SPEC® CFP2006 Result

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Bull SAS

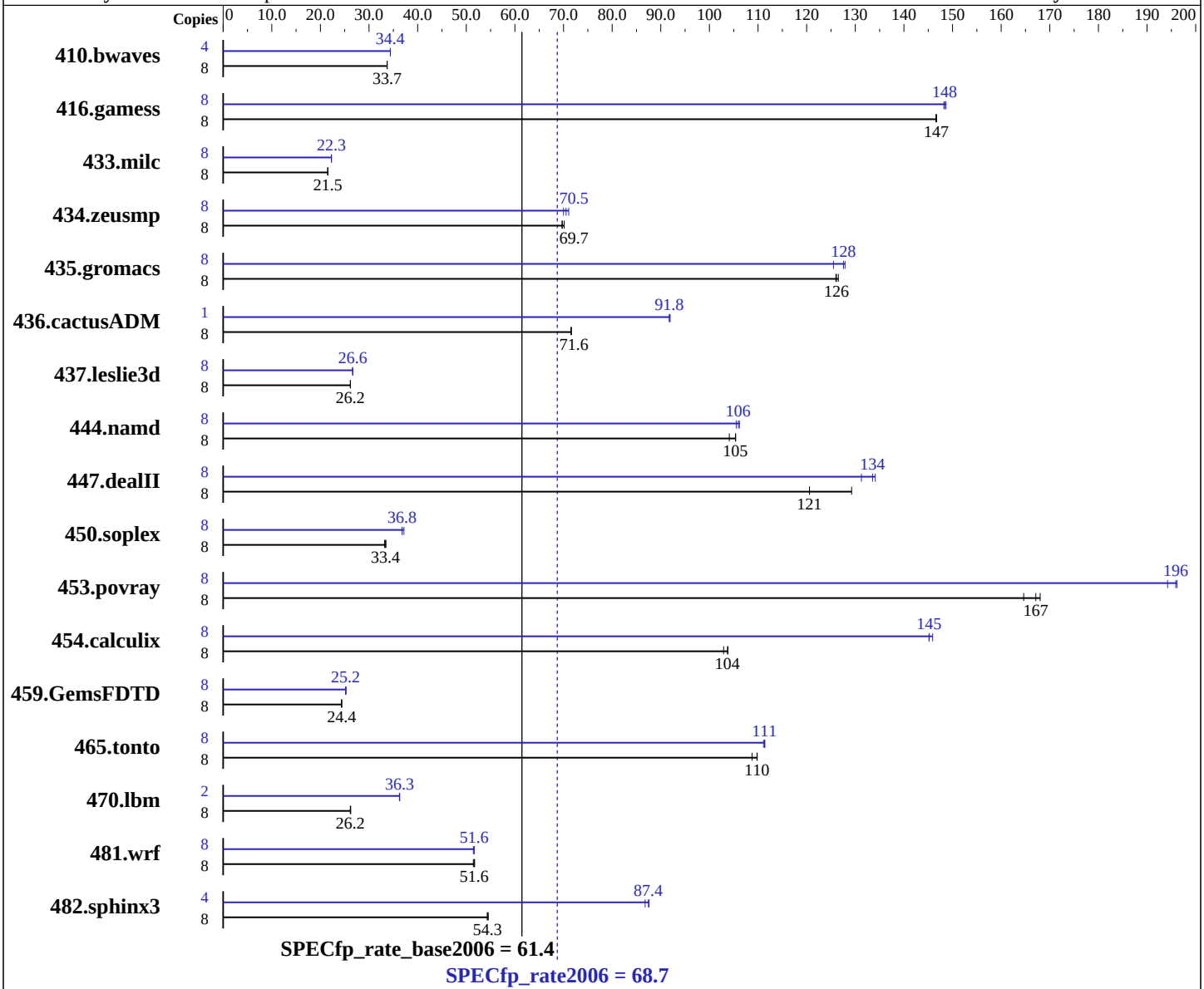
NovaScale R440 E1
(Intel Xeon E5420,2.50GHz)

SPECfp®_rate2006 = 68.7

SPECfp_rate_base2006 = 61.4

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

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



Hardware

CPU Name:	Intel Xeon E5420
CPU Characteristics:	2.50 GHz, 2x6 MB L2 shared, 1333 MHz bus
CPU MHz:	2500
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

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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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L3 Cache: None
Other Cache: None
Memory: 12 GB (12x1 GB PC2-5300F, 2 rank, CL5-5-5, ECC)
Disk Subsystem: 1x73.2 GB SAS, 15000RPM
Other Hardware: None

System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: binutils-2.17.tar.gz, Version 2.17

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	3226	33.7	3222	33.7	**3225**	**33.7**	4	1580	34.4	1581	34.4	**1581**	**34.4**
416.gamess	8	1069	147	**1068**	**147**	1068	147	8	1054	149	**1055**	**148**	1057	148
433.milc	8	3415	21.5	**3410**	**21.5**	3409	21.5	8	3300	22.3	**3298**	**22.3**	3296	22.3
434.zeusmp	8	1045	69.7	1038	70.1	**1044**	**69.7**	8	1040	70.0	**1032**	**70.5**	1024	71.1
435.gromacs	8	453	126	**453**	**126**	451	127	8	447	128	**448**	**128**	455	126
436.cactusADM	8	1335	71.6	1336	71.6	**1336**	**71.6**	1	130	91.9	130	91.8	**130**	**91.8**
437.leslie3d	8	2873	26.2	2874	26.2	**2874**	**26.2**	8	**2822**	**26.6**	2822	26.6	2823	26.6
444.namd	8	609	105	616	104	**609**	**105**	8	604	106	**606**	**106**	608	106
447.dealII	8	**759**	**121**	708	129	759	121	8	**685**	**134**	682	134	697	131
450.soplex	8	2010	33.2	**1997**	**33.4**	1994	33.5	8	1814	36.8	**1812**	**36.8**	1794	37.2
453.povray	8	253	168	259	165	**255**	**167**	8	**217**	**196**	219	194	217	196
454.calculix	8	636	104	**636**	**104**	641	103	8	**454**	**145**	455	145	452	146
459.GemsFDTD	8	**3484**	**24.4**	3489	24.3	3481	24.4	8	3371	25.2	**3371**	**25.2**	3356	25.3
465.tonto	8	717	110	724	109	**717**	**110**	8	**707**	**111**	708	111	707	111
470.lbm	8	4204	26.1	**4199**	**26.2**	4189	26.2	2	757	36.3	758	36.2	**757**	**36.3**
481.wrf	8	1737	51.5	1728	51.7	**1731**	**51.6**	8	**1731**	**51.6**	1737	51.5	1731	51.6
482.sphinx3	8	2860	54.5	**2869**	**54.3**	2869	54.3	4	898	86.8	**892**	**87.4**	890	87.6

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
'/usr/bin/taskset' used to bind processes to CPUs
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 437.leslie3d,
450.soplex, 470.lbm and 482.sphinx3, for peak, are
compiled in 32-bit mode
 The NEC Express5800/120Rh-1(Intel Xeon Prosessor E5420),
 the NEC Express5800/120Rj-2(Intel Xeon Prosessor E5420),
 the Bull NovaScale R440 E1 (Intel Xeon E5420,2.50GHz) and
 the Bull NovaScale R460 E1 (Intel Xeon E5420,2.50GHz) models are electronically equivalent.
 The results have been measured on a NEC Express5800/120Rj-2(Intel Xeon Prosessor E5420) 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`

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`

Continued on next page

Peak Portability Flags (Continued)

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

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

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Peak Optimization Flags (Continued)

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/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`

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