



# SPEC<sup>®</sup> CFP2006 Result

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## Supermicro Motherboard B7DBE

SPECfp<sup>®</sup>\_rate2006 = 77.8

SPECfp\_rate\_base2006 = 72.1

CPU2006 license: 001176

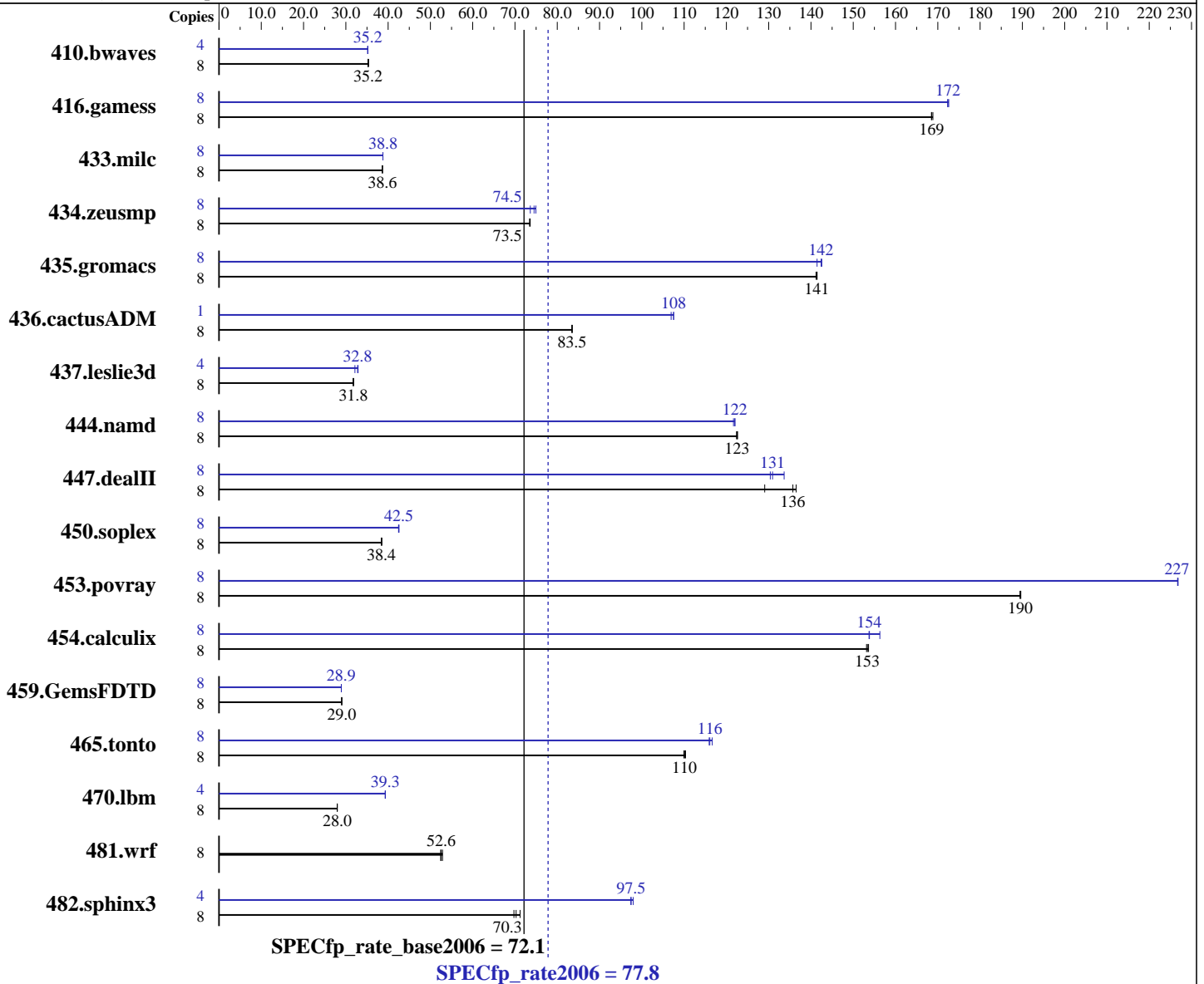
Test sponsor: Supermicro

Tested by: Supermicro

Test date: Feb-2009

Hardware Availability: Nov-2008

Software Availability: Nov-2008



### Hardware

CPU Name: Intel Xeon E5440  
 CPU Characteristics: Quad Core, 2.83 GHz, 1333 MHz System Bus  
 CPU MHz: 2833  
 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: SuSE Linux Enterprise Server 10 (x86\_64) SP2, Kernel 2.6.16.60-0.21-smp  
 Compiler: Intel C++ and Fortran Compiler 11.0 for Linux Build 20080930 Package ID: l\_cproc\_p\_11.0.066, l\_cprof\_p\_11.0.066  
 Auto Parallel: Yes  
 File System: ReiserFS  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit

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L3 Cache: None  
Other Cache: None  
Memory: 16 GB (8 x 2GB DDR2-667 ECC Reg CL5, FBDIMM)  
Disk Subsystem: 80 GB SATA, 7200RPM  
Other Hardware: None

Peak Pointers: 32/64-bit  
Other Software: Binutils 2.18.50.0.7.20080502

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	3072	35.4	<b>3085</b>	<b>35.2</b>	3086	35.2	4	<b>1545</b>	<b>35.2</b>	1545	35.2	1544	35.2
416.gamess	8	928	169	<b>929</b>	<b>169</b>	930	168	8	908	173	909	172	<b>909</b>	<b>172</b>
433.milc	8	1900	38.6	<b>1900</b>	<b>38.6</b>	1901	38.6	8	1894	38.8	<b>1894</b>	<b>38.8</b>	1895	38.8
434.zeusmp	8	991	73.5	<b>991</b>	<b>73.5</b>	989	73.6	8	<b>977</b>	<b>74.5</b>	989	73.6	971	74.9
435.gromacs	8	404	141	405	141	<b>404</b>	<b>141</b>	8	404	141	<b>401</b>	<b>142</b>	401	143
436.cactusADM	8	1146	83.4	<b>1145</b>	<b>83.5</b>	1144	83.5	1	112	107	<b>111</b>	<b>108</b>	111	108
437.leslie3d	8	2361	31.8	<b>2368</b>	<b>31.8</b>	2371	31.7	4	<b>1147</b>	<b>32.8</b>	1143	32.9	1170	32.1
444.namd	8	<b>524</b>	<b>123</b>	524	122	523	123	8	<b>526</b>	<b>122</b>	526	122	527	122
447.dealII	8	<b>674</b>	<b>136</b>	709	129	671	136	8	685	134	702	130	<b>699</b>	<b>131</b>
450.soplex	8	<b>1736</b>	<b>38.4</b>	1737	38.4	1732	38.5	8	<b>1570</b>	<b>42.5</b>	1571	42.5	1567	42.6
453.povray	8	225	189	224	190	<b>225</b>	<b>190</b>	8	188	227	<b>188</b>	<b>227</b>	188	227
454.calculix	8	430	154	431	153	<b>430</b>	<b>153</b>	8	<b>429</b>	<b>154</b>	429	154	422	156
459.GemsFDTD	8	<b>2924</b>	<b>29.0</b>	2922	29.1	2926	29.0	8	2933	28.9	<b>2934</b>	<b>28.9</b>	2934	28.9
465.tonto	8	716	110	<b>715</b>	<b>110</b>	713	110	8	679	116	<b>678</b>	<b>116</b>	675	117
470.lbm	8	3931	28.0	<b>3931</b>	<b>28.0</b>	3930	28.0	4	1398	39.3	1397	39.3	<b>1397</b>	<b>39.3</b>
481.wrf	8	1705	52.4	1690	52.9	<b>1700</b>	<b>52.6</b>	8	1705	52.4	1690	52.9	<b>1700</b>	<b>52.6</b>
482.sphinx3	8	<b>2219</b>	<b>70.3</b>	2190	71.2	2235	69.8	4	796	98.0	<b>800</b>	<b>97.5</b>	800	97.4

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

## Submit Notes

The config file option 'submit' was used.  
taskset was used to bind processes to cores except  
for 436.cactusADM peak

## Operating System Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run

## General Notes

OMP\_NUM\_THREADS set to number of processors  
KMP\_AFFINITY set to "physical,0"  
KMP\_STACKSIZE set to 64M

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## General Notes (Continued)

Hardware Prefetcher = disabled (Default = enabled)  
Tested system can be used with CSE-161M-320B.  
To ensure system stability, SBE-710E-D28 - Enclosure chassis with two 1400W power supplies are required.  
Products description can be obtained at  
<http://www.supermicro.com/servers/blade/module/SBI-7125B-T1.cfm>  
<http://www.supermicro.com/servers/blade/enclosure/>

## Base Compiler Invocation

C benchmarks:  
icc  
  
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.lelie3d: -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:  
-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

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## Base Optimization Flags (Continued)

C++ benchmarks:

-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

Fortran benchmarks:

-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

Benchmarks using both Fortran and C:

-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc

482.sphinx3: icc -m32

C++ benchmarks (except as noted below):

icpc

450.soplex: icpc -m32

Fortran benchmarks (except as noted below):

ifort

437.leslie3d: ifort -m32

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.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  
470.lbm: -DSPEC\_CPU\_LP64  
481.wrf: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_CASE\_FLAG -DSPEC\_CPU\_LINUX



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## Peak Optimization Flags

### C benchmarks:

433.milc: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -fno-alias

470.lbm: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch  
-auto-ilp32

482.sphinx3: -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2

### C++ benchmarks:

444.namd: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -fno-alias -auto-ilp32

447.dealII: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -unroll2 -ansi-alias -scalar-rep-

450.soplex: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -opt-malloc-options=3

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -unroll4 -ansi-alias

### Fortran benchmarks:

410.bwaves: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -unroll2 -Ob0 -ansi-alias  
-scalar-rep-

434.zeusmp: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static

437.leslie3d: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -opt-malloc-options=3 -opt-prefetch

459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -unroll2 -Ob0 -opt-prefetch

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -unroll4 -auto

### Benchmarks using both Fortran and C:

435.gromacs: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -opt-prefetch -auto-ilp32

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## Peak Optimization Flags (Continued)

436.cactusADM: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -unroll2 -opt-prefetch -parallel  
-auto-ilp32

454.calculix: -xSSE4.1 -ipo -O3 -no-prec-div -static -auto-ilp32

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-Linux64-Platform.html>

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revF.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.xml>

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revF.xml>

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

Tested with SPEC CPU2006 v1.1.

Report generated on Wed Jul 23 00:36:50 2014 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 3 June 2009.