SPEC® CFP2006 Result

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Bull SAS

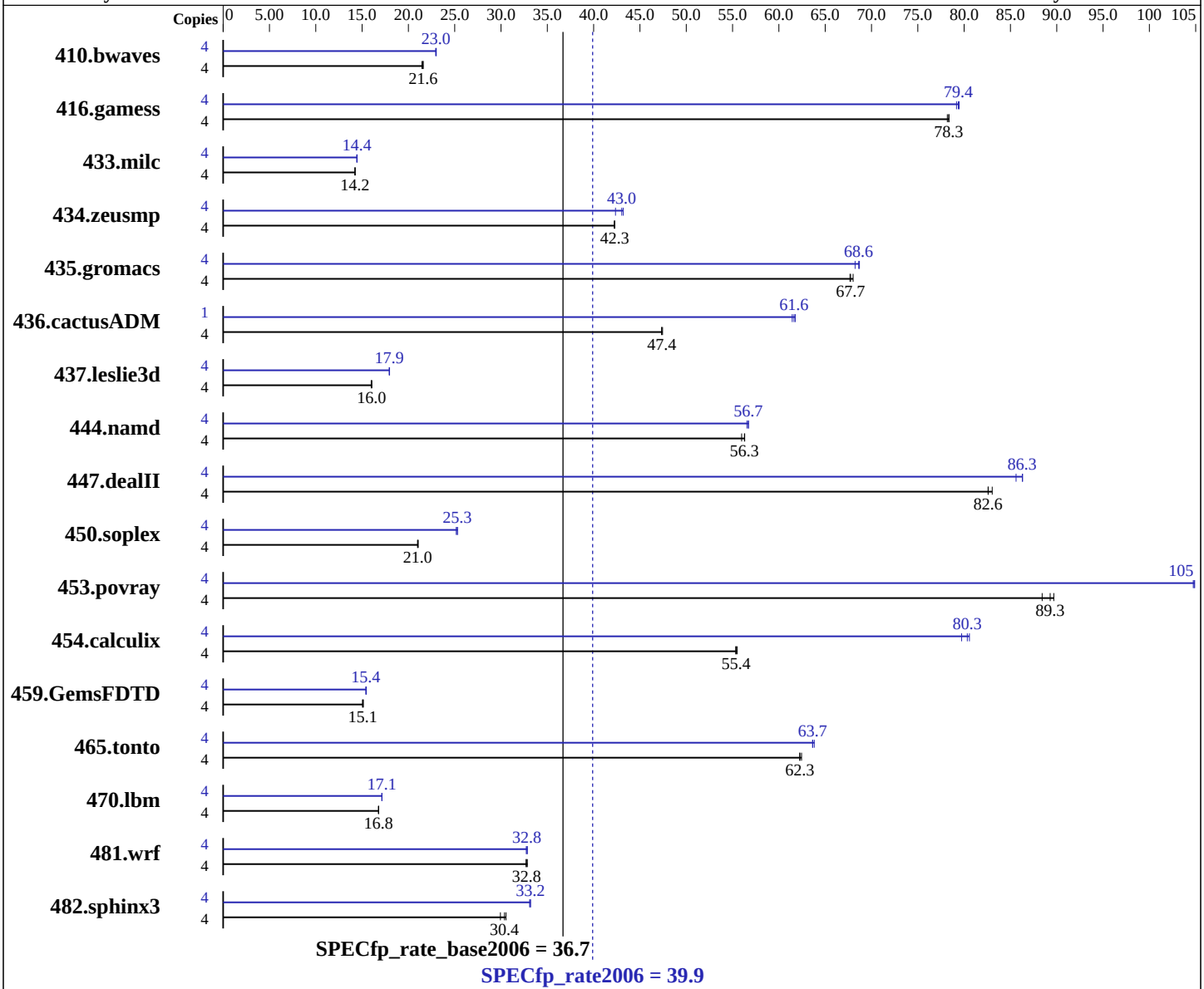
NovaScale T860 E1
(Intel Xeon E5430, 2.66 GHz)

SPECfp®_rate2006 = 39.9

SPECfp_rate_base2006 = 36.7

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

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



Hardware

CPU Name:	Intel Xeon E5430
CPU Characteristics:	1333 MHz system bus
CPU MHz:	2666
FPU:	Integrated
CPU(s) enabled:	4 cores, 1 chip, 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

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Software

Operating System:	SUSE LINUX Enterprise Server 10 SP1 Kernel 2.6.16.46-0.12-smp for x86_64
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: 16 GB (8x2 GB) FB-DIMM PC2-5300F ECC CL5
Disk Subsystem: 1x73 GB SAS, 15000 RPM
Other Hardware: None

Peak Pointers: 32/64-bit
Other Software: Binutils 2.17.50.0.15

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	4	**2518**	**21.6**	2518	21.6	2533	21.5	4	**2365**	**23.0**	2369	22.9	2362	23.0
416.gamess	4	999	78.4	1002	78.2	**1000**	**78.3**	4	989	79.2	**987**	**79.4**	986	79.5
433.milc	4	2580	14.2	2578	14.2	**2579**	**14.2**	4	2544	14.4	**2544**	**14.4**	2537	14.5
434.zeusmp	4	**861**	**42.3**	862	42.2	861	42.3	4	859	42.4	**846**	**43.0**	843	43.2
435.gromacs	4	422	67.7	420	68.0	**422**	**67.7**	4	**416**	**68.6**	419	68.2	416	68.7
436.cactusADM	4	**1009**	**47.4**	1010	47.3	1008	47.4	1	194	61.4	193	61.8	**194**	**61.6**
437.leslie3d	4	2352	16.0	2343	16.1	**2346**	**16.0**	4	2093	18.0	2096	17.9	**2096**	**17.9**
444.namd	4	573	56.0	**570**	**56.3**	570	56.3	4	567	56.5	566	56.7	**566**	**56.7**
447.dealII	4	**554**	**82.6**	554	82.6	551	83.0	4	**530**	**86.3**	530	86.3	535	85.6
450.soplex	4	1584	21.1	**1588**	**21.0**	1589	21.0	4	1326	25.2	1319	25.3	**1319**	**25.3**
453.povray	4	**238**	**89.3**	241	88.4	237	89.7	4	**203**	**105**	203	105	203	105
454.calculix	4	595	55.5	**596**	**55.4**	596	55.3	4	414	79.7	410	80.6	**411**	**80.3**
459.GemsFDTD	4	**2814**	**15.1**	2803	15.1	2821	15.0	4	**2753**	**15.4**	2745	15.5	2754	15.4
465.tonto	4	**632**	**62.3**	630	62.4	632	62.2	4	617	63.8	618	63.6	**618**	**63.7**
470.lbm	4	**3275**	**16.8**	3275	16.8	3275	16.8	4	3207	17.1	**3206**	**17.1**	3205	17.1
481.wrf	4	1360	32.8	1366	32.7	**1364**	**32.8**	4	1360	32.8	1365	32.7	**1362**	**32.8**
482.sphinx3	4	2604	29.9	**2567**	**30.4**	2553	30.5	4	2349	33.2	**2350**	**33.2**	2356	33.1

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

Operating System Notes

```
'/usr/bin/taskset' used to bind processes to CPUs
OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to physical,0
KMP_STACKSIZE set to 64M
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
```

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
```

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

C++ benchmarks:
-fast

Fortran benchmarks:
-fast

Benchmarks using both Fortran and C:
-fast

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 (except as noted below):
`ifort`

437.leslie3d: `/opt/intel/fc/10.1.008/bin/ifort -L/opt/intel/fc/10.1.008/lib -I/opt/intel/fc/10.1.008/include`

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`
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`

Continued on next page

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`

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: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -prefetch -opt-malloc-options=3`

459.GemsFDTD: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -unroll2 -Ob0 -prefetch`

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 -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.20090713.00.html`

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You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/EM64T_Intel101_fp_flags.20090713.00.xml`

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