



# SPEC<sup>®</sup> CFP2006 Result

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## Fujitsu

SPECfp<sup>®</sup>2006 = 29.1

## CELSIUS M470, Intel Xeon W3505

SPECfp\_base2006 = 28.3

CPU2006 license: 19

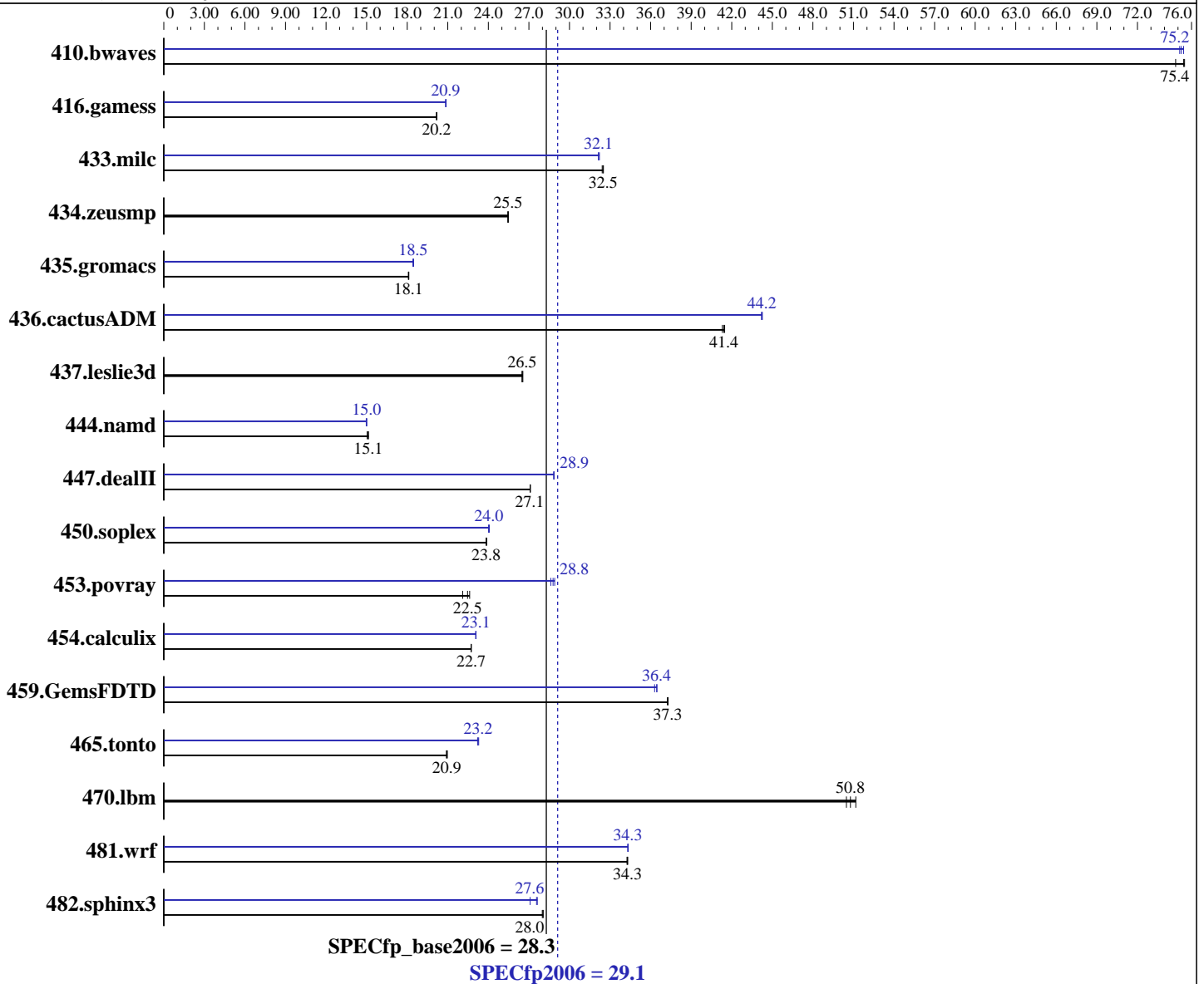
Test sponsor: Fujitsu

Tested by: Fujitsu

Test date: Apr-2009

Hardware Availability: Apr-2009

Software Availability: Feb-2009



### Hardware

CPU Name: Intel Xeon W3505  
 CPU Characteristics:  
 CPU MHz: 2533  
 FPU: Integrated  
 CPU(s) enabled: 2 cores, 1 chip, 2 cores/chip  
 CPU(s) orderable: 1 chip  
 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-smp  
 Compiler: Intel C++ and Fortran Compiler 11.0 for Linux Build 20090131 Package ID: I\_cprof\_p\_11.0.080, I\_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: 4 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 12 GB (6x2 GB PC3 10600E, 2 rank, ECC, running at 1066 MHz)  
 Disk Subsystem: 1 x SATA II, 400 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	182	74.8	<b>180</b>	<b>75.4</b>	180	75.5	<b>181</b>	<b>75.2</b>	180	75.4	181	75.1
416.gamess	970	20.2	971	20.2	<b>971</b>	<b>20.2</b>	<b>939</b>	<b>20.9</b>	940	20.8	938	20.9
433.milc	282	32.5	283	32.4	<b>283</b>	<b>32.5</b>	286	32.1	<b>286</b>	<b>32.1</b>	285	32.2
434.zeusmp	357	25.5	358	25.4	<b>357</b>	<b>25.5</b>	357	25.5	358	25.4	<b>357</b>	<b>25.5</b>
435.gromacs	<b>394</b>	<b>18.1</b>	394	18.1	395	18.1	<b>387</b>	<b>18.5</b>	388	18.4	386	18.5
436.cactusADM	288	41.5	<b>289</b>	<b>41.4</b>	289	41.3	270	44.3	<b>270</b>	<b>44.2</b>	270	44.2
437.leslie3d	355	26.5	354	26.6	<b>355</b>	<b>26.5</b>	355	26.5	354	26.6	<b>355</b>	<b>26.5</b>
444.namd	<b>530</b>	<b>15.1</b>	530	15.1	533	15.0	<b>535</b>	<b>15.0</b>	536	15.0	535	15.0
447.dealII	<b>422</b>	<b>27.1</b>	422	27.1	422	27.1	397	28.8	<b>397</b>	<b>28.9</b>	396	28.9
450.soplex	350	23.8	349	23.9	<b>350</b>	<b>23.8</b>	<b>347</b>	<b>24.0</b>	346	24.1	347	24.0
453.povray	<b>237</b>	<b>22.5</b>	235	22.6	241	22.1	<b>185</b>	<b>28.8</b>	186	28.6	184	28.9
454.calculix	<b>363</b>	<b>22.7</b>	363	22.7	363	22.7	357	23.1	358	23.1	<b>357</b>	<b>23.1</b>
459.GemsFDTD	285	37.2	<b>285</b>	<b>37.3</b>	285	37.3	<b>291</b>	<b>36.4</b>	291	36.5	292	36.3
465.tonto	469	21.0	<b>470</b>	<b>20.9</b>	471	20.9	423	23.3	<b>423</b>	<b>23.2</b>	424	23.2
470.lbm	272	50.5	<b>271</b>	<b>50.8</b>	268	51.2	272	50.5	<b>271</b>	<b>50.8</b>	268	51.2
481.wrf	<b>326</b>	<b>34.3</b>	326	34.3	326	34.3	326	34.3	<b>325</b>	<b>34.3</b>	325	34.3
482.sphinx3	696	28.0	695	28.1	<b>695</b>	<b>28.0</b>	720	27.1	<b>707</b>	<b>27.6</b>	706	27.6

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 speed set to "Max Performance" (Switch in "Advanced Memory Options")

### 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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## General Notes (Continued)

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: -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: -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- -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

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## Peak Optimization Flags (Continued)

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

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.20090710.07.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.20090710.07.xml>

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

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