SPEC® CFP2006 Result

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NEC Corporation

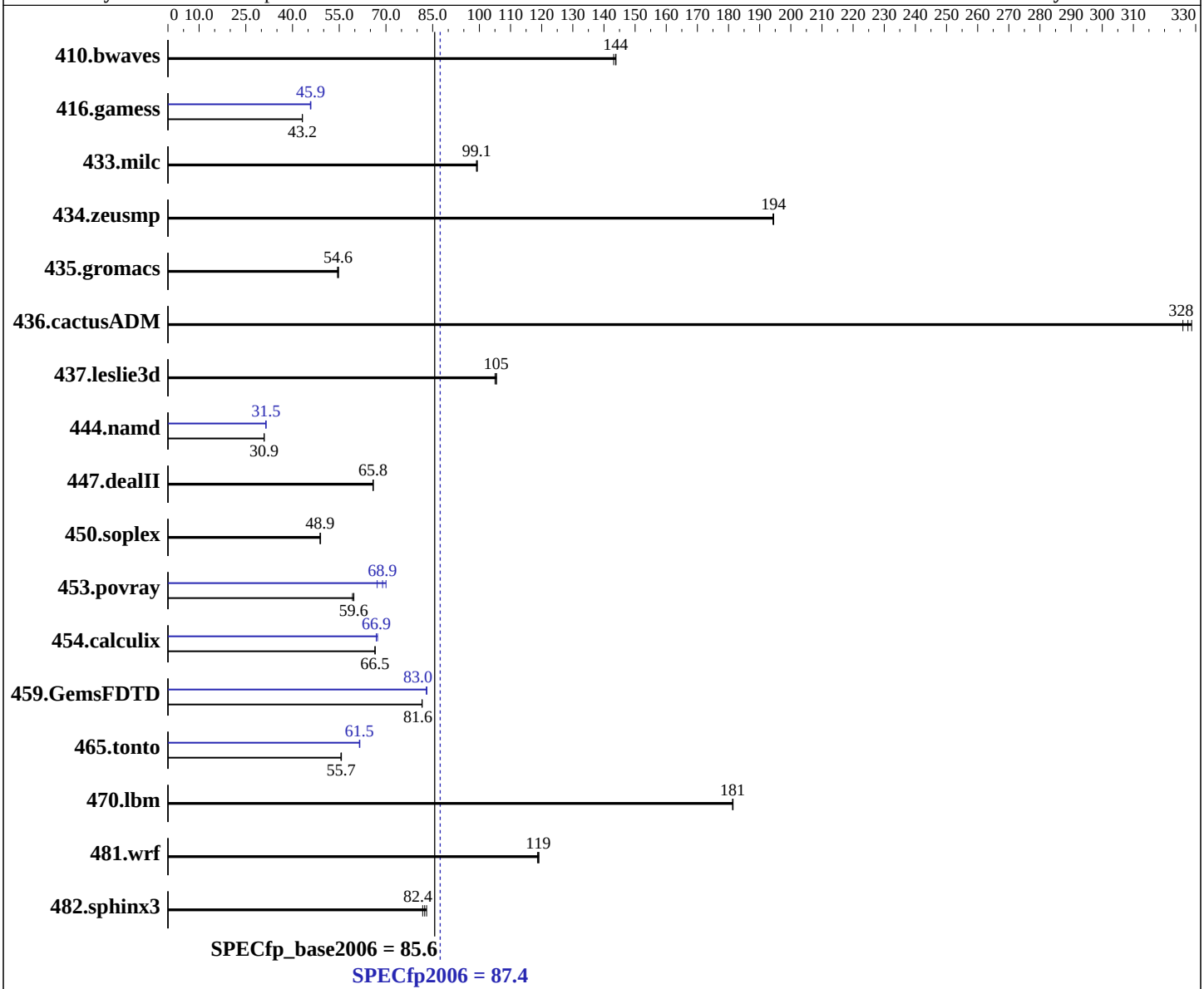
Express5800/T110i-S (Intel Xeon E3-1240L v5)

SPECfp®2006 = 87.4

SPECfp_base2006 = 85.6

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

Test date: Apr-2017
Hardware Availability: Apr-2017
Software Availability: Jan-2017



Hardware

CPU Name:	Intel Xeon E3-1240L v5
CPU Characteristics:	Intel Turbo Boost Technology up to 3.20 GHz
CPU MHz:	2100
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

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Software

Operating System:	Red Hat Enterprise Linux Server release 7.3 (Maipo) Kernel 3.10.0-514.6.1.el7.x86_64
Compiler:	C/C++: Version 17.0.0.098 of Intel C/C++ Compiler for Linux; Fortran: Version 17.0.0.098 of Intel Fortran Compiler 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: 32 GB (2 x 16 GB 2Rx8 PC4-2400T-E, running at 2133 MHz)
Disk Subsystem: 1 x 1 TB 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	95.0	143	94.5	144	**94.5**	**144**	95.0	143	94.5	144	**94.5**	**144**
416.gamess	454	43.1	**454**	**43.2**	454	43.2	**427**	**45.9**	427	45.9	428	45.7
433.milc	92.7	99.1	92.4	99.4	**92.6**	**99.1**	92.7	99.1	92.4	99.4	**92.6**	**99.1**
434.zeusmp	46.8	194	46.8	195	**46.8**	**194**	46.8	194	46.8	195	**46.8**	**194**
435.gromacs	130	54.8	**131**	**54.6**	131	54.4	130	54.8	**131**	**54.6**	131	54.4
436.cactusADM	**36.5**	**328**	36.7	326	36.4	329	**36.5**	**328**	36.7	326	36.4	329
437.leslie3d	89.1	106	**89.2**	**105**	89.5	105	89.1	106	**89.2**	**105**	89.5	105
444.namd	260	30.9	**260**	**30.9**	260	30.9	**255**	**31.5**	255	31.5	255	31.5
447.dealII	174	65.8	173	66.0	**174**	**65.8**	174	65.8	173	66.0	**174**	**65.8**
450.soplex	170	49.0	171	48.9	**171**	**48.9**	170	49.0	171	48.9	**171**	**48.9**
453.povray	89.1	59.7	**89.3**	**59.6**	89.8	59.3	76.0	70.0	**77.2**	**68.9**	79.2	67.2
454.calculix	124	66.5	124	66.5	**124**	**66.5**	**123**	**66.9**	123	67.3	123	66.9
459.GemsFDTD	**130**	**81.6**	130	81.6	130	81.6	128	83.0	**128**	**83.0**	128	83.1
465.tonto	177	55.7	177	55.5	**177**	**55.7**	160	61.5	160	61.6	**160**	**61.5**
470.lbm	75.8	181	**75.8**	**181**	75.7	181	75.8	181	**75.8**	**181**	75.7	181
481.wrf	**93.9**	**119**	93.8	119	94.1	119	**93.9**	**119**	93.8	119	94.1	119
482.sphinx3	235	83.1	238	81.8	**236**	**82.4**	235	83.1	238	81.8	**236**	**82.4**

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:
 Power Management Policy: Custom
 Energy Performance: Performance
 Hyper-Threading: Disabled
```

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/sh10.2"
OMP_NUM_THREADS = "4"

 Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM
 memory using Redhat Enterprise Linux 7.2
 Transparent Huge Pages enabled by default.
```

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 -qopt-prefetch`

C++ benchmarks:
`-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch`

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

Benchmarks using both Fortran and C:
`-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch`

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: `basepeak = yes`

470.lbm: `basepeak = yes`

482.sphinx3: `basepeak = yes`

C++ benchmarks:

444.namd: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-xCORE-AVX2`(pass 2)
`-par-num-threads=1`(pass 1) `-ipo`(pass 2) `-O3`(pass 2)
`-no-prec-div`(pass 2) `-fno-alias -auto-ilp32`

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Peak Optimization Flags (Continued)

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2) -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2) -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -unroll2 -inline-level=0 -scalar-rep-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2) -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -unroll2 -inline-level=0 -qopt-prefetch -parallel

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2) -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -inline-calloc -qopt-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

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-ic17.0-official-linux64.html
http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-110i-RevA.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-110i-RevA.xml

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

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