# SPEC® CFP2006 Result

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## Supermicro

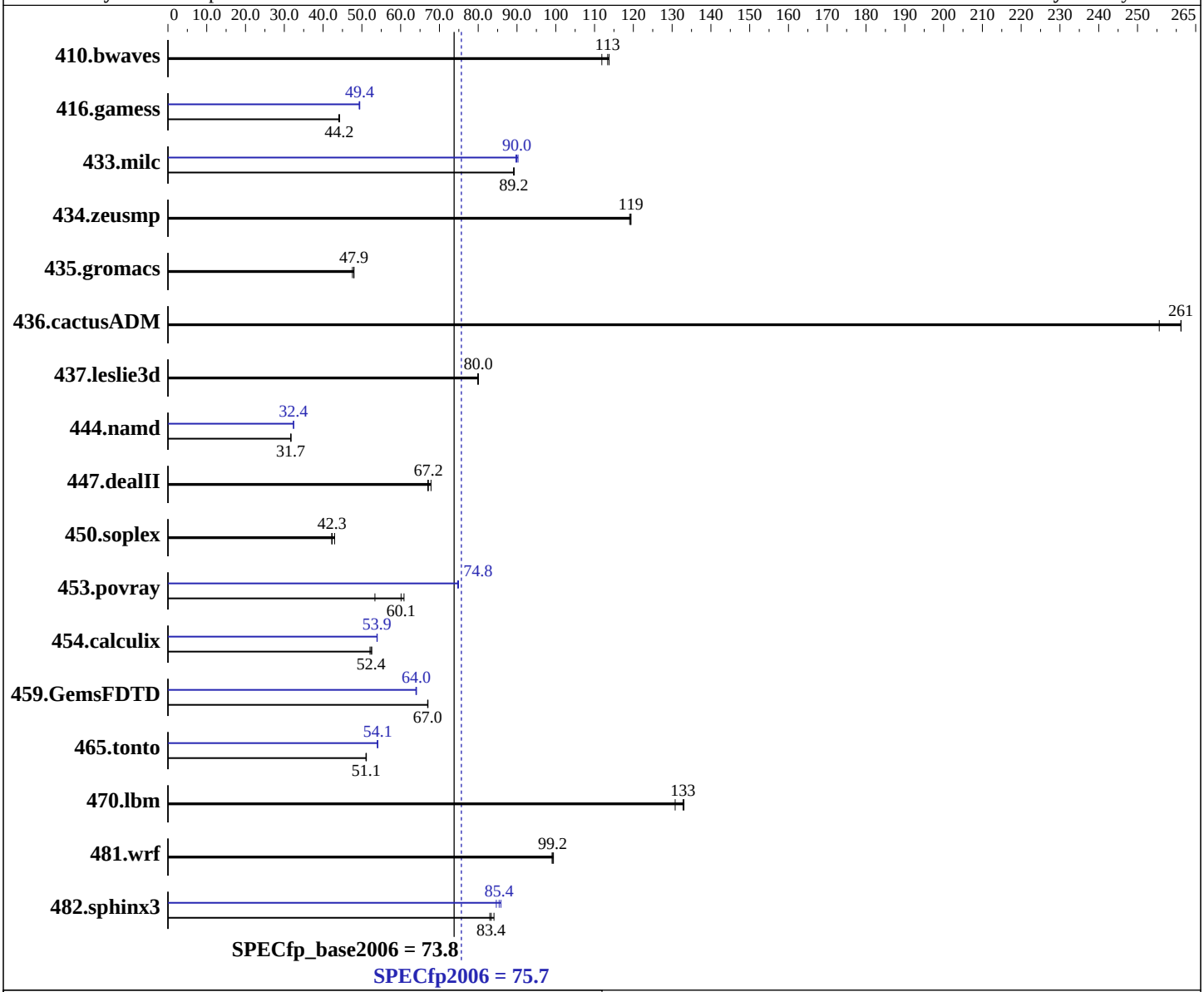
SuperServer 5018D-MTRF (X10SLM-F, Intel Xeon E3-1280 v3, 3.60 GHz)

SPECfp®2006 = 75.7

SPECfp_base2006 = 73.8

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

**Test date:** Jun-2013
**Hardware Availability:** Jun-2013
**Software Availability:** May-2013




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E3-1280 v3 |
| 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 6.4, Kernel 2.6.32-358.el6.x86_64 |
| Compiler: | C/C++: Version 13.1.1.163 of Intel C++ Studio XE for Linux;<br>Fortran: Version 13.1.1.163 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: 32 GB (4 x 8 GB 2Rx4 PC3-12800E-11, ECC)
Disk Subsystem: 1 x 2000 GB 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 | 119 | 114 | 121 | 112 | **120** | **113** | 119 | 114 | 121 | 112 | **120** | **113** |
| 416.gamess | 445 | 44.0 | 443 | 44.2 | **443** | **44.2** | **396** | **49.4** | 397 | 49.3 | 396 | 49.5 |
| 433.milc | 103 | 89.1 | **103** | **89.2** | 103 | 89.3 | 102 | 90.3 | **102** | **90.0** | 102 | 89.7 |
| 434.zeusmp | 76.2 | 119 | **76.2** | **119** | 76.4 | 119 | 76.2 | 119 | **76.2** | **119** | 76.4 | 119 |
| 435.gromacs | 149 | 48.0 | **149** | **47.9** | 150 | 47.6 | 149 | 48.0 | **149** | **47.9** | 150 | 47.6 |
| 436.cactusADM | 45.7 | 261 | 46.8 | 256 | **45.8** | **261** | 45.7 | 261 | 46.8 | 256 | **45.8** | **261** |
| 437.leslie3d | 117 | 80.0 | 118 | 79.9 | **117** | **80.0** | 117 | 80.0 | 118 | 79.9 | **117** | **80.0** |
| 444.namd | 253 | 31.7 | 253 | 31.7 | **253** | **31.7** | **248** | **32.4** | 248 | 32.4 | 248 | 32.4 |
| 447.dealII | 171 | 67.0 | **170** | **67.2** | 169 | 67.8 | 171 | 67.0 | **170** | **67.2** | 169 | 67.8 |
| 450.soplex | 198 | 42.2 | **197** | **42.3** | 194 | 43.0 | 198 | 42.2 | **197** | **42.3** | 194 | 43.0 |
| 453.povray | 87.4 | 60.9 | 99.7 | 53.4 | **88.5** | **60.1** | 71.2 | 74.7 | **71.1** | **74.8** | 71.0 | 74.9 |
| 454.calculix | 158 | 52.1 | **158** | **52.4** | 157 | 52.6 | **153** | **53.9** | 153 | 53.9 | 153 | 54.0 |
| 459.GemsFDTD | 158 | 67.1 | **158** | **67.0** | 158 | 67.0 | 166 | 64.1 | 166 | 63.9 | **166** | **64.0** |
| 465.tonto | 193 | 51.1 | 192 | 51.2 | **193** | **51.1** | **182** | **54.1** | 182 | 54.1 | 182 | 54.0 |
| 470.lbm | 103 | 133 | **103** | **133** | 105 | 131 | 103 | 133 | **103** | **133** | 105 | 131 |
| 481.wrf | **113** | **99.2** | 112 | 99.4 | 113 | 99.0 | **113** | **99.2** | 112 | 99.4 | 113 | 99.0 |
| 482.sphinx3 | **234** | **83.4** | 232 | 84.1 | 235 | 83.0 | 227 | 85.9 | **228** | **85.4** | 230 | 84.7 |

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"
```

## General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/usr/cpu2006/libs/32:/usr/cpu2006/libs/64:/usr/cpu2006/sh"
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
 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.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:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias
```

C++ benchmarks:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias
```

Fortran benchmarks:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
```

Benchmarks using both Fortran and C:
```
-xCORE-AVX2 -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: -xCORE-AVX2(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: -xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -ansi-alias -parallel

C++ benchmarks:

444.namd: -xCORE-AVX2(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: -xCORE-AVX2(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:

Continued on next page

# Peak Optimization Flags (Continued)

410.bwaves: `basepeak = yes`

416.gamess: `-xCORE-AVX2`(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: `-xCORE-AVX2`(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: `-xCORE-AVX2`(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: `-xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias`

481.wrf: `basepeak = yes`

The flags files that were used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-V1.2-revB.20130719.html`
`http://www.spec.org/cpu2006/flags/Intel-ic13-official-linux64.20130702.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-V1.2-revB.20130719.xml`
`http://www.spec.org/cpu2006/flags/Intel-ic13-official-linux64.20130702.xml`


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Tested with SPEC CPU2006 v1.2.
Report generated on Thu Jul 24 16:41:09 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 19 July 2013.