



# SPEC<sup>®</sup> CFP2006 Result

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## Fujitsu

SPECfp<sup>®</sup>2006 = **70.4**

PRIMERGY RX100 S8, Intel Xeon E3-1220 v3, 3.10 GHz

SPECfp\_base2006 = **69.2**

CPU2006 license: 19

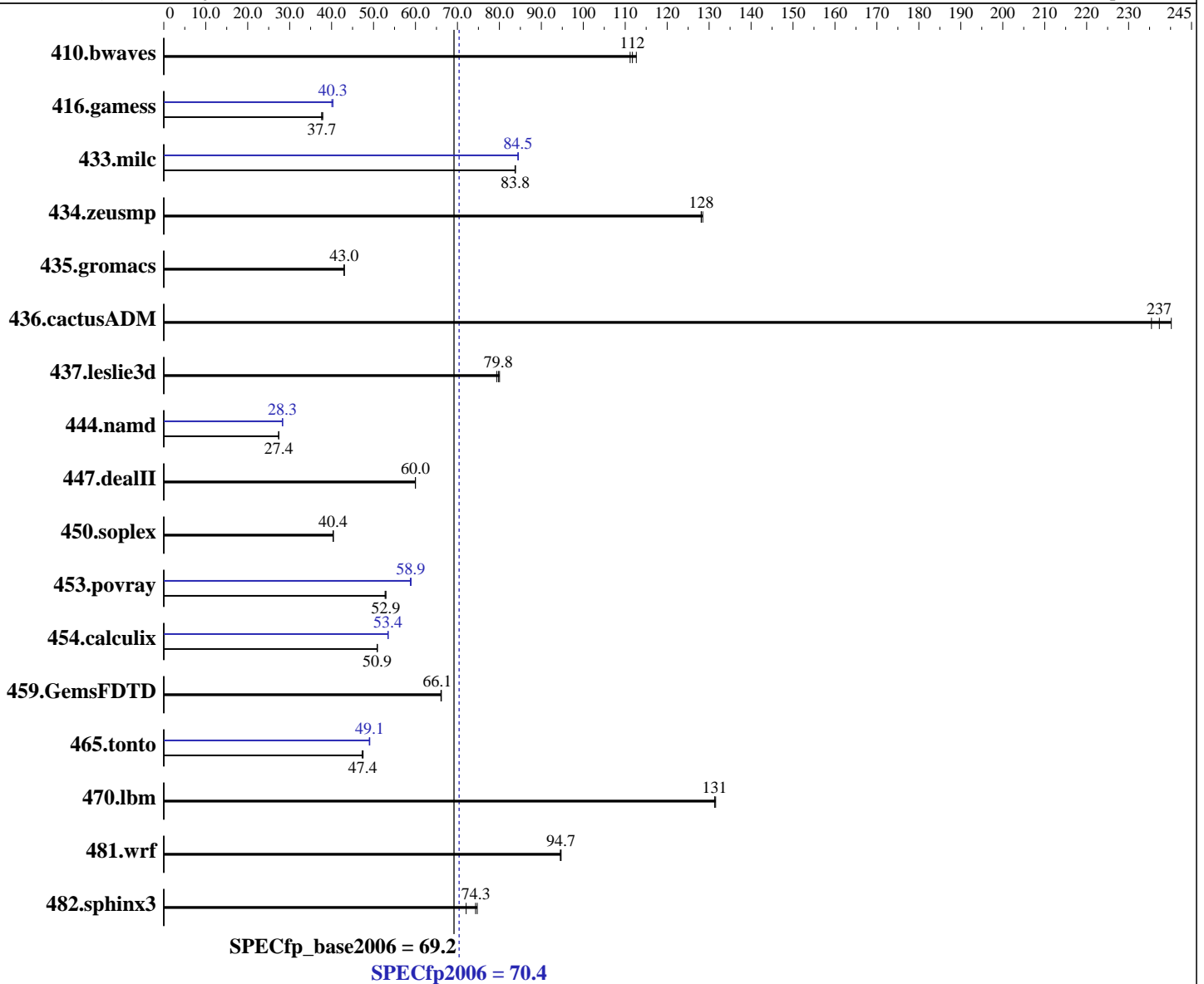
Test date: Sep-2013

Test sponsor: Fujitsu

Hardware Availability: Sep-2013

Tested by: Fujitsu

Software Availability: Sep-2013



### Hardware

CPU Name: Intel Xeon E3-1220 v3  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz  
 CPU MHz: 3100  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip  
 CPU(s) orderable: 1 chip  
 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: 8 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 32 GB (4 x 8 GB 2Rx8 PC3L-12800E-11, ECC)  
 Disk Subsystem: 1 x SATA, 500 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	122	111	<u>122</u>	<u>112</u>	121	113	122	111	<u>122</u>	<u>112</u>	121	113
416.gamess	<u>520</u>	<u>37.7</u>	520	37.7	517	37.9	489	40.1	<u>486</u>	<u>40.3</u>	486	40.3
433.milc	109	83.9	<u>110</u>	<u>83.8</u>	110	83.7	109	84.4	<u>109</u>	<u>84.5</u>	109	84.5
434.zeusmp	<u>71.0</u>	<u>128</u>	71.0	128	70.8	128	<u>71.0</u>	<u>128</u>	71.0	128	70.8	128
435.gromacs	166	43.0	<u>166</u>	<u>43.0</u>	166	43.0	166	43.0	<u>166</u>	<u>43.0</u>	166	43.0
436.cactusADM	49.8	240	50.8	235	<u>50.4</u>	<u>237</u>	49.8	240	50.8	235	<u>50.4</u>	<u>237</u>
437.leslie3d	<u>118</u>	<u>79.8</u>	118	79.4	117	80.0	<u>118</u>	<u>79.8</u>	118	79.4	117	80.0
444.namd	293	27.4	<u>293</u>	<u>27.4</u>	293	27.4	283	28.3	<u>283</u>	<u>28.3</u>	283	28.3
447.dealII	191	60.0	191	60.0	<u>191</u>	<u>60.0</u>	191	60.0	191	60.0	<u>191</u>	<u>60.0</u>
450.soplex	206	40.4	<u>206</u>	<u>40.4</u>	207	40.4	206	40.4	<u>206</u>	<u>40.4</u>	207	40.4
453.povray	101	52.9	<u>101</u>	<u>52.9</u>	101	52.8	90.3	58.9	<u>90.4</u>	<u>58.9</u>	90.5	58.8
454.calculix	162	50.9	162	50.9	<u>162</u>	<u>50.9</u>	154	53.5	154	53.4	<u>154</u>	<u>53.4</u>
459.GemsFDTD	161	66.1	160	66.1	<u>160</u>	<u>66.1</u>	161	66.1	160	66.1	<u>160</u>	<u>66.1</u>
465.tonto	<u>207</u>	<u>47.4</u>	207	47.5	208	47.3	201	49.0	<u>201</u>	<u>49.1</u>	200	49.1
470.lbm	105	131	<u>105</u>	<u>131</u>	104	132	105	131	<u>105</u>	<u>131</u>	104	132
481.wrf	118	94.5	118	94.7	<u>118</u>	<u>94.7</u>	118	94.5	118	94.7	<u>118</u>	<u>94.7</u>
482.sphinx3	261	74.7	<u>262</u>	<u>74.3</u>	270	72.1	261	74.7	<u>262</u>	<u>74.3</u>	270	72.1

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"

## 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"

OMP\_NUM\_THREADS = "4"

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.:

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## General Notes (Continued)

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

## Base Optimization Flags

C benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch  
-ansi-alias

C++ benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias

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## Base Optimization Flags (Continued)

Fortran benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch

Benchmarks using both Fortran and C:

-xCORE-AVX2 -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: -xCORE-AVX2(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:

444.namd: -xCORE-AVX2(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

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## Peak Optimization Flags (Continued)

447.deallI: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xCORE-AVX2(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: -xCORE-AVX2(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: basepeak = yes

465.tonto: -xCORE-AVX2(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: -xCORE-AVX2 -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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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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