



# SPEC® CFP2006 Result

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## Supermicro

SuperServer F627R2-F72+  
(X9DRFF-7+ , Intel Xeon E5-2690 v2)

SPECfp®\_rate2006 = 655

SPECfp\_rate\_base2006 = 639

CPU2006 license: 001176

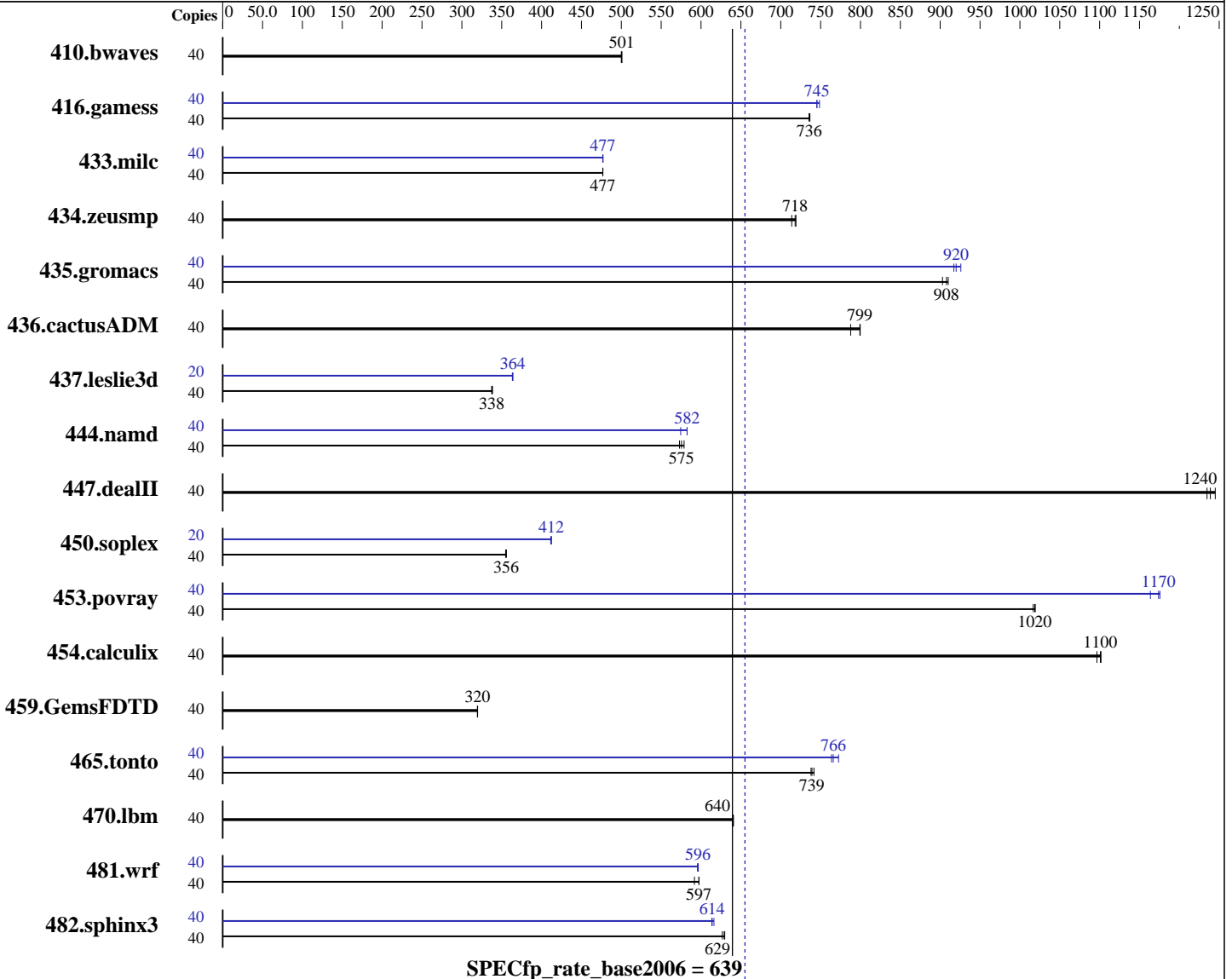
Test sponsor: Supermicro

Tested by: Supermicro

Test date: Oct-2013

Hardware Availability: Sep-2013

Software Availability: Oct-2013



### Hardware

CPU Name: Intel Xeon E5-2690 v2  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz  
 CPU MHz: 3000  
 FPU: Integrated  
 CPU(s) enabled: 20 cores, 2 chips, 10 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 6.4, Kernel 2.6.32-358.23.2.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: 25 MB I+D on chip per chip  
Other Cache: None  
Memory: 128 GB (16 x 8 GB 2Rx4 PC3-14900R-13, ECC)  
Disk Subsystem: 1 x 512 GB SATA III, SSD  
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	40	1086	501	<b><u>1086</u></b>	<b><u>501</u></b>	1087	500	40	1086	501	<b><u>1086</u></b>	<b><u>501</u></b>	1087	500
416.gamess	40	1065	735	1063	737	<b><u>1064</u></b>	<b><u>736</u></b>	40	1046	749	1051	745	<b><u>1051</u></b>	<b><u>745</u></b>
433.milc	40	770	477	770	477	<b><u>770</u></b>	<b><u>477</u></b>	40	770	477	<b><u>770</u></b>	<b><u>477</u></b>	770	477
434.zeusmp	40	<b><u>507</u></b>	<b><u>718</u></b>	510	714	506	719	40	<b><u>507</u></b>	<b><u>718</u></b>	510	714	506	719
435.gromacs	40	314	910	316	903	<b><u>315</u></b>	<b><u>908</u></b>	40	311	917	308	926	<b><u>310</u></b>	<b><u>920</u></b>
436.cactusADM	40	598	800	607	788	<b><u>598</u></b>	<b><u>799</u></b>	40	598	800	607	788	<b><u>598</u></b>	<b><u>799</u></b>
437.leslie3d	40	1111	338	1114	338	<b><u>1114</u></b>	<b><u>338</u></b>	20	517	363	516	364	<b><u>517</u></b>	<b><u>364</u></b>
444.namd	40	<b><u>557</u></b>	<b><u>575</u></b>	560	573	554	579	40	<b><u>551</u></b>	<b><u>582</u></b>	551	583	558	574
447.dealII	40	368	1250	371	1230	<b><u>369</u></b>	<b><u>1240</u></b>	40	368	1250	371	1230	<b><u>369</u></b>	<b><u>1240</u></b>
450.soplex	40	938	356	940	355	<b><u>938</u></b>	<b><u>356</u></b>	20	<b><u>405</u></b>	<b><u>412</u></b>	404	412	405	411
453.povray	40	209	1020	209	1020	<b><u>209</u></b>	<b><u>1020</u></b>	40	<b><u>181</u></b>	<b><u>1170</u></b>	183	1160	181	1180
454.calculix	40	<b><u>300</u></b>	<b><u>1100</u></b>	300	1100	301	1100	40	<b><u>300</u></b>	<b><u>1100</u></b>	300	1100	301	1100
459.GemsFDTD	40	1329	319	<b><u>1328</u></b>	<b><u>320</u></b>	1327	320	40	1329	319	<b><u>1328</u></b>	<b><u>320</u></b>	1327	320
465.tonto	40	531	742	<b><u>532</u></b>	<b><u>739</u></b>	533	738	40	510	772	515	764	<b><u>514</u></b>	<b><u>766</u></b>
470.lbm	40	858	641	859	640	<b><u>859</u></b>	<b><u>640</u></b>	40	858	641	859	640	<b><u>859</u></b>	<b><u>640</u></b>
481.wrf	40	748	597	755	592	<b><u>748</u></b>	<b><u>597</u></b>	40	750	596	<b><u>749</u></b>	<b><u>596</u></b>	749	597
482.sphinx3	40	1244	627	1238	630	<b><u>1239</u></b>	<b><u>629</u></b>	40	1271	614	1265	616	<b><u>1270</u></b>	<b><u>614</u></b>

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"

## General Notes

Environment variables set by runspec before the start of the run:  
LD\_LIBRARY\_PATH = "/home/cpu/libs/32:/home/cpu/libs/64:/home/cpu/sh"

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**Tested by:** Supermicro

**Test date:** Oct-2013  
**Hardware Availability:** Sep-2013  
**Software Availability:** Oct-2013

### 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  
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.deallI: -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:

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

### C++ benchmarks:

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

### Fortran benchmarks:

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

### Benchmarks using both Fortran and C:

-xAVX -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.deall: -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: -xAVX(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: -xAVX -ipo -O3 -no-prec-div -opt-mem-layout-trans=3  
-unroll2

C++ benchmarks:

444.namd: -xAVX(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.dealIII: basepeak = yes

450.soplex: -xAVX(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: -xAVX(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: -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: -xAVX -ipo -O3 -no-prec-div -opt-prefetch

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## Peak Optimization Flags (Continued)

459.GemsFDTD: basepeak = yes

465.tonto: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -auto  
-inline-calloc -opt-malloc-options=3

Benchmarks using both Fortran and C:

435.gromacs: -xAVX(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: -xAVX -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-revB.20130719.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-revB.20130719.xml>

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For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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