SPEC® CFP2006 Result

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NEC Corporation

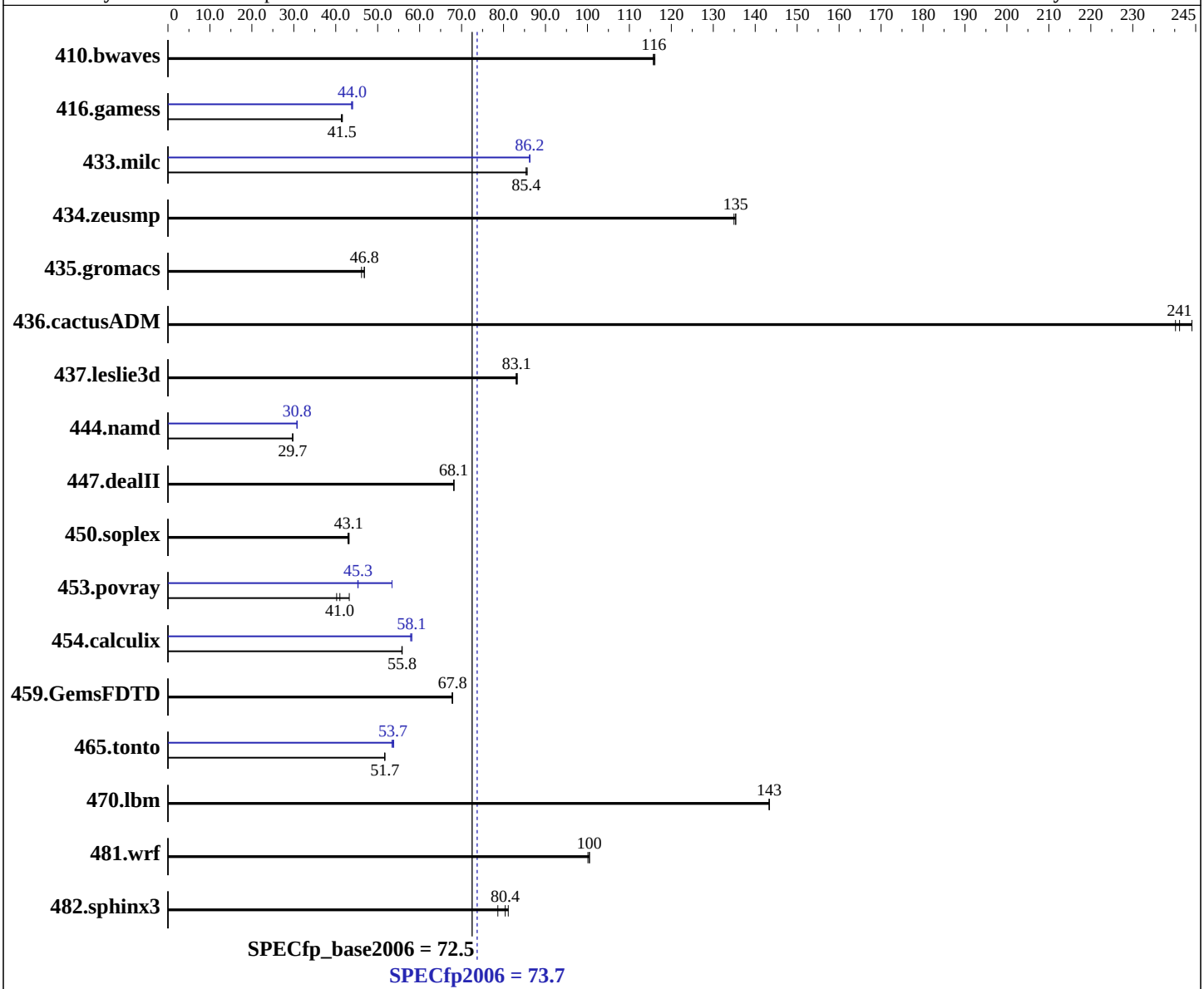
Express5800/T110g-E (Intel Xeon E3-1231 v3)

SPECfp®2006 = 73.7

SPECfp_base2006 = 72.5

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

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



Hardware

CPU Name:	Intel Xeon E3-1231 v3
CPU Characteristics:	Intel Turbo Boost Technology up to 3.80 GHz
CPU MHz:	3400
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
Other Cache:	None
Memory:	16 GB (2 x 8 GB 2Rx8 PC3-12800E-11, ECC)
Disk Subsystem:	1 x 500 GB SATA, 7200 RPM
Other Hardware:	None

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

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	117	116	**117**	**116**	117	116	117	116	**117**	**116**	117	116
416.gamess	**472**	**41.5**	471	41.6	474	41.3	445	44.0	**445**	**44.0**	447	43.8
433.milc	107	85.4	**107**	**85.4**	107	85.6	106	86.3	**106**	**86.2**	106	86.2
434.zeusmp	67.4	135	67.2	135	**67.2**	**135**	67.4	135	67.2	135	**67.2**	**135**
435.gromacs	153	46.8	155	46.1	**153**	**46.8**	153	46.8	155	46.1	**153**	**46.8**
436.cactusADM	**49.6**	**241**	49.0	244	49.8	240	**49.6**	**241**	49.0	244	49.8	240
437.leslie3d	113	83.3	113	83.0	**113**	**83.1**	113	83.3	113	83.0	**113**	**83.1**
444.namd	270	29.7	**270**	**29.7**	270	29.7	261	30.8	**261**	**30.8**	261	30.8
447.dealII	**168**	**68.1**	168	68.2	168	68.1	**168**	**68.1**	168	68.2	168	68.1
450.soplex	194	42.9	**194**	**43.1**	193	43.2	194	42.9	**194**	**43.1**	193	43.2
453.povray	132	40.2	**130**	**41.0**	123	43.2	99.6	53.4	118	45.3	**117**	**45.3**
454.calculix	148	55.8	148	55.8	**148**	**55.8**	143	57.9	142	58.1	**142**	**58.1**
459.GemsFDTD	156	67.8	**156**	**67.8**	157	67.7	156	67.8	**156**	**67.8**	157	67.7
465.tonto	190	51.7	191	51.7	**190**	**51.7**	183	53.8	**183**	**53.7**	184	53.4
470.lbm	95.9	143	**95.9**	**143**	95.9	143	95.9	143	**95.9**	**143**	95.9	143
481.wrf	**111**	**100**	111	100	112	100	**111**	**100**	111	100	112	100
482.sphinx3	240	81.1	**242**	**80.4**	248	78.6	240	81.1	**242**	**80.4**	248	78.6

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
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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