



# SPEC<sup>®</sup> CFP2006 Result

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## Fujitsu

**SPECfp<sup>®</sup>2006 = 116**

PRIMERGY CX2550 M1, Intel Xeon E5-2699 v3, 2.3 GHz

**SPECfp\_base2006 = 109**

CPU2006 license: 19

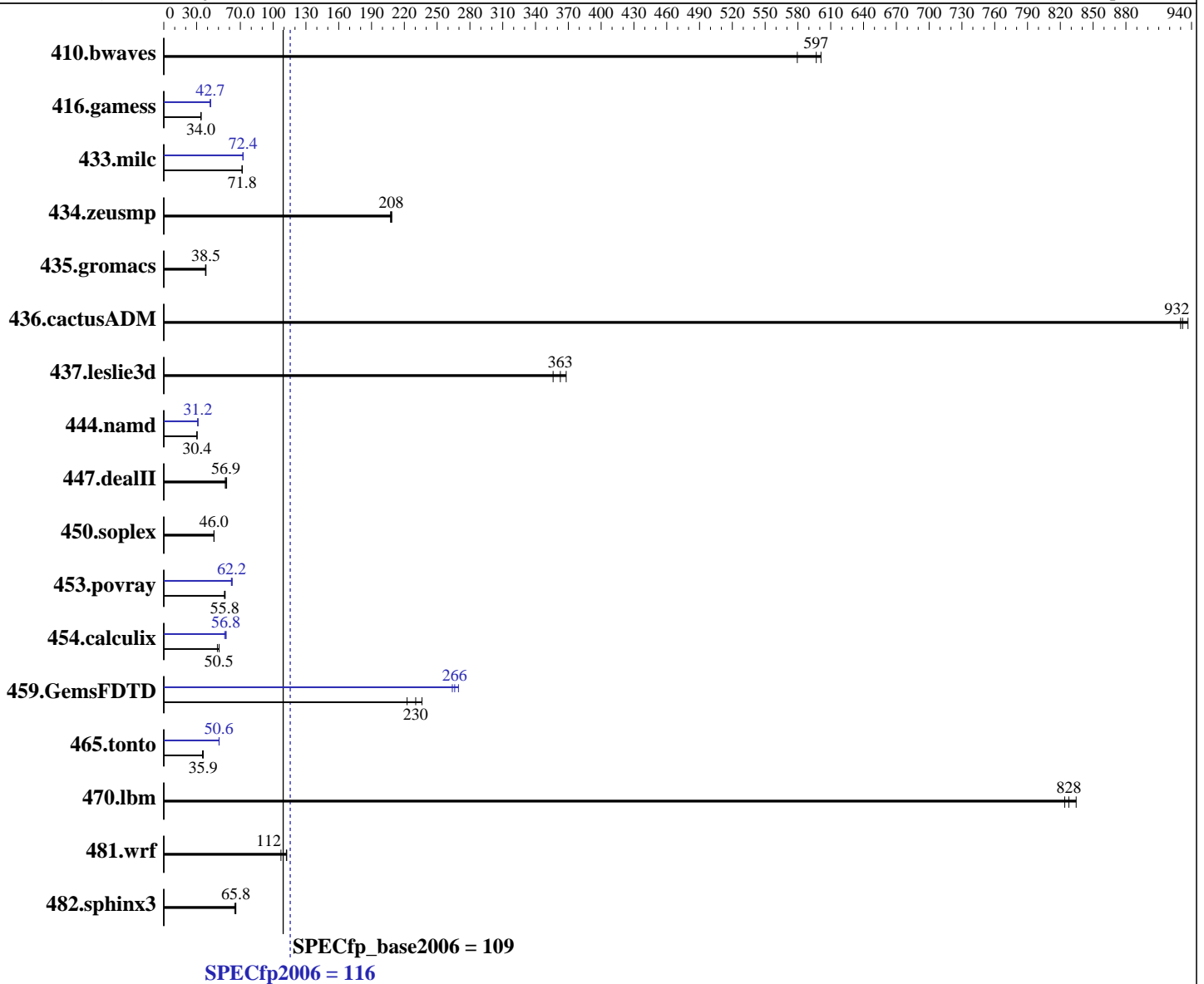
Test date: Nov-2014

Test sponsor: Fujitsu

Hardware Availability: Sep-2014

Tested by: Fujitsu

Software Availability: Sep-2014



### Hardware

CPU Name: Intel Xeon E5-2699 v3  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz  
 CPU MHz: 2300  
 FPU: Integrated  
 CPU(s) enabled: 36 cores, 2 chips, 18 cores/chip, 2 threads/core  
 CPU(s) orderable: 1,2 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: Red Hat Enterprise Linux Server release 7.0 (Maipo)  
 Kernel 3.10.0-123.8.1.el7.x86\_64  
 Compiler: C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux;  
 Fortran: Version 15.0.0.090 of Intel Fortran Studio XE for Linux  
 Auto Parallel: Yes  
 File System: xfs

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L3 Cache: 45 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)  
 Disk Subsystem: 1 x SATA, 500 GB, 7200 RPM  
 Other Hardware: None

System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: None

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	23.5	579	<u>22.8</u>	<u>597</u>	22.6	601	23.5	579	<u>22.8</u>	<u>597</u>	22.6	601
416.gamess	<u>576</u>	<u>34.0</u>	576	34.0	575	34.1	461	42.5	<u>459</u>	<u>42.7</u>	458	42.8
433.milc	<u>128</u>	<u>71.8</u>	128	71.8	128	71.5	127	72.4	127	72.5	<u>127</u>	<u>72.4</u>
434.zeusmp	43.9	207	43.6	209	<u>43.8</u>	<u>208</u>	43.9	207	43.6	209	<u>43.8</u>	<u>208</u>
435.gromacs	187	38.1	<u>185</u>	<u>38.5</u>	185	38.5	187	38.1	<u>185</u>	<u>38.5</u>	185	38.5
436.cactusADM	<u>12.8</u>	<u>932</u>	12.8	937	12.8	930	<u>12.8</u>	<u>932</u>	12.8	937	12.8	930
437.leslie3d	26.4	356	<u>25.9</u>	<u>363</u>	25.5	368	26.4	356	<u>25.9</u>	<u>363</u>	25.5	368
444.namd	265	30.3	<u>264</u>	<u>30.4</u>	264	30.4	257	31.2	<u>257</u>	<u>31.2</u>	258	31.1
447.dealII	<u>201</u>	<u>56.9</u>	203	56.2	199	57.5	<u>201</u>	<u>56.9</u>	203	56.2	199	57.5
450.soplex	181	46.0	<u>181</u>	<u>46.0</u>	182	45.9	181	46.0	<u>181</u>	<u>46.0</u>	182	45.9
453.povray	<u>95.4</u>	<u>55.8</u>	95.9	55.5	94.8	56.1	85.0	62.6	86.1	61.8	<u>85.6</u>	<u>62.2</u>
454.calculix	163	50.6	<u>163</u>	<u>50.5</u>	168	49.0	<u>145</u>	<u>56.8</u>	145	57.0	148	55.7
459.GemsFDTD	<u>46.0</u>	<u>230</u>	44.9	236	47.7	223	39.4	270	<u>39.9</u>	<u>266</u>	40.2	264
465.tonto	<u>274</u>	<u>35.9</u>	278	35.4	273	36.1	194	50.6	195	50.5	<u>195</u>	<u>50.6</u>
470.lbm	16.7	824	<u>16.6</u>	<u>828</u>	16.5	834	16.7	824	<u>16.6</u>	<u>828</u>	16.5	834
481.wrf	104	107	<u>99.6</u>	<u>112</u>	99.3	112	104	107	<u>99.6</u>	<u>112</u>	99.3	112
482.sphinx3	300	64.9	296	65.9	<u>296</u>	<u>65.8</u>	300	64.9	296	65.9	<u>296</u>	<u>65.8</u>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

## Platform Notes

BIOS configuration:  
 Energy Performance = Performance  
 Utilization Profile = Unbalanced  
 QPI snoop mode: Home Snoop  
 COD Enable = Disabled, Early Snoop = Disabled  
 CPU C1E Support = Disabled



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## General Notes

Environment variables set by runspec before the start of the run:

KMP\_AFFINITY = "granularity=fine,compact,1,0"

LD\_LIBRARY\_PATH = "/home/SPECcpu2006/libs/32:/home/SPECcpu2006/libs/64:/home/SPECcpu2006/sh"

OMP\_NUM\_THREADS = "36"

Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB memory using RedHat EL 7.0

This result was measured on the PRIMERGY CX2550 M1. The PRIMERGY CX2550 M1 and the PRIMERGY CX2570 M1 are electronically equivalent.

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

## 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.deallI: -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



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## Base Optimization Flags

C benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch  
-ansi-alias

C++ benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias

Fortran benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch

Benchmarks using both Fortran and C:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch  
-ansi-alias

## Peak Compiler Invocation

C benchmarks:

icc -m64

C++ benchmarks:

icpc -m64

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

433.milc: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-auto-ilp32 -ansi-alias

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

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## Peak Optimization Flags (Continued)

C++ benchmarks:

444.namd: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-fno-alias -auto-ilp32

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll4  
-ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll2  
-inline-level=0 -scalar-rep-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll2  
-inline-level=0 -opt-prefetch -parallel

465.tonto: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-inline-calloc -opt-malloc-options=3 -auto -unroll4

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias

481.wrf: basepeak = yes

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.html>

<http://www.spec.org/cpu2006/flags/Fujitsu-Platform-Settings-V1.2-HSW-RevA.html>



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<http://www.spec.org/cpu2006/flags/Fujitsu-Platform-Settings-V1.2-HSW-RevA.xml>

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

Tested with SPEC CPU2006 v1.2.  
Report generated on Tue Jan 27 13:33:22 2015 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 27 January 2015.