



# SPEC® CFP2006 Result

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## Fujitsu

**SPECfp®2006 = 110**

PRIMERGY BX2560 M1, Intel Xeon E5-2695 v3, 2.3 GHz

**SPECfp\_base2006 = 104**

CPU2006 license: 19

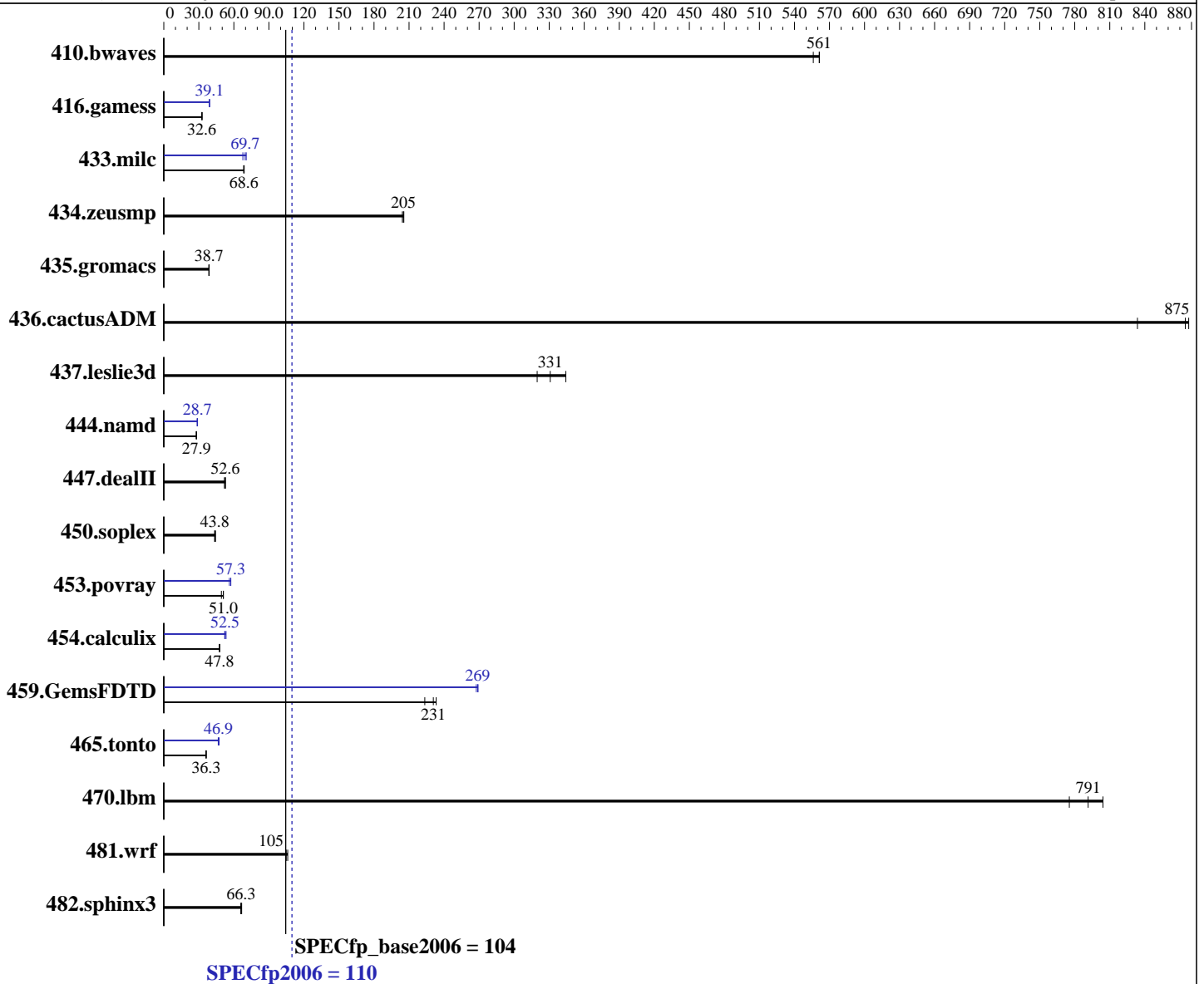
Test sponsor: Fujitsu

Tested by: Fujitsu

Test date: Jan-2015

Hardware Availability: Sep-2014

Software Availability: Sep-2014



### Hardware

CPU Name: Intel Xeon E5-2695 v3  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz  
 CPU MHz: 2300  
 FPU: Integrated  
 CPU(s) enabled: 28 cores, 2 chips, 14 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: 35 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    | 24.4       | 556         | <u>24.2</u> | <u>561</u>  | 24.2       | 561         | 24.4       | 556         | <u>24.2</u> | <u>561</u>  | 24.2       | 561         |
| 416.gamess    | <b>600</b> | <b>32.6</b> | 600         | 32.6        | 597        | 32.8        | 500        | 39.2        | 501         | 39.1        | <b>500</b> | <b>39.1</b> |
| 433.milc      | 134        | 68.4        | <b>134</b>  | <b>68.6</b> | 133        | 68.8        | <b>132</b> | <b>69.7</b> | 136         | 67.7        | 130        | 70.6        |
| 434.zeusmp    | 44.6       | 204         | <b>44.4</b> | <b>205</b>  | 44.3       | 206         | 44.6       | 204         | <b>44.4</b> | <b>205</b>  | 44.3       | 206         |
| 435.gromacs   | 185        | 38.5        | <b>184</b>  | <b>38.7</b> | 184        | 38.9        | 185        | 38.5        | <b>184</b>  | <b>38.7</b> | 184        | 38.9        |
| 436.cactusADM | 14.3       | 834         | <b>13.7</b> | <b>875</b>  | 13.6       | 878         | 14.3       | 834         | <b>13.7</b> | <b>875</b>  | 13.6       | 878         |
| 437.leslie3d  | 29.4       | 320         | <b>28.4</b> | <b>331</b>  | 27.3       | 344         | 29.4       | 320         | <b>28.4</b> | <b>331</b>  | 27.3       | 344         |
| 444.namd      | <b>287</b> | <b>27.9</b> | 288         | 27.9        | 287        | 27.9        | <b>280</b> | <b>28.7</b> | 279         | 28.7        | 280        | 28.7        |
| 447.dealII    | 217        | 52.8        | <b>217</b>  | <b>52.6</b> | 220        | 51.9        | 217        | 52.8        | <b>217</b>  | <b>52.6</b> | 220        | 51.9        |
| 450.soplex    | 188        | 44.3        | <b>191</b>  | <b>43.8</b> | 192        | 43.5        | 188        | 44.3        | <b>191</b>  | <b>43.8</b> | 192        | 43.5        |
| 453.povray    | <b>104</b> | <b>51.0</b> | 108         | 49.3        | 104        | 51.0        | 94.7       | 56.2        | <b>92.8</b> | <b>57.3</b> | 92.7       | 57.4        |
| 454.calculix  | 172        | 47.9        | 174         | 47.5        | <b>173</b> | <b>47.8</b> | <b>157</b> | <b>52.5</b> | 155         | 53.3        | 158        | 52.1        |
| 459.GemsFDTD  | 45.5       | 233         | <b>46.0</b> | <b>231</b>  | 47.5       | 223         | 39.7       | 268         | <b>39.5</b> | <b>269</b>  | 39.4       | 269         |
| 465.tonto     | <b>271</b> | <b>36.3</b> | 273         | 36.1        | 271        | 36.4        | 208        | 47.4        | <b>210</b>  | <b>46.9</b> | 211        | 46.6        |
| 470.lbm       | 17.1       | 804         | <b>17.4</b> | <b>791</b>  | 17.7       | 775         | 17.1       | 804         | <b>17.4</b> | <b>791</b>  | 17.7       | 775         |
| 481.wrf       | <b>107</b> | <b>105</b>  | 107         | 104         | 105        | 106         | <b>107</b> | <b>105</b>  | 107         | 104         | 105        | 106         |
| 482.sphinx3   | 292        | 66.7        | <b>294</b>  | <b>66.3</b> | 296        | 65.9        | 292        | 66.7        | <b>294</b>  | <b>66.3</b> | 296        | 65.9        |

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 = "28"

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

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.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



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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.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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You can also download the XML flags sources by saving the following links:

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

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

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