



# SPEC<sup>®</sup> CFP2006 Result

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## Supermicro

SuperServer 7047R-TXRF (X9DRX+-F, Intel Xeon E5-2690)

SPECfp<sup>®</sup>2006 = **90.3**

SPECfp\_base2006 = **85.4**

CPU2006 license: 001176

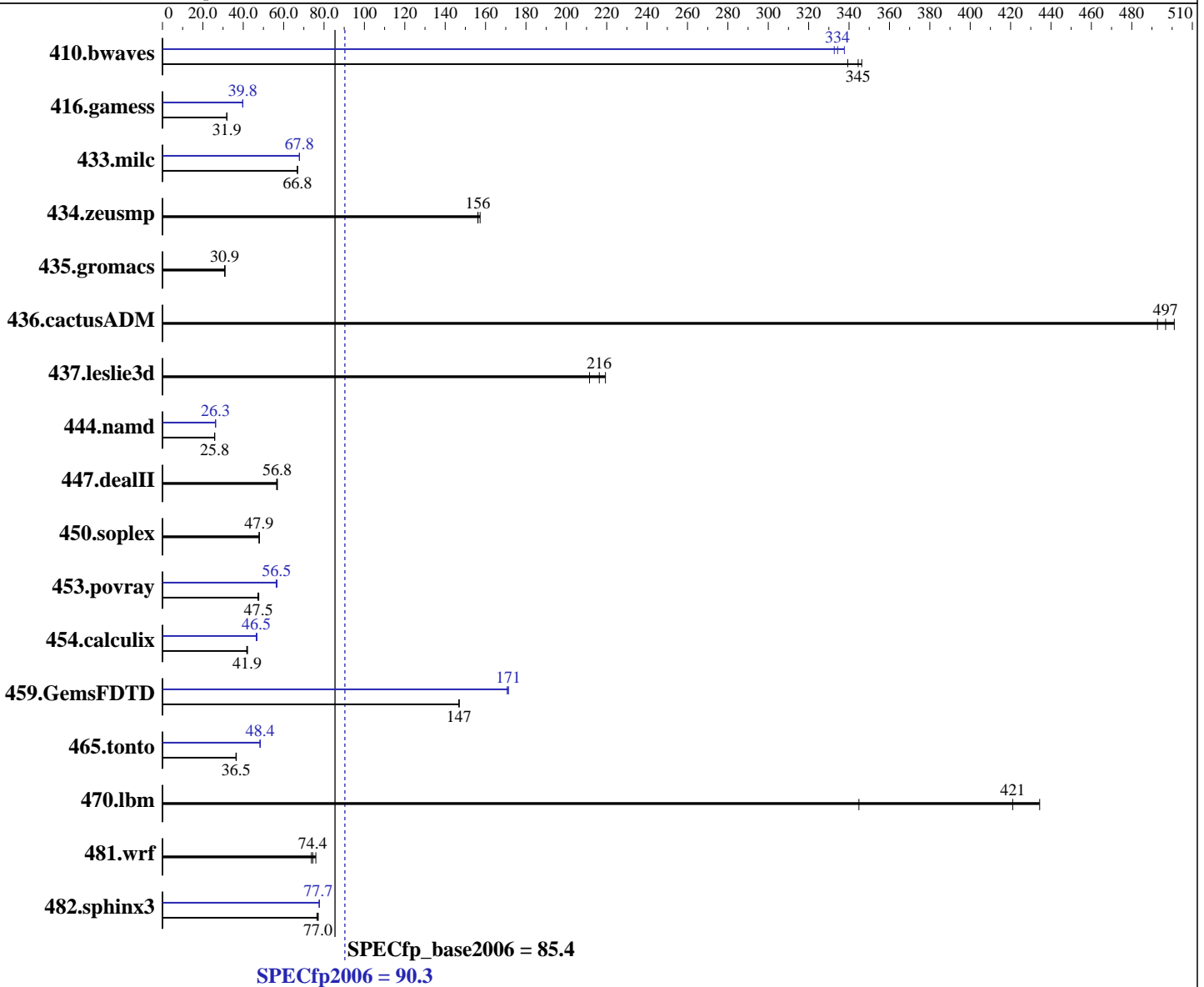
Test sponsor: Supermicro

Tested by: Supermicro

Test date: Apr-2012

Hardware Availability: Mar-2012

Software Availability: Dec-2011



### Hardware

CPU Name: Intel Xeon E5-2690  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.80 GHz  
 CPU MHz: 2900  
 FPU: Integrated  
 CPU(s) enabled: 16 cores, 2 chips, 8 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: ext3  
 System State: Run level 3 (multi-user)

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L3 Cache: 20 MB I+D on chip per chip  
Other Cache: None  
Memory: 256 GB (16 x 16 GB 1Rx4 PC3-12800R-11, ECC)  
Disk Subsystem: 1 x 2 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	<b>39.4</b>	<b>345</b>	40.0	339	39.2	346	<b>40.6</b>	<b>334</b>	40.8	333	40.2	338
416.gamess	<b>615</b>	<b>31.9</b>	615	31.8	612	32.0	493	39.7	492	39.8	<b>492</b>	<b>39.8</b>
433.milc	137	66.8	137	66.9	<b>137</b>	<b>66.8</b>	<b>135</b>	<b>67.8</b>	135	67.9	135	67.8
434.zeusmp	58.2	156	<b>58.2</b>	<b>156</b>	57.8	157	58.2	156	<b>58.2</b>	<b>156</b>	57.8	157
435.gromacs	231	31.0	<b>231</b>	<b>30.9</b>	232	30.8	231	31.0	<b>231</b>	<b>30.9</b>	232	30.8
436.cactusADM	<b>24.1</b>	<b>497</b>	24.3	493	23.8	501	<b>24.1</b>	<b>497</b>	24.3	493	23.8	501
437.leslie3d	<b>43.5</b>	<b>216</b>	42.8	219	44.4	211	<b>43.5</b>	<b>216</b>	42.8	219	44.4	211
444.namd	311	25.8	310	25.9	<b>310</b>	<b>25.8</b>	<b>305</b>	<b>26.3</b>	305	26.3	305	26.3
447.dealII	201	56.9	<b>202</b>	<b>56.8</b>	202	56.5	201	56.9	<b>202</b>	<b>56.8</b>	202	56.5
450.soplex	174	48.0	174	47.9	<b>174</b>	<b>47.9</b>	174	48.0	174	47.9	<b>174</b>	<b>47.9</b>
453.povray	112	47.7	113	47.2	<b>112</b>	<b>47.5</b>	94.5	56.3	<b>94.1</b>	<b>56.5</b>	93.8	56.7
454.calculix	196	42.1	198	41.7	<b>197</b>	<b>41.9</b>	178	46.4	176	46.8	<b>178</b>	<b>46.5</b>
459.GemsFDTD	<b>72.2</b>	<b>147</b>	72.2	147	72.2	147	<b>62.0</b>	<b>171</b>	61.9	171	62.2	171
465.tonto	270	36.4	<b>270</b>	<b>36.5</b>	269	36.6	203	48.5	204	48.2	<b>203</b>	<b>48.4</b>
470.lbm	31.6	434	<b>32.6</b>	<b>421</b>	39.8	345	31.6	434	<b>32.6</b>	<b>421</b>	39.8	345
481.wrf	151	73.7	<b>150</b>	<b>74.4</b>	147	76.0	151	73.7	<b>150</b>	<b>74.4</b>	147	76.0
482.sphinx3	<b>253</b>	<b>77.0</b>	253	77.1	255	76.5	<b>251</b>	<b>77.7</b>	251	77.7	251	77.6

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"  
Transparent Huge Pages enabled with:  
echo always > /sys/kernel/mm/redhat\_transparent\_hugepage/enabled

## General Notes

Environment variables set by runspec before the start of the run:  
KMP\_AFFINITY = "granularity=fine,scatter"  
LD\_LIBRARY\_PATH = "/usr/cpu2006/libs/32:/usr/cpu2006/libs/64"  
OMP\_NUM\_THREADS = "16"

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



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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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