



SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

NEC Corporation

Express5800/B120a
(Intel Xeon E5502)

SPECfp®_rate2006 = 70.7

SPECfp_rate_base2006 = 67.8

CPU2006 license: 9006

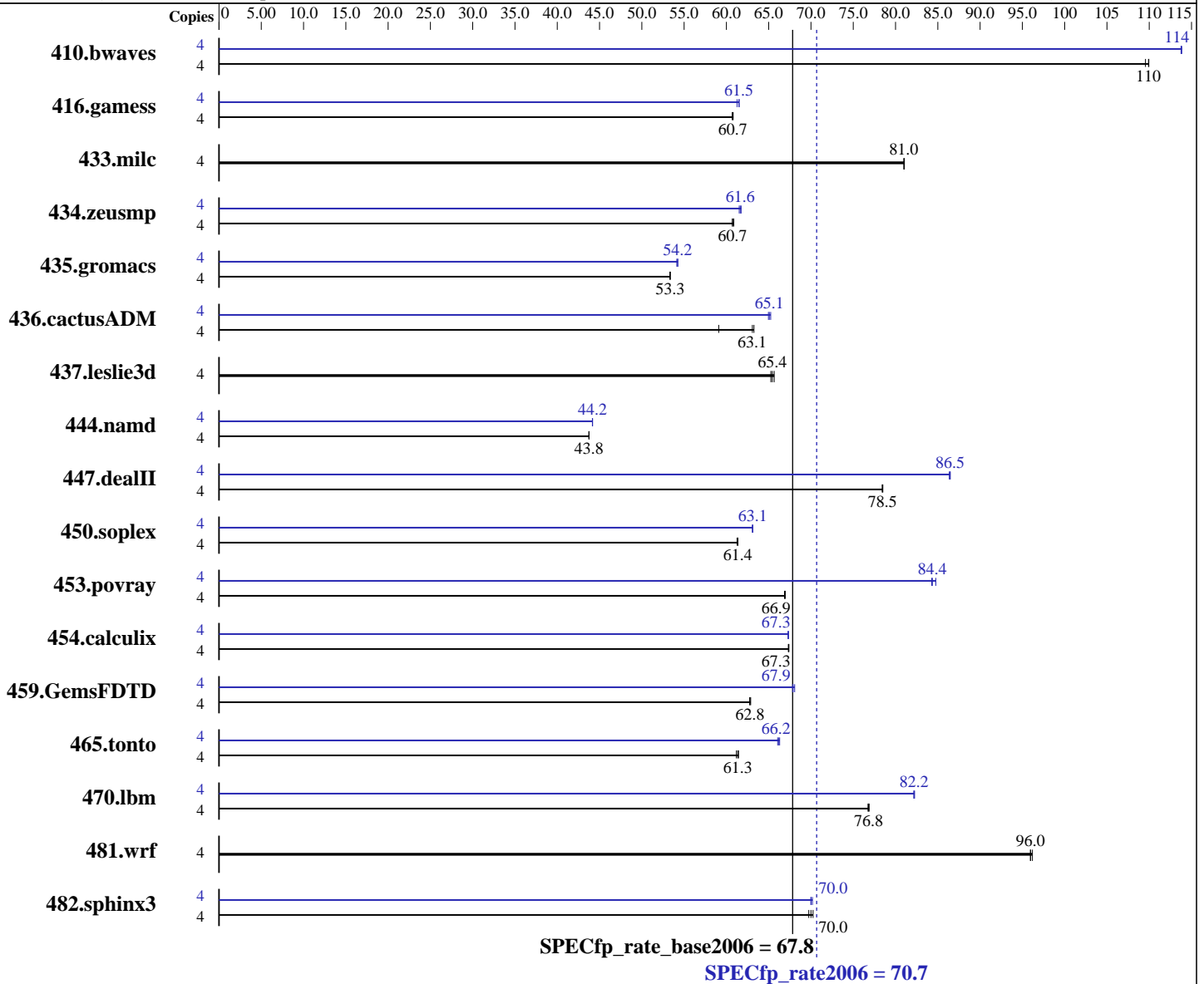
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Aug-2009

Hardware Availability: Apr-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: 24 GB (6 X 4 GB PC3-8500R running at 800 MHz)
Disk Subsystem: 1x73 GB SATA2, 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>495</u>	<u>110</u>	494	110	4	478	114	<u>478</u>	<u>114</u>	477	114
416.gamess	4	1288	60.8	<u>1289</u>	<u>60.7</u>	1291	60.7	4	1273	61.5	<u>1274</u>	<u>61.5</u>	1278	61.3
433.milc	4	<u>453</u>	<u>81.0</u>	453	81.0	453	81.0	4	<u>453</u>	<u>81.0</u>	453	81.0	453	81.0
434.zeusmp	4	600	60.7	598	60.9	<u>599</u>	<u>60.7</u>	4	592	61.5	<u>591</u>	<u>61.6</u>	590	61.7
435.gromacs	4	<u>535</u>	<u>53.3</u>	535	53.4	536	53.3	4	<u>527</u>	<u>54.2</u>	528	54.1	526	54.3
436.cactusADM	4	756	63.3	809	59.1	<u>758</u>	<u>63.1</u>	4	<u>735</u>	<u>65.1</u>	733	65.2	736	65.0
437.leslie3d	4	<u>575</u>	<u>65.4</u>	573	65.6	576	65.3	4	<u>575</u>	<u>65.4</u>	573	65.6	576	65.3
444.namd	4	<u>733</u>	<u>43.8</u>	733	43.8	733	43.7	4	726	44.2	<u>726</u>	<u>44.2</u>	727	44.2
447.dealII	4	583	78.5	<u>583</u>	<u>78.5</u>	583	78.4	4	530	86.4	529	86.5	<u>529</u>	<u>86.5</u>
450.soplex	4	544	61.4	<u>544</u>	<u>61.4</u>	545	61.3	4	529	63.1	529	63.1	<u>529</u>	<u>63.1</u>
453.povray	4	318	67.0	<u>318</u>	<u>66.9</u>	318	66.9	4	251	84.8	<u>252</u>	<u>84.4</u>	252	84.3
454.calculix	4	<u>490</u>	<u>67.3</u>	490	67.3	490	67.4	4	<u>490</u>	<u>67.3</u>	490	67.3	490	67.3
459.GemsFDTD	4	676	62.8	675	62.9	<u>676</u>	<u>62.8</u>	4	<u>625</u>	<u>67.9</u>	626	67.8	623	68.1
465.tonto	4	643	61.2	641	61.4	<u>642</u>	<u>61.3</u>	4	594	66.3	596	66.1	<u>595</u>	<u>66.2</u>
470.lbm	4	<u>716</u>	<u>76.8</u>	716	76.7	715	76.9	4	668	82.3	<u>669</u>	<u>82.2</u>	669	82.2
481.wrf	4	466	95.9	465	96.2	<u>466</u>	<u>96.0</u>	4	466	95.9	465	96.2	<u>466</u>	<u>96.0</u>
482.sphinx3	4	1110	70.2	<u>1114</u>	<u>70.0</u>	1118	69.7	4	1111	70.2	1114	70.0	<u>1113</u>	<u>70.0</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: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32

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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