



# SPEC<sup>®</sup> CFP2006 Result

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## Fujitsu

SPECfp<sup>®</sup>2006 = **64.3**

PRIMERGY TX1330 M1, Intel Core i3-4330, 3.50 GHz

SPECfp\_base2006 = **63.3**

CPU2006 license: 19

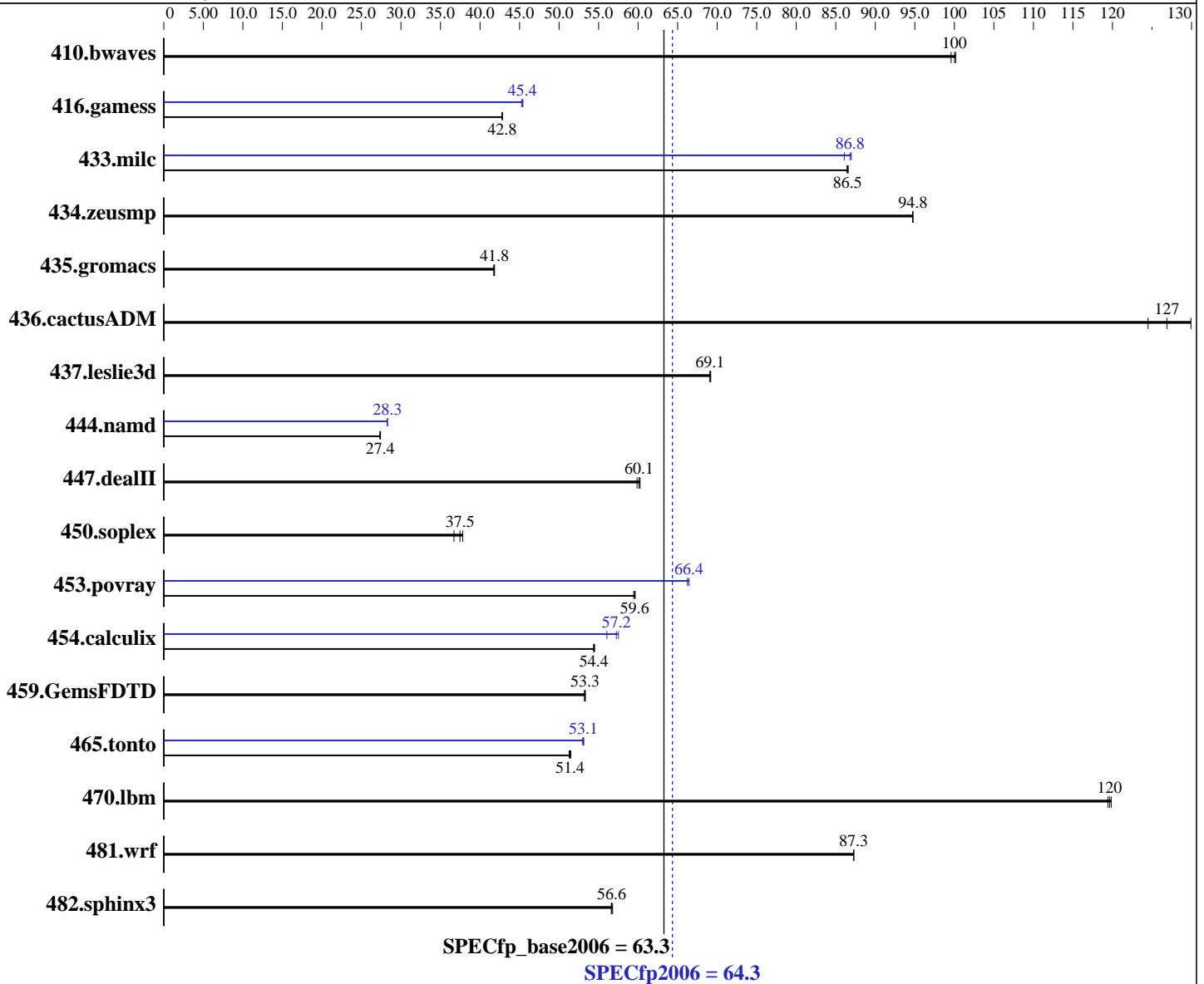
Test sponsor: Fujitsu

Tested by: Fujitsu

Test date: Jul-2014

Hardware Availability: Jul-2014

Software Availability: Nov-2013



### Hardware

CPU Name: Intel Core i3-4330  
 CPU Characteristics:  
 CPU MHz: 3500  
 FPU: Integrated  
 CPU(s) enabled: 2 cores, 1 chip, 2 cores/chip, 2 threads/core  
 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

Continued on next page

### Software

Operating System: Red Hat Enterprise Linux Server release 6.5 (Santiago)  
 2.6.32-431.el6.x86\_64  
 Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux;  
 Fortran: Version 14.0.0.080 of Intel Fortran Studio XE for Linux  
 Auto Parallel: Yes  
 File System: ext4

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L3 Cache: 4 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 32 GB (4 x 8 GB 2Rx8 PC3L-12800E-11, ECC)  
 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    | 136         | 99.6        | <b>136</b>  | <b>100</b>  | 136         | 100         | 136         | 99.6        | <b>136</b>  | <b>100</b>  | 136        | 100         |
| 416.gamess    | 458         | 42.8        | 457         | 42.8        | <b>457</b>  | <b>42.8</b> | 433         | 45.3        | <b>431</b>  | <b>45.4</b> | 431        | 45.4        |
| 433.milc      | <b>106</b>  | <b>86.5</b> | 106         | 86.4        | 106         | 86.6        | 107         | 86.1        | <b>106</b>  | <b>86.8</b> | 106        | 87.0        |
| 434.zeusmp    | 96.0        | 94.8        | <b>96.0</b> | <b>94.8</b> | 96.0        | 94.7        | 96.0        | 94.8        | <b>96.0</b> | <b>94.8</b> | 96.0       | 94.7        |
| 435.gromacs   | 171         | 41.7        | 171         | 41.8        | <b>171</b>  | <b>41.8</b> | 171         | 41.7        | 171         | 41.8        | <b>171</b> | <b>41.8</b> |
| 436.cactusADM | <b>94.2</b> | <b>127</b>  | 92.0        | 130         | 96.0        | 124         | <b>94.2</b> | <b>127</b>  | 92.0        | 130         | 96.0       | 124         |
| 437.leslie3d  | <b>136</b>  | <b>69.1</b> | 136         | 69.2        | 136         | 69.1        | <b>136</b>  | <b>69.1</b> | 136         | 69.2        | 136        | 69.1        |
| 444.namd      | 293         | 27.4        | 294         | 27.3        | <b>293</b>  | <b>27.4</b> | 284         | 28.3        | 284         | 28.3        | <b>284</b> | <b>28.3</b> |
| 447.dealII    | 191         | 59.9        | <b>190</b>  | <b>60.1</b> | 190         | 60.3        | 191         | 59.9        | <b>190</b>  | <b>60.1</b> | 190        | 60.3        |
| 450.soplex    | <b>223</b>  | <b>37.5</b> | 221         | 37.8        | 227         | 36.7        | <b>223</b>  | <b>37.5</b> | 221         | 37.8        | 227        | 36.7        |
| 453.povray    | 89.2        | 59.6        | 89.5        | 59.4        | <b>89.3</b> | <b>59.6</b> | <b>80.1</b> | <b>66.4</b> | 80.1        | 66.4        | 80.3       | 66.2        |
| 454.calculix  | <b>152</b>  | <b>54.4</b> | 151         | 54.5        | 152         | 54.4        | <b>144</b>  | <b>57.2</b> | 143         | 57.5        | 147        | 56.0        |
| 459.GemsFDTD  | 199         | 53.3        | 199         | 53.2        | <b>199</b>  | <b>53.3</b> | 199         | 53.3        | 199         | 53.2        | <b>199</b> | <b>53.3</b> |
| 465.tonto     | <b>191</b>  | <b>51.4</b> | 191         | 51.5        | 192         | 51.3        | 186         | 53.0        | 185         | 53.1        | <b>185</b> | <b>53.1</b> |
| 470.lbm       | <b>115</b>  | <b>120</b>  | 115         | 120         | 115         | 119         | <b>115</b>  | <b>120</b>  | 115         | 120         | 115        | 119         |
| 481.wrf       | 128         | 87.3        | <b>128</b>  | <b>87.3</b> | 128         | 87.3        | 128         | 87.3        | <b>128</b>  | <b>87.3</b> | 128        | 87.3        |
| 482.sphinx3   | 344         | 56.6        | 343         | 56.8        | <b>344</b>  | <b>56.6</b> | 344         | 56.6        | 343         | 56.8        | <b>344</b> | <b>56.6</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"

## General Notes

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

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

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

OMP\_NUM\_THREADS = "2"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RedHat EL 6.4

Transparent Huge Pages enabled with:

echo always > /sys/kernel/mm/redhat\_transparent\_hugepage/enabled

runspec command invoked through numactl i.e.:

Continued on next page

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Page 2



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PRIMERGY TX1330 M1, Intel Core i3-4330, 3.50 GHz

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

**Test date:** Jul-2014  
**Hardware Availability:** Jul-2014  
**Software Availability:** Nov-2013

## General Notes (Continued)

numactl --interleave=all runspec <etc>  
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

## 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

Continued on next page



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## Base Optimization Flags (Continued)

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`

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`

Continued on next page



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## Peak Optimization Flags (Continued)

447.deallI: 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: basepeak = yes

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-ic14.0-official-linux64-revB.html>

<http://www.spec.org/cpu2006/flags/Fujitsu-Platform.20130924.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64-revB.xml>

<http://www.spec.org/cpu2006/flags/Fujitsu-Platform.20130924.xml>



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