



# SPEC<sup>®</sup> CFP2006 Result

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## Fujitsu

SPECfp<sup>®</sup>2006 = 30.7

PRIMERGY TX150 S7, Intel Core i3-540, 3.06 GHz

SPECfp\_base2006 = 29.3

CPU2006 license: 19

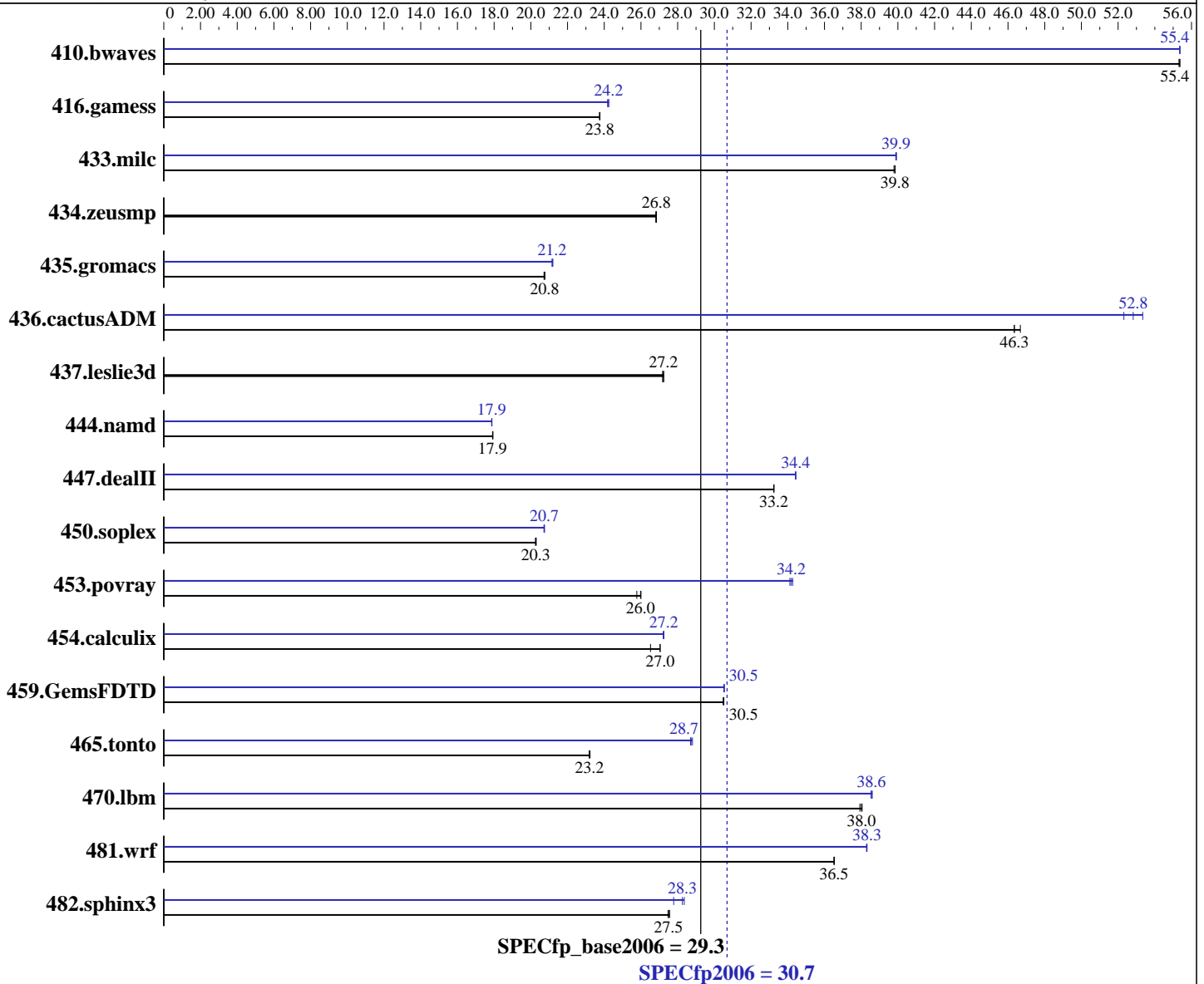
Test sponsor: Fujitsu

Tested by: Fujitsu

Test date: Dec-2009

Hardware Availability: Jan-2010

Software Availability: Nov-2009



**Hardware**

CPU Name: Intel Core i3-540  
 CPU Characteristics:  
 CPU MHz: 3067  
 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 11 (x86\_64), Kernel 2.6.27.19-5-smp  
 Compiler: Intel C++ and Fortran Professional Compiler for IA32 and Intel 64, Version 11.1 Build 20091012 Package ID: l\_cproc\_p\_11.1.059, l\_cprof\_p\_11.1.059  
 Auto Parallel: Yes  
 File System: ext3  
 System State: Multi-User Run Level 3

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L3 Cache: 4 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 8 GB (2x4 GB PC3-10600E, 2 rank, CL9-9-9, ECC)  
 Disk Subsystem: 1 x SATA, 250 GB, 7200 RPM  
 Other Hardware: None

Base Pointers: 64-bit  
 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    | 246               | 55.3               | <b><u>245</u></b> | <b><u>55.4</u></b> | 245               | 55.4               | 245               | 55.4               | <b><u>245</u></b> | <b><u>55.4</u></b> | 245               | 55.4               |
| 416.gamess    | 824               | 23.8               | <b><u>824</u></b> | <b><u>23.8</u></b> | 825               | 23.7               | <b><u>808</u></b> | <b><u>24.2</u></b> | 810               | 24.2               | 808               | 24.2               |
| 433.milc      | <b><u>230</u></b> | <b><u>39.8</u></b> | 230               | 39.9               | 231               | 39.8               | 230               | 39.9               | <b><u>230</u></b> | <b><u>39.9</u></b> | 230               | 39.9               |
| 434.zeusmp    | 339               | 26.8               | 339               | 26.8               | <b><u>339</u></b> | <b><u>26.8</u></b> | 339               | 26.8               | 339               | 26.8               | <b><u>339</u></b> | <b><u>26.8</u></b> |
| 435.gromacs   | 344               | 20.8               | <b><u>344</u></b> | <b><u>20.8</u></b> | 345               | 20.7               | 337               | 21.2               | <b><u>337</u></b> | <b><u>21.2</u></b> | 337               | 21.2               |
| 436.cactusADM | <b><u>258</u></b> | <b><u>46.3</u></b> | 256               | 46.7               | 258               | 46.3               | 224               | 53.3               | <b><u>226</u></b> | <b><u>52.8</u></b> | 228               | 52.3               |
| 437.leslie3d  | 346               | 27.2               | 345               | 27.2               | <b><u>345</u></b> | <b><u>27.2</u></b> | 346               | 27.2               | 345               | 27.2               | <b><u>345</u></b> | <b><u>27.2</u></b> |
| 444.namd      | 447               | 17.9               | 448               | 17.9               | <b><u>448</u></b> | <b><u>17.9</u></b> | 448               | 17.9               | <b><u>449</u></b> | <b><u>17.9</u></b> | 449               | 17.9               |
| 447.dealII    | 344               | 33.3               | <b><u>344</u></b> | <b><u>33.2</u></b> | 344               | 33.2               | 332               | 34.4               | <b><u>332</u></b> | <b><u>34.4</u></b> | 332               | 34.4               |
| 450.soplex    | 411               | 20.3               | 412               | 20.3               | <b><u>412</u></b> | <b><u>20.3</u></b> | 403               | 20.7               | <b><u>402</u></b> | <b><u>20.7</u></b> | 402               | 20.7               |
| 453.povray    | <b><u>205</u></b> | <b><u>26.0</u></b> | 206               | 25.8               | 205               | 26.0               | <b><u>156</u></b> | <b><u>34.2</u></b> | 155               | 34.3               | 156               | 34.1               |
| 454.calculix  | 305               | 27.0               | <b><u>305</u></b> | <b><u>27.0</u></b> | 311               | 26.5               | 303               | 27.2               | 303               | 27.2               | <b><u>303</u></b> | <b><u>27.2</u></b> |
| 459.GemsFDTD  | 348               | 30.5               | 348               | 30.5               | <b><u>348</u></b> | <b><u>30.5</u></b> | 348               | 30.5               | <b><u>348</u></b> | <b><u>30.5</u></b> | 347               | 30.5               |
| 465.tonto     | 424               | 23.2               | 424               | 23.2               | <b><u>424</u></b> | <b><u>23.2</u></b> | 342               | 28.8               | <b><u>342</u></b> | <b><u>28.7</u></b> | 343               | 28.7               |
| 470.lbm       | 361               | 38.1               | <b><u>361</u></b> | <b><u>38.0</u></b> | 362               | 37.9               | 357               | 38.5               | <b><u>356</u></b> | <b><u>38.6</u></b> | 356               | 38.6               |
| 481.wrf       | 306               | 36.5               | <b><u>306</u></b> | <b><u>36.5</u></b> | 306               | 36.5               | 292               | 38.3               | <b><u>292</u></b> | <b><u>38.3</u></b> | 292               | 38.3               |
| 482.sphinx3   | <b><u>709</u></b> | <b><u>27.5</u></b> | 709               | 27.5               | 707               | 27.6               | <b><u>690</u></b> | <b><u>28.3</u></b> | 687               | 28.4               | 702               | 27.8               |

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



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CPU2006 license: 19  
Test sponsor: Fujitsu  
Tested by: Fujitsu

Test date: Dec-2009  
Hardware Availability: Jan-2010  
Software Availability: Nov-2009

## 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.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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**Tested by:** Fujitsu

**Software Availability:** Nov-2009

## 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.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

## 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)  
 -ansi-alias

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)  
 -parallel -ansi-alias -auto-ilp32

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## Peak Optimization Flags (Continued)

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- -auto-ilp32

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)  
-inline-calloc -opt-malloc-options=3 -auto -unroll4

### 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

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## Peak Optimization Flags (Continued)

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

481.wrf: Same as 454.calculix

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic11.1-fp-linux64-revF.20100202.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic11.1-fp-linux64-revF.20100202.xml>

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

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