



SPEC[®] CFP2006 Result

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Bull SAS

NovaScale R440 E1
(Intel Xeon E5440, 2.83 GHz)

SPECfp[®]_rate2006 = 40.2

SPECfp_rate_base2006 = 36.8

CPU2006 license: 20

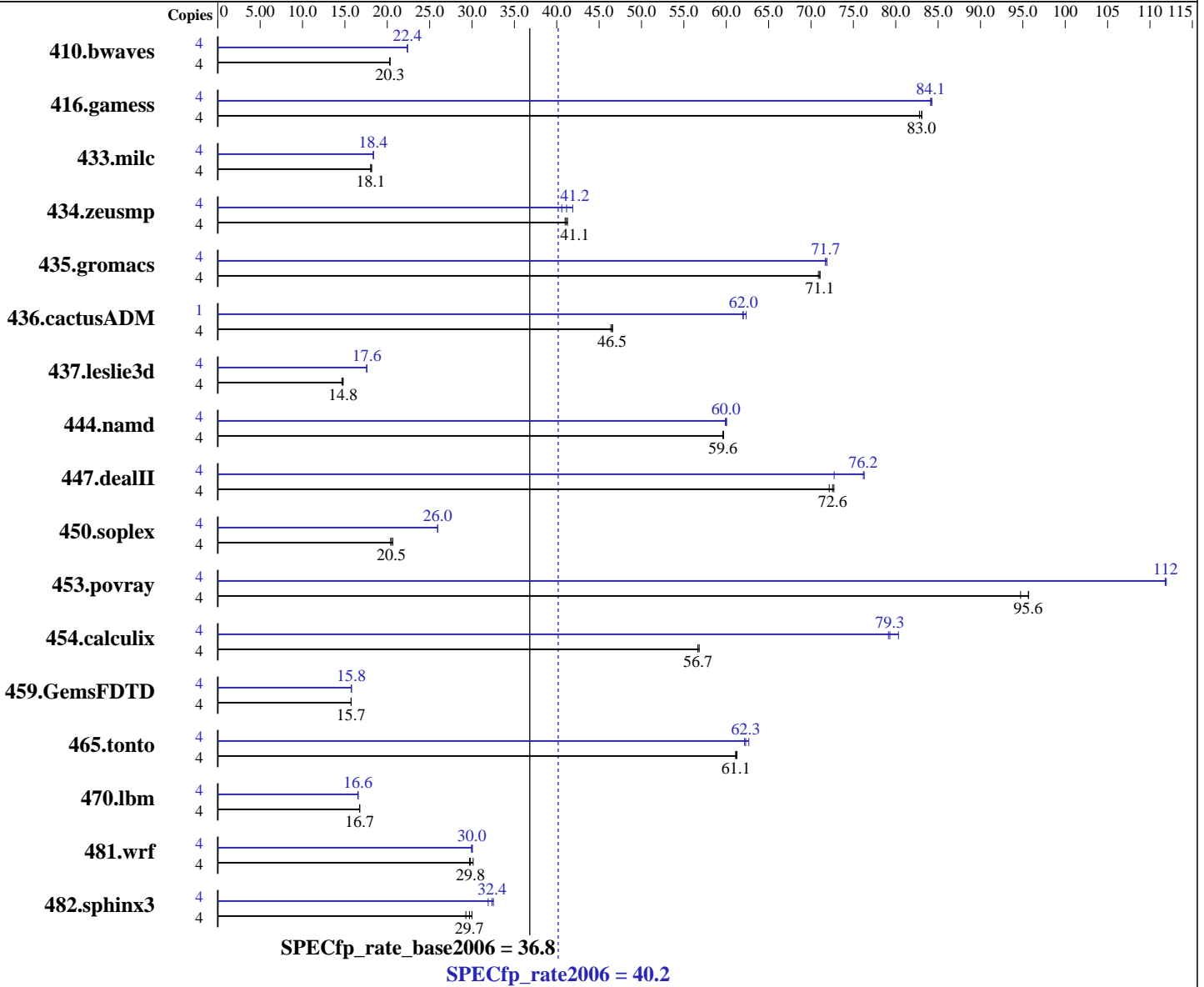
Test sponsor: Bull SAS

Tested by: NEC Corporation

Test date: Jun-2008

Hardware Availability: Apr-2008

Software Availability: Nov-2007



Hardware

CPU Name: Intel Xeon E5440
 CPU Characteristics: 2.83 GHz, 2x6 MB L2 shared, 1333 MHz bus
 CPU MHz: 2833
 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 (x86_64) SP1, Kernel 2.6.16.46-0.12-smp
 Compiler: Intel C++ and Fortran Compiler for Linux version 10.1 Build 20070913 Package ID: l_cc_p_10.1.008, l_fc_p_10.1.008
 Auto Parallel: Yes
 File System: ReiserFS
 System State: Run level 3 (multi-user)

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L3 Cache: None
Other Cache: None
Memory: 16 GB (8x2 GB PC2-5300F, 2 rank, CL5-5-5, ECC)
Disk Subsystem: 1x73.2 GB SAS, 15000RPM
Other Hardware: None

Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: binutils 2.17

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	4	2677	20.3	2675	20.3	2676	20.3	4	2426	22.4	2430	22.4	2430	22.4
416.gamess	4	943	83.0	946	82.8	942	83.1	4	931	84.1	931	84.1	929	84.3
433.milc	4	2035	18.0	2032	18.1	2022	18.2	4	2002	18.3	2000	18.4	1998	18.4
434.zeusmp	4	888	41.0	885	41.1	882	41.3	4	869	41.9	884	41.2	897	40.6
435.gromacs	4	402	71.1	402	71.1	403	70.9	4	397	71.9	398	71.7	398	71.7
436.cactusADM	4	1027	46.5	1026	46.6	1031	46.4	1	193	62.0	193	62.0	192	62.4
437.leslie3d	4	2546	14.8	2542	14.8	2568	14.6	4	2138	17.6	2139	17.6	2139	17.6
444.namd	4	538	59.6	537	59.7	538	59.6	4	535	60.0	534	60.0	536	59.9
447.dealII	4	631	72.6	629	72.7	634	72.2	4	629	72.7	600	76.3	601	76.2
450.soplex	4	1628	20.5	1635	20.4	1615	20.7	4	1286	25.9	1285	26.0	1285	26.0
453.povray	4	222	95.7	225	94.7	222	95.6	4	190	112	190	112	190	112
454.calculix	4	583	56.7	581	56.8	582	56.7	4	417	79.1	411	80.3	416	79.3
459.GemsFDTD	4	2695	15.7	2699	15.7	2697	15.7	4	2692	15.8	2695	15.7	2691	15.8
465.tonto	4	642	61.3	644	61.1	644	61.1	4	628	62.7	632	62.3	633	62.2
470.lbm	4	3283	16.7	3282	16.7	3282	16.7	4	3321	16.6	3321	16.6	3320	16.6
481.wrf	4	1483	30.1	1504	29.7	1498	29.8	4	1493	29.9	1487	30.1	1489	30.0
482.sphinx3	4	2599	30.0	2625	29.7	2663	29.3	4	2409	32.4	2443	31.9	2397	32.5

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
except for 436.cactusADM at peak.
OMP_NUM_THREADS set to number of cores

Platform Notes

Bios settings:
Hardware Prefetcher: Disabled
Adjacent Cache Line Prefetch: Disabled
Intel SpeedStep Technology: Disabled



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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 E5440), the NEC Express5800/120Rj-2(Intel Xeon E5440), the Bull NovaScale R440 E1 (Intel Xeon E5440,2.83GHz) and the Bull NovaScale R460 E1 (Intel Xeon E5440,2.83GHz) models are electronically equivalent. The results have been measured on a NEC Express5800/120Rj-2(Intel Xeon E5440) 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.deallI: -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



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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

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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.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.xml>

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For other inquiries, please contact webmaster@spec.org.

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