SPEC® CFP2006 Result

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Bull SAS

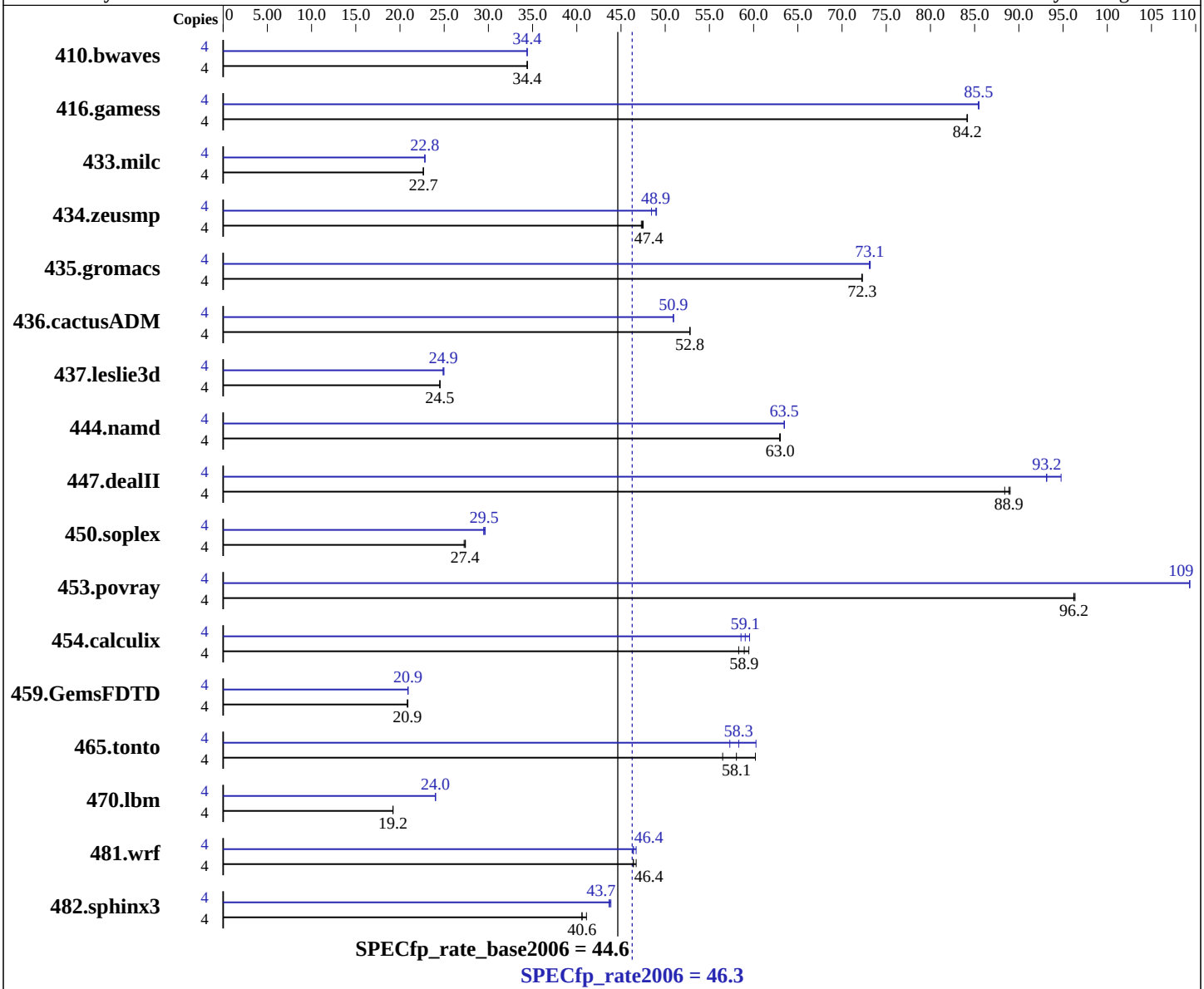
NovaScale R422
(Intel Xeon processor 5160,3.00GHz)

SPECfp®_rate2006 = 46.3

SPECfp_rate_base2006 = 44.6

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

Test date: Sep-2007
Hardware Availability: Aug-2007
Software Availability: Aug-2007



Hardware

CPU Name:	Intel Xeon 5160
CPU Characteristics:	3.00 GHz, 4 MB L2, 1333 MHz system bus
CPU MHz:	3000
FPU:	Integrated
CPU(s) enabled:	4 cores, 2 chips, 2 cores/chip
CPU(s) orderable:	1 to 2 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	4 MB I+D on chip per chip

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Software

Operating System:	SUSE LINUX Enterprise Server 10 Kernel 2.6.16.21-0.8-smp for x86_64
Compiler:	Intel C++ Compiler for IA32/EM64T application version 10.0 Build 20070809 Package ID: l_cc_p_10.0.026 Intel Fortran Compiler for IA32/EM64T application version 10.0 Build 20070809 Package ID: l_fc_p_10.0.026
Auto Parallel:	No
File System:	ext3

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L3 Cache: None
Other Cache: None
Memory: 8 GB (8x1 GB) FB-DIMM PC2-5300F ECC CL5
Disk Subsystem: 1x147 GB SAS, 15000 RPM
Other Hardware: None

System State: Multi-user run level 3
Base Pointers: 32-bit
Peak Pointers: 32-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	1579	34.4	**1581**	**34.4**	1581	34.4	4	1581	34.4	1581	34.4	**1581**	**34.4**
416.gamess	4	930	84.2	**930**	**84.2**	931	84.1	4	**916**	**85.5**	916	85.5	917	85.4
433.milc	4	**1621**	**22.7**	1622	22.6	1621	22.7	4	1609	22.8	**1609**	**22.8**	1610	22.8
434.zeusmp	4	766	47.5	770	47.3	**768**	**47.4**	4	**744**	**48.9**	743	49.0	751	48.5
435.gromacs	4	395	72.3	**395**	**72.3**	395	72.2	4	391	73.1	390	73.2	**391**	**73.1**
436.cactusADM	4	906	52.8	905	52.8	**905**	**52.8**	4	**939**	**50.9**	939	50.9	938	50.9
437.leslie3d	4	1533	24.5	**1533**	**24.5**	1534	24.5	4	1505	25.0	**1509**	**24.9**	1512	24.9
444.namd	4	510	62.9	509	63.0	**509**	**63.0**	4	**505**	**63.5**	506	63.5	505	63.5
447.dealII	4	518	88.4	**515**	**88.9**	514	89.0	4	**491**	**93.2**	491	93.1	483	94.8
450.soplex	4	1217	27.4	**1219**	**27.4**	1224	27.3	4	**1130**	**29.5**	1125	29.6	1132	29.5
453.povray	4	221	96.4	**221**	**96.2**	221	96.2	4	195	109	**195**	**109**	195	109
454.calculix	4	**560**	**58.9**	555	59.5	566	58.3	4	554	59.5	563	58.6	**559**	**59.1**
459.GemsFDTD	4	2037	20.8	**2035**	**20.9**	2031	20.9	4	2029	20.9	2031	20.9	**2030**	**20.9**
465.tonto	4	**678**	**58.1**	654	60.2	697	56.5	4	653	60.3	687	57.3	**675**	**58.3**
470.lbm	4	2862	19.2	2861	19.2	**2861**	**19.2**	4	2290	24.0	**2288**	**24.0**	2288	24.0
481.wrf	4	**963**	**46.4**	956	46.7	963	46.4	4	964	46.4	**963**	**46.4**	957	46.7
482.sphinx3	4	**1920**	**40.6**	1921	40.6	1897	41.1	4	1786	43.6	**1783**	**43.7**	1778	43.9

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

General Notes

```
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
'/usr/bin/taskset' was used to bind processes to CPUs
The R422 is built with two identical (half size) motherboards.
Only one of the two motherboards was powered on during the test run.
All binaries were built with 64-bit Intel compiler except:
437.leslie3d, 450.soplex, 470.lbm and 482.sphinx3 in peak were built with
32-bit Intel compiler by changing the path for include and library files.
```

Base Compiler Invocation

C benchmarks:
icc

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Base Compiler Invocation (Continued)

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/10.0.026/bin/icc -L/opt/intel/cc/10.0.026/lib -I/opt/intel/cc/10.0.026/include`

433.milc: `icc`

C++ benchmarks (except as noted below):
`icpc`

450.soplex: `/opt/intel/cc/10.0.026/bin/icpc -L/opt/intel/cc/10.0.026/lib -I/opt/intel/cc/10.0.026/include`

Fortran benchmarks (except as noted below):
`ifort`

437.leslie3d: `/opt/intel/fc/10.0.026/bin/ifort -L/opt/intel/fc/10.0.026/lib -I/opt/intel/fc/10.0.026/include`

Benchmarks using both Fortran and C:
`icc ifort`

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

433.milc: `-prof_gen`(pass 1) `-prof_use`(pass 2) `-fast -fno-alias`

470.lbm: `-prof_gen`(pass 1) `-prof_use`(pass 2) `-fast -unroll2 -scalar-rep- -prefetch`

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) `-xT -ipo -O3 -no-prec-div`

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Peak Optimization Flags (Continued)

453.povray: `-prof_gen`(pass 1) `-prof_use`(pass 2) `-fast -unroll4 -ansi-alias`

Fortran benchmarks:

410.bwaves: `-fast`

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: `Same as 434.zeusmp`

459.GemsFDTD: `-prof_gen`(pass 1) `-prof_use`(pass 2) `-fast -unroll2 -Ob0`

465.tonto: `-prof_gen`(pass 1) `-prof_use`(pass 2) `-fast -unroll4`

Benchmarks using both Fortran and C:

435.gromacs: `-prof_gen`(pass 1) `-prof_use`(pass 2) `-fast -auto_ilp32`

436.cactusADM: `-prof_gen`(pass 1) `-prof_use`(pass 2) `-fast -unroll2 -auto_ilp32`

454.calculix: `-fast -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/EM64T_Intel100_flags.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/EM64T_Intel100_flags.xml`

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