



SPEC[®] CFP2006 Result

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NEC Corporation

SPECfp[®]2006 = **128**

Express5800/R120g-1M (Intel Xeon E5-2667 v4)

SPECfp_base2006 = **123**

CPU2006 license: 9006

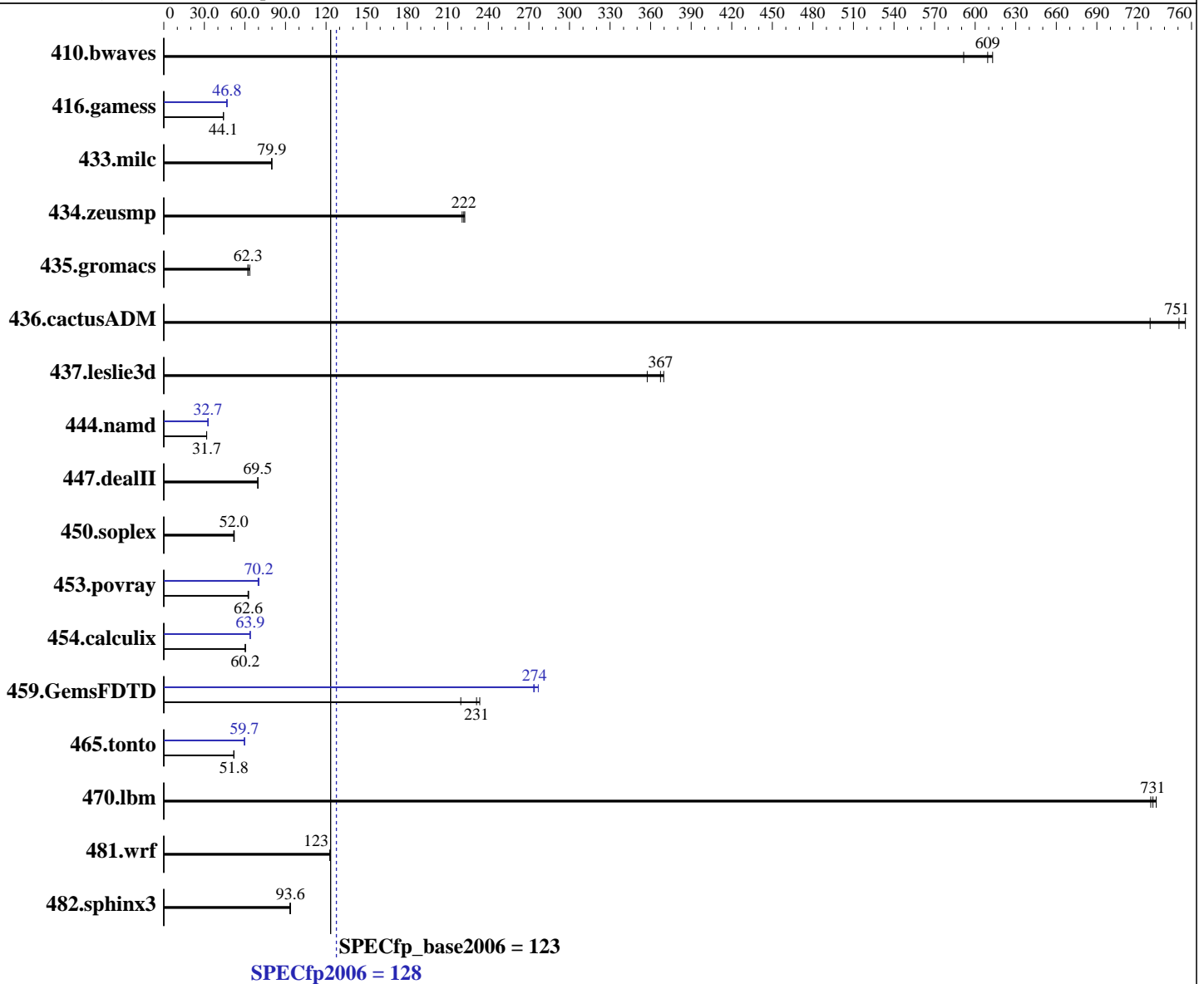
Test date: Apr-2016

Test sponsor: NEC Corporation

Hardware Availability: Apr-2016

Tested by: NEC Corporation

Software Availability: Jan-2016



Hardware

CPU Name: Intel Xeon E5-2667 v4
 CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz
 CPU MHz: 3200
 FPU: Integrated
 CPU(s) enabled: 16 cores, 2 chips, 8 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 7.2 (Maipo)
 Kernel 3.10.0-327.4.5.el7.x86_64
 Compiler: C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux;
 Fortran: Version 16.0.0.101 of Intel Fortran Studio XE for Linux
 Auto Parallel: Yes
 File System: ext4

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L3 Cache: 25 MB I+D on chip per chip
 Other Cache: None
 Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2400T-R)
 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	<u>22.3</u>	<u>609</u>	23.0	592	22.2	613	<u>22.3</u>	<u>609</u>	23.0	592	22.2	613
416.gamess	445	44.0	<u>444</u>	<u>44.1</u>	443	44.2	421	46.5	<u>419</u>	<u>46.8</u>	419	46.8
433.milc	<u>115</u>	<u>79.9</u>	115	79.8	115	79.9	<u>115</u>	<u>79.9</u>	115	79.8	115	79.9
434.zeusmp	<u>41.0</u>	<u>222</u>	41.2	221	40.9	223	<u>41.0</u>	<u>222</u>	41.2	221	40.9	223
435.gromacs	115	62.3	<u>115</u>	<u>62.3</u>	112	63.6	115	62.3	<u>115</u>	<u>62.3</u>	112	63.6
436.cactusADM	16.4	729	15.8	755	<u>15.9</u>	<u>751</u>	16.4	729	15.8	755	<u>15.9</u>	<u>751</u>
437.leslie3d	<u>25.6</u>	<u>367</u>	25.4	370	26.3	358	<u>25.6</u>	<u>367</u>	25.4	370	26.3	358
444.namd	253	31.7	<u>253</u>	<u>31.7</u>	253	31.7	245	32.7	245	32.7	<u>245</u>	<u>32.7</u>
447.dealII	<u>165</u>	<u>69.5</u>	165	69.5	164	69.6	<u>165</u>	<u>69.5</u>	165	69.5	164	69.6
450.soplex	160	52.1	<u>161</u>	<u>52.0</u>	161	51.7	160	52.1	<u>161</u>	<u>52.0</u>	161	51.7
453.povray	85.4	62.3	<u>85.0</u>	<u>62.6</u>	84.9	62.7	<u>75.8</u>	<u>70.2</u>	76.3	69.7	75.7	70.2
454.calculix	137	60.4	137	60.2	<u>137</u>	<u>60.2</u>	129	63.9	129	63.8	<u>129</u>	<u>63.9</u>
459.GemsFDTD	48.3	220	<u>45.9</u>	<u>231</u>	45.4	234	<u>38.7</u>	<u>274</u>	38.3	277	38.8	274
465.tonto	<u>190</u>	<u>51.8</u>	190	51.8	189	52.0	165	59.6	<u>165</u>	<u>59.7</u>	165	59.8
470.lbm	18.7	734	18.8	730	<u>18.8</u>	<u>731</u>	18.7	734	18.8	730	<u>18.8</u>	<u>731</u>
481.wrf	90.7	123	<u>90.8</u>	<u>123</u>	91.0	123	90.7	123	<u>90.8</u>	<u>123</u>	91.0	123
482.sphinx3	209	93.3	<u>208</u>	<u>93.6</u>	208	93.7	209	93.3	<u>208</u>	<u>93.6</u>	208	93.7

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:
 Power Management Policy: Custom
 Energy Performance: Performance
 Patrol Scrub: Disabled
 Snoop Mode: Home Snoop with Directory
 Hyper-Threading: Disabled



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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 = "16"

Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB memory using RedHat EL 7.1

The Express5800/R120g-1M (Intel Xeon E5-2667 v4) and the Express5800/R120g-2M (Intel Xeon E5-2667 v4) models are electronically equivalent. The results have been measured on the Express5800/R120g-2M (Intel Xeon E5-2667 v4) model.

Transparent Huge Pages enabled with:

echo always > /sys/kernel/mm/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.lelie3d: -DSPEC_CPU_LP64
 444.namd: -DSPEC_CPU_LP64
 447.deallI: -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

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Base Portability Flags (Continued)

482.sphinx3: -DSPEC_CPU_LP64

Base Optimization Flags

C benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch
-ansi-alias

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: basepeak = yes

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Peak Optimization Flags (Continued)

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

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

447.dealII: basepeak = yes

450.soplex: basepeak = yes

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

Fortran benchmarks:

410.bwaves: basepeak = yes

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

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

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Peak Optimization Flags (Continued)

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-ic16.0-official-linux64.html>

<http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-120g-RevC.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml>

<http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-120g-RevC.xml>

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