



# SPEC® CFP2006 Result

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## Supermicro

(Test Sponsor: Intel Corporation)

Supermicro X7DB8+ (Intel Xeon processor X5460,  
3.16 GHz)

SPECfp®2006 = 23.9

SPECfp\_base2006 = 20.6

CPU2006 license: 13

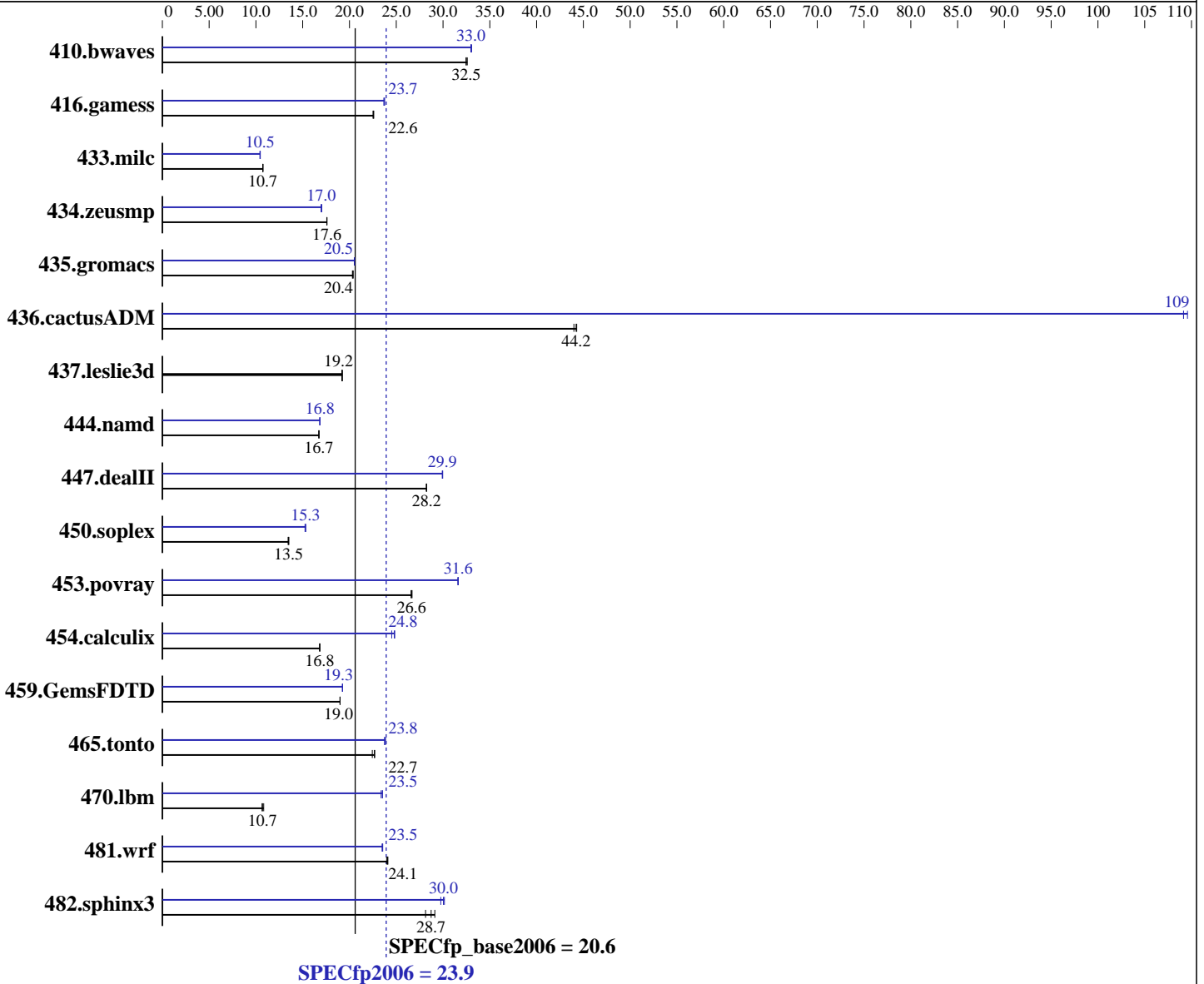
Test sponsor: Intel Corporation

Tested by: Intel Corporation

Test date: Nov-2007

Hardware Availability: Nov-2007

Software Availability: Nov-2007



### Hardware

CPU Name: Intel Xeon X5460  
 CPU Characteristics: Quad Core, 3.16 GHz  
 CPU MHz: 3166  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip  
 CPU(s) orderable: 1,2 chips  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 12 MB I+D on chip per chip, 6 MB shared / 2 cores

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### Software

Operating System: 64-Bit SUSE LINUX Enterprise Server 10 SP1 RC1, Kernel  
 linux-cbmg 2.6.16.43-0.5-smp for x86\_64  
 Compiler: Intel C++ and Fortran Compiler 10.1 for Linux  
 Build 20070913 Package ID: l\_cc\_p\_10.1.008, l\_fc\_p\_10.1.008  
 Auto Parallel: Yes  
 File System: ReiserFS  
 System State: Multi-user, run level 3

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L3 Cache: None  
Other Cache: None  
Memory: 16 GB (8 \* 2GB DDR2 5300F, 2 rank,  
CL5-5-5, ECC)  
Disk Subsystem: 1x73GB Seagate ST37330LC SCSI 10K RPM  
Other Hardware: None

Base Pointers: 64-bit  
Peak Pointers: 32/64-bit  
Other Software: Binutils 2.17.50.0.15

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	<b>418</b>	<b>32.5</b>	417	32.6	419	32.5	<b>412</b>	<b>33.0</b>	412	33.0	411	33.1
416.gamess	<b>867</b>	<b>22.6</b>	870	22.5	867	22.6	<b>827</b>	<b>23.7</b>	825	23.7	<b>825</b>	<b>23.7</b>
433.milc	856	10.7	<b>855</b>	<b>10.7</b>	853	10.8	877	10.5	<b>878</b>	<b>10.5</b>	880	10.4
434.zeusmp	517	17.6	518	17.6	<b>517</b>	<b>17.6</b>	534	17.0	536	17.0	<b>535</b>	<b>17.0</b>
435.gromacs	350	20.4	351	20.3	<b>351</b>	<b>20.4</b>	348	20.5	348	20.5	<b>348</b>	<b>20.5</b>
436.cactusADM	<b>270</b>	<b>44.2</b>	270	44.3	272	44.0	109	110	109	109	<b>109</b>	<b>109</b>
437.leslie3d	<b>489</b>	<b>19.2</b>	489	19.2	490	19.2	<b>489</b>	<b>19.2</b>	489	19.2	490	19.2
444.namd	479	16.7	<b>479</b>	<b>16.7</b>	480	16.7	476	16.9	477	16.8	<b>476</b>	<b>16.8</b>
447.dealII	<b>405</b>	<b>28.2</b>	405	28.2	405	28.2	382	30.0	<b>382</b>	<b>29.9</b>	382	29.9
450.soplex	621	13.4	<b>617</b>	<b>13.5</b>	617	13.5	<b>545</b>	<b>15.3</b>	547	15.2	544	15.3
453.povray	200	26.6	199	26.7	<b>200</b>	<b>26.6</b>	168	31.6	168	31.6	<b>168</b>	<b>31.6</b>
454.calculix	491	16.8	490	16.8	<b>490</b>	<b>16.8</b>	332	24.8	<b>333</b>	<b>24.8</b>	337	24.5
459.GemsFDTD	<b>559</b>	<b>19.0</b>	559	19.0	559	19.0	<b>551</b>	<b>19.3</b>	551	19.3	551	19.2
465.tonto	433	22.7	<b>434</b>	<b>22.7</b>	439	22.4	412	23.9	<b>414</b>	<b>23.8</b>	414	23.8
470.lbm	1289	10.7	<b>1283</b>	<b>10.7</b>	1268	10.8	<b>584</b>	<b>23.5</b>	584	23.5	588	23.4
481.wrf	464	24.1	<b>464</b>	<b>24.1</b>	466	24.0	476	23.5	<b>475</b>	<b>23.5</b>	474	23.6
482.sphinx3	669	29.1	693	28.1	<b>678</b>	<b>28.7</b>	655	29.8	646	30.1	<b>649</b>	<b>30.0</b>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## General Notes

Bios settings:

Hardware Prefetcher: Enabled

Adjacent Sector Prefetch: Enabled

All benchmarks compiled in 64-bit mode except 450.soplex,  
470.lbm and 482.sphinx3, at peak, are compiled in 32-bit mode

## Base Compiler Invocation

C benchmarks:

icc

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## Base Compiler Invocation (Continued)

C++ benchmarks:

icpc

Fortran benchmarks:

ifort

Benchmarks using both Fortran and C:

icc ifort

## 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:

-fast -parallel

C++ benchmarks:

-fast -parallel

Fortran benchmarks:

-fast -parallel

Benchmarks using both Fortran and C:

-fast -parallel



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**CPU2006 license:** 13

**Test sponsor:** Intel Corporation

**Tested by:** Intel Corporation

**Test date:** Nov-2007

**Hardware Availability:** Nov-2007

**Software Availability:** Nov-2007

## Peak Compiler Invocation

C benchmarks (except as noted below):

```
/opt/intel/cc/10.1.008/bin/icc -L/opt/intel/cc/10.1.008/lib  
-I/opt/intel/cc/10.1.008/include
```

433.milc: icc

C++ benchmarks (except as noted below):

icpc

```
450.soplex: /opt/intel/cc/10.1.008/bin/icpc -L/opt/intel/cc/10.1.008/lib  
-I/opt/intel/cc/10.1.008/include
```

Fortran benchmarks:

ifort

Benchmarks using both Fortran and C:

icc ifort

## Peak 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  
453.povray: -DSPEC_CPU_LP64  
454.calculix: -DSPEC_CPU_LP64 -nofor_main  
459.GemsFDTD: -DSPEC_CPU_LP64  
465.tonto: -DSPEC_CPU_LP64  
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
```

## Peak Optimization Flags

C benchmarks:

```
433.milc: -prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias  
-auto-ilp32
```

```
470.lbm: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2  
-scalar-rep- -prefetch -opt-malloc-options=3
```

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## Peak Optimization Flags (Continued)

482.sphinx3: -fast -unroll2

### C++ benchmarks:

444.namd: -prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias  
-auto-ilp32

447.dealIII: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2  
-ansi-alias -scalar-rep-

450.soplex: -prof-gen(pass 1) -prof-use(pass 2) -fast  
-opt-malloc-options=3

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4  
-ansi-alias

### Fortran benchmarks:

410.bwaves: -fast -prefetch -parallel

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0  
-ansi-alias -scalar-rep-

434.zeusmp: -prof-gen(pass 1) -prof-use(pass 2) -fast

437.leslie3d: basepeak = yes

459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0  
-prefetch -parallel

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4 -auto

### Benchmarks using both Fortran and C:

435.gromacs: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch  
-auto-ilp32

436.cactusADM: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2  
-prefetch -parallel -auto-ilp32

454.calculix: -fast -unroll-aggressive -auto-ilp32

481.wrf: -fast -parallel -prefetch -auto-ilp32

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic10.1-FP-intel64-linux-flags.20090714.06.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/Intel-ic10.1-FP-intel64-linux-flags.20090714.06.xml>



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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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