



# SPEC® CFP2006 Result

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## NEC Corporation

Express5800/R110a-1  
(Intel Xeon X3360)

SPECfp®\_rate2006 = 51.2

SPECfp\_rate\_base2006 = 49.4

CPU2006 license: 9006

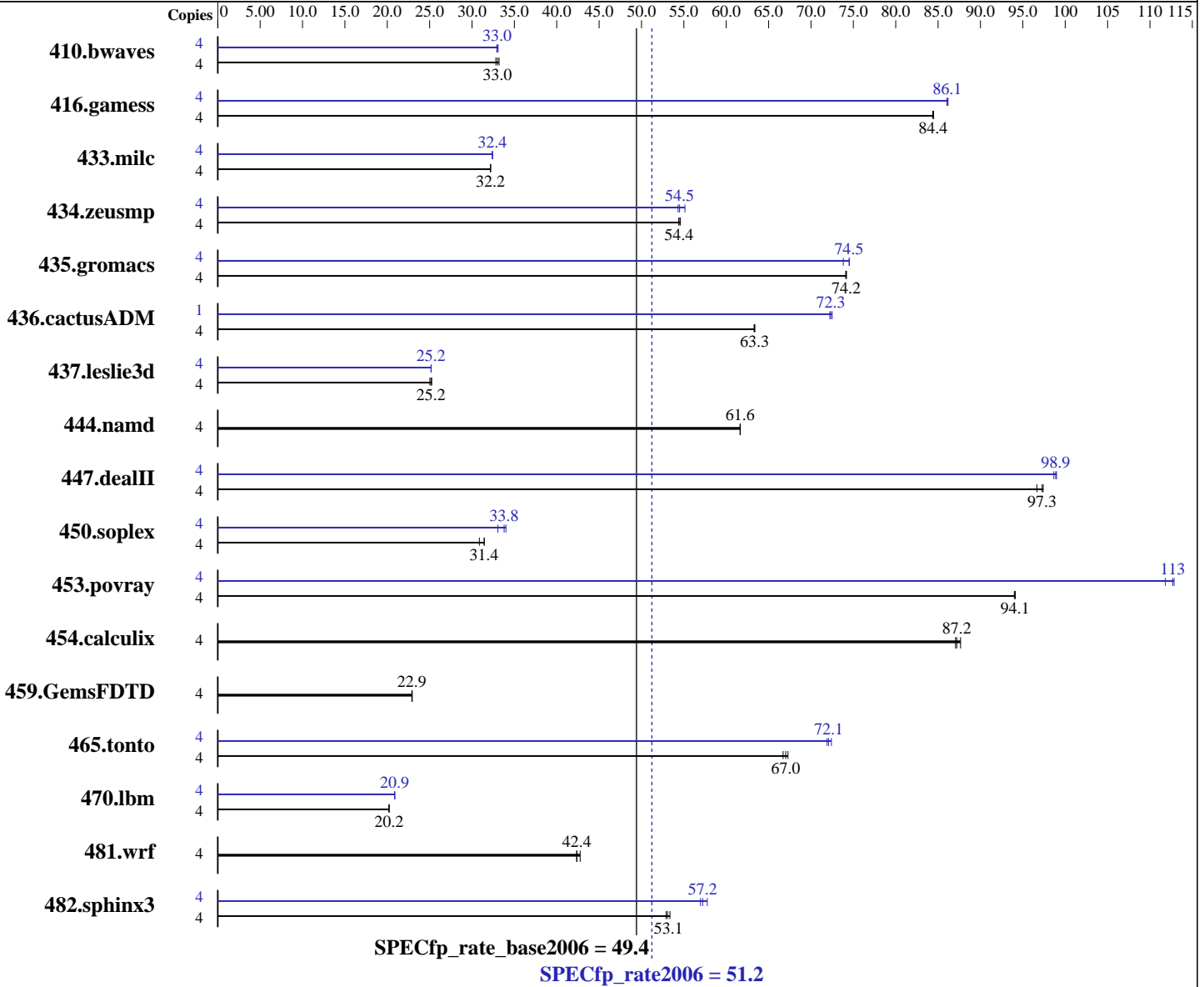
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Jul-2009

Hardware Availability: May-2009

Software Availability: Nov-2008



### Hardware

CPU Name: Intel Xeon X3360  
 CPU Characteristics: 1333 MHz system bus  
 CPU MHz: 2833  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip  
 CPU(s) orderable: 1 chip  
 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) SP2, Kernel 2.6.16.60-0.21-smp  
 Compiler: Intel C++ and Fortran Compiler Professional 11.0 for Linux  
 Build 20080930 Package ID: l\_cproc\_p\_11.0.069, l\_cprof\_p\_11.0.069  
 Auto Parallel: Yes  
 File System: ReiserFS  
 System State: Run level 3 (multi-user)

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L3 Cache: None  
Other Cache: None  
Memory: 8 GB (4x2 GB PC2-6400E, 2 rank, CL6-6-6, ECC)  
Disk Subsystem: 1x160 GB SATA2, 7200 RPM  
Other Hardware: None

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	1657	32.8	1638	33.2	<b>1647</b>	<b>33.0</b>	4	<b>1648</b>	<b>33.0</b>	1643	33.1	1651	32.9
416.gamess	4	927	84.5	<b>928</b>	<b>84.4</b>	928	84.4	4	<b>910</b>	<b>86.1</b>	910	86.0	909	86.2
433.milc	4	1141	32.2	1141	32.2	<b>1141</b>	<b>32.2</b>	4	1133	32.4	<b>1133</b>	<b>32.4</b>	1133	32.4
434.zeusmp	4	<b>669</b>	<b>54.4</b>	667	54.6	669	54.4	4	670	54.3	660	55.1	<b>668</b>	<b>54.5</b>
435.gromacs	4	<b>385</b>	<b>74.2</b>	385	74.2	385	74.1	4	383	74.5	<b>383</b>	<b>74.5</b>	387	73.8
436.cactusADM	4	754	63.4	<b>755</b>	<b>63.3</b>	755	63.3	1	165	72.5	165	72.2	<b>165</b>	<b>72.3</b>
437.leslie3d	4	<b>1494</b>	<b>25.2</b>	1489	25.2	1502	25.0	4	1494	25.2	<b>1493</b>	<b>25.2</b>	1493	25.2
444.namd	4	520	61.6	520	61.6	<b>520</b>	<b>61.6</b>	4	520	61.6	520	61.6	<b>520</b>	<b>61.6</b>
447.dealII	4	<b>470</b>	<b>97.3</b>	470	97.4	473	96.7	4	462	99.0	<b>463</b>	<b>98.9</b>	464	98.7
450.soplex	4	1081	30.9	<b>1061</b>	<b>31.4</b>	1061	31.4	4	1009	33.1	<b>987</b>	<b>33.8</b>	981	34.0
453.povray	4	226	94.0	<b>226</b>	<b>94.1</b>	226	94.1	4	190	112	189	113	<b>189</b>	<b>113</b>
454.calculix	4	376	87.7	<b>378</b>	<b>87.2</b>	379	87.1	4	376	87.7	<b>378</b>	<b>87.2</b>	379	87.1
459.GemsFDTD	4	1849	22.9	<b>1852</b>	<b>22.9</b>	1852	22.9	4	1849	22.9	<b>1852</b>	<b>22.9</b>	1852	22.9
465.tonto	4	590	66.7	585	67.3	<b>587</b>	<b>67.0</b>	4	544	72.4	547	71.9	<b>546</b>	<b>72.1</b>
470.lbm	4	2720	20.2	<b>2720</b>	<b>20.2</b>	2719	20.2	4	<b>2632</b>	<b>20.9</b>	2633	20.9	2632	20.9
481.wrf	4	1045	42.8	1055	42.3	<b>1054</b>	<b>42.4</b>	4	1045	42.8	1055	42.3	<b>1054</b>	<b>42.4</b>
482.sphinx3	4	1461	53.4	1474	52.9	<b>1469</b>	<b>53.1</b>	4	1350	57.8	1369	57.0	<b>1362</b>	<b>57.2</b>

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.  
taskset was used to bind processes to cores except  
for 436.cactusADM peak

## Operating System Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run  
OMP\_NUM\_THREADS set to number of cores  
KMP\_AFFINITY set to physical,0  
KMP\_STACKSIZE set to 64M



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**Test date:** Jul-2009  
**Hardware Availability:** May-2009  
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## Platform Notes

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

## 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:  
-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch  
  
C++ benchmarks:  
-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

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## Base Optimization Flags (Continued)

Fortran benchmarks:

-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

Benchmarks using both Fortran and C:

-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc

482.sphinx3: /opt/intel/Compiler/11.0/069/bin/ia32/icc  
-L/opt/intel/Compiler/11.0/069/ipp/ia32/lib  
-I/opt/intel/Compiler/11.0/069/ipp/ia32/include

C++ benchmarks (except as noted below):

icpc

450.soplex: /opt/intel/Compiler/11.0/069/bin/ia32/icpc  
-L/opt/intel/Compiler/11.0/069/ipp/ia32/lib  
-I/opt/intel/Compiler/11.0/069/ipp/ia32/include

Fortran benchmarks (except as noted below):

ifort

437.leslie3d: /opt/intel/Compiler/11.0/069/bin/ia32/ifort  
-L/opt/intel/Compiler/11.0/069/ipp/ia32/lib  
-I/opt/intel/Compiler/11.0/069/ipp/ia32/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  
470.lbm: -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) -xSSE4.1 -ipo -O3  
-no-prec-div -static -fno-alias

470.lbm: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch  
-auto-ilp32

482.sphinx3: -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2

C++ benchmarks:

444.namd: basepeak = yes

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

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

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

Fortran benchmarks:

410.bwaves: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

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

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

437.leslie3d: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -opt-malloc-options=3 -opt-prefetch

459.GemsFDTD: basepeak = yes

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

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## Peak Optimization Flags (Continued)

Benchmarks using both Fortran and C:

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

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

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 questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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