SPEC® CFP2006 Result
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Bull SAS

NovaScale R440 F2
(Intel Xeon X5550, 2.67 GHz)

$SPECfp^{®}2006 =$ 41.7

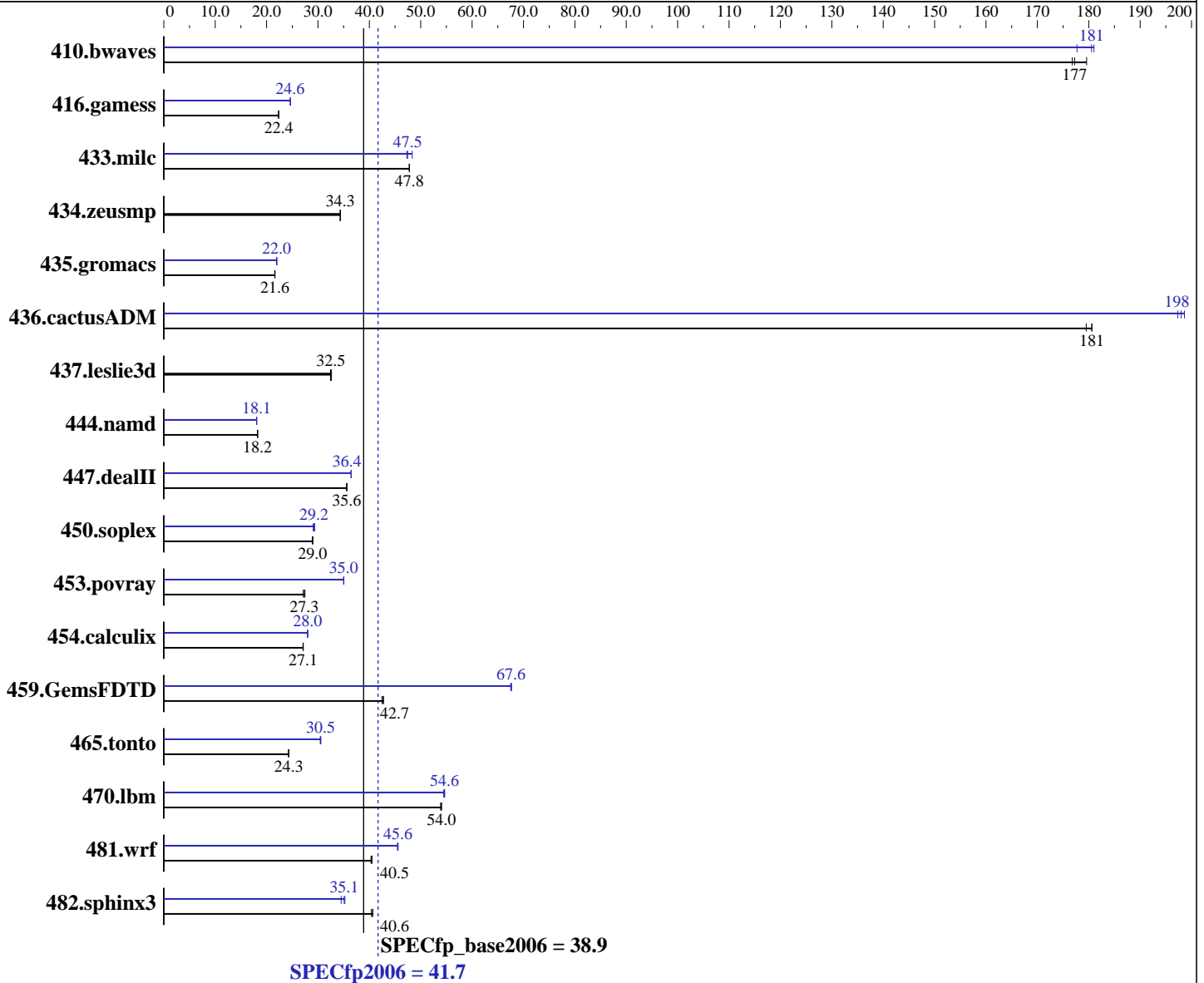$SPECfp\_base2006 =$ 38.9

CPU2006 license: 20
Test sponsor: Bull SAS
Tested by: Bull SAS

Test date: Apr-2010
Hardware Availability: Jan-2010
Software Availability: Dec-2009

410.bwaves	181 / 177
416.gamess	24.6 / 22.4
433.milc	47.5 / 47.8
434.zeusmp	34.3
435.gromacs	22.0 / 21.6
436.cactusADM	198 / 181
437.leslie3d	32.5
444.namd	18.1 / 18.2
447.dealII	36.4 / 35.6
450.soplex	29.2 / 29.0
453.povray	35.0 / 27.3
454.calculix	28.0 / 27.1
459.GemsFDTD	67.6 / 42.7
465.tonto	30.5 / 24.3
470.lbm	54.6 / 54.0
481.wrf	45.6 / 40.5
482.sphinx3	35.1 / 40.6

SPECfp_base2006 = 38.9
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Hardware

CPU Name:	Intel Xeon X5550
CPU Characteristics:	Intel Turbo Boost Technology up to 3.06 GHz
CPU MHz:	2667
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 11 (x86_64), Kernel 2.6.27.19-5-default
Compiler:	Intel C++ and Fortran Professional Compiler for IA32 and Intel 64, Version 11.1 Build 20091130 Package ID: l_cproc_p_11.1.064, l_cprof_p_11.1.064
Auto Parallel:	Yes
File System:	ext3
System State:	Run level 3 (multi-user)

Continued on next page

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L3 Cache:	8 MB I+D on chip per chip	Base Pointers:	64-bit
Other Cache:	None	Peak Pointers:	32/64-bit
Memory:	48 GB (12 x 4 GB PC3-10600R, 2 Rank, CL9-9-9, ECC)	Other Software:	None
Disk Subsystem:	1 x 73 GB SAS, 10000 RPM		
Other Hardware:	None		

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	**76.7**	**177**	76.9	177	75.7	180	75.1	181	76.5	178	**75.3**	**181**
416.gamess	877	22.3	**876**	**22.4**	874	22.4	794	24.7	**795**	**24.6**	796	24.6
433.milc	192	47.8	**192**	**47.8**	192	47.7	190	48.3	**193**	**47.5**	194	47.3
434.zeusmp	265	34.3	**265**	**34.3**	265	34.4	265	34.3	**265**	**34.3**	265	34.4
435.gromacs	330	21.6	330	21.6	**330**	**21.6**	325	22.0	**325**	**22.0**	325	22.0
436.cactusADM	66.2	181	**66.2**	**181**	66.6	180	60.6	197	60.2	199	**60.4**	**198**
437.leslie3d	290	32.4	288	32.6	**289**	**32.5**	290	32.4	288	32.6	**289**	**32.5**
444.namd	440	18.2	**440**	**18.2**	439	18.3	444	18.1	444	18.1	**444**	**18.1**
447.dealII	**321**	**35.6**	321	35.6	321	35.6	314	36.5	**314**	**36.4**	314	36.4
450.soplex	**288**	**29.0**	288	29.0	288	28.9	284	29.4	**285**	**29.2**	287	29.1
453.povray	194	27.5	196	27.2	**195**	**27.3**	152	35.0	152	35.0	**152**	**35.0**
454.calculix	305	27.1	304	27.1	**304**	**27.1**	**295**	**28.0**	295	28.0	295	28.0
459.GemsFDTD	248	42.8	250	42.5	**248**	**42.7**	157	67.7	157	67.5	**157**	**67.6**
465.tonto	404	24.3	**405**	**24.3**	405	24.3	322	30.6	323	30.4	**322**	**30.5**
470.lbm	**254**	**54.0**	254	54.0	255	53.9	251	54.7	252	54.4	**252**	**54.6**
481.wrf	276	40.5	**276**	**40.5**	277	40.3	245	45.6	246	45.5	**245**	**45.6**
482.sphinx3	479	40.7	**480**	**40.6**	482	40.4	553	35.2	565	34.5	**555**	**35.1**

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

General Notes

```
OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to granularity=fine,scatter
KMP_STACKSIZE set to 200M
Binaries were compiled on SLES 10 with Binutils 2.18.50.0.7.20080502
The Dell PowerEdge R610 and
the Bull NovaScale R440 F2 models are electronically equivalent.
The results have been measured on a Bull NovaScale R440 F2 model.
```

Base Compiler Invocation

C benchmarks:
```
icc   -m64
```

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Base Compiler Invocation (Continued)

C++ benchmarks:
```
icpc  -m64
```

Fortran benchmarks:
```
ifort -m64
```

Benchmarks using both Fortran and C:
```
icc   -m64 ifort -m64
```

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 -parallel -opt-prefetch
```

C++ benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
```

Fortran benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
```

Benchmarks using both Fortran and C:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
```

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Peak Compiler Invocation

C benchmarks:
       icc   -m64

C++ benchmarks:
       icpc   -m64

Fortran benchmarks:
       ifort -m64

Benchmarks using both Fortran and C:
       icc   -m64 ifort -m64

Peak Portability Flags

Same as Base Portability Flags

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)
                 -ansi-alias

       470.lbm: -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)
                -parallel -ansi-alias -auto-ilp32

       482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32
                    -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- -auto-ilp32

       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 -auto-ilp32

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Peak Optimization Flags (Continued)

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`
`-parallel`

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: `basepeak = yes`

437.leslie3d: `basepeak = yes`

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 -parallel`

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)
`-inline-calloc -opt-malloc-options=3 -auto -unroll4`

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`

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 -parallel -auto-ilp32`

454.calculix: `-xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32`

481.wrf: `Same as 454.calculix`

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100511.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100511.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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