# SPEC® CFP2006 Result

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## Supermicro

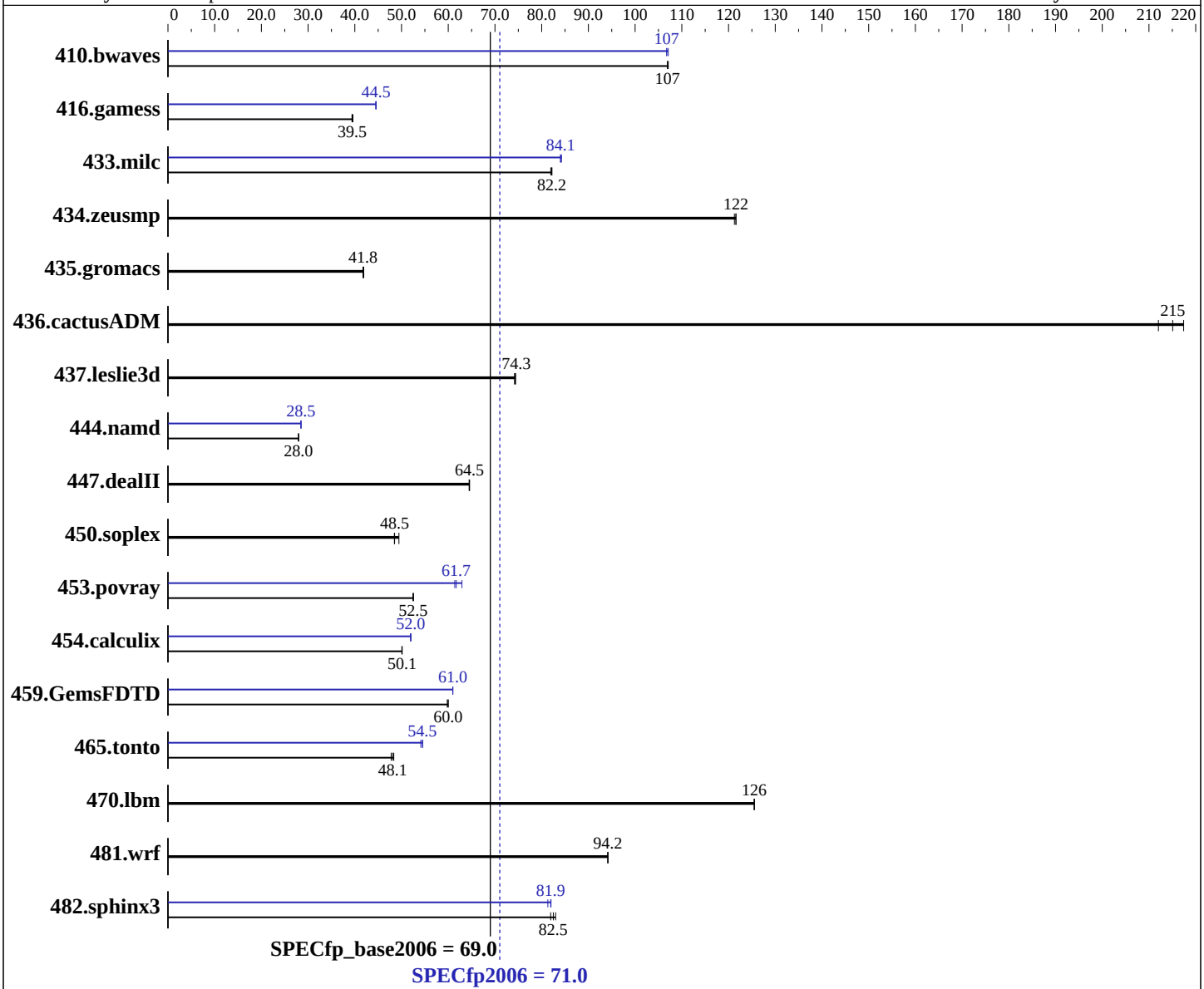
SuperServer 5037A-iL (X9SAE, Intel Xeon E3-1280 v2)

**SPECfp®2006 = 71.0**

**SPECfp_base2006 = 69.0**

**CPU2006 license:** 001176
**Test sponsor:** Supermicro
**Tested by:** Supermicro

**Test date:** Sep-2012
**Hardware Availability:** Apr-2012
**Software Availability:** Jun-2012




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E3-1280 v2 |
| 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, 2 threads/core |
| 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 6.3, Kernel 2.6.32-279.el6.x86_64 |
| Compiler: | C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux;<br>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: 8 MB I+D on chip per chip
Other Cache: None
Memory: 16 GB (4 x 4 GB 2Rx8 PC3-12800U-11)
Disk Subsystem: 1 x 300 GB SATA II, 10000 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 | **127** | **107** | 127 | 107 | 127 | 107 | **127** | **107** | 127 | 107 | 127 | 107 |
| 416.gamess | 497 | 39.4 | 494 | 39.6 | **496** | **39.5** | 439 | 44.6 | 440 | 44.5 | **440** | **44.5** |
| 433.milc | 112 | 82.2 | **112** | **82.2** | 112 | 81.9 | 109 | 84.2 | 109 | 84.0 | **109** | **84.1** |
| 434.zeusmp | **74.8** | **122** | 74.8 | 122 | 75.0 | 121 | **74.8** | **122** | 74.8 | 122 | 75.0 | 121 |
| 435.gromacs | **171** | **41.8** | 170 | 41.9 | 171 | 41.8 | **171** | **41.8** | 170 | 41.9 | 171 | 41.8 |
| 436.cactusADM | 55.0 | 217 | **55.6** | **215** | 56.4 | 212 | 55.0 | 217 | **55.6** | **215** | 56.4 | 212 |
| 437.leslie3d | 126 | 74.4 | **127** | **74.3** | 127 | 74.2 | 126 | 74.4 | **127** | **74.3** | 127 | 74.2 |
| 444.namd | **287** | **28.0** | 287 | 28.0 | 287 | 28.0 | 282 | 28.5 | **282** | **28.5** | 282 | 28.5 |
| 447.dealII | 177 | 64.6 | **177** | **64.5** | 177 | 64.5 | 177 | 64.6 | **177** | **64.5** | 177 | 64.5 |
| 450.soplex | **172** | **48.5** | 172 | 48.5 | 169 | 49.4 | **172** | **48.5** | 172 | 48.5 | 169 | 49.4 |
| 453.povray | 101 | 52.6 | 101 | 52.4 | **101** | **52.5** | **86.2** | **61.7** | 84.5 | 62.9 | 86.6 | 61.4 |
| 454.calculix | 165 | 50.1 | **165** | **50.1** | 165 | 50.1 | **159** | **52.0** | 159 | 51.9 | 159 | 52.0 |
| 459.GemsFDTD | **177** | **60.0** | 177 | 59.8 | 177 | 60.0 | **174** | **61.0** | 174 | 61.0 | 174 | 61.0 |
| 465.tonto | 204 | 48.3 | 206 | 47.8 | **205** | **48.1** | 182 | 54.1 | **181** | **54.5** | 180 | 54.5 |
| 470.lbm | 109 | 126 | 109 | 126 | **109** | **126** | 109 | 126 | 109 | 126 | **109** | **126** |
| 481.wrf | 119 | 94.1 | 119 | 94.2 | **119** | **94.2** | 119 | 94.1 | 119 | 94.2 | **119** | **94.2** |
| 482.sphinx3 | 238 | 81.9 | 235 | 83.0 | **236** | **82.5** | **238** | **81.9** | 240 | 81.3 | 238 | 82.0 |

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

```
Sysinfo program /usr/cpu2006/Docs/sysinfo
$Rev: 6775 $ $Date:: 2011-08-16 #$ 8787f7622badcf24e01c368b1db4377c
running on localhost Thu Sep 27 19:14:13 2012

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

From /proc/cpuinfo
   model name : Intel(R) Xeon(R) CPU E3-1280 V2 @ 3.60GHz
```

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## Platform Notes (Continued)

```
      1 "physical id"s (chips)
      8 "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  : 8
      physical 0: cores 0 1 2 3
   cache size : 8192 KB

From /proc/meminfo
   MemTotal:       16412704 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
   Red Hat Enterprise Linux Server release 6.3 (Santiago)

From /etc/*release* /etc/*version*
   redhat-release: Red Hat Enterprise Linux Server release 6.3 (Santiago)
   system-release: Red Hat Enterprise Linux Server release 6.3 (Santiago)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

uname -a:
   Linux localhost 2.6.32-279.el6.x86_64 #1 SMP Wed Jun 13 18:24:36 EDT 2012
   x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Sep 26 14:54

SPEC is set to: /usr/cpu2006
   Filesystem     Type    Size  Used Avail Use% Mounted on
   /dev/mapper/VolGroup-lv_root
                  ext4     50G   36G   12G  76% /

(End of data from sysinfo program)
```

## 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 = "4"

 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
```

## 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 -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: -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.dealII: 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 questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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