



# SPEC<sup>®</sup> CFP2006 Result

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## Fujitsu

SPECfp<sup>®</sup>2006 = **77.8**

PRIMERGY RX300 S8, Intel Xeon E5-2640 v2, 2.00 GHz

SPECfp\_base2006 = **74.9**

CPU2006 license: 19

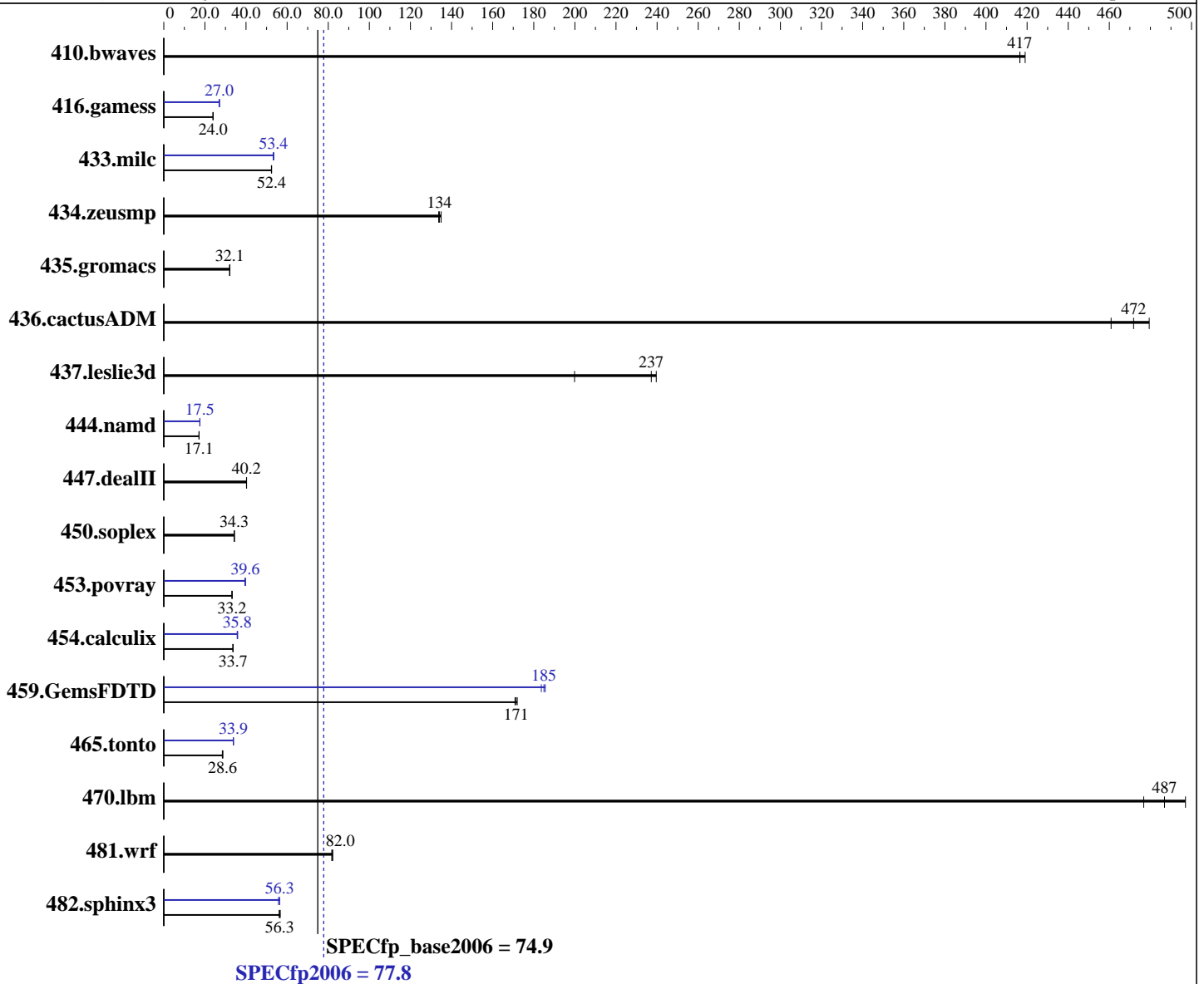
Test date: Sep-2013

Test sponsor: Fujitsu

Hardware Availability: Oct-2013

Tested by: Fujitsu

Software Availability: Sep-2013



### Hardware

CPU Name: Intel Xeon E5-2640 v2  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.50 GHz  
 CPU MHz: 2000  
 FPU: Integrated  
 CPU(s) enabled: 16 cores, 2 chips, 8 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: 20 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, 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	32.4	419	<b>32.6</b>	<b>417</b>	32.6	416	32.4	419	<b>32.6</b>	<b>417</b>	32.6	416
416.gamess	<b>817</b>	<b>24.0</b>	816	24.0	817	24.0	729	26.9	<b>725</b>	<b>27.0</b>	721	27.2
433.milc	175	52.5	175	52.3	<b>175</b>	<b>52.4</b>	173	53.2	172	53.5	<b>172</b>	<b>53.4</b>
434.zeusmp	<b>67.8</b>	<b>134</b>	68.0	134	67.4	135	<b>67.8</b>	<b>134</b>	68.0	134	67.4	135
435.gromacs	222	32.1	223	32.0	<b>222</b>	<b>32.1</b>	222	32.1	223	32.0	<b>222</b>	<b>32.1</b>
436.cactusADM	<b>25.3</b>	<b>472</b>	25.9	461	24.9	479	<b>25.3</b>	<b>472</b>	25.9	461	24.9	479
437.leslie3d	<b>39.6</b>	<b>237</b>	47.0	200	39.2	240	<b>39.6</b>	<b>237</b>	47.0	200	39.2	240
444.namd	<b>468</b>	<b>17.1</b>	467	17.2	468	17.1	456	17.6	458	17.5	<b>457</b>	<b>17.5</b>
447.dealII	<b>284</b>	<b>40.2</b>	284	40.3	284	40.2	<b>284</b>	<b>40.2</b>	284	40.3	284	40.2
450.soplex	243	34.4	244	34.2	<b>243</b>	<b>34.3</b>	243	34.4	244	34.2	<b>243</b>	<b>34.3</b>
453.povray	160	33.2	<b>160</b>	<b>33.2</b>	160	33.2	<b>134</b>	<b>39.6</b>	135	39.4	134	39.8
454.calculix	246	33.6	<b>245</b>	<b>33.7</b>	245	33.7	<b>231</b>	<b>35.8</b>	231	35.7	229	36.0
459.GemsFDTD	61.7	172	<b>61.9</b>	<b>171</b>	62.1	171	57.2	186	<b>57.4</b>	<b>185</b>	57.8	184
465.tonto	343	28.7	<b>344</b>	<b>28.6</b>	346	28.5	290	33.9	291	33.8	<b>291</b>	<b>33.9</b>
470.lbm	<b>28.2</b>	<b>487</b>	28.8	477	27.6	497	<b>28.2</b>	<b>487</b>	28.8	477	27.6	497
481.wrf	136	82.2	137	81.7	<b>136</b>	<b>82.0</b>	136	82.2	137	81.7	<b>136</b>	<b>82.0</b>
482.sphinx3	344	56.7	347	56.1	<b>346</b>	<b>56.3</b>	349	55.8	<b>346</b>	<b>56.3</b>	346	56.4

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 = "16"

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:

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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

Tested with SPEC CPU2006 v1.2.  
Report generated on Thu Jul 24 17:18:17 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 9 October 2013.