



# SPEC<sup>®</sup> CFP2006 Result

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## Fujitsu

SPECfp<sup>®</sup>2006 = **60.3**

PRIMERGY TX150 S8, Intel Xeon E5-2430, 2.20 GHz

SPECfp\_base2006 = **58.4**

CPU2006 license: 19

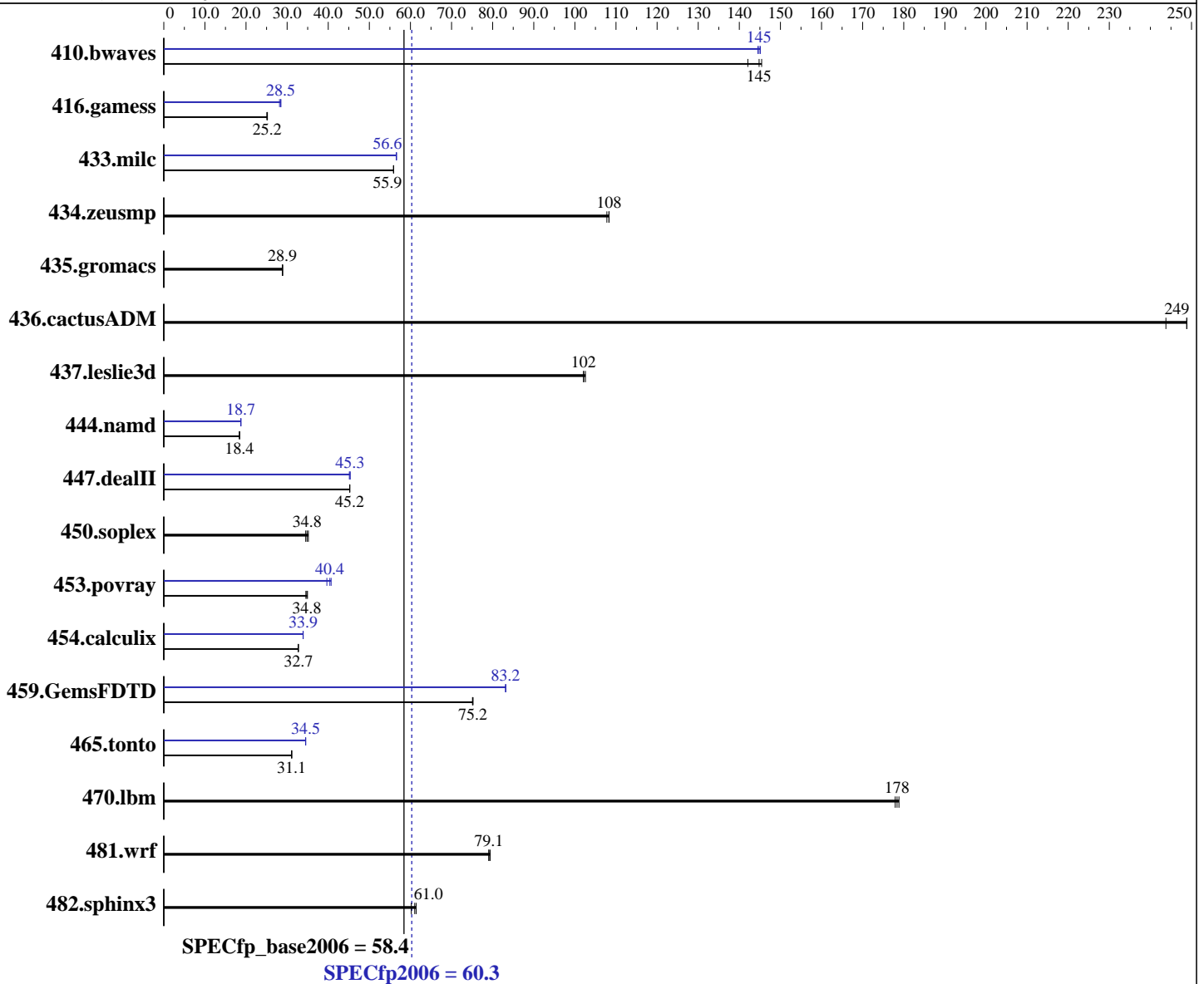
Test date: Jun-2012

Test sponsor: Fujitsu

Hardware Availability: Jul-2012

Tested by: Fujitsu

Software Availability: Feb-2012



### Hardware

CPU Name: Intel Xeon E5-2430  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.70 GHz  
 CPU MHz: 2200  
 FPU: Integrated  
 CPU(s) enabled: 6 cores, 1 chip, 6 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 6.2 (Santiago)  
 2.6.32-220.el6.x86\_64  
 Compiler: C/C++: Version 12.1.0.293 of Intel C++ Studio XE for Linux;  
 Fortran: Version 12.1.0.293 of Intel Fortran Studio XE for Linux  
 Auto Parallel: Yes  
 File System: ext4

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L3 Cache: 15 MB I+D on chip per chip  
Other Cache: None  
Memory: 48 GB (6 x 8 GB 2Rx4 PC3L-12800R-11, ECC, running at 1333 MHz and CL9)  
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	95.7	142	93.4	145	<b><u>93.8</u></b>	<b><u>145</u></b>	94.0	145	93.6	145	<b><u>93.8</u></b>	<b><u>145</u></b>
416.gamess	781	25.1	777	25.2	<b><u>778</u></b>	<b><u>25.2</u></b>	688	28.5	695	28.2	<b><u>688</u></b>	<b><u>28.5</u></b>
433.milc	164	55.9	164	55.9	<b><u>164</u></b>	<b><u>55.9</u></b>	162	56.5	<b><u>162</u></b>	<b><u>56.6</u></b>	162	56.6
434.zeusmp	84.0	108	<b><u>84.0</u></b>	<b><u>108</u></b>	84.4	108	84.0	108	<b><u>84.0</u></b>	<b><u>108</u></b>	84.4	108
435.gromacs	<b><u>247</u></b>	<b><u>28.9</u></b>	248	28.8	247	28.9	<b><u>247</u></b>	<b><u>28.9</u></b>	248	28.8	247	28.9
436.cactusADM	<b><u>48.0</u></b>	<b><u>249</u></b>	49.0	244	48.0	249	<b><u>48.0</u></b>	<b><u>249</u></b>	49.0	244	48.0	249
437.leslie3d	91.6	103	<b><u>92.0</u></b>	<b><u>102</u></b>	92.0	102	91.6	103	<b><u>92.0</u></b>	<b><u>102</u></b>	92.0	102
444.namd	436	18.4	435	18.4	<b><u>436</u></b>	<b><u>18.4</u></b>	428	18.8	428	18.7	<b><u>428</u></b>	<b><u>18.7</u></b>
447.dealII	253	45.2	253	45.2	<b><u>253</u></b>	<b><u>45.2</u></b>	252	45.3	<b><u>253</u></b>	<b><u>45.3</u></b>	253	45.1
450.soplex	237	35.2	242	34.5	<b><u>239</u></b>	<b><u>34.8</u></b>	237	35.2	242	34.5	<b><u>239</u></b>	<b><u>34.8</u></b>
453.povray	152	35.0	154	34.6	<b><u>153</u></b>	<b><u>34.8</u></b>	131	40.7	<b><u>132</u></b>	<b><u>40.4</u></b>	134	39.7
454.calculix	252	32.7	<b><u>252</u></b>	<b><u>32.7</u></b>	253	32.7	<b><u>243</u></b>	<b><u>33.9</u></b>	244	33.9	243	33.9
459.GemsFDTD	141	75.1	141	75.2	<b><u>141</u></b>	<b><u>75.2</u></b>	128	83.2	128	83.2	<b><u>128</u></b>	<b><u>83.2</u></b>
465.tonto	<b><u>316</u></b>	<b><u>31.1</u></b>	316	31.1	317	31.1	285	34.5	285	34.5	<b><u>285</u></b>	<b><u>34.5</u></b>
470.lbm	<b><u>77.0</u></b>	<b><u>178</u></b>	77.2	178	76.8	179	<b><u>77.0</u></b>	<b><u>178</u></b>	77.2	178	76.8	179
481.wrf	141	79.4	141	79.1	<b><u>141</u></b>	<b><u>79.1</u></b>	141	79.4	141	79.1	<b><u>141</u></b>	<b><u>79.1</u></b>
482.sphinx3	318	61.4	<b><u>319</u></b>	<b><u>61.0</u></b>	324	60.2	318	61.4	<b><u>319</u></b>	<b><u>61.0</u></b>	324	60.2

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"  
Transparent Huge Pages enabled with:  
echo always > /sys/kernel/mm/redhat\_transparent\_hugepage/enabled

## Platform Notes

BIOS configuration:  
Intel HT Technology = Disable  
Frequency Floor Override = Enable



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## General Notes

Environment variables set by runspec before the start of the run:

```
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/SPECcpu2006/libs/32:/SPECcpu2006/libs/64"
OMP_NUM_THREADS = "6"
```

Binaries compiled on a system with 1x E3-1270v2 CPU + 32 GB memory using RHEL6.2

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.deallI: -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 -parallel -opt-prefetch  
-ansi-alias`

C++ benchmarks:

`-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias`

Fortran benchmarks:

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

Benchmarks using both Fortran and C:

`-xAVX -ipo -O3 -no-prec-div -static -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) -static -auto-ilp32  
-ansi-alias`

`470.lbm: basepeak = yes`

`482.sphinx3: basepeak = yes`

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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: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch  
-ansi-alias

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: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -parallel  
-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: basepeak = yes

459.GemsFDTD: -xSSE4.2(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-ic12.1-official-linux64.20111122.html>

<http://www.spec.org/cpu2006/flags/Fujitsu-Platform.20120320.html>



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<http://www.spec.org/cpu2006/flags/Fujitsu-Platform.20120320.xml>

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