



# SPEC® CFP2006 Result

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## NEC Corporation

Express5800/i120Ra-e1  
(Intel Xeon L5410)

SPECfp®\_rate2006 = 63.7

SPECfp\_rate\_base2006 = 58.2

CPU2006 license: 9006

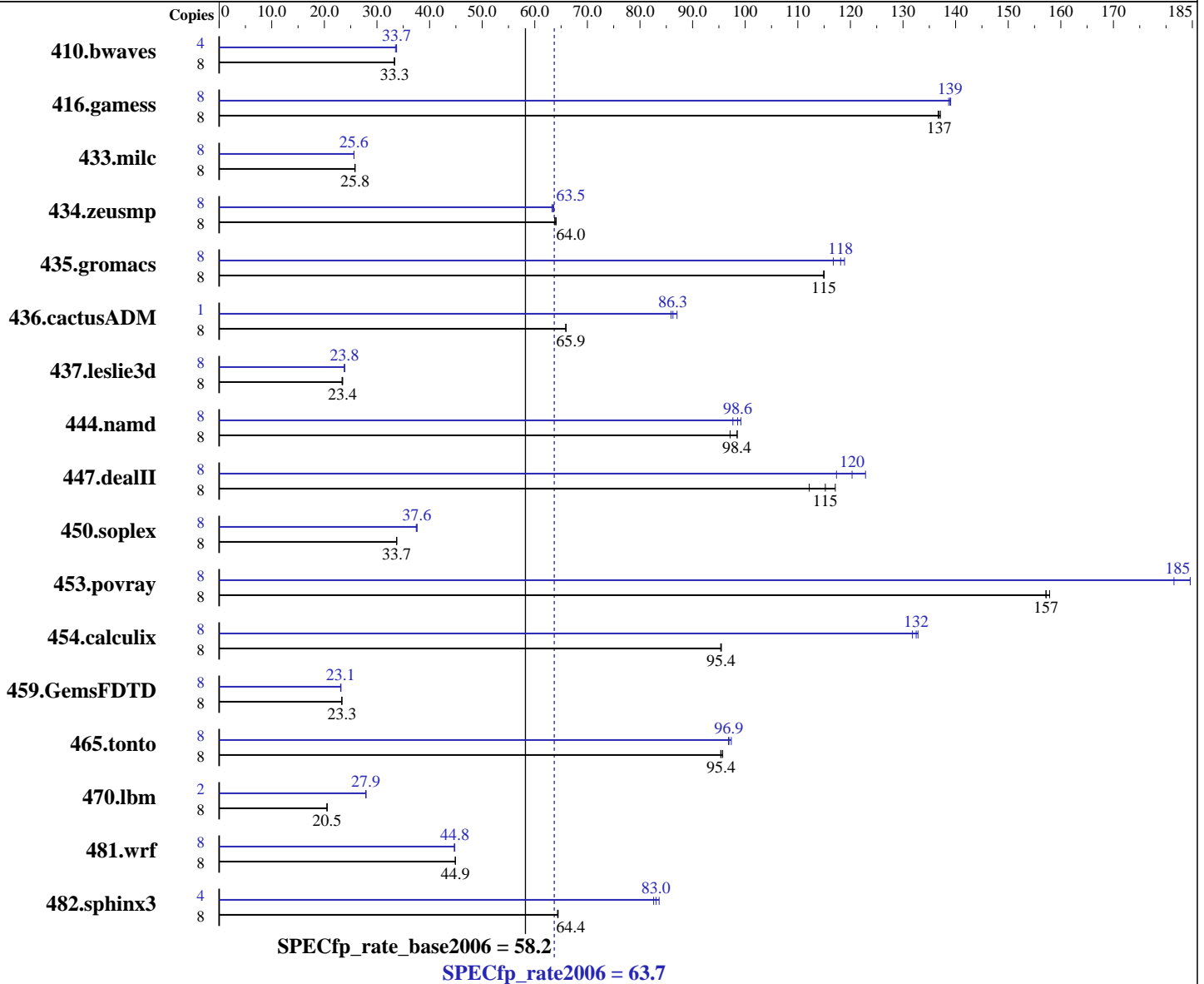
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Jun-2008

Hardware Availability: May-2008

Software Availability: Nov-2007



### Hardware

CPU Name: Intel Xeon L5410  
 CPU Characteristics: 2.33 GHz, 2x6 MB L2 shared, 1333 MHz bus  
 CPU MHz: 2333  
 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: ReiserFS

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L3 Cache: None  
Other Cache: None  
Memory: 16 GB (4x4 GB PC2-5300P, 2 rank, CL5-5-5, ECC)  
Disk Subsystem: 1x80.0 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	3259	33.4	<b><u>3261</u></b>	<b><u>33.3</u></b>	3264	33.3	4	<b><u>1613</u></b>	<b><u>33.7</u></b>	1622	33.5	1611	33.7
416.gamess	8	1146	137	1142	137	<b><u>1144</u></b>	<b><u>137</u></b>	8	<b><u>1127</u></b>	<b><u>139</u></b>	1126	139	1130	139
433.milc	8	2848	25.8	2842	25.8	<b><u>2842</u></b>	<b><u>25.8</u></b>	8	2866	25.6	<b><u>2865</u></b>	<b><u>25.6</u></b>	2864	25.6
434.zeusmp	8	1141	63.8	1136	64.1	<b><u>1138</u></b>	<b><u>64.0</u></b>	8	1151	63.3	<b><u>1147</u></b>	<b><u>63.5</u></b>	1144	63.6
435.gromacs	8	<b><u>497</u></b>	<b><u>115</u></b>	497	115	497	115	8	489	117	<b><u>483</u></b>	<b><u>118</u></b>	480	119
436.cactusADM	8	1450	65.9	<b><u>1450</u></b>	<b><u>65.9</u></b>	1451	65.9	1	139	85.9	137	87.0	<b><u>139</u></b>	<b><u>86.3</u></b>
437.leslie3d	8	3203	23.5	3219	23.4	<b><u>3207</u></b>	<b><u>23.4</u></b>	8	<b><u>3153</u></b>	<b><u>23.8</u></b>	3153	23.9	3162	23.8
444.namd	8	651	98.5	<b><u>652</u></b>	<b><u>98.4</u></b>	661	97.1	8	657	97.7	647	99.2	<b><u>651</u></b>	<b><u>98.6</u></b>
447.dealII	8	816	112	<b><u>794</u></b>	<b><u>115</u></b>	781	117	8	<b><u>761</u></b>	<b><u>120</u></b>	745	123	780	117
450.soplex	8	1979	33.7	1975	33.8	<b><u>1978</u></b>	<b><u>33.7</u></b>	8	1781	37.5	1773	37.6	<b><u>1776</u></b>	<b><u>37.6</u></b>
453.povray	8	270	158	<b><u>271</u></b>	<b><u>157</u></b>	271	157	8	234	182	231	185	<b><u>231</u></b>	<b><u>185</u></b>
454.calculix	8	<b><u>692</u></b>	<b><u>95.4</u></b>	691	95.5	692	95.3	8	<b><u>498</u></b>	<b><u>132</u></b>	501	132	497	133
459.GemsFDTD	8	<b><u>3639</u></b>	<b><u>23.3</u></b>	3637	23.3	3642	23.3	8	<b><u>3674</u></b>	<b><u>23.1</u></b>	3664	23.2	3674	23.1
465.tonto	8	<b><u>825</u></b>	<b><u>95.4</u></b>	826	95.4	822	95.7	8	809	97.4	<b><u>812</u></b>	<b><u>96.9</u></b>	813	96.8
470.lbm	8	5358	20.5	5359	20.5	<b><u>5358</u></b>	<b><u>20.5</u></b>	2	985	27.9	985	27.9	<b><u>985</u></b>	<b><u>27.9</u></b>
481.wrf	8	<b><u>1991</u></b>	<b><u>44.9</u></b>	1989	44.9	1991	44.9	8	1995	44.8	2000	44.7	<b><u>1995</u></b>	<b><u>44.8</u></b>
482.sphinx3	8	<b><u>2422</u></b>	<b><u>64.4</u></b>	2423	64.3	2419	64.4	4	944	82.6	932	83.6	<b><u>939</u></b>	<b><u>83.0</u></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  
'/usr/bin/taskset' used to bind processes to CPUs  
except for 436.cactusADM at peak.  
OMP\_NUM\_THREADS set to number of cores

## Platform Notes

Bios settings:  
Hardware Prefetcher: Disabled  
Adjacent Cache Line Prefetch: Disabled  
Intel SpeedStep Technology: Disabled



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**Hardware Availability:** May-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

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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.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.xml>

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

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