SPEC® CFP2006 Result

Bull SAS

NovaScale B280
(Intel Xeon E5450, 3.00 GHz)

$SPECfp^{®}2006 =$ 23.1

$SPECfp\_base2006 =$ 19.5

CPU2006 license:	20		**Test date:**	Aug-2008
Test sponsor:	Bull SAS		**Hardware Availability:**	Jan-2008
Tested by:	Bull SAS		**Software Availability:**	Nov-2007

SPECfp_base2006 = 19.5

SPECfp2006 = 23.1

Benchmark	Result (peak)	Result (base)
410.bwaves	32.1	31.8
416.gamess	22.4	21.3
433.milc	10.7	10.7
434.zeusmp	16.7	17.2
435.gromacs	19.5	19.4
436.cactusADM	101	40.8
437.leslie3d	19.0	19.0
444.namd	16.0	15.9
447.dealII	29.6	27.9
450.soplex	15.4	13.8
453.povray	29.7	25.1
454.calculix	23.9	16.1
459.GemsFDTD	18.4	18.2
465.tonto	22.7	21.6
470.lbm	24.6	7.45
481.wrf	21.6	22.3
482.sphinx3	27.8	27.0

Hardware

CPU Name:	Intel Xeon E5450
CPU Characteristics:	1333 MHz system bus
CPU MHz:	3000
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

Continued on next page

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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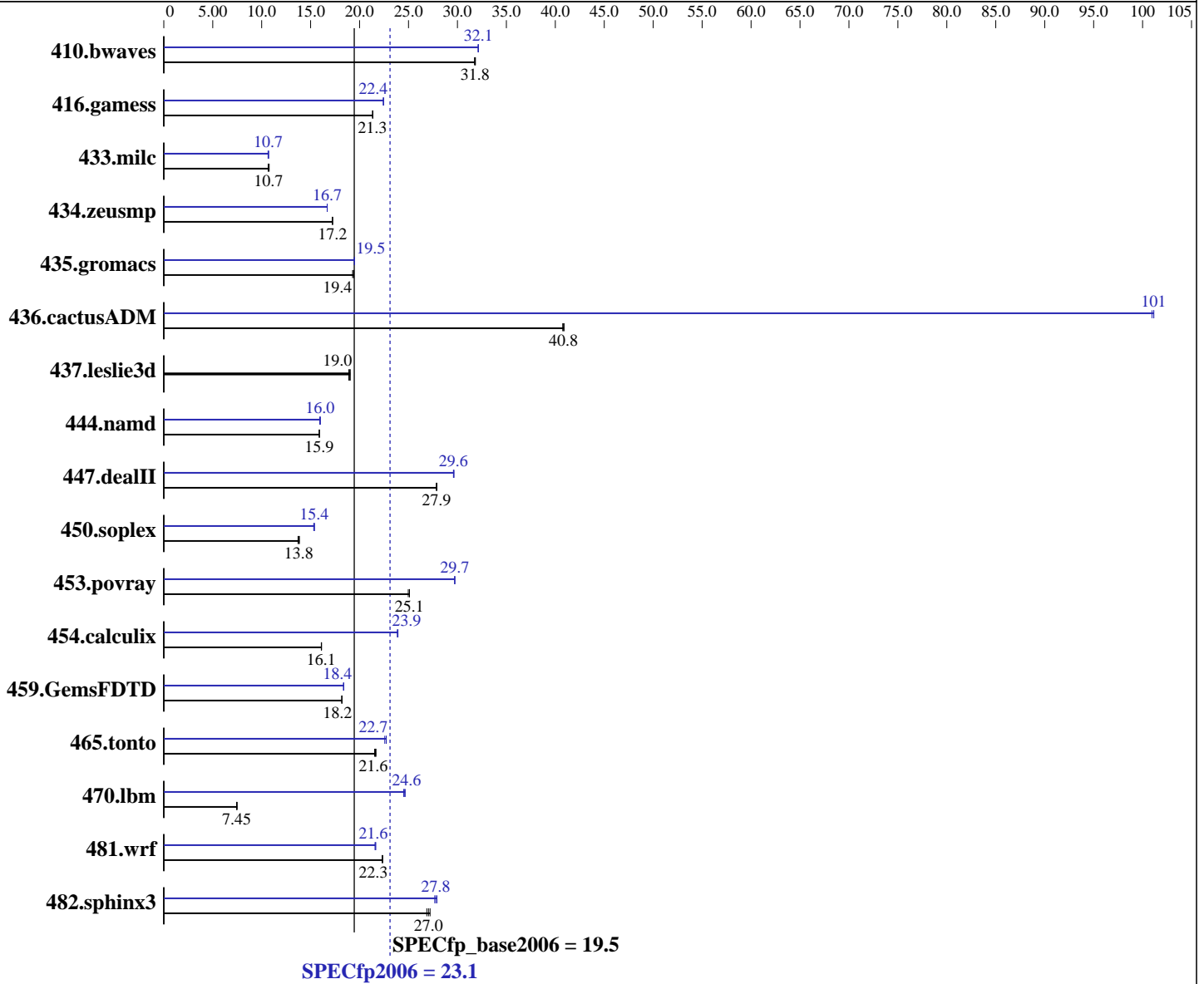|	
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L3 Cache:	None	Peak Pointers:	32/64-bit
Other Cache:	None	Other Software:	Binutils 2.17.50.0.15
Memory:	16 GB (8x2 GB) FB-DIMM PC2-5300F ECC CL5		
Disk Subsystem:	1x73 GB SAS, 10000 RPM		
Other Hardware:	None		

Results Table

Benchmark	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
410.bwaves	427	31.8	**427**	**31.8**	428	31.7	**423**	**32.1**	423	32.1	423	32.1
416.gamess	916	21.4	918	21.3	**918**	**21.3**	873	22.4	**872**	**22.4**	872	22.5
433.milc	853	10.8	**859**	**10.7**	861	10.7	857	10.7	**859**	**10.7**	862	10.7
434.zeusmp	528	17.2	528	17.2	**528**	**17.2**	**545**	**16.7**	545	16.7	545	16.7
435.gromacs	370	19.3	**368**	**19.4**	368	19.4	366	19.5	367	19.5	**366**	**19.5**
436.cactusADM	292	40.9	293	40.8	**293**	**40.8**	118	101	**118**	**101**	118	101
437.leslie3d	493	19.0	**495**	**19.0**	497	18.9	493	19.0	**495**	**19.0**	497	18.9
444.namd	**505**	**15.9**	505	15.9	505	15.9	501	16.0	504	15.9	**502**	**16.0**
447.dealII	410	27.9	411	27.8	**411**	**27.9**	386	29.7	**386**	**29.6**	387	29.6
450.soplex	602	13.9	**605**	**13.8**	608	13.7	542	15.4	**542**	**15.4**	545	15.3
453.povray	213	25.0	212	25.1	**212**	**25.1**	179	29.7	**179**	**29.7**	179	29.7
454.calculix	512	16.1	**513**	**16.1**	513	16.1	345	23.9	346	23.9	**345**	**23.9**
459.GemsFDTD	583	18.2	**583**	**18.2**	583	18.2	577	18.4	**578**	**18.4**	578	18.4
465.tonto	454	21.7	**455**	**21.6**	457	21.5	436	22.6	433	22.7	**433**	**22.7**
470.lbm	**1844**	**7.45**	1847	7.44	1833	7.50	557	24.7	**559**	**24.6**	561	24.5
481.wrf	500	22.3	500	22.4	**500**	**22.3**	516	21.6	**516**	**21.6**	518	21.6
482.sphinx3	**721**	**27.0**	725	26.9	716	27.2	**702**	**27.8**	704	27.7	698	27.9

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
BIOS settings :
Hardware Prefetcher :            Enabled
Adjacent Cache-Line Prefetch :   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:
```
-fast -parallel
```

C++ benchmarks:
```
-fast -parallel
```

Fortran benchmarks:
```
-fast -parallel
```

Benchmarks using both Fortran and C:
```
-fast -parallel
```

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CPU2006 license: 20
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Tested by: Bull SAS

Test date: Aug-2008
Hardware Availability: Jan-2008
Software Availability: Nov-2007

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

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