



# SPEC® CFP2006 Result

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## NEC Corporation

Express5800/120Lj  
(Intel Xeon E5420)

SPECfp®\_rate2006 = 68.5

SPECfp\_rate\_base2006 = 61.5

CPU2006 license: 9006

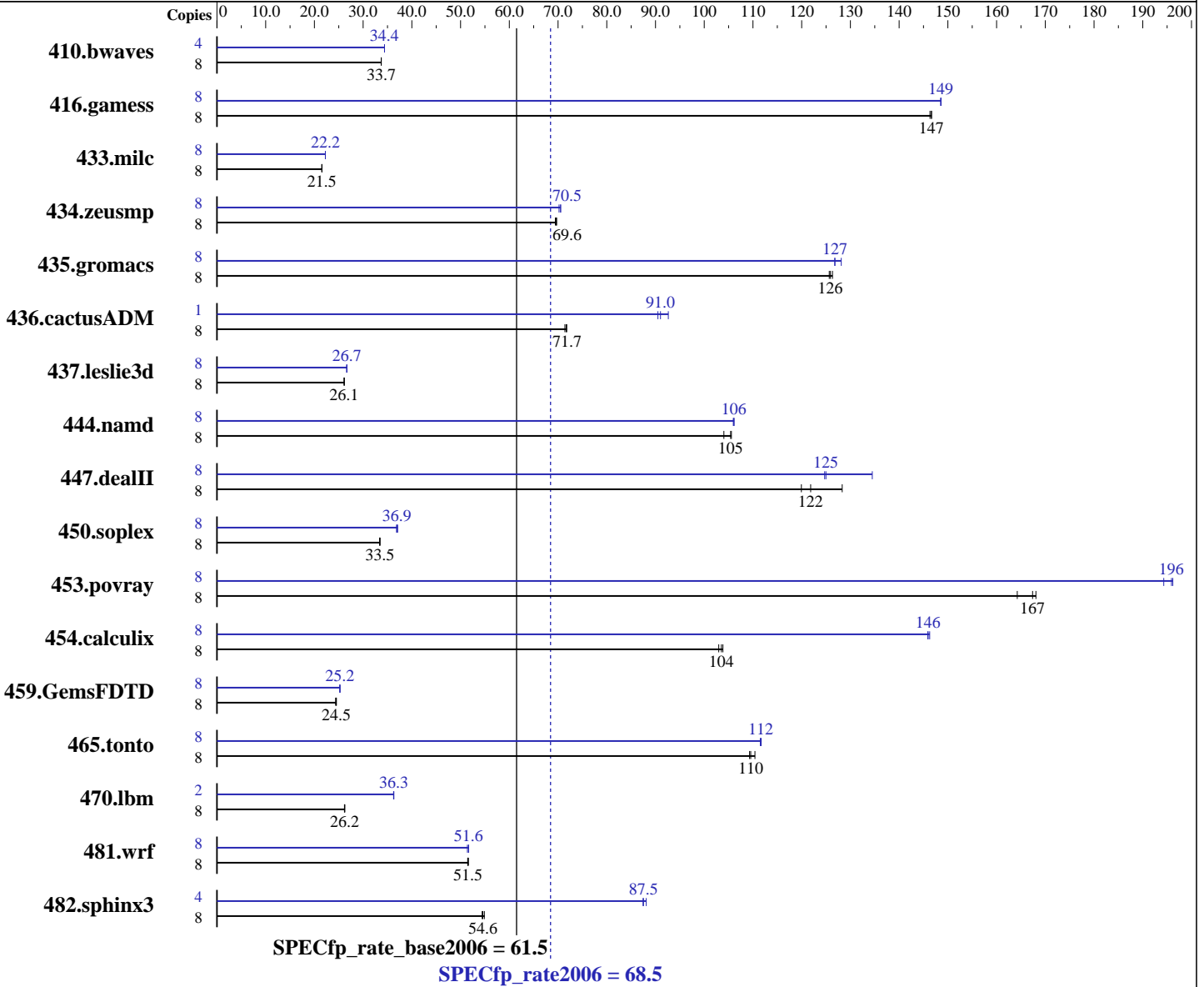
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Mar-2008

Hardware Availability: Feb-2008

Software Availability: Nov-2007



### Hardware

CPU Name: Intel Xeon E5420  
 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, 15000RPM  
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	3223	33.7	3225	33.7	<u>3225</u>	<u>33.7</u>	4	<u>1581</u>	<u>34.4</u>	1581	34.4	1581	34.4
416.gamess	8	1070	146	1068	147	<u>1068</u>	<u>147</u>	8	1055	149	<u>1054</u>	<u>149</u>	1054	149
433.milc	8	<u>3410</u>	<u>21.5</u>	3408	21.5	3410	21.5	8	3300	22.3	<u>3301</u>	<u>22.2</u>	3301	22.2
434.zeusmp	8	<u>1046</u>	<u>69.6</u>	1048	69.5	1044	69.7	8	1037	70.2	<u>1032</u>	<u>70.5</u>	1032	70.5
435.gromacs	8	452	126	455	126	<u>454</u>	<u>126</u>	8	451	127	446	128	<u>450</u>	<u>127</u>
436.cactusADM	8	1332	71.8	<u>1334</u>	<u>71.7</u>	1339	71.4	1	129	92.6	<u>131</u>	<u>91.0</u>	132	90.5
437.leslie3d	8	2881	26.1	2878	26.1	<u>2879</u>	<u>26.1</u>	8	<u>2821</u>	<u>26.7</u>	2821	26.7	2822	26.6
444.namd	8	608	106	617	104	<u>609</u>	<u>105</u>	8	<u>605</u>	<u>106</u>	604	106	605	106
447.dealII	8	713	128	<u>751</u>	<u>122</u>	763	120	8	<u>732</u>	<u>125</u>	734	125	680	134
450.soplex	8	2000	33.4	<u>1994</u>	<u>33.5</u>	1994	33.5	8	1810	36.9	<u>1806</u>	<u>36.9</u>	1799	37.1
453.povray	8	<u>254</u>	<u>167</u>	259	164	253	168	8	219	194	217	196	<u>217</u>	<u>196</u>
454.calculix	8	<u>637</u>	<u>104</u>	641	103	636	104	8	451	146	452	146	<u>452</u>	<u>146</u>
459.GemsFDTD	8	<u>3467</u>	<u>24.5</u>	3463	24.5	3487	24.3	8	3366	25.2	3361	25.3	<u>3364</u>	<u>25.2</u>
465.tonto	8	713	110	<u>719</u>	<u>110</u>	720	109	8	706	112	<u>705</u>	<u>112</u>	705	112
470.lbm	8	4187	26.3	<u>4197</u>	<u>26.2</u>	4201	26.2	2	757	36.3	<u>757</u>	<u>36.3</u>	758	36.2
481.wrf	8	1731	51.6	<u>1735</u>	<u>51.5</u>	1737	51.5	8	1739	51.4	1730	51.6	<u>1731</u>	<u>51.6</u>
482.sphinx3	8	2841	54.9	2865	54.4	<u>2857</u>	<u>54.6</u>	4	<u>891</u>	<u>87.5</u>	892	87.4	885	88.1

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  
OMP\_NUM\_THREADS set to number of cores

## Platform Notes

Bios settings:  
Intel SpeedStep Technology: Disabled



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## 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 Express5800/120Lj(Intel Xeon E5420) and the Bull NovaScale T860 E1(Intel Xeon E5420,2.50GHz) models are electronically equivalent. The results have been measured on a NEC Express5800/120Lj(Intel Xeon E5420) 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.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

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## Base Optimization Flags (Continued)

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  
453.povray: -DSPEC\_CPU\_LP64  
454.calculix: -DSPEC\_CPU\_LP64 -nofor\_main  
459.GemsFDTD: -DSPEC\_CPU\_LP64

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## Peak Portability Flags (Continued)

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

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4 -auto

Benchmarks using both Fortran and C:

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## Peak Optimization Flags (Continued)

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.20090713.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.20090713.xml>

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

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