SPEC® CFP2006 Result
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NEC Corporation

Express5800/E110d-M (Intel Xeon E5-2407)

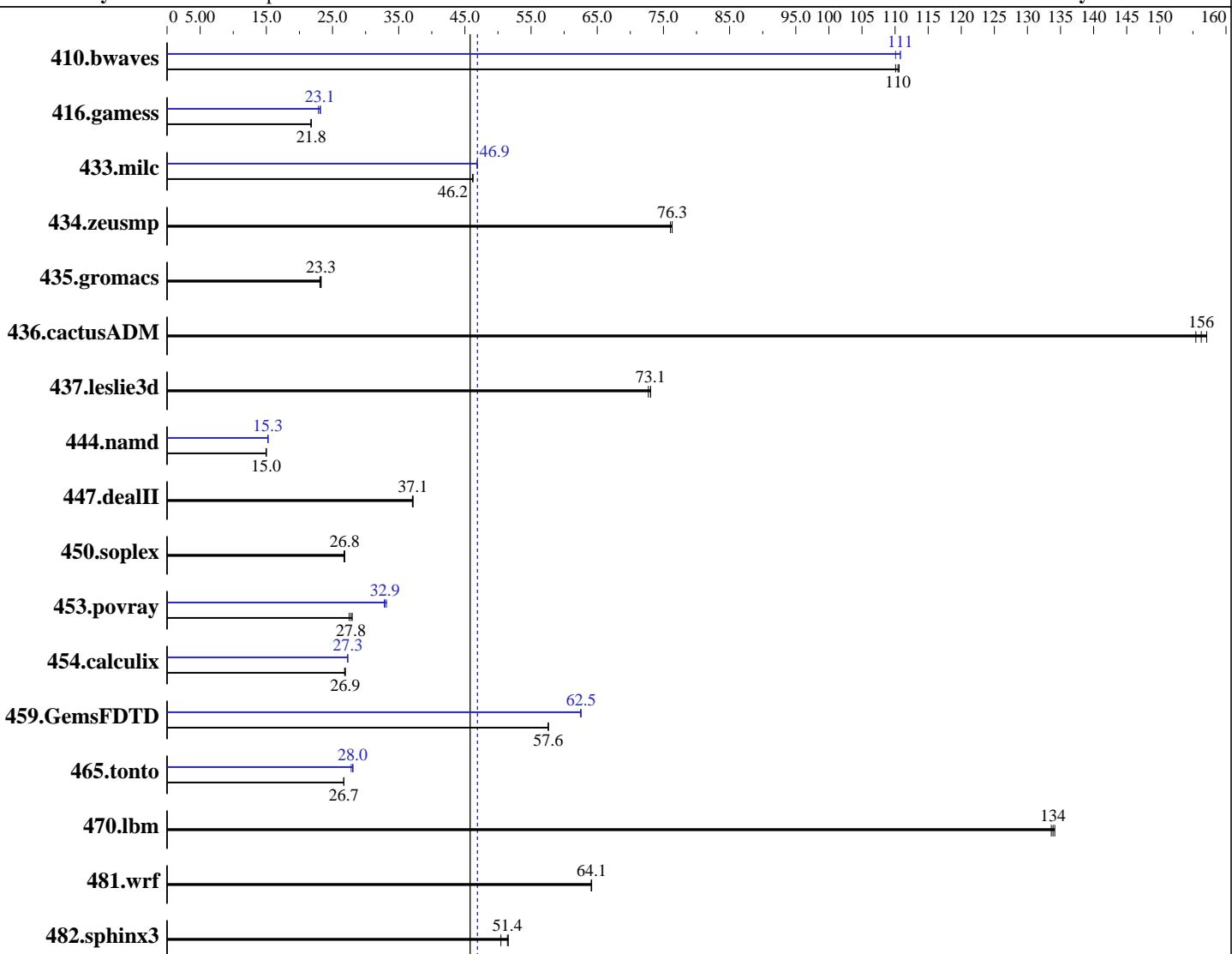$SPECfp^®2006 =$ 46.9

$SPECfp\_base2006 =$ 45.8

CPU2006 license: 9006	**Test date:** Dec-2012
Test sponsor: NEC Corporation	**Hardware Availability:** Dec-2012
Tested by: NEC Corporation	**Software Availability:** Feb-2012

Results by benchmark:

- **410.bwaves** — 111 / 110
- **416.gamess** — 23.1 / 21.8
- **433.milc** — 46.9 / 46.2
- **434.zeusmp** — 76.3
- **435.gromacs** — 23.3
- **436.cactusADM** — 156
- **437.leslie3d** — 73.1
- **444.namd** — 15.3 / 15.0
- **447.dealII** — 37.1
- **450.soplex** — 26.8
- **453.povray** — 32.9 / 27.8
- **454.calculix** — 27.3 / 26.9
- **459.GemsFDTD** — 62.5 / 57.6
- **465.tonto** — 28.0 / 26.7
- **470.lbm** — 134
- **481.wrf** — 64.1
- **482.sphinx3** — 51.4

SPECfp_base2006 = 45.8

SPECfp2006 = 46.9

Hardware

CPU Name:	Intel Xeon E5-2407
CPU Characteristics:	
CPU MHz:	2200
FPU:	Integrated
CPU(s) enabled:	4 cores, 1 chip, 4 cores/chip
CPU(s) orderable:	1 chip
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:	10 MB I+D on chip per chip	System State:	Run level 3 (multi-user)
Other Cache:	None	Base Pointers:	64-bit
Memory:	48 GB (6 x 8 GB 2Rx4 PC3L-12800R-11, ECC, running at 1066 MHz and CL7)	Peak Pointers:	32/64-bit
		Other Software:	None
Disk Subsystem:	1 x 250 GB SATA, 7200 RPM		
Other Hardware:	None		

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	123	110	123	111	**123**	**110**	123	111	123	110	**123**	**111**
416.gamess	898	21.8	902	21.7	**898**	**21.8**	857	22.9	844	23.2	**847**	**23.1**
433.milc	199	46.2	199	46.2	**199**	**46.2**	196	46.9	196	46.8	**196**	**46.9**
434.zeusmp	120	76.1	119	76.3	**119**	**76.3**	120	76.1	119	76.3	**119**	**76.3**
435.gromacs	309	23.1	**307**	**23.3**	307	23.3	309	23.1	**307**	**23.3**	307	23.3
436.cactusADM	**76.5**	**156**	76.1	157	76.9	155	**76.5**	**156**	76.1	157	76.9	155
437.leslie3d	129	73.1	129	72.7	**129**	**73.1**	129	73.1	129	72.7	**129**	**73.1**
444.namd	535	15.0	535	15.0	**535**	**15.0**	526	15.3	526	15.3	**526**	**15.3**
447.dealII	308	37.2	309	37.1	**308**	**37.1**	308	37.2	309	37.1	**308**	**37.1**
450.soplex	312	26.7	311	26.8	**311**	**26.8**	312	26.7	311	26.8	**311**	**26.8**
453.povray	190	28.0	193	27.5	**191**	**27.8**	160	33.2	**162**	**32.9**	162	32.8
454.calculix	**307**	**26.9**	308	26.8	306	26.9	302	27.3	303	27.3	**302**	**27.3**
459.GemsFDTD	184	57.6	184	57.6	**184**	**57.6**	170	62.5	170	62.5	**170**	**62.5**
465.tonto	**368**	**26.7**	368	26.7	368	26.7	354	27.8	350	28.1	**351**	**28.0**
470.lbm	103	134	**103**	**134**	102	134	103	134	**103**	**134**	102	134
481.wrf	174	64.2	174	64.1	**174**	**64.1**	174	64.2	174	64.1	**174**	**64.1**
482.sphinx3	378	51.6	386	50.4	**379**	**51.4**	378	51.6	386	50.4	**379**	**51.4**

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

General Notes

Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact,1,0"
LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64"
OMP_NUM_THREADS = "4"

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General Notes (Continued)

```
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:

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```

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Peak Optimization Flags (Continued)

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: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -parallel
-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

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.

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