



# SPEC® CFP2006 Result

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## NEC Corporation

Express5800/120Lj  
(Intel Xeon X5460)

SPECfp®\_rate2006 = 75.7

SPECfp\_rate\_base2006 = 67.2

CPU2006 license: 9006

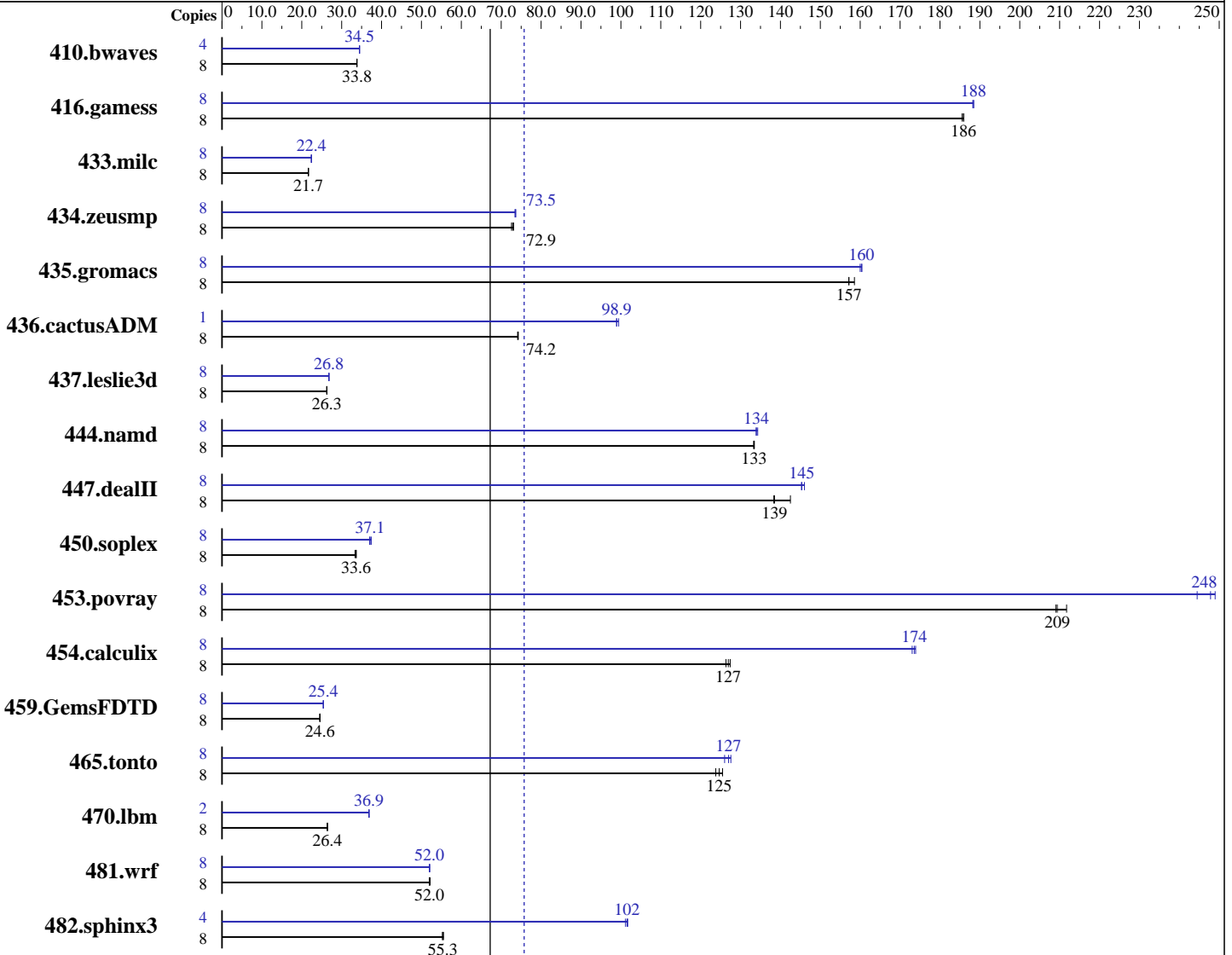
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Mar-2008

Hardware Availability: Feb-2008

Software Availability: Nov-2007



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### Hardware

CPU Name: Intel Xeon X5460  
 CPU Characteristics: 3.16 GHz, 2x6 MB L2 shared, 1333 MHz bus  
 CPU MHz: 3167  
 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	<b><u>3214</u></b>	<b><u>33.8</u></b>	3212	33.8	3215	33.8	4	1577	34.5	<b><u>1577</u></b>	<b><u>34.5</u></b>	1576	34.5
416.gamess	8	844	186	<b><u>843</u></b>	<b><u>186</u></b>	843	186	8	831	188	832	188	<b><u>831</u></b>	<b><u>188</u></b>
433.milc	8	3398	21.6	<b><u>3388</u></b>	<b><u>21.7</u></b>	3387	21.7	8	<b><u>3277</u></b>	<b><u>22.4</u></b>	3277	22.4	3277	22.4
434.zeusmp	8	1003	72.6	<b><u>999</u></b>	<b><u>72.9</u></b>	996	73.1	8	991	73.5	<b><u>990</u></b>	<b><u>73.5</u></b>	988	73.7
435.gromacs	8	360	159	<b><u>363</u></b>	<b><u>157</u></b>	364	157	8	356	160	357	160	<b><u>356</u></b>	<b><u>160</u></b>
436.cactusADM	8	1290	74.1	<b><u>1288</u></b>	<b><u>74.2</u></b>	1287	74.3	1	120	99.4	121	98.9	<b><u>121</u></b>	<b><u>98.9</u></b>
437.leslie3d	8	<b><u>2863</u></b>	<b><u>26.3</u></b>	2857	26.3	2863	26.3	8	2806	26.8	<b><u>2805</u></b>	<b><u>26.8</u></b>	2804	26.8
444.namd	8	481	133	481	133	<b><u>481</u></b>	<b><u>133</u></b>	8	479	134	<b><u>479</u></b>	<b><u>134</u></b>	478	134
447.dealII	8	<b><u>661</u></b>	<b><u>139</u></b>	642	142	662	138	8	627	146	630	145	<b><u>630</u></b>	<b><u>145</u></b>
450.soplex	8	2001	33.3	1983	33.6	<b><u>1984</u></b>	<b><u>33.6</u></b>	8	1804	37.0	<b><u>1797</u></b>	<b><u>37.1</u></b>	1783	37.4
453.povray	8	201	212	<b><u>203</u></b>	<b><u>209</u></b>	204	209	8	<b><u>172</u></b>	<b><u>248</u></b>	174	244	171	249
454.calculix	8	522	126	518	127	<b><u>520</u></b>	<b><u>127</u></b>	8	381	173	<b><u>380</u></b>	<b><u>174</u></b>	380	174
459.GemsFDTD	8	3468	24.5	<b><u>3450</u></b>	<b><u>24.6</u></b>	3450	24.6	8	<b><u>3341</u></b>	<b><u>25.4</u></b>	3342	25.4	3340	25.4
465.tonto	8	627	125	636	124	<b><u>632</u></b>	<b><u>125</u></b>	8	<b><u>620</u></b>	<b><u>127</u></b>	625	126	617	128
470.lbm	8	4163	26.4	<b><u>4160</u></b>	<b><u>26.4</u></b>	4157	26.4	2	<b><u>746</u></b>	<b><u>36.9</u></b>	746	36.8	745	36.9
481.wrf	8	1720	52.0	1712	52.2	<b><u>1718</u></b>	<b><u>52.0</u></b>	8	1716	52.1	1719	52.0	<b><u>1717</u></b>	<b><u>52.0</u></b>
482.sphinx3	8	2807	55.5	2821	55.3	<b><u>2818</u></b>	<b><u>55.3</u></b>	4	<b><u>768</u></b>	<b><u>102</u></b>	766	102	771	101

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 X5460) and the Bull NovaScale T860 E1(Intel Xeon X5460,3.16GHz) models are electronically equivalent. The results have been measured on a NEC Express5800/120Lj(Intel Xeon X5460) 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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