



# SPEC® CFP2006 Result

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## NEC Corporation

Express5800/120Bb-m6  
(Intel Xeon L5420)

SPECfp®\_rate2006 = 66.9

SPECfp\_rate\_base2006 = 61.5

CPU2006 license: 9006

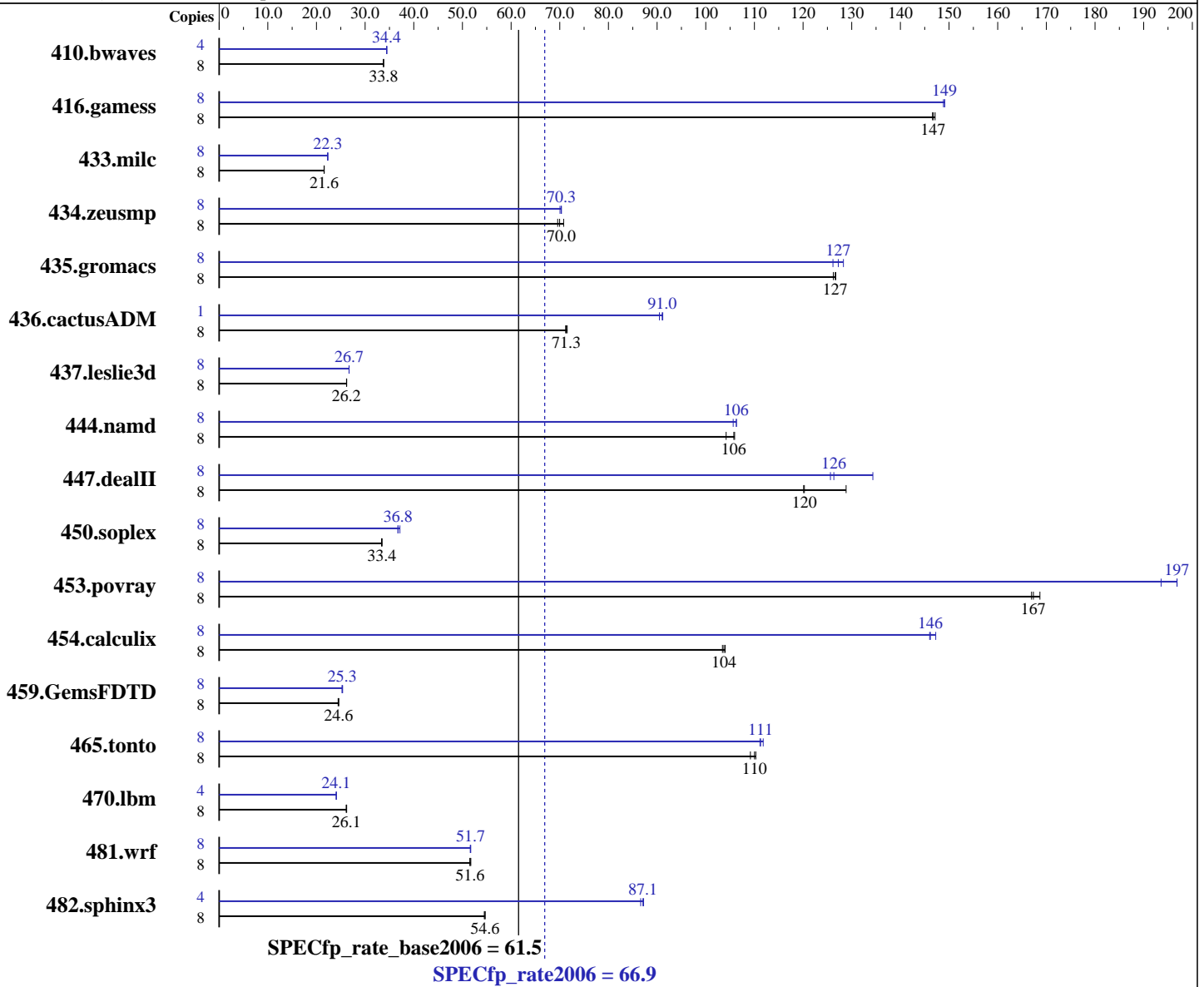
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Apr-2008

Hardware Availability: Apr-2008

Software Availability: Nov-2007



### Hardware

CPU Name: Intel Xeon L5420  
 CPU Characteristics: 2.50 GHz, 2x6 MB L2 shared, 1333 MHz bus  
 CPU MHz: 2500  
 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: Run level 3 (multi-user)  
Base Pointers: 64-bit  
Peak Pointers: 32/64-bit  
Other Software: binutils-2.17.tar.gz, Version 2.17

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	<b><u>3218</u></b>	<b><u>33.8</u></b>	3219	33.8	3217	33.8	4	1578	34.4	<b><u>1578</u></b>	<b><u>34.4</u></b>	1579	34.4
416.gamess	8	<b><u>1067</u></b>	<b><u>147</u></b>	1068	147	1065	147	8	1050	149	1052	149	<b><u>1051</u></b>	<b><u>149</u></b>
433.milc	8	<b><u>3402</u></b>	<b><u>21.6</u></b>	3402	21.6	3407	21.6	8	3293	22.3	<b><u>3291</u></b>	<b><u>22.3</u></b>	3289	22.3
434.zeusmp	8	1046	69.6	<b><u>1040</u></b>	<b><u>70.0</u></b>	1028	70.8	8	1035	70.3	1039	70.0	<b><u>1035</u></b>	<b><u>70.3</u></b>
435.gromacs	8	453	126	<b><u>451</u></b>	<b><u>127</u></b>	451	127	8	<b><u>449</u></b>	<b><u>127</u></b>	445	128	453	126
436.cactusADM	8	1336	71.5	1343	71.2	<b><u>1340</u></b>	<b><u>71.3</u></b>	1	<b><u>131</u></b>	<b><u>91.0</u></b>	131	91.2	132	90.5
437.leslie3d	8	<b><u>2872</u></b>	<b><u>26.2</u></b>	2869	26.2	2873	26.2	8	<b><u>2817</u></b>	<b><u>26.7</u></b>	2817	26.7	2815	26.7
444.namd	8	606	106	616	104	<b><u>607</u></b>	<b><u>106</u></b>	8	607	106	<b><u>604</u></b>	<b><u>106</u></b>	603	106
447.dealII	8	<b><u>761</u></b>	<b><u>120</u></b>	710	129	762	120	8	681	134	729	126	<b><u>724</u></b>	<b><u>126</u></b>
450.soplex	8	1999	33.4	<b><u>1996</u></b>	<b><u>33.4</u></b>	1993	33.5	8	<b><u>1814</u></b>	<b><u>36.8</u></b>	1816	36.7	1796	37.2
453.povray	8	<b><u>254</u></b>	<b><u>167</u></b>	255	167	252	169	8	216	197	<b><u>216</u></b>	<b><u>197</u></b>	220	194
454.calculix	8	635	104	<b><u>636</u></b>	<b><u>104</u></b>	638	103	8	448	147	452	146	<b><u>452</u></b>	<b><u>146</u></b>
459.GemsFDTD	8	<b><u>3457</u></b>	<b><u>24.6</u></b>	3454	24.6	3471	24.5	8	3359	25.3	<b><u>3356</u></b>	<b><u>25.3</u></b>	3345	25.4
465.tonto	8	714	110	721	109	<b><u>716</u></b>	<b><u>110</u></b>	8	<b><u>707</u></b>	<b><u>111</u></b>	704	112	708	111
470.lbm	8	4194	26.2	<b><u>4206</u></b>	<b><u>26.1</u></b>	4207	26.1	4	2284	24.1	<b><u>2283</u></b>	<b><u>24.1</u></b>	2281	24.1
481.wrf	8	1734	51.5	1728	51.7	<b><u>1733</u></b>	<b><u>51.6</u></b>	8	1728	51.7	<b><u>1729</u></b>	<b><u>51.7</u></b>	1732	51.6
482.sphinx3	8	<b><u>2853</u></b>	<b><u>54.6</u></b>	2853	54.7	2861	54.5	4	900	86.6	<b><u>895</u></b>	<b><u>87.1</u></b>	894	87.2

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Compiler Invocation Notes

OMP\_NUM\_THREADS set to number of cores

## 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

## 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



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**Test sponsor:** NEC Corporation

**Tested by:** NEC Corporation

**Test date:** Apr-2008

**Hardware Availability:** Apr-2008

**Software Availability:** Nov-2007

## 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

C++ benchmarks:

-fast

Fortran benchmarks:

-fast

Benchmarks using both Fortran and C:

-fast



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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 (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.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  
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
```

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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

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

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.20090714.html>



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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.20090714.xml>

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

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