



SPEC[®] CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

NEC Corporation

Express5800/320Fd-LR
(Intel Xeon E5405)

SPECfp[®]2006 = 17.7

SPECfp_base2006 = 17.0

CPU2006 license: 9006

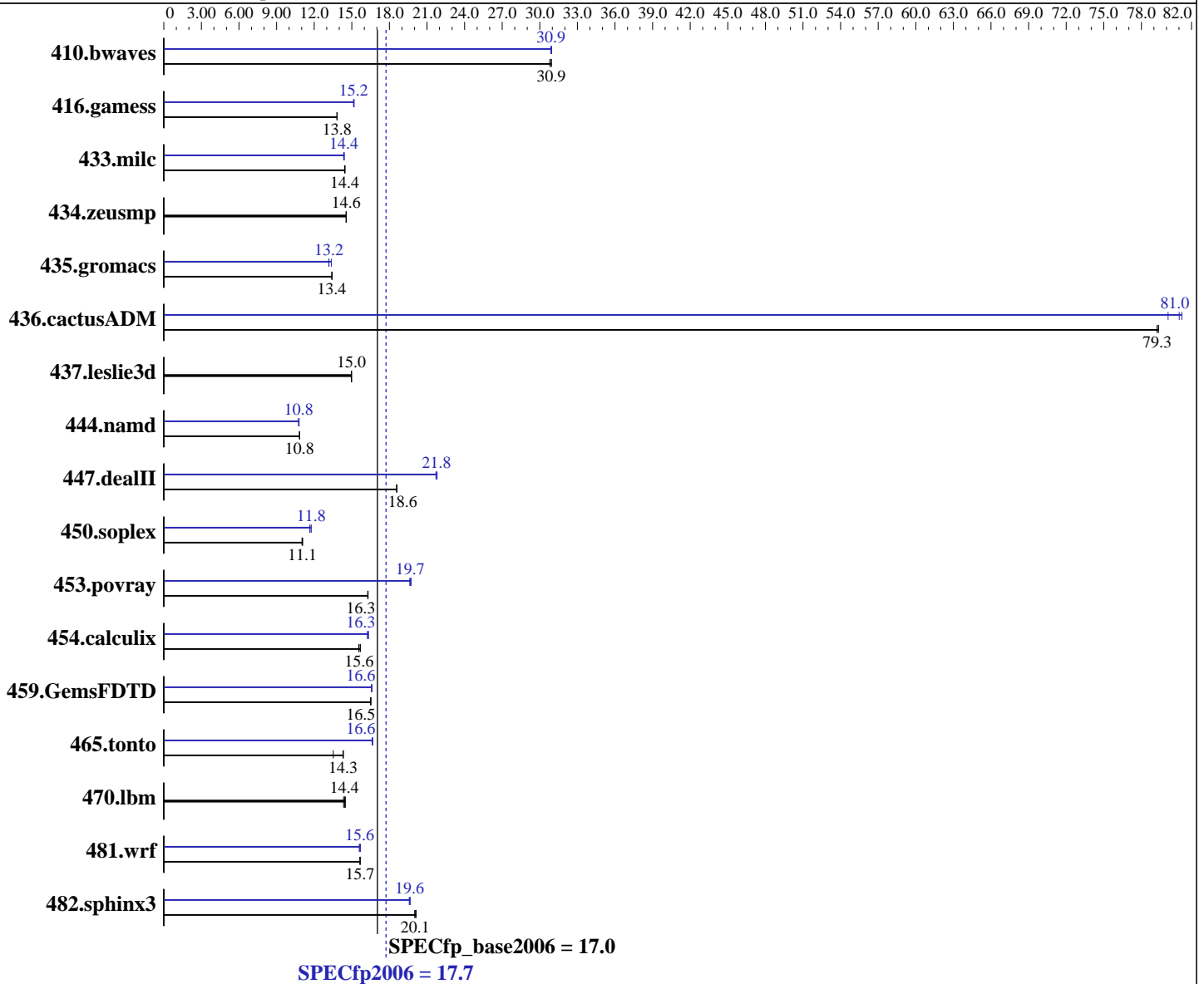
Test sponsor: NEC Corporation

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_fproc_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)

SPECfp2006 = 17.7

SPECfp_base2006 = 17.0

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 | | | | | |
|---------------|------------|-------------|------------|-------------|-------------|-------------|------------|-------------|------------|-------------|-------------|-------------|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 441 | 30.8 | 440 | 30.9 | 439 | 30.9 | 440 | 30.9 | 440 | 30.9 | 439 | 31.0 |
| 416.gamess | 1415 | 13.8 | 1418 | 13.8 | 1416 | 13.8 | 1293 | 15.1 | 1289 | 15.2 | 1292 | 15.2 |
| 433.milc | 635 | 14.5 | 636 | 14.4 | 637 | 14.4 | 637 | 14.4 | 638 | 14.4 | 640 | 14.4 |
| 434.zeusmp | 626 | 14.5 | 625 | 14.6 | 625 | 14.6 | 626 | 14.5 | 625 | 14.6 | 625 | 14.6 |
| 435.gromacs | 531 | 13.4 | 533 | 13.4 | 533 | 13.4 | 542 | 13.2 | 534 | 13.4 | 542 | 13.2 |
| 436.cactusADM | 151 | 79.4 | 151 | 79.2 | 151 | 79.3 | 147 | 81.0 | 149 | 80.1 | 147 | 81.2 |
| 437.leslie3d | 627 | 15.0 | 628 | 15.0 | 628 | 15.0 | 627 | 15.0 | 628 | 15.0 | 628 | 15.0 |
| 444.namd | 740 | 10.8 | 741 | 10.8 | 741 | 10.8 | 745 | 10.8 | 746 | 10.7 | 743 | 10.8 |
| 447.dealII | 616 | 18.6 | 615 | 18.6 | 616 | 18.6 | 525 | 21.8 | 526 | 21.8 | 527 | 21.7 |
| 450.soplex | 756 | 11.0 | 753 | 11.1 | 754 | 11.1 | 709 | 11.8 | 717 | 11.6 | 710 | 11.8 |
| 453.povray | 326 | 16.3 | 327 | 16.3 | 327 | 16.3 | 271 | 19.7 | 271 | 19.6 | 270 | 19.7 |
| 454.calculix | 526 | 15.7 | 529 | 15.6 | 530 | 15.6 | 505 | 16.3 | 506 | 16.3 | 508 | 16.2 |
| 459.GemsFDTD | 643 | 16.5 | 643 | 16.5 | 642 | 16.5 | 640 | 16.6 | 640 | 16.6 | 639 | 16.6 |
| 465.tonto | 687 | 14.3 | 728 | 13.5 | 688 | 14.3 | 592 | 16.6 | 590 | 16.7 | 592 | 16.6 |
| 470.lbm | 958 | 14.3 | 952 | 14.4 | 948 | 14.5 | 958 | 14.3 | 952 | 14.4 | 948 | 14.5 |
| 481.wrf | 713 | 15.7 | 714 | 15.7 | 713 | 15.7 | 712 | 15.7 | 716 | 15.6 | 714 | 15.6 |
| 482.sphinx3 | 968 | 20.1 | 972 | 20.1 | 973 | 20.0 | 995 | 19.6 | 994 | 19.6 | 991 | 19.7 |

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
OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to "physical,0"
KMP_STACKSIZE set to 200M

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

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

NEC Corporation

Express5800/320Fd-LR
(Intel Xeon E5405)

SPECfp2006 = 17.7

SPECfp_base2006 = 17.0

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 (Continued)

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.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



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

NEC Corporation

Express5800/320Fd-LR
(Intel Xeon E5405)

SPECfp2006 =

17.7

SPECfp_base2006 =

17.0

CPU2006 license: 9006

Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Dec-2008

Hardware Availability: Oct-2008

Software Availability: Nov-2008

Base Optimization Flags

C benchmarks:

`-xSSE4.1 -ipo -O3 -no-prec-div -parallel -opt-prefetch`

C++ benchmarks:

`-xSSE4.1 -ipo -O3 -no-prec-div -parallel -opt-prefetch`

Fortran benchmarks:

`-xSSE4.1 -ipo -O3 -no-prec-div -parallel -opt-prefetch`

Benchmarks using both Fortran and C:

`-xSSE4.1 -ipo -O3 -no-prec-div -parallel -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:

`ifort`

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`
437.leslie3d: `-DSPEC_CPU_LP64`
444.namd: `-DSPEC_CPU_LP64`
447.dealII: `-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)

SPECfp2006 = 17.7

SPECfp_base2006 = 17.0

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 (Continued)

```

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: basepeak = yes

```

```

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

```

```

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
           -parallel

```

```

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

```

```

434.zeusmp: basepeak = yes

```

```

437.leslie3d: basepeak = yes

```

```

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

```

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

NEC Corporation

Express5800/320Fd-LR
(Intel Xeon E5405)

SPECfp2006 = 17.7

SPECfp_base2006 = 17.0

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)

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

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.

Tested with SPEC CPU2006 v1.1.

Report generated on Tue Jul 22 22:26:32 2014 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 20 January 2009.

Standard Performance Evaluation Corporation

info@spec.org

<http://www.spec.org/>

Page 6