



# SPEC<sup>®</sup> CFP2006 Result

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## Fujitsu

**SPECfp<sup>®</sup>2006 = 86.8**

PRIMERGY TX1320 M2, Intel Core i3-6100, 3.70 GHz

**SPECfp\_base2006 = 85.4**

CPU2006 license: 19

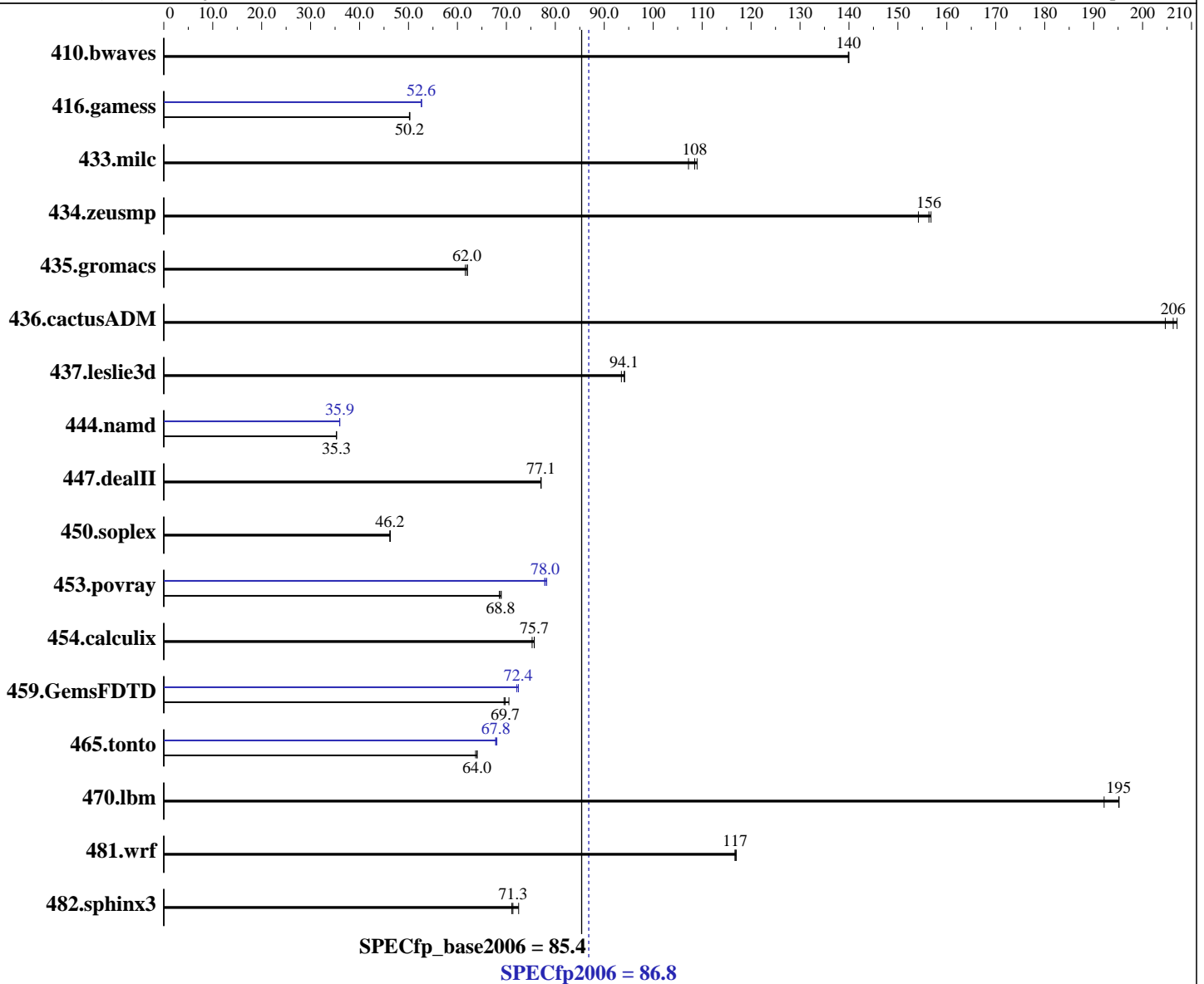
Test sponsor: Fujitsu

Tested by: Fujitsu

Test date: Nov-2015

Hardware Availability: Feb-2016

Software Availability: Sep-2015



**Hardware**

CPU Name: Intel Core i3-6100  
 CPU Characteristics:  
 CPU MHz: 3700  
 FPU: Integrated  
 CPU(s) enabled: 2 cores, 1 chip, 2 cores/chip, 2 threads/core  
 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: SUSE Linux Enterprise Server 12 (x86\_64)  
 Kernel 3.12.48-52.27-default  
 Compiler: C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux;  
 Fortran: Version 16.0.0.101 of Intel Fortran Studio XE for Linux  
 Auto Parallel: Yes  
 File System: ext4  
 System State: Run level 3 (multi-user)

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L3 Cache: 3 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 64 GB (4 x 16 GB 2Rx8 PC4-2133P-E)  
 Disk Subsystem: 1 x SATA, 500 GB, 7200 RPM  
 Other Hardware: None

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	97.1	140	97.2	140	<b><u>97.1</u></b>	<b><u>140</u></b>	97.1	140	97.2	140	<b><u>97.1</u></b>	<b><u>140</u></b>
416.gamess	390	50.2	<b><u>390</u></b>	<b><u>50.2</u></b>	389	50.3	372	52.7	372	52.6	<b><u>372</u></b>	<b><u>52.6</u></b>
433.milc	85.6	107	<b><u>84.6</u></b>	<b><u>108</u></b>	84.2	109	85.6	107	<b><u>84.6</u></b>	<b><u>108</u></b>	84.2	109
434.zeusmp	59.0	154	<b><u>58.2</u></b>	<b><u>156</u></b>	58.0	157	59.0	154	<b><u>58.2</u></b>	<b><u>156</u></b>	58.0	157
435.gromacs	116	61.6	115	62.0	<b><u>115</u></b>	<b><u>62.0</u></b>	116	61.6	115	62.0	<b><u>115</u></b>	<b><u>62.0</u></b>
436.cactusADM	58.4	205	57.7	207	<b><u>57.9</u></b>	<b><u>206</u></b>	58.4	205	57.7	207	<b><u>57.9</u></b>	<b><u>206</u></b>
437.leslie3d	<b><u>99.9</u></b>	<b><u>94.1</u></b>	101	93.5	99.8	94.2	<b><u>99.9</u></b>	<b><u>94.1</u></b>	101	93.5	99.8	94.2
444.namd	<b><u>227</u></b>	<b><u>35.3</u></b>	227	35.3	228	35.2	223	36.0	<b><u>223</u></b>	<b><u>35.9</u></b>	223	35.9
447.dealII	148	77.1	148	77.0	<b><u>148</u></b>	<b><u>77.1</u></b>	148	77.1	148	77.0	<b><u>148</u></b>	<b><u>77.1</u></b>
450.soplex	180	46.3	<b><u>180</u></b>	<b><u>46.2</u></b>	180	46.2	180	46.3	<b><u>180</u></b>	<b><u>46.2</u></b>	180	46.2
453.povray	77.6	68.6	<b><u>77.3</u></b>	<b><u>68.8</u></b>	77.1	69.0	<b><u>68.2</u></b>	<b><u>78.0</u></b>	68.4	77.8	68.0	78.2
454.calculix	<b><u>109</u></b>	<b><u>75.7</u></b>	110	75.3	109	75.7	<b><u>109</u></b>	<b><u>75.7</u></b>	110	75.3	109	75.7
459.GemsFDTD	153	69.5	<b><u>152</u></b>	<b><u>69.7</u></b>	150	70.5	147	72.1	<b><u>146</u></b>	<b><u>72.4</u></b>	146	72.5
465.tonto	154	63.7	154	64.0	<b><u>154</u></b>	<b><u>64.0</u></b>	145	68.1	<b><u>145</u></b>	<b><u>67.8</u></b>	145	67.8
470.lbm	71.5	192	70.4	195	<b><u>70.4</u></b>	<b><u>195</u></b>	71.5	192	70.4	195	<b><u>70.4</u></b>	<b><u>195</u></b>
481.wrf	<b><u>95.7</u></b>	<b><u>117</u></b>	95.7	117	95.5	117	<b><u>95.7</u></b>	<b><u>117</u></b>	95.7	117	95.5	117
482.sphinx3	<b><u>273</u></b>	<b><u>71.3</u></b>	269	72.5	274	71.1	<b><u>273</u></b>	<b><u>71.3</u></b>	269	72.5	274	71.1

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:  
 Sysinfo program /home/SPECcpu2006/config/sysinfo.rev6914  
 \$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1  
 running on TX1320M2 Mon Nov 30 15:42:20 2015

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:  
<http://www.spec.org/cpu2006/Docs/config.html#sysinfo>

From /proc/cpuinfo

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## Platform Notes (Continued)

model name : Intel(R) Core(TM) i3-6100 CPU @ 3.70GHz

1 "physical id"s (chips)

4 "processors"

cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)

cpu cores : 2

siblings : 4

physical 0: cores 0 1

cache size : 3072 KB

From /proc/meminfo

MemTotal: 65906620 kB

HugePages\_Total: 0

Hugepagesize: 2048 kB

/usr/bin/lsb\_release -d

SUSE Linux Enterprise Server 12

From /etc/\*release\* /etc/\*version\*

SuSE-release:

SUSE Linux Enterprise Server 12 (x86\_64)

VERSION = 12

PATCHLEVEL = 0

# This file is deprecated and will be removed in a future service pack or release.

# Please check /etc/os-release for details about this release.

os-release:

NAME="SLES"

VERSION="12"

VERSION\_ID="12"

PRETTY\_NAME="SUSE Linux Enterprise Server 12"

ID="sles"

ANSI\_COLOR="0;32"

CPE\_NAME="cpe:/o:suse:sles:12"

uname -a:

Linux TX1320M2 3.12.48-52.27-default #1 SMP Mon Oct 5 10:08:10 UTC 2015 (314f0e3) x86\_64 x86\_64 x86\_64 GNU/Linux

run-level 5 Nov 30 11:08

SPEC is set to: /home/SPECcpu2006

Filesystem Type Size Used Avail Use% Mounted on

/dev/sda3 xfs 1.6T 14G 1.6T 1% /home

Additional information from dmidecode:

Warning: Use caution when you interpret this section. The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

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## Platform Notes (Continued)

BIOS FUJITSU // American Megatrends Inc. V5.0.0.11 R1.1.0 for D3373-A1x  
10/30/2015

Memory:  
4x SK Hynix HMA82GU7MFR8N-TF 16 GB 2 rank 2133 MHz

(End of data from sysinfo program)

## General Notes

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

KMP\_AFFINITY = "granularity=fine,compact,1,0"  
LD\_LIBRARY\_PATH = "/home/SPECcpu2006/libs/32:/home/SPECcpu2006/libs/64:/home/SPECcpu2006/sh"  
OMP\_NUM\_THREADS = "2"

Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB  
memory using RedHat EL 7.1

Transparent Huge Pages enabled with:  
echo always > /sys/kernel/mm/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

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## Base Portability Flags (Continued)

```

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:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch
-ansi-alias

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias

Fortran benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch

Benchmarks using both Fortran and C:
-xCORE-AVX2 -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



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## Peak Optimization Flags

### C benchmarks:

433.milc: basepeak = yes

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

### C++ benchmarks:

444.namd: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)  
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)  
-par-num-threads=1(pass 1) -prof-use(pass 2) -fno-alias  
-auto-ilp32

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)  
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)  
-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll4  
-ansi-alias

### Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)  
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)  
-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll2  
-inline-level=0 -scalar-rep-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)  
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)  
-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll2  
-inline-level=0 -opt-prefetch -parallel

465.tonto: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)  
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)  
-par-num-threads=1(pass 1) -prof-use(pass 2) -inline-calloc  
-opt-malloc-options=3 -auto -unroll4

### Benchmarks using both Fortran and C:

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## Peak Optimization Flags (Continued)

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

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-ic16.0-official-linux64.html>

<http://www.spec.org/cpu2006/flags/Fujitsu-Platform-Settings-V1.2-HSW-RevA.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml>

<http://www.spec.org/cpu2006/flags/Fujitsu-Platform-Settings-V1.2-HSW-RevA.xml>

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

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