# SPEC® CFP2006 Result

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## NEC Corporation

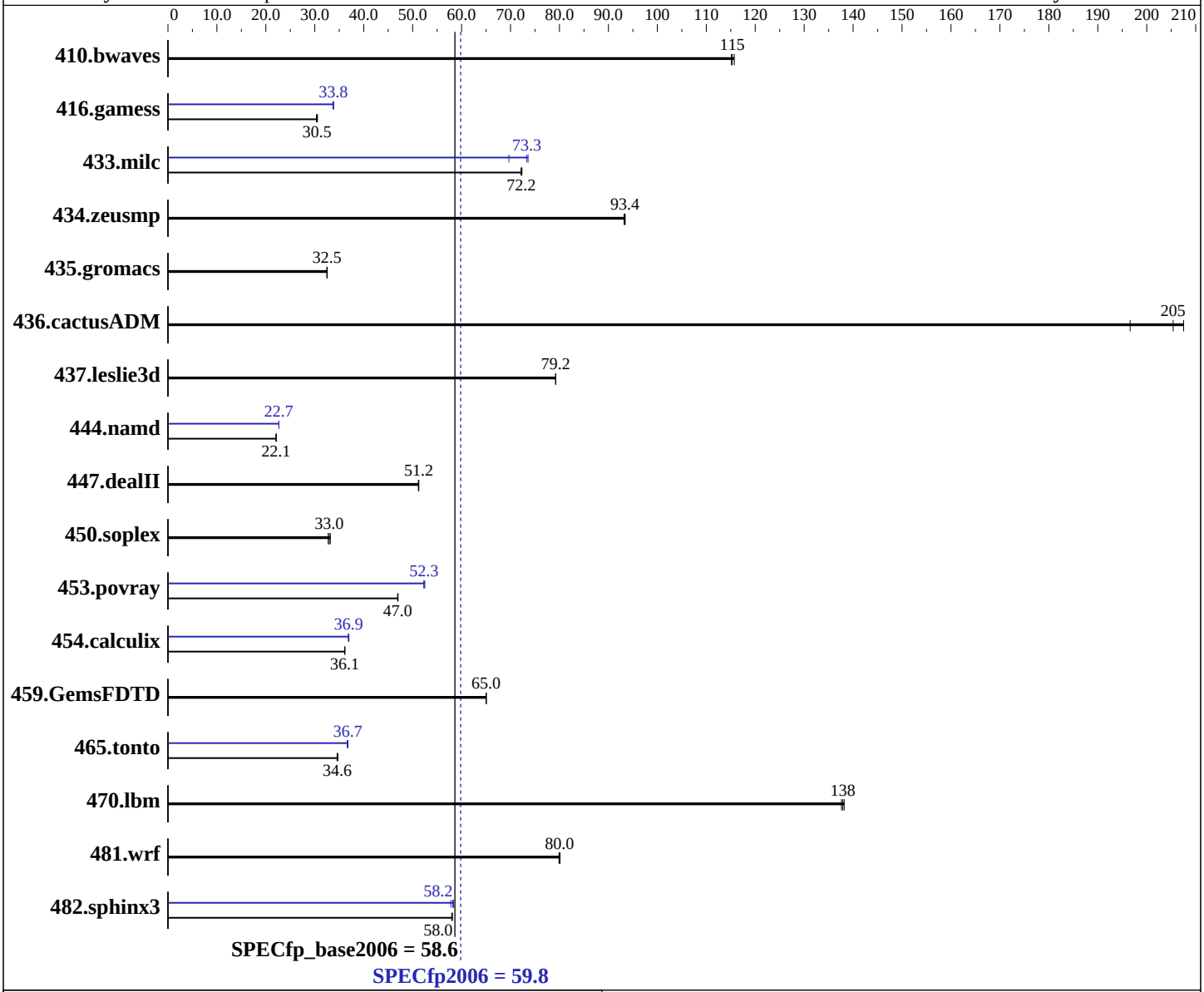
Express5800/T110f-S (Intel Xeon E3-1230L v3)

SPECfp®2006 = 59.8

SPECfp_base2006 = 58.6

**CPU2006 license:** 9006
**Test sponsor:** NEC Corporation
**Tested by:** NEC Corporation

**Test date:** Aug-2013
**Hardware Availability:** Jul-2013
**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 |

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## Software

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

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| | | | |
|---|---|---|---|
| L3 Cache: | 8 MB I+D on chip per chip | System State: | Run level 3 (multi-user) |
| Other Cache: | None | Base Pointers: | 64-bit |
| Memory: | 16 GB (2 x 8 GB 2Rx8 PC3L-12800E-11, ECC) | Peak Pointers: | 32/64-bit |
| Disk Subsystem: | 1 x 250 GB SATA, 7200 RPM | Other Software: | None |
| Other Hardware: | None | | |

## Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 118 | 115 | **118** | **115** | 117 | 116 | 118 | 115 | **118** | **115** | 117 | 116 |
| 416.gamess | **643** | **30.5** | 646 | 30.3 | 641 | 30.6 | **579** | **33.8** | 581 | 33.7 | 579 | 33.8 |
| 433.milc | **127** | **72.2** | 127 | 72.2 | 127 | 72.3 | 125 | 73.6 | **125** | **73.3** | 132 | 69.7 |
| 434.zeusmp | **97.4** | **93.4** | 97.4 | 93.4 | 97.6 | 93.2 | **97.4** | **93.4** | 97.4 | 93.4 | 97.6 | 93.2 |
| 435.gromacs | **220** | **32.5** | 220 | 32.5 | 219 | 32.6 | **220** | **32.5** | 220 | 32.5 | 219 | 32.6 |
| 436.cactusADM | **58.2** | **205** | 60.8 | 197 | 57.6 | 208 | **58.2** | **205** | 60.8 | 197 | 57.6 | 208 |
| 437.leslie3d | 119 | 79.2 | **119** | **79.2** | 119 | 79.2 | 119 | 79.2 | **119** | **79.2** | 119 | 79.2 |
| 444.namd | **363** | **22.1** | 363 | 22.1 | 363 | 22.1 | 354 | 22.7 | 354 | 22.7 | **354** | **22.7** |
| 447.dealII | 224 | 51.2 | 223 | 51.3 | **223** | **51.2** | 224 | 51.2 | 223 | 51.3 | **223** | **51.2** |
| 450.soplex | 251 | 33.2 | **253** | **33.0** | 255 | 32.7 | 251 | 33.2 | **253** | **33.0** | 255 | 32.7 |
| 453.povray | 113 | 47.0 | **113** | **47.0** | 113 | 46.9 | **102** | **52.3** | 102 | 52.3 | 101 | 52.5 |
| 454.calculix | **228** | **36.1** | 228 | 36.2 | 228 | 36.1 | **224** | **36.9** | 224 | 36.9 | 223 | 37.0 |
| 459.GemsFDTD | **163** | **65.0** | 163 | 65.0 | 163 | 65.1 | **163** | **65.0** | 163 | 65.0 | 163 | 65.1 |
| 465.tonto | **284** | **34.6** | 283 | 34.7 | 285 | 34.6 | 269 | 36.6 | 268 | 36.8 | **268** | **36.7** |
| 470.lbm | **99.6** | **138** | 99.8 | 138 | 99.4 | 138 | **99.6** | **138** | 99.8 | 138 | 99.4 | 138 |
| 481.wrf | 140 | 79.9 | **140** | **80.0** | 139 | 80.1 | 140 | 79.9 | **140** | **80.0** | 139 | 80.1 |
| 482.sphinx3 | 335 | 58.1 | **336** | **58.0** | 336 | 58.0 | 337 | 57.8 | **335** | **58.2** | 334 | 58.4 |

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"
```

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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:

Continued on next page

# 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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