



# SPEC® CFP2006 Result

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## Supermicro

SuperWorkstation 5029A-iL  
(X11SAE , Intel Xeon E3-1275 v5)

SPECfp®2006 = **98.8**

SPECfp\_base2006 = **96.6**

CPU2006 license: 001176

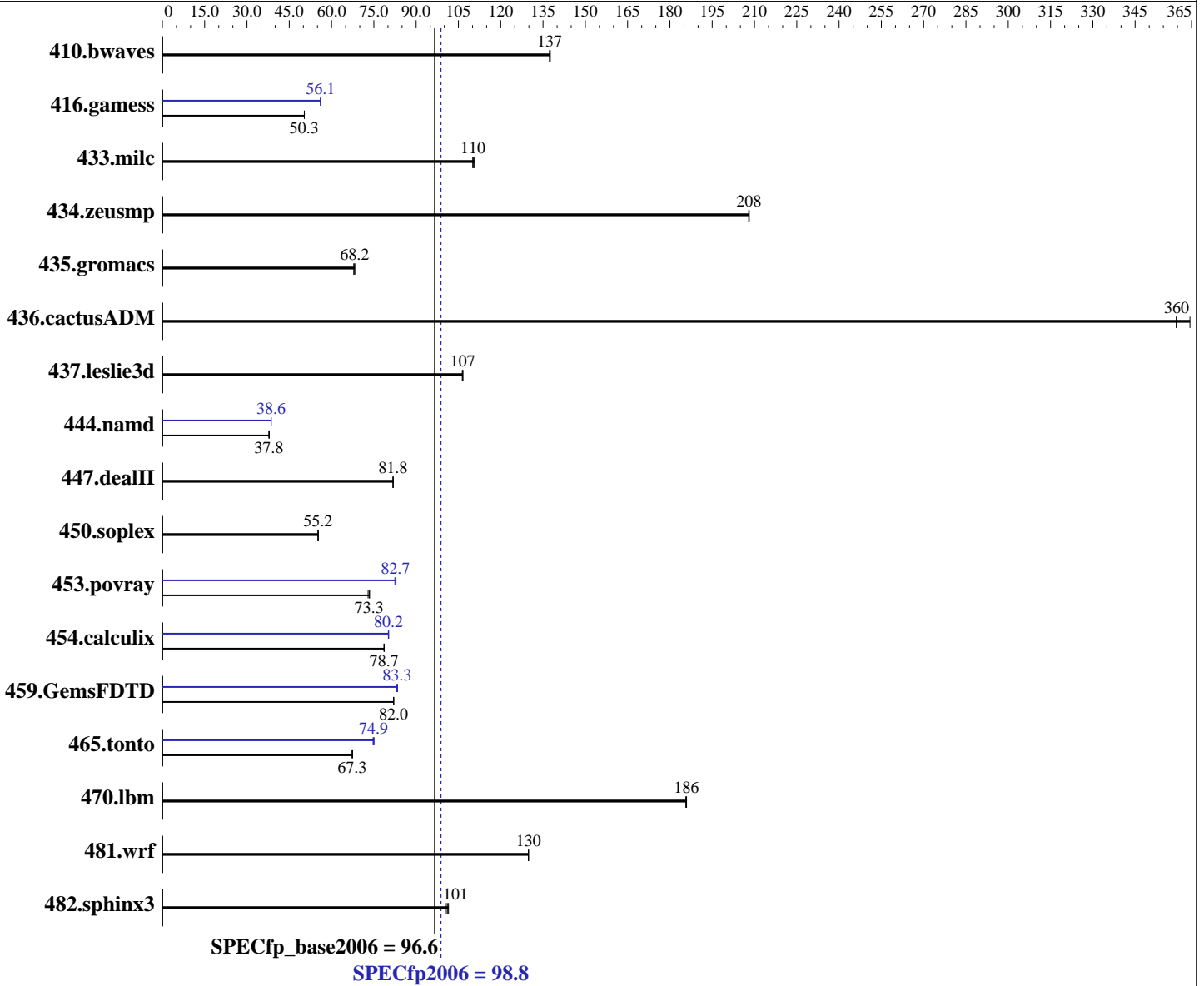
Test sponsor: Supermicro

Tested by: Supermicro

Test date: Dec-2015

Hardware Availability: Oct-2015

Software Availability: Sep-2015



### Hardware

CPU Name: Intel Xeon E3-1275 v5  
 CPU Characteristics: Intel Turbo Boost Technology up to 4.00 GHz  
 CPU MHz: 3600  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip  
 CPU(s) orderable: 1 chip  
 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 7.1, Kernel 3.10.0-229.el7.x86\_64  
 Compiler: C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux;  
 Fortran: Version 16.0.0.101 of Intel Fortran Studio XE for Linux  
 Auto Parallel: Yes  
 File System: xfs  
 System State: Run level 3 (multi-user)

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L3 Cache: 8 MB I+D on chip per chip  
Other Cache: None  
Memory: 64 GB (4 x 16 GB 2Rx8 PC4-2133P-E)  
Disk Subsystem: 1 x 1000 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	99.0	137	98.8	138	<b><u>98.9</u></b>	<b><u>137</u></b>	99.0	137	98.8	138	<b><u>98.9</u></b>	<b><u>137</u></b>
416.gamess	389	50.4	<b><u>389</u></b>	<b><u>50.3</u></b>	389	50.3	349	56.1	<b><u>349</u></b>	<b><u>56.1</u></b>	349	56.2
433.milc	83.0	111	<b><u>83.3</u></b>	<b><u>110</u></b>	83.4	110	83.0	111	<b><u>83.3</u></b>	<b><u>110</u></b>	83.4	110
434.zeusmp	43.8	208	43.7	208	<b><u>43.7</u></b>	<b><u>208</u></b>	43.8	208	43.7	208	<b><u>43.7</u></b>	<b><u>208</u></b>
435.gromacs	105	67.9	105	68.2	<b><u>105</u></b>	<b><u>68.2</u></b>	105	67.9	105	68.2	<b><u>105</u></b>	<b><u>68.2</u></b>
436.cactusADM	33.2	360	32.8	364	<b><u>33.2</u></b>	<b><u>360</u></b>	33.2	360	32.8	364	<b><u>33.2</u></b>	<b><u>360</u></b>
437.leslie3d	88.2	107	<b><u>88.2</u></b>	<b><u>107</u></b>	88.4	106	88.2	107	<b><u>88.2</u></b>	<b><u>107</u></b>	88.4	106
444.namd	211	37.9	<b><u>212</u></b>	<b><u>37.8</u></b>	212	37.8	<b><u>208</u></b>	<b><u>38.6</u></b>	208	38.6	208	38.6
447.dealII	<b><u>140</u></b>	<b><u>81.8</u></b>	140	81.8	140	81.9	<b><u>140</u></b>	<b><u>81.8</u></b>	140	81.8	140	81.9
450.soplex	151	55.3	151	55.2	<b><u>151</u></b>	<b><u>55.2</u></b>	151	55.3	151	55.2	<b><u>151</u></b>	<b><u>55.2</u></b>
453.povray	72.4	73.5	<b><u>72.5</u></b>	<b><u>73.3</u></b>	72.9	73.0	64.2	82.9	<b><u>64.3</u></b>	<b><u>82.7</u></b>	64.5	82.5
454.calculix	<b><u>105</u></b>	<b><u>78.7</u></b>	105	78.7	105	78.6	103	80.2	<b><u>103</u></b>	<b><u>80.2</u></b>	103	80.1
459.GemsFDTD	129	82.1	129	82.0	<b><u>129</u></b>	<b><u>82.0</u></b>	127	83.4	<b><u>127</u></b>	<b><u>83.3</u></b>	128	83.1
465.tonto	146	67.5	146	67.3	<b><u>146</u></b>	<b><u>67.3</u></b>	<b><u>131</u></b>	<b><u>74.9</u></b>	132	74.7	131	75.1
470.lbm	73.9	186	<b><u>73.9</u></b>	<b><u>186</u></b>	74.0	186	73.9	186	<b><u>73.9</u></b>	<b><u>186</u></b>	74.0	186
481.wrf	<b><u>86.0</u></b>	<b><u>130</u></b>	86.0	130	86.0	130	<b><u>86.0</u></b>	<b><u>130</u></b>	86.0	130	86.0	130
482.sphinx3	<b><u>193</u></b>	<b><u>101</u></b>	192	101	194	101	<b><u>193</u></b>	<b><u>101</u></b>	192	101	194	101

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 = Disabled  
Sysinfo program /home/cpu2006/config/sysinfo.rev6914  
\$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1  
running on localhost.localdomain Thu Dec 3 08:33:58 2015

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:  
<http://www.spec.org/cpu2006/Docs/config.html#sysinfo>

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CPU2006 license: 001176

Test sponsor: Supermicro

Tested by: Supermicro

Test date: Dec-2015

Hardware Availability: Oct-2015

Software Availability: Sep-2015

### Platform Notes (Continued)

```

From /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E3-1275 v5 @ 3.60GHz
1 "physical id"s (chips)
4 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
following excerpts from /proc/cpuinfo might not be reliable. Use with
caution.)
cpu cores : 4
siblings : 4
physical 0: cores 0 1 2 3
cache size : 8192 KB

```

```

From /proc/meminfo
MemTotal: 65581704 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

```

```

From /etc/*release* /etc/*version*
os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.1 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.1"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.1 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.1:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.1 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.1 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.1:ga:server

```

```

uname -a:
Linux localhost.localdomain 3.10.0-229.el7.x86_64 #1 SMP Thu Jan 29 18:37:38
EST 2015 x86_64 x86_64 x86_64 GNU/Linux

```

run-level 3 Dec 3 04:27

```

SPEC is set to: /home/cpu2006
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs  850G  5.1G  845G   1% /home

```

Additional information from dmidecode:

Warning: Use caution when you interpret this section. The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

```

BIOS American Megatrends Inc. 1.0 11/09/2015
Memory:
4x Samsung M391A2K43BB1-CPB 16 GB 2 rank 2133 MHz

```

(End of data from sysinfo program)



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## General Notes

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

```
KMP_AFFINITY = "granularity=fine,compact,1,0"
LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh"
OMP_NUM_THREADS = "4"
```

Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB memory using RedHat EL 7.1  
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: basepeak = yes

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

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## Peak Optimization Flags (Continued)

444.namd: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)  
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)  
-par-num-threads=1(pass 1) -prof-use(pass 2) -fno-alias  
-auto-ilp32

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)  
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)  
-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll4  
-ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)  
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)  
-par-num-threads=1(pass 1) -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:threadsafe(pass 1)  
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)  
-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll2  
-inline-level=0 -opt-prefetch -parallel

465.tonto: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)  
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)  
-par-num-threads=1(pass 1) -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



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The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.html>

<http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-V1.2-revH.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml>

<http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-V1.2-revH.xml>

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

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