



# SPEC<sup>®</sup> CFP2006 Result

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## Supermicro

SuperServer 6027R-WRF (X9DRW-iF, Intel Xeon E5-2640)

SPECfp<sup>®</sup>2006 = **75.0**

SPECfp\_base2006 = **71.7**

CPU2006 license: 001176

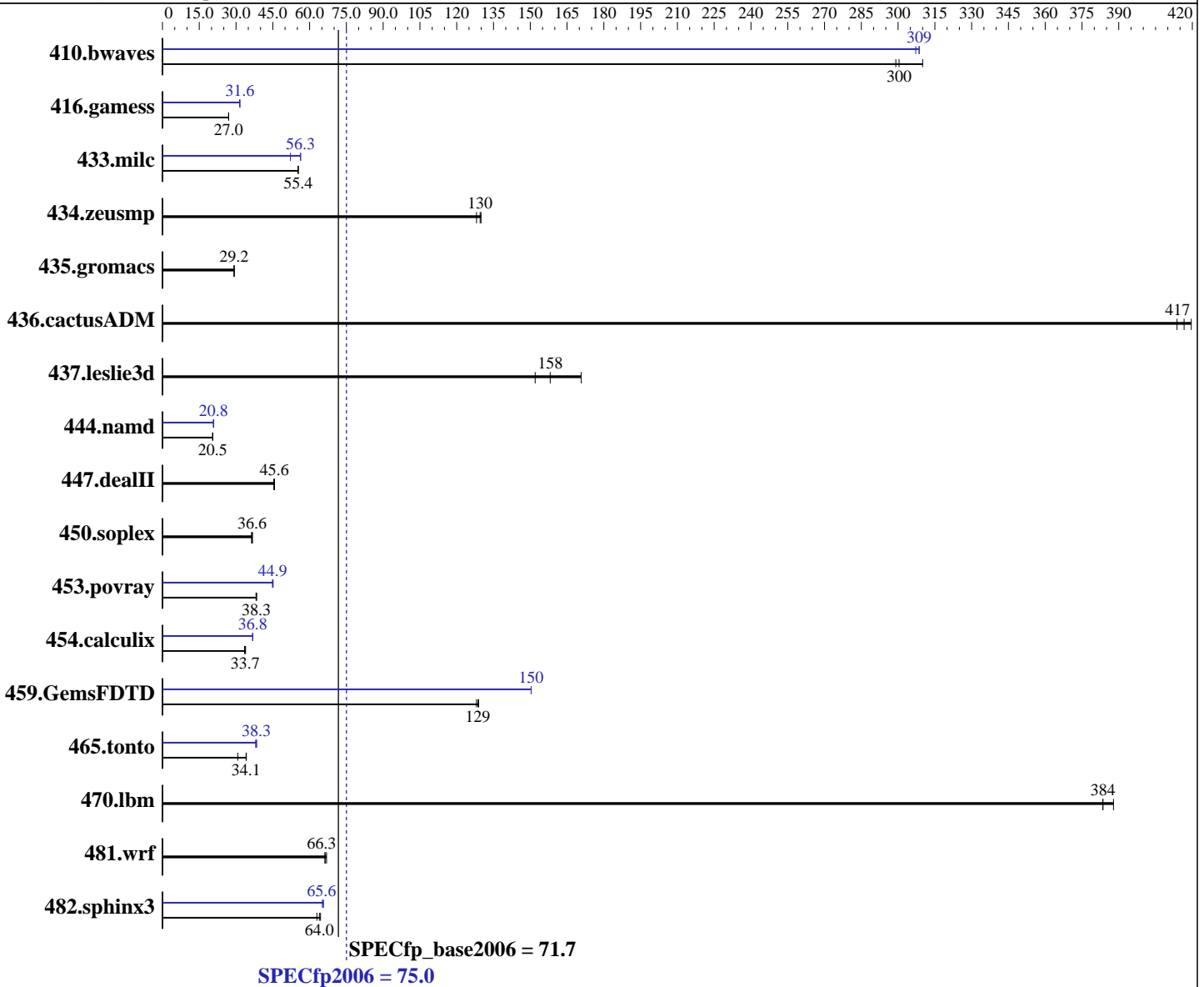
Test sponsor: Supermicro

Tested by: Supermicro

Test date: Mar-2012

Hardware Availability: Mar-2011

Software Availability: Dec-2011



### Hardware

CPU Name: Intel Xeon E5-2640  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.00 GHz  
 CPU MHz: 2500  
 FPU: Integrated  
 CPU(s) enabled: 12 cores, 2 chips, 6 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 6.2, Kernel 2.6.32-220.el6.x86\_64  
 Compiler: C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux;  
 Fortran: Version 12.1.0.225 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: 128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC)  
Disk Subsystem: 1 x 1 TB SATA II, 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	43.8	310	<b>45.2</b>	<b>300</b>	45.4	299	44.2	307	44.0	309	<b>44.0</b>	<b>309</b>
416.gamess	727	26.9	725	27.0	<b>725</b>	<b>27.0</b>	622	31.5	<b>621</b>	<b>31.6</b>	621	31.6
433.milc	166	55.4	<b>166</b>	<b>55.4</b>	166	55.3	176	52.2	163	56.3	<b>163</b>	<b>56.3</b>
434.zeusmp	71.0	128	70.0	130	<b>70.2</b>	<b>130</b>	71.0	128	70.0	130	<b>70.2</b>	<b>130</b>
435.gromacs	244	29.3	<b>244</b>	<b>29.2</b>	245	29.2	244	29.3	<b>244</b>	<b>29.2</b>	245	29.2
436.cactusADM	<b>28.7</b>	<b>417</b>	28.9	414	28.5	420	<b>28.7</b>	<b>417</b>	28.9	414	28.5	420
437.leslie3d	61.8	152	<b>59.4</b>	<b>158</b>	55.0	171	61.8	152	<b>59.4</b>	<b>158</b>	55.0	171
444.namd	<b>391</b>	<b>20.5</b>	392	20.5	391	20.5	386	20.8	385	20.8	<b>386</b>	<b>20.8</b>
447.dealII	<b>251</b>	<b>45.6</b>	250	45.7	252	45.4	<b>251</b>	<b>45.6</b>	250	45.7	252	45.4
450.soplex	<b>228</b>	<b>36.6</b>	227	36.7	230	36.3	<b>228</b>	<b>36.6</b>	227	36.7	230	36.3
453.povray	<b>139</b>	<b>38.3</b>	139	38.1	139	38.4	118	45.1	<b>118</b>	<b>44.9</b>	119	44.9
454.calculix	<b>245</b>	<b>33.7</b>	246	33.5	243	33.9	224	36.8	224	36.8	<b>224</b>	<b>36.8</b>
459.GemsFDTD	82.9	128	<b>82.5</b>	<b>129</b>	82.3	129	<b>70.6</b>	<b>150</b>	70.6	150	70.6	150
465.tonto	288	34.2	320	30.7	<b>289</b>	<b>34.1</b>	256	38.4	259	38.0	<b>257</b>	<b>38.3</b>
470.lbm	35.4	388	<b>35.8</b>	<b>384</b>	35.8	384	35.4	388	<b>35.8</b>	<b>384</b>	35.8	384
481.wrf	169	66.3	<b>168</b>	<b>66.3</b>	167	66.9	169	66.3	<b>168</b>	<b>66.3</b>	167	66.9
482.sphinx3	309	63.0	<b>305</b>	<b>64.0</b>	302	64.5	<b>297</b>	<b>65.6</b>	297	65.6	299	65.2

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"

## General Notes

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

KMP\_AFFINITY = "granularity=fine,scatter"

LD\_LIBRARY\_PATH = "/home/test/cpu2006/libs/32:/home/test/cpu2006/libs/64"

OMP\_NUM\_THREADS = "12"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RHEL5.5

Transparent Huge Pages enabled with:

echo always > /sys/kernel/mm/redhat\_transparent\_hugepage/enabled



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## 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 -static -parallel -opt-prefetch  
-ansi-alias

C++ benchmarks:  
-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias

Fortran benchmarks:  
-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:  
-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch  
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## 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) -static -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

447.dealIII: 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: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -parallel  
-static

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## Peak Optimization Flags (Continued)

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- -static

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 file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml>

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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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