



SPEC[®] CFP2006 Result

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Supermicro

SuperServer 6028TP-HTR
(X10DRT-P, Intel Xeon E5-2620 v3)

SPECfp[®]2006 = 100

SPECfp_base2006 = 95.3

CPU2006 license: 001176

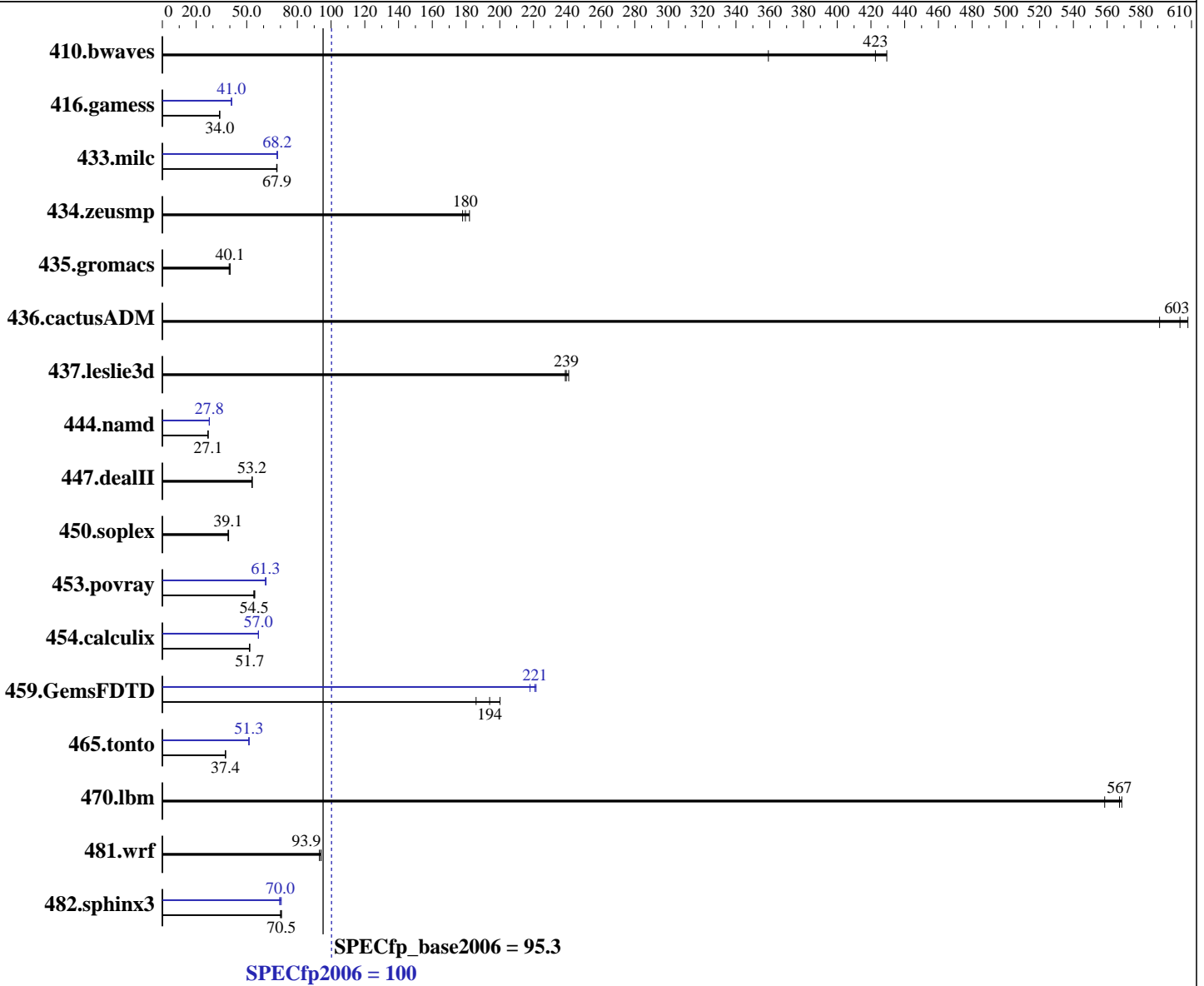
Test sponsor: Supermicro

Tested by: Supermicro

Test date: Nov-2014

Hardware Availability: Sep-2014

Software Availability: Sep-2014



Hardware

CPU Name: Intel Xeon E5-2620 v3
 CPU Characteristics: Intel Turbo Boost Technology up to 3.20 GHz
 CPU MHz: 2400
 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

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Software

Operating System: Red Hat Enterprise Linux Server release 7.0, Kernel 3.10.0-123.el7.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
 System State: Run level 3 (multi-user)

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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)
Disk Subsystem: 1 x 2000 GB SATA III, 7200 RPM
Other Hardware: None

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	37.8	359	31.6	429	<u>32.2</u>	<u>423</u>	37.8	359	31.6	429	<u>32.2</u>	<u>423</u>
416.gamess	<u>576</u>	<u>34.0</u>	576	34.0	579	33.8	477	41.0	<u>478</u>	<u>41.0</u>	478	41.0
433.milc	135	68.0	<u>135</u>	<u>67.9</u>	136	67.7	135	68.2	<u>135</u>	<u>68.2</u>	135	68.0
434.zeusmp	<u>50.7</u>	<u>180</u>	51.1	178	50.0	182	<u>50.7</u>	<u>180</u>	51.1	178	50.0	182
435.gromacs	178	40.1	180	39.6	<u>178</u>	<u>40.1</u>	178	40.1	180	39.6	<u>178</u>	<u>40.1</u>
436.cactusADM	<u>19.8</u>	<u>603</u>	20.2	591	19.7	608	<u>19.8</u>	<u>603</u>	20.2	591	19.7	608
437.leslie3d	39.0	241	39.4	239	<u>39.3</u>	<u>239</u>	39.0	241	39.4	239	<u>39.3</u>	<u>239</u>
444.namd	296	27.1	<u>296</u>	<u>27.1</u>	296	27.1	288	27.8	288	27.8	<u>288</u>	<u>27.8</u>
447.dealII	215	53.2	215	53.2	<u>215</u>	<u>53.2</u>	215	53.2	215	53.2	<u>215</u>	<u>53.2</u>
450.soplex	<u>214</u>	<u>39.1</u>	212	39.3	214	39.0	<u>214</u>	<u>39.1</u>	212	39.3	214	39.0
453.povray	<u>97.6</u>	<u>54.5</u>	97.1	54.8	98.1	54.2	86.6	61.5	87.0	61.1	<u>86.9</u>	<u>61.3</u>
454.calculix	159	51.8	<u>159</u>	<u>51.7</u>	160	51.6	145	57.0	<u>145</u>	<u>57.0</u>	145	56.9
459.GemsFDTD	53.0	200	<u>54.7</u>	<u>194</u>	57.1	186	<u>48.1</u>	<u>221</u>	47.9	222	48.7	218
465.tonto	263	37.4	<u>263</u>	<u>37.4</u>	263	37.4	191	51.4	<u>192</u>	<u>51.3</u>	192	51.3
470.lbm	24.6	559	24.2	569	<u>24.2</u>	<u>567</u>	24.6	559	24.2	569	<u>24.2</u>	<u>567</u>
481.wrf	119	94.1	120	93.0	<u>119</u>	<u>93.9</u>	119	94.1	120	93.0	<u>119</u>	<u>93.9</u>
482.sphinx3	<u>276</u>	<u>70.5</u>	276	70.6	278	70.0	277	70.5	<u>279</u>	<u>70.0</u>	280	69.5

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:
Hyper Threading (All) = Disable
Early Snoop = Disable
Enforce POR = Disabled



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General Notes

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

KMP_AFFINITY = "granularity=fine,compact,0,1"

LD_LIBRARY_PATH = "/home/spec2k6/SPEC2006-V12/libs/32:/home/spec2k6/SPEC2006-V12/libs/64:/home/spec2k6/SPEC2006-V12/sh"

OMP_NUM_THREADS = "12"

Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB memory using RedHat EL 7.0

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.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 -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: -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: -xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -ansi-alias
-parallel

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Peak Optimization Flags (Continued)

C++ benchmarks:

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.dealIII: 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/Supermicro-Platform-Settings-V1.2-revE.html>



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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/Supermicro-Platform-Settings-V1.2-revE.xml>

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