# SPEC® CFP2006 Result
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## Supermicro

Supermicro X9SAE-V motherboard (Intel Core i7-3770T, 2.50 GHz)

$SPECfp^{®}2006 =$    65.7

$SPECfp\_base2006 =$    63.3
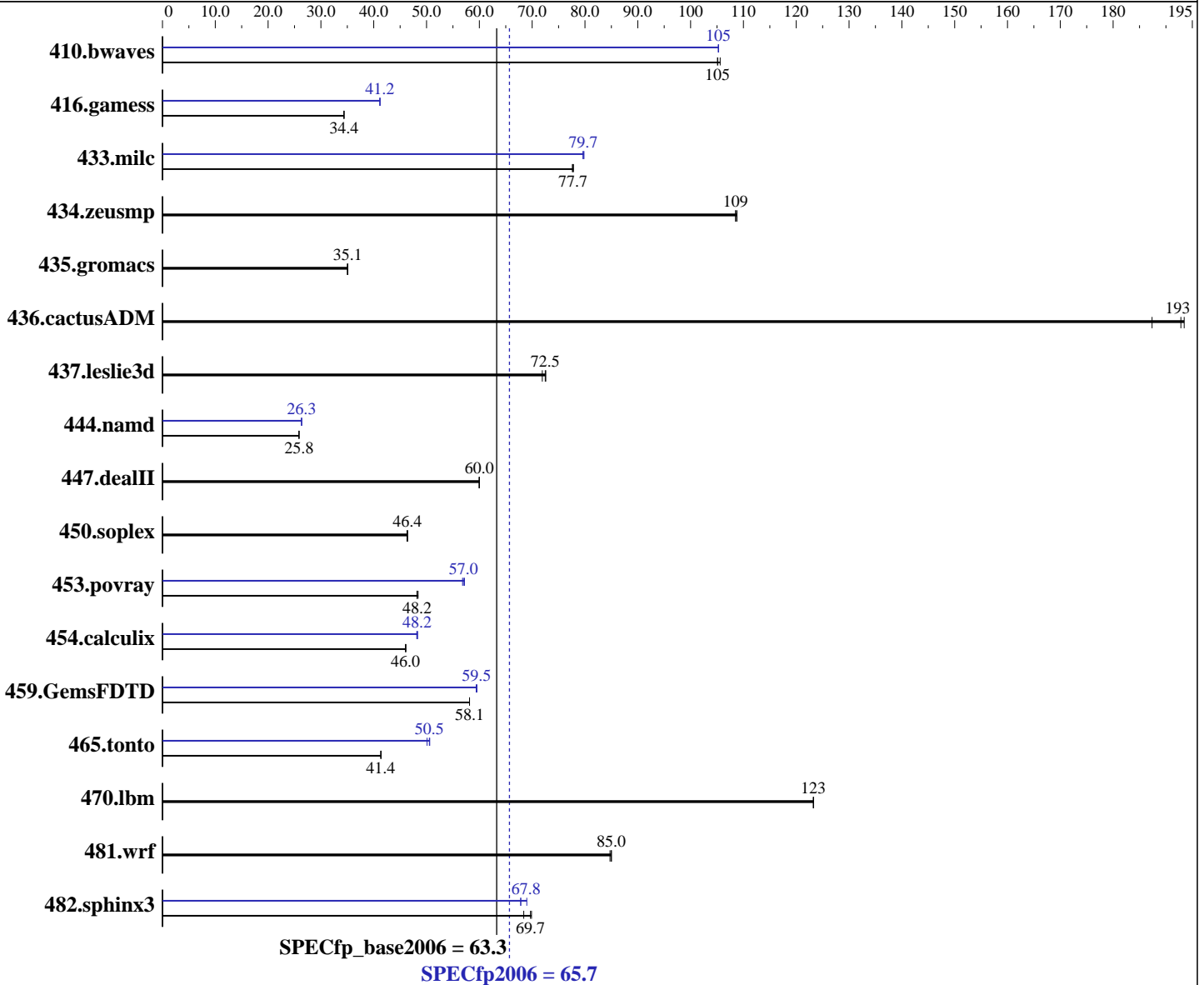
**CPU2006 license:** 001176
**Test sponsor:** Supermicro
**Tested by:** Supermicro

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



410.bwaves: 105, 105
416.gamess: 41.2, 34.4
433.milc: 79.7, 77.7
434.zeusmp: 109
435.gromacs: 35.1
436.cactusADM: 193
437.leslie3d: 72.5
444.namd: 26.3, 25.8
447.dealII: 60.0
450.soplex: 46.4
453.povray: 57.0, 48.2
454.calculix: 48.2, 46.0
459.GemsFDTD: 59.5, 58.1
465.tonto: 50.5, 41.4
470.lbm: 123
481.wrf: 85.0
482.sphinx3: 67.8, 69.7

**SPECfp_base2006 = 63.3**
**SPECfp2006 = 65.7**

## Hardware

| | |
|---|---|
| CPU Name: | Intel Core i7-3770T |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.70 GHz |
| CPU MHz: | 2500 |
| 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 |

*Continued on next page*

## 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; 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) |

*Continued on next page*

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|---|---|
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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 | **<u>129</u>** | **<u>105</u>** | 129 | 105 | 129 | 106 | 129 | 105 | 129 | 105 | **<u>129</u>** | **<u>105</u>** |
| 416.gamess | **<u>570</u>** | **<u>34.4</u>** | 570 | 34.4 | 570 | 34.4 | **<u>475</u>** | **<u>41.2</u>** | 476 | 41.2 | 475 | 41.2 |
| 433.milc | **<u>118</u>** | **<u>77.7</u>** | 118 | 77.6 | 118 | 77.8 | **<u>115</u>** | **<u>79.7</u>** | 115 | 79.6 | 115 | 79.8 |
| 434.zeusmp | 83.7 | 109 | 83.9 | 109 | **<u>83.9</u>** | **<u>109</u>** | 83.7 | 109 | 83.9 | 109 | **<u>83.9</u>** | **<u>109</u>** |
| 435.gromacs | 204 | 35.0 | **<u>204</u>** | **<u>35.1</u>** | 204 | 35.1 | 204 | 35.0 | **<u>204</u>** | **<u>35.1</u>** | 204 | 35.1 |
| 436.cactusADM | 63.8 | 187 | 61.8 | 193 | **<u>62.0</u>** | **<u>193</u>** | 63.8 | 187 | 61.8 | 193 | **<u>62.0</u>** | **<u>193</u>** |
| 437.leslie3d | 130 | 72.6 | **<u>130</u>** | **<u>72.5</u>** | 131 | 71.9 | 130 | 72.6 | **<u>130</u>** | **<u>72.5</u>** | 131 | 71.9 |
| 444.namd | 310 | 25.9 | **<u>310</u>** | **<u>25.8</u>** | 310 | 25.8 | 304 | 26.3 | 305 | 26.3 | **<u>304</u>** | **<u>26.3</u>** |
| 447.dealII | 191 | 60.0 | **<u>191</u>** | **<u>60.0</u>** | 191 | 60.0 | 191 | 60.0 | **<u>191</u>** | **<u>60.0</u>** | 191 | 60.0 |
| 450.soplex | 180 | 46.4 | **<u>180</u>** | **<u>46.4</u>** | 180 | 46.3 | 180 | 46.4 | **<u>180</u>** | **<u>46.4</u>** | 180 | 46.3 |
| 453.povray | 110 | 48.2 | **<u>110</u>** | **<u>48.2</u>** | 110 | 48.4 | 93.6 | 56.8 | **<u>93.4</u>** | **<u>57.0</u>** | 93.0 | 57.2 |
| 454.calculix | 179 | 46.1 | **<u>179</u>** | **<u>46.0</u>** | 179 | 46.0 | 171 | 48.3 | **<u>171</u>** | **<u>48.2</u>** | 171 | 48.1 |
| 459.GemsFDTD | 182 | 58.1 | **<u>182</u>** | **<u>58.1</u>** | 182 | 58.1 | 178 | 59.5 | **<u>178</u>** | **<u>59.5</u>** | 179 | 59.4 |
| 465.tonto | 238 | 41.3 | **<u>238</u>** | **<u>41.4</u>** | 238 | 41.4 | **<u>195</u>** | **<u>50.5</u>** | 194 | 50.6 | 196 | 50.1 |
| 470.lbm | 111 | 123 | 111 | 123 | **<u>111</u>** | **<u>123</u>** | 111 | 123 | 111 | 123 | **<u>111</u>** | **<u>123</u>** |
| 481.wrf | 132 | 84.7 | 131 | 85.0 | **<u>131</u>** | **<u>85.0</u>** | 132 | 84.7 | 131 | 85.0 | **<u>131</u>** | **<u>85.0</u>** |
| 482.sphinx3 | 279 | 69.9 | 285 | 68.4 | **<u>280</u>** | **<u>69.7</u>** | 283 | 69.0 | 287 | 67.8 | **<u>287</u>** | **<u>67.8</u>** |

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

```
As tested, the system used a Supermicro CSE-732D4-500B chassis.
The chassis is configured with a PWS-502-PQ power supply, 1 SNK-P0046A4 heatsink,
as well as 1 FAN-0124L4 rear cooling fan.
Sysinfo program /usr/cpu2006/Docs/sysinfo
$Rev: 6775 $ $Date:: 2011-08-16 #$ 8787f7622badcf24e01c368b1db4377c
running on localhost Thu Sep 20 14:11:12 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
```

## Supermicro

Supermicro X9SAE-V motherboard (Intel Core i7-3770T, 2.50 GHz)

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

## Platform Notes (Continued)

```
From /proc/cpuinfo
   model name : Intel(R) Core(TM) i7-3770T CPU @ 2.50GHz
      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:       16340504 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 20 14:05

SPEC is set to: /usr/cpu2006
   Filesystem     Type    Size  Used Avail Use% Mounted on
   /dev/mapper/VolGroup-lv_root
                  ext4     50G   27G   21G  57% /

(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
```

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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
-ansi-alias
```

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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.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

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

Tested with SPEC CPU2006 v1.2.
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