



SPEC[®] CFP2006 Result

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NEC Corporation

SPECfp[®]_rate2006 = 53.0

Express5800/GT110d (Intel Celeron G530)

SPECfp_rate_base2006 = 51.8

CPU2006 license: 9006

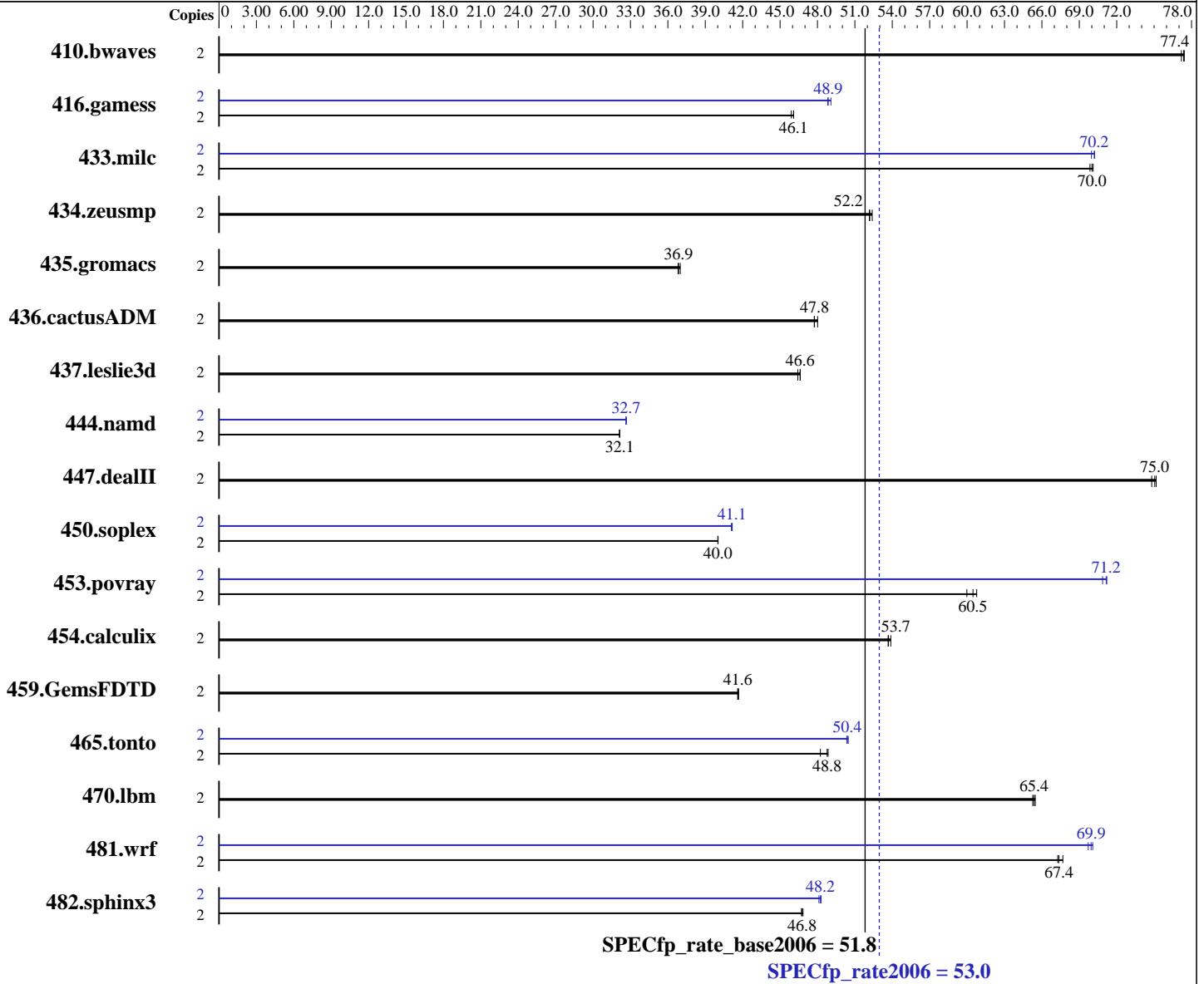
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Apr-2012

Hardware Availability: Jan-2012

Software Availability: Dec-2011



Hardware

CPU Name: Intel Celeron G530
 CPU Characteristics:
 CPU MHz: 2400
 FPU: Integrated
 CPU(s) enabled: 2 cores, 1 chip, 2 cores/chip
 CPU(s) orderable: 1 chip
 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: Red Hat Enterprise Linux Server release 6.1 (Santiago)
 2.6.32-131.0.15.el6.x86_64
 Compiler: C/C++: Version 12.1.2.273 of Intel C++ Studio XE for Linux;
 Fortran: Version 12.1.2.273 of Intel Fortran Studio XE for Linux
 Auto Parallel: No
 File System: ext4

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L3 Cache: 2 MB I+D on chip per chip
 Other Cache: None
 Memory: 8 GB (2 x 4 GB 2Rx8 PC3-10600E-9, ECC, running at 1066 MHz and CL7)
 Disk Subsystem: 1 x 160 GB SATA, 7200 RPM
 Other Hardware: None

System State: Run level 3 (multi-user)
 Base Pointers: 32/64-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 | 2 | 351 | 77.4 | 352 | 77.2 | 351 | 77.4 | 2 | 351 | 77.4 | 352 | 77.2 | 351 | 77.4 |
| 416.gamess | 2 | 850 | 46.1 | 850 | 46.1 | 853 | 45.9 | 2 | 802 | 48.8 | 798 | 49.1 | 801 | 48.9 |
| 433.milc | 2 | 262 | 70.1 | 263 | 69.9 | 262 | 70.0 | 2 | 261 | 70.2 | 262 | 70.0 | 262 | 70.2 |
| 434.zeusmp | 2 | 347 | 52.4 | 349 | 52.2 | 349 | 52.2 | 2 | 347 | 52.4 | 349 | 52.2 | 349 | 52.2 |
| 435.gromacs | 2 | 387 | 36.9 | 386 | 37.0 | 388 | 36.8 | 2 | 387 | 36.9 | 386 | 37.0 | 388 | 36.8 |
| 436.cactusADM | 2 | 501 | 47.7 | 500 | 47.8 | 498 | 48.0 | 2 | 501 | 47.7 | 500 | 47.8 | 498 | 48.0 |
| 437.leslie3d | 2 | 403 | 46.6 | 405 | 46.4 | 403 | 46.6 | 2 | 403 | 46.6 | 405 | 46.4 | 403 | 46.6 |
| 444.namd | 2 | 499 | 32.1 | 500 | 32.1 | 499 | 32.1 | 2 | 491 | 32.7 | 491 | 32.7 | 491 | 32.7 |
| 447.dealII | 2 | 305 | 75.0 | 304 | 75.2 | 306 | 74.8 | 2 | 305 | 75.0 | 304 | 75.2 | 306 | 74.8 |
| 450.soplex | 2 | 417 | 40.0 | 417 | 40.0 | 417 | 40.0 | 2 | 406 | 41.1 | 405 | 41.2 | 405 | 41.1 |
| 453.povray | 2 | 177 | 60.0 | 175 | 60.8 | 176 | 60.5 | 2 | 150 | 71.2 | 149 | 71.2 | 150 | 70.9 |
| 454.calculix | 2 | 307 | 53.7 | 306 | 53.9 | 307 | 53.7 | 2 | 307 | 53.7 | 306 | 53.9 | 307 | 53.7 |
| 459.GemsFDTD | 2 | 509 | 41.7 | 510 | 41.6 | 510 | 41.6 | 2 | 509 | 41.7 | 510 | 41.6 | 510 | 41.6 |
| 465.tonto | 2 | 403 | 48.9 | 404 | 48.8 | 408 | 48.2 | 2 | 390 | 50.5 | 391 | 50.3 | 391 | 50.4 |
| 470.lbm | 2 | 420 | 65.4 | 421 | 65.3 | 420 | 65.5 | 2 | 420 | 65.4 | 421 | 65.3 | 420 | 65.5 |
| 481.wrf | 2 | 332 | 67.3 | 330 | 67.7 | 332 | 67.4 | 2 | 319 | 70.1 | 319 | 69.9 | 320 | 69.7 |
| 482.sphinx3 | 2 | 834 | 46.8 | 834 | 46.7 | 832 | 46.8 | 2 | 808 | 48.2 | 810 | 48.1 | 807 | 48.3 |

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

Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

Platform Notes

Default BIOS settings were used.



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General Notes

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64"

Added glibc-static-2.12-1.25.el6.x86_64.rpm
to enable static linking

Transparent Huge Pages disabled with:
echo never > /sys/kernel/mm/redhat_transparent_hugepage/enabled
Filesystem page cache cleared with:
echo 1> /proc/sys/vm/drop_caches
runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>

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



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Base Optimization Flags

C benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

Fortran benchmarks:

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

Benchmarks using both Fortran and C:

-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

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.deallI: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64

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Peak Portability Flags (Continued)

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: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
 -no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)
 -prof-use(pass 2) -static -auto-ilp32

470.lbm: basepeak = yes

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -opt-mem-layout-trans=3
 -unroll2

C++ benchmarks:

444.namd: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
 -no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)
 -prof-use(pass 2) -fno-alias -auto-ilp32

447.dealIII: basepeak = yes

450.soplex: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
 -no-prec-div(pass 2) -opt-mem-layout-trans=3(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) -opt-mem-layout-trans=3(pass 2)
 -prof-use(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
 -no-prec-div(pass 2) -prof-use(pass 2) -unroll2
 -inline-level=0 -scalar-rep- -static

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

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Peak Optimization Flags (Continued)

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) -prof-use(pass 2) -unroll4 -auto
-inline-calloc -opt-malloc-options=3

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32

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

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.html>

<http://www.spec.org/cpu2006/flags/NEC-platform-Settings-V1.2-R110d-RevA.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml>

<http://www.spec.org/cpu2006/flags/NEC-platform-Settings-V1.2-R110d-RevA.xml>

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

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