



SPEC® CFP2006 Result

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NEC Corporation

SPECfp®2006 = 74.4

Express5800/B120d-h (Intel Xeon E5-2640)

SPECfp_base2006 = 71.5

CPU2006 license: 9006

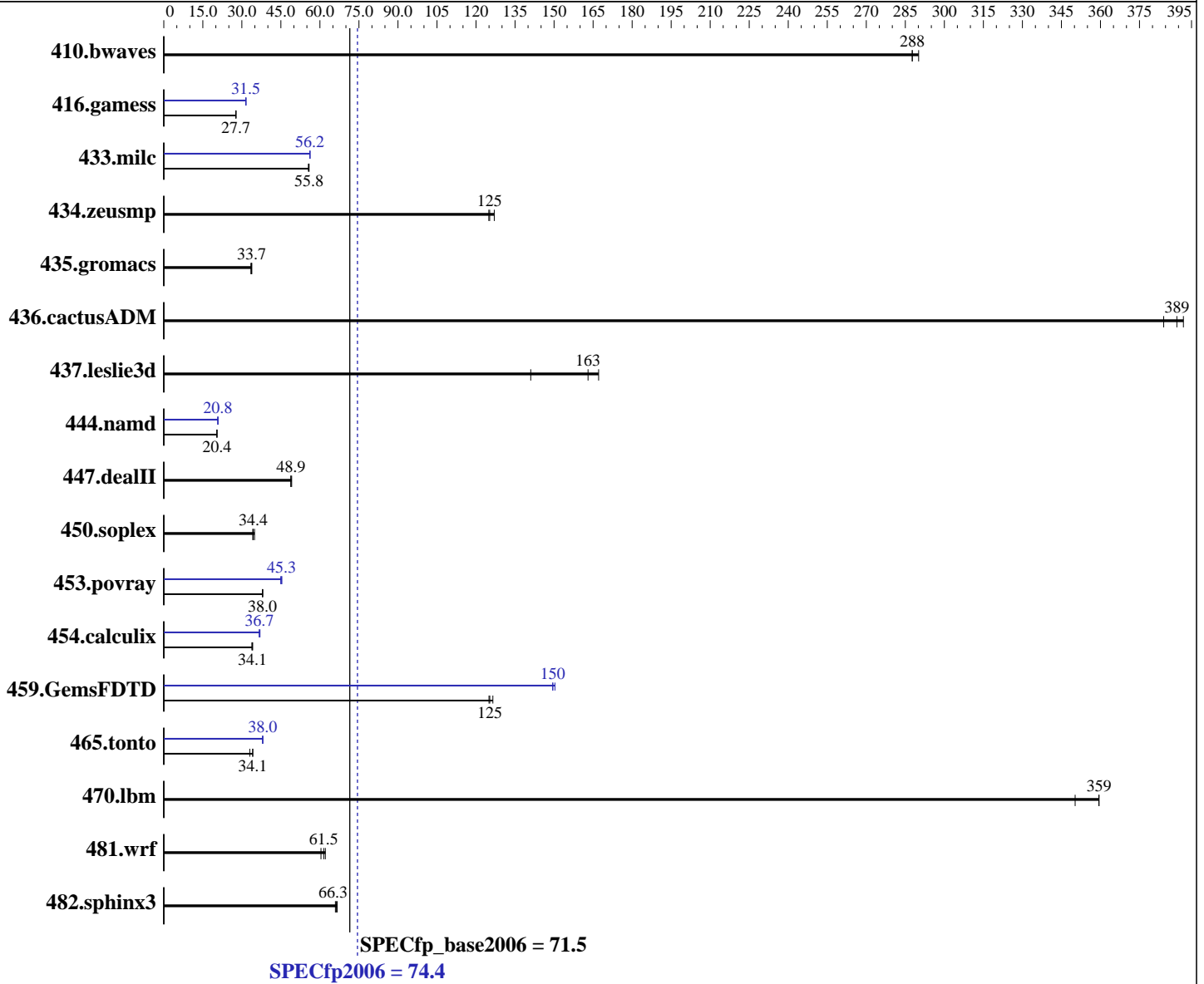
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Jul-2012

Hardware Availability: Jun-2012

Software Availability: Feb-2012



Hardware

CPU Name: Intel Xeon E5-2640
 CPU Characteristics: Intel Turbo Boost Technology up to 3.00 GHz
 CPU MHz: 2500
 FPU: Integrated
 CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip, 2 threads/core
 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)
 Kernel 2.6.32-220.el6.x86_64
 Compiler: C/C++: Version 12.1.3.293 of Intel C++ Studio XE for Linux;
 Fortran: Version 12.1.3.293 of Intel Fortran Studio XE for Linux
 Auto Parallel: Yes
 File System: ext4

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L3 Cache: 15 MB I+D on chip per chip
 Other Cache: None
 Memory: 128 GB (16 x 8 GB 2Rx4 PC3L-12800R-11, ECC, running at 1333 MHz and CL9)
 Disk Subsystem: 1 x 146.5 GB SAS, 15000 RPM
 Other Hardware: Express5800/AD106b for Disk Subsystem

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 | 47.2 | 288 | 46.8 | 290 | 47.2 | 288 | 47.2 | 288 | 46.8 | 290 | 47.2 | 288 |
| 416.gamess | 708 | 27.6 | 705 | 27.8 | 706 | 27.7 | 619 | 31.6 | 622 | 31.5 | 621 | 31.5 |
| 433.milc | 165 | 55.8 | 164 | 55.8 | 165 | 55.6 | 163 | 56.2 | 163 | 56.2 | 163 | 56.2 |
| 434.zeusmp | 71.6 | 127 | 72.8 | 125 | 72.6 | 125 | 71.6 | 127 | 72.8 | 125 | 72.6 | 125 |
| 435.gromacs | 211 | 33.8 | 213 | 33.5 | 212 | 33.7 | 211 | 33.8 | 213 | 33.5 | 212 | 33.7 |
| 436.cactusADM | 30.7 | 389 | 31.1 | 384 | 30.5 | 392 | 30.7 | 389 | 31.1 | 384 | 30.5 | 392 |
| 437.leslie3d | 66.6 | 141 | 57.6 | 163 | 56.2 | 167 | 66.6 | 141 | 57.6 | 163 | 56.2 | 167 |
| 444.namd | 393 | 20.4 | 393 | 20.4 | 393 | 20.4 | 386 | 20.8 | 386 | 20.8 | 386 | 20.8 |
| 447.dealII | 234 | 48.9 | 233 | 49.2 | 234 | 48.8 | 234 | 48.9 | 233 | 49.2 | 234 | 48.8 |
| 450.soplex | 243 | 34.4 | 244 | 34.2 | 239 | 34.9 | 243 | 34.4 | 244 | 34.2 | 239 | 34.9 |
| 453.povray | 140 | 38.0 | 140 | 38.1 | 140 | 37.9 | 118 | 44.9 | 117 | 45.4 | 117 | 45.3 |
| 454.calculix | 242 | 34.1 | 242 | 34.1 | 244 | 33.8 | 225 | 36.7 | 223 | 37.0 | 225 | 36.7 |
| 459.GemsFDTD | 84.7 | 125 | 83.9 | 126 | 84.9 | 125 | 71.0 | 150 | 70.6 | 150 | 71.0 | 150 |
| 465.tonto | 288 | 34.1 | 298 | 33.0 | 288 | 34.2 | 259 | 38.0 | 259 | 38.0 | 258 | 38.1 |
| 470.lbm | 39.2 | 350 | 38.2 | 359 | 38.2 | 359 | 39.2 | 350 | 38.2 | 359 | 38.2 | 359 |
| 481.wrf | 180 | 62.1 | 182 | 61.5 | 185 | 60.4 | 180 | 62.1 | 182 | 61.5 | 185 | 60.4 |
| 482.sphinx3 | 293 | 66.6 | 296 | 66.0 | 294 | 66.3 | 293 | 66.6 | 296 | 66.0 | 294 | 66.3 |

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 = "12"

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.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:

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

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Base Optimization Flags (Continued)

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

C++ benchmarks:

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Peak Optimization Flags (Continued)

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.dealIII: 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: basepeak = yes

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: -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 -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-linux64.20120425.html>

<http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-R120d-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-linux64.20120425.xml>

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



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

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