



# SPEC<sup>®</sup> CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## NEC Corporation

Express5800/320Fd-LR  
(Intel Xeon E5405)

SPECfp<sup>®</sup>\_rate2006 = 60.5

SPECfp\_rate\_base2006 = 55.8

CPU2006 license: 9006

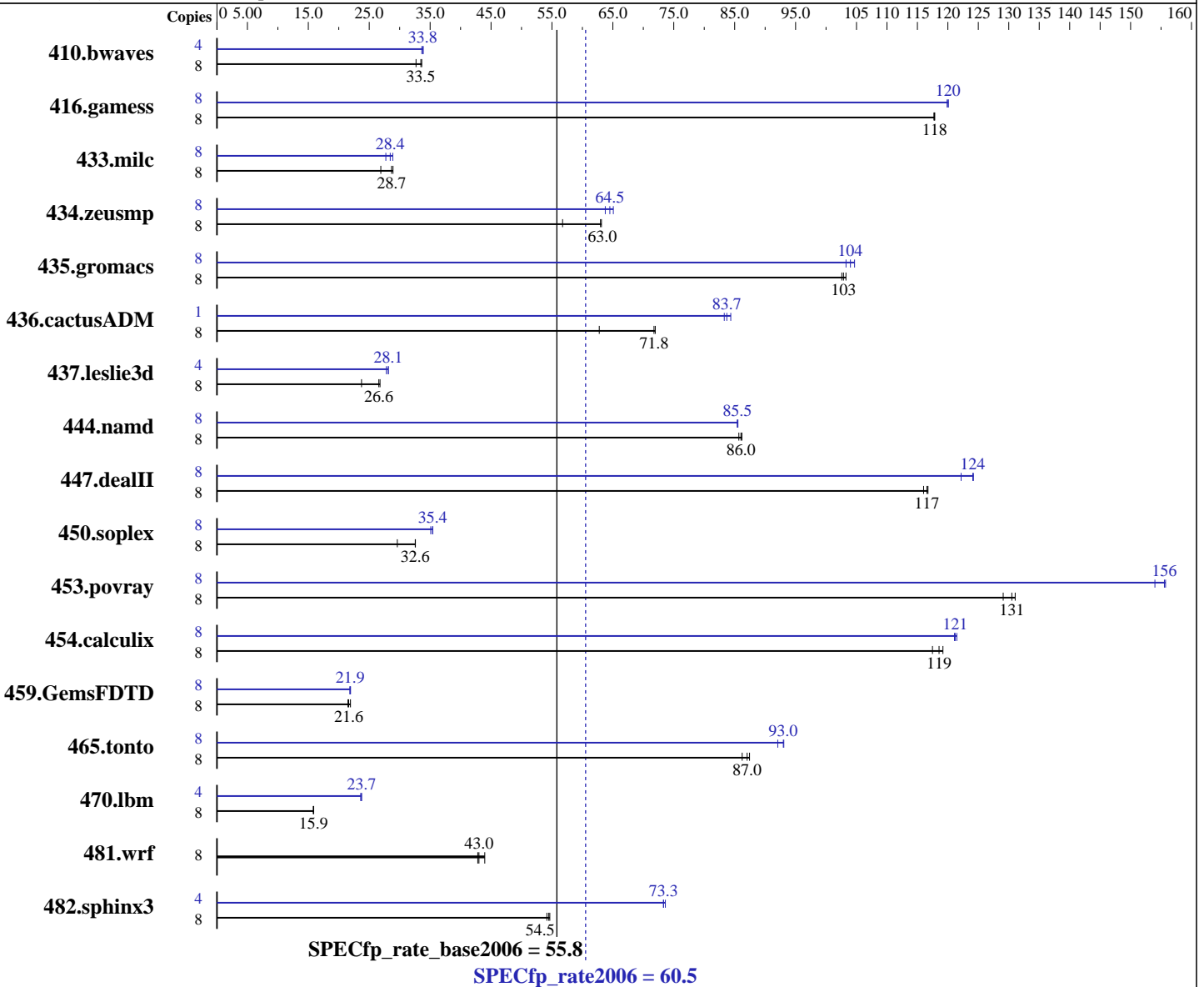
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Dec-2008

Hardware Availability: Oct-2008

Software Availability: Nov-2008



### Hardware

CPU Name: Intel Xeon E5405  
 CPU Characteristics: 1333 MHz system bus  
 CPU MHz: 2000  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip  
 CPU(s) orderable: 1,2 chips (fault tolerant, see Platform Notes)  
 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: Red Hat Enterprise Linux Server release 5.2  
 Advanced Platform, Kernel 2.6.18-92.1.13.el5 on an x86\_64  
 Compiler: Intel C++ and Fortran Compiler 11.0 for Linux  
 Build 20081105 Package ID: l\_cproc\_p\_11.0.074, l\_cprof\_p\_11.0.074  
 Auto Parallel: Yes  
 File System: ext3  
 System State: Run level 3 (multi-user)

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## NEC Corporation

Express5800/320Fd-LR  
(Intel Xeon E5405)

SPECfp\_rate2006 = 60.5

SPECfp\_rate\_base2006 = 55.8

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

Test date: Dec-2008  
Hardware Availability: Oct-2008  
Software Availability: Nov-2008

L3 Cache: None  
Other Cache: None  
Memory: 12 GB (6x2 GB PC2-5300F, 2 rank, CL5-5-5, ECC)  
Disk Subsystem: 2x146.5 GB SAS, 15000 RPM, Software RAID Level1  
Other Hardware: None

Base Pointers: 64-bit  
Peak Pointers: 32/64-bit  
Other Software: ft Server Control Software 6.0.2-198

## Results Table

| Benchmark     | Base   |                   |                    |                    |                    |                    |                    |        | Peak               |                    |                    |                    |                    |                    |  |  |
|---------------|--------|-------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--|--|
|               | Copies | Seconds           | Ratio              | Seconds            | Ratio              | Seconds            | Ratio              | Copies | Seconds            | Ratio              | Seconds            | Ratio              | Seconds            | Ratio              |  |  |
| 410.bwaves    | 8      | 3326              | 32.7               | <b><u>3248</u></b> | <b><u>33.5</u></b> | 3234               | 33.6               | 4      | 1605               | 33.9               | 1617               | 33.6               | <b><u>1609</u></b> | <b><u>33.8</u></b> |  |  |
| 416.gamess    | 8      | 1329              | 118                | 1331               | 118                | <b><u>1329</u></b> | <b><u>118</u></b>  | 8      | <b><u>1305</u></b> | <b><u>120</u></b>  | 1307               | 120                | 1305               | 120                |  |  |
| 433.milc      | 8      | 2730              | 26.9               | 2541               | 28.9               | <b><u>2563</u></b> | <b><u>28.7</u></b> | 8      | <b><u>2581</u></b> | <b><u>28.4</u></b> | 2649               | 27.7               | 2544               | 28.9               |  |  |
| 434.zeusmp    | 8      | 1283              | 56.7               | 1153               | 63.1               | <b><u>1156</u></b> | <b><u>63.0</u></b> | 8      | 1119               | 65.1               | <b><u>1129</u></b> | <b><u>64.5</u></b> | 1142               | 63.8               |  |  |
| 435.gromacs   | 8      | 553               | 103                | <b><u>555</u></b>  | <b><u>103</u></b>  | 557                | 103                | 8      | <b><u>549</u></b>  | <b><u>104</u></b>  | 553                | 103                | 546                | 105                |  |  |
| 436.cactusADM | 8      | 1523              | 62.8               | <b><u>1332</u></b> | <b><u>71.8</u></b> | 1328               | 72.0               | 1      | <b><u>143</u></b>  | <b><u>83.7</u></b> | 142                | 84.4               | 143                | 83.3               |  |  |
| 437.leslie3d  | 8      | 3168              | 23.7               | 2809               | 26.8               | <b><u>2830</u></b> | <b><u>26.6</u></b> | 4      | 1336               | 28.1               | <b><u>1337</u></b> | <b><u>28.1</u></b> | 1352               | 27.8               |  |  |
| 444.namd      | 8      | 749               | 85.7               | 744                | 86.2               | <b><u>746</u></b>  | <b><u>86.0</u></b> | 8      | 750                | 85.5               | 751                | 85.4               | <b><u>751</u></b>  | <b><u>85.5</u></b> |  |  |
| 447.dealII    | 8      | 789               | 116                | 784                | 117                | <b><u>785</u></b>  | <b><u>117</u></b>  | 8      | <b><u>738</u></b>  | <b><u>124</u></b>  | 749                | 122                | 737                | 124                |  |  |
| 450.soplex    | 8      | 2253              | 29.6               | <b><u>2049</u></b> | <b><u>32.6</u></b> | 2048               | 32.6               | 8      | 1901               | 35.1               | <b><u>1885</u></b> | <b><u>35.4</u></b> | 1883               | 35.4               |  |  |
| 453.povray    | 8      | 325               | 131                | <b><u>326</u></b>  | <b><u>131</u></b>  | 330                | 129                | 8      | 276                | 154                | <b><u>274</u></b>  | <b><u>156</u></b>  | 273                | 156                |  |  |
| 454.calculix  | 8      | 562               | 117                | <b><u>557</u></b>  | <b><u>119</u></b>  | 554                | 119                | 8      | 543                | 121                | 545                | 121                | <b><u>545</u></b>  | <b><u>121</u></b>  |  |  |
| 459.GemsFDTD  | 8      | 3872              | 21.9               | 3946               | 21.5               | <b><u>3923</u></b> | <b><u>21.6</u></b> | 8      | 3869               | 21.9               | <b><u>3880</u></b> | <b><u>21.9</u></b> | 3891               | 21.8               |  |  |
| 465.tonto     | 8      | <b><u>904</u></b> | <b><u>87.0</u></b> | 913                | 86.2               | 900                | 87.4               | 8      | 846                | 93.1               | <b><u>847</u></b>  | <b><u>93.0</u></b> | 855                | 92.1               |  |  |
| 470.lbm       | 8      | 6955              | 15.8               | <b><u>6923</u></b> | <b><u>15.9</u></b> | 6919               | 15.9               | 4      | 2315               | 23.7               | 2329               | 23.6               | <b><u>2316</u></b> | <b><u>23.7</u></b> |  |  |
| 481.wrf       | 8      | 2032              | 44.0               | <b><u>2077</u></b> | <b><u>43.0</u></b> | 2087               | 42.8               | 8      | 2032               | 44.0               | <b><u>2077</u></b> | <b><u>43.0</u></b> | 2087               | 42.8               |  |  |
| 482.sphinx3   | 8      | 2853              | 54.6               | <b><u>2862</u></b> | <b><u>54.5</u></b> | 2878               | 54.2               | 4      | 1059               | 73.6               | 1063               | 73.3               | <b><u>1063</u></b> | <b><u>73.3</u></b> |  |  |

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

## Submit Notes

The config file option 'submit' was used.  
taskset was used to bind processes to cores except  
for 436.cactusADM peak

## Operating System Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run  
OMP\_NUM\_THREADS set to number of cores  
KMP\_AFFINITY set to "physical,0"  
KMP\_STACKSIZE set to 64M



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## NEC Corporation

Express5800/320Fd-LR  
(Intel Xeon E5405)

SPECfp\_rate2006 = 60.5

SPECfp\_rate\_base2006 = 55.8

CPU2006 license: 9006

Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Dec-2008

Hardware Availability: Oct-2008

Software Availability: Nov-2008

## Platform Notes

This Express5800/320Fd-LR is a fault-tolerant server. Two modules are installed in this server. Each module physically has "2CPU chips,12GB memory", The total physical configuration is "4CPU chips,24GB memory". Using fault-tolerant lockstep technology, these two modules communicate with each other and execute the same instructions at the same time, The operating system only sees "2CPU chips,12GB memory" as the other components add only redundancy and do not contribute to any performance benefit.

## General Notes

The NEC Express5800/320Fd-LR(Intel Xeon E5405) and the Bull NovaScale R630 E1 LR(Intel Xeon E5405, 2.00 GHz) models are electronically equivalent. The results have been measured on a NEC Express5800/320Fd-LR(Intel Xeon E5405) 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.deallI: -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

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**NEC Corporation**

Express5800/320Fd-LR  
(Intel Xeon E5405)

**SPECfp\_rate2006 = 60.5**

**SPECfp\_rate\_base2006 = 55.8**

**CPU2006 license:** 9006

**Test sponsor:** NEC Corporation

**Tested by:** NEC Corporation

**Test date:** Dec-2008

**Hardware Availability:** Oct-2008

**Software Availability:** Nov-2008

## Base Portability Flags (Continued)

481.wrf: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_CASE\_FLAG -DSPEC\_CPU\_LINUX  
482.sphinx3: -DSPEC\_CPU\_LP64

## Base Optimization Flags

C benchmarks:

-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

C++ benchmarks:

-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

Fortran benchmarks:

-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

Benchmarks using both Fortran and C:

-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc

482.sphinx3: /opt/intel/Compiler/11.0/074/bin/ia32/icc  
-L/opt/intel/Compiler/11.0/074/ipp/ia32/lib  
-I/opt/intel/Compiler/11.0/074/ipp/ia32/include

C++ benchmarks (except as noted below):

icpc

450.soplex: /opt/intel/Compiler/11.0/074/bin/ia32/icpc  
-L/opt/intel/Compiler/11.0/074/ipp/ia32/lib  
-I/opt/intel/Compiler/11.0/074/ipp/ia32/include

Fortran benchmarks (except as noted below):

ifort

437.leslie3d: /opt/intel/Compiler/11.0/074/bin/ia32/ifort  
-L/opt/intel/Compiler/11.0/074/ipp/ia32/lib  
-I/opt/intel/Compiler/11.0/074/ipp/ia32/include

Benchmarks using both Fortran and C:

icc ifort



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## NEC Corporation

Express5800/320Fd-LR  
(Intel Xeon E5405)

SPECfp\_rate2006 = 60.5

SPECfp\_rate\_base2006 = 55.8

CPU2006 license: 9006

Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Dec-2008

Hardware Availability: Oct-2008

Software Availability: Nov-2008

## 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
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

```

## Peak Optimization Flags

C benchmarks:

```

433.milc: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
         -no-prec-div -static -fno-alias

```

```

470.lbm: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch
        -auto-ilp32

```

```

482.sphinx3: -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2

```

C++ benchmarks:

```

444.namd: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
         -no-prec-div -static -fno-alias -auto-ilp32

```

```

447.dealII: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
          -no-prec-div -static -unroll2 -ansi-alias -scalar-rep-

```

```

450.soplex: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
          -no-prec-div -static -opt-malloc-options=3

```

```

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
          -no-prec-div -static -unroll4 -ansi-alias

```

Fortran benchmarks:

```

410.bwaves: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

```

```

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
          -no-prec-div -static -unroll2 -Ob0 -ansi-alias
          -scalar-rep-

```

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## NEC Corporation

Express5800/320Fd-LR  
(Intel Xeon E5405)

**SPECfp\_rate2006 = 60.5**

**SPECfp\_rate\_base2006 = 55.8**

**CPU2006 license:** 9006

**Test sponsor:** NEC Corporation

**Tested by:** NEC Corporation

**Test date:** Dec-2008

**Hardware Availability:** Oct-2008

**Software Availability:** Nov-2008

## Peak Optimization Flags (Continued)

434.zeusmp: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static

437.leslie3d: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -opt-malloc-options=3 -opt-prefetch

459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -unroll2 -Ob0 -opt-prefetch

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -unroll4 -auto

Benchmarks using both Fortran and C:

435.gromacs: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -opt-prefetch -auto-ilp32

436.cactusADM: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -unroll2 -opt-prefetch -parallel  
-auto-ilp32

454.calculix: -xSSE4.1 -ipo -O3 -no-prec-div -static -auto-ilp32

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-ic11.0-fp-linux64-revE.20090710.html>

<http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revB.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revE.20090710.xml>

<http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revB.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](mailto:webmaster@spec.org).

Tested with SPEC CPU2006 v1.1.  
Report generated on Tue Jul 22 22:23:07 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 20 January 2009.