



SPEC[®] CFP2006 Result

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NEC Corporation

Express5800/120Bb-m6
(Intel Xeon E5205)

SPECfp[®]2006 = 16.7

SPECfp_base2006 = 16.0

CPU2006 license: 9006

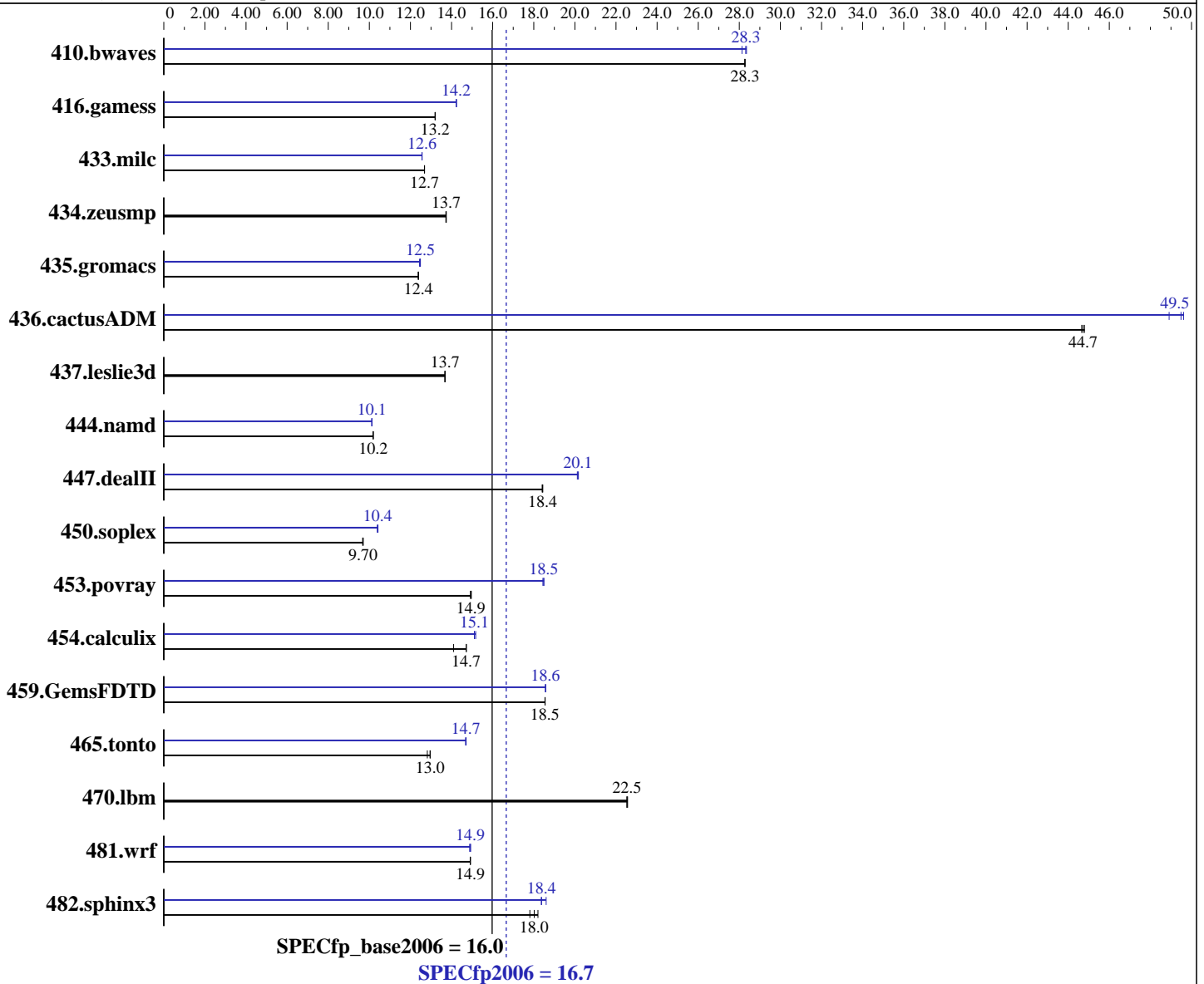
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Dec-2008

Hardware Availability: Dec-2008

Software Availability: Nov-2008



Hardware

CPU Name: Intel Xeon E5205
 CPU Characteristics: 1066 MHz system bus
 CPU MHz: 1867
 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: 6 MB I+D on chip per chip

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Software

Operating System: SUSE Linux Enterprise Server 10 (x86_64) SP2, Kernel 2.6.16.60-0.21-smpp
 Compiler: Intel C++ and Fortran Compiler 11.0 for Linux Build 20081105 Package ID: l_cproc_p_11.0.074, l_fproc_p_11.0.074
 Auto Parallel: Yes
 File System: ReiserFS
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit

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L3 Cache: None
Other Cache: None
Memory: 16 GB (8x2 GB PC2-5300F, 2 rank, CL5-5-5, ECC)
Disk Subsystem: 1x73.2 GB SAS, 10000 RPM
Other Hardware: None

Peak Pointers: 32/64-bit
Other Software: Binutils 2.18.50.0.7.20080502

Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|---------------|-------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|-------------------|--------------------|--------------------|--------------------|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 481 | 28.3 | 481 | 28.3 | <u>481</u> | <u>28.3</u> | <u>480</u> | <u>28.3</u> | 483 | 28.1 | 479 | 28.3 |
| 416.gamess | 1482 | 13.2 | <u>1483</u> | <u>13.2</u> | 1484 | 13.2 | 1377 | 14.2 | 1374 | 14.2 | <u>1377</u> | <u>14.2</u> |
| 433.milc | <u>724</u> | <u>12.7</u> | 724 | 12.7 | 724 | 12.7 | 731 | 12.6 | <u>731</u> | <u>12.6</u> | 731 | 12.6 |
| 434.zeusmp | 663 | 13.7 | <u>663</u> | <u>13.7</u> | 662 | 13.7 | 663 | 13.7 | <u>663</u> | <u>13.7</u> | 662 | 13.7 |
| 435.gromacs | 577 | 12.4 | 576 | 12.4 | <u>576</u> | <u>12.4</u> | 572 | 12.5 | 574 | 12.4 | <u>572</u> | <u>12.5</u> |
| 436.cactusADM | 268 | 44.7 | 267 | 44.8 | <u>267</u> | <u>44.7</u> | 244 | 48.9 | 241 | 49.6 | <u>241</u> | <u>49.5</u> |
| 437.leslie3d | 687 | 13.7 | 687 | 13.7 | <u>687</u> | <u>13.7</u> | 687 | 13.7 | 687 | 13.7 | <u>687</u> | <u>13.7</u> |
| 444.namd | <u>787</u> | <u>10.2</u> | 787 | 10.2 | 788 | 10.2 | 791 | 10.1 | <u>792</u> | <u>10.1</u> | 793 | 10.1 |
| 447.dealII | 620 | 18.4 | 622 | 18.4 | <u>621</u> | <u>18.4</u> | 569 | 20.1 | <u>568</u> | <u>20.1</u> | 567 | 20.2 |
| 450.soplex | <u>860</u> | <u>9.70</u> | 860 | 9.70 | 862 | 9.67 | 800 | 10.4 | <u>801</u> | <u>10.4</u> | 803 | 10.4 |
| 453.povray | 357 | 14.9 | 356 | 15.0 | <u>356</u> | <u>14.9</u> | 288 | 18.5 | <u>288</u> | <u>18.5</u> | 288 | 18.4 |
| 454.calculix | 585 | 14.1 | <u>561</u> | <u>14.7</u> | 561 | 14.7 | 546 | 15.1 | 544 | 15.2 | <u>546</u> | <u>15.1</u> |
| 459.GemsFDTD | 572 | 18.5 | <u>572</u> | <u>18.5</u> | 572 | 18.6 | 571 | 18.6 | 571 | 18.6 | <u>571</u> | <u>18.6</u> |
| 465.tonto | <u>759</u> | <u>13.0</u> | 759 | 13.0 | 767 | 12.8 | 669 | 14.7 | <u>670</u> | <u>14.7</u> | 670 | 14.7 |
| 470.lbm | 610 | 22.5 | <u>610</u> | <u>22.5</u> | 609 | 22.6 | 610 | 22.5 | <u>610</u> | <u>22.5</u> | 609 | 22.6 |
| 481.wrf | 749 | 14.9 | <u>749</u> | <u>14.9</u> | 749 | 14.9 | <u>749</u> | <u>14.9</u> | 751 | 14.9 | 748 | 14.9 |
| 482.sphinx3 | 1071 | 18.2 | 1094 | 17.8 | <u>1082</u> | <u>18.0</u> | <u>1060</u> | <u>18.4</u> | 1061 | 18.4 | 1048 | 18.6 |

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
KMP_AFFINITY set to "physical,0"
KMP_STACKSIZE set to 200M

Base Compiler Invocation

C benchmarks:
icc

C++ benchmarks:
icpc

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Base Compiler Invocation (Continued)

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:
-xSSE4.1 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
C++ benchmarks:
-xSSE4.1 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
Fortran benchmarks:
-xSSE4.1 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
Benchmarks using both Fortran and C:
-xSSE4.1 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Peak Compiler Invocation

C benchmarks (except as noted below):
icc

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Peak Compiler Invocation (Continued)

```
482.sphinx3: /opt/intel/Compiler/11.0/074/bin/ia32/icc
             -L/opt/intel/Compiler/11.0/074/ipp/ia32/lib
             -I/opt/intel/Compiler/11.0/074/ipp/ia32/include
```

C++ benchmarks (except as noted below):

icpc

```
450.soplex: /opt/intel/Compiler/11.0/074/bin/ia32/icpc
            -L/opt/intel/Compiler/11.0/074/ipp/ia32/lib
            -I/opt/intel/Compiler/11.0/074/ipp/ia32/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.deallI: -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: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
         -no-prec-div -static -fno-alias
```

```
470.lbm: basepeak = yes
```

```
482.sphinx3: -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2
```

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Peak Optimization Flags (Continued)

C++ benchmarks:

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

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

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

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

Fortran benchmarks:

410.bwaves: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch
-parallel

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -unroll2 -Ob0 -ansi-alias
-scalar-rep-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -unroll2 -Ob0 -opt-prefetch
-parallel

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -unroll4 -auto

Benchmarks using both Fortran and C:

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

436.cactusADM: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -unroll2 -opt-prefetch -parallel
-auto-ilp32

454.calculix: -xSSE4.1 -ipo -O3 -no-prec-div -static -auto-ilp32

481.wrf: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch
-parallel -auto-ilp32



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The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revE.20090710.html>

<http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revB.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revE.20090710.xml>

<http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revB.xml>

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For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.1.
Report generated on Tue Jul 22 22:54:19 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 6 January 2009.