# SPEC® CFP2006 Result



## NEC Corporation

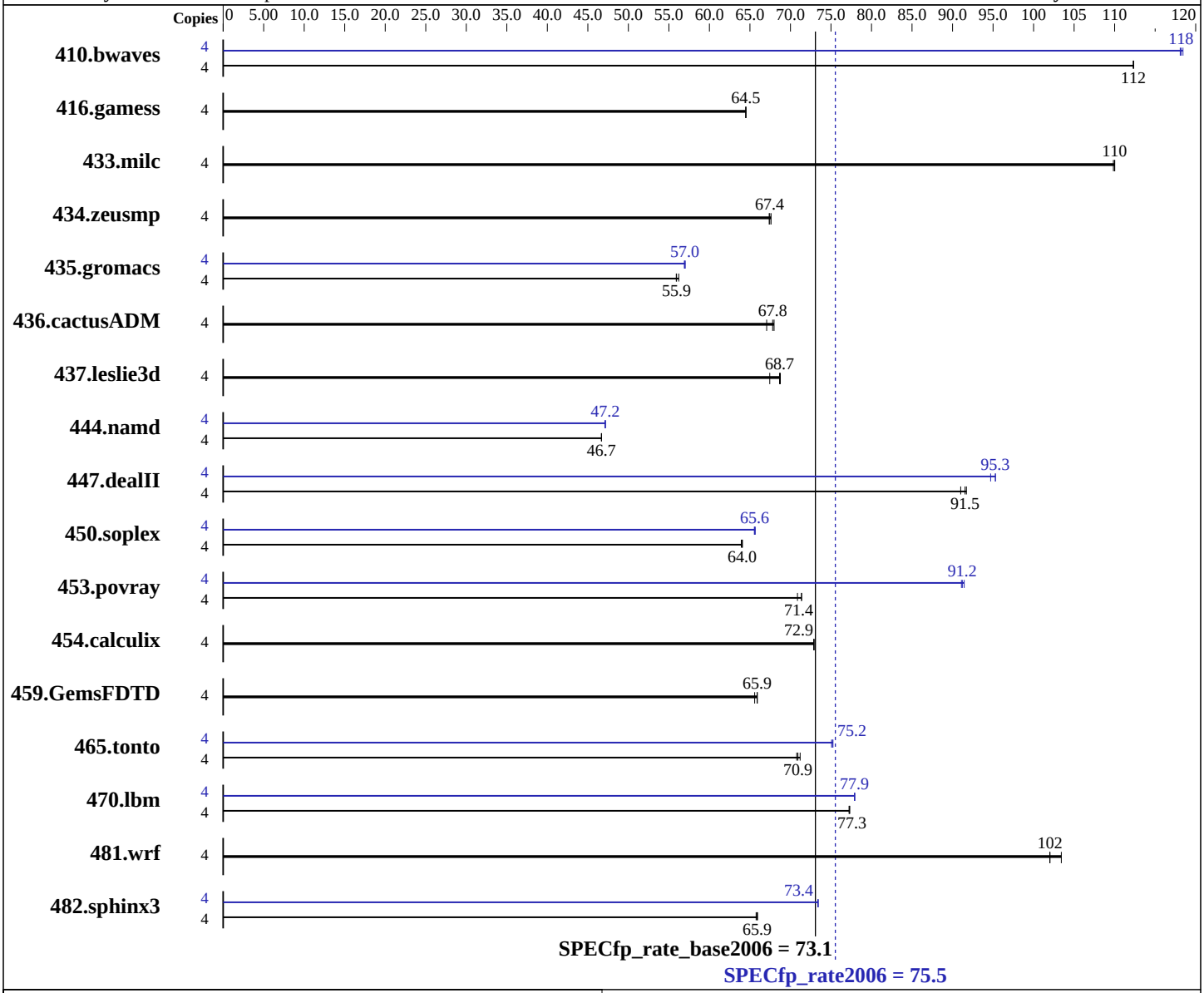
Express5800/GT120b
(Intel Xeon E5503)

SPECfp®_rate2006 = 75.5

SPECfp_rate_base2006 = 73.1

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

**Test date:** Jul-2010
**Hardware Availability:** Jun-2010
**Software Availability:** Dec-2009




## Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5503 |
| CPU Characteristics: | |
| CPU MHz: | 2000 |
| 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: | 256 KB I+D on chip per core |

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## Software

| | |
|---|---|
| Operating System: | SUSE Linux Enterprise Server 11 (x86_64), Kernel 2.6.27.19-5-default |
| Compiler: | Intel C++ and Fortran Professional Compiler for IA32 and Intel 64, Version 11.1 Build 20091130 Package ID: l_cproc_p_11.1.064, l_cprof_p_11.1.064 |
| Auto Parallel: | No |
| File System: | ext3 |
| System State: | Run level 3 (multi-user) |

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L3 Cache: 4 MB I+D on chip per chip
Other Cache: None
Memory: 48 GB (12 x 4 GB PC3L-10600R, 2 rank, CL9, ECC, running at 800 MHz)
Disk Subsystem: 1x160 GB SATA, 7200 RPM
Other Hardware: None

Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: None

## Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 4 | **484** | **112** | 484 | 112 | 484 | 112 | 4 | **460** | **118** | 460 | 118 | 459 | 118 |
| 416.gamess | 4 | 1214 | 64.5 | **1215** | **64.5** | 1215 | 64.5 | 4 | 1214 | 64.5 | **1215** | **64.5** | 1215 | 64.5 |
| 433.milc | 4 | **334** | **110** | 334 | 110 | 334 | 110 | 4 | **334** | **110** | 334 | 110 | 334 | 110 |
| 434.zeusmp | 4 | 538 | 67.6 | **540** | **67.4** | 540 | 67.4 | 4 | 538 | 67.6 | **540** | **67.4** | 540 | 67.4 |
| 435.gromacs | 4 | 511 | 55.9 | 508 | 56.2 | **510** | **55.9** | 4 | 502 | 56.9 | 501 | 57.0 | **501** | **57.0** |
| 436.cactusADM | 4 | 713 | 67.1 | 703 | 68.0 | **705** | **67.8** | 4 | 713 | 67.1 | 703 | 68.0 | **705** | **67.8** |
| 437.leslie3d | 4 | 557 | 67.4 | **548** | **68.7** | 547 | 68.8 | 4 | 557 | 67.4 | **548** | **68.7** | 547 | 68.8 |
| 444.namd | 4 | **687** | **46.7** | 687 | 46.7 | 687 | 46.7 | 4 | 680 | 47.2 | **680** | **47.2** | 681 | 47.1 |
| 447.dealII | 4 | 499 | 91.7 | **500** | **91.5** | 503 | 91.0 | 4 | 480 | 95.3 | 483 | 94.7 | **480** | **95.3** |
| 450.soplex | 4 | **521** | **64.0** | 521 | 64.1 | 522 | 63.9 | 4 | 508 | 65.7 | 509 | 65.5 | **509** | **65.6** |
| 453.povray | 4 | 300 | 70.9 | 298 | 71.4 | **298** | **71.4** | 4 | 234 | 91.1 | **233** | **91.2** | 233 | 91.4 |
| 454.calculix | 4 | **453** | **72.9** | 453 | 72.9 | 453 | 72.9 | 4 | **453** | **72.9** | 453 | 72.9 | 453 | 72.9 |
| 459.GemsFDTD | 4 | **644** | **65.9** | 644 | 65.9 | 647 | 65.6 | 4 | **644** | **65.9** | 644 | 65.9 | 647 | 65.6 |
| 465.tonto | 4 | **555** | **70.9** | 556 | 70.8 | 553 | 71.2 | 4 | **524** | **75.2** | 523 | 75.2 | 524 | 75.1 |
| 470.lbm | 4 | **711** | **77.3** | 711 | 77.3 | 712 | 77.2 | 4 | 705 | 77.9 | 705 | 77.9 | **705** | **77.9** |
| 481.wrf | 4 | **438** | **102** | 438 | 102 | 432 | 103 | 4 | **438** | **102** | 438 | 102 | 432 | 103 |
| 482.sphinx3 | 4 | 1186 | 65.8 | 1182 | 65.9 | **1183** | **65.9** | 4 | 1062 | 73.4 | 1062 | 73.4 | **1062** | **73.4** |

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Submit Notes

```
The config file option 'submit' was used.
 numactl was used to bind copies to the cores
```

## Operating System Notes

```
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
```

## Platform Notes

```
Default BIOS settings were used.
```

## Base Compiler Invocation

C benchmarks:
icc -m64

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64

Benchmarks using both Fortran and C:
icc -m64 ifort -m64

## 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:
-xSSE4.2 -ipo -O3 -no-prec-div -static

C++ benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -static

Fortran benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -static

Benchmarks using both Fortran and C:
-xSSE4.2 -ipo -O3 -no-prec-div -static

## Peak Compiler Invocation

C benchmarks (except as noted below):
`icc -m64`

482.sphinx3: `icc -m32`

C++ benchmarks (except as noted below):
`icpc -m64`

450.soplex: `icpc -m32`

Fortran benchmarks:
`ifort -m64`

Benchmarks using both Fortran and C:
`icc -m64 ifort -m64`

## 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`
470.lbm: `-DSPEC_CPU_LP64`
481.wrf: `-DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX`

## Peak Optimization Flags

C benchmarks:

433.milc: `basepeak = yes`

470.lbm: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2)
`-no-prec-div`(pass 2) `-static`(pass 2) `-prof-use`(pass 2)
`-opt-malloc-options=3 -ansi-alias -auto-ilp32`

482.sphinx3: `-xSSE4.2 -ipo -O3 -no-prec-div -static -unroll2`

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# Peak Optimization Flags (Continued)

C++ benchmarks:

444.namd: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -fno-alias -auto-ilp32

447.dealII: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -unroll2 -ansi-alias -scalar-rep-

450.soplex: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -opt-malloc-options=3

453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch

416.gamess: basepeak = yes

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: basepeak = yes

465.tonto: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -unroll4 -auto -inline-calloc -opt-malloc-options=3

Benchmarks using both Fortran and C:

435.gromacs: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -opt-prefetch -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: basepeak = yes

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100721.html

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100721.xml`



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

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