



# SPEC<sup>®</sup> CFP2006 Result

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## NEC Corporation

Express5800/R110a-1  
(Intel Xeon E3110)

SPECfp<sup>®</sup>2006 = 23.9

SPECfp\_base2006 = 23.1

CPU2006 license: 9006

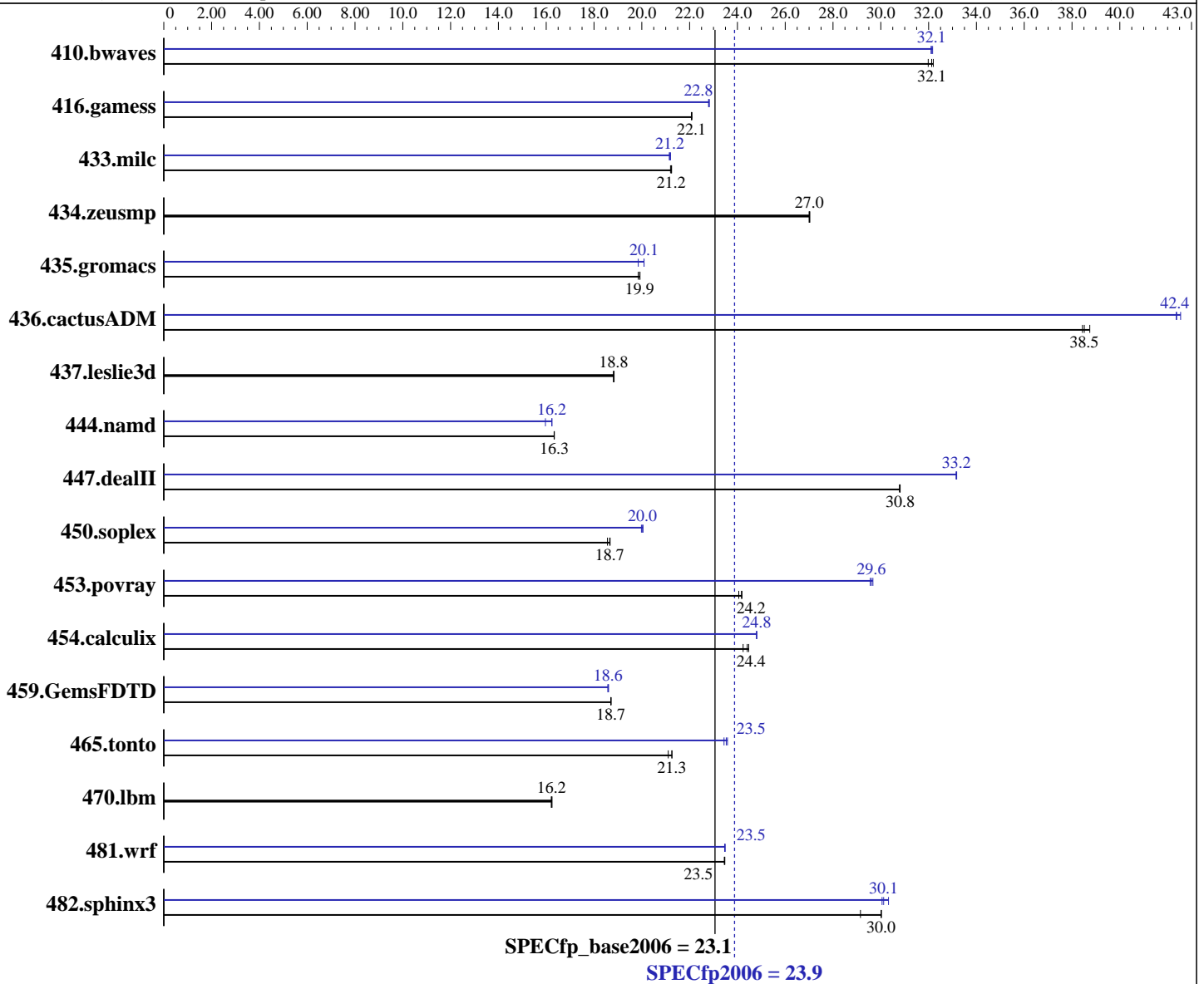
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Sep-2009

Hardware Availability: May-2009

Software Availability: Nov-2008



### Hardware

CPU Name: Intel Xeon E3110  
 CPU Characteristics: 1333 MHz bus  
 CPU MHz: 3000  
 FPU: Integrated  
 CPU(s) enabled: 2 cores, 1 chip, 2 cores/chip  
 CPU(s) orderable: 1 chip  
 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) 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\_fproc\_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					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	422	32.2	425	32.0	<b><u>423</u></b>	<b><u>32.1</u></b>	423	32.1	422	32.2	<b><u>423</u></b>	<b><u>32.1</u></b>
416.gamess	<b><u>887</u></b>	<b><u>22.1</u></b>	887	22.1	886	22.1	859	22.8	<b><u>858</u></b>	<b><u>22.8</u></b>	858	22.8
433.milc	432	21.2	<b><u>432</u></b>	<b><u>21.2</u></b>	433	21.2	<b><u>434</u></b>	<b><u>21.2</u></b>	433	21.2	434	21.1
434.zeusmp	337	27.0	337	27.0	<b><u>337</u></b>	<b><u>27.0</u></b>	337	27.0	337	27.0	<b><u>337</u></b>	<b><u>27.0</u></b>
435.gromacs	<b><u>359</u></b>	<b><u>19.9</u></b>	360	19.8	358	19.9	<b><u>355</u></b>	<b><u>20.1</u></b>	355	20.1	360	19.9
436.cactusADM	308	38.7	311	38.4	<b><u>310</u></b>	<b><u>38.5</u></b>	282	42.4	281	42.5	<b><u>282</u></b>	<b><u>42.4</u></b>
437.leslie3d	<b><u>500</u></b>	<b><u>18.8</u></b>	499	18.8	500	18.8	<b><u>500</u></b>	<b><u>18.8</u></b>	499	18.8	500	18.8
444.namd	491	16.3	491	16.3	<b><u>491</u></b>	<b><u>16.3</u></b>	502	16.0	494	16.2	<b><u>494</u></b>	<b><u>16.2</u></b>
447.dealII	<b><u>371</u></b>	<b><u>30.8</u></b>	372	30.8	371	30.8	<b><u>345</u></b>	<b><u>33.2</u></b>	345	33.1	345	33.2
450.soplex	449	18.6	447	18.7	<b><u>447</u></b>	<b><u>18.7</u></b>	416	20.0	<b><u>416</u></b>	<b><u>20.0</u></b>	417	20.0
453.povray	221	24.1	<b><u>220</u></b>	<b><u>24.2</u></b>	220	24.2	<b><u>180</u></b>	<b><u>29.6</u></b>	179	29.7	180	29.6
454.calculix	340	24.2	337	24.5	<b><u>338</u></b>	<b><u>24.4</u></b>	<b><u>333</u></b>	<b><u>24.8</u></b>	333	24.8	333	24.8
459.GemsFDTD	567	18.7	567	18.7	<b><u>567</u></b>	<b><u>18.7</u></b>	571	18.6	<b><u>571</u></b>	<b><u>18.6</u></b>	570	18.6
465.tonto	466	21.1	463	21.3	<b><u>463</u></b>	<b><u>21.3</u></b>	417	23.6	<b><u>418</u></b>	<b><u>23.5</u></b>	420	23.4
470.lbm	847	16.2	<b><u>847</u></b>	<b><u>16.2</u></b>	846	16.2	847	16.2	<b><u>847</u></b>	<b><u>16.2</u></b>	846	16.2
481.wrf	476	23.5	476	23.5	<b><u>476</u></b>	<b><u>23.5</u></b>	476	23.5	<b><u>476</u></b>	<b><u>23.5</u></b>	476	23.5
482.sphinx3	649	30.0	<b><u>649</u></b>	<b><u>30.0</u></b>	669	29.1	643	30.3	649	30.1	<b><u>647</u></b>	<b><u>30.1</u></b>

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  
OMP\_NUM\_THREADS set to number of cores  
KMP\_AFFINITY set to "physical,0"  
KMP\_STACKSIZE set to 200M

## Base Compiler Invocation

C benchmarks:  
icc

C++ benchmarks:  
icpc

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**Test date:** Sep-2009

**Hardware Availability:** May-2009

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## Base Compiler Invocation (Continued)

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 -parallel -opt-prefetch

C++ benchmarks:

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

Fortran benchmarks:

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

Benchmarks using both Fortran and C:

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

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc

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## Peak Compiler Invocation (Continued)

```
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:

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.deallI: -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: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
         -no-prec-div -static -fno-alias
```

```
470.lbm: basepeak = yes
```

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

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## Peak Optimization Flags (Continued)

C++ benchmarks:

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

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

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  
-parallel

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: basepeak = yes

437.leslie3d: basepeak = yes

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

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

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: -xSSE4.1 -ipo -O3 -no-prec-div -static -auto-ilp32

481.wrf: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch  
-parallel -auto-ilp32



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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](mailto:webmaster@spec.org).

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