# SPEC® CFP2006 Result

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## Supermicro

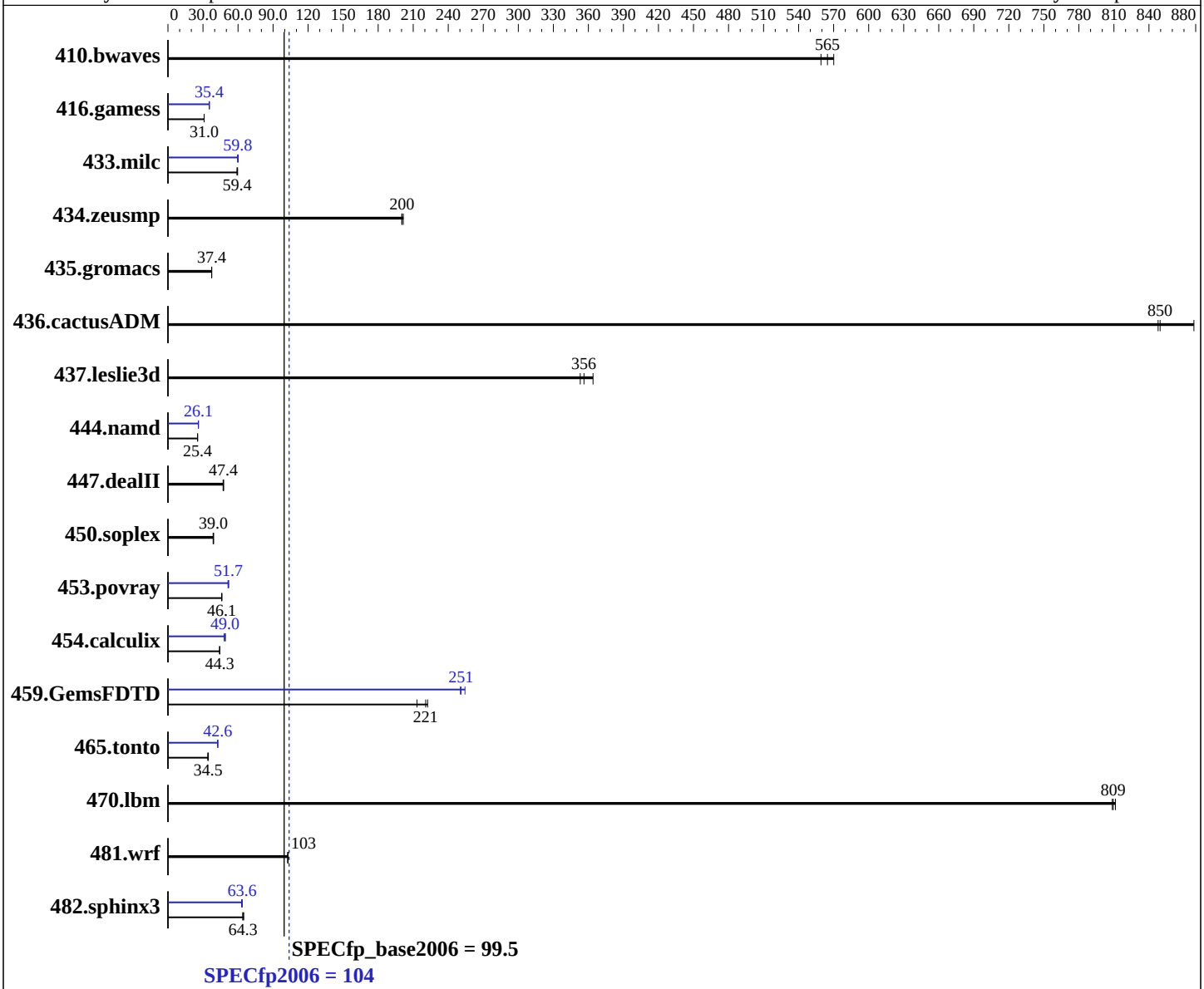
SuperServer 6028TP-HTR
(X10DRT-P , Intel Xeon E5-2683 v3)

SPECfp®2006 = 104

SPECfp_base2006 = 99.5

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

**Test date:** Nov-2014
**Hardware Availability:** Sep-2014
**Software Availability:** Sep-2014




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5-2683 v3 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.00 GHz |
| CPU MHz: | 2000 |
| FPU: | Integrated |
| CPU(s) enabled: | 28 cores, 2 chips, 14 cores/chip |
| 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 7.0, Kernel 3.10.0-123.el7.x86_64 |
| Compiler: | C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux;<br>Fortran: Version 15.0.0.090 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: 35 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)
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 | 23.8 | 570 | 24.3 | 559 | **24.1** | **565** | 23.8 | 570 | 24.3 | 559 | **24.1** | **565** |
| 416.gamess | 631 | 31.0 | 633 | 31.0 | **632** | **31.0** | **553** | **35.4** | 553 | 35.4 | 553 | 35.4 |
| 433.milc | 154 | 59.7 | **155** | **59.4** | 155 | 59.1 | 154 | 59.6 | **153** | **59.8** | 153 | 60.1 |
| 434.zeusmp | 45.2 | 202 | **45.4** | **200** | 45.5 | 200 | 45.2 | 202 | **45.4** | **200** | 45.5 | 200 |
| 435.gromacs | 191 | 37.4 | 190 | 37.5 | **191** | **37.4** | 191 | 37.4 | 190 | 37.5 | **191** | **37.4** |
| 436.cactusADM | **14.1** | **850** | 14.1 | 848 | 13.6 | 878 | **14.1** | **850** | 14.1 | 848 | 13.6 | 878 |
| 437.leslie3d | 25.8 | 364 | **26.4** | **356** | 26.6 | 353 | 25.8 | 364 | **26.4** | **356** | 26.6 | 353 |
| 444.namd | 316 | 25.3 | **316** | **25.4** | 316 | 25.4 | **308** | **26.1** | 308 | 26.1 | 307 | 26.1 |
| 447.dealII | **241** | **47.4** | 242 | 47.2 | 240 | 47.7 | **241** | **47.4** | 242 | 47.2 | 240 | 47.7 |
| 450.soplex | **214** | **39.0** | 216 | 38.7 | 214 | 39.0 | **214** | **39.0** | 216 | 38.7 | 214 | 39.0 |
| 453.povray | **115** | **46.1** | 115 | 46.1 | 116 | 46.0 | 103 | 51.4 | 102 | 52.1 | **103** | **51.7** |
| 454.calculix | 186 | 44.3 | 187 | 44.2 | **186** | **44.3** | **168** | **49.0** | 172 | 48.1 | 168 | 49.2 |
| 459.GemsFDTD | **48.1** | **221** | 49.8 | 213 | 47.7 | 222 | 42.4 | 250 | **42.3** | **251** | 41.7 | 254 |
| 465.tonto | **286** | **34.5** | 289 | 34.0 | 284 | 34.6 | 231 | 42.5 | 230 | 42.7 | **231** | **42.6** |
| 470.lbm | 16.9 | 811 | **17.0** | **809** | 17.0 | 809 | 16.9 | 811 | **17.0** | **809** | 17.0 | 809 |
| 481.wrf | 109 | 103 | **109** | **103** | 109 | 103 | 109 | 103 | **109** | **103** | 109 | 103 |
| 482.sphinx3 | 304 | 64.0 | **303** | **64.3** | 300 | 64.9 | 306 | 63.6 | 309 | 63.0 | **307** | **63.6** |

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 (ALL) = Disable
Early Snoop = Disable
Enforce POR = Disabled
```

## General Notes

```
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact,0,1"
LD_LIBRARY_PATH = "/home/spec2k6/SPEC2006-V12/libs/32:/home/spec2k6/SPEC2006-V12/libs/64:/home/spec2k6/SPEC2006-V12/sh"
OMP_NUM_THREADS = "28"

 Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB
 memory using RedHat EL 7.0
 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

## 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: `-xCORE-AVX2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2) `-no-prec-div`(pass 2) `-prof-use`(pass 2) `-auto-ilp32 -ansi-alias`

470.lbm: `basepeak = yes`

482.sphinx3: `-xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -ansi-alias -parallel`

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# Peak Optimization Flags (Continued)

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:

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-

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/Intel-ic15.0-official-linux64.html
http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-V1.2-revE.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-V1.2-revE.xml


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For other inquiries, please contact webmaster@spec.org.

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