



# SPEC® CFP2006 Result

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## Fujitsu Siemens Computers

### SPECfp®\_rate2006 = 75.7

### CELSIUS R650, Intel Xeon E5440 processor

### SPECfp\_rate\_base2006 = 67.7

CPU2006 license: 22

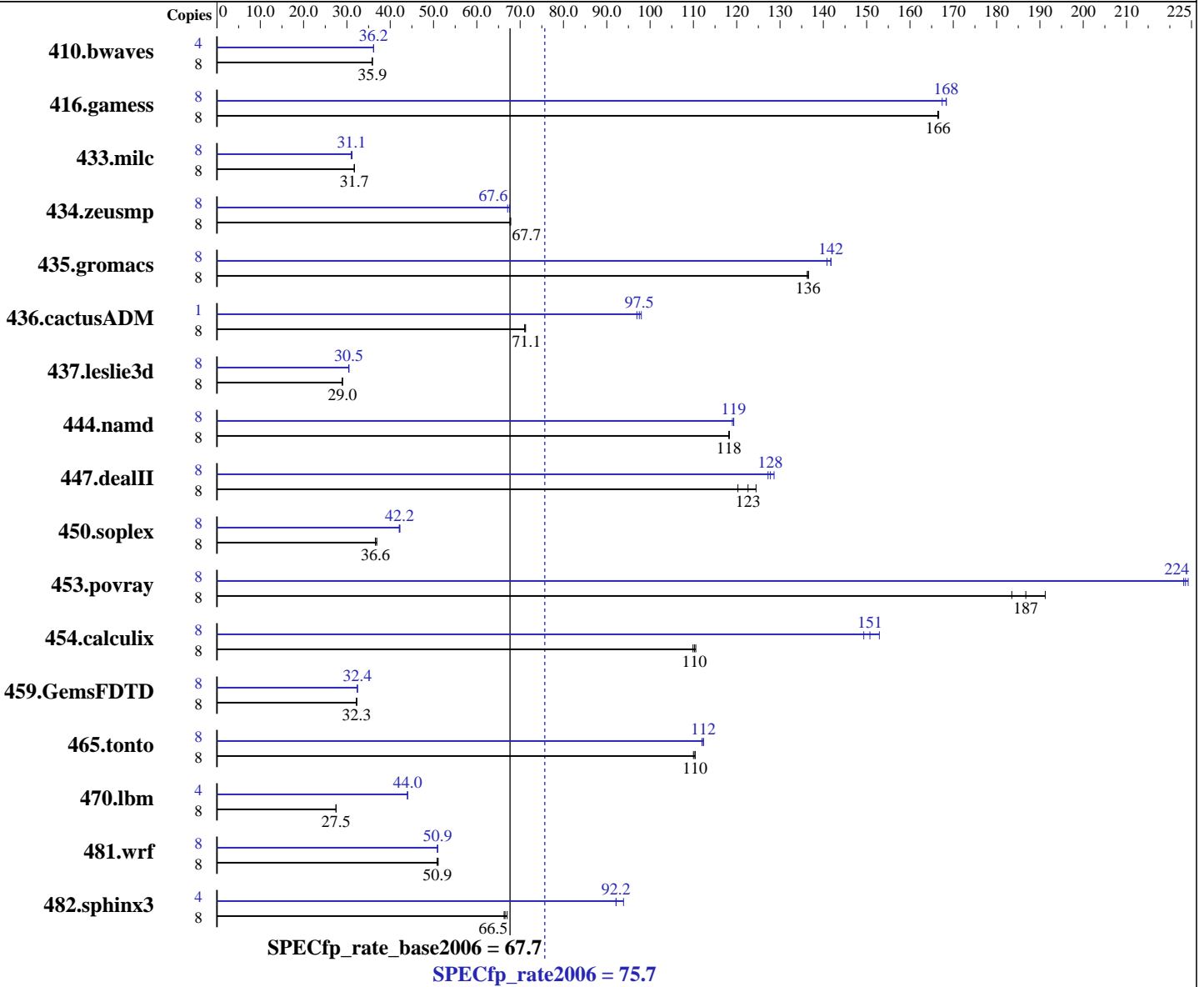
Test sponsor: Fujitsu Siemens Computers

Tested by: Fujitsu Siemens Computers

Test date: Dec-2007

Hardware Availability: Nov-2007

Software Availability: Nov-2007



#### Hardware

CPU Name: Intel Xeon E5440  
 CPU Characteristics: 2833  
 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) SP1, Kernel 2.6.16.46-0.12-smp  
 Compiler: Intel C++ and Fortran Compiler for Linux32 and Linux64 Version 10.1 - Build 20070725  
 Auto Parallel: Yes  
 File System: ext3  
 System State: Multi-User, Run Level 3  
 Base Pointers: 64-bit

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L3 Cache: None  
Other Cache: None  
Memory: 8 GB (8x1 GB PC2-5300F, 2 rank, CL5-5-5, ECC)  
Disk Subsystem: 1 x 400 GB SATA II 7200 RPM  
Other Hardware: None

Peak Pointers: 32/64-bit  
Other Software: binutils-2.17.50.0.5-0.1.x86\_64

### Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	3032	35.9	3030	35.9	<b><u>3031</u></b>	<b><u>35.9</u></b>	4	<b><u>1503</u></b>	<b><u>36.2</u></b>	1503	36.2	1503	36.2
416.gamess	8	<b><u>941</u></b>	<b><u>166</u></b>	940	167	941	166	8	935	167	930	168	<b><u>930</u></b>	<b><u>168</u></b>
433.milc	8	<b><u>2315</u></b>	<b><u>31.7</u></b>	2312	31.8	2317	31.7	8	2368	31.0	2354	31.2	<b><u>2362</u></b>	<b><u>31.1</u></b>
434.zeusmp	8	1076	67.7	<b><u>1075</u></b>	<b><u>67.7</u></b>	1073	67.8	8	<b><u>1077</u></b>	<b><u>67.6</u></b>	1077	67.6	1085	67.1
435.gromacs	8	418	137	419	136	<b><u>418</u></b>	<b><u>136</u></b>	8	<b><u>403</u></b>	<b><u>142</u></b>	403	142	406	141
436.cactusADM	8	1342	71.3	1346	71.0	<b><u>1345</u></b>	<b><u>71.1</u></b>	1	<b><u>123</u></b>	<b><u>97.5</u></b>	123	97.0	122	98.0
437.leslie3d	8	<b><u>2597</u></b>	<b><u>29.0</u></b>	2599	28.9	2594	29.0	8	2468	30.5	<b><u>2469</u></b>	<b><u>30.5</u></b>	2473	30.4
444.namd	8	<b><u>543</u></b>	<b><u>118</u></b>	542	118	543	118	8	<b><u>538</u></b>	<b><u>119</u></b>	538	119	539	119
447.dealII	8	<b><u>746</u></b>	<b><u>123</u></b>	761	120	735	124	8	719	127	<b><u>716</u></b>	<b><u>128</u></b>	712	129
450.soplex	8	1808	36.9	1824	36.6	<b><u>1821</u></b>	<b><u>36.6</u></b>	8	1585	42.1	<b><u>1582</u></b>	<b><u>42.2</u></b>	1579	42.2
453.povray	8	<b><u>228</u></b>	<b><u>187</u></b>	232	184	223	191	8	190	224	191	223	<b><u>190</u></b>	<b><u>224</u></b>
454.calculix	8	<b><u>599</u></b>	<b><u>110</u></b>	600	110	597	111	8	432	153	442	149	<b><u>438</u></b>	<b><u>151</u></b>
459.GemsFDTD	8	2637	32.2	<b><u>2631</u></b>	<b><u>32.3</u></b>	2630	32.3	8	<b><u>2618</u></b>	<b><u>32.4</u></b>	2616	32.4	2620	32.4
465.tonto	8	716	110	713	110	<b><u>713</u></b>	<b><u>110</u></b>	8	701	112	<b><u>701</u></b>	<b><u>112</u></b>	703	112
470.lbm	8	3998	27.5	<b><u>3997</u></b>	<b><u>27.5</u></b>	3997	27.5	4	1248	44.0	1250	44.0	<b><u>1248</u></b>	<b><u>44.0</u></b>
481.wrf	8	<b><u>1755</u></b>	<b><u>50.9</u></b>	1757	50.9	1749	51.1	8	<b><u>1754</u></b>	<b><u>50.9</u></b>	1756	50.9	1752	51.0
482.sphinx3	8	<b><u>2344</u></b>	<b><u>66.5</u></b>	2352	66.3	2327	67.0	4	846	92.1	831	93.9	<b><u>846</u></b>	<b><u>92.2</u></b>

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

### Operating System Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run  
OMP\_NUM\_THREADS set to number of cores (default).

### Platform Notes

BIOS configuration:  
Enhanced Speedstep Technology = Disable  
Hardware Prefetch = Disable, Adjacent Sector Prefetch = Disable  
SnooFilter = Enable



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## General Notes

All binaries were built with 64-bit Intel compiler except: 437.leslie3d, 450.soplex, 470.lbm and 482.sphinx3 in peak were built with 32-bit Intel compiler by changing the path for include and library files.

For information about Fujitsu Siemens Computers please see:  
<http://www.fujitsu-siemens.com>

## 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.leslie3d: -DSPEC\_CPU\_LP64  
444.namd: -DSPEC\_CPU\_LP64  
447.deallI: -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



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## Base Optimization Flags

C benchmarks:

-fast

C++ benchmarks:

-fast

Fortran benchmarks:

-fast

Benchmarks using both Fortran and C:

-fast

## 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.dealII: -DSPEC\_CPU\_LP64

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## Peak Portability Flags (Continued)

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

482.sphinx3: -fast -unroll2

C++ benchmarks:

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

447.dealII: -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

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## Peak Optimization Flags (Continued)

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/flags-ic101-linux-intel64.20090714.00.html>

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

<http://www.spec.org/cpu2006/flags/flags-ic101-linux-intel64.20090714.00.xml>

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

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