



# SPEC<sup>®</sup> CFP2006 Result

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## Fujitsu

**SPECfp<sup>®</sup>\_rate2006 = 60.5**

PRIMERGY TX200 S6, Intel Xeon E5603, 1.60 GHz

**SPECfp\_rate\_base2006 = 58.5**

CPU2006 license: 19

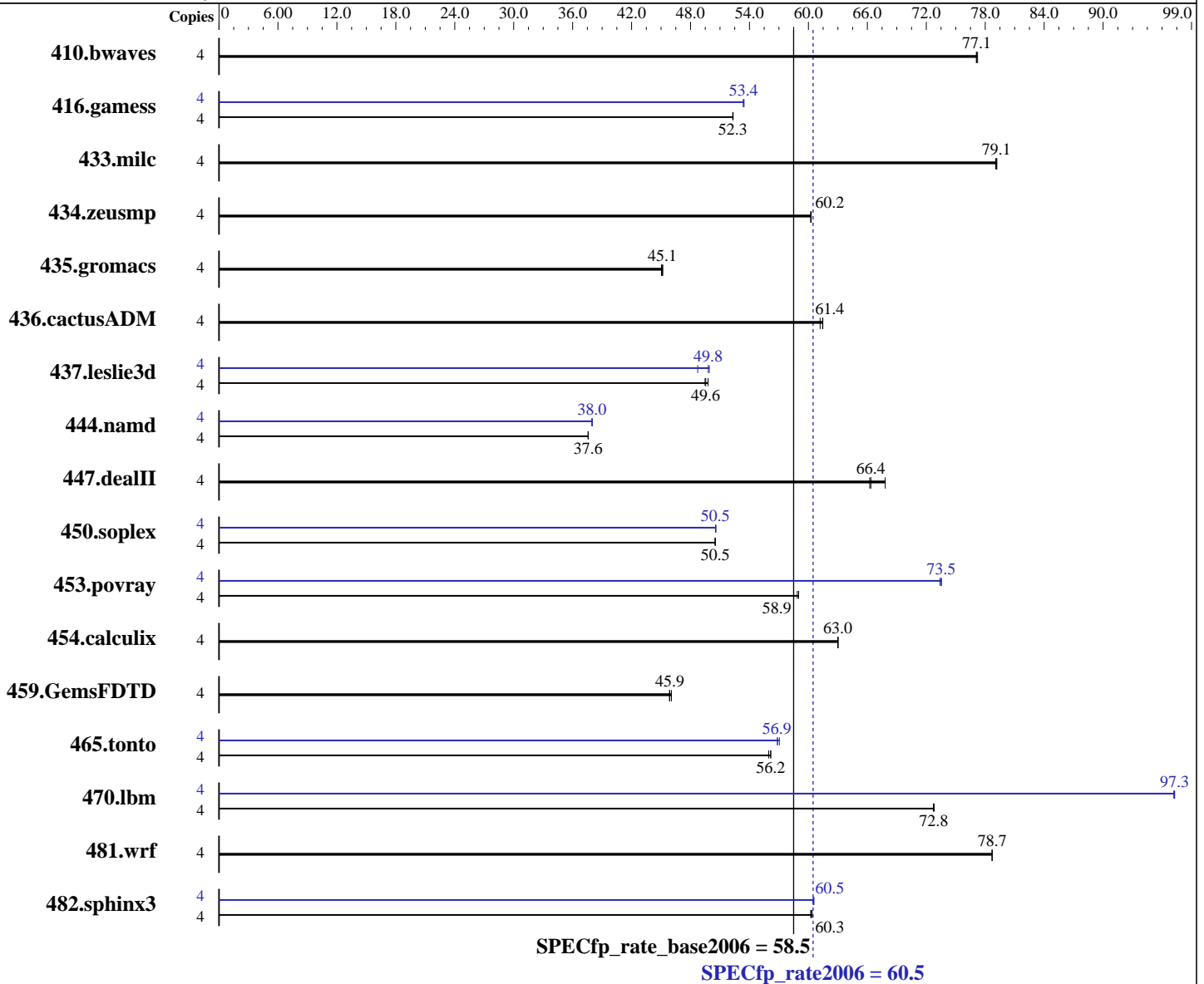
Test sponsor: Fujitsu

Tested by: Fujitsu

Test date: Jan-2011

Hardware Availability: Jul-2010

Software Availability: Nov-2010



### Hardware

CPU Name: Intel Xeon E5603  
 CPU Characteristics:  
 CPU MHz: 1600  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip  
 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: SUSE Linux Enterprise Server 11 (x86\_64) with SP1, Kernel 2.6.32.12-0.7-default  
 Compiler: Intel C++ and Fortran Intel 64 Compiler XE for applications running on Intel 64, Version 12.0.0.082 Build 20101006  
 Auto Parallel: No  
 File System: ext3  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit

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L3 Cache: 4 MB I+D on chip per chip  
Other Cache: None  
Memory: 24 GB (6 x 4 GB 2Rx4 PC3-10600R-9, ECC, running at 1067 MHz and CL7)  
Disk Subsystem: 1 x SAS, 300 GB, 10000 RPM  
Other Hardware: --

Peak Pointers: 32/64-bit  
Other Software: none

## Results Table

Benchmark	Base								Peak							
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio		
410.bwaves	4	705	77.1	<b>705</b>	<b>77.1</b>	704	77.2	4	705	77.1	<b>705</b>	<b>77.1</b>	704	77.2		
416.gamess	4	1497	52.3	1496	52.3	<b>1497</b>	<b>52.3</b>	4	1465	53.4	<b>1466</b>	<b>53.4</b>	1468	53.4		
433.milc	4	464	79.1	464	79.2	<b>464</b>	<b>79.1</b>	4	464	79.1	464	79.2	<b>464</b>	<b>79.1</b>		
434.zeusmp	4	604	60.2	<b>604</b>	<b>60.2</b>	604	60.3	4	604	60.2	<b>604</b>	<b>60.2</b>	604	60.3		
435.gromacs	4	632	45.2	634	45.0	<b>633</b>	<b>45.1</b>	4	632	45.2	634	45.0	<b>633</b>	<b>45.1</b>		
436.cactusADM	4	781	61.2	<b>778</b>	<b>61.4</b>	778	61.5	4	781	61.2	<b>778</b>	<b>61.4</b>	778	61.5		
437.leslie3d	4	<b>759</b>	<b>49.6</b>	755	49.8	760	49.5	4	<b>755</b>	<b>49.8</b>	772	48.7	753	49.9		
444.namd	4	854	37.6	853	37.6	<b>854</b>	<b>37.6</b>	4	844	38.0	<b>845</b>	<b>38.0</b>	845	38.0		
447.dealII	4	675	67.8	691	66.2	<b>690</b>	<b>66.4</b>	4	675	67.8	691	66.2	<b>690</b>	<b>66.4</b>		
450.soplex	4	<b>660</b>	<b>50.5</b>	661	50.5	660	50.5	4	660	50.5	659	50.6	<b>660</b>	<b>50.5</b>		
453.povray	4	<b>361</b>	<b>58.9</b>	364	58.5	361	59.0	4	<b>289</b>	<b>73.5</b>	290	73.4	289	73.6		
454.calculix	4	524	63.0	<b>524</b>	<b>63.0</b>	524	63.0	4	524	63.0	<b>524</b>	<b>63.0</b>	524	63.0		
459.GemsFDTD	4	<b>925</b>	<b>45.9</b>	922	46.1	925	45.9	4	<b>925</b>	<b>45.9</b>	922	46.1	925	45.9		
465.tonto	4	<b>701</b>	<b>56.2</b>	703	56.0	701	56.2	4	690	57.0	<b>692</b>	<b>56.9</b>	692	56.8		
470.lbm	4	<b>755</b>	<b>72.8</b>	756	72.7	755	72.8	4	565	97.2	<b>565</b>	<b>97.3</b>	565	97.3		
481.wrf	4	<b>568</b>	<b>78.7</b>	568	78.7	568	78.7	4	<b>568</b>	<b>78.7</b>	568	78.7	568	78.7		
482.sphinx3	4	<b>1293</b>	<b>60.3</b>	1291	60.4	1294	60.2	4	1289	60.5	1287	60.6	<b>1288</b>	<b>60.5</b>		

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.  
numactl was used to bind copies to the cores

## Operating System Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run  
Large pages were not enabled for this run

## Platform Notes

BIOS configuration:  
Data Reuse Optimization = Disable



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## General Notes

For information about Fujitsu please visit: <http://www.fujitsu.com>  
Binaries were compiled on SLES 10 SP1 with Binutils 2.18.50.0.7.20080502

## 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:  
-xSSE4.2 -ipo -O3 -no-prec-div -ansi-alias

C++ benchmarks:  
-xSSE4.2 -ipo -O3 -no-prec-div -ansi-alias

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## Base Optimization Flags (Continued)

Fortran benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div

Benchmarks using both Fortran and C:

-xSSE4.2 -ipo -O3 -no-prec-div -ansi-alias

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m64

482.sphinx3: icc -m32

C++ benchmarks (except as noted below):

icpc -m64

450.soplex: icpc -m32

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

## 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  
 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: basepeak = yes

470.lbm: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3  
-ansi-alias -opt-prefetch -auto-ilp32

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2

### C++ benchmarks:

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

453.povray: -xSSE4.2(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: basepeak = yes

416.gamess: -xSSE4.2(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-

434.zeusmp: basepeak = yes

437.leslie3d: -xSSE4.2 -ipo -O3 -no-prec-div  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

459.GemsFDTD: basepeak = yes

465.tonto: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -auto  
-inline-calloc -opt-malloc-options=3

### Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

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## Peak Optimization Flags (Continued)

454.calculix: basepeak = yes

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-ic12.0-linux64-revA.20110222.00.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revA.20110222.00.xml>

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

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