



SPEC® CFP2006 Result

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NEC Corporation

SPECfp®2006 = 58.6

Express5800/R120f-2E (Intel Xeon E5-2603 v3)

SPECfp_base2006 = 56.9

CPU2006 license: 9006

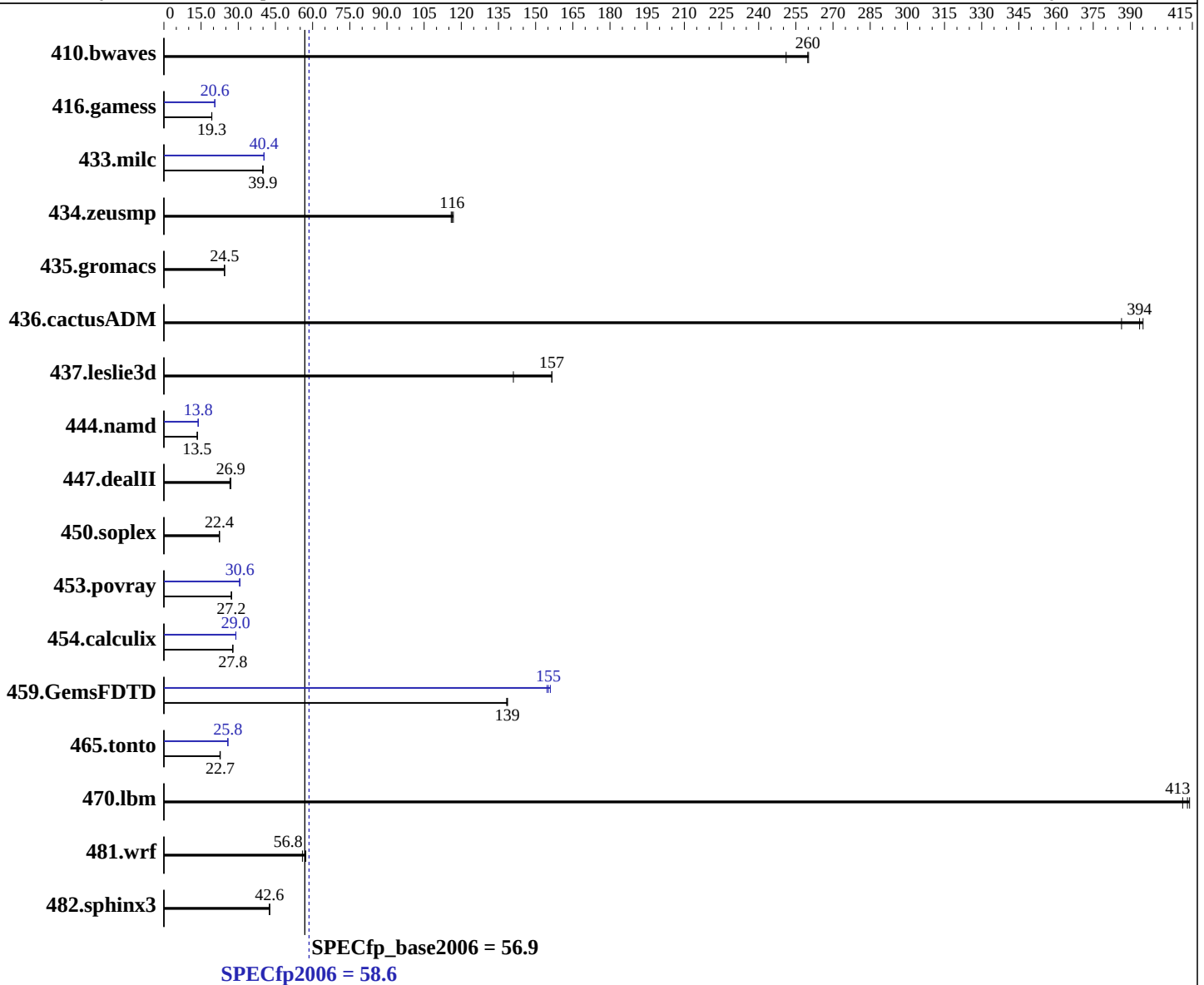
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Feb-2015

Hardware Availability: Jan-2015

Software Availability: Jul-2014



Hardware

CPU Name: Intel Xeon E5-2603 v3
CPU Characteristics:
CPU MHz: 1600
FPU: Integrated
CPU(s) enabled: 12 cores, 2 chips, 6 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

Continued on next page

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

Continued on next page



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L3 Cache: 15 MB I+D on chip per chip
 Other Cache: None
 Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R, running at 1600 MHz)
 Disk Subsystem: 1 x 250 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	54.1	251	<u>52.3</u>	<u>260</u>	52.2	260	54.1	251	<u>52.3</u>	<u>260</u>	52.2	260
416.gamess	1015	19.3	<u>1014</u>	<u>19.3</u>	1012	19.4	952	20.6	953	20.5	<u>953</u>	<u>20.6</u>
433.milc	230	40.0	230	39.9	<u>230</u>	<u>39.9</u>	<u>227</u>	<u>40.4</u>	228	40.3	227	40.5
434.zeusmp	<u>78.2</u>	<u>116</u>	78.5	116	77.9	117	<u>78.2</u>	<u>116</u>	78.5	116	77.9	117
435.gromacs	291	24.5	<u>292</u>	<u>24.5</u>	293	24.4	291	24.5	<u>292</u>	<u>24.5</u>	293	24.4
436.cactusADM	30.9	386	30.2	395	<u>30.4</u>	<u>394</u>	30.9	386	30.2	395	<u>30.4</u>	<u>394</u>
437.leslie3d	66.7	141	60.0	157	<u>60.1</u>	<u>157</u>	66.7	141	60.0	157	<u>60.1</u>	<u>157</u>
444.namd	<u>595</u>	<u>13.5</u>	595	13.5	595	13.5	579	13.8	580	13.8	<u>579</u>	<u>13.8</u>
447.dealII	<u>425</u>	<u>26.9</u>	429	26.6	424	27.0	<u>425</u>	<u>26.9</u>	429	26.6	424	27.0
450.soplex	373	22.4	<u>373</u>	<u>22.4</u>	372	22.4	373	22.4	<u>373</u>	<u>22.4</u>	372	22.4
453.povray	196	27.2	<u>195</u>	<u>27.2</u>	195	27.3	<u>174</u>	<u>30.6</u>	173	30.7	174	30.5
454.calculix	296	27.8	<u>296</u>	<u>27.8</u>	298	27.7	284	29.1	<u>284</u>	<u>29.0</u>	284	29.0
459.GemsFDTD	<u>76.6</u>	<u>139</u>	76.7	138	76.5	139	<u>68.4</u>	<u>155</u>	68.0	156	68.6	155
465.tonto	433	22.7	435	22.6	<u>434</u>	<u>22.7</u>	<u>381</u>	<u>25.8</u>	381	25.8	381	25.8
470.lbm	33.4	411	33.2	414	<u>33.3</u>	<u>413</u>	33.4	411	33.2	414	<u>33.3</u>	<u>413</u>
481.wrf	200	55.9	<u>197</u>	<u>56.8</u>	195	57.3	200	55.9	<u>197</u>	<u>56.8</u>	195	57.3
482.sphinx3	458	42.6	456	42.7	<u>458</u>	<u>42.6</u>	458	42.6	456	42.7	<u>458</u>	<u>42.6</u>

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
 Early Snoop: 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 = "12"

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

Continued on next page

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Page 3



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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: basepeak = yes

C++ benchmarks:

Continued on next page



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Peak Optimization Flags (Continued)

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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