



# SPEC<sup>®</sup> CFP2006 Result

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## Fujitsu

SPECfp<sup>®</sup>2006 = **102**

PRIMERGY RX300 S8, Intel Xeon E5-2697 v2, 2.70 GHz

SPECfp\_base2006 = **97.4**

CPU2006 license: 19

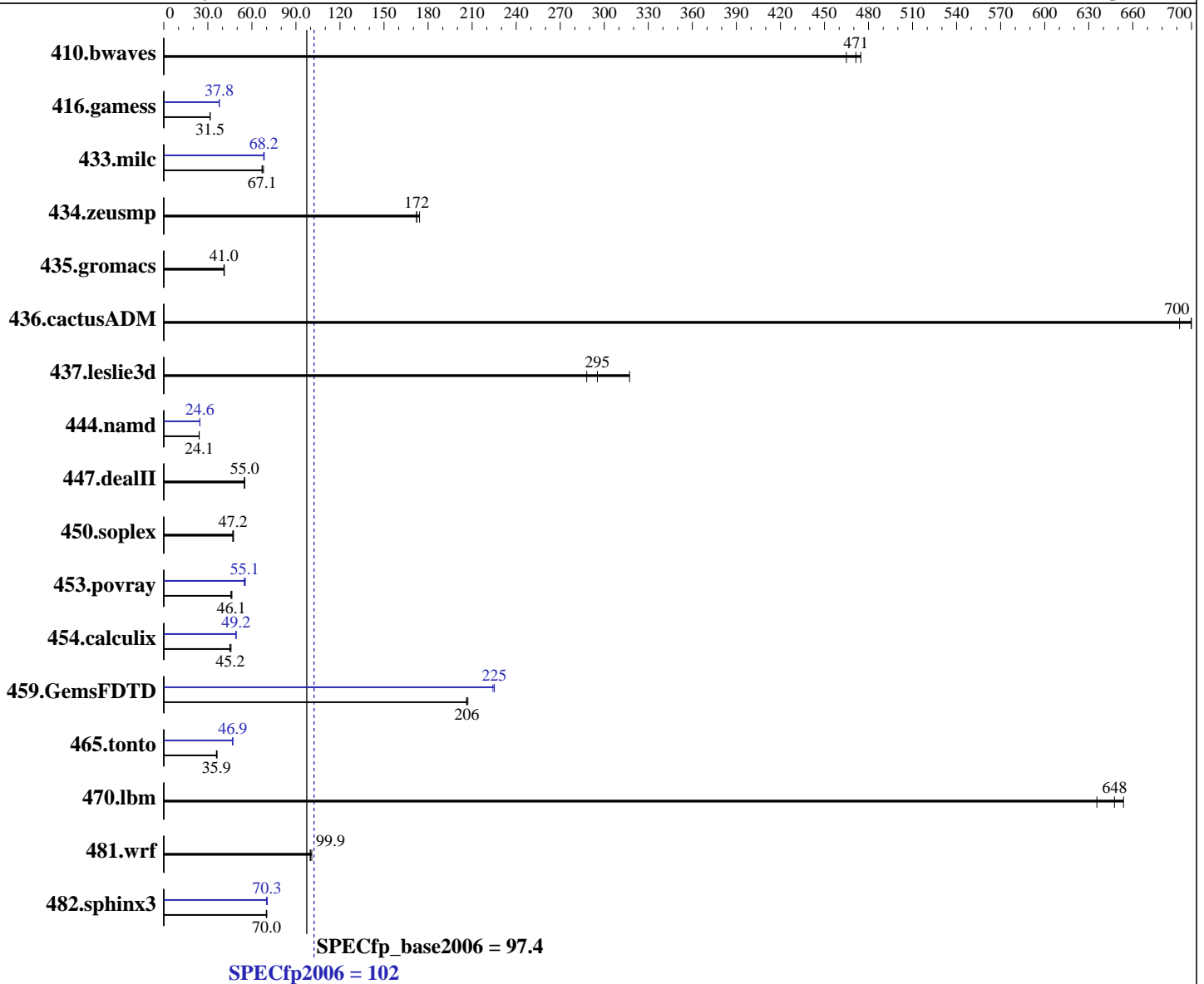
Test date: Sep-2013

Test sponsor: Fujitsu

Hardware Availability: Oct-2013

Tested by: Fujitsu

Software Availability: Sep-2013



### Hardware

CPU Name: Intel Xeon E5-2697 v2  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz  
 CPU MHz: 2700  
 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	29.2	465	28.6	475	<b><u>28.8</u></b>	<b><u>471</u></b>	29.2	465	28.6	475	<b><u>28.8</u></b>	<b><u>471</u></b>
416.gamess	<b><u>621</u></b>	<b><u>31.5</u></b>	621	31.5	622	31.5	519	37.7	518	37.8	<b><u>519</u></b>	<b><u>37.8</u></b>
433.milc	135	67.9	<b><u>137</u></b>	<b><u>67.1</u></b>	137	66.9	135	68.1	<b><u>135</u></b>	<b><u>68.2</u></b>	134	68.4
434.zeusmp	52.2	174	52.8	172	<b><u>52.8</u></b>	<b><u>172</u></b>	52.2	174	52.8	172	<b><u>52.8</u></b>	<b><u>172</u></b>
435.gromacs	173	41.2	<b><u>174</u></b>	<b><u>41.0</u></b>	174	41.0	173	41.2	<b><u>174</u></b>	<b><u>41.0</u></b>	174	41.0
436.cactusADM	17.1	700	<b><u>17.1</u></b>	<b><u>700</u></b>	17.3	692	17.1	700	<b><u>17.1</u></b>	<b><u>700</u></b>	17.3	692
437.leslie3d	29.6	317	32.6	288	<b><u>31.8</u></b>	<b><u>295</u></b>	29.6	317	32.6	288	<b><u>31.8</u></b>	<b><u>295</u></b>
444.namd	334	24.0	333	24.1	<b><u>333</u></b>	<b><u>24.1</u></b>	<b><u>326</u></b>	<b><u>24.6</u></b>	326	24.6	326	24.6
447.dealII	208	54.9	208	55.1	<b><u>208</u></b>	<b><u>55.0</u></b>	208	54.9	208	55.1	<b><u>208</u></b>	<b><u>55.0</u></b>
450.soplex	<b><u>177</u></b>	<b><u>47.2</u></b>	178	47.0	176	47.5	<b><u>177</u></b>	<b><u>47.2</u></b>	178	47.0	176	47.5
453.povray	115	46.4	116	45.7	<b><u>116</u></b>	<b><u>46.1</u></b>	<b><u>96.6</u></b>	<b><u>55.1</u></b>	95.8	55.5	97.1	54.8
454.calculix	<b><u>182</u></b>	<b><u>45.2</u></b>	180	45.8	183	45.0	<b><u>168</u></b>	<b><u>49.2</u></b>	168	49.2	168	49.2
459.GemsFDTD	51.2	207	<b><u>51.4</u></b>	<b><u>206</u></b>	51.4	206	47.1	225	<b><u>47.1</u></b>	<b><u>225</u></b>	47.3	224
465.tonto	271	36.3	275	35.8	<b><u>274</u></b>	<b><u>35.9</u></b>	210	46.9	210	46.9	<b><u>210</u></b>	<b><u>46.9</u></b>
470.lbm	<b><u>21.2</u></b>	<b><u>648</u></b>	21.6	636	21.0	654	<b><u>21.2</u></b>	<b><u>648</u></b>	21.6	636	21.0	654
481.wrf	112	99.7	111	101	<b><u>112</u></b>	<b><u>99.9</u></b>	112	99.7	111	101	<b><u>112</u></b>	<b><u>99.9</u></b>
482.sphinx3	279	69.8	278	70.1	<b><u>278</u></b>	<b><u>70.0</u></b>	277	70.4	<b><u>277</u></b>	<b><u>70.3</u></b>	278	70.0

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 = "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.dealII: 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>

<http://www.spec.org/cpu2006/flags/Fujitsu-Platform.20131009.xml>



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