



# SPEC<sup>®</sup> CFP2006 Result

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## Fujitsu

**SPECfp<sup>®</sup>2006 = 114**

PRIMERGY CX2550 M1, Intel Xeon E5-2660 v3, 2.6 GHz

**SPECfp\_base2006 = 110**

CPU2006 license: 19

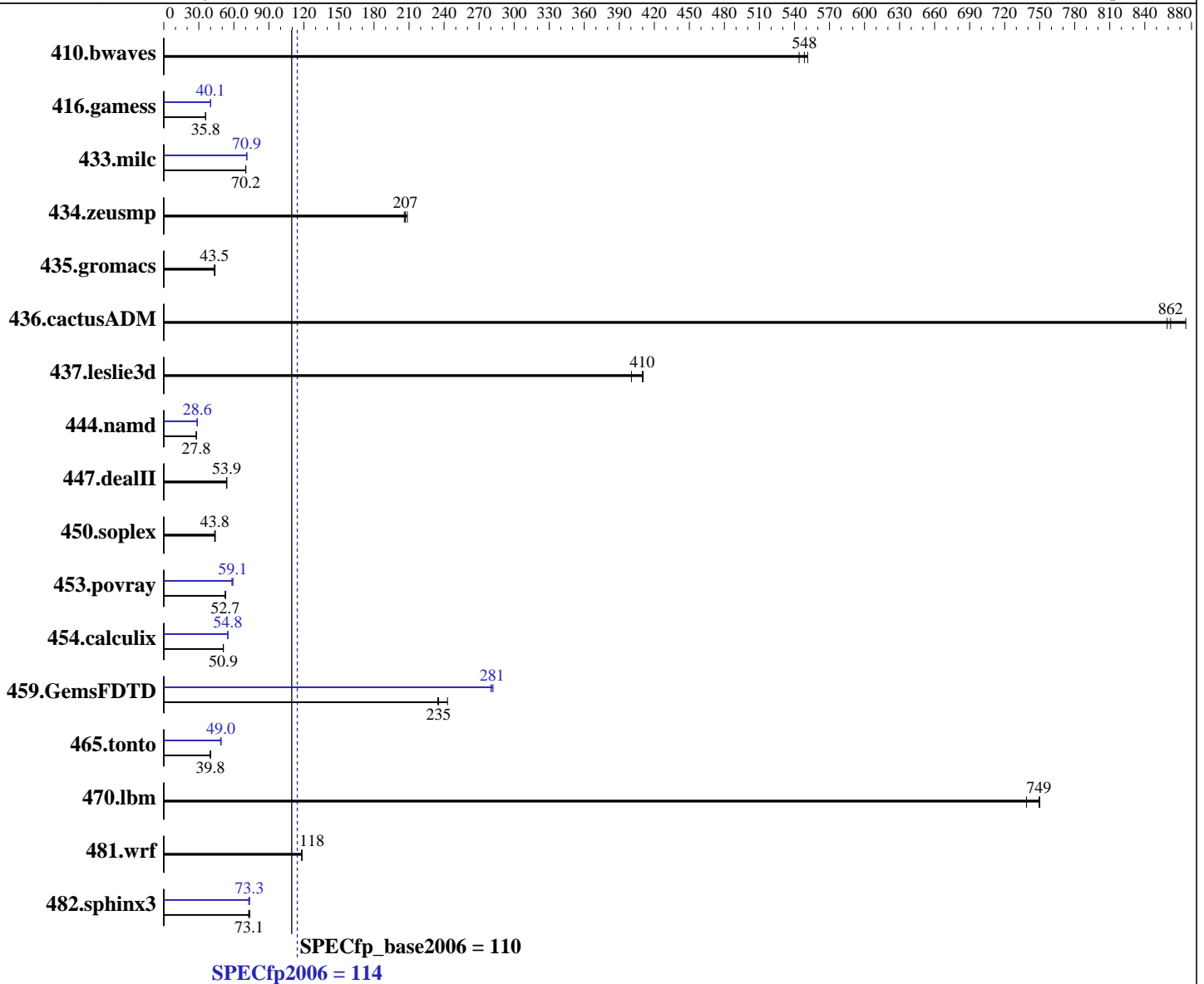
Test date: Nov-2014

Test sponsor: Fujitsu

Hardware Availability: Sep-2014

Tested by: Fujitsu

Software Availability: Sep-2014



### Hardware

CPU Name: Intel Xeon E5-2660 v3  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz  
 CPU MHz: 2600  
 FPU: Integrated  
 CPU(s) enabled: 20 cores, 2 chips, 10 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: 25 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	24.7	551	<b><u>24.8</u></b>	<b><u>548</u></b>	25.0	544	24.7	551	<b><u>24.8</u></b>	<b><u>548</u></b>	25.0	544
416.gamess	547	35.8	<b><u>547</u></b>	<b><u>35.8</u></b>	546	35.9	487	40.2	<b><u>488</u></b>	<b><u>40.1</u></b>	490	40.0
433.milc	131	70.1	131	70.3	<b><u>131</u></b>	<b><u>70.2</u></b>	129	71.2	129	70.9	<b><u>129</u></b>	<b><u>70.9</u></b>
434.zeusmp	<b><u>44.0</u></b>	<b><u>207</u></b>	44.2	206	43.6	209	<b><u>44.0</u></b>	<b><u>207</u></b>	44.2	206	43.6	209
435.gromacs	165	43.2	<b><u>164</u></b>	<b><u>43.5</u></b>	163	43.9	165	43.2	<b><u>164</u></b>	<b><u>43.5</u></b>	163	43.9
436.cactusADM	<b><u>13.9</u></b>	<b><u>862</u></b>	13.9	859	13.7	875	<b><u>13.9</u></b>	<b><u>862</u></b>	13.9	859	13.7	875
437.leslie3d	22.9	410	<b><u>22.9</u></b>	<b><u>410</u></b>	23.5	401	22.9	410	<b><u>22.9</u></b>	<b><u>410</u></b>	23.5	401
444.namd	<b><u>288</u></b>	<b><u>27.8</u></b>	288	27.9	288	27.8	280	28.6	<b><u>280</u></b>	<b><u>28.6</u></b>	280	28.7
447.dealII	213	53.8	<b><u>212</u></b>	<b><u>53.9</u></b>	212	53.9	213	53.8	<b><u>212</u></b>	<b><u>53.9</u></b>	212	53.9
450.soplex	189	44.1	<b><u>191</u></b>	<b><u>43.8</u></b>	191	43.6	189	44.1	<b><u>191</u></b>	<b><u>43.8</u></b>	191	43.6
453.povray	101	52.6	<b><u>101</u></b>	<b><u>52.7</u></b>	100	52.9	89.9	59.2	91.3	58.3	<b><u>90.1</u></b>	<b><u>59.1</u></b>
454.calculix	162	51.1	162	50.9	<b><u>162</u></b>	<b><u>50.9</u></b>	150	54.9	151	54.8	<b><u>151</u></b>	<b><u>54.8</u></b>
459.GemsFDTD	45.2	235	<b><u>45.1</u></b>	<b><u>235</u></b>	43.7	243	37.6	282	37.9	280	<b><u>37.7</u></b>	<b><u>281</u></b>
465.tonto	245	40.2	247	39.8	<b><u>247</u></b>	<b><u>39.8</u></b>	202	48.6	201	49.0	<b><u>201</u></b>	<b><u>49.0</u></b>
470.lbm	<b><u>18.3</u></b>	<b><u>749</u></b>	18.3	750	18.6	739	<b><u>18.3</u></b>	<b><u>749</u></b>	18.3	750	18.6	739
481.wrf	94.5	118	<b><u>94.5</u></b>	<b><u>118</u></b>	94.5	118	94.5	118	<b><u>94.5</u></b>	<b><u>118</u></b>	94.5	118
482.sphinx3	<b><u>267</u></b>	<b><u>73.1</u></b>	268	72.6	265	73.6	265	73.4	268	72.7	<b><u>266</u></b>	<b><u>73.3</u></b>

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 = "20"

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: -xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -ansi-alias  
-parallel

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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.dealIII: 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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