



# SPEC<sup>®</sup> CFP2006 Result

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## Fujitsu

### SPECfp<sup>®</sup>\_rate2006 = 82.8

PRIMERGY TX200 S5, Intel Xeon E5520, 2.27 GHz

### SPECfp\_rate\_base2006 = 80.2

CPU2006 license: 19

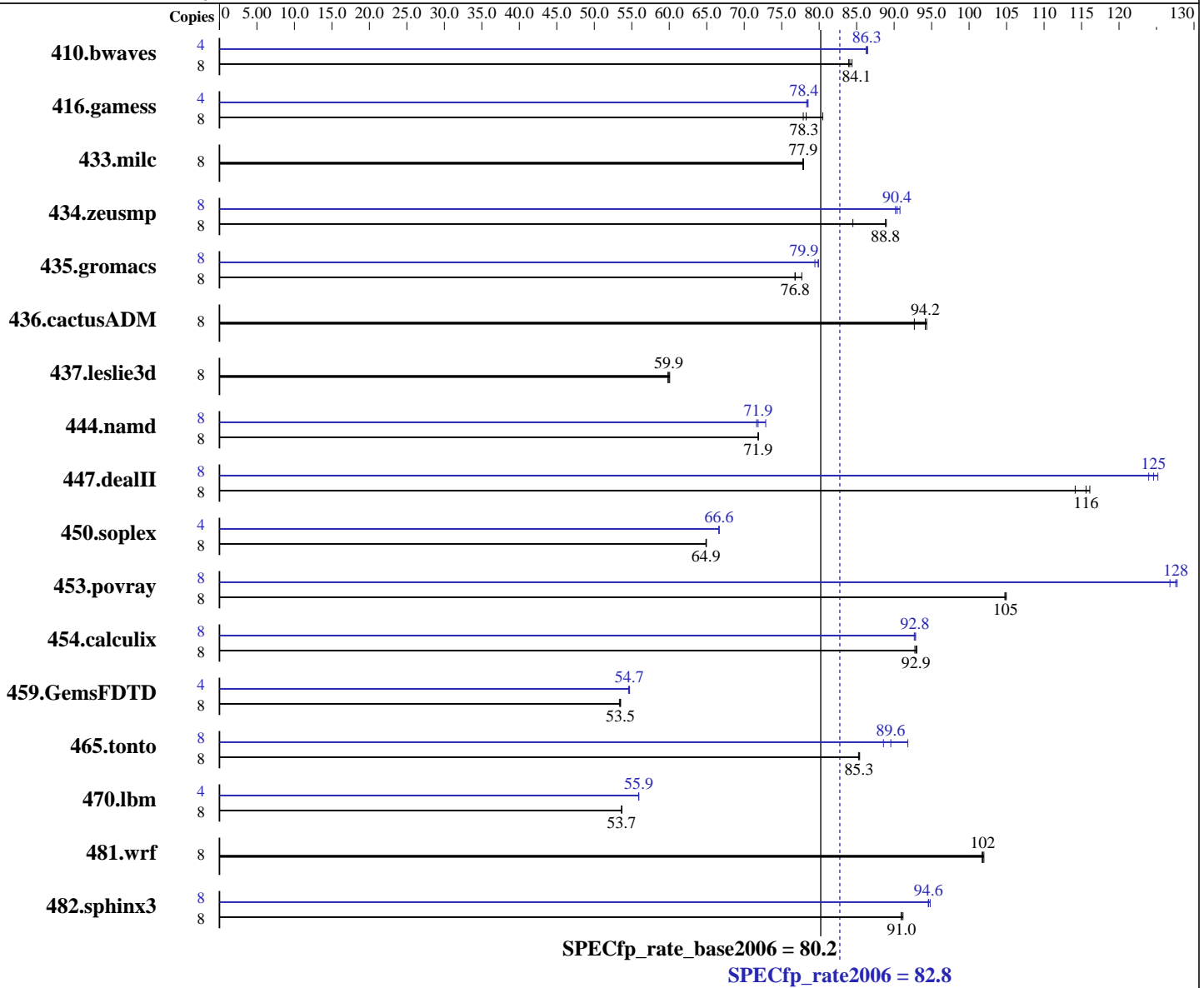
Test sponsor: Fujitsu

Tested by: Fujitsu

Test date: Jun-2009

Hardware Availability: Jun-2009

Software Availability: Feb-2009



### Hardware

CPU Name: Intel Xeon E5520  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.53 GHz  
 CPU MHz: 2267  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip, 2 threads/core  
 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 10 (x86\_64) SP2, Kernel 2.6.16.60-0.21-smpp  
 Compiler: Intel C++ and Fortran Compiler 11.0 for Linux Build 20090131 Package ID: l\_cproc\_p\_11.0.080, l\_cprof\_p\_11.0.080  
 Auto Parallel: No  
 File System: ext3  
 System State: Multi-User Run Level 3  
 Base Pointers: 64-bit

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L3 Cache: 8 MB I+D on chip per chip  
Other Cache: None  
Memory: 24 GB (6x4 GB PC3-10600R, 2 rank, CL9-9-9, ECC, see add'l detail in notes)  
Disk Subsystem: 1 x SATA, 250 GB, 7200 RPM  
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	1289	84.4	<b><u>1293</u></b>	<b><u>84.1</u></b>	1295	83.9	4	630	86.3	629	86.5	<b><u>630</u></b>	<b><u>86.3</u></b>
416.gamess	8	<b><u>2001</u></b>	<b><u>78.3</u></b>	1946	80.5	2011	77.9	4	1000	78.3	997	78.5	<b><u>998</u></b>	<b><u>78.4</u></b>
433.milc	8	<b><u>943</u></b>	<b><u>77.9</u></b>	944	77.8	943	77.9	8	<b><u>943</u></b>	<b><u>77.9</u></b>	944	77.8	943	77.9
434.zeusmp	8	<b><u>819</u></b>	<b><u>88.8</u></b>	862	84.5	818	89.0	8	802	90.8	807	90.2	<b><u>805</u></b>	<b><u>90.4</u></b>
435.gromacs	8	744	76.8	735	77.7	<b><u>744</u></b>	<b><u>76.8</u></b>	8	715	79.9	719	79.4	<b><u>715</u></b>	<b><u>79.9</u></b>
436.cactusADM	8	<b><u>1015</u></b>	<b><u>94.2</u></b>	1013	94.3	1031	92.7	8	<b><u>1015</u></b>	<b><u>94.2</u></b>	1013	94.3	1031	92.7
437.leslie3d	8	1257	59.8	1252	60.1	<b><u>1254</u></b>	<b><u>59.9</u></b>	8	1257	59.8	1252	60.1	<b><u>1254</u></b>	<b><u>59.9</u></b>
444.namd	8	<b><u>892</u></b>	<b><u>71.9</u></b>	893	71.8	892	71.9	8	<b><u>893</u></b>	<b><u>71.9</u></b>	895	71.7	880	72.9
447.dealII	8	788	116	<b><u>792</u></b>	<b><u>116</u></b>	802	114	8	<b><u>734</u></b>	<b><u>125</u></b>	738	124	731	125
450.soplex	8	1027	65.0	1028	64.9	<b><u>1028</u></b>	<b><u>64.9</u></b>	4	501	66.6	500	66.7	<b><u>501</u></b>	<b><u>66.6</u></b>
453.povray	8	<b><u>406</u></b>	<b><u>105</u></b>	405	105	406	105	8	336	127	<b><u>334</u></b>	<b><u>128</u></b>	333	128
454.calculix	8	709	93.0	<b><u>710</u></b>	<b><u>92.9</u></b>	711	92.8	8	<b><u>711</u></b>	<b><u>92.8</u></b>	712	92.7	711	92.9
459.GemsFDTD	8	1591	53.4	1586	53.5	<b><u>1587</u></b>	<b><u>53.5</u></b>	4	776	54.7	778	54.6	<b><u>776</u></b>	<b><u>54.7</u></b>
465.tonto	8	<b><u>923</u></b>	<b><u>85.3</u></b>	923	85.2	922	85.4	8	857	91.8	889	88.6	<b><u>879</u></b>	<b><u>89.6</u></b>
470.lbm	8	2049	53.6	<b><u>2049</u></b>	<b><u>53.7</u></b>	2049	53.7	4	983	55.9	<b><u>983</u></b>	<b><u>55.9</u></b>	982	55.9
481.wrf	8	876	102	<b><u>878</u></b>	<b><u>102</u></b>	878	102	8	876	102	<b><u>878</u></b>	<b><u>102</u></b>	878	102
482.sphinx3	8	1710	91.2	<b><u>1713</u></b>	<b><u>91.0</u></b>	1715	90.9	8	1645	94.8	1649	94.6	<b><u>1648</u></b>	<b><u>94.6</u></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 processes to cores and its local memory.  
Details may be found in the config file.

## Operating System Notes

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

## Platform Notes

The system automatically configures the memory to run at 1066 MHz.



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**Hardware Availability:** Jun-2009  
**Software Availability:** Feb-2009

## General Notes

For information about Fujitsu please visit: <http://www.fujitsu.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.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 -static  
  
C++ benchmarks:  
-xSSE4.2 -ipo -O3 -no-prec-div -static  
  
Fortran benchmarks:  
-xSSE4.2 -ipo -O3 -no-prec-div -static

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## Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:  
-xSSE4.2 -ipo -O3 -no-prec-div -static

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

## Peak Optimization Flags

C benchmarks:

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## Peak Optimization Flags (Continued)

433.milc: basepeak = yes

470.lbm: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch  
-auto-ilp32

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

### C++ benchmarks:

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

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

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

### Fortran benchmarks:

410.bwaves: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch

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

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

437.leslie3d: basepeak = yes

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

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

### Benchmarks using both Fortran and C:

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

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## Peak Optimization Flags (Continued)

436.cactusADM: basepeak = yes

454.calculix: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32

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-ic11.0-fp-linux64-revA.20090901.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090901.xml>

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

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