



SPEC[®] CFP2006 Result

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Supermicro

Supermicro SuperServer F627R3-R72B+
(X9DRFR, Intel Xeon E5-2697 v2)

SPECfp[®]2006 = 102

SPECfp_base2006 = 97.1

CPU2006 license: 001176

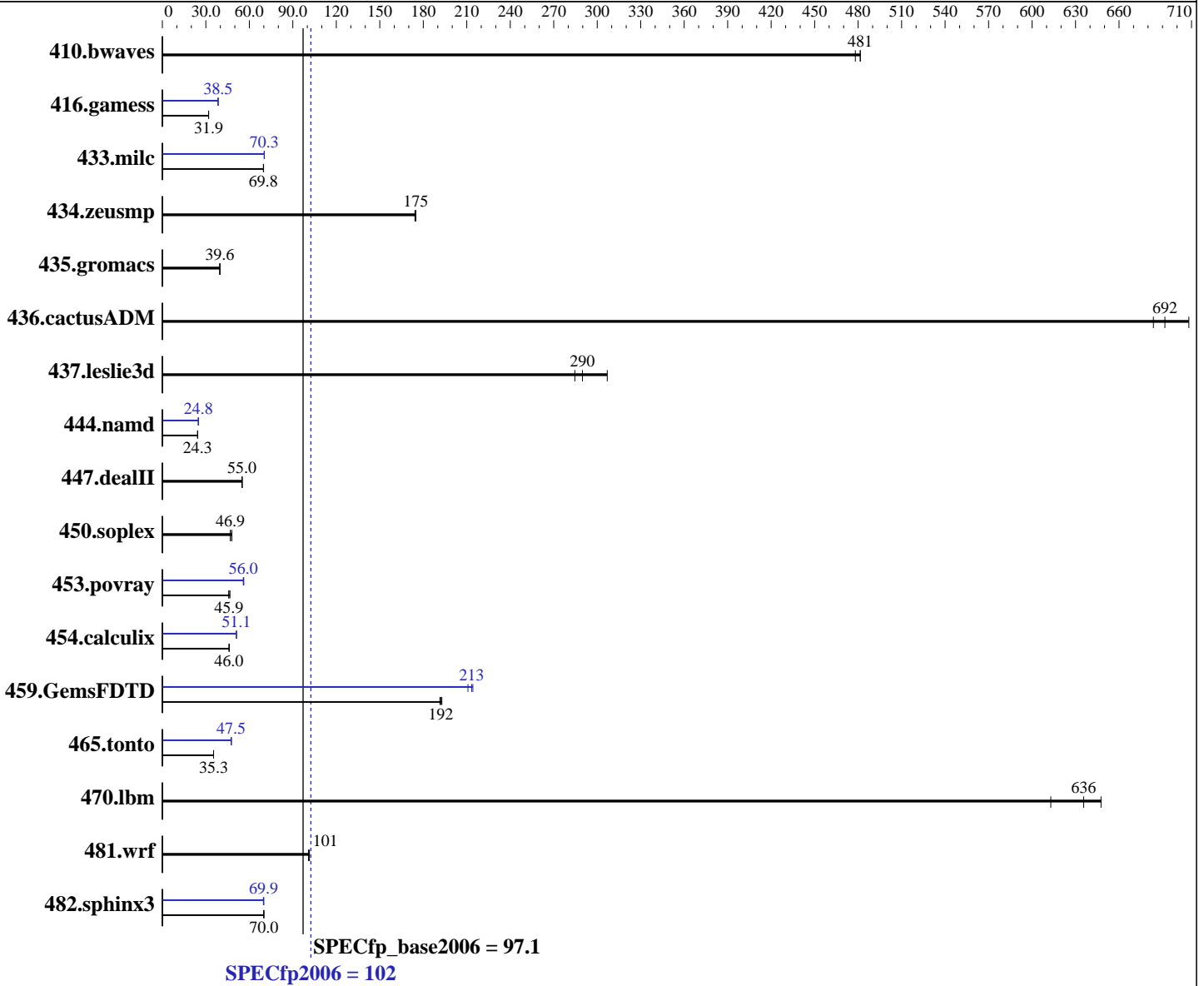
Test sponsor: Supermicro

Tested by: Supermicro

Test date: Oct-2013

Hardware Availability: Sep-2013

Software Availability: Sep-2013



Hardware

CPU Name: Intel Xeon E5-2697 v2
 CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz
 CPU MHz: 2700
 FPU: Integrated
 CPU(s) enabled: 24 cores, 2 chips, 12 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 6.4, Kernel 2.6.32-358.18.1.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: Yes
 File System: ext4
 System State: Run level 3 (multi-user)

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L3 Cache: 30 MB I+D on chip per chip
Other Cache: None
Memory: 128 GB (16 x 8 GB 2Rx8 PC3-14900R-13, ECC)
Disk Subsystem: 1 x 500 GB SATA II, 7200 RPM
Other Hardware: None

Base Pointers: 32/64-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	28.2	482	<u>28.2</u>	<u>481</u>	28.4	478	28.2	482	<u>28.2</u>	<u>481</u>	28.4	478
416.gamess	<u>613</u>	<u>31.9</u>	614	31.9	613	31.9	510	38.4	<u>509</u>	<u>38.5</u>	509	38.5
433.milc	131	69.8	132	69.7	<u>132</u>	<u>69.8</u>	131	70.3	131	70.3	<u>131</u>	<u>70.3</u>
434.zeusmp	<u>52.0</u>	<u>175</u>	52.0	175	52.2	174	<u>52.0</u>	<u>175</u>	52.0	175	52.2	174
435.gromacs	180	39.6	<u>180</u>	<u>39.6</u>	180	39.7	180	39.6	<u>180</u>	<u>39.6</u>	180	39.7
436.cactusADM	17.5	684	16.9	708	<u>17.3</u>	<u>692</u>	17.5	684	16.9	708	<u>17.3</u>	<u>692</u>
437.leslie3d	<u>32.4</u>	<u>290</u>	30.6	307	33.0	285	<u>32.4</u>	<u>290</u>	30.6	307	33.0	285
444.namd	330	24.3	<u>330</u>	<u>24.3</u>	329	24.3	<u>323</u>	<u>24.8</u>	323	24.8	323	24.8
447.dealII	<u>208</u>	<u>55.0</u>	208	55.0	208	55.0	<u>208</u>	<u>55.0</u>	208	55.0	208	55.0
450.soplex	<u>178</u>	<u>46.9</u>	178	46.9	174	47.9	<u>178</u>	<u>46.9</u>	178	46.9	174	47.9
453.povray	116	45.8	<u>116</u>	<u>45.9</u>	114	46.6	95.3	55.9	<u>95.1</u>	<u>56.0</u>	94.7	56.2
454.calculix	179	46.2	<u>179</u>	<u>46.0</u>	179	46.0	161	51.1	162	51.0	<u>161</u>	<u>51.1</u>
459.GemsFDTD	55.0	193	<u>55.2</u>	<u>192</u>	55.4	191	50.3	211	49.5	214	<u>49.7</u>	<u>213</u>
465.tonto	<u>279</u>	<u>35.3</u>	278	35.4	279	35.3	207	47.6	<u>207</u>	<u>47.5</u>	207	47.5
470.lbm	<u>21.6</u>	<u>636</u>	21.2	648	22.4	613	<u>21.6</u>	<u>636</u>	21.2	648	22.4	613
481.wrf	<u>110</u>	<u>101</u>	110	102	111	101	<u>110</u>	<u>101</u>	110	102	111	101
482.sphinx3	278	70.1	279	69.9	<u>278</u>	<u>70.0</u>	280	69.7	279	69.9	<u>279</u>	<u>69.9</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

Disable Hyper-threading, C1E Support, DRAM RAPL Mode, Demand Scrub, Double Refresh.
Set Package C-state Limit to C0

General Notes

Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact,0,1"
LD_LIBRARY_PATH = "/usr/cpu2006/libs/32:/usr/cpu2006/libs/64:/usr/cpu2006/sh"
OMP_NUM_THREADS = "24"

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General Notes (Continued)

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
memory using RedHat EL 6.4
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
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

Base Optimization Flags

C benchmarks:

-xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch -ansi-alias

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Base Optimization Flags (Continued)

C++ benchmarks:

`-xAVX -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias`

Fortran benchmarks:

`-xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch`

Benchmarks using both Fortran and C:

`-xAVX -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: `-xAVX(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: `-xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias
-parallel`

C++ benchmarks:

444.namd: `-xAVX(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`

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Peak Optimization Flags (Continued)

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xAVX(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: -xAVX(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: -xAVX(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: -xAVX(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: -xAVX -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-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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