SPEC® CFP2006 Result

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Bull SAS

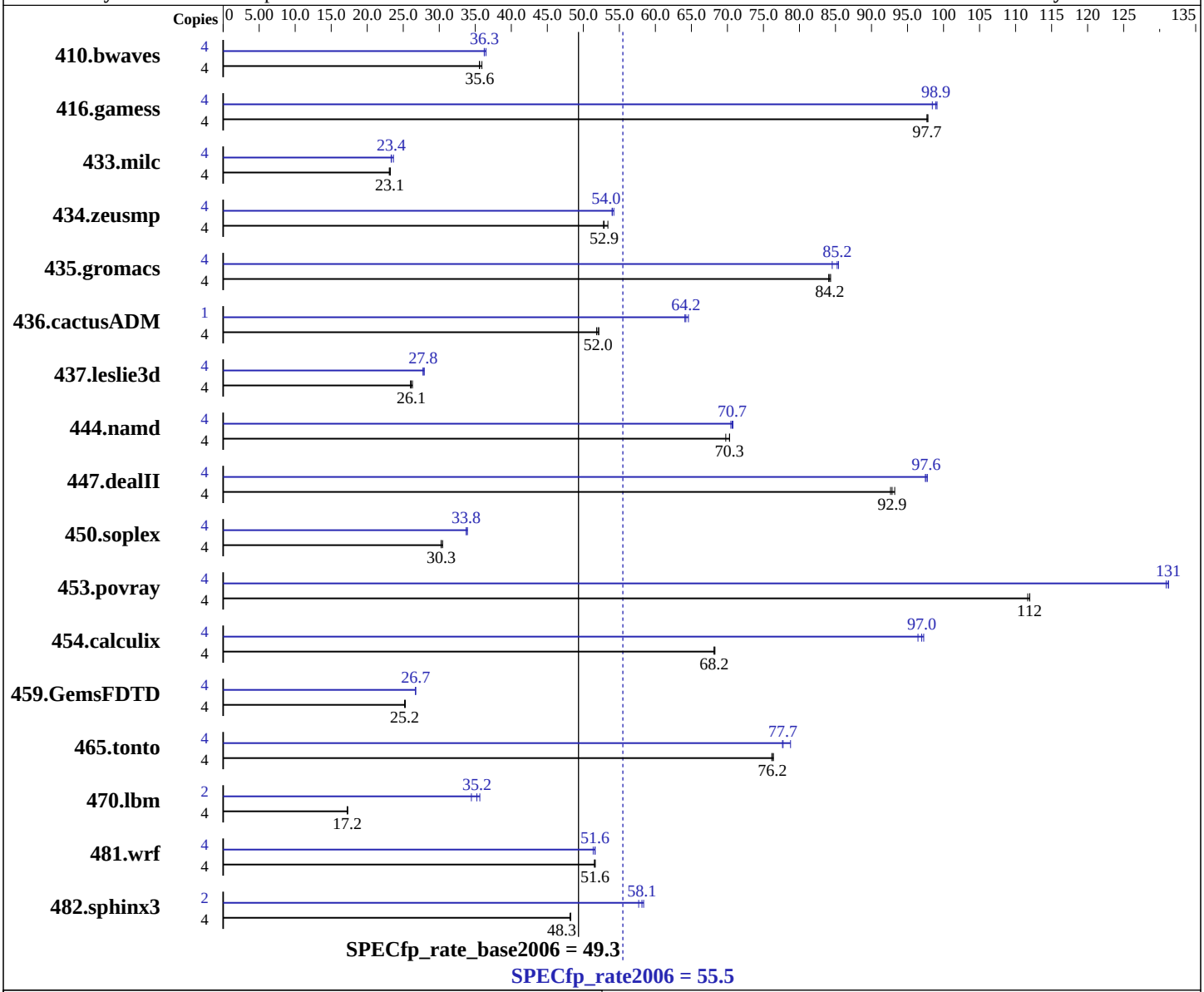
NovaScale R460 E1
(Intel Xeon X5260,3.33GHz)

SPECfp®_rate2006 = 55.5

SPECfp_rate_base2006 = 49.3

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

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



Hardware

CPU Name:	Intel Xeon X5260
CPU Characteristics:	3.33 GHz, 6 MB L2, 1333 MHz bus
CPU MHz:	3333
FPU:	Integrated
CPU(s) enabled:	4 cores, 2 chips, 2 cores/chip
CPU(s) orderable:	1,2 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	6 MB I+D on chip per chip

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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: 1x146.5 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	4	1513	35.9	1528	35.6	**1527**	**35.6**	4	**1498**	**36.3**	1500	36.2	1489	36.5
416.gamess	4	800	97.8	**801**	**97.7**	802	97.7	4	790	99.1	**792**	**98.9**	796	98.4
433.milc	4	1592	23.1	**1587**	**23.1**	1582	23.2	4	1575	23.3	**1572**	**23.4**	1553	23.6
434.zeusmp	4	689	52.8	**688**	**52.9**	682	53.4	4	671	54.2	674	54.0	**674**	**54.0**
435.gromacs	4	**339**	**84.2**	340	84.1	339	84.3	4	338	84.5	**335**	**85.2**	334	85.4
436.cactusADM	4	**919**	**52.0**	916	52.2	922	51.8	1	185	64.6	186	64.1	**186**	**64.2**
437.leslie3d	4	1431	26.3	**1440**	**26.1**	1446	26.0	4	**1353**	**27.8**	1355	27.7	1347	27.9
444.namd	4	**456**	**70.3**	456	70.3	460	69.8	4	**454**	**70.7**	453	70.8	455	70.5
447.dealII	4	**493**	**92.9**	491	93.2	494	92.6	4	469	97.5	**469**	**97.6**	468	97.8
450.soplex	4	1095	30.5	1103	30.3	**1102**	**30.3**	4	988	33.8	**988**	**33.8**	984	33.9
453.povray	4	191	112	**190**	**112**	190	112	4	162	131	163	131	**162**	**131**
454.calculix	4	483	68.3	**484**	**68.2**	484	68.1	4	**340**	**97.0**	342	96.5	339	97.2
459.GemsFDTD	4	1684	25.2	**1684**	**25.2**	1678	25.3	4	1588	26.7	1590	26.7	**1589**	**26.7**
465.tonto	4	515	76.4	**516**	**76.2**	517	76.2	4	507	77.6	500	78.8	**506**	**77.7**
470.lbm	4	**3187**	**17.2**	3177	17.3	3194	17.2	2	797	34.5	**780**	**35.2**	771	35.6
481.wrf	4	**867**	**51.6**	867	51.5	865	51.7	4	**866**	**51.6**	870	51.4	865	51.6
482.sphinx3	4	1615	48.3	**1616**	**48.3**	1619	48.1	2	676	57.7	668	58.4	**671**	**58.1**

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
'/usr/bin/taskset' used to bind processes to CPUs
 OMP_NUM_THREADS set to number of cores
```

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 X5260),
 the NEC Express5800/120Rj-2(Intel Xeon Prosessor X5260),
 the Bull NovaScale R440 E1 (Intel Xeon X5260,3.33GHz) and
 the Bull NovaScale R460 E1 (Intel Xeon X5260,3.33GHz) models are electronically equivalent.
 The results have been measured on a NEC Express5800/120Rj-2(Intel Xeon Prosessor X5260) 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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