



# SPEC<sup>®</sup> CFP2006 Result

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## Fujitsu

SPECfp<sup>®</sup>2006 = **96.9**

PRIMERGY RX200 S8, Intel Xeon E5-2695 v2, 2.40 GHz

SPECfp\_base2006 = **92.4**

CPU2006 license: 19

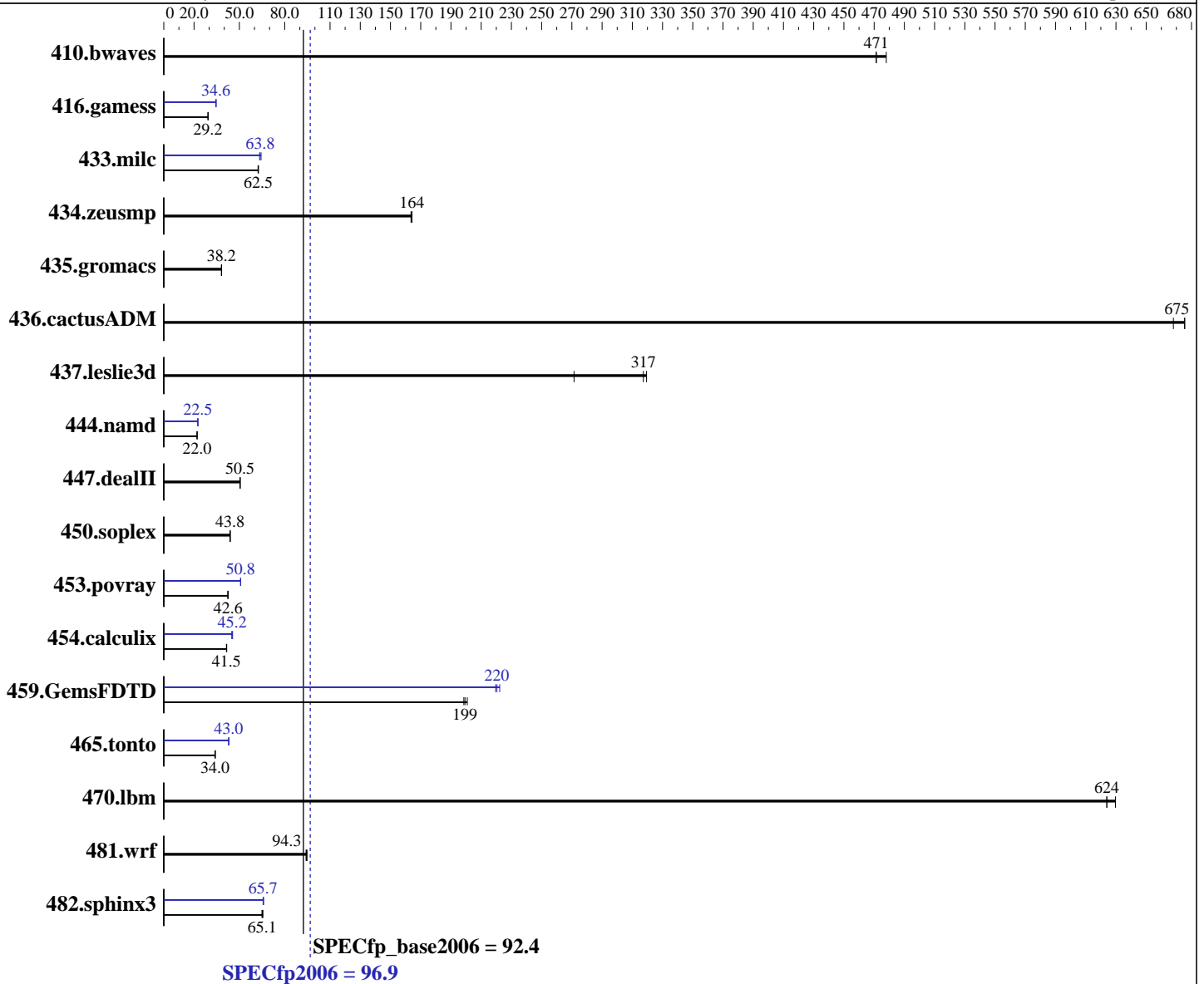
Test date: Oct-2013

Test sponsor: Fujitsu

Hardware Availability: Oct-2013

Tested by: Fujitsu

Software Availability: Sep-2013



### Hardware

CPU Name: Intel Xeon E5-2695 v2  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.20 GHz  
 CPU MHz: 2400  
 FPU: Integrated  
 CPU(s) enabled: 24 cores, 2 chips, 12 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: 30 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	28.4	478	28.8	471	<b><u>28.8</u></b>	<b><u>471</u></b>	28.4	478	28.8	471	<b><u>28.8</u></b>	<b><u>471</u></b>
416.gamess	667	29.4	670	29.2	<b><u>670</u></b>	<b><u>29.2</u></b>	568	34.5	<b><u>566</u></b>	<b><u>34.6</u></b>	566	34.6
433.milc	147	62.6	<b><u>147</u></b>	<b><u>62.5</u></b>	147	62.3	145	63.4	143	64.4	<b><u>144</u></b>	<b><u>63.8</u></b>
434.zeusmp	55.4	164	55.6	164	<b><u>55.4</u></b>	<b><u>164</u></b>	55.4	164	55.6	164	<b><u>55.4</u></b>	<b><u>164</u></b>
435.gromacs	<b><u>187</u></b>	<b><u>38.2</u></b>	187	38.3	187	38.1	<b><u>187</u></b>	<b><u>38.2</u></b>	187	38.3	187	38.1
436.cactusADM	17.7	676	<b><u>17.7</u></b>	<b><u>675</u></b>	17.9	668	17.7	676	<b><u>17.7</u></b>	<b><u>675</u></b>	17.9	668
437.leslie3d	<b><u>29.6</u></b>	<b><u>317</u></b>	29.4	319	34.6	271	<b><u>29.6</u></b>	<b><u>317</u></b>	29.4	319	34.6	271
444.namd	364	22.0	<b><u>364</u></b>	<b><u>22.0</u></b>	364	22.0	356	22.5	<b><u>356</u></b>	<b><u>22.5</u></b>	356	22.5
447.dealII	<b><u>227</u></b>	<b><u>50.5</u></b>	227	50.4	226	50.5	<b><u>227</u></b>	<b><u>50.5</u></b>	227	50.4	226	50.5
450.soplex	189	44.0	<b><u>190</u></b>	<b><u>43.8</u></b>	190	43.8	189	44.0	<b><u>190</u></b>	<b><u>43.8</u></b>	190	43.8
453.povray	<b><u>125</u></b>	<b><u>42.6</u></b>	125	42.6	126	42.3	105	50.8	105	50.9	<b><u>105</u></b>	<b><u>50.8</u></b>
454.calculix	198	41.7	<b><u>199</u></b>	<b><u>41.5</u></b>	199	41.5	181	45.5	183	45.0	<b><u>182</u></b>	<b><u>45.2</u></b>
459.GemsFDTD	52.8	201	<b><u>53.2</u></b>	<b><u>199</u></b>	53.4	199	47.7	222	<b><u>48.1</u></b>	<b><u>220</u></b>	48.3	220
465.tonto	<b><u>289</u></b>	<b><u>34.0</u></b>	291	33.8	289	34.1	<b><u>229</u></b>	<b><u>43.0</u></b>	228	43.1	230	42.9
470.lbm	21.8	630	22.0	624	<b><u>22.0</u></b>	<b><u>624</u></b>	21.8	630	22.0	624	<b><u>22.0</u></b>	<b><u>624</u></b>
481.wrf	119	94.1	<b><u>118</u></b>	<b><u>94.3</u></b>	118	94.8	119	94.1	<b><u>118</u></b>	<b><u>94.3</u></b>	118	94.8
482.sphinx3	<b><u>299</u></b>	<b><u>65.1</u></b>	300	65.0	297	65.6	<b><u>297</u></b>	<b><u>65.7</u></b>	297	65.7	295	66.1

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 = "24"

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.20131009.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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Tested with SPEC CPU2006 v1.2.  
Report generated on Thu Jul 24 19:04:34 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 5 November 2013.