



SPEC® CFP2006 Result

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NEC Corporation

Express5800/B120a-d
(Intel Xeon E5502)

SPECfp®_rate2006 = 70.9

SPECfp_rate_base2006 = 68.0

CPU2006 license: 9006

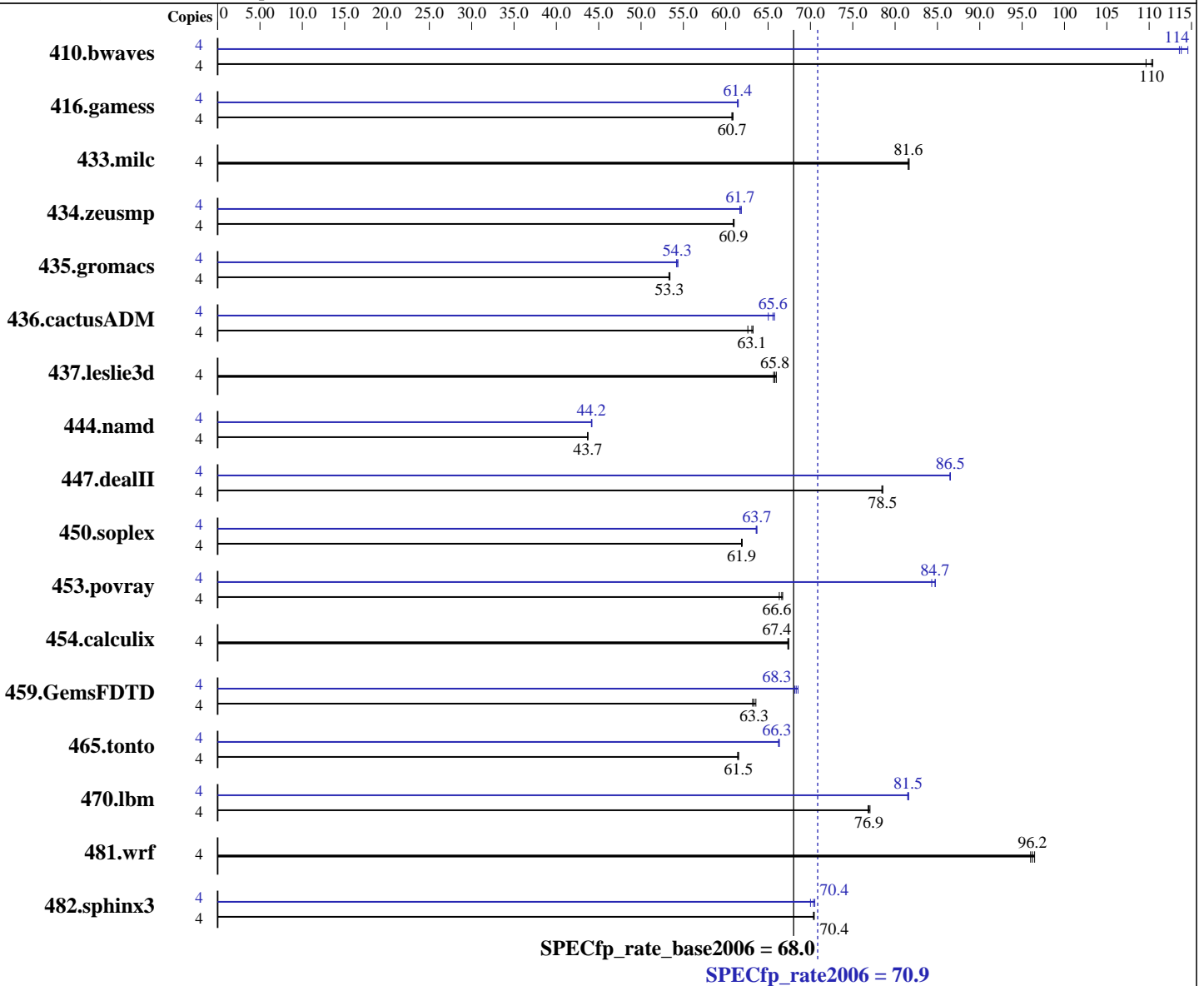
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Jul-2009

Hardware Availability: Jun-2009

Software Availability: Feb-2009



Hardware

CPU Name: Intel Xeon E5502
 CPU Characteristics:
 CPU MHz: 1867
 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: 256 KB I+D on chip per core

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Software

Operating System: SUSE Linux Enterprise Server 10 (x86_64)
 SP2 with patch Linux kernel 20090119,
 Kernel 2.6.16.60-0.34-smp
 Compiler: Intel C++ and Fortran Compiler Professional 11.0
 for Linux
 Build 20090131 Package ID: l_cproc_p_11.0.081,
 l_cprof_p_11.0.081
 Auto Parallel: No
 File System: ReiserFS

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L3 Cache: 4 MB I+D on chip per chip
Other Cache: None
Memory: 48 GB (12 X 4 GB PC3-8500R running at 800 MHz)
Disk Subsystem: 1x73.2 GB SAS, 10000 RPM
Other Hardware: None

System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: Binutils 2.18.50.0.7.20080502

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	4	496	110	<u>493</u>	<u>110</u>	492	110	4	474	115	<u>478</u>	<u>114</u>	479	114
416.gamess	4	1289	60.7	<u>1289</u>	<u>60.7</u>	1287	60.9	4	<u>1275</u>	<u>61.4</u>	1274	61.5	1276	61.4
433.milc	4	450	81.6	450	81.7	<u>450</u>	<u>81.6</u>	4	450	81.6	450	81.7	<u>450</u>	<u>81.6</u>
434.zeusmp	4	598	60.9	<u>597</u>	<u>60.9</u>	597	61.0	4	589	61.8	590	61.7	<u>590</u>	<u>61.7</u>
435.gromacs	4	<u>535</u>	<u>53.3</u>	535	53.4	536	53.3	4	527	54.2	525	54.4	<u>526</u>	<u>54.3</u>
436.cactusADM	4	756	63.2	763	62.6	<u>758</u>	<u>63.1</u>	4	<u>729</u>	<u>65.6</u>	735	65.0	727	65.8
437.leslie3d	4	<u>571</u>	<u>65.8</u>	573	65.7	570	66.0	4	<u>571</u>	<u>65.8</u>	573	65.7	570	66.0
444.namd	4	<u>734</u>	<u>43.7</u>	734	43.7	735	43.7	4	726	44.2	727	44.1	<u>727</u>	<u>44.2</u>
447.dealII	4	583	78.5	<u>583</u>	<u>78.5</u>	583	78.4	4	<u>529</u>	<u>86.5</u>	529	86.5	529	86.5
450.soplex	4	539	61.9	<u>539</u>	<u>61.9</u>	539	61.9	4	<u>524</u>	<u>63.7</u>	524	63.7	525	63.6
453.povray	4	321	66.3	<u>319</u>	<u>66.6</u>	319	66.7	4	252	84.3	<u>251</u>	<u>84.7</u>	251	84.7
454.calculix	4	<u>490</u>	<u>67.4</u>	489	67.4	490	67.3	4	<u>490</u>	<u>67.4</u>	489	67.4	490	67.3
459.GemsFDTD	4	<u>670</u>	<u>63.3</u>	668	63.6	672	63.2	4	623	68.2	<u>621</u>	<u>68.3</u>	619	68.5
465.tonto	4	640	61.5	641	61.4	<u>640</u>	<u>61.5</u>	4	<u>594</u>	<u>66.3</u>	593	66.3	594	66.2
470.lbm	4	713	77.0	<u>715</u>	<u>76.9</u>	716	76.8	4	673	81.6	<u>674</u>	<u>81.5</u>	674	81.5
481.wrf	4	<u>464</u>	<u>96.2</u>	463	96.5	465	96.0	4	<u>464</u>	<u>96.2</u>	463	96.5	465	96.0
482.sphinx3	4	<u>1108</u>	<u>70.4</u>	1108	70.4	1107	70.5	4	1106	70.5	1114	70.0	<u>1108</u>	<u>70.4</u>

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

Submit Notes

The config file option 'submit' was used.
numactl was used to bind copies to the cores

Operating System Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run

Platform Notes

BIOS setting:
NUMA configuration: Enabled



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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:
-xSSE4.2 -ipo -O3 -no-prec-div -static

C++ benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -static

Fortran benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -static

Benchmarks using both Fortran and C:
-xSSE4.2 -ipo -O3 -no-prec-div -static



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Peak Compiler Invocation

C benchmarks (except as noted below):

icc

482.sphinx3: icc -m32

C++ benchmarks (except as noted below):

icpc

450.soplex: icpc -m32

Fortran benchmarks:

ifort

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
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
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

433.milc: basepeak = yes

470.lbm: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch
-auto-ilp32

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -static -unroll2

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Peak Optimization Flags (Continued)

C++ benchmarks:

444.namd: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-fno-alias -auto-ilp32

447.dealIII: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-unroll2 -ansi-alias -scalar-rep-

450.soplex: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-opt-malloc-options=3

453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch

416.gamess: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-unroll2 -Ob0 -ansi-alias -scalar-rep-

434.zeusmp: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)

437.leslie3d: basepeak = yes

459.GemsFDTD: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-unroll2 -Ob0 -opt-prefetch

465.tonto: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-unroll4 -auto

Benchmarks using both Fortran and C:

435.gromacs: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-opt-prefetch -auto-ilp32

436.cactusADM: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-unroll2 -opt-prefetch -auto-ilp32

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Peak Optimization Flags (Continued)

454.calculix: basepeak = yes

481.wrf: basepeak = yes

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revH.html>

<http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revE.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revH.xml>

<http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revE.xml>

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

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