



# SPEC<sup>®</sup> CFP2006 Result

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## Fujitsu

SPECfp<sup>®</sup>2006 = 42.8

PRIMERGY TX300 S5, Intel Xeon W5590, 3.33 GHz

SPECfp\_base2006 = 40.1

CPU2006 license: 19

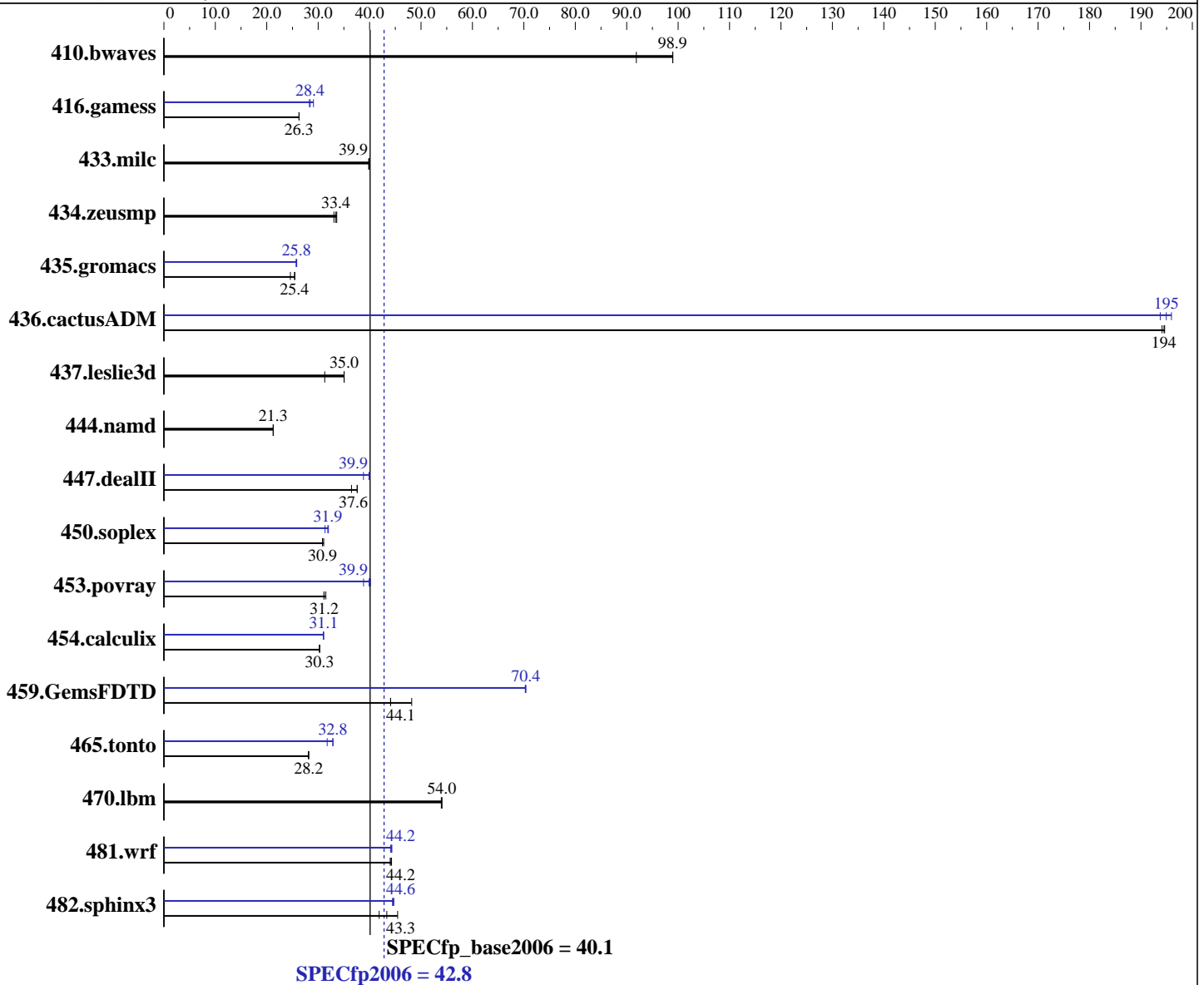
Test sponsor: Fujitsu

Tested by: Fujitsu

Test date: Sep-2009

Hardware Availability: Oct-2009

Software Availability: Feb-2009



### Hardware

CPU Name: Intel Xeon W5590  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz  
 CPU MHz: 3333  
 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 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: Yes  
 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: 48 GB (12x4 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					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	<b>137</b>	<b>98.9</b>	137	99.0	148	91.9	<b>137</b>	<b>98.9</b>	137	99.0	148	91.9
416.gamess	<b>745</b>	<b>26.3</b>	745	26.3	745	26.3	692	28.3	<b>688</b>	<b>28.4</b>	673	29.1
433.milc	230	39.9	<b>230</b>	<b>39.9</b>	231	39.8	230	39.9	<b>230</b>	<b>39.9</b>	231	39.8
434.zeusmp	275	33.1	<b>272</b>	<b>33.4</b>	271	33.6	275	33.1	<b>272</b>	<b>33.4</b>	271	33.6
435.gromacs	290	24.6	280	25.5	<b>281</b>	<b>25.4</b>	278	25.7	276	25.8	<b>277</b>	<b>25.8</b>
436.cactusADM	61.6	194	<b>61.4</b>	<b>194</b>	61.4	195	61.0	196	61.7	194	<b>61.3</b>	<b>195</b>
437.leslie3d	<b>268</b>	<b>35.0</b>	268	35.1	301	31.3	<b>268</b>	<b>35.0</b>	268	35.1	301	31.3
444.namd	<b>377</b>	<b>21.3</b>	377	21.3	377	21.2	<b>377</b>	<b>21.3</b>	377	21.3	377	21.2
447.dealII	314	36.5	<b>304</b>	<b>37.6</b>	304	37.6	286	39.9	<b>287</b>	<b>39.9</b>	295	38.8
450.soplex	268	31.1	<b>270</b>	<b>30.9</b>	270	30.8	261	32.0	266	31.3	<b>262</b>	<b>31.9</b>
453.povray	<b>171</b>	<b>31.2</b>	171	31.1	169	31.5	<b>133</b>	<b>39.9</b>	137	38.8	132	40.2
454.calculix	272	30.3	<b>272</b>	<b>30.3</b>	273	30.3	<b>266</b>	<b>31.1</b>	266	31.0	266	31.1
459.GemsFDTD	<b>241</b>	<b>44.1</b>	241	44.1	220	48.2	151	70.3	<b>151</b>	<b>70.4</b>	151	70.4
465.tonto	349	28.2	<b>350</b>	<b>28.2</b>	350	28.1	299	32.9	310	31.8	<b>300</b>	<b>32.8</b>
470.lbm	254	54.1	255	53.9	<b>254</b>	<b>54.0</b>	254	54.1	255	53.9	<b>254</b>	<b>54.0</b>
481.wrf	<b>253</b>	<b>44.2</b>	252	44.3	254	44.0	<b>253</b>	<b>44.2</b>	253	44.1	252	44.3
482.sphinx3	466	41.9	429	45.5	<b>450</b>	<b>43.3</b>	438	44.4	436	44.7	<b>437</b>	<b>44.6</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

## Platform Notes

BIOS configuration:  
Memory Mode = Max Performance

## General Notes

OMP\_NUM\_THREADS set to number of cores  
KMP\_AFFINITY set to granularity=fine,scatter  
KMP\_STACKSIZE set to 200M

This result was measured on the PRIMERGY TX300 S5. The PRIMERGY TX300 S5  
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## General Notes (Continued)

and the PRIMERGY RX300 S5 are electronically equivalent.

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 -parallel -opt-prefetch

C++ benchmarks:  
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

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## Base Optimization Flags (Continued)

Fortran benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:

-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -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:

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.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: basepeak = yes

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

### C++ benchmarks:

444.namd: basepeak = yes

447.dealIII: -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- -opt-prefetch

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: basepeak = yes

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: basepeak = yes

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 -parallel

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: -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 -opt-prefetch -parallel -auto-ilp32

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

481.wrf: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch  
-parallel -auto-ilp32

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.20091013.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.20091013.xml>

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

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