



SPEC[®] CFP2006 Result

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NEC Corporation

SPECfp[®]2006 = **58.5**

Express5800/R120d-2M (Intel Xeon E5-2609)

SPECfp_base2006 = **56.7**

CPU2006 license: 9006

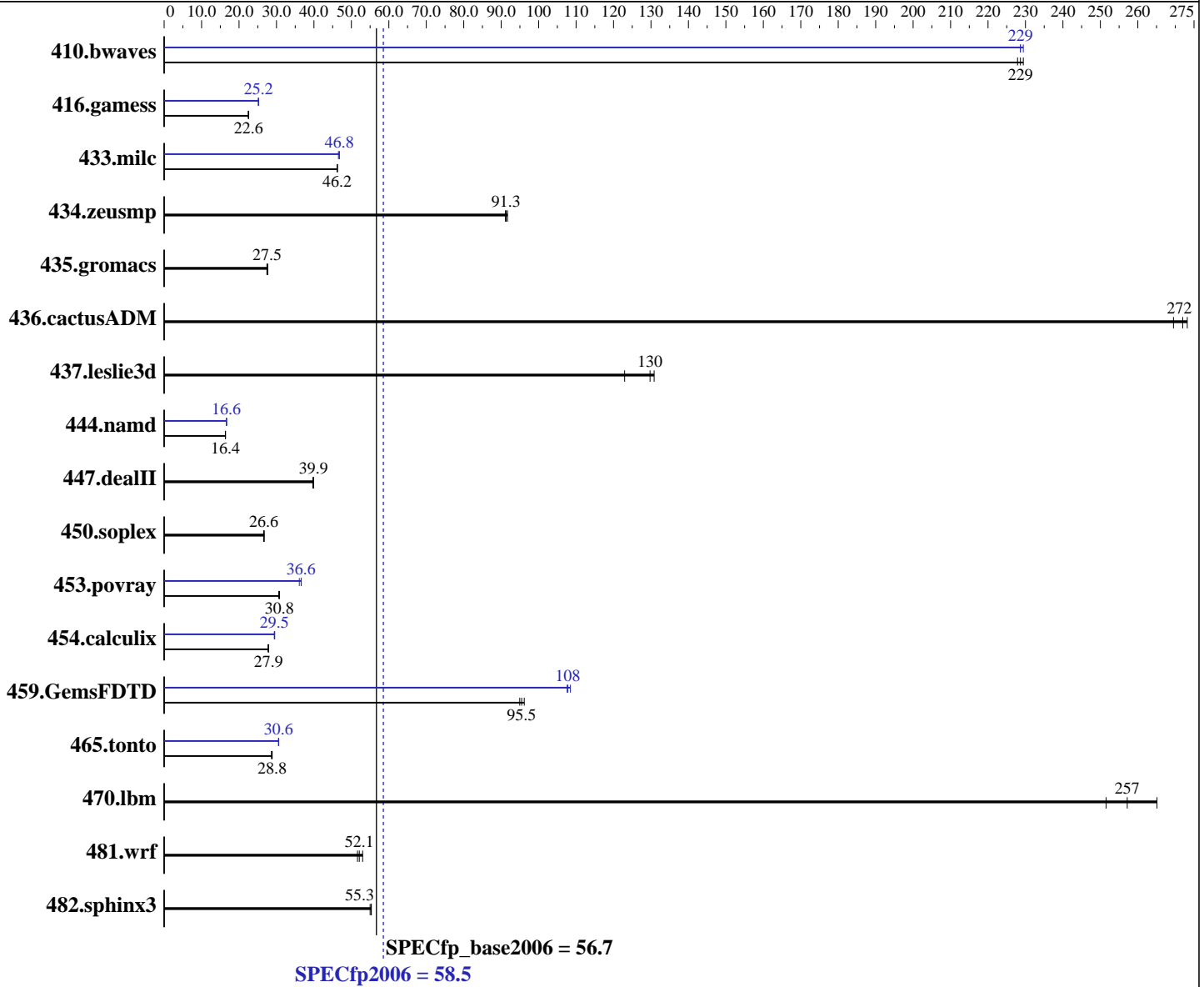
Test date: Apr-2012

Test sponsor: NEC Corporation

Hardware Availability: Apr-2012

Tested by: NEC Corporation

Software Availability: Dec-2011



Hardware

CPU Name: Intel Xeon E5-2609
 CPU Characteristics:
 CPU MHz: 2400
 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: 256 KB I+D on chip per core

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Software

Operating System: Red Hat Enterprise Linux Server release 6.2 (Santiago)
 2.6.32-220.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: Yes
 File System: ext4

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L3 Cache: 10 MB I+D on chip per chip
Other Cache: None
Memory: 128 GB (16 x 8 GB 2Rx4 PC3L-12800R-11, ECC, running at 1066 MHz and CL7)
Disk Subsystem: 1 x 500 GB SATA, 7200 RPM
Other Hardware: None

System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: None

Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|---------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 59.2 | 229 | 59.4 | 229 | 59.6 | 228 | 59.4 | 229 | 59.2 | 229 | 59.4 | 229 |
| 416.gamess | 873 | 22.4 | 867 | 22.6 | 867 | 22.6 | 776 | 25.2 | 778 | 25.2 | 778 | 25.2 |
| 433.milc | 199 | 46.2 | 199 | 46.2 | 199 | 46.2 | 196 | 46.8 | 196 | 46.8 | 197 | 46.5 |
| 434.zeusmp | 99.8 | 91.1 | 99.2 | 91.7 | 99.6 | 91.3 | 99.8 | 91.1 | 99.2 | 91.7 | 99.6 | 91.3 |
| 435.gromacs | 258 | 27.7 | 260 | 27.5 | 260 | 27.4 | 258 | 27.7 | 260 | 27.5 | 260 | 27.4 |
| 436.cactusADM | 43.9 | 272 | 44.3 | 270 | 43.7 | 273 | 43.9 | 272 | 44.3 | 270 | 43.7 | 273 |
| 437.leslie3d | 76.4 | 123 | 72.4 | 130 | 71.8 | 131 | 76.4 | 123 | 72.4 | 130 | 71.8 | 131 |
| 444.namd | 490 | 16.4 | 490 | 16.4 | 490 | 16.4 | 481 | 16.7 | 482 | 16.6 | 482 | 16.6 |
| 447.dealII | 287 | 39.9 | 287 | 39.9 | 288 | 39.7 | 287 | 39.9 | 287 | 39.9 | 288 | 39.7 |
| 450.soplex | 314 | 26.6 | 312 | 26.7 | 313 | 26.6 | 314 | 26.6 | 312 | 26.7 | 313 | 26.6 |
| 453.povray | 173 | 30.8 | 174 | 30.6 | 173 | 30.8 | 145 | 36.6 | 145 | 36.6 | 147 | 36.1 |
| 454.calculix | 296 | 27.9 | 297 | 27.7 | 296 | 27.9 | 280 | 29.4 | 279 | 29.5 | 280 | 29.5 |
| 459.GemsFDTD | 112 | 95.0 | 111 | 95.5 | 110 | 96.2 | 98.4 | 108 | 98.6 | 108 | 97.8 | 108 |
| 465.tonto | 341 | 28.8 | 344 | 28.6 | 341 | 28.8 | 322 | 30.5 | 322 | 30.6 | 322 | 30.6 |
| 470.lbm | 51.8 | 265 | 54.6 | 252 | 53.4 | 257 | 51.8 | 265 | 54.6 | 252 | 53.4 | 257 |
| 481.wrf | 216 | 51.6 | 214 | 52.1 | 211 | 53.0 | 216 | 51.6 | 214 | 52.1 | 211 | 53.0 |
| 482.sphinx3 | 352 | 55.3 | 352 | 55.3 | 354 | 55.0 | 352 | 55.3 | 352 | 55.3 | 354 | 55.0 |

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

Operating System Notes

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

Platform Notes

BIOS Settings:
Energy Performance: Performance

General Notes

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

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General Notes (Continued)

OMP_NUM_THREADS = "8"

The Express5800/R120d-1M and the Express5800/R120d-2M models are electronically equivalent. The results have been measured on the Express5800/R120d-1M model.

Added glibc-static-2.12-1.47.el6.x86_64.rpm to enable static linking

Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled

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.deallI: -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:

-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias

C++ benchmarks:

-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias

Fortran benchmarks:

-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:

-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias

Peak Compiler Invocation

C benchmarks:

icc -m64

C++ benchmarks:

icpc -m64

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

433.milc: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32
-ansi-alias

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

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Peak Optimization Flags (Continued)

C++ benchmarks:

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

447.dealII: basepeak = yes

450.soplex: basepeak = yes

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

Fortran benchmarks:

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

416.gamess: -xAVX(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

459.GemsFDTD: -xAVX(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 -opt-prefetch -parallel

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

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: -xAVX -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias

481.wrf: basepeak = yes

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-R120d-RevA.html>



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

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<http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-R120d-RevA.xml>

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

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