



SPEC[®] CFP2006 Result

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NEC Corporation

Express5800/140Ba-10
(Intel Xeon E7220)

SPECfp[®]_rate2006 = 48.7

SPECfp_rate_base2006 = 45.4

CPU2006 license: 9006

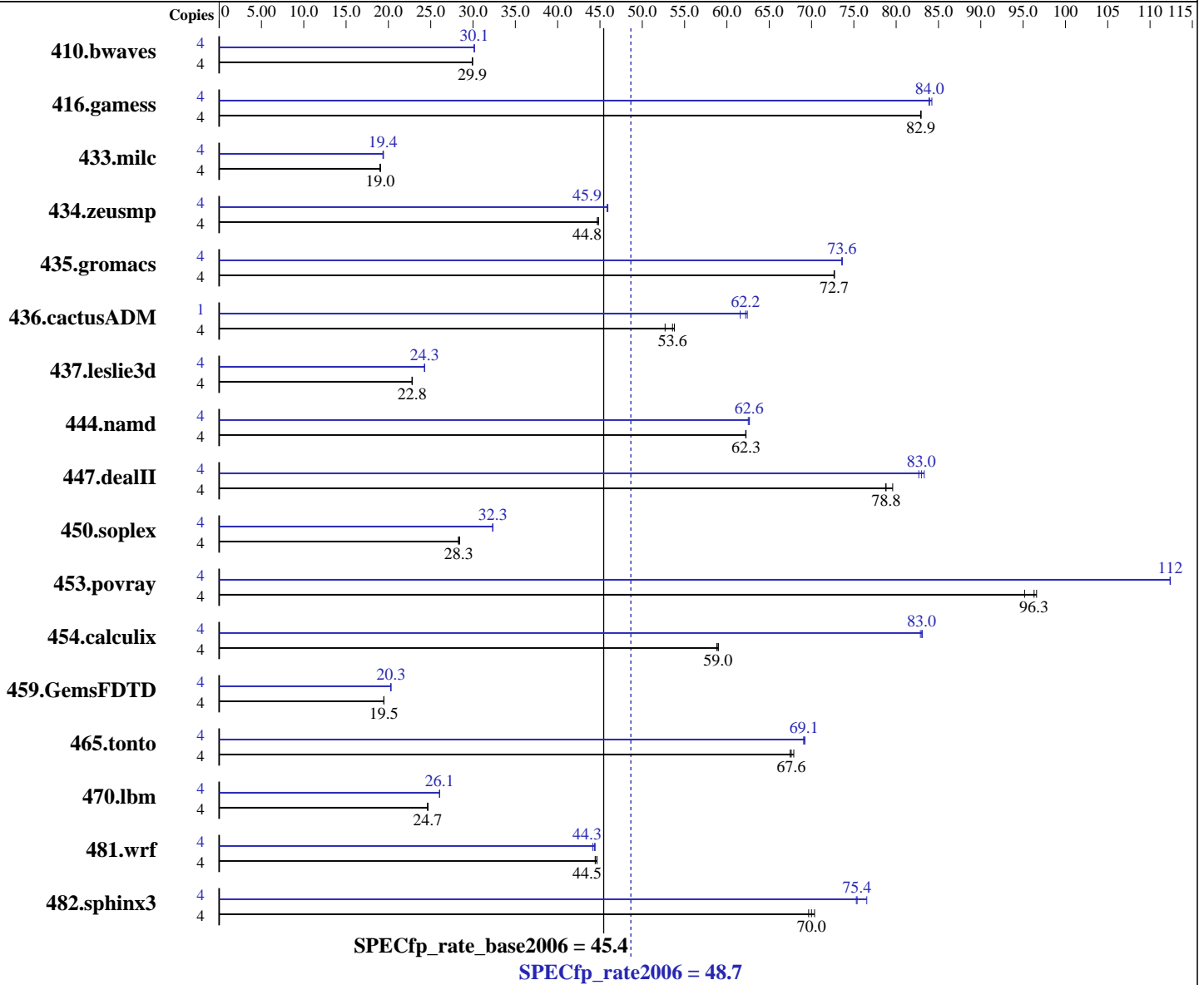
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Apr-2008

Hardware Availability: Sep-2007

Software Availability: Nov-2007



Hardware

CPU Name: Intel Xeon E7220
 CPU Characteristics: 2.93 GHz, 1066 MHz bus
 CPU MHz: 2933
 FPU: Integrated
 CPU(s) enabled: 4 cores, 2 chips, 2 cores/chip
 CPU(s) orderable: 1,2,3,4 chips
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 4 MB I+D on chip per core

Continued on next page

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

Continued on next page



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L3 Cache: None
Other Cache: None
Memory: 16 GB (16x1 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	4	1817	29.9	<u>1816</u>	<u>29.9</u>	1815	29.9	4	1802	30.2	1804	30.1	<u>1803</u>	<u>30.1</u>
416.gamess	4	<u>945</u>	<u>82.9</u>	944	83.0	945	82.9	4	930	84.2	934	83.9	<u>933</u>	<u>84.0</u>
433.milc	4	1932	19.0	1926	19.1	<u>1928</u>	<u>19.0</u>	4	1891	19.4	1897	19.4	<u>1896</u>	<u>19.4</u>
434.zeusmp	4	815	44.7	812	44.8	<u>812</u>	<u>44.8</u>	4	792	45.9	794	45.8	<u>793</u>	<u>45.9</u>
435.gromacs	4	<u>393</u>	<u>72.7</u>	393	72.7	393	72.7	4	388	73.6	388	73.6	<u>388</u>	<u>73.6</u>
436.cactusADM	4	<u>892</u>	<u>53.6</u>	907	52.7	889	53.8	1	191	62.4	194	61.6	<u>192</u>	<u>62.2</u>
437.leslie3d	4	1651	22.8	<u>1648</u>	<u>22.8</u>	1647	22.8	4	1547	24.3	<u>1549</u>	<u>24.3</u>	1550	24.3
444.namd	4	515	62.3	<u>515</u>	<u>62.3</u>	516	62.2	4	<u>512</u>	<u>62.6</u>	512	62.7	513	62.5
447.dealII	4	<u>581</u>	<u>78.8</u>	581	78.8	575	79.6	4	549	83.3	<u>551</u>	<u>83.0</u>	553	82.7
450.soplex	4	<u>1178</u>	<u>28.3</u>	1180	28.3	1174	28.4	4	1032	32.3	1032	32.3	<u>1032</u>	<u>32.3</u>
453.povray	4	220	96.6	<u>221</u>	<u>96.3</u>	224	95.2	4	189	112	189	112	<u>189</u>	<u>112</u>
454.calculix	4	559	59.0	<u>560</u>	<u>59.0</u>	561	58.8	4	397	83.1	<u>397</u>	<u>83.0</u>	398	82.9
459.GemsFDTD	4	2180	19.5	<u>2180</u>	<u>19.5</u>	2180	19.5	4	2094	20.3	<u>2090</u>	<u>20.3</u>	2090	20.3
465.tonto	4	<u>582</u>	<u>67.6</u>	580	67.9	583	67.5	4	570	69.1	<u>570</u>	<u>69.1</u>	569	69.2
470.lbm	4	2232	24.6	2227	24.7	<u>2229</u>	<u>24.7</u>	4	<u>2110</u>	<u>26.1</u>	2111	26.0	2109	26.1
481.wrf	4	1006	44.4	1000	44.7	<u>1004</u>	<u>44.5</u>	4	1012	44.2	<u>1007</u>	<u>44.3</u>	1006	44.4
482.sphinx3	4	<u>1114</u>	<u>70.0</u>	1119	69.7	1108	70.4	4	1019	76.5	1035	75.3	<u>1034</u>	<u>75.4</u>

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

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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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.20090713.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.20090713.xml>

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