# SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## NEC Corporation

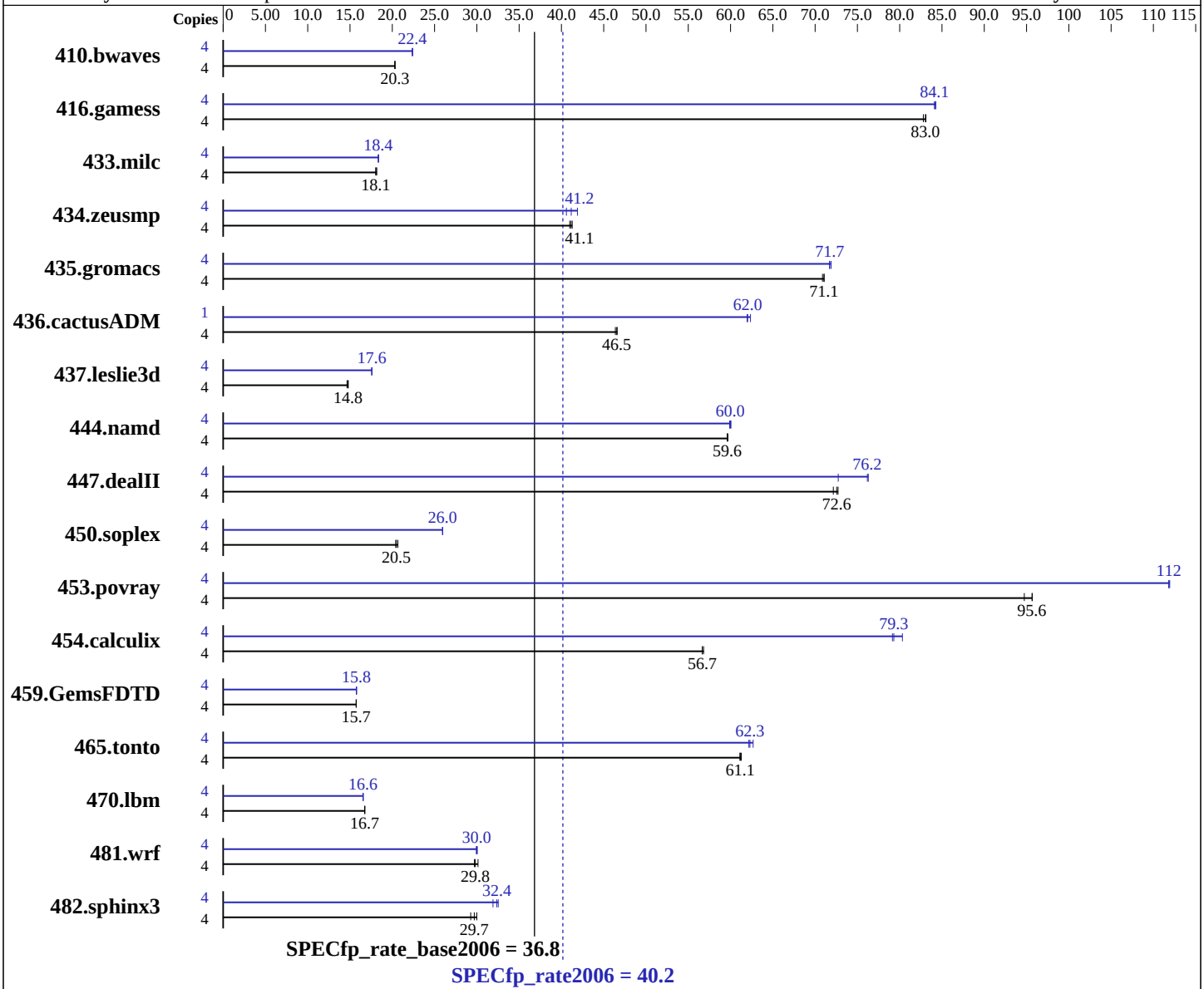
Express5800/120Rh-1
(Intel Xeon E5440)

SPECfp®_rate2006 = 40.2

SPECfp_rate_base2006 = 36.8

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

**Test date:** Jun-2008
**Hardware Availability:** Apr-2008
**Software Availability:** Nov-2007




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5440 |
| CPU Characteristics: | 2.83 GHz, 2x6 MB L2 shared, 1333 MHz bus |
| CPU MHz: | 2833 |
| FPU: | Integrated |
| CPU(s) enabled: | 4 cores, 1 chip, 4 cores/chip |
| CPU(s) orderable: | 1,2 chips |
| Primary Cache: | 32 KB I + 32 KB D on chip per core |
| Secondary Cache: | 12 MB I+D on chip per chip, 6 MB shared / 2 cores |

Continued on next page

### Software

| | |
|---|---|
| Operating System: | SUSE Linux Enterprise Server 10 (x86_64) SP1, Kernel 2.6.16.46-0.12-smp |
| Compiler: | Intel C++ and Fortran Compiler for Linux version 10.1 Build 20070913 Package ID: l_cc_p_10.1.008, l_fc_p_10.1.008 |
| Auto Parallel: | Yes |
| File System: | ReiserFS |
| System State: | Run level 3 (multi-user) |

Continued on next page

# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## NEC Corporation

Express5800/120Rh-1
(Intel Xeon E5440)

SPECfp_rate2006 = 40.2

SPECfp_rate_base2006 = 36.8

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

**Test date:** Jun-2008
**Hardware Availability:** Apr-2008
**Software Availability:** Nov-2007

L3 Cache: None
Other Cache: None
Memory: 16 GB (8x2 GB PC2-5300F, 2 rank, CL5-5-5, ECC)
Disk Subsystem: 1x73.2 GB SAS, 15000RPM
Other Hardware: None

Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: binutils 2.17

## Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 4 | 2677 | 20.3 | 2675 | 20.3 | **2676** | **20.3** | 4 | 2426 | 22.4 | 2430 | 22.4 | **2430** | **22.4** |
| 416.gamess | 4 | **943** | **83.0** | 946 | 82.8 | 942 | 83.1 | 4 | **931** | **84.1** | 931 | 84.1 | 929 | 84.3 |
| 433.milc | 4 | 2035 | 18.0 | **2032** | **18.1** | 2022 | 18.2 | 4 | 2002 | 18.3 | **2000** | **18.4** | 1998 | 18.4 |
| 434.zeusmp | 4 | 888 | 41.0 | **885** | **41.1** | 882 | 41.3 | 4 | 869 | 41.9 | **884** | **41.2** | 897 | 40.6 |
| 435.gromacs | 4 | **402** | **71.1** | 402 | 71.1 | 403 | 70.9 | 4 | 397 | 71.9 | 398 | 71.7 | **398** | **71.7** |
| 436.cactusADM | 4 | **1027** | **46.5** | 1026 | 46.6 | 1031 | 46.4 | 1 | 193 | 62.0 | **193** | **62.0** | 192 | 62.4 |
| 437.leslie3d | 4 | **2546** | **14.8** | 2542 | 14.8 | 2568 | 14.6 | 4 | 2138 | 17.6 | 2139 | 17.6 | **2139** | **17.6** |
| 444.namd | 4 | **538** | **59.6** | 537 | 59.7 | 538 | 59.6 | 4 | **535** | **60.0** | 534 | 60.0 | 536 | 59.9 |
| 447.dealII | 4 | **631** | **72.6** | 629 | 72.7 | 634 | 72.2 | 4 | 629 | 72.7 | 600 | 76.3 | **601** | **76.2** |
| 450.soplex | 4 | **1628** | **20.5** | 1635 | 20.4 | 1615 | 20.7 | 4 | 1286 | 25.9 | **1285** | **26.0** | 1285 | 26.0 |
| 453.povray | 4 | 222 | 95.7 | 225 | 94.7 | **222** | **95.6** | 4 | **190** | **112** | 190 | 112 | 190 | 112 |
| 454.calculix | 4 | 583 | 56.7 | 581 | 56.8 | **582** | **56.7** | 4 | 417 | 79.1 | 411 | 80.3 | **416** | **79.3** |
| 459.GemsFDTD | 4 | 2695 | 15.7 | 2699 | 15.7 | **2697** | **15.7** | 4 | **2692** | **15.8** | 2695 | 15.7 | 2691 | 15.8 |
| 465.tonto | 4 | 642 | 61.3 | **644** | **61.1** | 644 | 61.1 | 4 | 628 | 62.7 | **632** | **62.3** | 633 | 62.2 |
| 470.lbm | 4 | 3283 | 16.7 | **3282** | **16.7** | 3282 | 16.7 | 4 | 3321 | 16.6 | **3321** | **16.6** | 3320 | 16.6 |
| 481.wrf | 4 | 1483 | 30.1 | 1504 | 29.7 | **1498** | **29.8** | 4 | 1493 | 29.9 | 1487 | 30.1 | **1489** | **30.0** |
| 482.sphinx3 | 4 | 2599 | 30.0 | **2625** | **29.7** | 2663 | 29.3 | 4 | **2409** | **32.4** | 2443 | 31.9 | 2397 | 32.5 |

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

## Operating System Notes

```
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
'/usr/bin/taskset' used to bind processes to CPUs
  except for 436.cactusADM at peak.
 OMP_NUM_THREADS set to number of cores
```

## Platform Notes

```
Bios settings:
Hardware Prefetcher:          Disabled
Adjacent Cache Line Prefetch: Disabled
Intel SpeedStep Technology:   Disabled
```

## General Notes

```
All benchmarks compiled in 64-bit mode except 437.leslie3d,
450.soplex, 470.lbm and 482.sphinx3, for peak, are
compiled in 32-bit mode
 The NEC Express5800/120Rh-1(Intel Xeon E5440),
 the NEC Express5800/120Rj-2(Intel Xeon E5440),
 the Bull NovaScale R440 E1 (Intel Xeon E5440,2.83GHz) and
 the Bull NovaScale R460 E1 (Intel Xeon E5440,2.83GHz) models are electronically equivalent.
 The results have been measured on a NEC Express5800/120Rj-2(Intel Xeon E5440) model.
```

# Base Compiler Invocation

C benchmarks:
`icc`

C++ benchmarks:
`icpc`

Fortran benchmarks:
`ifort`

Benchmarks using both Fortran and C:
`icc ifort`

# 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:
`-fast`

C++ benchmarks:
`-fast`

Fortran benchmarks:
`-fast`

Benchmarks using both Fortran and C:
`-fast`

## Peak Compiler Invocation

C benchmarks (except as noted below):
`/opt/intel/cc/10.1.008/bin/icc -L/opt/intel/cc/10.1.008/lib -I/opt/intel/cc/10.1.008/include`

433.milc: `icc`

C++ benchmarks (except as noted below):
`icpc`

450.soplex: `/opt/intel/cc/10.1.008/bin/icpc -L/opt/intel/cc/10.1.008/lib -I/opt/intel/cc/10.1.008/include`

Fortran benchmarks (except as noted below):
`ifort`

437.leslie3d: `/opt/intel/fc/10.1.008/bin/ifort -L/opt/intel/fc/10.1.008/lib -I/opt/intel/fc/10.1.008/include`

Benchmarks using both Fortran and C:
`icc ifort`

## Peak 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`
444.namd: `-DSPEC_CPU_LP64`
447.dealII: `-DSPEC_CPU_LP64`

Continued on next page

## Peak Portability Flags (Continued)

453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX

## Peak Optimization Flags

C benchmarks:

433.milc: -prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias -auto-ilp32

470.lbm: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -scalar-rep- -prefetch -opt-malloc-options=3

482.sphinx3: -fast -unroll2

C++ benchmarks:

444.namd: -prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias -auto-ilp32

447.dealII: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -ansi-alias -scalar-rep-

450.soplex: -prof-gen(pass 1) -prof-use(pass 2) -fast -opt-malloc-options=3

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: -fast -prefetch

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0 -ansi-alias -scalar-rep-

434.zeusmp: -prof-gen(pass 1) -prof-use(pass 2) -fast

437.leslie3d: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch -opt-malloc-options=3

459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0 -prefetch

Continued on next page

# Peak Optimization Flags (Continued)

465.tonto: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -unroll4 -auto`

Benchmarks using both Fortran and C:

435.gromacs: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -prefetch -auto-ilp32`

436.cactusADM: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -unroll2 -prefetch -parallel -auto-ilp32`

454.calculix: `-fast -unroll-aggressive -auto-ilp32`

481.wrf: `-fast -auto-ilp32`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/NEC-Intel-ic10.1-FP-intel64-linux-flags.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/NEC-Intel-ic10.1-FP-intel64-linux-flags.xml`


SPEC and SPECfp are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.


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

Tested with SPEC CPU2006 v1.0.
Report generated on Tue Jul 22 19:58:08 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 8 July 2008.