



SPEC[®] CFP2006 Result

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Supermicro

SuperServer 6028R-TR
(X10DRi , Intel Xeon E5-2695 v3)

SPECfp[®]_rate2006 = 815

SPECfp_rate_base2006 = 790

CPU2006 license: 001176

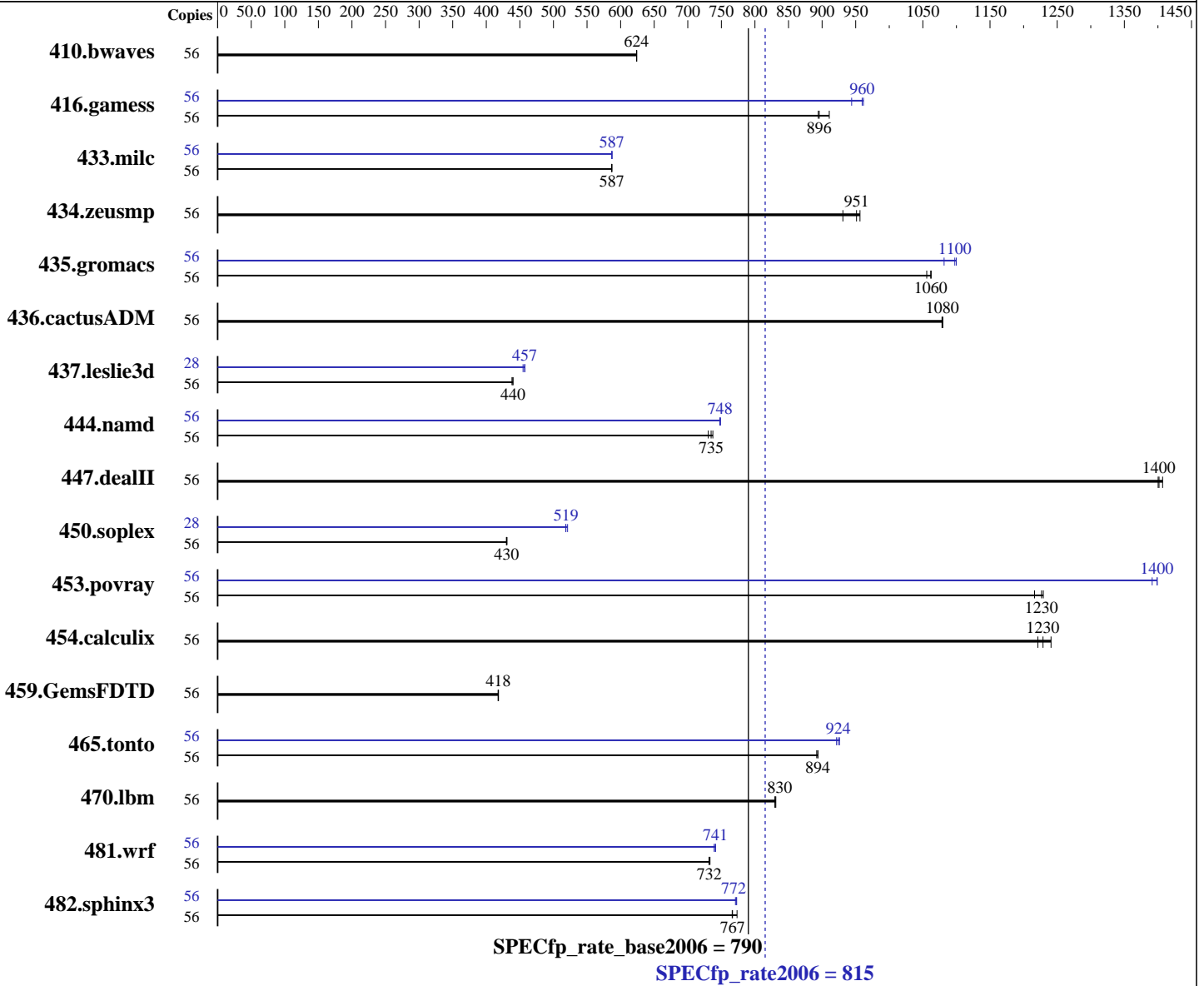
Test sponsor: Supermicro

Tested by: Supermicro

Test date: Oct-2014

Hardware Availability: Sep-2014

Software Availability: Nov-2013



Hardware

CPU Name: Intel Xeon E5-2695 v3
 CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz
 CPU MHz: 2300
 FPU: Integrated
 CPU(s) enabled: 28 cores, 2 chips, 14 cores/chip, 2 threads/core
 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, Kernel 2.6.32-431.el6.x86_64
 Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux;
 Fortran: Version 14.0.0.080 of Intel Fortran Studio XE for Linux
 Auto Parallel: No
 File System: ext4
 System State: Run level 3 (multi-user)

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L3 Cache: 35 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)
Disk Subsystem: 1 x 2000 GB SATA III, 7200 RPM
Other Hardware: None

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	56	1220	624	1220	624	<u>1220</u>	<u>624</u>	56	1220	624	1220	624	<u>1220</u>	<u>624</u>
416.gamess	56	<u>1224</u>	<u>896</u>	1204	911	1226	894	56	<u>1143</u>	<u>960</u>	1140	962	1162	944
433.milc	56	<u>876</u>	<u>587</u>	876	587	876	587	56	876	587	<u>876</u>	<u>587</u>	876	587
434.zeusmp	56	547	931	533	956	<u>536</u>	<u>951</u>	56	547	931	533	956	<u>536</u>	<u>951</u>
435.gromacs	56	379	1060	376	1060	<u>377</u>	<u>1060</u>	56	370	1080	364	1100	<u>364</u>	<u>1100</u>
436.cactusADM	56	<u>620</u>	<u>1080</u>	620	1080	620	1080	56	<u>620</u>	<u>1080</u>	620	1080	620	1080
437.leslie3d	56	1197	440	1201	438	<u>1197</u>	<u>440</u>	28	575	457	579	455	<u>576</u>	<u>457</u>
444.namd	56	609	737	<u>611</u>	<u>735</u>	615	731	56	601	748	<u>600</u>	<u>748</u>	600	749
447.dealII	56	457	1400	455	1410	<u>457</u>	<u>1400</u>	56	457	1400	455	1410	<u>457</u>	<u>1400</u>
450.soplex	56	1086	430	<u>1085</u>	<u>430</u>	1084	431	28	451	518	448	521	<u>450</u>	<u>519</u>
453.povray	56	245	1220	242	1230	<u>243</u>	<u>1230</u>	56	213	1400	<u>213</u>	<u>1400</u>	214	1390
454.calculix	56	372	1240	378	1220	<u>376</u>	<u>1230</u>	56	372	1240	378	1220	<u>376</u>	<u>1230</u>
459.GemsFDTD	56	1421	418	1423	418	<u>1422</u>	<u>418</u>	56	1421	418	1423	418	<u>1422</u>	<u>418</u>
465.tonto	56	<u>617</u>	<u>894</u>	618	892	617	894	56	<u>596</u>	<u>924</u>	595	926	598	921
470.lbm	56	926	831	927	830	<u>927</u>	<u>830</u>	56	926	831	927	830	<u>927</u>	<u>830</u>
481.wrf	56	855	732	853	733	<u>854</u>	<u>732</u>	56	844	741	<u>844</u>	<u>741</u>	846	739
482.sphinx3	56	1411	773	<u>1424</u>	<u>767</u>	1425	766	56	<u>1413</u>	<u>772</u>	1416	771	1412	773

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:
COD Enable = Enabled
Early Snoop = Disabled

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Platform Notes (Continued)

Enforce POR = Disabled

General Notes

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RedHat EL 6.5
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 -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

C++ benchmarks:

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

Fortran benchmarks:

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

Benchmarks using both Fortran and C:

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

Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m64

482.sphinx3: icc -m32

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.deallI: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64

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Peak Portability Flags (Continued)

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

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)
-auto-ilp32
470.lbm: basepeak = yes
482.sphinx3: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-mem-layout-trans=3
-unroll2

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.dealII: 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-

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Peak Optimization Flags (Continued)

434.zeusmp: basepeak = yes

437.leslie3d: -xCORE-AVX2 -ipo -O3 -no-prec-div -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-alloc -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 -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

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

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

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.html>
<http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-V1.2-revD.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml>
<http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-V1.2-revD.xml>

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Tested with SPEC CPU2006 v1.2.
Report generated on Thu Dec 4 10:08:45 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 3 December 2014.