SPEC® CFP2006 Result

Bull SAS

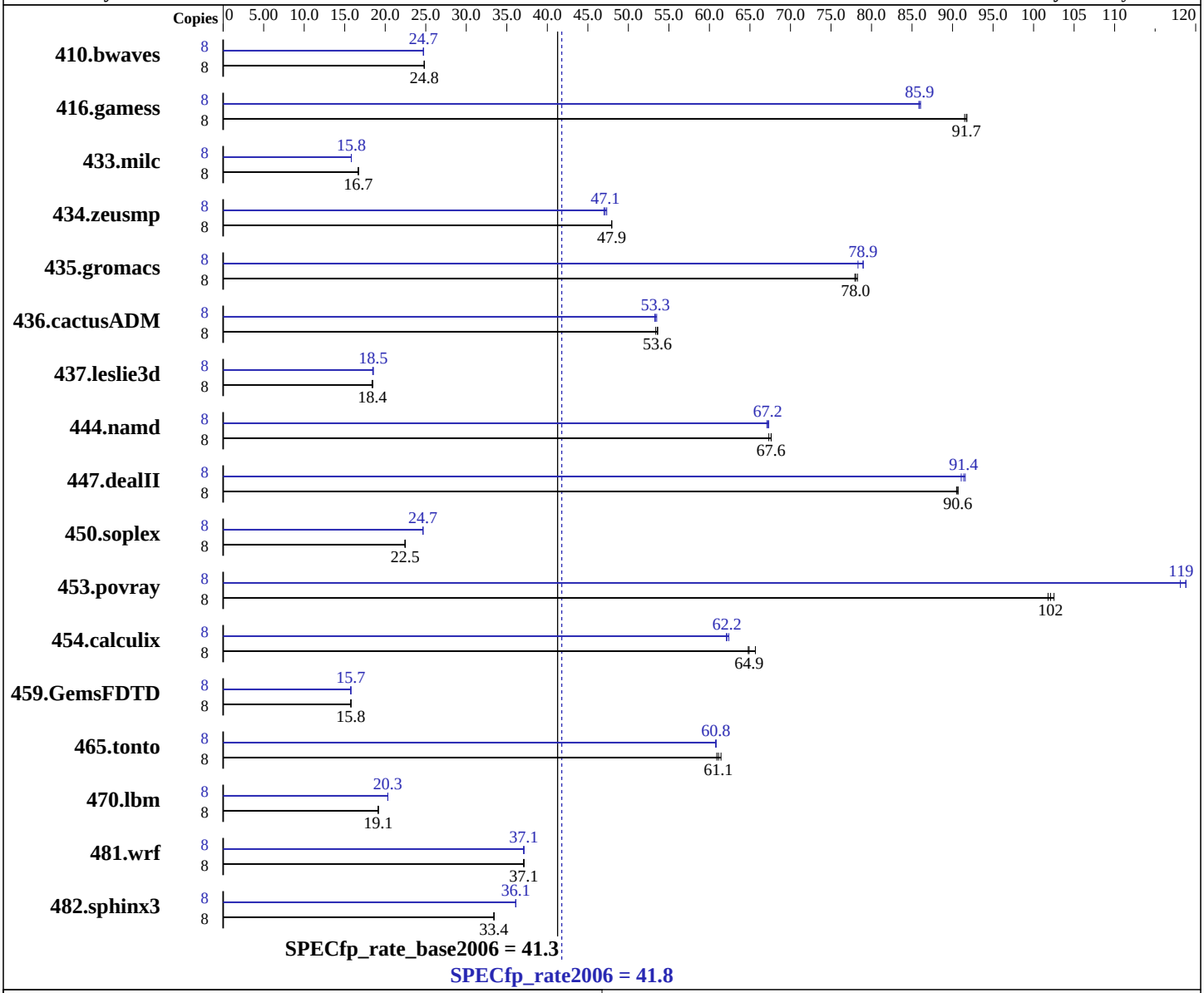
NovaScale R460
(Intel Xeon processor E5310,1.60GHz)

SPECfp®_rate2006 = 41.8

SPECfp_rate_base2006 = 41.3

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

Test date: Jul-2007
Hardware Availability: Mar-2007
Software Availability: May-2007



Hardware

CPU Name:	Intel Xeon E5310
CPU Characteristics:	1.60 GHz, 8 MB L2, 1066 MHz system bus
CPU MHz:	1600
FPU:	Integrated
CPU(s) enabled:	8 cores, 2 chips, 4 cores/chip
CPU(s) orderable:	1 to 2 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	8 MB I+D on chip per chip, 4 MB shared / 2 cores

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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 20070426 Package ID: l_cc_p_10.0.023 Intel Fortran Compiler for IA32/EM64T application version 10.0 Build 20070426 Package ID: l_fc_p_10.0.023
Auto Parallel:	No
File System:	ext2

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L3 Cache:	None	System State:	Multi-user run level 3
Other Cache:	None	Base Pointers:	64-bit
Memory:	12 GB (12x1 GB) FB-DIMM PC2-4200F ECC CL4	Peak Pointers:	32/64-bit
Disk Subsystem:	1x73 GB SAS, 15000 RPM	Other Software:	Binutils 2.17.50.0.15
Other Hardware:	None		

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	4382	24.8	4380	24.8	**4382**	**24.8**	8	4400	24.7	4398	24.7	**4399**	**24.7**
416.gamess	8	**1708**	**91.7**	1707	91.8	1712	91.5	8	1825	85.8	**1823**	**85.9**	1820	86.1
433.milc	8	4404	16.7	**4402**	**16.7**	4402	16.7	8	**4644**	**15.8**	4645	15.8	4643	15.8
434.zeusmp	8	**1519**	**47.9**	1519	47.9	1518	48.0	8	**1544**	**47.1**	1538	47.3	1549	47.0
435.gromacs	8	**732**	**78.0**	733	78.0	730	78.3	8	**724**	**78.9**	729	78.3	723	79.0
436.cactusADM	8	1783	53.6	**1784**	**53.6**	1791	53.4	8	**1793**	**53.3**	1795	53.3	1787	53.5
437.leslie3d	8	4073	18.5	**4082**	**18.4**	4094	18.4	8	4076	18.5	**4061**	**18.5**	4059	18.5
444.namd	8	949	67.6	**949**	**67.6**	953	67.3	8	953	67.3	**955**	**67.2**	956	67.1
447.dealII	8	**1010**	**90.6**	1009	90.7	1011	90.5	8	**1002**	**91.4**	1005	91.1	999	91.6
450.soplex	8	2967	22.5	2975	22.4	**2971**	**22.5**	8	2705	24.7	**2706**	**24.7**	2706	24.7
453.povray	8	418	102	**417**	**102**	415	103	8	360	118	358	119	**358**	**119**
454.calculix	8	**1017**	**64.9**	1019	64.8	1005	65.7	8	**1062**	**62.2**	1063	62.1	1058	62.4
459.GemsFDTD	8	5389	15.8	5379	15.8	**5382**	**15.8**	8	**5390**	**15.7**	5393	15.7	5380	15.8
465.tonto	8	1281	61.4	1292	60.9	**1288**	**61.1**	8	1295	60.8	1294	60.8	**1294**	**60.8**
470.lbm	8	5738	19.2	**5746**	**19.1**	5747	19.1	8	**5409**	**20.3**	5409	20.3	5410	20.3
481.wrf	8	2410	37.1	2407	37.1	**2409**	**37.1**	8	2407	37.1	**2409**	**37.1**	2411	37.1
482.sphinx3	8	4667	33.4	4665	33.4	**4666**	**33.4**	8	4320	36.1	**4317**	**36.1**	4317	36.1

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

General Notes

All binaries were built with 64-bit Intel compiler except:
433.milc, 434.zeusmp, 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.

The NovaScale R440 and the NovaScale R460 models are
electronically equivalent.
The results have been measured on a NovaScale R460 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:
`/opt/intel/cc/10.0.023/bin/icc -L/opt/intel/cc/10.0.023/lib -I/opt/intel/cc/10.0.023/include`

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

450.soplex: `/opt/intel/cc/10.0.023/bin/icpc -L/opt/intel/cc/10.0.023/lib -I/opt/intel/cc/10.0.023/include`

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

434.zeusmp: `/opt/intel/fc/10.0.023/bin/ifort -L/opt/intel/fc/10.0.023/lib -I/opt/intel/fc/10.0.023/include`

Benchmarks using both Fortran and C:
`icc ifort`

Peak Portability Flags

410.bwaves: `-DSPEC_CPU_LP64`
416.gamess: `-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`
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 -auto_ilp32`

470.lbm: `Same as 433.milc`

482.sphinx3: `-fast -auto_ilp32`

C++ benchmarks:
`-prof_gen`(pass 1) `-prof_use`(pass 2) `-fast -auto_ilp32`

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Peak Optimization Flags (Continued)

Fortran benchmarks:

410.bwaves: `-prof_gen`(pass 1) `-prof_use`(pass 2) `-fast`

416.gamess: `Same as 410.bwaves`

434.zeusmp: `-fast`

437.leslie3d: `Same as 410.bwaves`

459.GemsFDTD: `Same as 410.bwaves`

465.tonto: `Same as 410.bwaves`

Benchmarks using both Fortran and C:
`-prof_gen`(pass 1) `-prof_use`(pass 2) `-fast -auto_ilp32`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/EM64T_Intel100_flags.20090714.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/EM64T_Intel100_flags.20090714.xml`

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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