



# SPEC<sup>®</sup> CFP2006 Result

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## NEC Corporation

Express5800/120Bb-m6  
(Intel Xeon processor E5405)

SPECfp<sup>®</sup>2006 = 17.6

SPECfp\_base2006 = 15.0

CPU2006 license: 9006

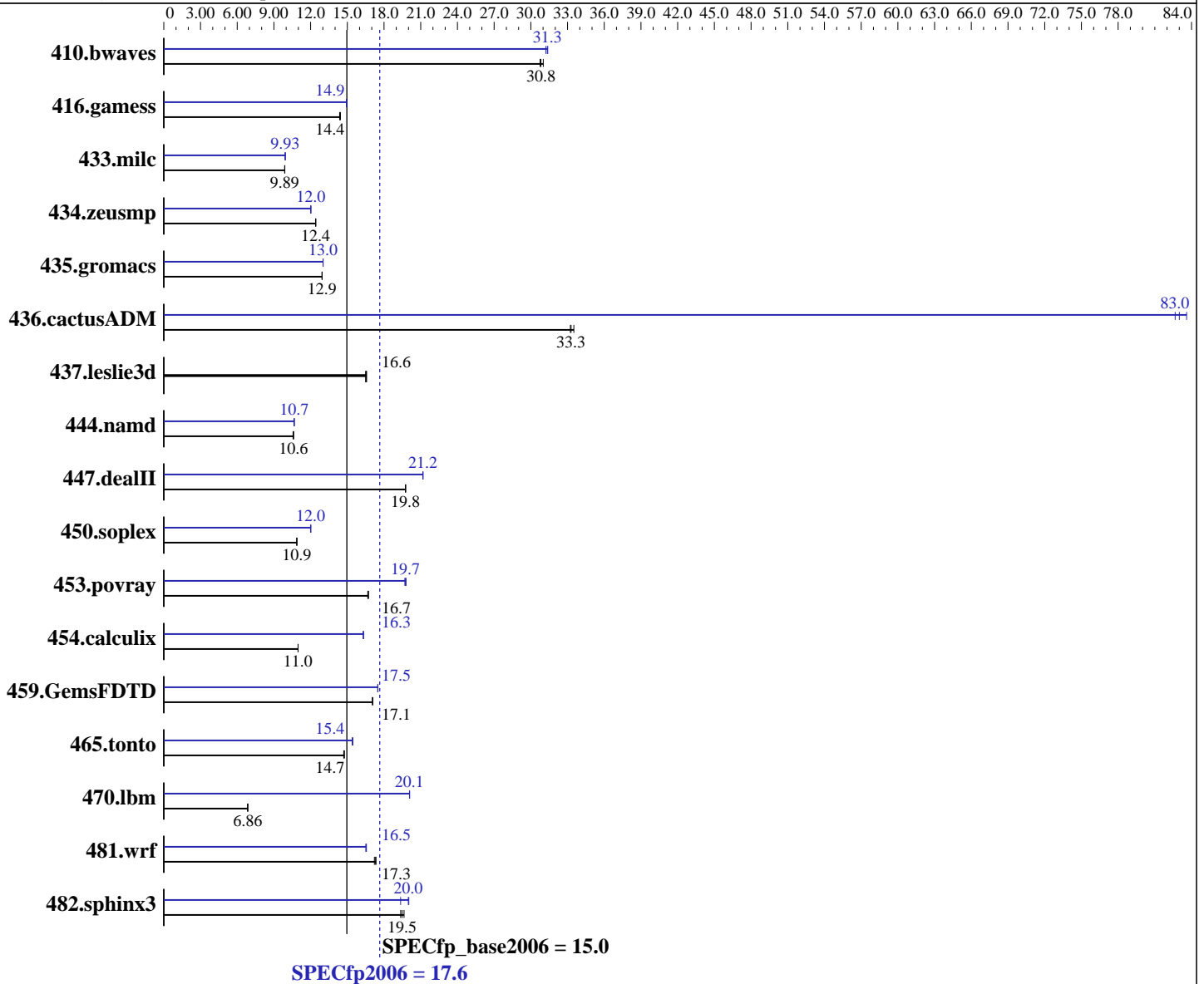
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Jan-2008

Hardware Availability: Dec-2007

Software Availability: Nov-2007



### Hardware

CPU Name: Intel Xeon E5405  
 CPU Characteristics: 2.00 GHz, 2x6 MB L2 shared, 1333 MHz bus  
 CPU MHz: 2000  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 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-smpp  
 Compiler: Intel C++ and Fortran Compiler for Linux32 and Linux64 version 10.1 Build 20070913 Package ID: l\_cc\_p\_10.1.008, l\_fc\_p\_10.1.008  
 Auto Parallel: Yes  
 File System: ext2

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L3 Cache: None  
Other Cache: None  
Memory: 12 GB (12x1 GB PC2-5300F, 2 rank, CL5-5-5, ECC)  
Disk Subsystem: 1x73.2 GB SAS, 10000RPM  
Other Hardware: None

System State: Multiuser, Runlevel 3  
Base Pointers: 64-bit  
Peak Pointers: 32/64-bit  
Other Software: binutils-2.17.tar.gz, Version 2.17

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	438	31.0	<b>441</b>	<b>30.8</b>	442	30.8	<b>434</b>	<b>31.3</b>	433	31.4	435	31.2
416.gamess	<b>1360</b>	<b>14.4</b>	1356	14.4	1363	14.4	1312	14.9	<b>1311</b>	<b>14.9</b>	1310	14.9
433.milc	928	9.89	<b>929</b>	<b>9.89</b>	929	9.88	<b>925</b>	<b>9.93</b>	925	9.93	925	9.92
434.zeusmp	733	12.4	733	12.4	<b>733</b>	<b>12.4</b>	757	12.0	<b>757</b>	<b>12.0</b>	758	12.0
435.gromacs	552	12.9	552	12.9	<b>552</b>	<b>12.9</b>	549	13.0	<b>549</b>	<b>13.0</b>	548	13.0
436.cactusADM	<b>359</b>	<b>33.3</b>	360	33.2	357	33.5	145	82.7	143	83.6	<b>144</b>	<b>83.0</b>
437.leslie3d	570	16.5	567	16.6	<b>568</b>	<b>16.6</b>	570	16.5	567	16.6	<b>568</b>	<b>16.6</b>
444.namd	<b>757</b>	<b>10.6</b>	756	10.6	759	10.6	<b>752</b>	<b>10.7</b>	754	10.6	752	10.7
447.dealII	579	19.8	<b>579</b>	<b>19.8</b>	579	19.8	540	21.2	<b>540</b>	<b>21.2</b>	540	21.2
450.soplex	767	10.9	767	10.9	<b>767</b>	<b>10.9</b>	694	12.0	<b>694</b>	<b>12.0</b>	695	12.0
453.povray	318	16.7	319	16.7	<b>318</b>	<b>16.7</b>	<b>269</b>	<b>19.7</b>	269	19.8	270	19.7
454.calculix	752	11.0	751	11.0	<b>752</b>	<b>11.0</b>	506	16.3	<b>506</b>	<b>16.3</b>	505	16.3
459.GemsFDTD	621	17.1	622	17.1	<b>622</b>	<b>17.1</b>	606	17.5	<b>606</b>	<b>17.5</b>	607	17.5
465.tonto	667	14.8	<b>667</b>	<b>14.7</b>	669	14.7	<b>638</b>	<b>15.4</b>	637	15.4	639	15.4
470.lbm	2001	6.87	<b>2003</b>	<b>6.86</b>	2005	6.85	684	20.1	684	20.1	<b>684</b>	<b>20.1</b>
481.wrf	649	17.2	<b>646</b>	<b>17.3</b>	644	17.3	676	16.5	674	16.6	<b>676</b>	<b>16.5</b>
482.sphinx3	1007	19.4	<b>1000</b>	<b>19.5</b>	992	19.6	973	20.0	1007	19.4	<b>975</b>	<b>20.0</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 (default).

## General Notes

All benchmarks compiled in 64-bit mode except 450.soplex,  
470.lbm and 482.sphinx3, for peak, are compiled in 32-bit mode



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## 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:

-fast -parallel

C++ benchmarks:

-fast -parallel

Fortran benchmarks:

-fast -parallel

Benchmarks using both Fortran and C:

-fast -parallel



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## 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:

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.dealII: -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
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-req- -prefetch -opt-malloc-options=3
```

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## Peak Optimization Flags (Continued)

482.sphinx3: -fast -unroll2

### C++ benchmarks:

444.namd: -prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias  
-auto-ilp32

447.dealIII: -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 -parallel

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: basepeak = yes

459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0  
-prefetch -parallel

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 -parallel -prefetch -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.20090714.00.html>

You can also download the XML flags source by saving the following link:

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

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