



# SPEC® CFP2006 Result

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## Fujitsu

**SPECfp®2006 = 39.3**

PRIMERGY BX620 S5, Intel Xeon X5560, 2.80 GHz

**SPECfp\_base2006 = 36.7**

CPU2006 license: 19

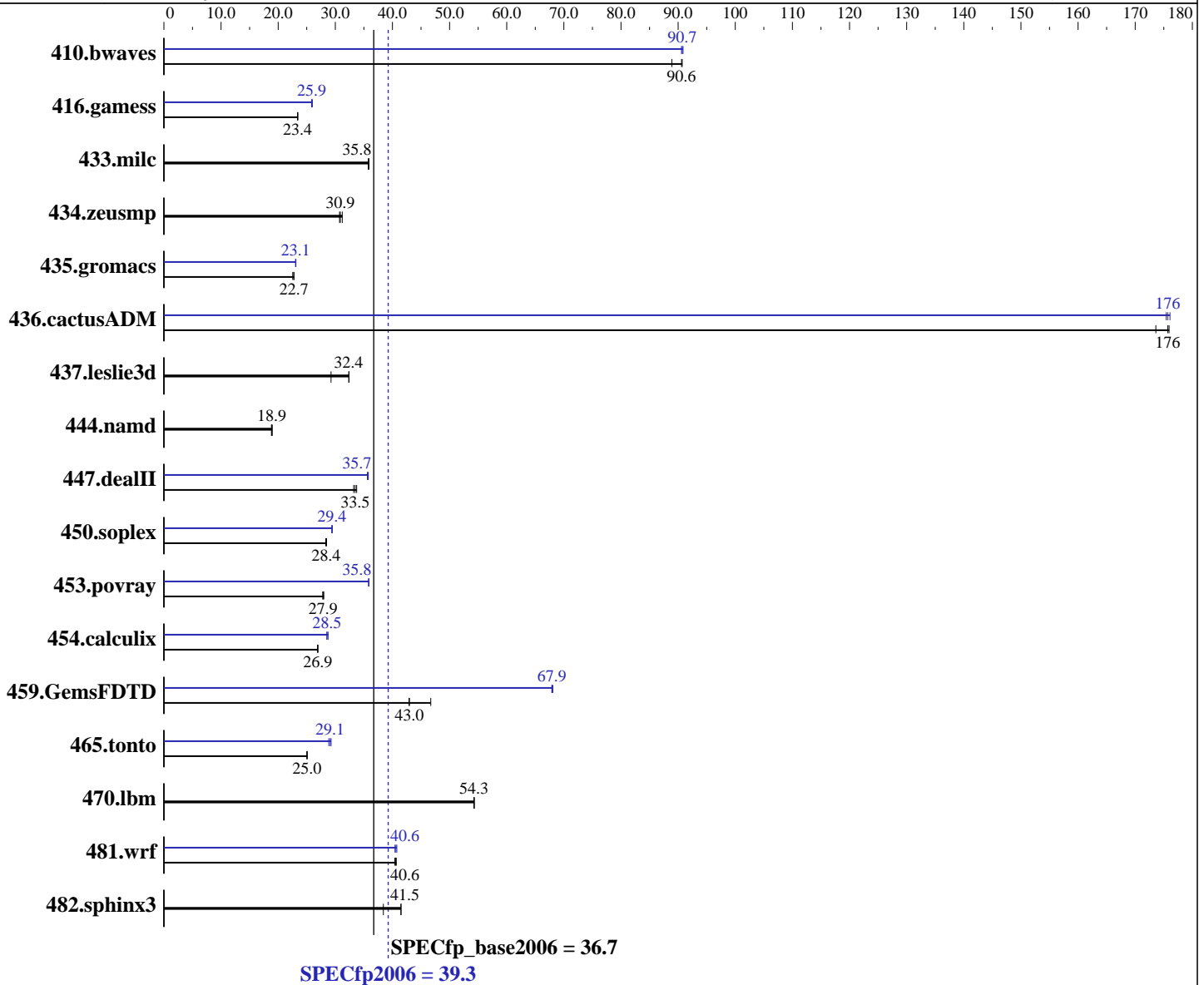
Test date: Oct-2009

Test sponsor: Fujitsu

Hardware Availability: Apr-2009

Tested by: Fujitsu

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	88.9	<b><u>150</u></b>	<b><u>90.6</u></b>	150	90.7	<b><u>150</u></b>	<b><u>90.7</u></b>	150	90.6	150	90.9
416.gamess	837	23.4	<b><u>836</u></b>	<b><u>23.4</u></b>	836	23.4	758	25.8	<b><u>756</u></b>	<b><u>25.9</u></b>	754	26.0
433.milc	256	35.9	<b><u>256</u></b>	<b><u>35.8</u></b>	256	35.8	256	35.9	<b><u>256</u></b>	<b><u>35.8</u></b>	256	35.8
434.zeusmp	<b><u>295</u></b>	<b><u>30.9</u></b>	296	30.7	292	31.2	<b><u>295</u></b>	<b><u>30.9</u></b>	296	30.7	292	31.2
435.gromacs	314	22.7	<b><u>314</u></b>	<b><u>22.7</u></b>	317	22.5	<b><u>309</u></b>	<b><u>23.1</u></b>	310	23.0	309	23.1
436.cactusADM	67.9	176	68.8	174	<b><u>68.0</u></b>	<b><u>176</u></b>	68.1	175	<b><u>68.0</u></b>	<b><u>176</u></b>	67.9	176
437.leslie3d	290	32.4	<b><u>291</u></b>	<b><u>32.4</u></b>	321	29.3	290	32.4	<b><u>291</u></b>	<b><u>32.4</u></b>	321	29.3
444.namd	426	18.8	<b><u>424</u></b>	<b><u>18.9</u></b>	423	19.0	426	18.8	<b><u>424</u></b>	<b><u>18.9</u></b>	423	19.0
447.dealII	344	33.2	339	33.7	<b><u>342</u></b>	<b><u>33.5</u></b>	321	35.6	<b><u>321</u></b>	<b><u>35.7</u></b>	320	35.8
450.soplex	293	28.5	<b><u>294</u></b>	<b><u>28.4</u></b>	294	28.3	284	29.4	283	29.5	<b><u>284</u></b>	<b><u>29.4</u></b>
453.povray	<b><u>191</u></b>	<b><u>27.9</u></b>	191	27.8	190	28.0	148	35.9	148	35.8	<b><u>148</u></b>	<b><u>35.8</u></b>
454.calculix	306	26.9	<b><u>306</u></b>	<b><u>26.9</u></b>	307	26.9	287	28.7	<b><u>289</u></b>	<b><u>28.5</u></b>	289	28.5
459.GemsFDTD	227	46.7	247	42.9	<b><u>247</u></b>	<b><u>43.0</u></b>	156	67.9	156	68.1	<b><u>156</u></b>	<b><u>67.9</u></b>
465.tonto	393	25.0	392	25.1	<b><u>393</u></b>	<b><u>25.0</u></b>	<b><u>338</u></b>	<b><u>29.1</u></b>	341	28.9	336	29.3
470.lbm	253	54.3	<b><u>253</u></b>	<b><u>54.3</u></b>	253	54.3	253	54.3	<b><u>253</u></b>	<b><u>54.3</u></b>	253	54.3
481.wrf	276	40.4	275	40.7	<b><u>275</u></b>	<b><u>40.6</u></b>	276	40.4	274	40.8	<b><u>275</u></b>	<b><u>40.6</u></b>
482.sphinx3	470	41.5	507	38.4	<b><u>470</u></b>	<b><u>41.5</u></b>	470	41.5	507	38.4	<b><u>470</u></b>	<b><u>41.5</u></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

## General Notes

OMP\_NUM\_THREADS set to number of cores  
KMP\_AFFINITY set to granularity=fine,scatter  
KMP\_STACKSIZE set to 200M  
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Test date: Oct-2009  
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Software Availability: Feb-2009

## 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  
 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  
 482.sphinx3: -DSPEC\_CPU\_LP64

## Peak Optimization Flags

C benchmarks:

433.milc: basepeak = yes

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

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## Peak Optimization Flags (Continued)

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

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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