



# SPEC<sup>®</sup> CFP2006 Result

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## NEC Corporation

Express5800/i120Ra-e1  
(Intel Xeon L5240)

SPECfp<sup>®</sup>\_rate2006 = 50.6

SPECfp\_rate\_base2006 = 46.1

CPU2006 license: 9006

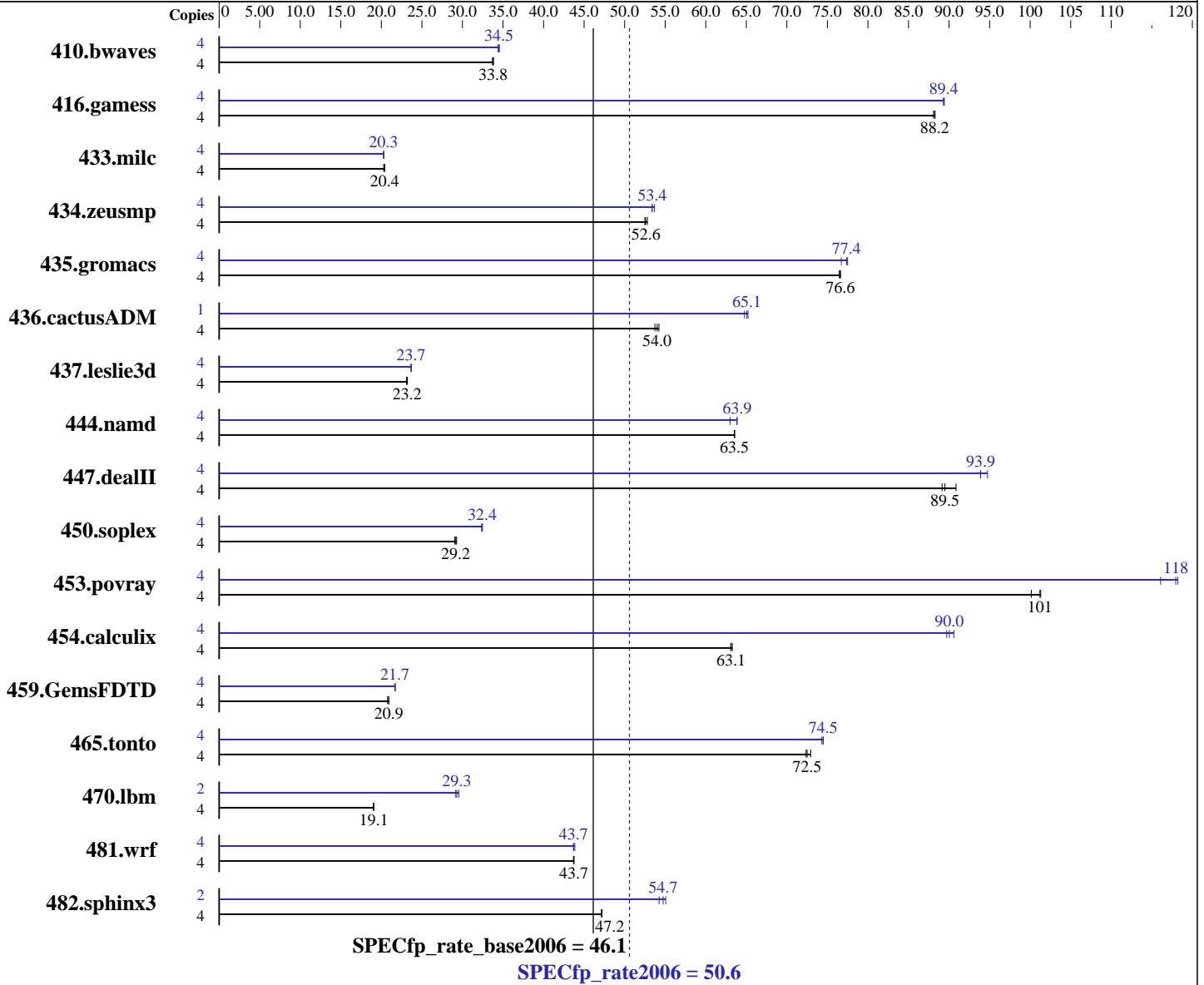
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Jun-2008

Hardware Availability: May-2008

Software Availability: Nov-2007



### Hardware

CPU Name: Intel Xeon L5240  
 CPU Characteristics: 3.00 GHz, 6 MB L2, 1333 MHz bus  
 CPU MHz: 3000  
 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: 6 MB I+D on chip per chip

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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 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 (4x4 GB PC2-5300P, 2 rank, CL5-5-5, ECC)  
Disk Subsystem: 1x80.0 GB SATAII, 7200RPM  
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	1613	33.7	1607	33.8	<u>1609</u>	<u>33.8</u>	4	<u>1575</u>	<u>34.5</u>	1580	34.4	1574	34.5
416.gamess	4	889	88.1	887	88.3	<u>888</u>	<u>88.2</u>	4	<u>877</u>	<u>89.4</u>	877	89.3	876	89.4
433.milc	4	1809	20.3	<u>1800</u>	<u>20.4</u>	1799	20.4	4	1808	20.3	<u>1810</u>	<u>20.3</u>	1811	20.3
434.zeusmp	4	693	52.5	<u>692</u>	<u>52.6</u>	689	52.8	4	678	53.7	682	53.4	<u>682</u>	<u>53.4</u>
435.gromacs	4	<u>373</u>	<u>76.6</u>	373	76.6	374	76.5	4	<u>369</u>	<u>77.4</u>	369	77.5	372	76.7
436.cactusADM	4	<u>885</u>	<u>54.0</u>	881	54.2	890	53.7	1	183	65.2	<u>184</u>	<u>65.1</u>	184	64.8
437.leslie3d	4	<u>1623</u>	<u>23.2</u>	1627	23.1	1620	23.2	4	<u>1588</u>	<u>23.7</u>	1589	23.7	1588	23.7
444.namd	4	<u>505</u>	<u>63.5</u>	505	63.5	505	63.5	4	502	63.9	509	63.0	<u>502</u>	<u>63.9</u>
447.dealII	4	504	90.9	<u>511</u>	<u>89.5</u>	513	89.1	4	<u>487</u>	<u>93.9</u>	487	93.9	483	94.7
450.soplex	4	1148	29.0	<u>1143</u>	<u>29.2</u>	1139	29.3	4	<u>1028</u>	<u>32.4</u>	1028	32.5	1031	32.4
453.povray	4	212	100	<u>210</u>	<u>101</u>	210	101	4	<u>180</u>	<u>118</u>	183	116	180	118
454.calculix	4	522	63.3	523	63.1	<u>523</u>	<u>63.1</u>	4	<u>367</u>	<u>90.0</u>	364	90.6	368	89.7
459.GemsFDTD	4	<u>2030</u>	<u>20.9</u>	2027	20.9	2044	20.8	4	1956	21.7	<u>1956</u>	<u>21.7</u>	1957	21.7
465.tonto	4	<u>543</u>	<u>72.5</u>	544	72.4	540	72.9	4	528	74.5	530	74.3	<u>528</u>	<u>74.5</u>
470.lbm	4	2889	19.0	<u>2881</u>	<u>19.1</u>	2880	19.1	2	930	29.6	942	29.2	<u>938</u>	<u>29.3</u>
481.wrf	4	1023	43.7	<u>1022</u>	<u>43.7</u>	1021	43.8	4	1022	43.7	1019	43.9	<u>1022</u>	<u>43.7</u>
482.sphinx3	4	1652	47.2	1654	47.1	<u>1653</u>	<u>47.2</u>	2	718	54.3	<u>712</u>	<u>54.7</u>	708	55.1

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  
except for 436.cactusADM at peak.  
OMP\_NUM\_THREADS set to number of cores

## Platform Notes

Bios settings:  
Hardware Prefetcher: Enabled  
Adjacent Cache Line Prefetch: Enabled  
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

## 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

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## Base Optimization Flags (Continued)

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  
465.tonto: -DSPEC\_CPU\_LP64  
481.wrf: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_CASE\_FLAG -DSPEC\_CPU\_LINUX



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## 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:

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

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## Peak Optimization Flags (Continued)

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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