



SPEC® CFP2006 Result

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NEC Corporation

SPECfp®_rate2006 = 139

Express5800/R110f-1E (Intel Xeon E3-1265L v3)

SPECfp_rate_base2006 = 135

CPU2006 license: 9006

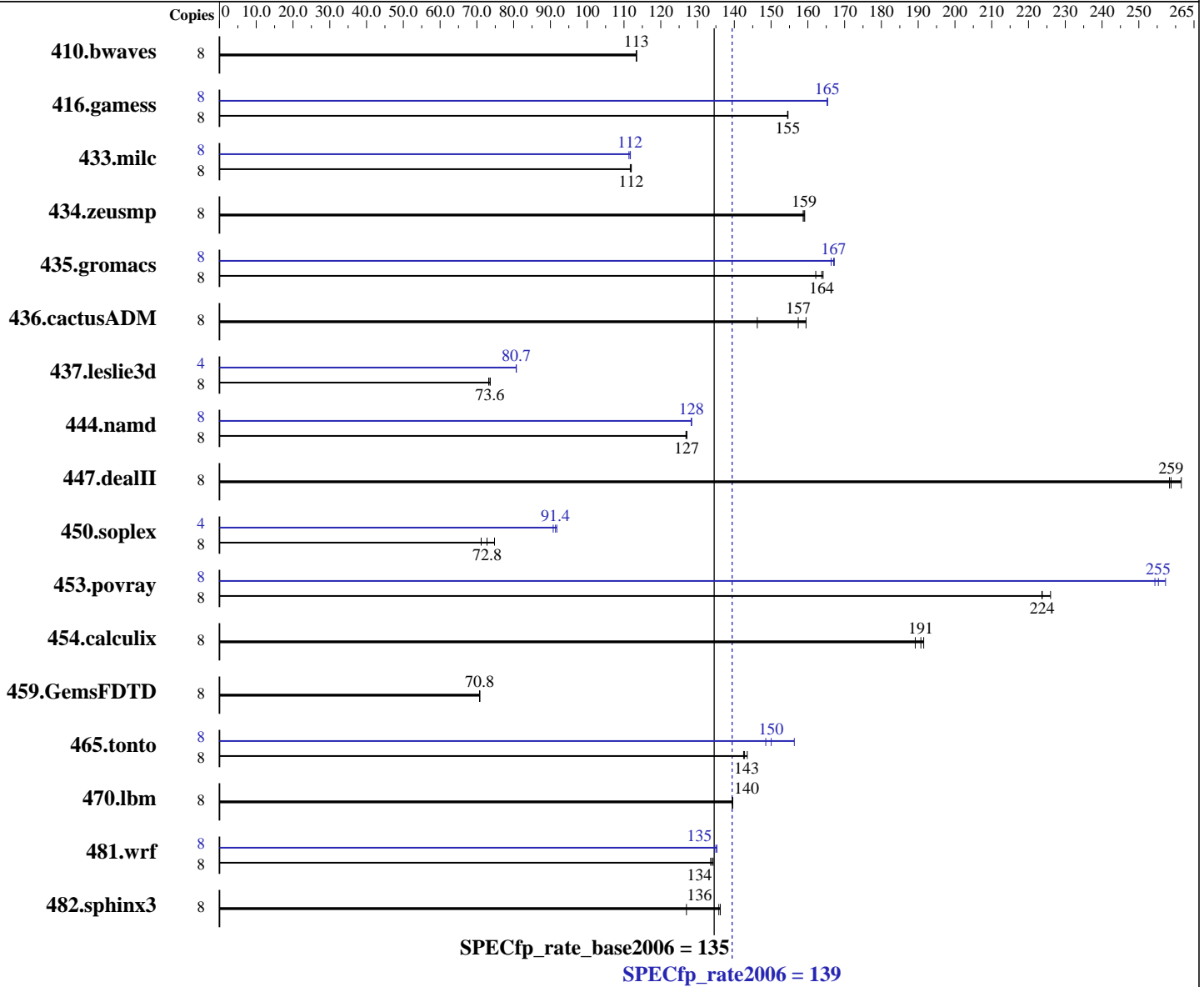
Test date: Jul-2013

Test sponsor: NEC Corporation

Hardware Availability: Jul-2013

Tested by: NEC Corporation

Software Availability: Mar-2013



Hardware

CPU Name: Intel Xeon E3-1265L v3
 CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz
 CPU MHz: 2500
 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

Continued on next page

Software

Operating System: Red Hat Enterprise Linux Server release 6.4 (Santiago)
 Kernel 2.6.32-358.el6.x86_64
 Compiler: C/C++: Version 13.1.1.163 of Intel C++ Studio XE for Linux;
 Fortran: Version 13.1.1.163 of Intel Fortran Studio XE for Linux
 Auto Parallel: No
 File System: ext4

Continued on next page



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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 PC3L-12800E-11, ECC)
 Disk Subsystem: 1 x 250 GB SATA, 7200 RPM
 Other Hardware: None

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

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	958	113	959	113	<u>959</u>	<u>113</u>	8	958	113	959	113	<u>959</u>	<u>113</u>
416.gamess	8	<u>1013</u>	<u>155</u>	1014	154	1013	155	8	947	165	948	165	<u>948</u>	<u>165</u>
433.milc	8	656	112	<u>656</u>	<u>112</u>	657	112	8	660	111	657	112	<u>658</u>	<u>112</u>
434.zeusmp	8	<u>458</u>	<u>159</u>	457	159	459	159	8	<u>458</u>	<u>159</u>	457	159	459	159
435.gromacs	8	352	162	<u>349</u>	<u>164</u>	348	164	8	343	166	<u>342</u>	<u>167</u>	342	167
436.cactusADM	8	<u>607</u>	<u>157</u>	599	160	654	146	8	<u>607</u>	<u>157</u>	599	160	654	146
437.leslie3d	8	<u>1022</u>	<u>73.6</u>	1021	73.6	1027	73.2	4	<u>466</u>	<u>80.7</u>	466	80.7	466	80.7
444.namd	8	506	127	505	127	<u>505</u>	<u>127</u>	8	<u>500</u>	<u>128</u>	500	128	500	128
447.dealII	8	350	262	354	258	<u>354</u>	<u>259</u>	8	350	262	354	258	<u>354</u>	<u>259</u>
450.soplex	8	937	71.2	892	74.8	<u>917</u>	<u>72.8</u>	4	<u>365</u>	<u>91.4</u>	364	91.7	368	90.8
453.povray	8	190	224	<u>190</u>	<u>224</u>	188	226	8	<u>167</u>	<u>255</u>	167	254	165	257
454.calculix	8	349	189	345	192	<u>346</u>	<u>191</u>	8	349	189	345	192	<u>346</u>	<u>191</u>
459.GemsFDTD	8	<u>1199</u>	<u>70.8</u>	1199	70.8	1200	70.7	8	<u>1199</u>	<u>70.8</u>	1199	70.8	1200	70.7
465.tonto	8	552	143	548	144	<u>551</u>	<u>143</u>	8	<u>525</u>	<u>150</u>	530	149	504	156
470.lbm	8	<u>788</u>	<u>140</u>	788	139	788	140	8	<u>788</u>	<u>140</u>	788	139	788	140
481.wrf	8	666	134	669	134	<u>667</u>	<u>134</u>	8	663	135	<u>661</u>	<u>135</u>	661	135
482.sphinx3	8	<u>1148</u>	<u>136</u>	1228	127	1145	136	8	<u>1148</u>	<u>136</u>	1228	127	1145	136

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

Platform Notes

BIOS Settings:
Energy Performance: Performance



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General Notes

Environment variables set by runspec before the start of the run:

LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh"

Added glibc-static-2.12-1.107.el6.x86_64.rpm
to enable static linking

Transparent Huge Pages enabled with:

echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled

Filesystem page cache cleared with:

echo 1> /proc/sys/vm/drop_caches

runspec command invoked through numactl i.e.:

numactl --interleave=all runspec <etc>

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



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Base Optimization Flags

C benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

C++ benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

Fortran benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -static -opt-prefetch

Benchmarks using both Fortran and C:

-xCORE-AVX2 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

Peak Compiler Invocation

C benchmarks:

icc -m64

C++ benchmarks (except as noted below):

icpc -m64

450.soplex: icpc -m32

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

Peak 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
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64

Continued on next page



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Peak Portability Flags (Continued)

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

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)
 -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -static
 -auto-ilp32

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)
 -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -fno-alias
 -auto-ilp32

447.dealIII: basepeak = yes

450.soplex: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
 -O3(pass 2) -no-prec-div(pass 2)
 -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2)
 -opt-malloc-options=3

453.povray: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
 -O3(pass 2) -no-prec-div(pass 2)
 -opt-mem-layout-trans=3(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

Continued on next page



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Peak Optimization Flags (Continued)

437.leslie3d: -xCORE-AVX2 -ipo -O3 -no-prec-div -static -opt-prefetch

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) -unroll4
-auto -inline-calloc -opt-malloc-options=3

Benchmarks using both Fortran and C:

435.gromacs: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2)
-opt-mem-layout-trans=3(pass 2) -prof-use(pass 2)
-opt-prefetch -static -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: -xCORE-AVX2 -ipo -O3 -no-prec-div -static -auto-ilp32

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic13-official-linux64.20130702.html>
<http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-R120d-RevA.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic13-official-linux64.20130702.xml>
<http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-R120d-RevA.xml>

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Tested with SPEC CPU2006 v1.2.
Report generated on Thu Jul 24 15:56:13 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 10 September 2013.