



# SPEC<sup>®</sup> CFP2006 Result

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## Fujitsu

### SPECfp<sup>®</sup>\_rate2006 = 256

PRIMERGY RX350 S7, Intel Xeon E5-2690, 2.90 GHz

### SPECfp\_rate\_base2006 = 248

CPU2006 license: 19

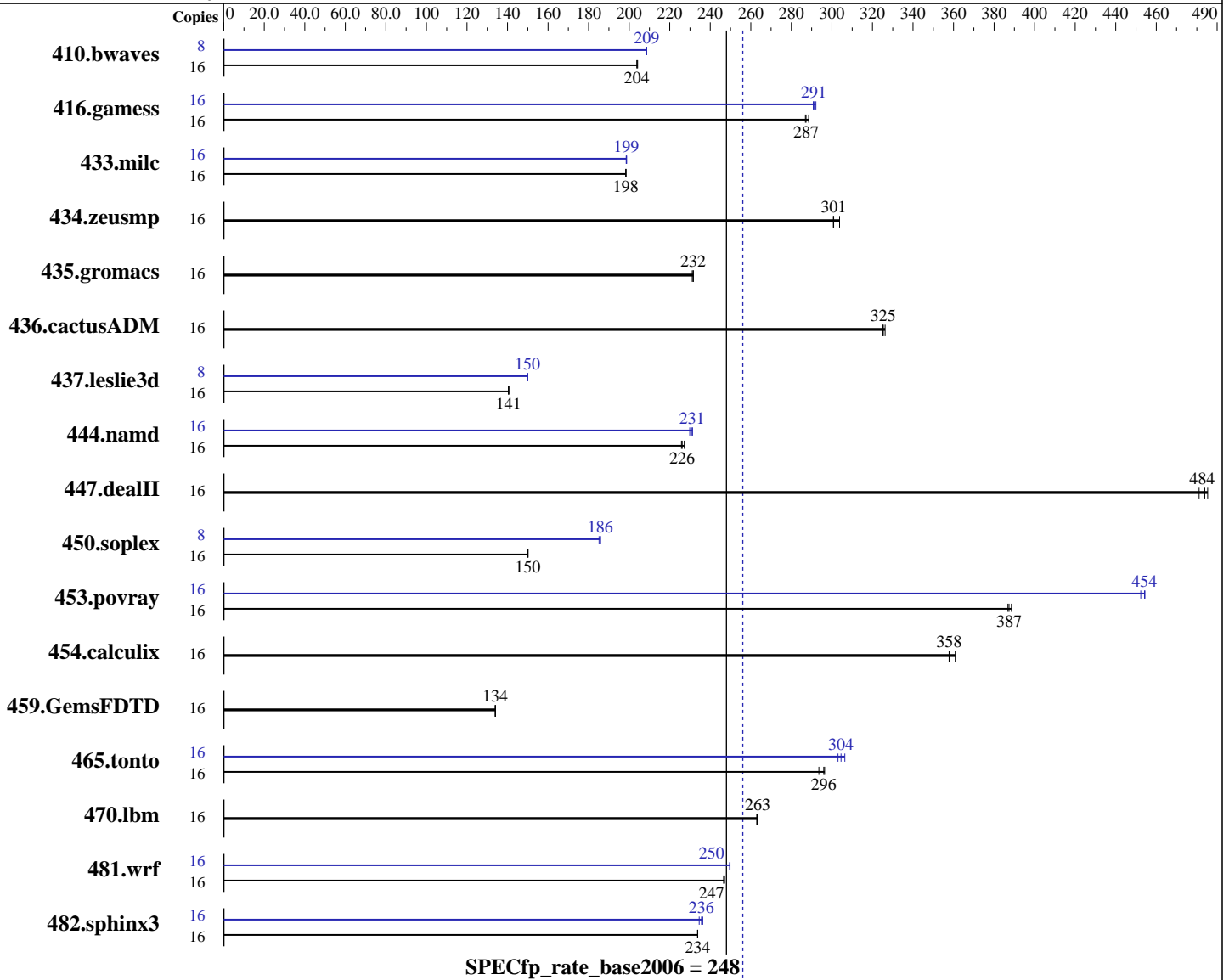
Test sponsor: Fujitsu

Tested by: Fujitsu

Test date: Dec-2011

Hardware Availability: Mar-2012

Software Availability: Dec-2011



### Hardware

CPU Name: Intel Xeon E5-2690  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.80 GHz  
 CPU MHz: 2900  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 1 chip, 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 6.2 (Santiago)  
 2.6.32-220.el6.x86\_64  
 Compiler: C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux;  
 Fortran: Version 12.1.0.225 of Intel Fortran Studio XE for Linux  
 Auto Parallel: No  
 File System: ext4

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L3 Cache: 20 MB I+D on chip per chip  
Other Cache: None  
Memory: 64 GB (8 x 8 GB 2Rx4 PC3L-12800R-11, ECC)  
Disk Subsystem: 1 x SATA, 500 GB, 7200 RPM  
Other Hardware: None

System State: Run level 3 (multi-user)  
Base Pointers: 32/64-bit  
Peak Pointers: 32/64-bit  
Other Software: None

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	16	1065	204	<b><u>1067</u></b>	<b><u>204</u></b>	1067	204	8	521	209	521	209	<b><u>521</u></b>	<b><u>209</u></b>
416.gamess	16	1086	289	<b><u>1091</u></b>	<b><u>287</u></b>	1092	287	16	<b><u>1076</u></b>	<b><u>291</u></b>	1077	291	1072	292
433.milc	16	741	198	740	198	<b><u>740</u></b>	<b><u>198</u></b>	16	<b><u>739</u></b>	<b><u>199</u></b>	740	199	739	199
434.zeusmp	16	479	304	<b><u>484</u></b>	<b><u>301</u></b>	484	301	16	479	304	<b><u>484</u></b>	<b><u>301</u></b>	484	301
435.gromacs	16	<b><u>493</u></b>	<b><u>232</u></b>	494	231	493	232	16	<b><u>493</u></b>	<b><u>232</u></b>	494	231	493	232
436.cactusADM	16	586	326	<b><u>588</u></b>	<b><u>325</u></b>	588	325	16	586	326	<b><u>588</u></b>	<b><u>325</u></b>	588	325
437.leslie3d	16	1071	140	1069	141	<b><u>1070</u></b>	<b><u>141</u></b>	8	502	150	502	150	<b><u>502</u></b>	<b><u>150</u></b>
444.namd	16	<b><u>567</u></b>	<b><u>226</u></b>	565	227	568	226	16	<b><u>556</u></b>	<b><u>231</u></b>	558	230	555	231
447.dealII	16	380	481	377	485	<b><u>378</u></b>	<b><u>484</u></b>	16	380	481	377	485	<b><u>378</u></b>	<b><u>484</u></b>
450.soplex	16	890	150	889	150	<b><u>889</u></b>	<b><u>150</u></b>	8	<b><u>359</u></b>	<b><u>186</u></b>	359	186	360	185
453.povray	16	219	389	220	387	<b><u>220</u></b>	<b><u>387</u></b>	16	187	454	<b><u>187</u></b>	<b><u>454</u></b>	188	452
454.calculix	16	<b><u>369</u></b>	<b><u>358</u></b>	369	358	366	361	16	<b><u>369</u></b>	<b><u>358</u></b>	369	358	366	361
459.GemsFDTD	16	<b><u>1267</u></b>	<b><u>134</u></b>	1266	134	1268	134	16	<b><u>1267</u></b>	<b><u>134</u></b>	1266	134	1268	134
465.tonto	16	536	294	<b><u>532</u></b>	<b><u>296</u></b>	531	296	16	520	303	514	306	<b><u>517</u></b>	<b><u>304</u></b>
470.lbm	16	<b><u>836</u></b>	<b><u>263</u></b>	836	263	835	263	16	<b><u>836</u></b>	<b><u>263</u></b>	836	263	835	263
481.wrf	16	725	247	<b><u>724</u></b>	<b><u>247</u></b>	723	247	16	716	250	716	250	<b><u>716</u></b>	<b><u>250</u></b>
482.sphinx3	16	<b><u>1334</u></b>	<b><u>234</u></b>	1338	233	1334	234	16	1320	236	1330	235	<b><u>1323</u></b>	<b><u>236</u></b>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

## 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:  
LD\_LIBRARY\_PATH = "/SPECcpu2006/libs/32:/SPECcpu2006/libs/64"

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## General Notes (Continued)

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RHEL5.5  
 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>  
 This result was measured on the PRIMERGY RX350 S7. The PRIMERGY RX350 S7 and the PRIMERGY TX300 S7 are electronically equivalent.  
 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 -static -opt-prefetch -auto-p32  
-ansi-alias -opt-mem-layout-trans=3

C++ benchmarks:

-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32  
-ansi-alias -opt-mem-layout-trans=3

Fortran benchmarks:

-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch

Benchmarks using both Fortran and C:

-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32  
-ansi-alias -opt-mem-layout-trans=3

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m64

482.sphinx3: icc -m32

C++ benchmarks (except as noted below):

icpc -m64

450.soplex: icpc -m32

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

## Peak 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.deallI: -DSPEC\_CPU\_LP64  
453.povray: -DSPEC\_CPU\_LP64

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## Peak Portability Flags (Continued)

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

## 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) -static -auto-ilp32  
-opt-mem-layout-trans=3

470.lbm: basepeak = yes

482.sphinx3: -xAVX -ipo -O3 -no-prec-div -unroll2

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: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3

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: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -static

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- -static

434.zeusmp: basepeak = yes

437.leslie3d: -xAVX -ipo -O3 -no-prec-div -static -opt-prefetch

459.GemsFDTD: basepeak = yes

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## Peak Optimization Flags (Continued)

```
465.tonto: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
           -no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -auto
           -inline-calloc -opt-malloc-options=3
```

Benchmarks using both Fortran and C:

```
435.gromacs: basepeak = yes
```

```
436.cactusADM: basepeak = yes
```

```
454.calculix: basepeak = yes
```

```
481.wrf: -xAVX -ipo -O3 -no-prec-div -static -auto-ilp32
         -opt-mem-layout-trans=3
```

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Fujitsu-Platform.20120320.html>  
<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Fujitsu-Platform.20120320.xml>  
<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml>

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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 07:49:55 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 10 April 2012.