



# SPEC<sup>®</sup> CFP2006 Result

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## Fujitsu

SPECfp<sup>®</sup>2006 = 39.1

PRIMERGY TX300 S5, Intel Xeon X5560, 2.80 GHz

SPECfp\_base2006 = 36.8

CPU2006 license: 19

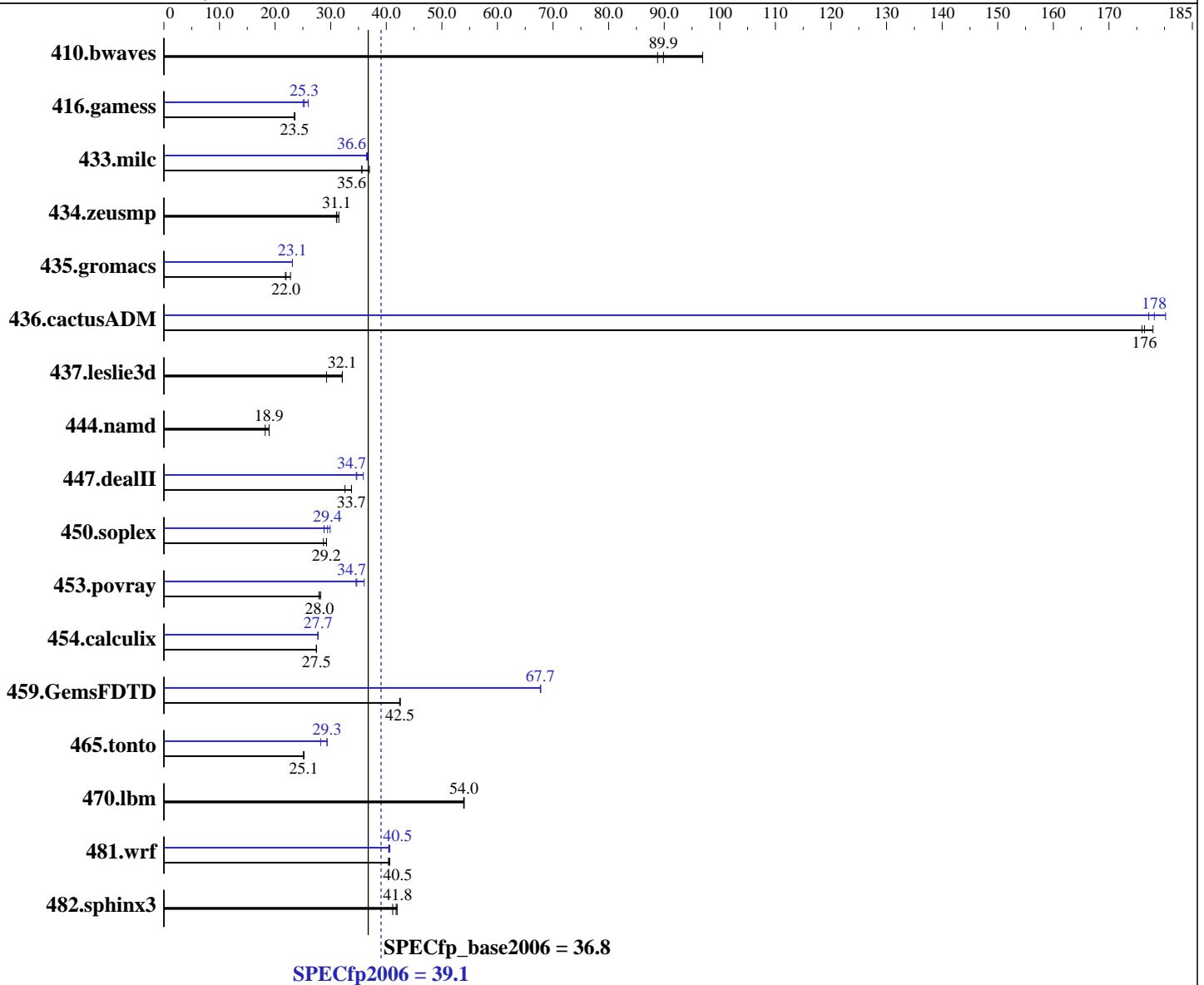
Test sponsor: Fujitsu

Tested by: Fujitsu

Test date: Jul-2009

Hardware Availability: Jun-2009

Software Availability: Feb-2009



### Hardware

CPU Name: Intel Xeon X5560  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.20 GHz  
 CPU MHz: 2800  
 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 (6x8 GB PC3-10600R, 2 rank, CL9-9-9, ECC)  
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	153	88.8	140	96.9	<u>151</u>	<u>89.9</u>	153	88.8	140	96.9	<u>151</u>	<u>89.9</u>
416.gamess	<u>833</u>	<u>23.5</u>	835	23.5	831	23.6	<u>775</u>	<u>25.3</u>	782	25.0	754	26.0
433.milc	248	37.0	<u>258</u>	<u>35.6</u>	258	35.6	<u>251</u>	<u>36.6</u>	251	36.6	252	36.4
434.zeusmp	293	31.0	<u>293</u>	<u>31.1</u>	289	31.5	293	31.0	<u>293</u>	<u>31.1</u>	289	31.5
435.gromacs	<u>325</u>	<u>22.0</u>	314	22.8	327	21.9	<u>309</u>	<u>23.1</u>	309	23.1	309	23.1
436.cactusADM	<u>67.7</u>	<u>176</u>	67.2	178	67.9	176	66.3	180	67.5	177	<u>67.1</u>	<u>178</u>
437.leslie3d	293	32.1	<u>293</u>	<u>32.1</u>	321	29.3	293	32.1	<u>293</u>	<u>32.1</u>	321	29.3
444.namd	440	18.2	424	18.9	<u>424</u>	<u>18.9</u>	440	18.2	424	18.9	<u>424</u>	<u>18.9</u>
447.dealII	<u>339</u>	<u>33.7</u>	339	33.8	351	32.6	331	34.6	319	35.9	<u>330</u>	<u>34.7</u>
450.soplex	<u>285</u>	<u>29.2</u>	285	29.3	291	28.7	<u>283</u>	<u>29.4</u>	289	28.8	279	29.9
453.povray	191	27.9	<u>190</u>	<u>28.0</u>	189	28.2	<u>153</u>	<u>34.7</u>	154	34.6	148	36.0
454.calculix	<u>301</u>	<u>27.5</u>	300	27.5	301	27.4	297	27.7	<u>298</u>	<u>27.7</u>	298	27.7
459.GemsFDTD	250	42.4	249	42.5	<u>250</u>	<u>42.5</u>	157	67.7	156	67.8	<u>157</u>	<u>67.7</u>
465.tonto	391	25.2	<u>391</u>	<u>25.1</u>	392	25.1	349	28.2	335	29.4	<u>335</u>	<u>29.3</u>
470.lbm	254	54.0	<u>254</u>	<u>54.0</u>	255	53.9	254	54.0	<u>254</u>	<u>54.0</u>	255	53.9
481.wrf	<u>276</u>	<u>40.5</u>	275	40.6	277	40.4	276	40.4	<u>276</u>	<u>40.5</u>	275	40.6
482.sphinx3	474	41.2	464	42.0	<u>467</u>	<u>41.8</u>	474	41.2	464	42.0	<u>467</u>	<u>41.8</u>

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

## 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 and the PRIMERGY RX300 S5 are electronically equivalent.

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



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## 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

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



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## Peak Compiler Invocation

C benchmarks:

icc

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  
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 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  
 482.sphinx3: -DSPEC\_CPU\_LP64

## Peak Optimization Flags

C benchmarks:

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

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

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## Peak Optimization Flags (Continued)

C++ benchmarks:

444.namd: basepeak = yes

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- -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

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



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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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Tested with SPEC CPU2006 v1.1.  
Report generated on Wed Jul 23 04:43:26 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 13 October 2009.