



# SPEC<sup>®</sup> CFP2006 Result

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## NEC Corporation

Express5800/120Rj-2  
(Intel Xeon E5205)

SPECfp<sup>®</sup>\_rate2006 = 21.3

SPECfp\_rate\_base2006 = 19.9

CPU2006 license: 9006

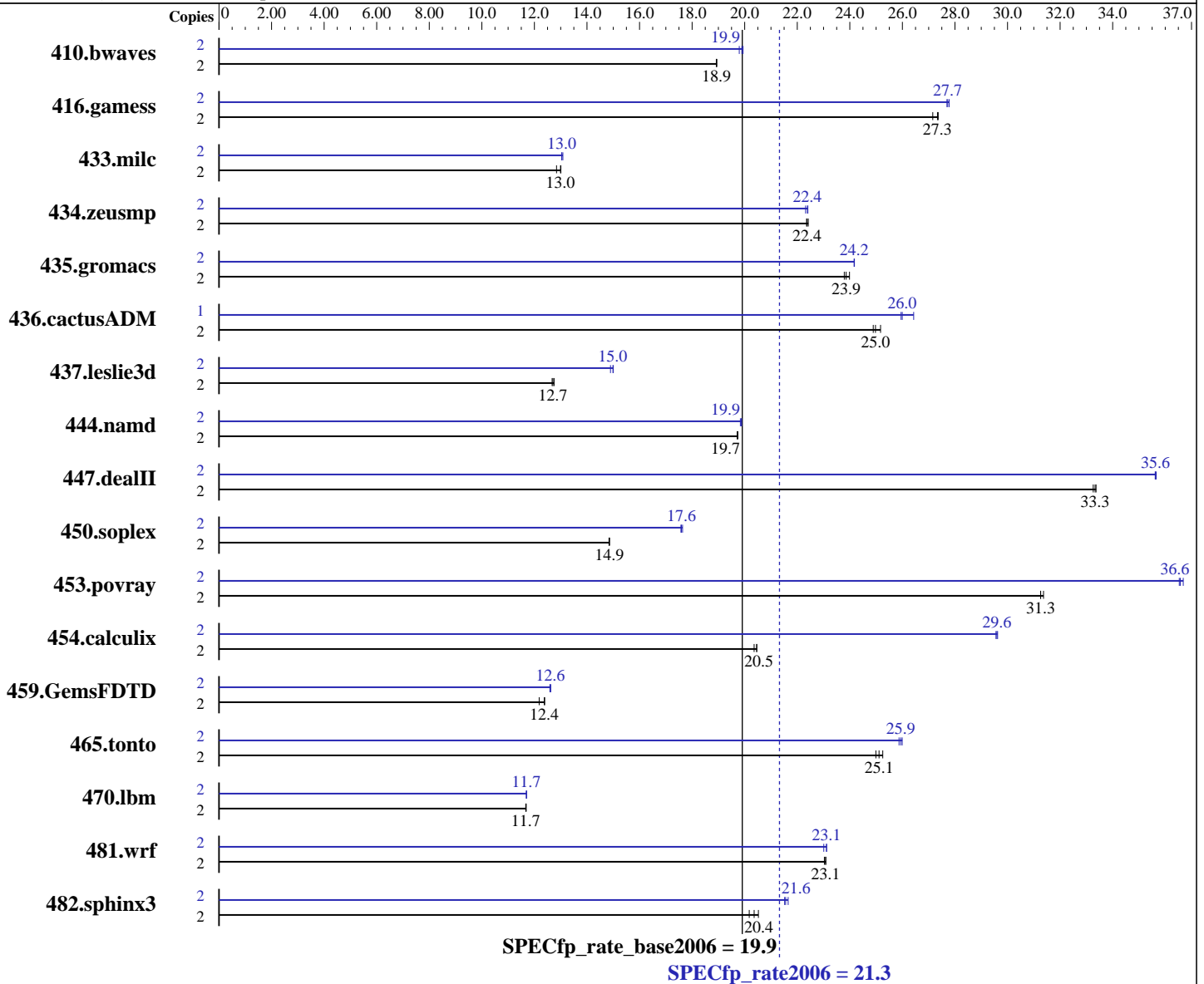
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Jun-2008

Hardware Availability: Apr-2008

Software Availability: Nov-2007



### Hardware

CPU Name: Intel Xeon E5205  
 CPU Characteristics: 1.86 GHz, 6 MB L2, 1066 MHz bus  
 CPU MHz: 1867  
 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:  
 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	2	1437	18.9	<b><u>1436</u></b>	<b><u>18.9</u></b>	1435	18.9	2	1363	19.9	1373	19.8	<b><u>1366</u></b>	<b><u>19.9</u></b>
416.gamess	2	1431	27.4	1442	27.2	<b><u>1433</u></b>	<b><u>27.3</u></b>	2	1414	27.7	1410	27.8	<b><u>1413</u></b>	<b><u>27.7</u></b>
433.milc	2	1411	13.0	<b><u>1413</u></b>	<b><u>13.0</u></b>	1430	12.8	2	<b><u>1408</u></b>	<b><u>13.0</u></b>	1403	13.1	1408	13.0
434.zeusmp	2	<b><u>813</u></b>	<b><u>22.4</u></b>	814	22.4	812	22.4	2	815	22.3	<b><u>813</u></b>	<b><u>22.4</u></b>	812	22.4
435.gromacs	2	600	23.8	595	24.0	<b><u>599</u></b>	<b><u>23.9</u></b>	2	591	24.2	591	24.2	<b><u>591</u></b>	<b><u>24.2</u></b>
436.cactusADM	2	950	25.2	960	24.9	<b><u>957</u></b>	<b><u>25.0</u></b>	1	452	26.4	461	25.9	<b><u>460</u></b>	<b><u>26.0</u></b>
437.leslie3d	2	1475	12.7	1483	12.7	<b><u>1480</u></b>	<b><u>12.7</u></b>	2	1253	15.0	1262	14.9	<b><u>1254</u></b>	<b><u>15.0</u></b>
444.namd	2	814	19.7	<b><u>813</u></b>	<b><u>19.7</u></b>	812	19.7	2	807	19.9	809	19.8	<b><u>807</u></b>	<b><u>19.9</u></b>
447.dealII	2	686	33.4	<b><u>686</u></b>	<b><u>33.3</u></b>	688	33.3	2	<b><u>642</u></b>	<b><u>35.6</u></b>	642	35.6	642	35.7
450.soplex	2	1123	14.9	1124	14.8	<b><u>1123</u></b>	<b><u>14.9</u></b>	2	946	17.6	<b><u>948</u></b>	<b><u>17.6</u></b>	949	17.6
453.povray	2	339	31.4	<b><u>340</u></b>	<b><u>31.3</u></b>	340	31.3	2	<b><u>291</u></b>	<b><u>36.6</u></b>	291	36.5	290	36.7
454.calculix	2	<b><u>807</u></b>	<b><u>20.5</u></b>	806	20.5	810	20.4	2	<b><u>558</u></b>	<b><u>29.6</u></b>	557	29.6	558	29.6
459.GemsFDTD	2	1712	12.4	1742	12.2	<b><u>1715</u></b>	<b><u>12.4</u></b>	2	<b><u>1683</u></b>	<b><u>12.6</u></b>	1681	12.6	1686	12.6
465.tonto	2	<b><u>784</u></b>	<b><u>25.1</u></b>	787	25.0	779	25.3	2	757	26.0	761	25.9	<b><u>759</u></b>	<b><u>25.9</u></b>
470.lbm	2	2351	11.7	<b><u>2353</u></b>	<b><u>11.7</u></b>	2354	11.7	2	2350	11.7	2349	11.7	<b><u>2349</u></b>	<b><u>11.7</u></b>
481.wrf	2	<b><u>968</u></b>	<b><u>23.1</u></b>	968	23.1	970	23.0	2	971	23.0	966	23.1	<b><u>967</u></b>	<b><u>23.1</u></b>
482.sphinx3	2	1932	20.2	1899	20.5	<b><u>1915</u></b>	<b><u>20.4</u></b>	2	1811	21.5	1800	21.7	<b><u>1808</u></b>	<b><u>21.6</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  
'/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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**SPECfp\_rate2006 = 21.3**

**SPECfp\_rate\_base2006 = 19.9**

**CPU2006 license:** 9006

**Test sponsor:** NEC Corporation

**Tested by:** NEC Corporation

**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 E5205), the NEC Express5800/120Rj-2(Intel Xeon E5205), the Bull NovaScale R440 E1 (Intel Xeon E5205,1.86GHz) and the Bull NovaScale R460 E1 (Intel Xeon E5205,1.86GHz) models are electronically equivalent. The results have been measured on a NEC Express5800/120Rj-2(Intel Xeon E5205) 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

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

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