# SPEC® CFP2006 Result

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## NEC Corporation

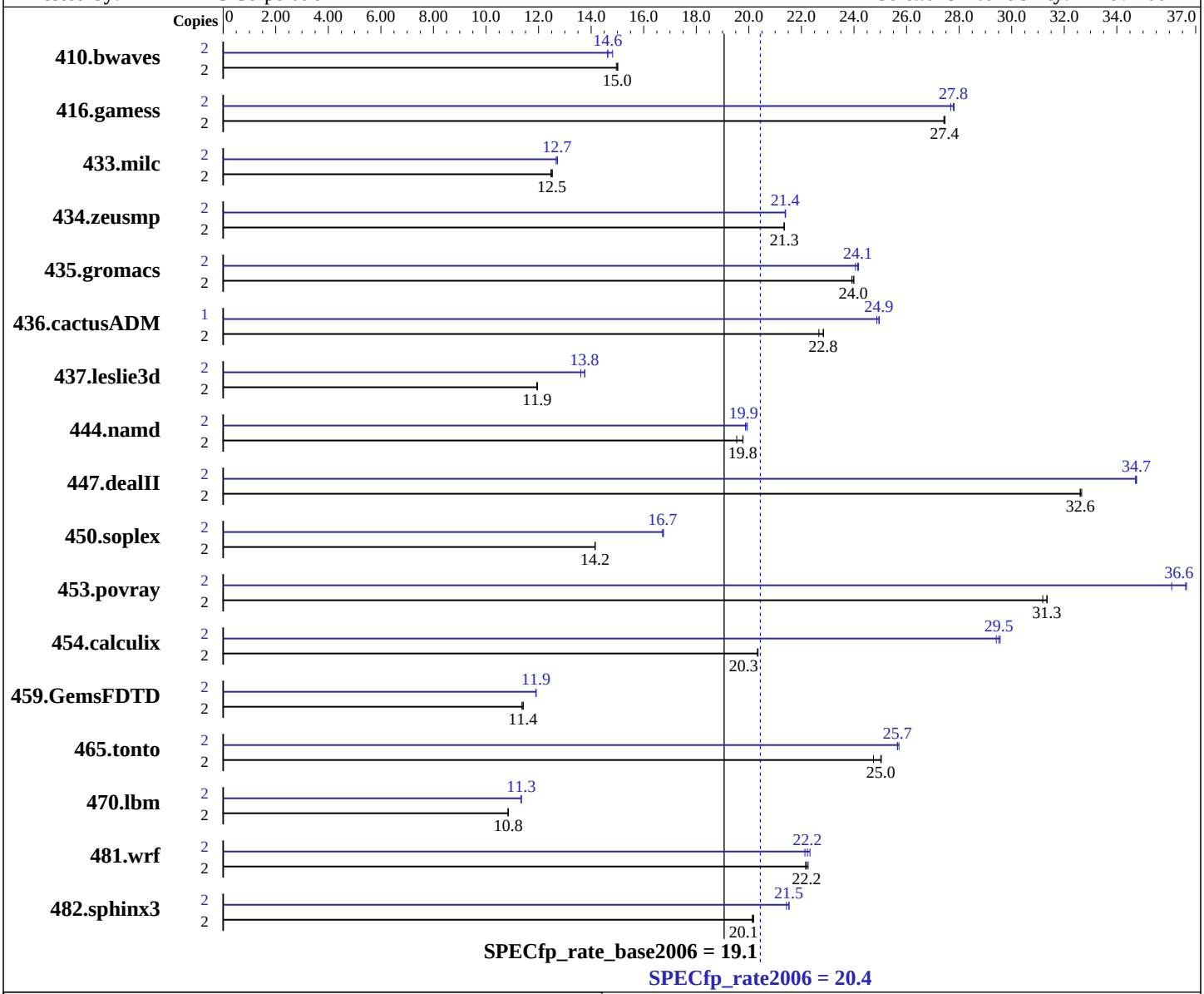
Express5800/120Bb-6
(Intel Xeon E5205)

**SPECfp®_rate2006 = 20.4**

**SPECfp_rate_base2006 = 19.1**

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

**Test date:** May-2008
**Hardware Availability:** Feb-2008
**Software Availability:** Nov-2007




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5205 |
| CPU Characteristics: | 1.86 GHz, 6 MB L2, 1066 MHz bus |
| CPU MHz: | 1867 |
| FPU: | Integrated |
| CPU(s) enabled: | 2 cores, 1 chip, 2 cores/chip |
| CPU(s) orderable: | 1,2 chips |
| Primary Cache: | 32 KB I + 32 KB D on chip per core |
| Secondary Cache: | 6 MB I+D on chip per chip |

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### Software

| | |
|---|---|
| Operating System: | SUSE Linux Enterprise Server 10 (x86_64) SP1, Kernel 2.6.16.46-0.12-smp |
| 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: 8 GB (4x2 GB PC2-5300F, 2 rank, CL5-5-5, ECC)
Disk Subsystem: 1x73.2 GB SAS, 15000RPM
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 | 2 | 1817 | 15.0 | 1810 | 15.0 | **1812** | **15.0** | 2 | 1858 | 14.6 | 1834 | 14.8 | **1858** | **14.6** |
| 416.gamess | 2 | **1427** | **27.4** | 1426 | 27.5 | 1428 | 27.4 | 2 | 1415 | 27.7 | 1408 | 27.8 | **1410** | **27.8** |
| 433.milc | 2 | 1466 | 12.5 | **1468** | **12.5** | 1473 | 12.5 | 2 | 1449 | 12.7 | **1445** | **12.7** | 1444 | 12.7 |
| 434.zeusmp | 2 | 853 | 21.3 | **853** | **21.3** | 852 | 21.4 | 2 | 851 | 21.4 | 851 | 21.4 | **851** | **21.4** |
| 435.gromacs | 2 | 595 | 24.0 | 597 | 23.9 | **596** | **24.0** | 2 | 594 | 24.1 | 591 | 24.2 | **591** | **24.1** |
| 436.cactusADM | 2 | **1047** | **22.8** | 1055 | 22.7 | 1046 | 22.8 | 1 | 480 | 24.9 | **479** | **24.9** | 479 | 25.0 |
| 437.leslie3d | 2 | 1572 | 12.0 | 1575 | 11.9 | **1574** | **11.9** | 2 | **1367** | **13.8** | 1382 | 13.6 | 1366 | 13.8 |
| 444.namd | 2 | 811 | 19.8 | 821 | 19.5 | **811** | **19.8** | 2 | **805** | **19.9** | 804 | 19.9 | 807 | 19.9 |
| 447.dealII | 2 | 700 | 32.7 | 702 | 32.6 | **702** | **32.6** | 2 | **659** | **34.7** | 658 | 34.8 | 659 | 34.7 |
| 450.soplex | 2 | 1179 | 14.2 | **1179** | **14.2** | 1179 | 14.2 | 2 | 996 | 16.8 | 998 | 16.7 | **997** | **16.7** |
| 453.povray | 2 | 341 | 31.2 | **340** | **31.3** | 339 | 31.4 | 2 | **291** | **36.6** | 295 | 36.1 | 290 | 36.7 |
| 454.calculix | 2 | **811** | **20.3** | 811 | 20.4 | 812 | 20.3 | 2 | **559** | **29.5** | 561 | 29.4 | 558 | 29.6 |
| 459.GemsFDTD | 2 | 1867 | 11.4 | 1859 | 11.4 | **1860** | **11.4** | 2 | 1782 | 11.9 | 1784 | 11.9 | **1783** | **11.9** |
| 465.tonto | 2 | 786 | 25.0 | 795 | 24.7 | **787** | **25.0** | 2 | 765 | 25.7 | 767 | 25.7 | **767** | **25.7** |
| 470.lbm | 2 | **2534** | **10.8** | 2534 | 10.8 | 2535 | 10.8 | 2 | **2423** | **11.3** | 2423 | 11.3 | 2424 | 11.3 |
| 481.wrf | 2 | **1007** | **22.2** | 1004 | 22.3 | 1008 | 22.2 | 2 | **1005** | **22.2** | 1009 | 22.1 | 1001 | 22.3 |
| 482.sphinx3 | 2 | 1931 | 20.2 | 1936 | 20.1 | **1935** | **20.1** | 2 | **1811** | **21.5** | 1810 | 21.5 | 1819 | 21.4 |

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
```

## 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

## 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`

## 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.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

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.

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