



# SPEC<sup>®</sup> CFP2006 Result

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## Fujitsu

SPECfp<sup>®</sup>2006 = **105**

PRIMERGY RX300 S8, Intel Xeon E5-2680 v2, 2.80 GHz

SPECfp\_base2006 = **100**

CPU2006 license: 19

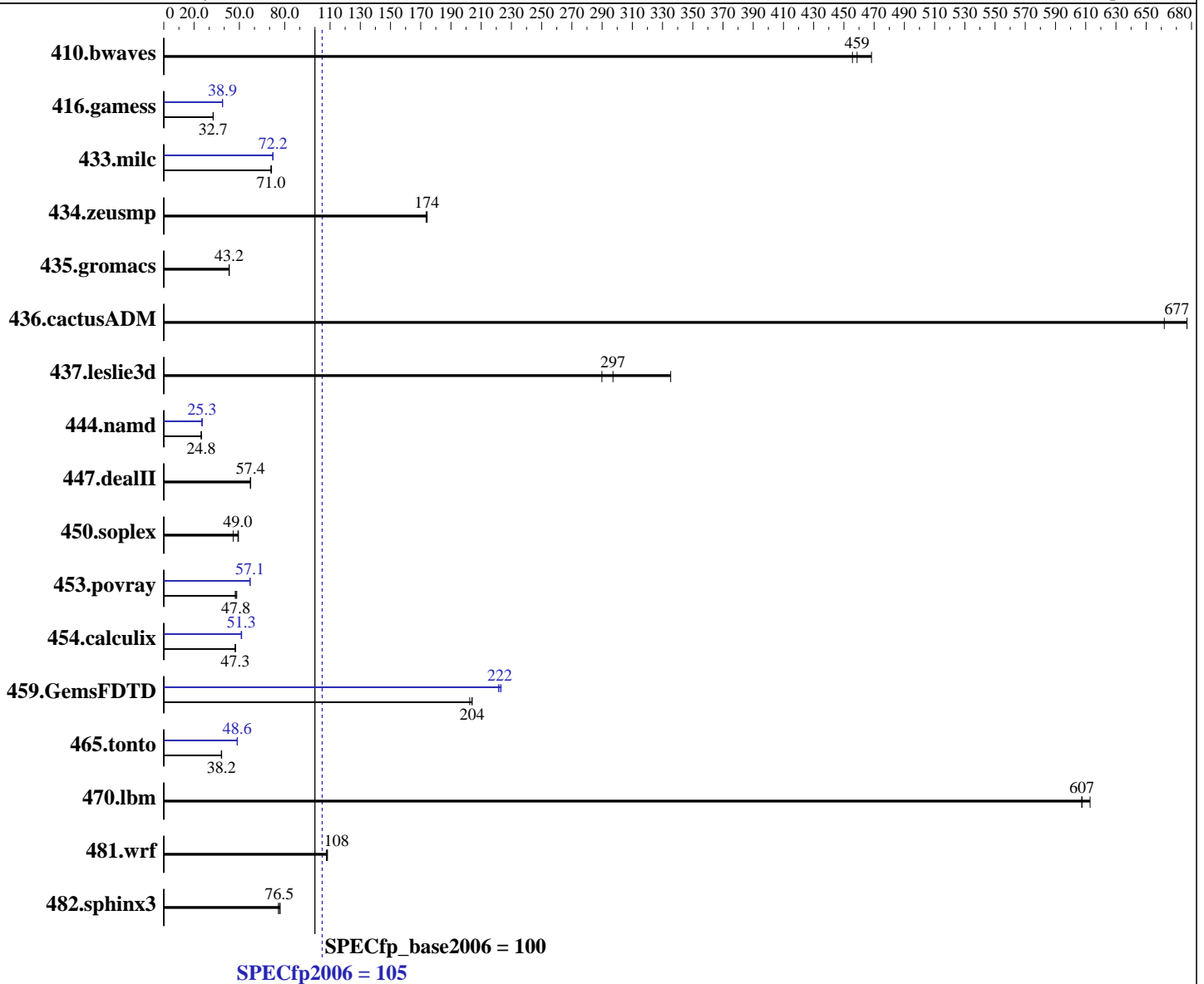
Test date: Oct-2013

Test sponsor: Fujitsu

Hardware Availability: Oct-2013

Tested by: Fujitsu

Software Availability: Sep-2013



### Hardware

CPU Name: Intel Xeon E5-2680 v2  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz  
 CPU MHz: 2800  
 FPU: Integrated  
 CPU(s) enabled: 20 cores, 2 chips, 10 cores/chip, 2 threads/core  
 CPU(s) orderable: 1,2 chips  
 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 6.4 (Santiago)  
 2.6.32-358.11.1.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: 25 MB I+D on chip per chip  
Other Cache: None  
Memory: 256 GB (16 x 16 GB 2Rx4 PC3-14900R-13, ECC)  
Disk Subsystem: 1 x SATA, 450 GB, 15000 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	29.8	456	<b><u>29.6</u></b>	<b><u>459</u></b>	29.0	468	29.8	456	<b><u>29.6</u></b>	<b><u>459</u></b>
416.gamess	599	32.7	600	32.7	<b><u>599</u></b>	<b><u>32.7</u></b>	<b><u>504</u></b>	<b><u>38.9</u></b>	505	38.8	503	38.9
433.milc	129	71.3	129	70.9	<b><u>129</u></b>	<b><u>71.0</u></b>	127	72.1	<b><u>127</u></b>	<b><u>72.2</u></b>	127	72.3
434.zeusmp	<b><u>52.2</u></b>	<b><u>174</u></b>	52.2	174	52.4	174	<b><u>52.2</u></b>	<b><u>174</u></b>	52.2	174	52.4	174
435.gromacs	<b><u>165</u></b>	<b><u>43.2</u></b>	165	43.3	166	43.1	<b><u>165</u></b>	<b><u>43.2</u></b>	165	43.3	166	43.1
436.cactusADM	18.1	662	17.7	677	<b><u>17.7</u></b>	<b><u>677</u></b>	18.1	662	17.7	677	<b><u>17.7</u></b>	<b><u>677</u></b>
437.leslie3d	<b><u>31.6</u></b>	<b><u>297</u></b>	28.0	335	32.4	290	<b><u>31.6</u></b>	<b><u>297</u></b>	28.0	335	32.4	290
444.namd	322	24.9	324	24.7	<b><u>323</u></b>	<b><u>24.8</u></b>	316	25.4	<b><u>316</u></b>	<b><u>25.3</u></b>	317	25.3
447.dealII	200	57.3	199	57.4	<b><u>199</u></b>	<b><u>57.4</u></b>	200	57.3	199	57.4	<b><u>199</u></b>	<b><u>57.4</u></b>
450.soplex	<b><u>170</u></b>	<b><u>49.0</u></b>	169	49.4	182	45.9	<b><u>170</u></b>	<b><u>49.0</u></b>	169	49.4	182	45.9
453.povray	110	48.3	<b><u>111</u></b>	<b><u>47.8</u></b>	113	47.3	93.4	57.0	93.1	57.2	<b><u>93.2</u></b>	<b><u>57.1</u></b>
454.calculix	174	47.3	174	47.4	<b><u>174</u></b>	<b><u>47.3</u></b>	161	51.3	160	51.5	<b><u>161</u></b>	<b><u>51.3</u></b>
459.GemsFDTD	52.0	204	52.4	202	<b><u>52.0</u></b>	<b><u>204</u></b>	47.5	223	<b><u>47.7</u></b>	<b><u>222</u></b>	47.9	221
465.tonto	<b><u>258</u></b>	<b><u>38.2</u></b>	257	38.3	258	38.1	202	48.7	<b><u>202</u></b>	<b><u>48.6</u></b>	203	48.6
470.lbm	22.6	607	22.4	613	<b><u>22.6</u></b>	<b><u>607</u></b>	22.6	607	22.4	613	<b><u>22.6</u></b>	<b><u>607</u></b>
481.wrf	103	108	<b><u>103</u></b>	<b><u>108</u></b>	104	108	103	108	<b><u>103</u></b>	<b><u>108</u></b>	104	108
482.sphinx3	257	75.8	<b><u>255</u></b>	<b><u>76.5</u></b>	253	77.0	257	75.8	<b><u>255</u></b>	<b><u>76.5</u></b>	253	77.0

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

## 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"

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## General Notes (Continued)

OMP\_NUM\_THREADS = "20"

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.:  
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



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## Base Optimization Flags

C benchmarks:

`-xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch -ansi-alias`

C++ benchmarks:

`-xAVX -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias`

Fortran benchmarks:

`-xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch`

Benchmarks using both Fortran and C:

`-xAVX -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: `-xAVX(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:

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## Peak Optimization Flags (Continued)

444.namd: -xAVX(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: -xAVX(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: -xAVX(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: -xAVX(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: -xAVX(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: -xAVX -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-linux64.20140128.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-linux64.20140128.xml>

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



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