# SPEC® CFP2006 Result



## NEC Corporation

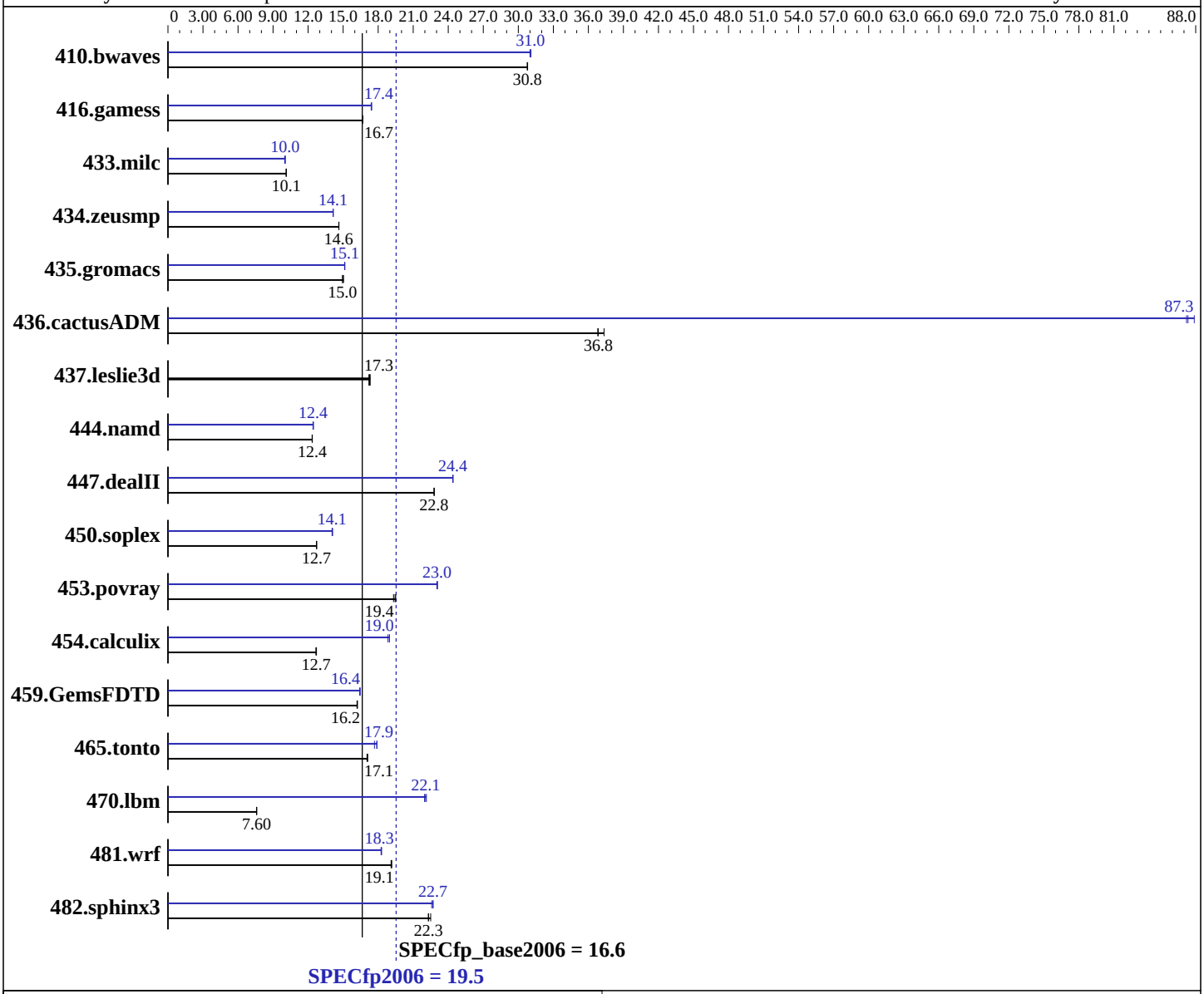
Express5800/i120Ra-e1
(Intel Xeon L5410)

SPECfp®2006 = 19.5

SPECfp_base2006 = 16.6

**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-smp |
| Compiler: | Intel C++ and Fortran Compiler for Linux 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 |
| System State: | Run level 3 (multi-user) |

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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

Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: binutils 2.17

## Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | **442** | **30.8** | 441 | 30.8 | 442 | 30.8 | **438** | **31.0** | 438 | 31.0 | 437 | 31.1 |
| 416.gamess | 1177 | 16.6 | **1176** | **16.7** | 1173 | 16.7 | 1125 | 17.4 | 1123 | 17.4 | **1123** | **17.4** |
| 433.milc | 907 | 10.1 | 906 | 10.1 | **906** | **10.1** | 919 | 9.99 | **914** | **10.0** | 914 | 10.0 |
| 434.zeusmp | 622 | 14.6 | 621 | 14.6 | **622** | **14.6** | **643** | **14.1** | 643 | 14.2 | 644 | 14.1 |
| 435.gromacs | 475 | 15.0 | 478 | 14.9 | **477** | **15.0** | 472 | 15.1 | **472** | **15.1** | 471 | 15.1 |
| 436.cactusADM | 325 | 36.8 | 320 | 37.3 | **324** | **36.8** | **137** | **87.3** | 137 | 87.2 | 136 | 87.9 |
| 437.leslie3d | 543 | 17.3 | 546 | 17.2 | **544** | **17.3** | 543 | 17.3 | 546 | 17.2 | **544** | **17.3** |
| 444.namd | 650 | 12.3 | **649** | **12.4** | 649 | 12.4 | **644** | **12.4** | 646 | 12.4 | 644 | 12.4 |
| 447.dealII | 502 | 22.8 | 502 | 22.8 | **502** | **22.8** | 469 | 24.4 | **469** | **24.4** | 469 | 24.4 |
| 450.soplex | **656** | **12.7** | 655 | 12.7 | 656 | 12.7 | 591 | 14.1 | **593** | **14.1** | 593 | 14.1 |
| 453.povray | 273 | 19.5 | 275 | 19.3 | **274** | **19.4** | 230 | 23.1 | 231 | 23.0 | **231** | **23.0** |
| 454.calculix | 651 | 12.7 | **650** | **12.7** | 649 | 12.7 | 435 | 19.0 | 438 | 18.8 | **435** | **19.0** |
| 459.GemsFDTD | 656 | 16.2 | 654 | 16.2 | **655** | **16.2** | 646 | 16.4 | **645** | **16.4** | 645 | 16.5 |
| 465.tonto | **576** | **17.1** | 576 | 17.1 | 577 | 17.0 | **550** | **17.9** | 557 | 17.7 | 550 | 17.9 |
| 470.lbm | **1808** | **7.60** | 1813 | 7.58 | 1808 | 7.60 | **623** | **22.1** | 621 | 22.1 | 625 | 22.0 |
| 481.wrf | 585 | 19.1 | **584** | **19.1** | 583 | 19.2 | 612 | 18.2 | **611** | **18.3** | 611 | 18.3 |
| 482.sphinx3 | 866 | 22.5 | **874** | **22.3** | 874 | 22.3 | 859 | 22.7 | **859** | **22.7** | 863 | 22.6 |

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
 OMP_NUM_THREADS set to number of cores
```

## Platform Notes

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

## General Notes

```
All benchmarks compiled in 64-bit mode except 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 -parallel

C++ benchmarks:
-fast -parallel

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## Base Optimization Flags (Continued)

Fortran benchmarks:
`-fast -parallel`

Benchmarks using both Fortran and C:
`-fast -parallel`

## 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:
`ifort`

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`
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 -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 -parallel`

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: `basepeak = yes`

459.GemsFDTD: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -unroll2 -Ob0 -prefetch -parallel`

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`

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## Peak Optimization Flags (Continued)

481.wrf: `-fast -parallel -prefetch -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`



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

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