SPEC® CFP2006 Result
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Bull SAS

NovaScale B260
(Intel Xeon E5450, 3.00 GHz)

$SPECfp^{®}2006 =$ 22.2

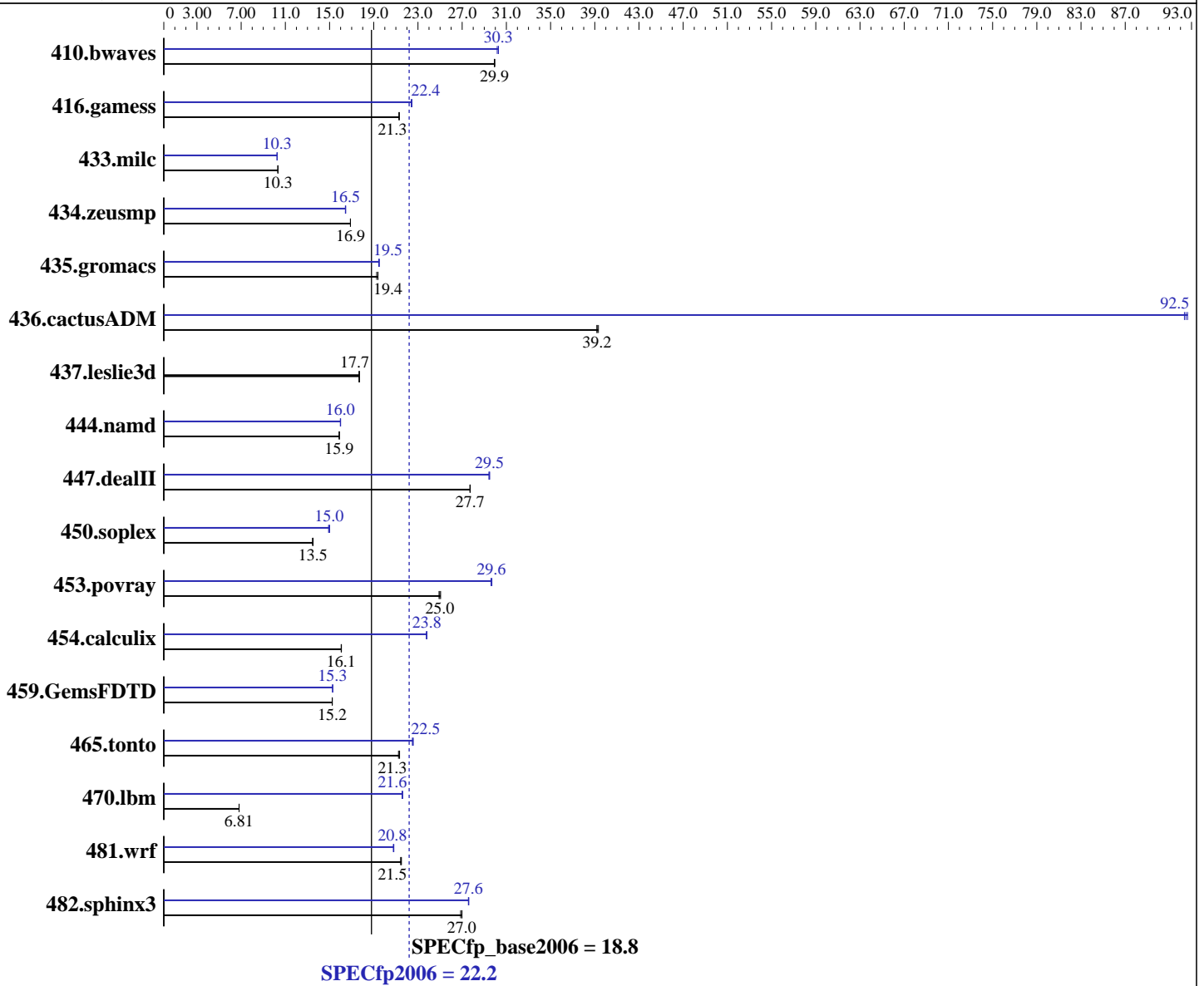$SPECfp\_base2006 =$ 18.8

CPU2006 license: 20

Test sponsor: Bull SAS

Tested by: Bull SAS

Test date: Aug-2008

Hardware Availability: Jan-2008

Software Availability: Nov-2007

Benchmark	Result (peak)	Result (base)
410.bwaves	30.3	29.9
416.gamess	22.4	21.3
433.milc	10.3	10.3
434.zeusmp	16.5	16.9
435.gromacs	19.5	19.4
436.cactusADM	92.5	39.2
437.leslie3d		17.7
444.namd	16.0	15.9
447.dealII	29.5	27.7
450.soplex	15.0	13.5
453.povray	29.6	25.0
454.calculix	23.8	16.1
459.GemsFDTD	15.3	15.2
465.tonto	22.5	21.3
470.lbm	21.6	6.81
481.wrf	20.8	21.5
482.sphinx3	27.6	27.0

SPECfp_base2006 = 18.8

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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

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:	8 GB (4x2 GB) FB-DIMM PC2-5300F ECC CL5
Disk Subsystem:	1x73 GB SAS, 10000 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	454	29.9	454	30.0	**454**	**29.9**	450	30.2	**449**	**30.3**	449	30.3
416.gamess	919	21.3	920	21.3	**920**	**21.3**	874	22.4	**873**	**22.4**	872	22.4
433.milc	889	10.3	889	10.3	**889**	**10.3**	895	10.3	896	10.2	**895**	**10.3**
434.zeusmp	539	16.9	**539**	**16.9**	539	16.9	554	16.4	553	16.5	**553**	**16.5**
435.gromacs	368	19.4	**369**	**19.4**	371	19.3	**366**	**19.5**	366	19.5	367	19.4
436.cactusADM	305	39.2	**305**	**39.2**	304	39.3	129	92.4	**129**	**92.5**	129	92.6
437.leslie3d	531	17.7	**531**	**17.7**	532	17.7	531	17.7	**531**	**17.7**	532	17.7
444.namd	505	15.9	**505**	**15.9**	505	15.9	**502**	**16.0**	501	16.0	502	16.0
447.dealII	**413**	**27.7**	413	27.7	413	27.7	389	29.4	388	29.5	**388**	**29.5**
450.soplex	**618**	**13.5**	617	13.5	620	13.5	556	15.0	**557**	**15.0**	559	14.9
453.povray	**213**	**25.0**	214	24.9	212	25.0	**179**	**29.6**	179	29.7	180	29.6
454.calculix	513	16.1	514	16.1	**514**	**16.1**	**347**	**23.8**	346	23.8	347	23.8
459.GemsFDTD	696	15.2	**696**	**15.2**	696	15.2	695	15.3	694	15.3	**695**	**15.3**
465.tonto	463	21.2	**462**	**21.3**	461	21.3	436	22.6	**437**	**22.5**	437	22.5
470.lbm	**2018**	**6.81**	2015	6.82	2018	6.81	637	21.6	636	21.6	**637**	**21.6**
481.wrf	**521**	**21.5**	521	21.4	519	21.5	**537**	**20.8**	538	20.8	537	20.8
482.sphinx3	**723**	**27.0**	726	26.9	722	27.0	707	27.6	**707**	**27.6**	706	27.6

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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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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