



# SPEC<sup>®</sup> CFP2006 Result

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## Fujitsu

SPECfp<sup>®</sup>2006 = 46.8

PRIMERGY BX924 S3, Intel Xeon E5-2603, 1.80 GHz

SPECfp\_base2006 = 44.9

CPU2006 license: 19

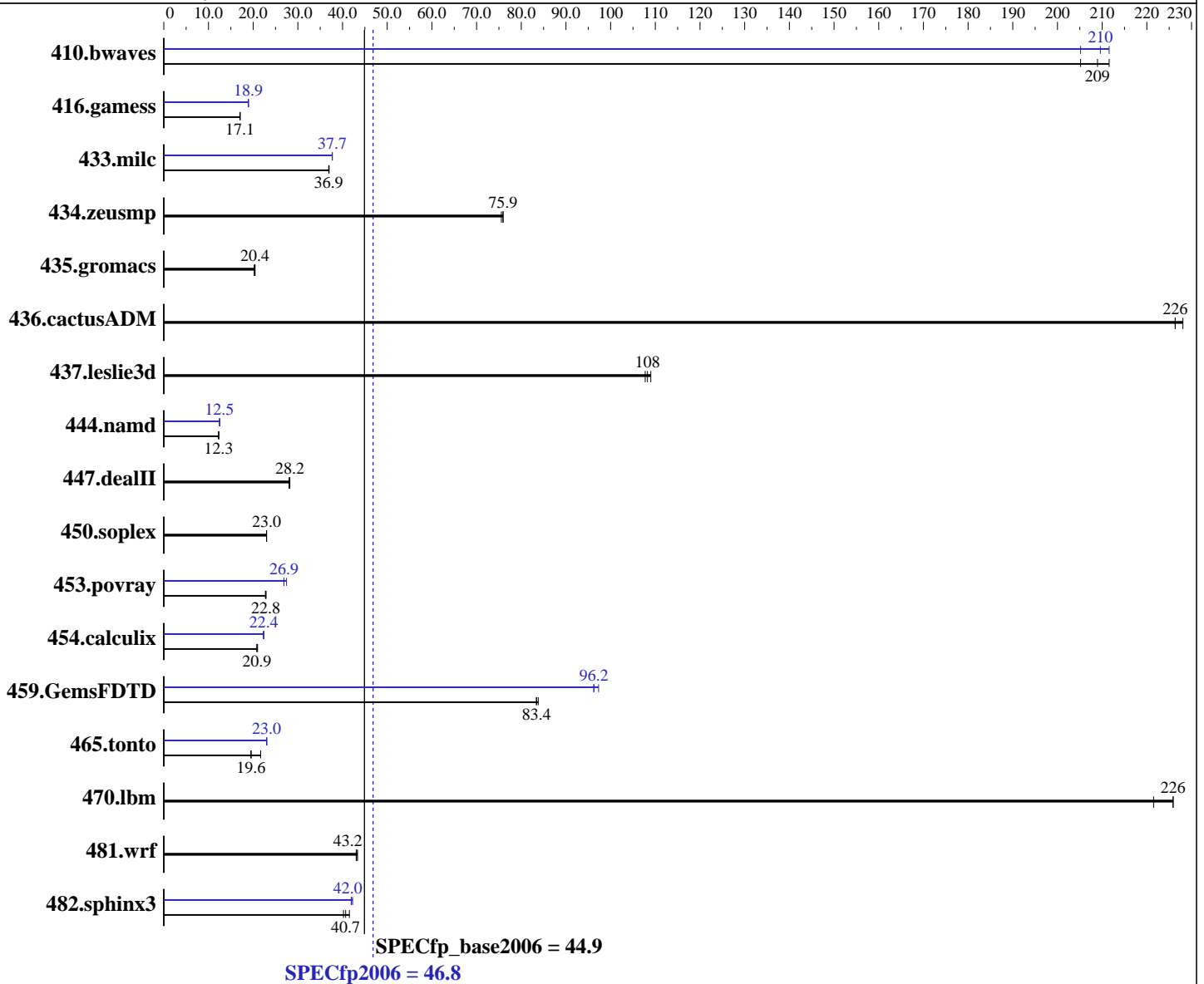
Test date: Feb-2012

Test sponsor: Fujitsu

Hardware Availability: Mar-2012

Tested by: Fujitsu

Software Availability: Dec-2011



### Hardware

CPU Name: Intel Xeon E5-2603  
 CPU Characteristics:  
 CPU MHz: 1800  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip  
 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: Yes  
 File System: ext4

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L3 Cache: 10 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 128 GB (16 x 8 GB 2Rx4 PC3L-12800R-11, ECC, running at 1067 MHz and CL7)  
 Disk Subsystem: 1 x SATA, 500 GB, 7200 RPM  
 Other Hardware: PRIMERGY SX940 S1 for hw\_disk

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	66.2	205	64.2	212	<b>65.0</b>	<b>209</b>	64.2	212	<b>64.8</b>	<b>210</b>	66.2	205
416.gamess	1145	17.1	1149	17.0	<b>1148</b>	<b>17.1</b>	<b>1034</b>	<b>18.9</b>	1033	18.9	1036	18.9
433.milc	248	37.0	<b>249</b>	<b>36.9</b>	249	36.9	244	37.7	<b>243</b>	<b>37.7</b>	243	37.7
434.zeusmp	<b>120</b>	<b>75.9</b>	120	75.5	120	75.9	<b>120</b>	<b>75.9</b>	120	75.5	120	75.9
435.gromacs	353	20.2	350	20.4	<b>350</b>	<b>20.4</b>	353	20.2	350	20.4	<b>350</b>	<b>20.4</b>
436.cactusADM	52.4	228	<b>52.8</b>	<b>226</b>	52.8	226	52.4	228	<b>52.8</b>	<b>226</b>	52.8	226
437.leslie3d	87.2	108	86.2	109	<b>86.8</b>	<b>108</b>	87.2	108	86.2	109	<b>86.8</b>	<b>108</b>
444.namd	653	12.3	<b>653</b>	<b>12.3</b>	653	12.3	642	12.5	643	12.5	<b>642</b>	<b>12.5</b>
447.dealII	<b>406</b>	<b>28.2</b>	406	28.2	408	28.0	<b>406</b>	<b>28.2</b>	406	28.2	408	28.0
450.soplex	363	23.0	<b>363</b>	<b>23.0</b>	362	23.0	363	23.0	<b>363</b>	<b>23.0</b>	362	23.0
453.povray	234	22.7	<b>233</b>	<b>22.8</b>	233	22.9	194	27.5	198	26.9	<b>198</b>	<b>26.9</b>
454.calculix	396	20.8	393	21.0	<b>396</b>	<b>20.9</b>	368	22.4	370	22.3	<b>368</b>	<b>22.4</b>
459.GemsFDTD	<b>127</b>	<b>83.4</b>	127	83.8	127	83.4	109	97.3	<b>110</b>	<b>96.2</b>	110	96.2
465.tonto	<b>503</b>	<b>19.6</b>	505	19.5	454	21.7	428	23.0	427	23.0	<b>427</b>	<b>23.0</b>
470.lbm	<b>60.8</b>	<b>226</b>	60.8	226	62.0	222	<b>60.8</b>	<b>226</b>	60.8	226	62.0	222
481.wrf	<b>259</b>	<b>43.2</b>	258	43.4	259	43.1	<b>259</b>	<b>43.2</b>	258	43.4	259	43.1
482.sphinx3	<b>479</b>	<b>40.7</b>	485	40.2	469	41.5	461	42.3	465	41.9	<b>464</b>	<b>42.0</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:  
Frequency Floor Override = Enable

## 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"

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## General Notes (Continued)

OMP\_NUM\_THREADS = "8"

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

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:

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

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## Base Optimization Flags (Continued)

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: `-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.dealII: 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: -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: -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-ic12.1-official-linux64.20111122.html>

<http://www.spec.org/cpu2006/flags/Fujitsu-Platform.20120313.00.html>



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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).

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