SPEC® CFP2006 Result

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Bull SAS

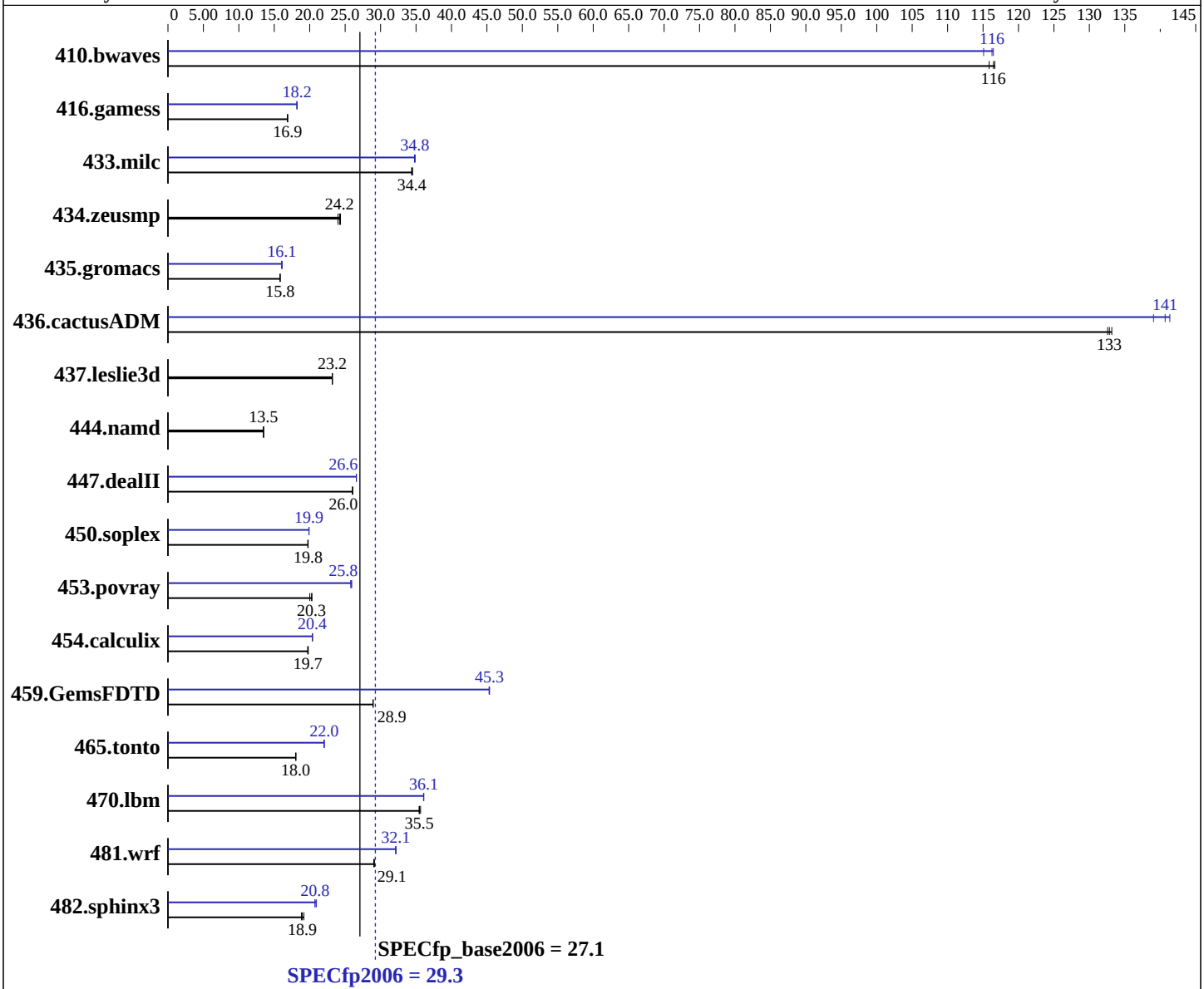
NovaScale T840 F2 (Intel Xeon E5507, 2.26 GHz)

SPECfp®2006 = 29.3

SPECfp_base2006 = 27.1

CPU2006 license: 20
Test sponsor: Bull SAS
Tested by: Dell Inc.

Test date: May-2010
Hardware Availability: Mar-2010
Software Availability: Dec-2009



Hardware

CPU Name:	Intel Xeon E5507
CPU Characteristics:	
CPU MHz:	2267
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:	256 KB I+D on chip per core

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Software

Operating System:	SUSE Linux Enterprise Server 11 (x86_64), Kernel 2.6.27.19-5-smp
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)

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L3 Cache: 4 MB I+D on chip per chip
Other Cache: None
Memory: 48 GB (12 x 4 GB DDR3-1333 DR RDIMM, CL9, ECC, downclocked to 800 MHz)
Disk Subsystem: 1 x 146 GB 15000 RPM SAS
Other Hardware: None

Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	116	117	117	116	**117**	**116**	117	116	118	115	**117**	**116**
416.gamess	1162	16.9	1159	16.9	**1160**	**16.9**	**1076**	**18.2**	1075	18.2	1077	18.2
433.milc	266	34.5	**267**	**34.4**	267	34.4	263	34.9	264	34.8	**264**	**34.8**
434.zeusmp	374	24.3	**376**	**24.2**	379	24.0	374	24.3	**376**	**24.2**	379	24.0
435.gromacs	**451**	**15.8**	451	15.8	451	15.8	**444**	**16.1**	443	16.1	445	16.0
436.cactusADM	**90.0**	**133**	90.1	133	89.7	133	**84.9**	**141**	84.5	141	85.9	139
437.leslie3d	406	23.2	405	23.2	**405**	**23.2**	406	23.2	405	23.2	**405**	**23.2**
444.namd	594	13.5	**595**	**13.5**	595	13.5	594	13.5	**595**	**13.5**	595	13.5
447.dealII	**439**	**26.0**	439	26.0	439	26.1	430	26.6	431	26.6	**430**	**26.6**
450.soplex	**422**	**19.8**	423	19.7	422	19.8	**419**	**19.9**	419	19.9	419	19.9
453.povray	**263**	**20.3**	266	20.0	262	20.3	206	25.8	205	25.9	**206**	**25.8**
454.calculix	417	19.8	418	19.7	**418**	**19.7**	405	20.4	405	20.4	**405**	**20.4**
459.GemsFDTD	**367**	**28.9**	367	28.9	367	28.9	**234**	**45.3**	234	45.3	234	45.4
465.tonto	546	18.0	545	18.1	**546**	**18.0**	447	22.0	446	22.1	**446**	**22.0**
470.lbm	388	35.4	386	35.6	**387**	**35.5**	381	36.1	381	36.1	**381**	**36.1**
481.wrf	385	29.0	**384**	**29.1**	384	29.1	**348**	**32.1**	348	32.1	347	32.2
482.sphinx3	1016	19.2	**1029**	**18.9**	1035	18.8	930	21.0	939	20.7	**939**	**20.8**

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

Platform Notes

BIOS Settings:
Power Management = Maximum Performance (Default = Active Power Controller)

General Notes

OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to granularity=fine,scatter
KMP_STACKSIZE set to 200M

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General Notes (Continued)

```
Binaries were compiled on SLES 10 with Binutils 2.18.50.0.7.20080502
The Dell PowerEdge T610 and
the Bull NovaScale T840 F2 models are electronically equivalent.
The results have been measured on a Dell PowerEdge T610 model.
```

Base Compiler Invocation

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

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
```

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Base Optimization Flags (Continued)

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`

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: `basepeak = yes`

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Peak Optimization Flags (Continued)

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

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.20100330.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.20100330.xml

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