



# SPEC<sup>®</sup> CFP2006 Result

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## Fujitsu

### SPECfp<sup>®</sup>\_rate2006 = 176

PRIMERGY TX200 S6, Intel Xeon E5640, 2.66 GHz

### SPECfp\_rate\_base2006 = 169

CPU2006 license: 19

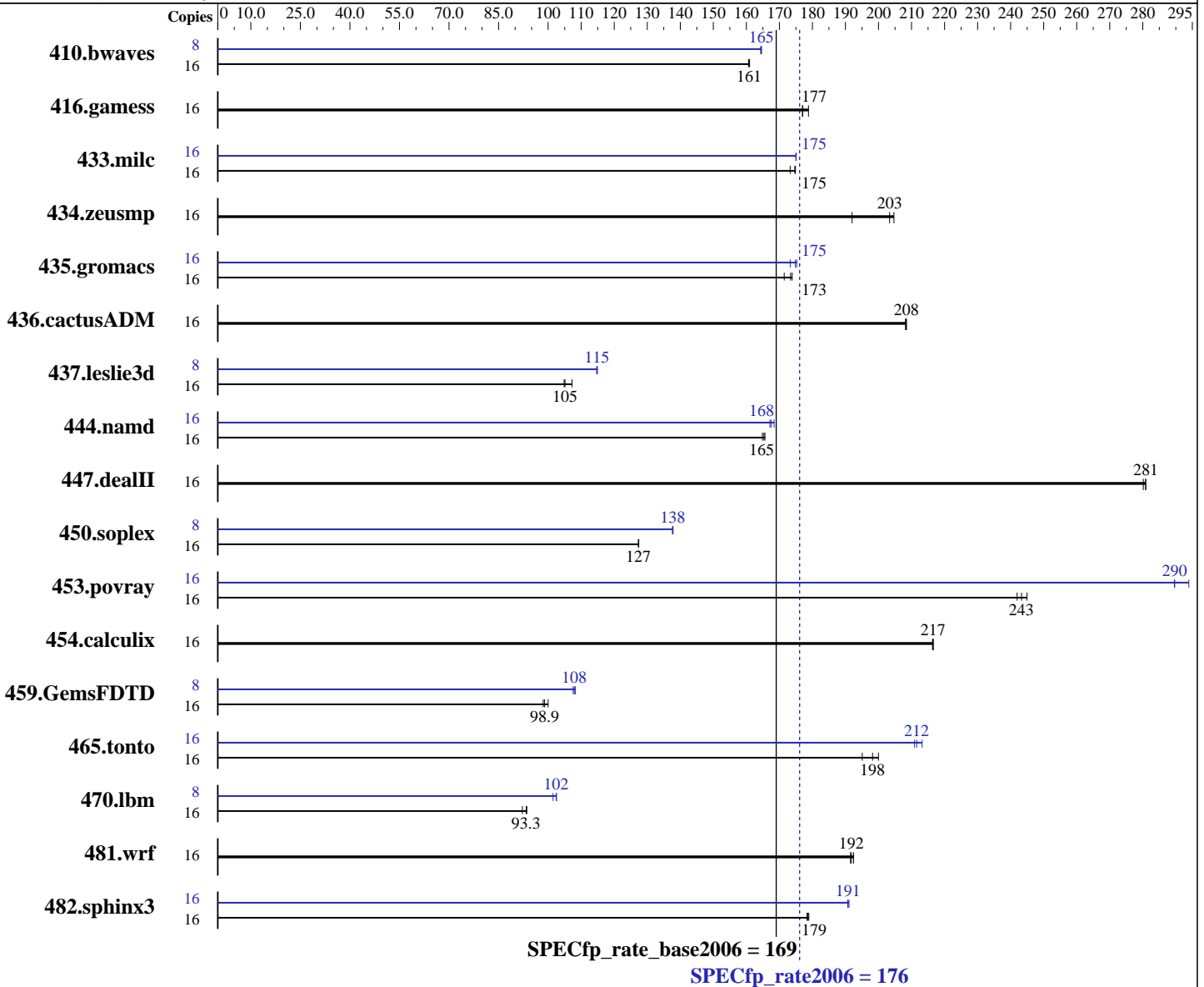
Test date: Jul-2010

Test sponsor: Fujitsu

Hardware Availability: Jul-2010

Tested by: Fujitsu

Software Availability: Jan-2010



### Hardware

CPU Name: Intel Xeon E5640  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.93 GHz  
 CPU MHz: 2667  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 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 11 (x86\_64), Kernel 2.6.27.19-5-default  
 Compiler: Intel C++ and Fortran Professional Compiler for IA32 and Intel 64, Version 11.1 Build 20091130 Package ID: l\_cproc\_p\_11.1.064, l\_cprof\_p\_11.1.064  
 Auto Parallel: No  
 File System: ext3  
 System State: Multi-User Run Level 3

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L3 Cache: 12 MB I+D on chip per chip  
Other Cache: None  
Memory: 48 GB (12x4 GB PC3-10600R, 2 rank, CL9-9-9, ECC, see add'l detail in notes)  
Disk Subsystem: 1 x SATA, 160 GB, 5.4 krpm  
Other Hardware: None

Base Pointers: 64-bit  
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	16	1351	161	<b><u>1352</u></b>	<b><u>161</u></b>	1354	161	8	662	164	661	165	<b><u>661</u></b>	<b><u>165</u></b>
416.gamess	16	1770	177	1752	179	<b><u>1769</u></b>	<b><u>177</u></b>	16	1770	177	1752	179	<b><u>1769</u></b>	<b><u>177</u></b>
433.milc	16	840	175	<b><u>841</u></b>	<b><u>175</u></b>	848	173	16	<b><u>839</u></b>	<b><u>175</u></b>	839	175	839	175
434.zeusmp	16	<b><u>716</u></b>	<b><u>203</u></b>	711	205	758	192	16	<b><u>716</u></b>	<b><u>203</u></b>	711	205	758	192
435.gromacs	16	657	174	666	171	<b><u>659</u></b>	<b><u>173</u></b>	16	652	175	<b><u>653</u></b>	<b><u>175</u></b>	659	173
436.cactusADM	16	<b><u>917</u></b>	<b><u>208</u></b>	917	208	919	208	16	<b><u>917</u></b>	<b><u>208</u></b>	917	208	919	208
437.leslie3d	16	1402	107	1435	105	<b><u>1431</u></b>	<b><u>105</u></b>	8	<b><u>655</u></b>	<b><u>115</u></b>	654	115	656	115
444.namd	16	775	166	<b><u>776</u></b>	<b><u>165</u></b>	778	165	16	768	167	<b><u>766</u></b>	<b><u>168</u></b>	762	168
447.dealII	16	652	281	<b><u>652</u></b>	<b><u>281</u></b>	653	280	16	652	281	<b><u>652</u></b>	<b><u>281</u></b>	653	280
450.soplex	16	1047	127	1048	127	<b><u>1048</u></b>	<b><u>127</u></b>	8	<b><u>484</u></b>	<b><u>138</u></b>	485	138	484	138
453.povray	16	352	242	348	245	<b><u>350</u></b>	<b><u>243</u></b>	16	<b><u>294</u></b>	<b><u>290</u></b>	290	294	294	290
454.calculix	16	610	216	<b><u>610</u></b>	<b><u>217</u></b>	610	217	16	610	216	<b><u>610</u></b>	<b><u>217</u></b>	610	217
459.GemsFDTD	16	1697	100	1723	98.5	<b><u>1716</u></b>	<b><u>98.9</u></b>	8	<b><u>787</u></b>	<b><u>108</u></b>	784	108	789	108
465.tonto	16	787	200	807	195	<b><u>794</u></b>	<b><u>198</u></b>	16	746	211	<b><u>744</u></b>	<b><u>212</u></b>	738	213
470.lbm	16	2350	93.5	2384	92.2	<b><u>2355</u></b>	<b><u>93.3</u></b>	8	<b><u>1073</u></b>	<b><u>102</u></b>	1072	103	1083	101
481.wrf	16	<b><u>932</u></b>	<b><u>192</u></b>	933	192	929	192	16	<b><u>932</u></b>	<b><u>192</u></b>	933	192	929	192
482.sphinx3	16	1743	179	1748	178	<b><u>1745</u></b>	<b><u>179</u></b>	16	1635	191	1632	191	<b><u>1634</u></b>	<b><u>191</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 copies to the cores

## 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.  
BIOS configuration:  
Data Reuse Optimization = Disable



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## General Notes

For information about Fujitsu please visit: <http://www.fujitsu.com>

## 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.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:  
-xSSE4.2 -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 -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.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: -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 -opt-prefetch

470.lbm: -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 -ansi-alias -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: basepeak = yes

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: basepeak = yes

434.zeusmp: basepeak = yes

437.leslie3d: -xSSE4.2 -ipo -O3 -no-prec-div -static

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

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 -inline-calloc -opt-malloc-options=3

### 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: 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-ic11.1-linux64-revE.20100708.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100708.xml>

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