



SPEC® CFP2006 Result

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NEC Corporation

SPECfp®2006 = 60.0

Express5800/R110f-1E (Intel Xeon E3-1230L v3)

SPECfp_base2006 = 58.8

CPU2006 license: 9006

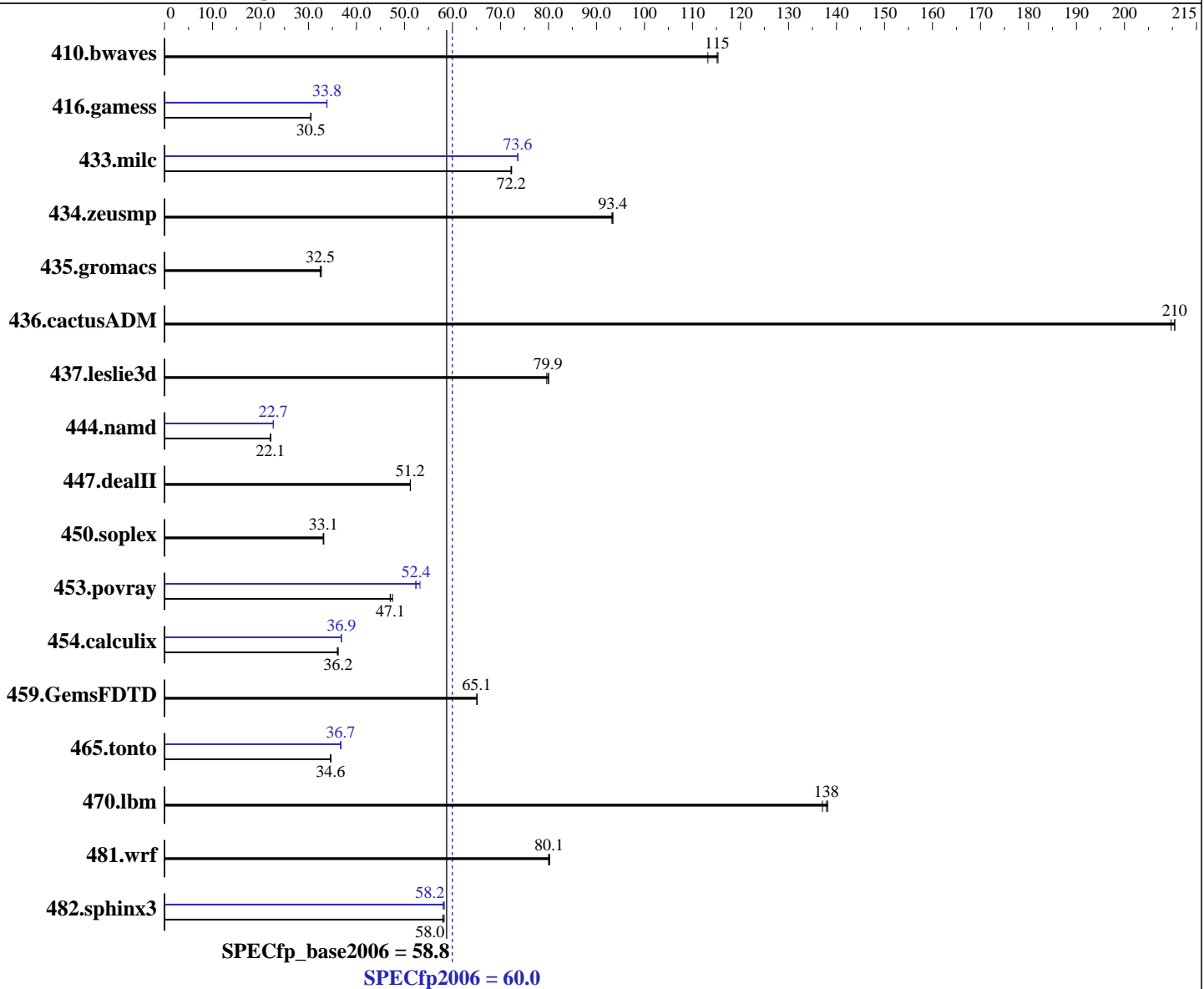
Test date: Sep-2013

Test sponsor: NEC Corporation

Hardware Availability: Jul-2013

Tested by: NEC Corporation

Software Availability: Mar-2013



Hardware

CPU Name: Intel Xeon E3-1230L v3
 CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz
 CPU MHz: 1800
 FPU: Integrated
 CPU(s) enabled: 4 cores, 1 chip, 4 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

Continued on next page

Software

Operating System: Red Hat Enterprise Linux Server release 6.4 (Santiago)
 Kernel 2.6.32-358.el6.x86_64
 Compiler: C/C++: Version 13.1.1.163 of Intel C++ Studio XE for Linux;
 Fortran: Version 13.1.1.163 of Intel Fortran Studio XE for Linux
 Auto Parallel: Yes
 File System: ext4

Continued on next page



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L3 Cache: 8 MB I+D on chip per chip
 Other Cache: None
 Memory: 16 GB (2 x 8 GB 2Rx8 PC3L-12800E-11, ECC)
 Disk Subsystem: 1 x 250 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 | 120 | 113 | 118 | 115 | <u>118</u> | <u>115</u> | 120 | 113 | 118 | 115 | <u>118</u> | <u>115</u> |
| 416.gamess | 641 | 30.5 | 642 | 30.5 | <u>642</u> | <u>30.5</u> | 578 | 33.9 | <u>578</u> | <u>33.8</u> | 579 | 33.8 |
| 433.milc | <u>127</u> | <u>72.2</u> | 127 | 72.3 | 127 | 72.2 | 125 | 73.6 | <u>125</u> | <u>73.6</u> | 125 | 73.6 |
| 434.zeusmp | 97.6 | 93.2 | 97.4 | 93.4 | <u>97.4</u> | <u>93.4</u> | 97.6 | 93.2 | 97.4 | 93.4 | <u>97.4</u> | <u>93.4</u> |
| 435.gromacs | 218 | 32.7 | 220 | 32.4 | <u>220</u> | <u>32.5</u> | 218 | 32.7 | 220 | 32.4 | <u>220</u> | <u>32.5</u> |
| 436.cactusADM | 56.8 | 210 | <u>56.8</u> | <u>210</u> | 57.0 | 210 | 56.8 | 210 | <u>56.8</u> | <u>210</u> | 57.0 | 210 |
| 437.leslie3d | 118 | 79.6 | 117 | 80.0 | <u>118</u> | <u>79.9</u> | 118 | 79.6 | 117 | 80.0 | <u>118</u> | <u>79.9</u> |
| 444.namd | 363 | 22.1 | <u>363</u> | <u>22.1</u> | 363 | 22.1 | 354 | 22.7 | <u>354</u> | <u>22.7</u> | 354 | 22.7 |
| 447.dealII | <u>223</u> | <u>51.2</u> | 223 | 51.2 | 223 | 51.2 | <u>223</u> | <u>51.2</u> | 223 | 51.2 | 223 | 51.2 |
| 450.soplex | 252 | 33.1 | 251 | 33.2 | <u>252</u> | <u>33.1</u> | 252 | 33.1 | 251 | 33.2 | <u>252</u> | <u>33.1</u> |
| 453.povray | 113 | 47.0 | 112 | 47.5 | <u>113</u> | <u>47.1</u> | <u>101</u> | <u>52.4</u> | 102 | 52.3 | 99.9 | 53.2 |
| 454.calculix | 228 | 36.2 | 229 | 36.0 | <u>228</u> | <u>36.2</u> | 224 | 36.8 | 224 | 36.9 | <u>224</u> | <u>36.9</u> |
| 459.GemsFDTD | <u>163</u> | <u>65.1</u> | 163 | 65.2 | 163 | 65.1 | <u>163</u> | <u>65.1</u> | 163 | 65.2 | 163 | 65.1 |
| 465.tonto | 285 | 34.6 | 284 | 34.7 | <u>284</u> | <u>34.6</u> | 268 | 36.7 | <u>268</u> | <u>36.7</u> | 268 | 36.7 |
| 470.lbm | <u>99.6</u> | <u>138</u> | 99.4 | 138 | 100 | 137 | <u>99.6</u> | <u>138</u> | 99.4 | 138 | 100 | 137 |
| 481.wrf | 140 | 80.0 | 139 | 80.2 | <u>139</u> | <u>80.1</u> | 140 | 80.0 | 139 | 80.2 | <u>139</u> | <u>80.1</u> |
| 482.sphinx3 | <u>336</u> | <u>58.0</u> | 334 | 58.3 | 336 | 58.0 | <u>335</u> | <u>58.2</u> | 336 | 58.1 | 334 | 58.3 |

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
 Hyper-Threading: Disabled

General Notes

Environment variables set by runspec before the start of the run:
 LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh"
 OMP_NUM_THREADS = "4"

Continued on next page



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General Notes (Continued)

Added glibc-static-2.12-1.107.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:

-xCORE-AVX2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias

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Base Optimization Flags (Continued)

C++ benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias

Fortran benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:

-xCORE-AVX2 -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: -xCORE-AVX2(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: -xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -ansi-alias
-parallel

C++ benchmarks:

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Peak Optimization Flags (Continued)

444.namd: -xCORE-AVX2(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: -xCORE-AVX2(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: -xCORE-AVX2(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: basepeak = yes

465.tonto: -xCORE-AVX2(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: -xCORE-AVX2 -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-ic13-official-linux64.20130702.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-ic13-official-linux64.20130702.xml>

<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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