SPEC® CFP2006 Result
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NEC Corporation

$SPECfp^{®}2006 =$ 72.2

Express5800/B120d-h (Intel Xeon E5-2650)
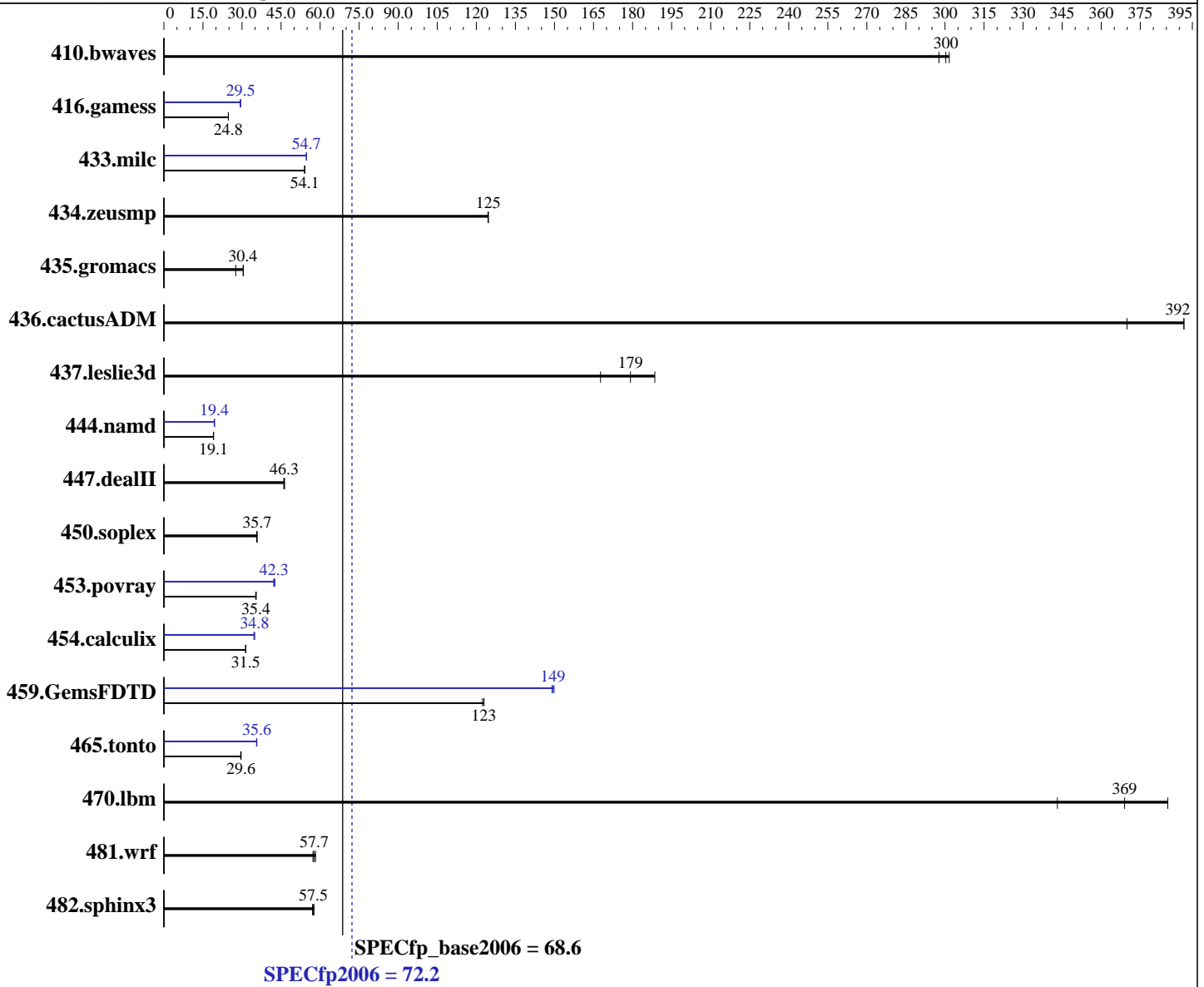
$SPECfp\_base2006 =$ 68.6

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

Test date: Aug-2012
Hardware Availability: Jun-2012
Software Availability: Feb-2012

Benchmark	base	peak
410.bwaves	300	
416.gamess	24.8	29.5
433.milc	54.1	54.7
434.zeusmp	125	
435.gromacs	30.4	
436.cactusADM	392	
437.leslie3d	179	
444.namd	19.1	19.4
447.dealII	46.3	
450.soplex	35.7	
453.povray	35.4	42.3
454.calculix	31.5	34.8
459.GemsFDTD	123	149
465.tonto	29.6	35.6
470.lbm	369	
481.wrf	57.7	
482.sphinx3	57.5	

SPECfp_base2006 = 68.6
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Hardware
CPU Name: Intel Xeon E5-2650
CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz
CPU MHz: 2000
FPU: Integrated
CPU(s) enabled: 16 cores, 2 chips, 8 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: Yes
File System: ext4
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L3 Cache:	20 MB I+D on chip per chip
Other Cache:	None
Memory:	128 GB (16 x 8 GB 2Rx4 PC3L-12800R-11, ECC)
Disk Subsystem:	1 x 146.5 GB SAS, 15000 RPM
Other Hardware:	Express5800/AD106b for Disk Subsystem

System State:	Run level 3 (multi-user)
Base Pointers:	64-bit
Peak Pointers:	32/64-bit
Other Software:	None

Results Table

Benchmark	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
410.bwaves	**45.3**	**300**	45.1	302	45.7	298	**45.3**	**300**	45.1	302	45.7	298
416.gamess	790	24.8	**791**	**24.8**	791	24.7	669	29.3	**665**	**29.5**	664	29.5
433.milc	170	54.1	**170**	**54.1**	170	54.1	168	54.7	**168**	**54.7**	168	54.8
434.zeusmp	73.1	125	**73.1**	**125**	73.1	125	73.1	125	**73.1**	**125**	73.1	125
435.gromacs	259	27.6	**235**	**30.4**	234	30.5	259	27.6	**235**	**30.4**	234	30.5
436.cactusADM	**30.5**	**392**	30.5	392	32.3	370	**30.5**	**392**	30.5	392	32.3	370
437.leslie3d	**52.5**	**179**	56.1	168	49.9	189	**52.5**	**179**	56.1	168	49.9	189
444.namd	421	19.1	**421**	**19.1**	421	19.0	**413**	**19.4**	414	19.4	413	19.4
447.dealII	247	46.3	249	46.0	**247**	**46.3**	247	46.3	249	46.0	**247**	**46.3**
450.soplex	233	35.8	234	35.7	**233**	**35.7**	233	35.8	234	35.7	**233**	**35.7**
453.povray	151	35.3	150	35.4	**150**	**35.4**	**126**	**42.3**	125	42.6	126	42.2
454.calculix	262	31.5	263	31.3	**262**	**31.5**	**237**	**34.8**	237	34.8	239	34.6
459.GemsFDTD	86.7	122	**86.3**	**123**	86.3	123	70.8	150	71.2	149	**71.0**	**149**
465.tonto	**333**	**29.6**	332	29.7	334	29.5	**276**	**35.6**	276	35.7	277	35.6
470.lbm	35.6	386	**37.2**	**369**	40.0	343	35.6	386	**37.2**	**369**	40.0	343
481.wrf	**194**	**57.7**	195	57.2	192	58.3	**194**	**57.7**	195	57.2	192	58.3
482.sphinx3	338	57.7	**339**	**57.5**	342	57.1	338	57.7	**339**	**57.5**	342	57.1

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
  Memory Voltage: 1.5 V
```

General Notes

```
 Environment variables set by runspec before the start of the run:
 KMP_AFFINITY = "granularity=fine,scatter"
 LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64"
```

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General Notes (Continued)

```
OMP_NUM_THREADS = "16"

 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
```

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:
```
-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias
```

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Base Optimization Flags (Continued)

C++ benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias
```

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

Benchmarks using both Fortran and C:
```
-xAVX -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: `-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 -ansi-alias`

    470.lbm: `basepeak = yes`

    482.sphinx3: `basepeak = yes`

C++ benchmarks:

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Peak Optimization Flags (Continued)

```
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: basepeak = yes

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: basepeak = yes

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

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -xSSE4.2(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 -opt-prefetch -parallel

465.tonto: -xAVX(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: -xAVX -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-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

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

Tested with SPEC CPU2006 v1.2.
Report generated on Thu Jul 24 11:04:35 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 29 August 2012.