>	<u>17.0</u>	579	17.0	551	17.9	549	17.9	<u>550</u>	<u>17.9</u>
470.lbm	1828	7.51	1833	7.50	<u>1831</u>	<u>7.51</u>	621	22.1	<u>622</u>	<u>22.1</u>	625	22.0
481.wrf	<u>583</u>	<u>19.2</u>	584	19.1	583	19.2	<u>607</u>	<u>18.4</u>	607	18.4	604	18.5
482.sphinx3	862	22.6	911	21.4	<u>877</u>	<u>22.2</u>	875	22.3	855	22.8	<u>859</u>	<u>22.7</u>

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 physical,0
KMP_STACKSIZE set to 200M

General Notes

All benchmarks compiled in 64-bit mode except 450.soplex, 470.lbm and 482.sphinx3, at peak, are compiled in 32-bit mode



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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:
-fast -parallel

C++ benchmarks:
-fast -parallel

Fortran benchmarks:
-fast -parallel

Benchmarks using both Fortran and C:
-fast -parallel



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Peak Compiler Invocation

C benchmarks (except as noted below):

```
/opt/intel/cc/10.1.008/bin/icc -L/opt/intel/cc/10.1.008/lib
-I/opt/intel/cc/10.1.008/include
```

433.milc: icc

C++ benchmarks (except as noted below):

icpc

```
450.soplex: /opt/intel/cc/10.1.008/bin/icpc -L/opt/intel/cc/10.1.008/lib
-I/opt/intel/cc/10.1.008/include
```

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
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
```

Peak Optimization Flags

C benchmarks:

```
433.milc: -prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias
-auto-ilp32
```

```
470.lbm: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2
-scalar-req- -prefetch -opt-malloc-options=3
```

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Peak Optimization Flags (Continued)

482.sphinx3: -fast -unroll2

C++ benchmarks:

444.namd: -prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias
-auto-ilp32

447.dealIII: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2
-ansi-alias -scalar-rep-

450.soplex: -prof-gen(pass 1) -prof-use(pass 2) -fast
-opt-malloc-options=3

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4
-ansi-alias

Fortran benchmarks:

410.bwaves: -fast -prefetch -parallel

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0
-ansi-alias -scalar-rep-

434.zeusmp: -prof-gen(pass 1) -prof-use(pass 2) -fast

437.leslie3d: basepeak = yes

459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0
-prefetch -parallel

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4 -auto

Benchmarks using both Fortran and C:

435.gromacs: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch
-auto-ilp32

436.cactusADM: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2
-prefetch -parallel -auto-ilp32

454.calculix: -fast -unroll-aggressive -auto-ilp32

481.wrf: -fast -parallel -prefetch -auto-ilp32

The flags file that was used to format this result can be browsed at

http://www.spec.org/cpu2006/flags/EM64T_Intel101_fp_flags.20090714.html

You can also download the XML flags source by saving the following link:

http://www.spec.org/cpu2006/flags/EM64T_Intel101_fp_flags.20090714.xml



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