



# SPEC<sup>®</sup> CFP2006 Result

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## Fujitsu

PRIMERGY RX2530 M1, Intel Xeon E5-2650L v3, 1.8 GHz

SPECfp<sup>®</sup>2006 = **92.0**

SPECfp\_base2006 = **88.1**

CPU2006 license: 19

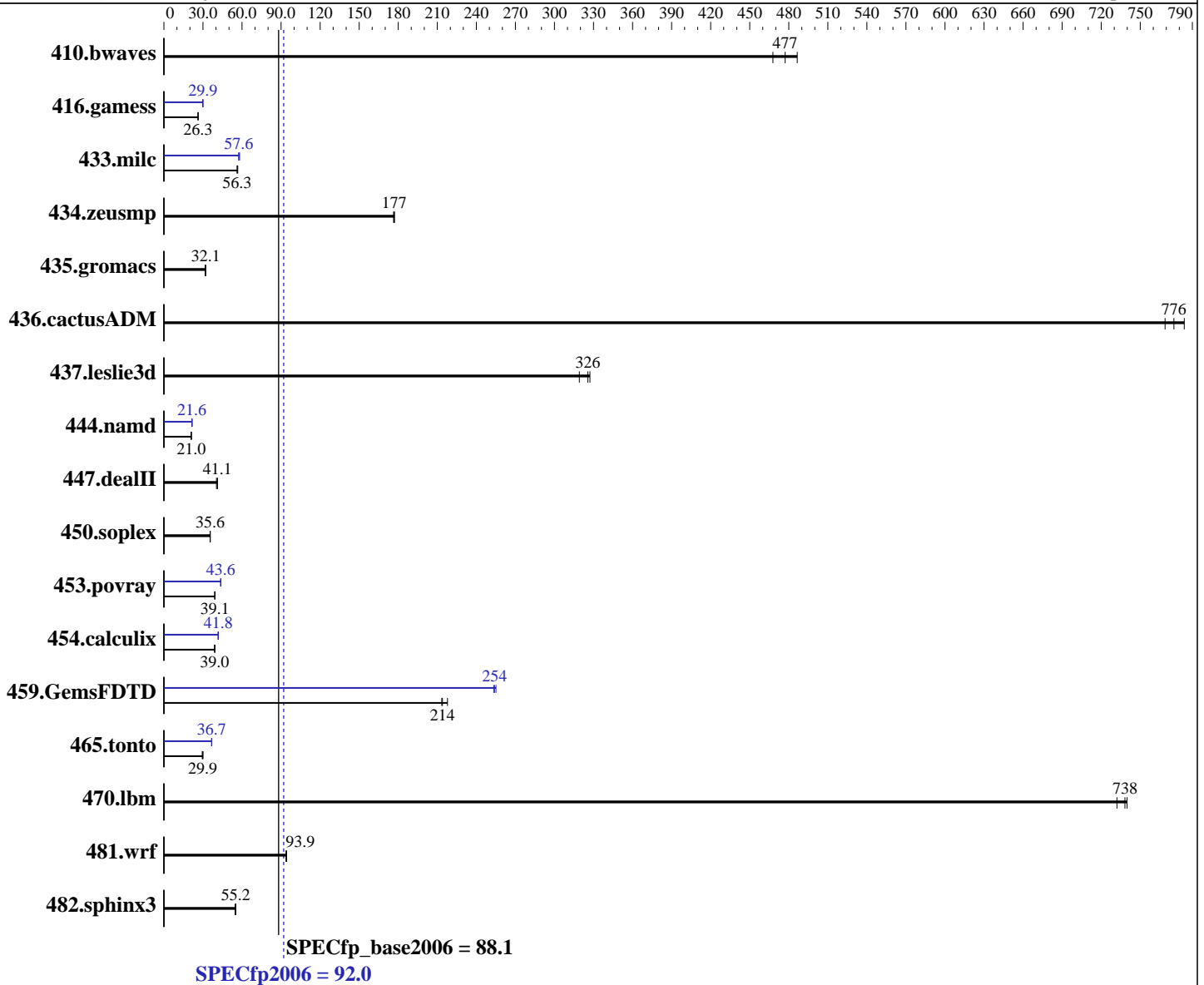
Test sponsor: Fujitsu

Tested by: Fujitsu

Test date: Mar-2015

Hardware Availability: Feb-2015

Software Availability: Sep-2014



### Hardware

CPU Name: Intel Xeon E5-2650L v3  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.50 GHz  
 CPU MHz: 1800  
 FPU: Integrated  
 CPU(s) enabled: 24 cores, 2 chips, 12 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: 30 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    | 29.0               | 468                | <b><u>28.5</u></b> | <b><u>477</u></b>  | 27.9              | 486                | 29.0               | 468                | <b><u>28.5</u></b> | <b><u>477</u></b>  | 27.9               | 486                |
| 416.gamess    | 747                | 26.2               | 746                | 26.3               | <b><u>746</u></b> | <b><u>26.3</u></b> | 657                | 29.8               | <b><u>654</u></b>  | <b><u>29.9</u></b> | 653                | 30.0               |
| 433.milc      | <b><u>163</u></b>  | <b><u>56.3</u></b> | 163                | 56.3               | 162               | 56.7               | 160                | 57.4               | 158                | 58.2               | <b><u>159</u></b>  | <b><u>57.6</u></b> |
| 434.zeusmp    | 51.4               | 177                | <b><u>51.5</u></b> | <b><u>177</u></b>  | 51.6              | 176                | 51.4               | 177                | <b><u>51.5</u></b> | <b><u>177</u></b>  | 51.6               | 176                |
| 435.gromacs   | <b><u>223</u></b>  | <b><u>32.1</u></b> | 226                | 31.6               | 223               | 32.1               | <b><u>223</u></b>  | <b><u>32.1</u></b> | 226                | 31.6               | 223                | 32.1               |
| 436.cactusADM | 15.2               | 784                | <b><u>15.4</u></b> | <b><u>776</u></b>  | 15.5              | 769                | 15.2               | 784                | <b><u>15.4</u></b> | <b><u>776</u></b>  | 15.5               | 769                |
| 437.leslie3d  | <b><u>28.9</u></b> | <b><u>326</u></b>  | 29.5               | 319                | 28.7              | 327                | <b><u>28.9</u></b> | <b><u>326</u></b>  | 29.5               | 319                | 28.7               | 327                |
| 444.namd      | 383                | 21.0               | <b><u>382</u></b>  | <b><u>21.0</u></b> | 380               | 21.1               | 372                | 21.5               | <b><u>371</u></b>  | <b><u>21.6</u></b> | 371                | 21.6               |
| 447.dealII    | <b><u>278</u></b>  | <b><u>41.1</u></b> | 278                | 41.1               | 284               | 40.3               | <b><u>278</u></b>  | <b><u>41.1</u></b> | 278                | 41.1               | 284                | 40.3               |
| 450.soplex    | <b><u>235</u></b>  | <b><u>35.6</u></b> | 234                | 35.6               | 235               | 35.5               | <b><u>235</u></b>  | <b><u>35.6</u></b> | 234                | 35.6               | 235                | 35.5               |
| 453.povray    | 136                | 39.2               | <b><u>136</u></b>  | <b><u>39.1</u></b> | 136               | 39.0               | <b><u>122</u></b>  | <b><u>43.6</u></b> | 121                | 43.8               | 122                | 43.5               |
| 454.calculix  | 212                | 38.9               | 211                | 39.1               | <b><u>211</u></b> | <b><u>39.0</u></b> | 199                | 41.5               | 197                | 41.9               | <b><u>197</u></b>  | <b><u>41.8</u></b> |
| 459.GemsFDTD  | 49.7               | 213                | <b><u>49.6</u></b> | <b><u>214</u></b>  | 48.7              | 218                | 41.9               | 253                | 41.6               | 255                | <b><u>41.8</u></b> | <b><u>254</u></b>  |
| 465.tonto     | 334                | 29.4               | <b><u>329</u></b>  | <b><u>29.9</u></b> | 328               | 30.0               | 268                | 36.7               | <b><u>268</u></b>  | <b><u>36.7</u></b> | 268                | 36.7               |
| 470.lbm       | <b><u>18.6</u></b> | <b><u>738</u></b>  | 18.8               | 732                | 18.6              | 740                | <b><u>18.6</u></b> | <b><u>738</u></b>  | 18.8               | 732                | 18.6               | 740                |
| 481.wrf       | 118                | 94.3               | <b><u>119</u></b>  | <b><u>93.9</u></b> | 119               | 93.9               | 118                | 94.3               | <b><u>119</u></b>  | <b><u>93.9</u></b> | 119                | 93.9               |
| 482.sphinx3   | <b><u>353</u></b>  | <b><u>55.2</u></b> | 353                | 55.2               | 357               | 54.7               | <b><u>353</u></b>  | <b><u>55.2</u></b> | 353                | 55.2               | 357                | 54.7               |

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 ClE 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 = "24"

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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**Test sponsor:** Fujitsu  
**Tested by:** Fujitsu

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**Hardware Availability:** Feb-2015  
**Software Availability:** Sep-2014

## 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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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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