



# SPEC® CFP2006 Result

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## NEC Corporation

Express5800/120Rh-1  
(Intel Xeon X5260)

SPECfp®\_rate2006 = 29.2

SPECfp\_rate\_base2006 = 27.0

CPU2006 license: 9006

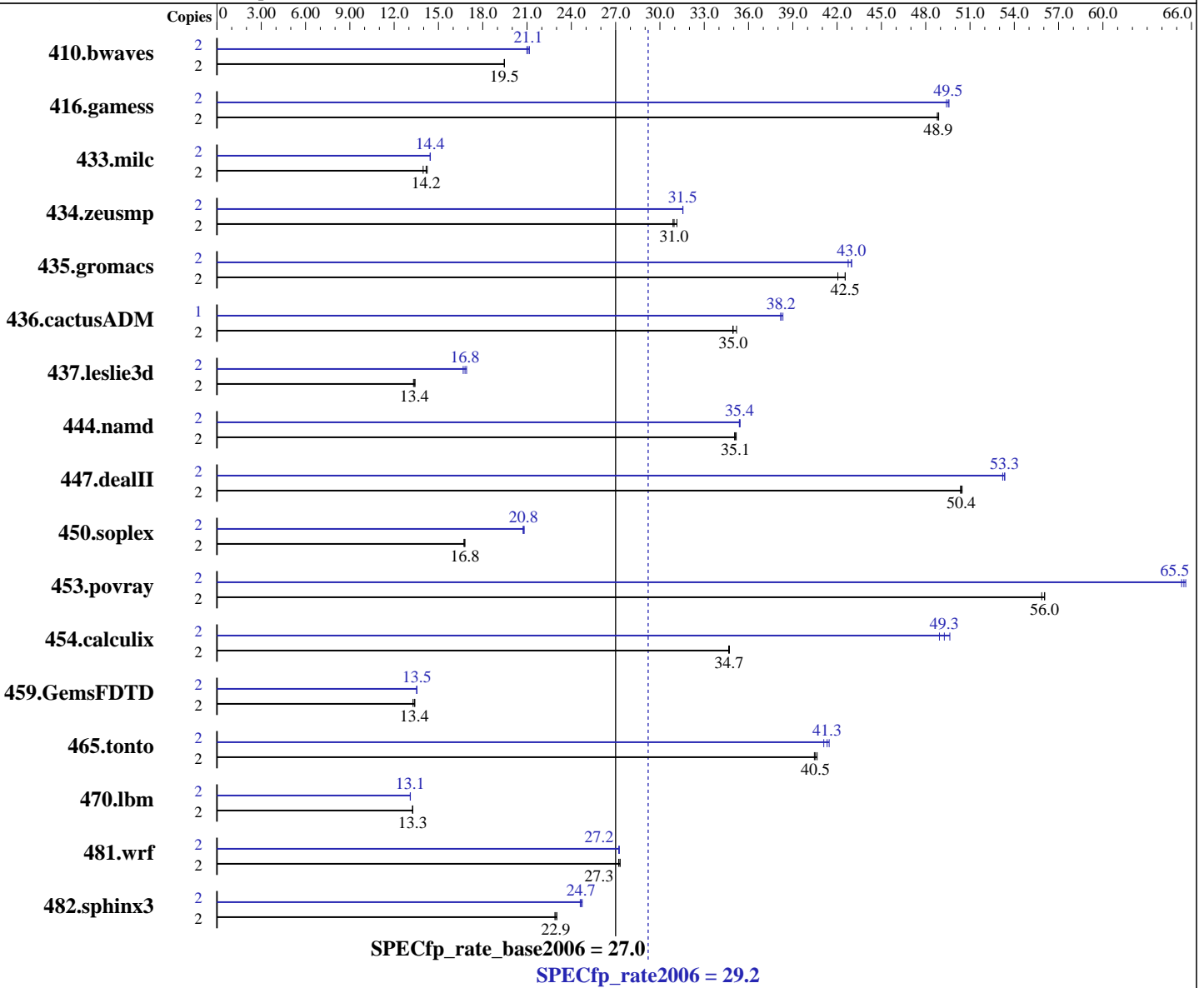
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Jun-2008

Hardware Availability: Apr-2008

Software Availability: Nov-2007



### Hardware

CPU Name: Intel Xeon X5260  
 CPU Characteristics: 3.33 GHz, 6 MB L2, 1333 MHz bus  
 CPU MHz: 3333  
 FPU: Integrated  
 CPU(s) enabled: 2 cores, 1 chip, 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 Linux version 10.1 Build 20070913 Package ID: I\_cc\_p\_10.1.008, I\_fc\_p\_10.1.008  
 Auto Parallel: Yes  
 File System: ReiserFS  
 System State: Run level 3 (multi-user)

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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

Base Pointers: 64-bit  
Peak Pointers: 32/64-bit  
Other Software: binutils 2.17

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	2	1396	19.5	1397	19.5	<b>1396</b>	<b>19.5</b>	2	<b>1289</b>	<b>21.1</b>	1295	21.0	1284	21.2
416.gamess	2	<b>802</b>	<b>48.9</b>	801	48.9	803	48.8	2	<b>791</b>	<b>49.5</b>	793	49.4	790	49.6
433.milc	2	1289	14.2	1315	14.0	<b>1296</b>	<b>14.2</b>	2	1272	14.4	<b>1271</b>	<b>14.4</b>	1270	14.5
434.zeusmp	2	584	31.1	<b>588</b>	<b>31.0</b>	589	30.9	2	577	31.5	577	31.6	<b>577</b>	<b>31.5</b>
435.gromacs	2	340	42.1	<b>336</b>	<b>42.5</b>	336	42.5	2	332	43.0	334	42.7	<b>332</b>	<b>43.0</b>
436.cactusADM	2	<b>684</b>	<b>35.0</b>	679	35.2	684	34.9	1	312	38.3	313	38.2	<b>313</b>	<b>38.2</b>
437.leslie3d	2	1401	13.4	<b>1406</b>	<b>13.4</b>	1412	13.3	2	<b>1119</b>	<b>16.8</b>	1127	16.7	1112	16.9
444.namd	2	<b>457</b>	<b>35.1</b>	458	35.1	456	35.2	2	453	35.4	453	35.4	<b>453</b>	<b>35.4</b>
447.dealII	2	<b>454</b>	<b>50.4</b>	454	50.4	453	50.5	2	429	53.4	<b>429</b>	<b>53.3</b>	430	53.2
450.soplex	2	994	16.8	997	16.7	<b>994</b>	<b>16.8</b>	2	805	20.7	802	20.8	<b>803</b>	<b>20.8</b>
453.povray	2	190	56.1	190	55.9	<b>190</b>	<b>56.0</b>	2	<b>162</b>	<b>65.5</b>	162	65.6	163	65.3
454.calculix	2	475	34.7	<b>476</b>	<b>34.7</b>	476	34.7	2	337	48.9	332	49.6	<b>335</b>	<b>49.3</b>
459.GemsFDTD	2	1598	13.3	1583	13.4	<b>1587</b>	<b>13.4</b>	2	1568	13.5	<b>1568</b>	<b>13.5</b>	1567	13.5
465.tonto	2	484	40.6	<b>485</b>	<b>40.5</b>	486	40.5	2	475	41.5	479	41.1	<b>476</b>	<b>41.3</b>
470.lbm	2	2072	13.3	<b>2074</b>	<b>13.3</b>	2074	13.2	2	2098	13.1	2099	13.1	<b>2098</b>	<b>13.1</b>
481.wrf	2	<b>819</b>	<b>27.3</b>	818	27.3	821	27.2	2	821	27.2	<b>820</b>	<b>27.2</b>	820	27.2
482.sphinx3	2	<b>1699</b>	<b>22.9</b>	1693	23.0	1703	22.9	2	<b>1581</b>	<b>24.7</b>	1576	24.7	1584	24.6

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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**Hardware Availability:** Apr-2008

**Software Availability:** Nov-2007

## 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 X5260), the NEC Express5800/120Rj-2(Intel Xeon X5260), the Bull NovaScale R440 E1 (Intel Xeon X5260,3.33GHz) and the Bull NovaScale R460 E1 (Intel Xeon X5260,3.33GHz) models are electronically equivalent. The results have been measured on a NEC Express5800/120Rj-2(Intel Xeon X5260) 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.deallI: -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



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## Base Optimization Flags

C benchmarks:

-fast

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

Continued on next page

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Page 4



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## Peak Portability Flags (Continued)

```

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

```

## 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

```

Continued on next page



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## Peak Optimization Flags (Continued)

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

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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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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