# SPEC® CFP2006 Result
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## NEC Corporation

$SPECfp®\_rate2006 = 299$

Express5800/E120d-M (Intel Xeon E5-2430L)

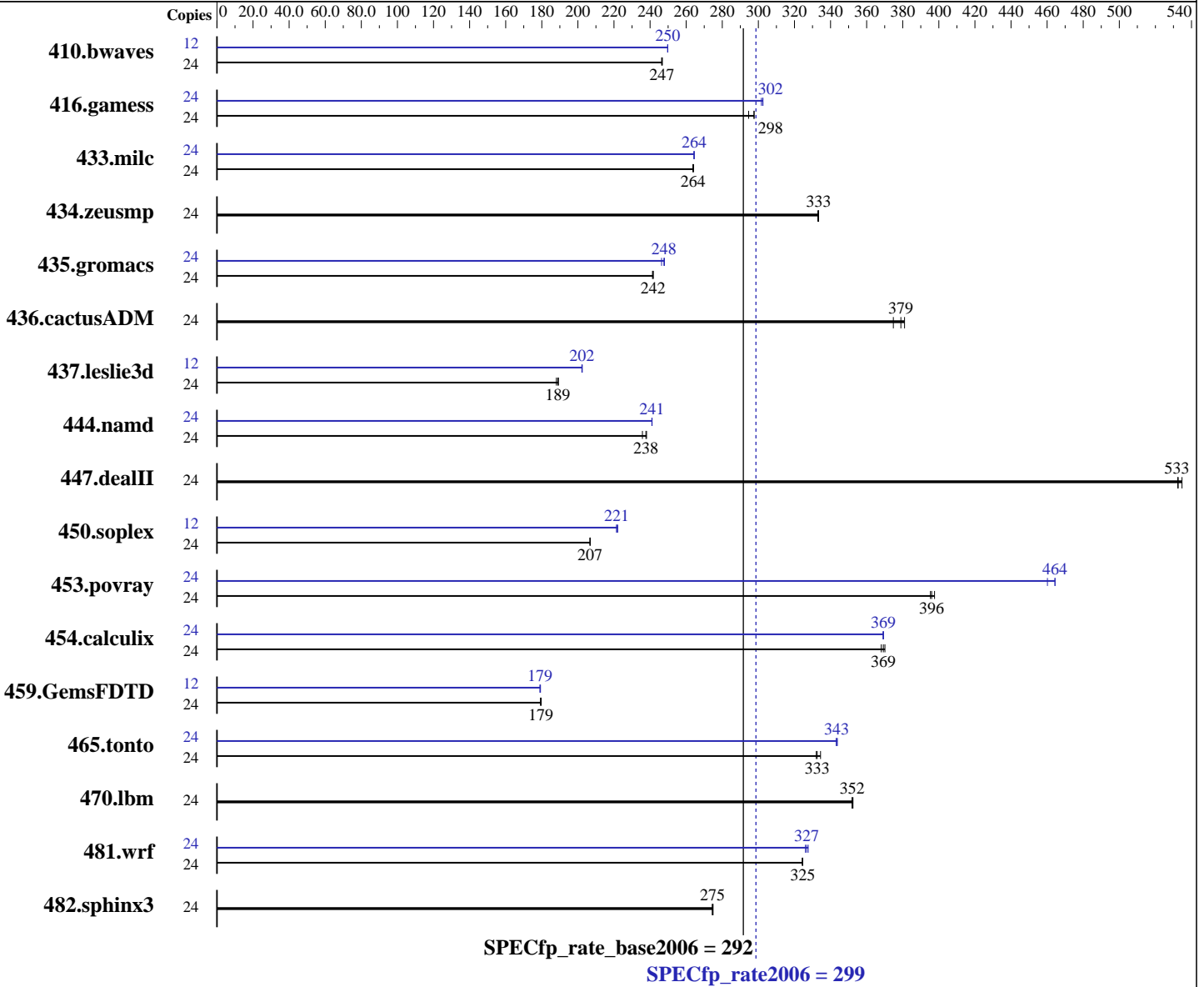$SPECfp\_rate\_base2006 = 292$

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

**Test date:** Aug-2012
**Hardware Availability:** Jul-2012
**Software Availability:** Feb-2012



Copies

| Benchmark | | Value |
|---|---|---|
| 410.bwaves | 12 | 250 |
| | 24 | 247 |
| 416.gamess | 24 | 302 |
| | 24 | 298 |
| 433.milc | 24 | 264 |
| | 24 | 264 |
| 434.zeusmp | 24 | 333 |
| 435.gromacs | 24 | 248 |
| | 24 | 242 |
| 436.cactusADM | 24 | 379 |
| 437.leslie3d | 12 | 202 |
| | 24 | 189 |
| 444.namd | 24 | 241 |
| | 24 | 238 |
| 447.dealII | 24 | 533 |
| 450.soplex | 12 | 221 |
| | 24 | 207 |
| 453.povray | 24 | 464 |
| | 24 | 396 |
| 454.calculix | 24 | 369 |
| | 24 | 369 |
| 459.GemsFDTD | 12 | 179 |
| | 24 | 179 |
| 465.tonto | 24 | 343 |
| | 24 | 333 |
| 470.lbm | 24 | 352 |
| 481.wrf | 24 | 327 |
| | 24 | 325 |
| 482.sphinx3 | 24 | 275 |

**SPECfp_rate_base2006 = 292**
**SPECfp_rate2006 = 299**

## Hardware

CPU Name: Intel Xeon E5-2430L
CPU Characteristics: Intel Turbo Boost Technology up to 2.50 GHz
CPU MHz: 2000
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
**Continued on next page**

## 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: No
File System: ext4
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| | |
|---|---|
| L3 Cache: | 15 MB I+D on chip per chip |
| Other Cache: | None |
| Memory: | 96 GB (12 x 8 GB 2Rx4 PC3L-12800R-11, ECC, running at 1333 MHz and CL9) |
| Disk Subsystem: | 1 x 250 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 Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Peak Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 410.bwaves | 24 | 1324 | 246 | 1322 | 247 | **1322** | **247** | 12 | **653** | **250** | 653 | 250 | 653 | 250 |
| 416.gamess | 24 | **1579** | **298** | 1579 | 298 | 1595 | 295 | 24 | 1558 | 302 | **1554** | **302** | 1553 | 303 |
| 433.milc | 24 | 834 | 264 | 835 | 264 | **835** | **264** | 24 | 833 | 264 | 834 | 264 | **833** | **264** |
| 434.zeusmp | 24 | 656 | 333 | 655 | 333 | **655** | **333** | 24 | 656 | 333 | 655 | 333 | **655** | **333** |
| 435.gromacs | 24 | **709** | **242** | 709 | 242 | 710 | 241 | 24 | **692** | **248** | 691 | 248 | 696 | 246 |
| 436.cactusADM | 24 | 753 | 381 | 765 | 375 | **757** | **379** | 24 | 753 | 381 | 765 | 375 | **757** | **379** |
| 437.leslie3d | 24 | 1192 | 189 | **1195** | **189** | 1199 | 188 | 12 | 557 | 202 | 558 | 202 | **557** | **202** |
| 444.namd | 24 | 809 | 238 | **810** | **238** | 816 | 236 | 24 | **799** | **241** | 798 | 241 | 799 | 241 |
| 447.dealII | 24 | 513 | 535 | **515** | **533** | 516 | 532 | 24 | 513 | 535 | **515** | **533** | 516 | 532 |
| 450.soplex | 24 | 968 | 207 | **968** | **207** | 968 | 207 | 12 | 452 | 221 | **452** | **221** | 451 | 222 |
| 453.povray | 24 | **322** | **396** | 321 | 398 | 323 | 395 | 24 | 277 | 460 | **275** | **464** | 275 | 464 |
| 454.calculix | 24 | 535 | 370 | 538 | 368 | **536** | **369** | 24 | 536 | 369 | 536 | 369 | **536** | **369** |
| 459.GemsFDTD | 24 | 1417 | 180 | **1419** | **179** | 1420 | 179 | 12 | **711** | **179** | 711 | 179 | 710 | 179 |
| 465.tonto | 24 | **710** | **333** | 711 | 332 | 706 | 334 | 24 | 687 | 344 | **688** | **343** | 688 | 343 |
| 470.lbm | 24 | **937** | **352** | 937 | 352 | 936 | 352 | 24 | **937** | **352** | 937 | 352 | 936 | 352 |
| 481.wrf | 24 | 827 | 324 | **826** | **325** | 826 | 325 | 24 | **820** | **327** | 818 | 328 | 822 | 326 |
| 482.sphinx3 | 24 | 1704 | 274 | 1702 | 275 | **1703** | **275** | 24 | 1704 | 274 | 1702 | 275 | **1703** | **275** |

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"

# SPEC CFP2006 Result

## NEC Corporation

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SPECfp_rate_base2006 =   292

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## Platform Notes

```
   BIOS Settings:
    Energy Performance: Performance
```

## 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-2.12-1.47.el6.x86_64.rpm
  to enable static linking

  Transparent Huge Pages enabled with:
  echo always > /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
```

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## Base Portability Flags (Continued)

```
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 -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3
```

C++ benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3
```

Fortran benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch
```

Benchmarks using both Fortran and C:
```
-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3
```

## Peak Compiler Invocation

C benchmarks:
```
icc   -m64
```

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
```

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# Peak Portability Flags (Continued)

```
     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
   453.povray: -DSPEC_CPU_LP64
  454.calculix: -DSPEC_CPU_LP64 -nofor_main
    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
```

# 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
               -opt-mem-layout-trans=3

     470.lbm: basepeak = yes

  482.sphinx3: basepeak = yes
```

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: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
               -no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3

   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(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
               -no-prec-div(pass 2) -prof-use(pass 2) -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
```

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# Peak Optimization Flags (Continued)

434.zeusmp: basepeak = yes

437.leslie3d: -xAVX -ipo -O3 -no-prec-div -static -opt-prefetch

459.GemsFDTD: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3

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

436.cactusADM: basepeak = yes

454.calculix: -xAVX -ipo -O3 -no-prec-div -static -auto-ilp32
-opt-mem-layout-trans=3

481.wrf: Same as 454.calculix

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

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

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