



# SPEC® CFP2006 Result

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## Fujitsu

SPECfp®2006 = 103

PRIMERGY CX250 S2, Intel Xeon E5-2697 v2, 2.70 GHz

SPECfp\_base2006 = 97.9

CPU2006 license: 19

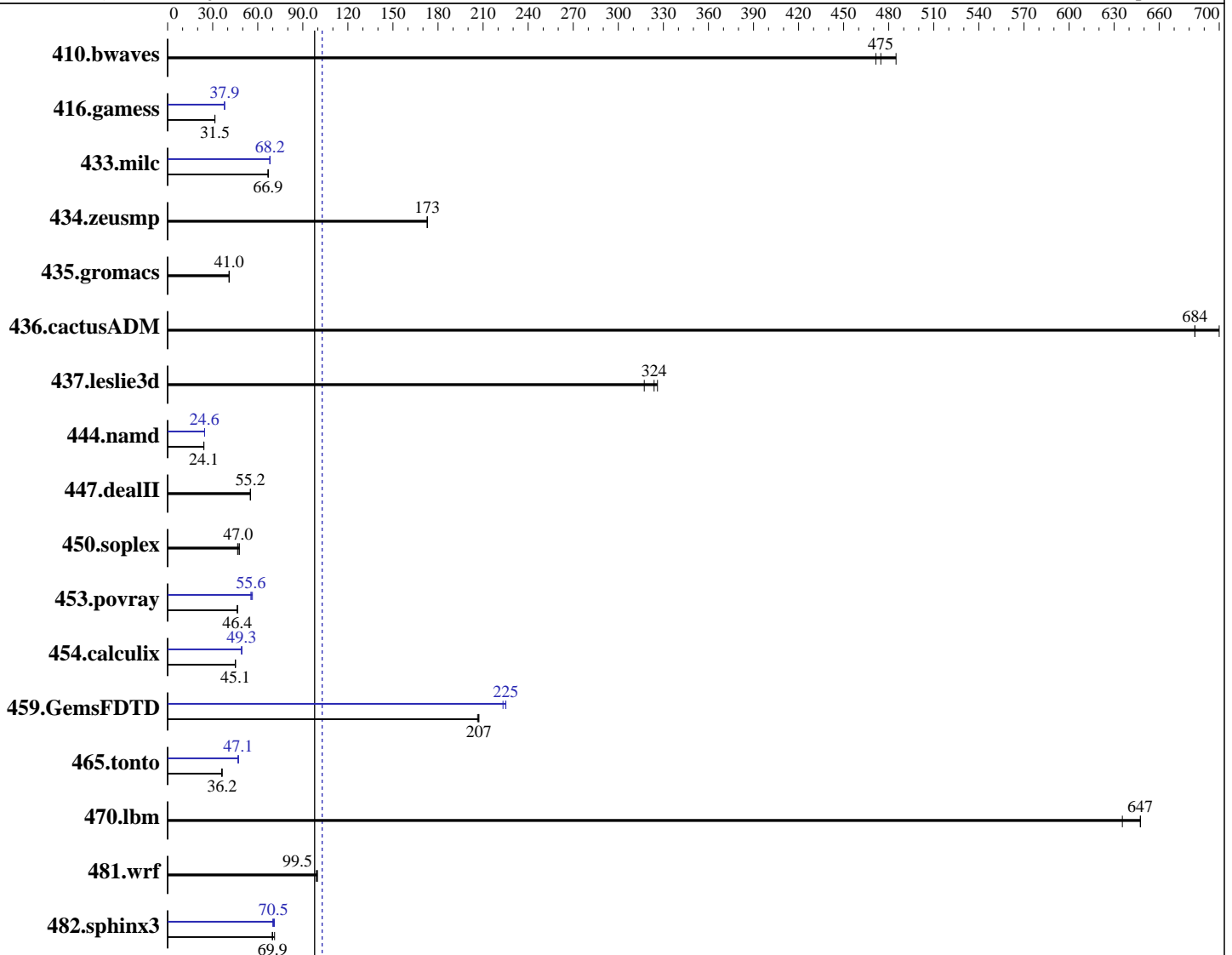
Test date: Nov-2013

Test sponsor: Fujitsu

Hardware Availability: Sep-2013

Tested by: Fujitsu

Software Availability: Sep-2013



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### 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, 500 GB, 7200 RPM  
 Other Hardware: None

System State: Run level 5 (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	<b><u>28.6</u></b>	<b><u>475</u></b>	28.0	485	28.8	471	<b><u>28.6</u></b>	<b><u>475</u></b>	28.0	485	28.8	471
416.gamess	622	31.5	622	31.5	<b><u>622</u></b>	<b><u>31.5</u></b>	<b><u>517</u></b>	<b><u>37.9</u></b>	516	37.9	517	37.8
433.milc	137	66.8	<b><u>137</u></b>	<b><u>66.9</u></b>	137	67.2	135	68.2	135	68.0	<b><u>135</u></b>	<b><u>68.2</u></b>
434.zeusmp	52.6	173	52.6	173	<b><u>52.6</u></b>	<b><u>173</u></b>	52.6	173	52.6	173	<b><u>52.6</u></b>	<b><u>173</u></b>
435.gromacs	<b><u>174</u></b>	<b><u>41.0</u></b>	174	41.0	175	40.9	<b><u>174</u></b>	<b><u>41.0</u></b>	174	41.0	175	40.9
436.cactusADM	<b><u>17.5</u></b>	<b><u>684</u></b>	17.1	700	17.5	684	<b><u>17.5</u></b>	<b><u>684</u></b>	17.1	700	17.5	684
437.leslie3d	29.6	317	<b><u>29.0</u></b>	<b><u>324</u></b>	28.8	326	29.6	317	<b><u>29.0</u></b>	<b><u>324</u></b>	28.8	326
444.namd	<b><u>332</u></b>	<b><u>24.1</u></b>	332	24.1	333	24.1	326	24.6	<b><u>326</u></b>	<b><u>24.6</u></b>	326	24.6
447.dealII	<b><u>207</u></b>	<b><u>55.2</u></b>	207	55.2	208	55.0	<b><u>207</u></b>	<b><u>55.2</u></b>	207	55.2	208	55.0
450.soplex	<b><u>177</u></b>	<b><u>47.0</u></b>	179	46.6	175	47.8	<b><u>177</u></b>	<b><u>47.0</u></b>	179	46.6	175	47.8
453.povray	115	46.4	<b><u>115</u></b>	<b><u>46.4</u></b>	114	46.5	94.2	56.5	<b><u>95.7</u></b>	<b><u>55.6</u></b>	95.8	55.5
454.calculix	<b><u>183</u></b>	<b><u>45.1</u></b>	183	45.2	183	45.1	167	49.3	168	49.2	<b><u>167</u></b>	<b><u>49.3</u></b>
459.GemsFDTD	<b><u>51.2</u></b>	<b><u>207</u></b>	51.4	206	51.2	207	<b><u>47.1</u></b>	<b><u>225</u></b>	47.1	225	47.5	223
465.tonto	<b><u>272</u></b>	<b><u>36.2</u></b>	273	36.0	271	36.3	210	46.9	<b><u>209</u></b>	<b><u>47.1</u></b>	209	47.1
470.lbm	<b><u>21.2</u></b>	<b><u>647</u></b>	21.6	636	21.2	648	<b><u>21.2</u></b>	<b><u>647</u></b>	21.6	636	21.2	648
481.wrf	<b><u>112</u></b>	<b><u>99.5</u></b>	112	99.7	113	99.0	<b><u>112</u></b>	<b><u>99.5</u></b>	112	99.7	113	99.0
482.sphinx3	<b><u>279</u></b>	<b><u>69.9</u></b>	274	71.2	280	69.6	278	70.0	274	71.1	<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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## 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-alloc  
-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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