



# SPEC<sup>®</sup> CFP2006 Result

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## Supermicro

(Test Sponsor: Intel Corporation)

Supermicro X7DB8+ (Intel Xeon processor E5410,  
2.33 GHz)

SPECfp<sup>®</sup>\_rate2006 = 69.3

SPECfp\_rate\_base2006 = 63.0

CPU2006 license: 13

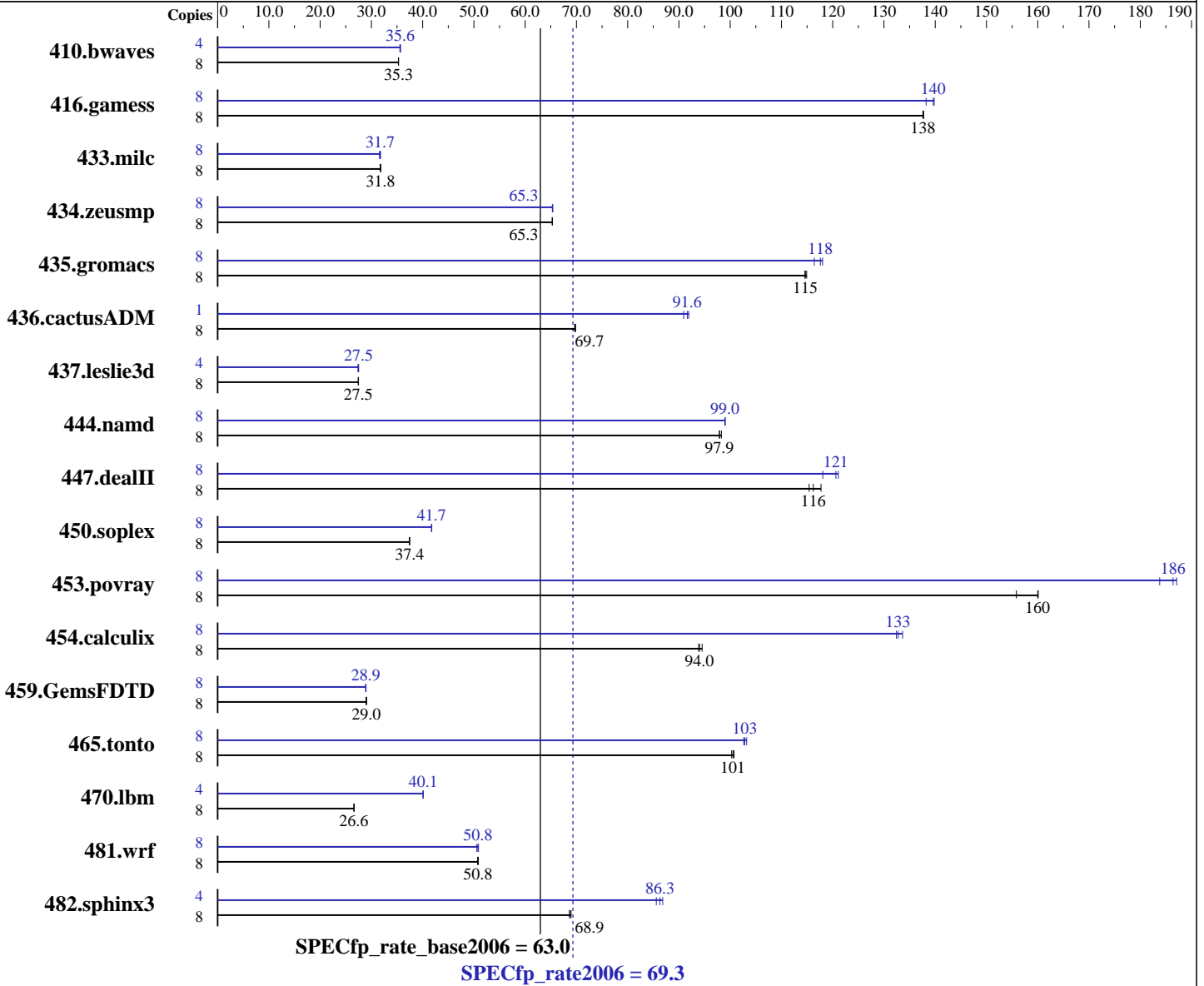
Test sponsor: Intel Corporation

Tested by: Intel Corporation

Test date: Nov-2007

Hardware Availability: Nov-2007

Software Availability: Nov-2007



### Hardware

CPU Name: Intel Xeon E5410  
 CPU Characteristics: Quad Core, 2.33 GHz  
 CPU MHz: 2333  
 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-cbgn 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						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	3083	35.3	<b>3081</b>	<b>35.3</b>	3080	35.3	4	1529	35.6	<b>1525</b>	<b>35.6</b>	1524	35.7
416.gamess	8	1138	138	1137	138	<b>1138</b>	<b>138</b>	8	<b>1122</b>	<b>140</b>	1133	138	1121	140
433.milc	8	2313	31.7	<b>2313</b>	<b>31.8</b>	2307	31.8	8	2312	31.8	2326	31.6	<b>2314</b>	<b>31.7</b>
434.zeusmp	8	<b>1115</b>	<b>65.3</b>	1114	65.3	1115	65.3	8	1115	65.3	<b>1114</b>	<b>65.3</b>	1113	65.4
435.gromacs	8	<b>498</b>	<b>115</b>	499	115	497	115	8	484	118	<b>486</b>	<b>118</b>	491	116
436.cactusADM	8	<b>1371</b>	<b>69.7</b>	1372	69.7	1369	69.8	1	<b>130</b>	<b>91.6</b>	131	90.9	130	91.9
437.leslie3d	8	2743	27.4	2736	27.5	<b>2737</b>	<b>27.5</b>	4	1374	27.4	<b>1369</b>	<b>27.5</b>	1366	27.5
444.namd	8	653	98.3	<b>655</b>	<b>97.9</b>	655	97.9	8	648	99.0	648	99.0	<b>648</b>	<b>99.0</b>
447.dealII	8	<b>787</b>	<b>116</b>	777	118	793	115	8	756	121	<b>759</b>	<b>121</b>	775	118
450.soplex	8	<b>1782</b>	<b>37.4</b>	1783	37.4	1782	37.4	8	<b>1598</b>	<b>41.7</b>	1599	41.7	1597	41.8
453.povray	8	<b>266</b>	<b>160</b>	273	156	266	160	8	232	184	227	187	<b>228</b>	<b>186</b>
454.calculix	8	<b>702</b>	<b>94.0</b>	698	94.5	703	93.8	8	494	134	498	132	<b>497</b>	<b>133</b>
459.GemsFDTD	8	2921	29.1	<b>2927</b>	<b>29.0</b>	2929	29.0	8	2941	28.9	2932	29.0	<b>2935</b>	<b>28.9</b>
465.tonto	8	781	101	785	100	<b>783</b>	<b>101</b>	8	763	103	767	103	<b>765</b>	<b>103</b>
470.lbm	8	4132	26.6	4131	26.6	<b>4132</b>	<b>26.6</b>	4	1370	40.1	<b>1370</b>	<b>40.1</b>	1372	40.1
481.wrf	8	1758	50.8	<b>1759</b>	<b>50.8</b>	1762	50.7	8	1767	50.6	<b>1760</b>	<b>50.8</b>	1756	50.9
482.sphinx3	8	2261	69.0	<b>2265</b>	<b>68.9</b>	2272	68.6	4	<b>903</b>	<b>86.3</b>	898	86.8	911	85.6

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

## General Notes

Bios settings:

Hardware Prefetcher: Disabled

Adjacent Sector Prefetch: Disabled

All benchmarks compiled in 64-bit mode except 437.leslie3d, 450.soplex

470.lbm and 482.sphinx3, at peak, are compiled in 32-bit mode

The taskset utility was used to bind processes to cores

## 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

C++ benchmarks:  
-fast

Fortran benchmarks:  
-fast

Benchmarks using both Fortran and C:  
-fast



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## 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 (except as noted below):

ifort

```
437.leslie3d: /opt/intel/fc/10.1.008/bin/ifort -L/opt/intel/fc/10.1.008/lib
-I/opt/intel/fc/10.1.008/include
```

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
444.namd: -DSPEC_CPU_LP64
447.deallI: -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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**Software Availability:** Nov-2007

## 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

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

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

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 -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>



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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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