SPEC® CFP2006 Result

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NEC Corporation

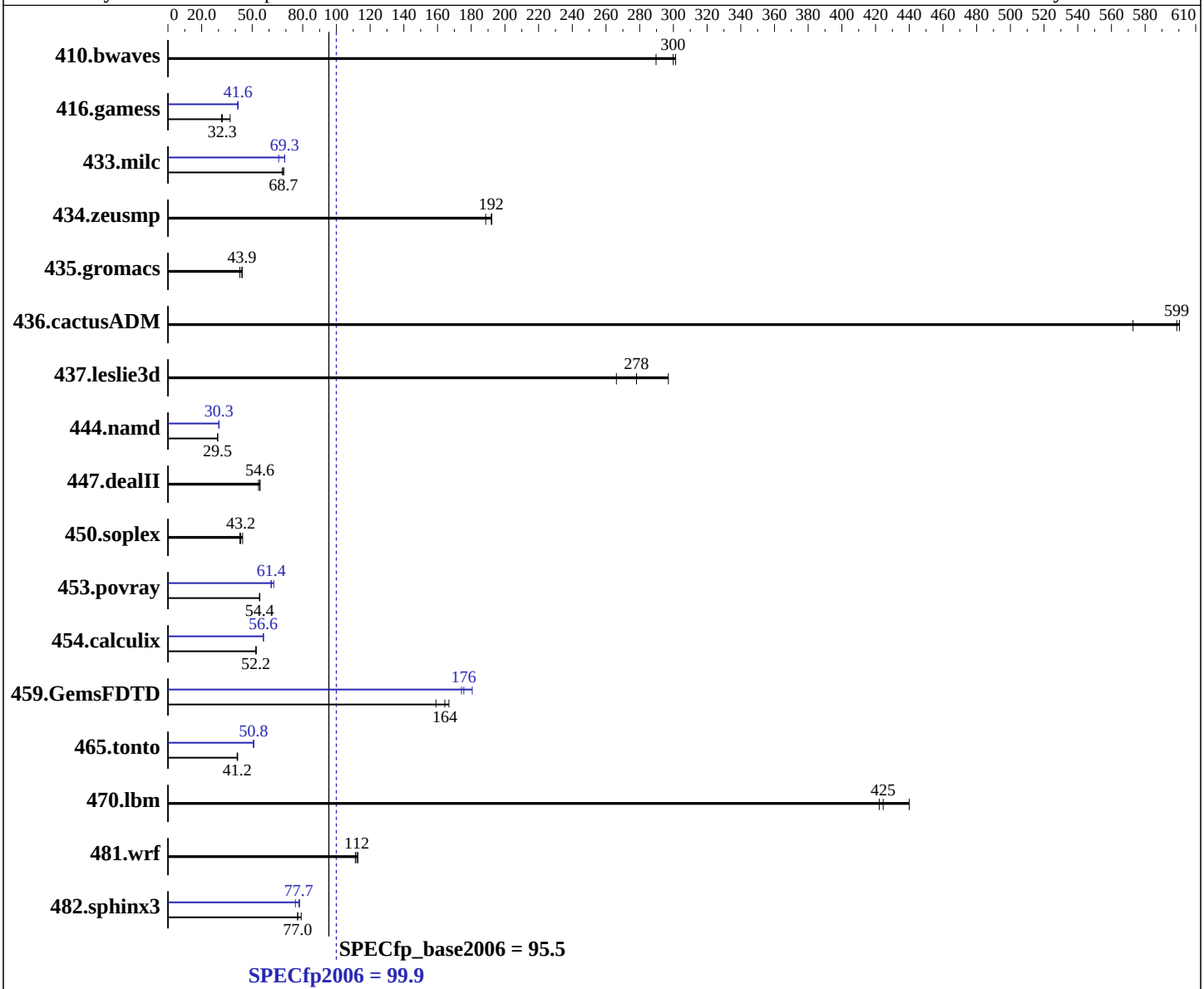
Express5800/B120f (Intel Xeon E5-2690 v3)

SPECfp®2006 = 99.9

SPECfp_base2006 = 95.5

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

Test date: Dec-2014
Hardware Availability: Apr-2015
Software Availability: Jul-2014



Hardware

CPU Name:	Intel Xeon E5-2690 v3
CPU Characteristics:	Intel Turbo Boost Technology up to 3.50 GHz
CPU MHz:	2600
FPU:	Integrated
CPU(s) enabled:	24 cores, 2 chips, 12 cores/chip
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

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Software

Operating System:	Red Hat Enterprise Linux Server release 6.5 (Santiago) Kernel 2.6.32-431.20.3.el6.x86_64
Compiler:	C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux; Fortran: Version 15.0.0.090 of Intel Fortran Studio XE for Linux
Auto Parallel:	Yes
File System:	ext4

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L3 Cache:	30 MB I+D on chip per chip	System State:	Run level 3 (multi-user)
Other Cache:	None	Base Pointers:	64-bit
Memory:	96 GB (6 x 16 GB 2Rx4 PC4-2133P-R)	Peak Pointers:	32/64-bit
Disk Subsystem:	1 x 300 GB SAS, 10000 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	**45.3**	**300**	46.9	290	45.1	301	**45.3**	**300**	46.9	290	45.1	301
416.gamess	615	31.9	**607**	**32.3**	530	36.9	471	41.6	**471**	**41.6**	473	41.4
433.milc	**134**	**68.7**	135	67.8	134	68.7	132	69.3	140	65.7	**133**	**69.3**
434.zeusmp	48.3	189	47.3	192	**47.4**	**192**	48.3	189	47.3	192	**47.4**	**192**
435.gromacs	167	42.7	162	44.1	**163**	**43.9**	167	42.7	162	44.1	**163**	**43.9**
436.cactusADM	20.9	573	19.9	600	**20.0**	**599**	20.9	573	19.9	600	**20.0**	**599**
437.leslie3d	35.3	266	**33.8**	**278**	31.6	297	35.3	266	**33.8**	**278**	31.6	297
444.namd	272	29.5	**272**	**29.5**	272	29.5	265	30.3	265	30.3	**265**	**30.3**
447.dealII	213	53.8	**210**	**54.6**	209	54.6	213	53.8	**210**	**54.6**	209	54.6
450.soplex	**193**	**43.2**	196	42.6	188	44.4	**193**	**43.2**	196	42.6	188	44.4
453.povray	**97.7**	**54.4**	97.9	54.3	97.5	54.5	84.7	62.8	86.9	61.2	**86.7**	**61.4**
454.calculix	158	52.1	157	52.4	**158**	**52.2**	**146**	**56.6**	145	56.8	146	56.5
459.GemsFDTD	66.7	159	**64.6**	**164**	63.6	167	60.9	174	58.7	181	**60.4**	**176**
465.tonto	239	41.1	238	41.4	**239**	**41.2**	193	50.9	**194**	**50.8**	194	50.7
470.lbm	32.5	422	**32.4**	**425**	31.2	440	32.5	422	**32.4**	**425**	31.2	440
481.wrf	99.1	113	100	111	**99.7**	**112**	99.1	113	100	111	**99.7**	**112**
482.sphinx3	253	77.0	246	79.1	**253**	**77.0**	258	75.7	249	78.1	**251**	**77.7**

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:
 Processor C6 Report: Enabled
 Energy Performance: Performance
 Patrol Scrub: Disabled
 Early Snoop: Disabled
 Hyper-Threading: Disabled
```

General Notes

```
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact"
LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh"
OMP_NUM_THREADS = "24"

 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 -parallel -opt-prefetch
-ansi-alias

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Base Optimization Flags (Continued)

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

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

Benchmarks using both Fortran and C:
`-xCORE-AVX2 -ipo -O3 -no-prec-div -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) `-auto-ilp32 -ansi-alias`

470.lbm: `basepeak = yes`

482.sphinx3: `-xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -ansi-alias -parallel`

Continued on next page

Peak Optimization Flags (Continued)

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

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-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -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 -opt-prefetch -parallel

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-ic15.0-official-linux64.html
http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-120f-RevB.html

You can also download the XML flags sources by saving the following links:

http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-120f-RevB.xml

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

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