SPEC® CFP2006 Result

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NEC Corporation

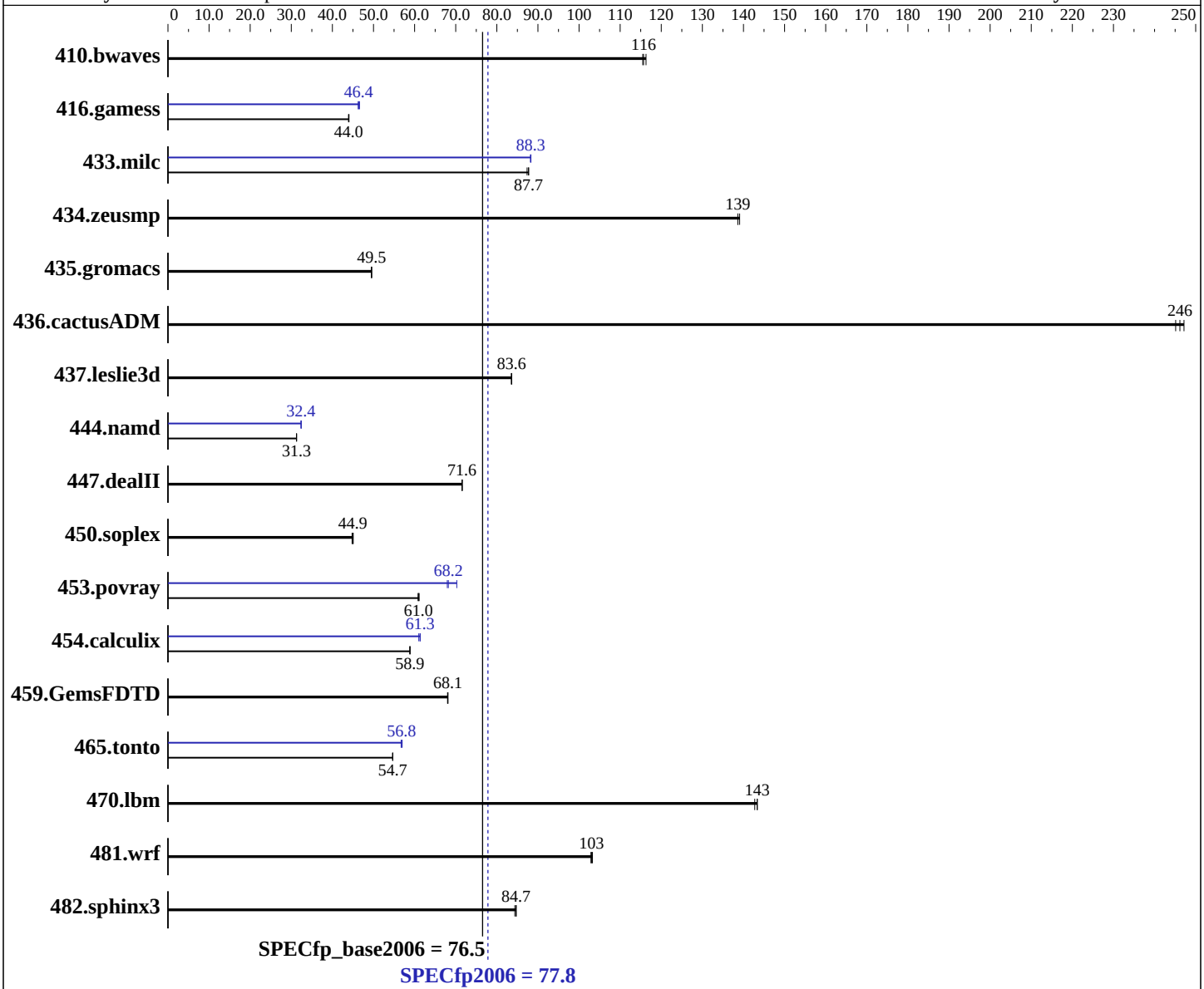
Express5800/R110g-1E (Intel Xeon E3-1271 v3)

SPECfp®2006 = 77.8

SPECfp_base2006 = 76.5

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

Test date: Jun-2014
Hardware Availability: Jul-2014
Software Availability: Jan-2014



Hardware

CPU Name:	Intel Xeon E3-1271 v3
CPU Characteristics:	Intel Turbo Boost Technology up to 4.00 GHz
CPU MHz:	3600
FPU:	Integrated
CPU(s) enabled:	4 cores, 1 chip, 4 cores/chip, 2 threads/core
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

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Software

Operating System:	Red Hat Enterprise Linux Server release 6.5 (Santiago) Kernel 2.6.32-431.el6.x86_64
Compiler:	C/C++: Version 14.0.2.144 of Intel C++ Studio XE for Linux; Fortran: Version 14.0.2.144 of Intel Fortran Studio XE for Linux
Auto Parallel:	Yes
File System:	ext4

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L3 Cache:	8 MB I+D on chip per chip	System State:	Run level 3 (multi-user)
Other Cache:	None	Base Pointers:	64-bit
Memory:	16 GB (2 x 8 GB 2Rx8 PC3-12800E-11, ECC)	Peak Pointers:	32/64-bit
Disk Subsystem:	1 x 250 GB SATA, 7200 RPM	Other Software:	None
Other Hardware:	None		

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	**117**	**116**	118	115	117	116	**117**	**116**	118	115	117	116
416.gamess	**445**	**44.0**	445	44.0	446	43.9	423	46.3	**422**	**46.4**	420	46.6
433.milc	105	87.4	**105**	**87.7**	105	87.7	104	88.2	104	88.3	**104**	**88.3**
434.zeusmp	**65.6**	**139**	65.6	139	65.4	139	**65.6**	**139**	65.6	139	65.4	139
435.gromacs	**144**	**49.5**	144	49.5	144	49.5	**144**	**49.5**	144	49.5	144	49.5
436.cactusADM	48.7	245	**48.5**	**246**	48.3	247	48.7	245	**48.5**	**246**	48.3	247
437.leslie3d	112	83.6	112	83.6	**112**	**83.6**	112	83.6	112	83.6	**112**	**83.6**
444.namd	256	31.3	256	31.3	**256**	**31.3**	248	32.4	248	32.4	**248**	**32.4**
447.dealII	160	71.6	160	71.6	**160**	**71.6**	160	71.6	160	71.6	**160**	**71.6**
450.soplex	185	45.1	**186**	**44.9**	186	44.8	185	45.1	**186**	**44.9**	186	44.8
453.povray	87.1	61.1	**87.3**	**61.0**	87.4	60.8	75.7	70.3	78.3	68.0	**78.0**	**68.2**
454.calculix	140	58.9	**140**	**58.9**	140	58.9	135	61.0	**135**	**61.3**	134	61.4
459.GemsFDTD	156	68.0	**156**	**68.1**	156	68.1	156	68.0	**156**	**68.1**	156	68.1
465.tonto	180	54.7	180	54.6	**180**	**54.7**	173	57.0	173	56.7	**173**	**56.8**
470.lbm	95.8	143	**95.9**	**143**	96.3	143	95.8	143	**95.9**	**143**	96.3	143
481.wrf	109	103	**108**	**103**	108	103	109	103	**108**	**103**	108	103
482.sphinx3	231	84.4	230	84.7	**230**	**84.7**	231	84.4	230	84.7	**230**	**84.7**

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:/home/cpu2006/sh"
OMP_NUM_THREADS = "4"
```

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General Notes (Continued)

```
Added glibc-static-2.12-1.132.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:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias
```

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Base Optimization Flags (Continued)

C++ benchmarks:
`-xCORE-AVX2 -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias`

Fortran benchmarks:
`-xCORE-AVX2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch`

Benchmarks using both Fortran and C:
`-xCORE-AVX2 -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: `-xCORE-AVX2`(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: `-xCORE-AVX2`(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: -xCORE-AVX2(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: -xCORE-AVX2(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: basepeak = yes

465.tonto: -xCORE-AVX2(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: -xCORE-AVX2 -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-ic14.0-official-linux64.20140128.html
http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-R120-RevB.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml
http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-R120-RevB.xml

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For other inquiries, please contact webmaster@spec.org.

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