



# SPEC<sup>®</sup> CFP2006 Result

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## Fujitsu

SPECfp<sup>®</sup>2006 = 54.5

PRIMERGY TX120 S3p, Intel Core i3-3220, 3.30 GHz

SPECfp\_base2006 = 53.3

CPU2006 license: 19

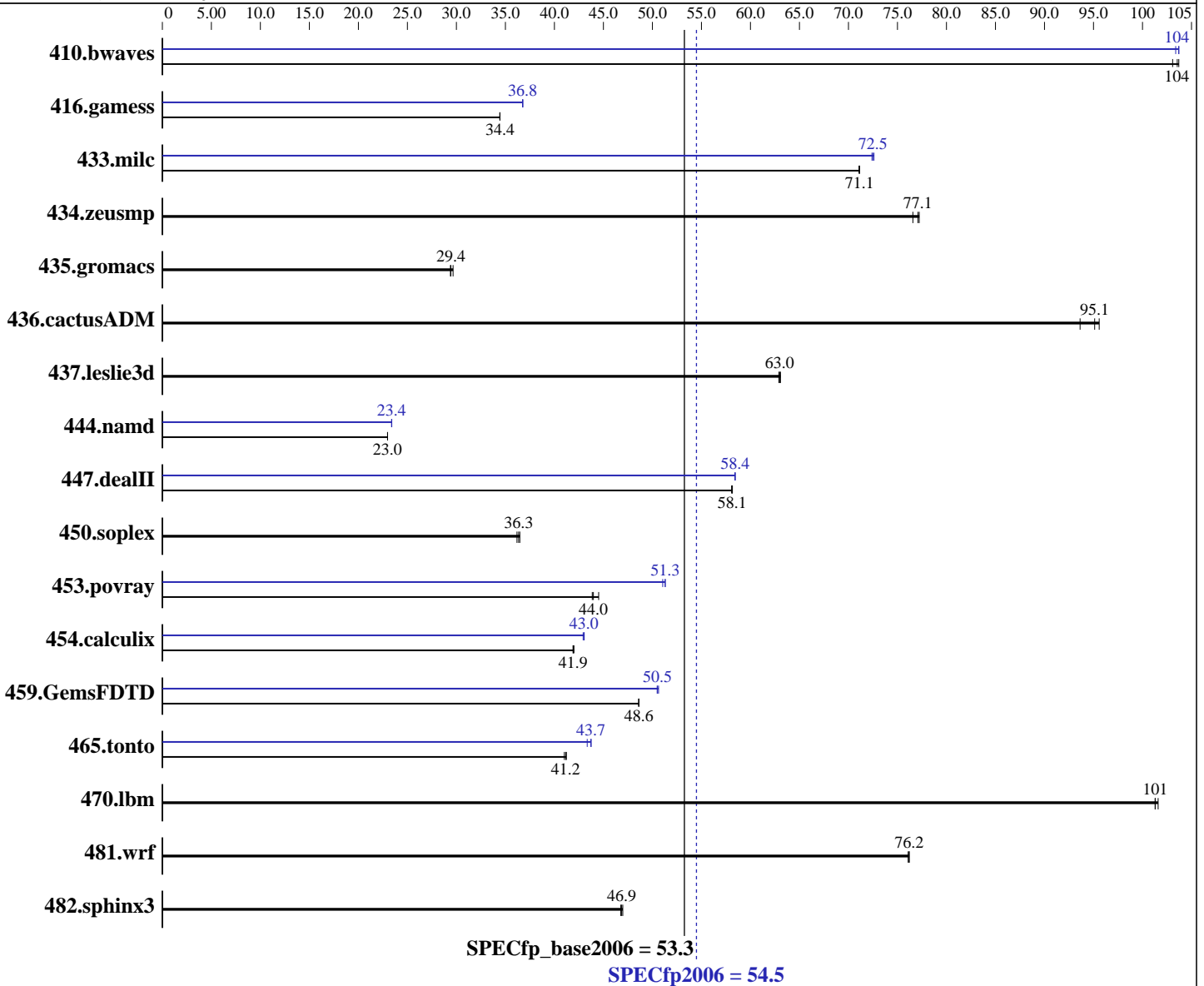
Test sponsor: Fujitsu

Tested by: Fujitsu

Test date: Jul-2012

Hardware Availability: Sep-2012

Software Availability: Feb-2012



### Hardware

CPU Name: Intel Core i3-3220  
 CPU Characteristics:  
 CPU MHz: 3300  
 FPU: Integrated  
 CPU(s) enabled: 2 cores, 1 chip, 2 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: 3 MB I+D on chip per chip  
Other Cache: None  
Memory: 16 GB (2 x 8 GB 2Rx8 PC3-12800E-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	132	103	<b><u>131</u></b>	<b><u>104</u></b>	131	104	<b><u>131</u></b>	<b><u>104</u></b>	131	104	131	103
416.gamess	568	34.4	<b><u>568</u></b>	<b><u>34.4</u></b>	569	34.4	532	36.8	533	36.8	<b><u>533</u></b>	<b><u>36.8</u></b>
433.milc	129	71.1	129	71.1	<b><u>129</u></b>	<b><u>71.1</u></b>	126	72.6	<b><u>127</u></b>	<b><u>72.5</u></b>	127	72.4
434.zeusmp	119	76.6	<b><u>118</u></b>	<b><u>77.1</u></b>	118	77.2	119	76.6	<b><u>118</u></b>	<b><u>77.1</u></b>	118	77.2
435.gromacs	<b><u>243</u></b>	<b><u>29.4</u></b>	241	29.7	243	29.4	<b><u>243</u></b>	<b><u>29.4</u></b>	241	29.7	243	29.4
436.cactusADM	<b><u>126</u></b>	<b><u>95.1</u></b>	128	93.6	125	95.6	<b><u>126</u></b>	<b><u>95.1</u></b>	128	93.6	125	95.6
437.leslie3d	149	62.9	<b><u>149</u></b>	<b><u>63.0</u></b>	149	63.1	149	62.9	<b><u>149</u></b>	<b><u>63.0</u></b>	149	63.1
444.namd	<b><u>349</u></b>	<b><u>23.0</u></b>	349	23.0	349	23.0	<b><u>343</u></b>	<b><u>23.4</u></b>	343	23.4	343	23.4
447.dealII	<b><u>197</u></b>	<b><u>58.1</u></b>	197	58.1	197	58.2	196	58.4	196	58.4	<b><u>196</u></b>	<b><u>58.4</u></b>
450.soplex	<b><u>229</u></b>	<b><u>36.3</u></b>	231	36.2	229	36.5	<b><u>229</u></b>	<b><u>36.3</u></b>	231	36.2	229	36.5
453.povray	<b><u>121</u></b>	<b><u>44.0</u></b>	121	43.9	120	44.5	104	51.3	104	51.1	<b><u>104</u></b>	<b><u>51.3</u></b>
454.calculix	196	42.0	197	41.9	<b><u>197</u></b>	<b><u>41.9</u></b>	192	43.0	192	42.9	<b><u>192</u></b>	<b><u>43.0</u></b>
459.GemsFDTD	218	48.6	<b><u>218</u></b>	<b><u>48.6</u></b>	218	48.6	210	50.5	210	50.6	<b><u>210</u></b>	<b><u>50.5</u></b>
465.tonto	<b><u>239</u></b>	<b><u>41.2</u></b>	239	41.2	240	41.0	227	43.3	225	43.8	<b><u>225</u></b>	<b><u>43.7</u></b>
470.lbm	<b><u>136</u></b>	<b><u>101</u></b>	136	101	135	102	<b><u>136</u></b>	<b><u>101</u></b>	136	101	135	102
481.wrf	147	76.1	<b><u>147</u></b>	<b><u>76.2</u></b>	147	76.2	147	76.1	<b><u>147</u></b>	<b><u>76.2</u></b>	147	76.2
482.sphinx3	415	47.0	<b><u>416</u></b>	<b><u>46.9</u></b>	417	46.8	415	47.0	<b><u>416</u></b>	<b><u>46.9</u></b>	417	46.8

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



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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 = "2"
```

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

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

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

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