



# SPEC<sup>®</sup> CFP2006 Result

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## Fujitsu

SPECfp<sup>®</sup>2006 = 86.6

PRIMERGY RX200 S8, Intel Xeon E5-2630 v2, 2.60 GHz

SPECfp\_base2006 = 83.6

CPU2006 license: 19

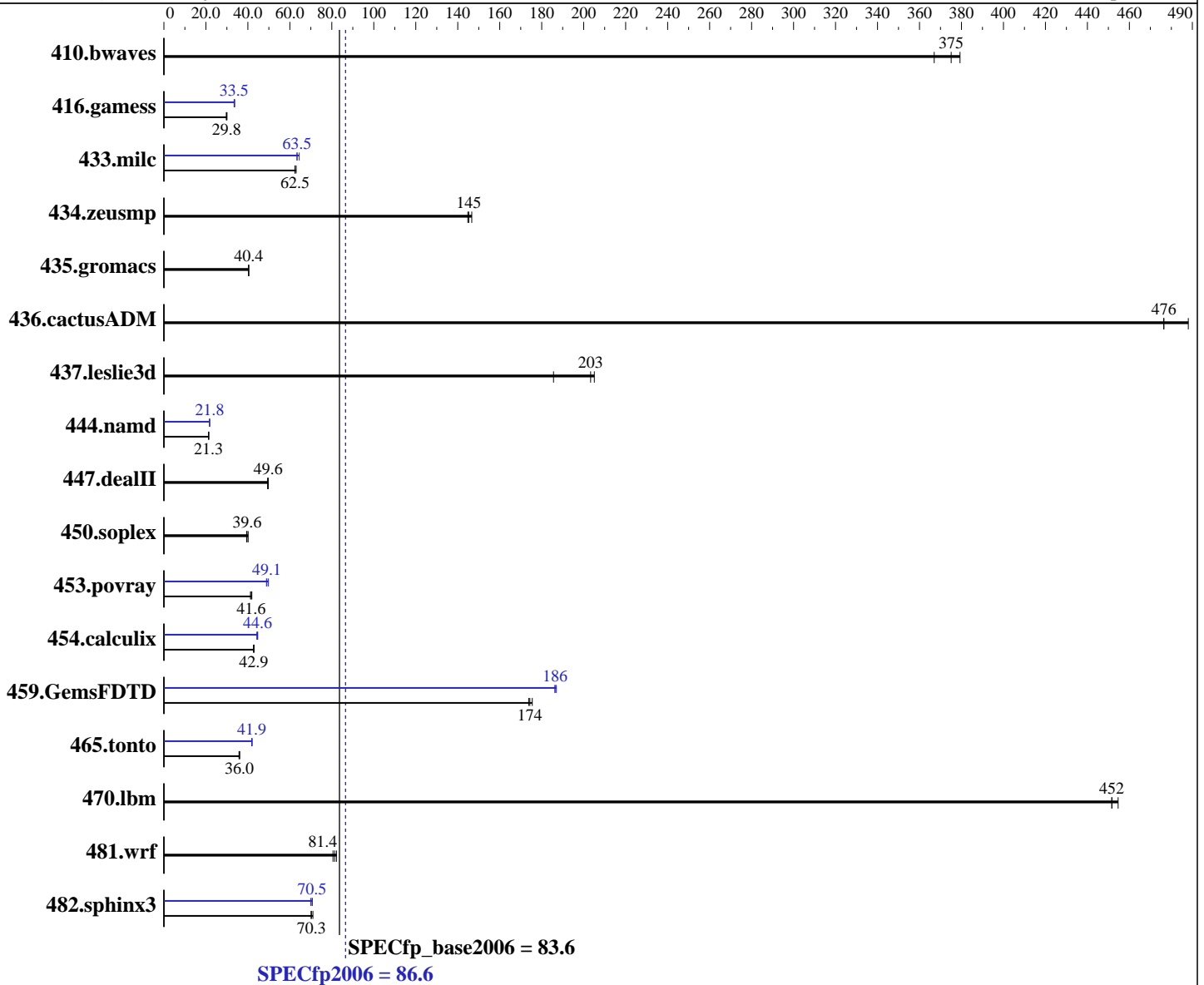
Test date: Sep-2013

Test sponsor: Fujitsu

Hardware Availability: Oct-2013

Tested by: Fujitsu

Software Availability: Sep-2013



### Hardware

CPU Name: Intel Xeon E5-2630 v2  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.10 GHz  
 CPU MHz: 2600  
 FPU: Integrated  
 CPU(s) enabled: 12 cores, 2 chips, 6 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: 15 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 256 GB (16 x 16 GB 2Rx4 PC3-12800R-11, ECC)  
 Disk Subsystem: 1 x SATA, 250 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	35.8	379	<b><u>36.2</u></b>	<b><u>375</u></b>	37.0	367	35.8	379	<b><u>36.2</u></b>	<b><u>375</u></b>	37.0	367
416.gamess	<b><u>657</u></b>	<b><u>29.8</u></b>	658	29.8	651	30.1	580	33.8	585	33.5	<b><u>585</u></b>	<b><u>33.5</u></b>
433.milc	147	62.4	146	63.0	<b><u>147</u></b>	<b><u>62.5</u></b>	142	64.5	145	63.4	<b><u>145</u></b>	<b><u>63.5</u></b>
434.zeusmp	<b><u>62.6</u></b>	<b><u>145</u></b>	62.8	145	62.0	147	<b><u>62.6</u></b>	<b><u>145</u></b>	62.8	145	62.0	147
435.gromacs	177	40.4	177	40.4	<b><u>177</u></b>	<b><u>40.4</u></b>	177	40.4	177	40.4	<b><u>177</u></b>	<b><u>40.4</u></b>
436.cactusADM	25.1	476	<b><u>25.1</u></b>	<b><u>476</u></b>	24.5	488	25.1	476	<b><u>25.1</u></b>	<b><u>476</u></b>	24.5	488
437.leslie3d	45.8	205	50.6	186	<b><u>46.2</u></b>	<b><u>203</u></b>	45.8	205	50.6	186	<b><u>46.2</u></b>	<b><u>203</u></b>
444.namd	<b><u>377</u></b>	<b><u>21.3</u></b>	375	21.4	377	21.3	369	21.8	369	21.7	<b><u>369</u></b>	<b><u>21.8</u></b>
447.dealII	231	49.4	<b><u>230</u></b>	<b><u>49.6</u></b>	230	49.7	231	49.4	<b><u>230</u></b>	<b><u>49.6</u></b>	230	49.7
450.soplex	212	39.4	<b><u>211</u></b>	<b><u>39.6</u></b>	208	40.1	212	39.4	<b><u>211</u></b>	<b><u>39.6</u></b>	208	40.1
453.povray	127	41.9	129	41.2	<b><u>128</u></b>	<b><u>41.6</u></b>	<b><u>108</u></b>	<b><u>49.1</u></b>	109	48.9	107	49.8
454.calculix	193	42.7	192	42.9	<b><u>192</u></b>	<b><u>42.9</u></b>	186	44.3	185	44.7	<b><u>185</u></b>	<b><u>44.6</u></b>
459.GemsFDTD	61.0	174	60.5	176	<b><u>60.8</u></b>	<b><u>174</u></b>	56.9	186	<b><u>56.9</u></b>	<b><u>186</u></b>	56.7	187
465.tonto	275	35.8	273	36.1	<b><u>273</u></b>	<b><u>36.0</u></b>	<b><u>235</u></b>	<b><u>41.9</u></b>	235	41.8	234	42.1
470.lbm	<b><u>30.4</u></b>	<b><u>452</u></b>	30.2	455	30.4	452	<b><u>30.4</u></b>	<b><u>452</u></b>	30.2	455	30.4	452
481.wrf	<b><u>137</u></b>	<b><u>81.4</u></b>	139	80.6	136	82.2	<b><u>137</u></b>	<b><u>81.4</u></b>	139	80.6	136	82.2
482.sphinx3	<b><u>277</u></b>	<b><u>70.3</u></b>	278	70.1	275	71.0	<b><u>276</u></b>	<b><u>70.7</u></b>	279	69.9	<b><u>276</u></b>	<b><u>70.5</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

## 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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**Hardware Availability:** Oct-2013  
**Software Availability:** Sep-2013

## General Notes (Continued)

OMP\_NUM\_THREADS = "12"

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: `-xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias  
-parallel`

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## Peak Optimization Flags (Continued)

C++ benchmarks:

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>

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