



SPEC® CFP2006 Result

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NEC Corporation

Express5800/120Rj-2
(Intel Xeon E5420)

SPECfp®_rate2006 = 38.5

SPECfp_rate_base2006 = 35.4

CPU2006 license: 9006

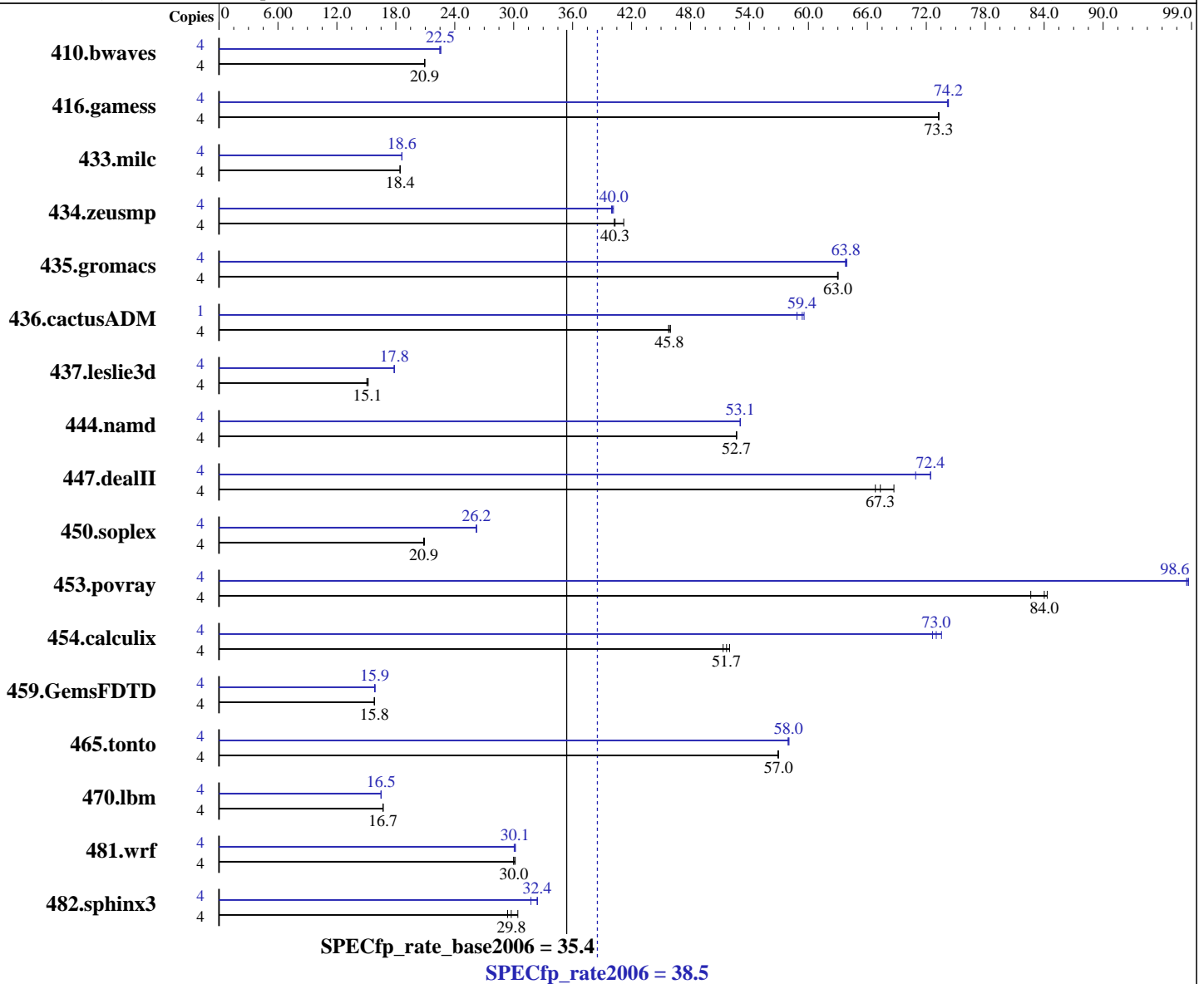
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: May-2008

Hardware Availability: Apr-2008

Software Availability: Nov-2007



Hardware

CPU Name: Intel Xeon E5420
 CPU Characteristics: 2.50 GHz, 2x6 MB L2 shared, 1333 MHz bus
 CPU MHz: 2500
 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-smpp
 Compiler: Intel C++ and Fortran Compiler for Linux32 and Linux64 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

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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

System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: binutils-2.17.tar.gz, Version 2.17

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	4	2593	21.0	<u>2598</u>	<u>20.9</u>	2598	20.9	4	2407	22.6	2419	22.5	<u>2411</u>	<u>22.5</u>
416.gamess	4	1069	73.3	<u>1069</u>	<u>73.3</u>	1070	73.2	4	1055	74.3	1056	74.1	<u>1055</u>	<u>74.2</u>
433.milc	4	1992	18.4	1991	18.4	<u>1992</u>	<u>18.4</u>	4	1972	18.6	<u>1972</u>	<u>18.6</u>	1971	18.6
434.zeusmp	4	<u>903</u>	<u>40.3</u>	905	40.2	883	41.2	4	906	40.2	<u>909</u>	<u>40.0</u>	911	40.0
435.gromacs	4	454	63.0	<u>453</u>	<u>63.0</u>	453	63.0	4	<u>448</u>	<u>63.8</u>	448	63.8	447	63.9
436.cactusADM	4	<u>1043</u>	<u>45.8</u>	1044	45.8	1040	46.0	1	201	59.6	203	58.8	<u>201</u>	<u>59.4</u>
437.leslie3d	4	2476	15.2	<u>2486</u>	<u>15.1</u>	2498	15.1	4	2106	17.9	<u>2107</u>	<u>17.8</u>	2109	17.8
444.namd	4	609	52.7	609	52.7	<u>609</u>	<u>52.7</u>	4	605	53.0	<u>604</u>	<u>53.1</u>	604	53.1
447.dealII	4	<u>680</u>	<u>67.3</u>	685	66.8	666	68.7	4	<u>632</u>	<u>72.4</u>	645	70.9	632	72.4
450.soplex	4	1601	20.8	1595	20.9	<u>1600</u>	<u>20.9</u>	4	1274	26.2	<u>1272</u>	<u>26.2</u>	1272	26.2
453.povray	4	252	84.3	258	82.6	<u>253</u>	<u>84.0</u>	4	<u>216</u>	<u>98.6</u>	216	98.5	216	98.7
454.calculix	4	643	51.3	<u>639</u>	<u>51.7</u>	635	52.0	4	<u>452</u>	<u>73.0</u>	449	73.5	454	72.6
459.GemsFDTD	4	2683	15.8	2682	15.8	<u>2683</u>	<u>15.8</u>	4	<u>2677</u>	<u>15.9</u>	2680	15.8	2669	15.9
465.tonto	4	691	57.0	692	56.9	<u>691</u>	<u>57.0</u>	4	<u>679</u>	<u>58.0</u>	678	58.0	679	57.9
470.lbm	4	3291	16.7	3290	16.7	<u>3291</u>	<u>16.7</u>	4	3331	16.5	<u>3331</u>	<u>16.5</u>	3330	16.5
481.wrf	4	1490	30.0	1482	30.2	<u>1488</u>	<u>30.0</u>	4	<u>1483</u>	<u>30.1</u>	1487	30.0	1481	30.2
482.sphinx3	4	2563	30.4	2653	29.4	<u>2620</u>	<u>29.8</u>	4	2455	31.8	2404	32.4	<u>2408</u>	<u>32.4</u>

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 E5420) and the NEC Express5800/120Rj-2(Intel Xeon E5420) models are electronically equivalent. The results have been measured on a NEC Express5800/120Rj-2(Intel Xeon E5420) 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

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Base Optimization Flags (Continued)

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
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64

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Peak Portability Flags (Continued)

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
465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4 -auto

Benchmarks using both Fortran and C:

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Peak Optimization Flags (Continued)

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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