



# SPEC® CFP2006 Result

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## NEC Corporation

Express5800/120Rh-1  
(Intel Xeon X5450)

SPECfp®\_rate2006 = 41.2

SPECfp\_rate\_base2006 = 37.7

CPU2006 license: 9006

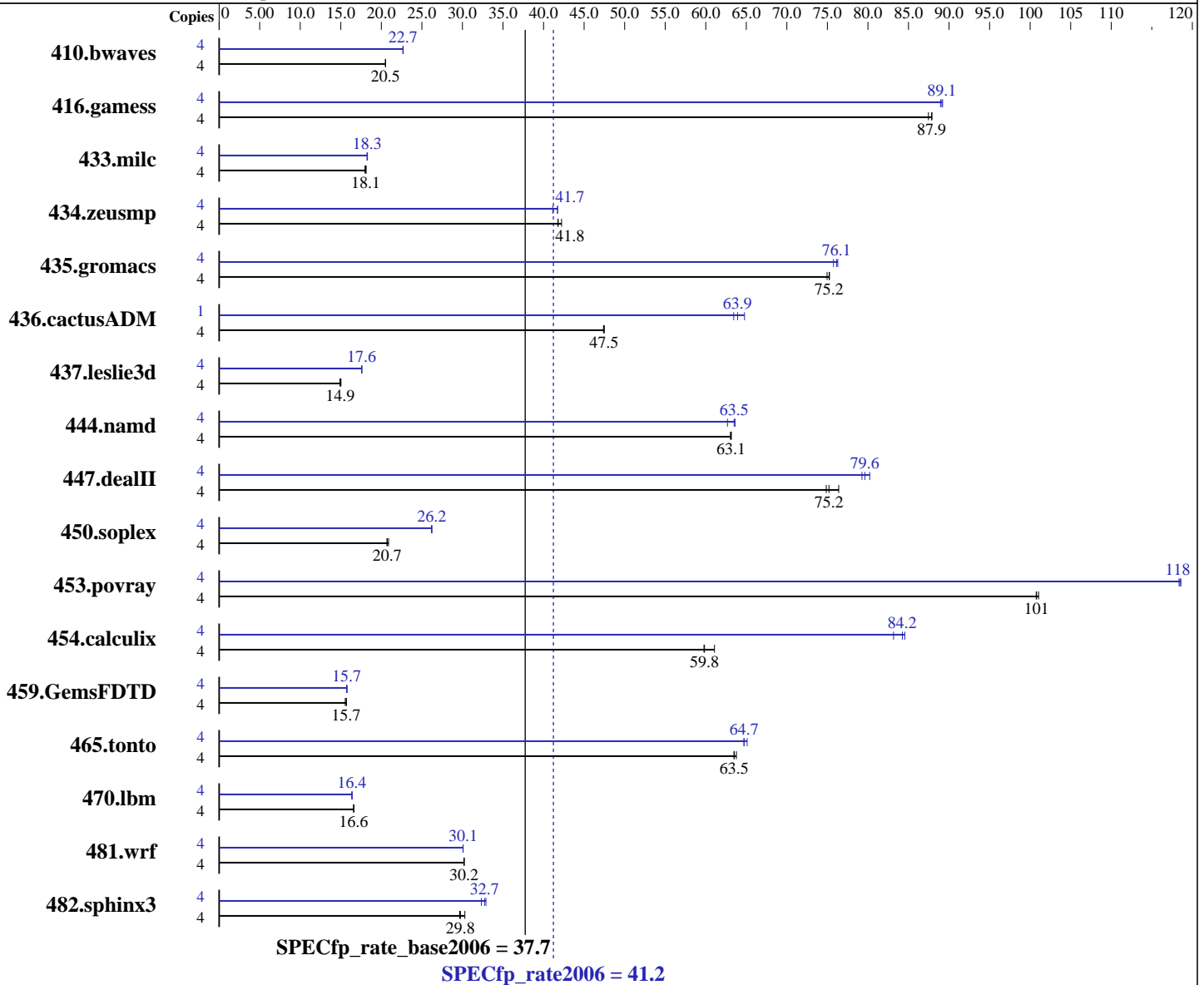
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Jun-2008

Hardware Availability: Apr-2008

Software Availability: Nov-2007



### Hardware

CPU Name: Intel Xeon X5450  
 CPU Characteristics: 3.00 GHz, 2x6 MB L2 shared, 1333 MHz bus  
 CPU MHz: 3000  
 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-smp  
 Compiler: Intel C++ and Fortran Compiler for Linux 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  
 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	4	2649	20.5	<b><u>2650</u></b>	<b><u>20.5</u></b>	2651	20.5	4	<b><u>2398</u></b>	<b><u>22.7</u></b>	2395	22.7	2399	22.7		
416.gamess	4	891	87.9	895	87.5	<b><u>892</u></b>	<b><u>87.9</u></b>	4	<b><u>879</u></b>	<b><u>89.1</u></b>	878	89.2	880	89.0		
433.milc	4	2042	18.0	<b><u>2032</u></b>	<b><u>18.1</u></b>	2026	18.1	4	2013	18.2	2008	18.3	<b><u>2012</u></b>	<b><u>18.3</u></b>		
434.zeusmp	4	862	42.2	<b><u>871</u></b>	<b><u>41.8</u></b>	871	41.8	4	885	41.1	<b><u>872</u></b>	<b><u>41.7</u></b>	872	41.7		
435.gromacs	4	380	75.3	381	75.0	<b><u>380</u></b>	<b><u>75.2</u></b>	4	<b><u>375</u></b>	<b><u>76.1</u></b>	377	75.7	374	76.3		
436.cactusADM	4	1007	47.5	<b><u>1007</u></b>	<b><u>47.5</u></b>	1009	47.4	1	188	63.4	184	64.8	<b><u>187</u></b>	<b><u>63.9</u></b>		
437.leslie3d	4	2503	15.0	<b><u>2517</u></b>	<b><u>14.9</u></b>	2523	14.9	4	2138	17.6	<b><u>2139</u></b>	<b><u>17.6</u></b>	2139	17.6		
444.namd	4	<b><u>508</u></b>	<b><u>63.1</u></b>	508	63.1	509	63.0	4	504	63.6	<b><u>505</u></b>	<b><u>63.5</u></b>	512	62.7		
447.dealII	4	599	76.4	611	74.9	<b><u>609</u></b>	<b><u>75.2</u></b>	4	570	80.2	577	79.3	<b><u>575</u></b>	<b><u>79.6</u></b>		
450.soplex	4	<b><u>1611</u></b>	<b><u>20.7</u></b>	1611	20.7	1597	20.9	4	1272	26.2	1274	26.2	<b><u>1273</u></b>	<b><u>26.2</u></b>		
453.povray	4	211	101	211	101	<b><u>211</u></b>	<b><u>101</u></b>	4	<b><u>180</u></b>	<b><u>118</u></b>	180	118	179	119		
454.calculix	4	540	61.1	552	59.8	<b><u>551</u></b>	<b><u>59.8</u></b>	4	390	84.5	<b><u>392</u></b>	<b><u>84.2</u></b>	397	83.2		
459.GemsFDTD	4	2730	15.5	<b><u>2709</u></b>	<b><u>15.7</u></b>	2703	15.7	4	2700	15.7	2690	15.8	<b><u>2699</u></b>	<b><u>15.7</u></b>		
465.tonto	4	<b><u>620</u></b>	<b><u>63.5</u></b>	617	63.8	620	63.5	4	605	65.1	<b><u>608</u></b>	<b><u>64.7</u></b>	608	64.7		
470.lbm	4	<b><u>3312</u></b>	<b><u>16.6</u></b>	3312	16.6	3311	16.6	4	3357	16.4	<b><u>3355</u></b>	<b><u>16.4</u></b>	3354	16.4		
481.wrf	4	1478	30.2	1480	30.2	<b><u>1479</u></b>	<b><u>30.2</u></b>	4	<b><u>1486</u></b>	<b><u>30.1</u></b>	1486	30.1	1485	30.1		
482.sphinx3	4	2573	30.3	<b><u>2620</u></b>	<b><u>29.8</u></b>	2629	29.6	4	<b><u>2382</u></b>	<b><u>32.7</u></b>	2411	32.3	2370	32.9		

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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CPU2006 license: 9006

Test sponsor: NEC Corporation

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Test date: Jun-2008

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 X5450), the NEC Express5800/120Rj-2(Intel Xeon X5450), the Bull NovaScale R440 E1 (Intel Xeon X5450,3.00GHz) and the Bull NovaScale R460 E1 (Intel Xeon X5450,3.00GHz) models are electronically equivalent. The results have been measured on a NEC Express5800/120Rj-2(Intel Xeon X5450) 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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**CPU2006 license:** 9006  
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**Tested by:** NEC Corporation

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**Software Availability:** Nov-2007

## 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

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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

```

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

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