# SPEC® CFP2006 Result

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## Supermicro

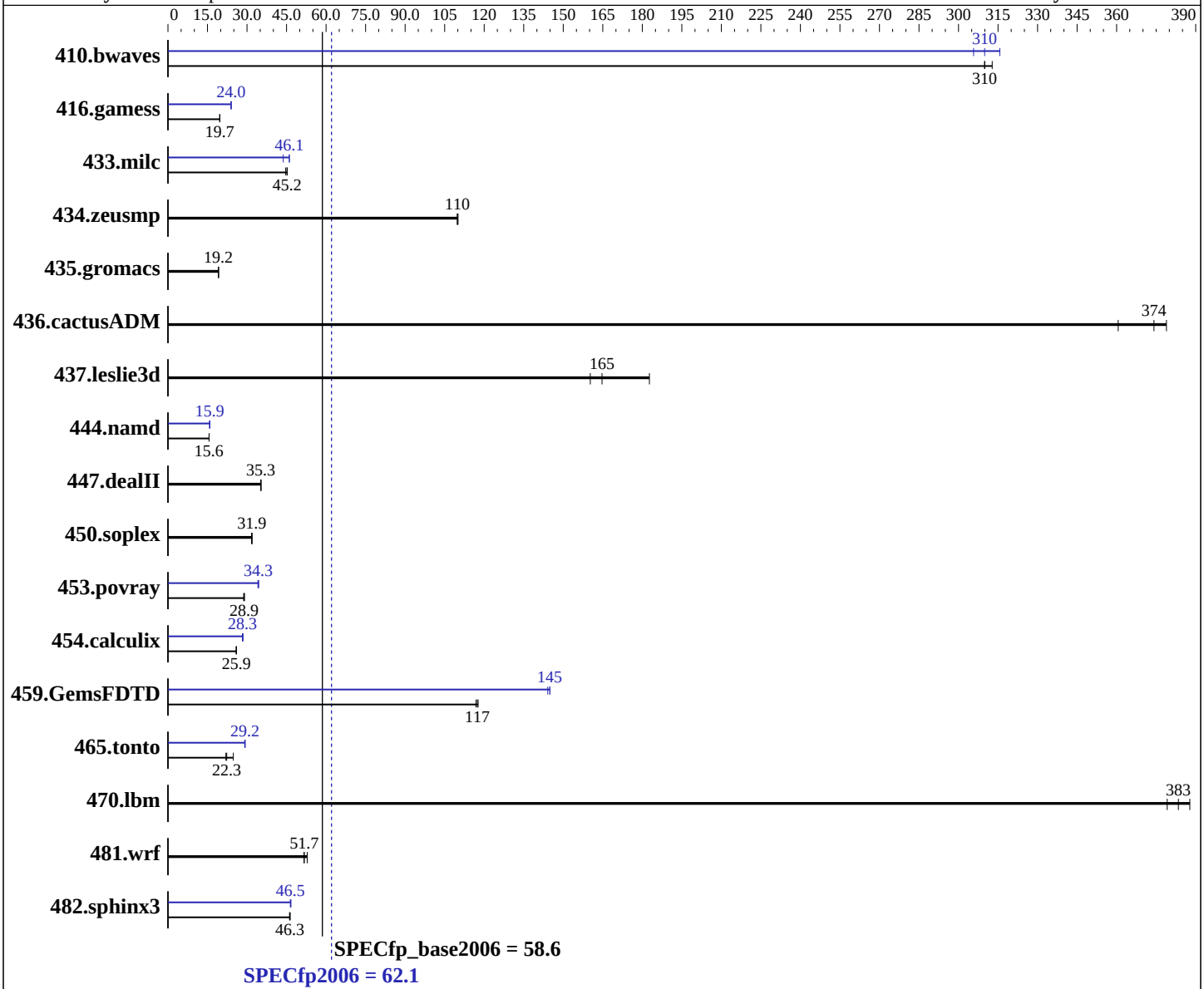
SuperServer 6017R-TDF (X9DRD-iF, Intel Xeon E5-2650L)

SPECfp®2006 = 62.1

SPECfp_base2006 = 58.6

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

**Test date:** May-2012
**Hardware Availability:** Mar-2012
**Software Availability:** Dec-2011




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5-2650L |
| CPU Characteristics: | Intel Turbo Boost Technology up to 2.30 GHz |
| CPU MHz: | 1800 |
| FPU: | Integrated |
| CPU(s) enabled: | 16 cores, 2 chips, 8 cores/chip, 2 threads/core |
| 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 6.2, Kernel 2.6.32-220.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: 20 MB I+D on chip per chip
Other Cache: None
Memory: 64 GB (8 x 8 GB 2Rx4 PC3-12800R-11, ECC)
Disk Subsystem: 1 x 600 GB SATA III, 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 | 43.4 | 313 | 43.9 | 310 | **43.8** | **310** | 44.5 | 306 | **43.9** | **310** | 43.0 | 316 |
| 416.gamess | 996 | 19.7 | **996** | **19.7** | 993 | 19.7 | **817** | **24.0** | 816 | 24.0 | 818 | 23.9 |
| 433.milc | **203** | **45.2** | 205 | 44.7 | 203 | 45.2 | 210 | 43.7 | **199** | **46.1** | 199 | 46.1 |
| 434.zeusmp | 82.7 | 110 | **82.9** | **110** | 82.9 | 110 | 82.7 | 110 | **82.9** | **110** | 82.9 | 110 |
| 435.gromacs | **372** | **19.2** | 373 | 19.1 | 372 | 19.2 | **372** | **19.2** | 373 | 19.1 | 372 | 19.2 |
| 436.cactusADM | **31.9** | **374** | 33.1 | 361 | 31.5 | 379 | **31.9** | **374** | 33.1 | 361 | 31.5 | 379 |
| 437.leslie3d | 58.7 | 160 | **57.1** | **165** | 51.5 | 183 | 58.7 | 160 | **57.1** | **165** | 51.5 | 183 |
| 444.namd | **514** | **15.6** | 514 | 15.6 | 514 | 15.6 | 507 | 15.8 | **506** | **15.9** | 505 | 15.9 |
| 447.dealII | 324 | 35.3 | **324** | **35.3** | 325 | 35.2 | 324 | 35.3 | **324** | **35.3** | 325 | 35.2 |
| 450.soplex | 262 | 31.9 | 263 | 31.7 | **262** | **31.9** | 262 | 31.9 | 263 | 31.7 | **262** | **31.9** |
| 453.povray | **184** | **28.9** | 183 | 29.0 | 185 | 28.7 | **155** | **34.3** | 154 | 34.4 | 156 | 34.1 |
| 454.calculix | **318** | **25.9** | 318 | 25.9 | 318 | 25.9 | 292 | 28.2 | **291** | **28.3** | 289 | 28.5 |
| 459.GemsFDTD | 90.2 | 118 | **90.4** | **117** | 90.8 | 117 | **73.2** | **145** | 73.6 | 144 | 73.2 | 145 |
| 465.tonto | **441** | **22.3** | 397 | 24.8 | 448 | 22.0 | 338 | 29.1 | 336 | 29.3 | **337** | **29.2** |
| 470.lbm | 36.2 | 379 | 35.4 | 388 | **35.8** | **383** | 36.2 | 379 | 35.4 | 388 | **35.8** | **383** |
| 481.wrf | 216 | 51.7 | 211 | 52.8 | **216** | **51.7** | 216 | 51.7 | 211 | 52.8 | **216** | **51.7** |
| 482.sphinx3 | **421** | **46.3** | 423 | 46.1 | 420 | 46.4 | 420 | 46.5 | 418 | 46.7 | **419** | **46.5** |

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"
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
```

## 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 = "16"

 Binaries compiled on a system with 2 x Xeon E5-2650 CPU + 64GB
 memory using RHEL6.2
```

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

Tested with SPEC CPU2006 v1.2.
Report generated on Thu Jul 24 04:35:06 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 6 June 2012.