



# SPEC<sup>®</sup> CFP2006 Result

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## NEC Corporation

Express5800/140Ba-10  
(Intel Xeon E7340)

SPECfp<sup>®</sup>\_rate2006 = 59.3

SPECfp\_rate\_base2006 = 56.0

CPU2006 license: 9006

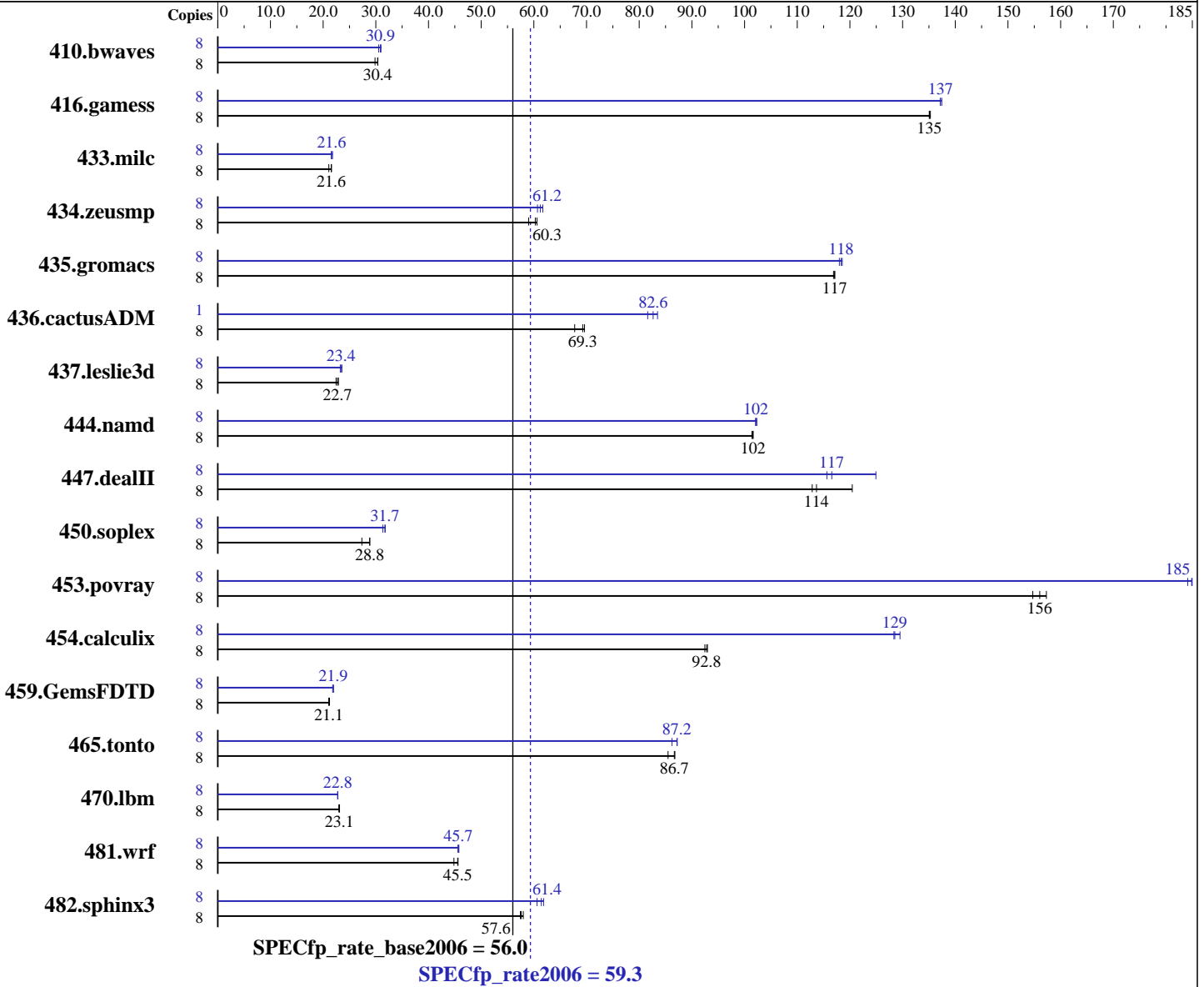
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Apr-2008

Hardware Availability: Sep-2007

Software Availability: Nov-2007



### Hardware

CPU Name: Intel Xeon E7340  
 CPU Characteristics: 2.40 GHz, 2x4 MB L2 shared, 1066 MHz bus  
 CPU MHz: 2400  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip  
 CPU(s) orderable: 1,2,3,4 chips  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 8 MB I+D on chip per chip, 4 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: 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	8	3642	29.8	<b><u>3581</u></b>	<b><u>30.4</u></b>	3580	30.4	8	3509	31.0	3559	30.5	<b><u>3523</u></b>	<b><u>30.9</u></b>
416.gamess	8	1158	135	1160	135	<b><u>1159</u></b>	<b><u>135</u></b>	8	1142	137	<b><u>1142</u></b>	<b><u>137</u></b>	1140	137
433.milc	8	3484	21.1	3405	21.6	<b><u>3406</u></b>	<b><u>21.6</u></b>	8	3371	21.8	3410	21.5	<b><u>3397</u></b>	<b><u>21.6</u></b>
434.zeusmp	8	1234	59.0	<b><u>1208</u></b>	<b><u>60.3</u></b>	1202	60.6	8	1180	61.7	<b><u>1189</u></b>	<b><u>61.2</u></b>	1199	60.7
435.gromacs	8	489	117	488	117	<b><u>488</u></b>	<b><u>117</u></b>	8	482	119	484	118	<b><u>483</u></b>	<b><u>118</u></b>
436.cactusADM	8	1411	67.8	1373	69.6	<b><u>1380</u></b>	<b><u>69.3</u></b>	1	<b><u>145</u></b>	<b><u>82.6</u></b>	146	81.6	143	83.5
437.leslie3d	8	3350	22.4	<b><u>3309</u></b>	<b><u>22.7</u></b>	3283	22.9	8	3191	23.6	3234	23.3	<b><u>3216</u></b>	<b><u>23.4</u></b>
444.namd	8	633	101	<b><u>631</u></b>	<b><u>102</u></b>	631	102	8	629	102	627	102	<b><u>628</u></b>	<b><u>102</u></b>
447.dealII	8	811	113	<b><u>805</u></b>	<b><u>114</u></b>	760	120	8	<b><u>785</u></b>	<b><u>117</u></b>	733	125	792	116
450.soplex	8	2440	27.3	<b><u>2313</u></b>	<b><u>28.8</u></b>	2312	28.9	8	2130	31.3	<b><u>2103</u></b>	<b><u>31.7</u></b>	2099	31.8
453.povray	8	275	155	<b><u>273</u></b>	<b><u>156</u></b>	271	157	8	231	184	230	185	<b><u>230</u></b>	<b><u>185</u></b>
454.calculix	8	<b><u>711</u></b>	<b><u>92.8</u></b>	714	92.5	710	93.0	8	510	130	514	128	<b><u>514</u></b>	<b><u>129</u></b>
459.GemsFDTD	8	4002	21.2	<b><u>4027</u></b>	<b><u>21.1</u></b>	4028	21.1	8	3866	22.0	3891	21.8	<b><u>3869</u></b>	<b><u>21.9</u></b>
465.tonto	8	921	85.5	<b><u>908</u></b>	<b><u>86.7</u></b>	907	86.8	8	913	86.2	903	87.2	<b><u>903</u></b>	<b><u>87.2</u></b>
470.lbm	8	4784	23.0	4755	23.1	<b><u>4756</u></b>	<b><u>23.1</u></b>	8	4823	22.8	<b><u>4828</u></b>	<b><u>22.8</u></b>	4829	22.8
481.wrf	8	1993	44.8	<b><u>1962</u></b>	<b><u>45.5</u></b>	1959	45.6	8	<b><u>1956</u></b>	<b><u>45.7</u></b>	1960	45.6	1952	45.8
482.sphinx3	8	2714	57.4	<b><u>2708</u></b>	<b><u>57.6</u></b>	2689	58.0	8	2573	60.6	2521	61.8	<b><u>2539</u></b>	<b><u>61.4</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  
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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**Test sponsor:** NEC Corporation

**Tested by:** NEC Corporation

**Test date:** Apr-2008

**Hardware Availability:** Sep-2007

**Software Availability:** Nov-2007

## 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.deall: -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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