SPEC® CFP2006 Result

Bull SAS

NovaScale R460 E1
(Intel Xeon X5450,3.00GHz)

$SPECfp^{®}2006 =$ 22.5

$SPECfp\_base2006 =$ 19.0

Benchmark	Value 1	Value 2
410.bwaves	31.9	31.6
416.gamess	22.4	21.3
433.milc	10.6	10.5
434.zeusmp	15.3	15.9
435.gromacs	19.3	19.3
436.cactusADM	97.3	39.5
437.leslie3d		19.2
444.namd	16.0	15.9
447.dealII	28.8	27.1
450.soplex	13.7	12.2
453.povray	29.6	25.2
454.calculix	23.5	15.9
459.GemsFDTD	18.3	18.0
465.tonto	22.3	21.3
470.lbm	23.0	7.24
481.wrf	21.3	21.8
482.sphinx3	27.5	26.7

SPECfp_base2006 = 19.0

SPECfp2006 = 22.5

Hardware

CPU Name: Intel Xeon X5450
CPU Characteristics: 3.00 GHz, 2x6 MB L2 shared, 1333 MHz 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 for Linux32 and Linux64
version 10.1 Build 20070913 Package ID: l_cc_p_10.1.008, l_fc_p_10.1.008
Auto Parallel: Yes
File System: ext2

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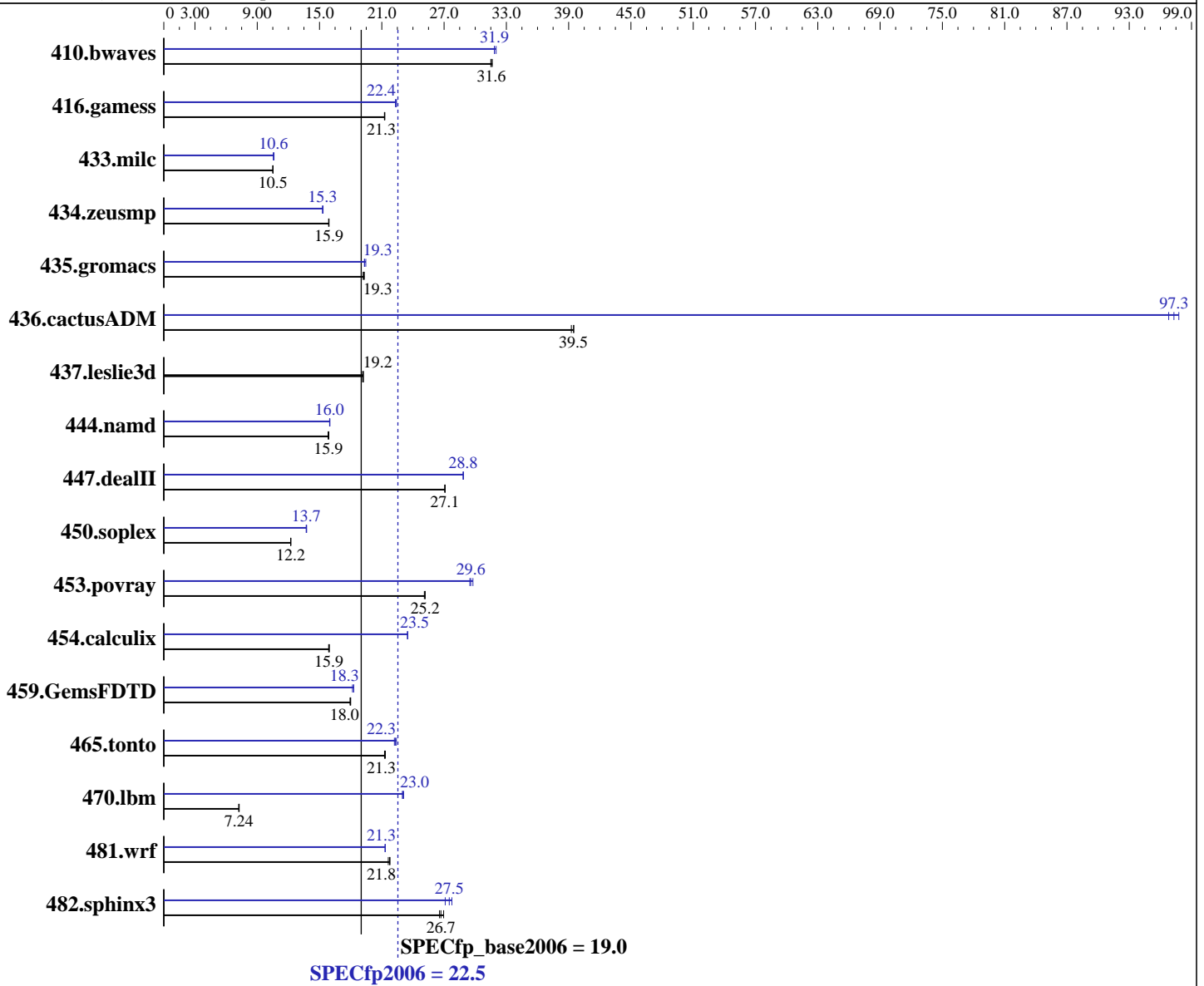|	
SPECfp2006 =	22.5
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CPU2006 license: 20
Test sponsor: Bull SAS
Tested by: NEC Corporation

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

L3 Cache:	None	System State:	Run level 3 (multi-user)
Other Cache:	None	Base Pointers:	64-bit
Memory:	12 GB (12x1 GB PC2-5300F, 2 rank, CL5-5-5, ECC)	Peak Pointers:	32/64-bit
Disk Subsystem:	1x73.2 GB SAS, 15000RPM	Other Software:	binutils-2.17.tar.gz, Version 2.17
Other Hardware:	None		

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	429	31.6	**431**	**31.6**	431	31.5	427	31.8	425	32.0	**427**	**31.9**
416.gamess	920	21.3	**921**	**21.3**	921	21.3	878	22.3	873	22.4	**875**	**22.4**
433.milc	876	10.5	872	10.5	**872**	**10.5**	865	10.6	870	10.6	**868**	**10.6**
434.zeusmp	573	15.9	**572**	**15.9**	572	15.9	**594**	**15.3**	595	15.3	593	15.3
435.gromacs	372	19.2	**371**	**19.3**	370	19.3	**369**	**19.3**	369	19.3	367	19.5
436.cactusADM	**303**	**39.5**	303	39.5	304	39.3	**123**	**97.3**	122	97.8	123	96.8
437.leslie3d	489	19.2	**490**	**19.2**	493	19.1	489	19.2	**490**	**19.2**	493	19.1
444.namd	504	15.9	**506**	**15.9**	507	15.8	502	16.0	501	16.0	**502**	**16.0**
447.dealII	422	27.1	**422**	**27.1**	423	27.1	397	28.8	**397**	**28.8**	396	28.9
450.soplex	681	12.2	**682**	**12.2**	683	12.2	608	13.7	**608**	**13.7**	606	13.8
453.povray	211	25.2	**211**	**25.2**	212	25.1	179	29.8	180	29.5	**180**	**29.6**
454.calculix	517	15.9	**518**	**15.9**	520	15.9	351	23.5	**351**	**23.5**	351	23.5
459.GemsFDTD	**590**	**18.0**	591	17.9	589	18.0	584	18.2	580	18.3	**580**	**18.3**
465.tonto	461	21.3	463	21.3	**462**	**21.3**	443	22.2	439	22.4	**441**	**22.3**
470.lbm	**1898**	**7.24**	1892	7.26	1904	7.21	**597**	**23.0**	598	23.0	595	23.1
481.wrf	517	21.6	**513**	**21.8**	513	21.8	524	21.3	523	21.3	**524**	**21.3**
482.sphinx3	723	27.0	**730**	**26.7**	734	26.6	702	27.8	**709**	**27.5**	719	27.1

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 (default).
```

Platform Notes

```
   Bios settings:
   Intel SpeedStep Technology: Disabled
```

General Notes

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

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General Notes (Continued)

```
The NEC Express5800/120Rh-1(Intel Xeon Prosessor X5450),
the NEC Express5800/120Rj-2(Intel Xeon Prosessor X5450),
the Bull NovaScale R440 E1 (Intel Xeon X5450,3.00GHz) and
the Bull NovaScale R460 E1 (Intel Xeon X5450,3.00GHz) models are electronically equivalent.
The results have been measured on a NEC Express5800/120Rj-2(Intel Xeon Prosessor X5450) model.
```

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
```

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Hardware Availability: Dec-2007
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Base Optimization Flags (Continued)

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

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

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

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`

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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`

> 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`

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Peak Optimization Flags (Continued)

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/NEC-Intel-ic10.1-FP-intel64-linux-flags.20090713.00.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/NEC-Intel-ic10.1-FP-intel64-linux-flags.20090713.00.xml

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

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