# SPEC® CFP2006 Result
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## NEC Corporation

Express5800/120Li
(Intel Xeon processor 5160)

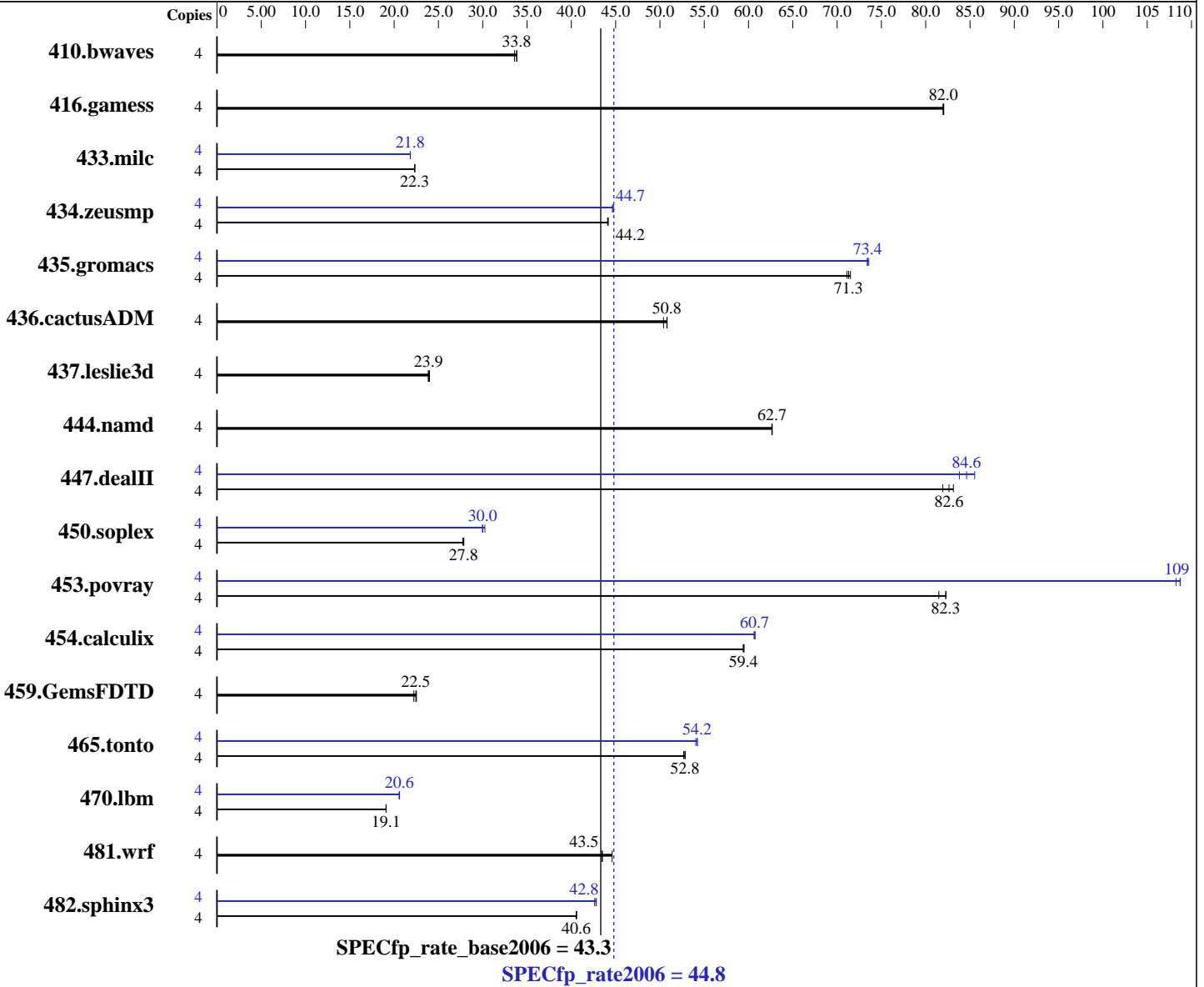$SPECfp®\_rate2006 =$ 44.8

$SPECfp\_rate\_base2006 =$ 43.3

| | |
|---|---|
| **CPU2006 license:** 9006 | **Test date:** Oct-2007 |
| **Test sponsor:** NEC Corporation | **Hardware Availability:** May-2007 |
| **Tested by:** NEC Corporation | **Software Availability:** Apr-2007 |



| Benchmark | Copies | Result |
|---|---|---|
| 410.bwaves | 4 | 33.8 |
| 416.gamess | 4 | 82.0 |
| 433.milc | 4 / 4 | 21.8 / 22.3 |
| 434.zeusmp | 4 / 4 | 44.7 / 44.2 |
| 435.gromacs | 4 / 4 | 73.4 / 71.3 |
| 436.cactusADM | 4 | 50.8 |
| 437.leslie3d | 4 | 23.9 |
| 444.namd | 4 | 62.7 |
| 447.dealII | 4 / 4 | 84.6 / 82.6 |
| 450.soplex | 4 / 4 | 30.0 / 27.8 |
| 453.povray | 4 / 4 | 109 / 82.3 |
| 454.calculix | 4 / 4 | 60.7 / 59.4 |
| 459.GemsFDTD | 4 | 22.5 |
| 465.tonto | 4 / 4 | 54.2 / 52.8 |
| 470.lbm | 4 / 4 | 20.6 / 19.1 |
| 481.wrf | 4 | 43.5 |
| 482.sphinx3 | 4 / 4 | 42.8 / 40.6 |

SPECfp_rate_base2006 = 43.3
SPECfp_rate2006 = 44.8

## Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon 5160 |
| CPU Characteristics: | 3.00 GHz, 4 MB L2, 1333 MHz bus |
| CPU MHz: | 3000 |
| FPU: | Integrated |
| CPU(s) enabled: | 4 cores, 2 chips, 2 cores/chip |
| CPU(s) orderable: | 1,2 chips |
| Primary Cache: | 32 KB I + 32 KB D on chip per core |
| Secondary Cache: | 4 MB I+D on chip per chip |

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## Software

| | |
|---|---|
| Operating System: | 64-Bit SUSE LINUX Enterprise Server 10, Kernel 2.6.16.21-0.8-smp for x86_64 |
| Compiler: | Intel C++ Compiler for IA32/EM64T application, Version 9.1 - Build 20070320, Package-ID: l_cc_c_9.1.049 |
| | Intel Fortran Compiler for IA32/EM64T application, Version 9.1 - Build 20070320, Package ID: l_fc_c_9.1.045 |
| Auto Parallel: | No |
| File System: | ext2 |

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| | | | |
|---|---|---|---|
| L3 Cache: | None | System State: | Multiuser, Runlevel 3 |
| Other Cache: | None | Base Pointers: | 64-bit |
| Memory: | 8 GB (8x1 GB PC2-5300F, 2 rank, CL5-5-5, ECC) | Peak Pointers: | 32/64-bit |
| Disk Subsystem: | 1x146.5 GB SAS, 15000RPM | Other Software: | None |
| Other Hardware: | None | | |

## Results Table

| Benchmark | Copies | Base Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Peak Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 410.bwaves | 4 | 1606 | 33.8 | 1619 | 33.6 | **1607** | **33.8** | 4 | 1606 | 33.8 | 1619 | 33.6 | **1607** | **33.8** |
| 416.gamess | 4 | 956 | 82.0 | **955** | **82.0** | 955 | 82.0 | 4 | 956 | 82.0 | **955** | **82.0** | 955 | 82.0 |
| 433.milc | 4 | 1646 | 22.3 | **1644** | **22.3** | 1644 | 22.3 | 4 | **1682** | **21.8** | 1683 | 21.8 | 1682 | 21.8 |
| 434.zeusmp | 4 | 826 | 44.1 | **824** | **44.2** | 824 | 44.2 | 4 | **814** | **44.7** | 816 | 44.6 | 814 | 44.7 |
| 435.gromacs | 4 | **401** | **71.3** | 402 | 71.1 | 399 | 71.5 | 4 | 389 | 73.4 | **389** | **73.4** | 388 | 73.6 |
| 436.cactusADM | 4 | 948 | 50.4 | **941** | **50.8** | 941 | 50.8 | 4 | 948 | 50.4 | **941** | **50.8** | 941 | 50.8 |
| 437.leslie3d | 4 | 1567 | 24.0 | 1576 | 23.9 | **1574** | **23.9** | 4 | 1567 | 24.0 | 1576 | 23.9 | **1574** | **23.9** |
| 444.namd | 4 | 512 | 62.6 | 512 | 62.7 | **512** | **62.7** | 4 | 512 | 62.6 | 512 | 62.7 | **512** | **62.7** |
| 447.dealII | 4 | 559 | 81.9 | 551 | 83.1 | **554** | **82.6** | 4 | **541** | **84.6** | 546 | 83.8 | 535 | 85.5 |
| 450.soplex | 4 | **1199** | **27.8** | 1202 | 27.8 | 1197 | 27.9 | 4 | **1112** | **30.0** | 1113 | 30.0 | 1103 | 30.2 |
| 453.povray | 4 | **259** | **82.3** | 259 | 82.3 | 261 | 81.5 | 4 | **196** | **109** | 196 | 109 | 197 | 108 |
| 454.calculix | 4 | 555 | 59.5 | **555** | **59.4** | 556 | 59.4 | 4 | 543 | 60.7 | **544** | **60.7** | 544 | 60.6 |
| 459.GemsFDTD | 4 | **1890** | **22.5** | 1885 | 22.5 | 1910 | 22.2 | 4 | **1890** | **22.5** | 1885 | 22.5 | 1910 | 22.2 |
| 465.tonto | 4 | **745** | **52.8** | 747 | 52.7 | 745 | 52.9 | 4 | 728 | 54.0 | 726 | 54.2 | **726** | **54.2** |
| 470.lbm | 4 | **2878** | **19.1** | 2880 | 19.1 | 2877 | 19.1 | 4 | 2671 | 20.6 | **2670** | **20.6** | 2666 | 20.6 |
| 481.wrf | 4 | 1028 | 43.5 | 1002 | 44.6 | **1027** | **43.5** | 4 | 1028 | 43.5 | 1002 | 44.6 | **1027** | **43.5** |
| 482.sphinx3 | 4 | 1920 | 40.6 | **1921** | **40.6** | 1923 | 40.5 | 4 | 1829 | 42.6 | 1820 | 42.8 | **1823** | **42.8** |

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

## General Notes

The system bus runs at 1333 MHz
All binaries were built with 64-bit Intel compiler except:
433.milc, 434.zeusmp, 450.soplex, 470.lbm and 482.sphinx3 in peak were built with
32-bit Intel compiler by changing the path for include and library files.

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**CPU2006 license:** 9006
**Test sponsor:** NEC Corporation
**Tested by:** NEC Corporation

**Test date:** Oct-2007
**Hardware Availability:** May-2007
**Software Availability:** Apr-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:
```
/opt/intel/cc/9.1.049/bin/icc -I/opt/intel/cc/9.1.049/include
-L/opt/intel/cc/9.1.049/lib
```

C++ benchmarks (except as noted below):
```
icpc
```

```
450.soplex: /opt/intel/cc/9.1.049/bin/icpc
             -I/opt/intel/cc/9.1.049/include -L/opt/intel/cc/9.1.049/lib
```

Fortran benchmarks (except as noted below):
```
ifort
```

```
434.zeusmp: /opt/intel/fc/9.1.045/bin/ifort
             -I/opt/intel/fc/9.1.045/include -L/opt/intel/fc/9.1.045/lib
```

Benchmarks using both Fortran and C:
```
icc ifort
```

# Peak Portability Flags

```
    410.bwaves: -DSPEC_CPU_LP64
    416.gamess: -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
    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
```

```
470.lbm: Same as 433.milc
```

```
482.sphinx3: -fast
```

C++ benchmarks:

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# Peak Optimization Flags (Continued)

444.namd: basepeak = yes

447.dealII: -prof_gen(pass 1) -prof_use(pass 2) -fast

450.soplex: Same as 447.dealII

453.povray: Same as 447.dealII

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: basepeak = yes

434.zeusmp: -fast

437.leslie3d: basepeak = yes

459.GemsFDTD: basepeak = yes

465.tonto: -prof_gen(pass 1) -prof_use(pass 2) -fast

Benchmarks using both Fortran and C:

435.gromacs: -prof_gen(pass 1) -prof_use(pass 2) -fast

436.cactusADM: basepeak = yes

454.calculix: Same as 435.gromacs

481.wrf: basepeak = yes

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/NEC-ic91-FP-linux-flags.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/NEC-ic91-FP-linux-flags.xml

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.0.
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