



# SPEC® CFP2006 Result

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## NEC Corporation

### SPECfp®\_rate2006 = 75.6

T120Rc-1  
(Intel Xeon X5460)

### SPECfp\_rate\_base2006 = 67.4

CPU2006 license: 9006

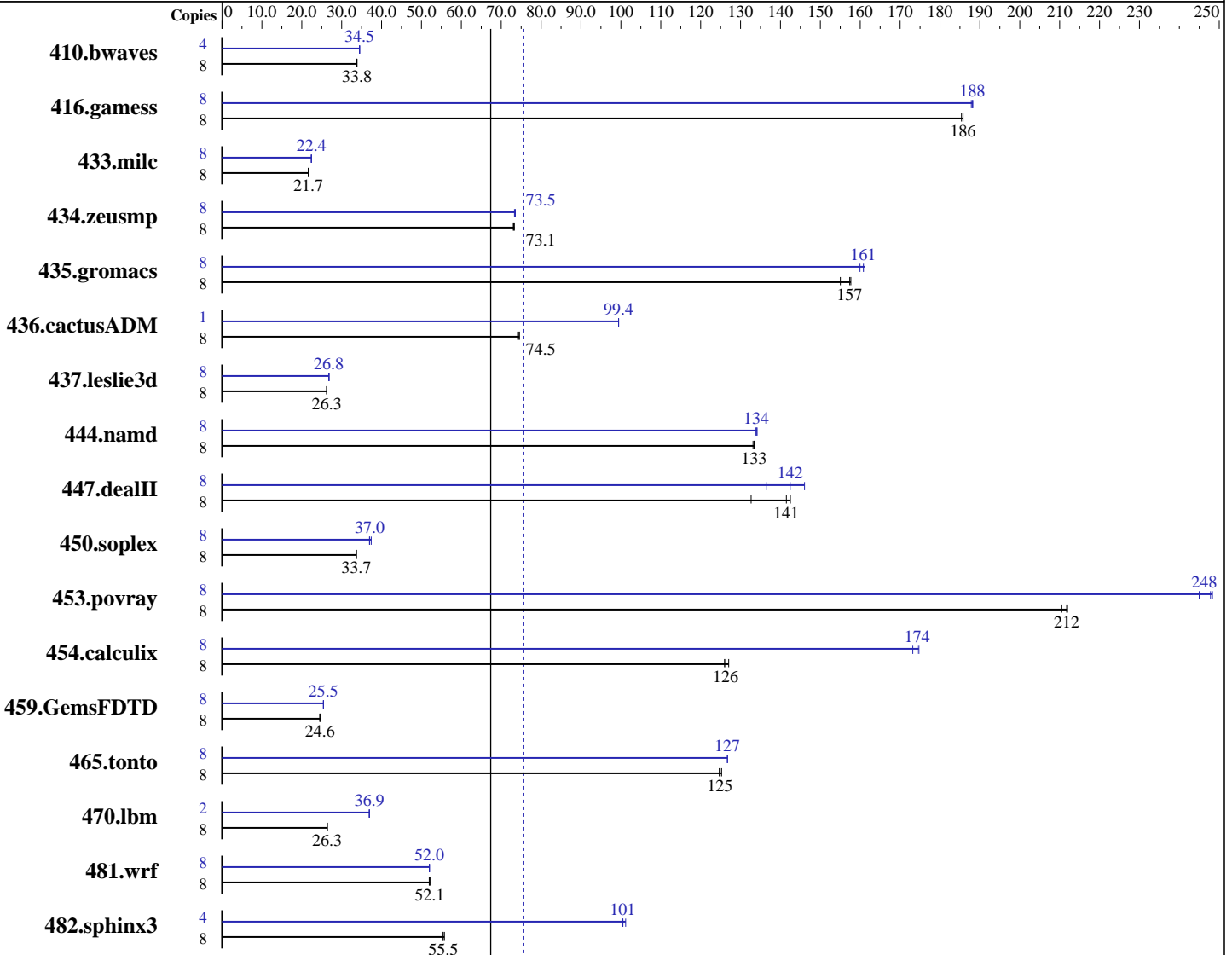
Test date: Feb-2008

Test sponsor: NEC Corporation

Hardware Availability: Jan-2008

Tested by: NEC Corporation

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: 1x250 GB SATAII, 7200RPM  
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>3215</u></b>	<b><u>33.8</u></b>	3215	33.8	3214	33.8	4	1576	34.5	1576	34.5	<b><u>1576</u></b>	<b><u>34.5</u></b>
416.gamess	8	845	185	<b><u>843</u></b>	<b><u>186</u></b>	843	186	8	<b><u>833</u></b>	<b><u>188</u></b>	834	188	832	188
433.milc	8	<b><u>3388</u></b>	<b><u>21.7</u></b>	3389	21.7	3387	21.7	8	3278	22.4	<b><u>3277</u></b>	<b><u>22.4</u></b>	3277	22.4
434.zeusmp	8	1000	72.8	993	73.3	<b><u>995</u></b>	<b><u>73.1</u></b>	8	<b><u>991</u></b>	<b><u>73.5</u></b>	993	73.3	990	73.5
435.gromacs	8	368	155	362	158	<b><u>363</u></b>	<b><u>157</u></b>	8	354	161	<b><u>355</u></b>	<b><u>161</u></b>	357	160
436.cactusADM	8	<b><u>1284</u></b>	<b><u>74.5</u></b>	1290	74.1	1282	74.6	1	120	99.4	<b><u>120</u></b>	<b><u>99.4</u></b>	120	99.4
437.leslie3d	8	2867	26.2	<b><u>2865</u></b>	<b><u>26.3</u></b>	2858	26.3	8	<b><u>2805</u></b>	<b><u>26.8</u></b>	2806	26.8	2803	26.8
444.namd	8	482	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	642	142	<b><u>647</u></b>	<b><u>141</u></b>	690	133	8	<b><u>643</u></b>	<b><u>142</u></b>	627	146	671	136
450.soplex	8	1984	33.6	<b><u>1982</u></b>	<b><u>33.7</u></b>	1981	33.7	8	<b><u>1802</u></b>	<b><u>37.0</u></b>	1805	37.0	1783	37.4
453.povray	8	202	211	201	212	<b><u>201</u></b>	<b><u>212</u></b>	8	174	245	<b><u>172</u></b>	<b><u>248</u></b>	171	248
454.calculix	8	520	127	524	126	<b><u>523</u></b>	<b><u>126</u></b>	8	381	173	<b><u>379</u></b>	<b><u>174</u></b>	378	175
459.GemsFDTD	8	3436	24.7	3462	24.5	<b><u>3457</u></b>	<b><u>24.6</u></b>	8	3334	25.5	<b><u>3335</u></b>	<b><u>25.5</u></b>	3342	25.4
465.tonto	8	629	125	<b><u>630</u></b>	<b><u>125</u></b>	631	125	8	621	127	623	126	<b><u>621</u></b>	<b><u>127</u></b>
470.lbm	8	4156	26.4	4177	26.3	<b><u>4175</u></b>	<b><u>26.3</u></b>	2	743	37.0	744	36.9	<b><u>744</u></b>	<b><u>36.9</u></b>
481.wrf	8	<b><u>1716</u></b>	<b><u>52.1</u></b>	1714	52.1	1720	51.9	8	1720	52.0	<b><u>1719</u></b>	<b><u>52.0</u></b>	1717	52.0
482.sphinx3	8	2819	55.3	2796	55.8	<b><u>2811</u></b>	<b><u>55.5</u></b>	4	<b><u>776</u></b>	<b><u>101</u></b>	776	100	770	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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**Test date:** Feb-2008

**Hardware Availability:** Jan-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

## 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

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## Base Optimization Flags (Continued)

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  
465.tonto: -DSPEC\_CPU\_LP64  
481.wrf: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_CASE\_FLAG -DSPEC\_CPU\_LINUX



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## 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:

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

Continued on next page



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## Peak Optimization Flags (Continued)

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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