



# SPEC® CFP2006 Result

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## Fujitsu

SPECfp®2006 = **106**

PRIMERGY TX1330 M3, Intel Xeon E3-1280 v6, 3.9GHz

SPECfp\_base2006 = **105**

CPU2006 license: 19

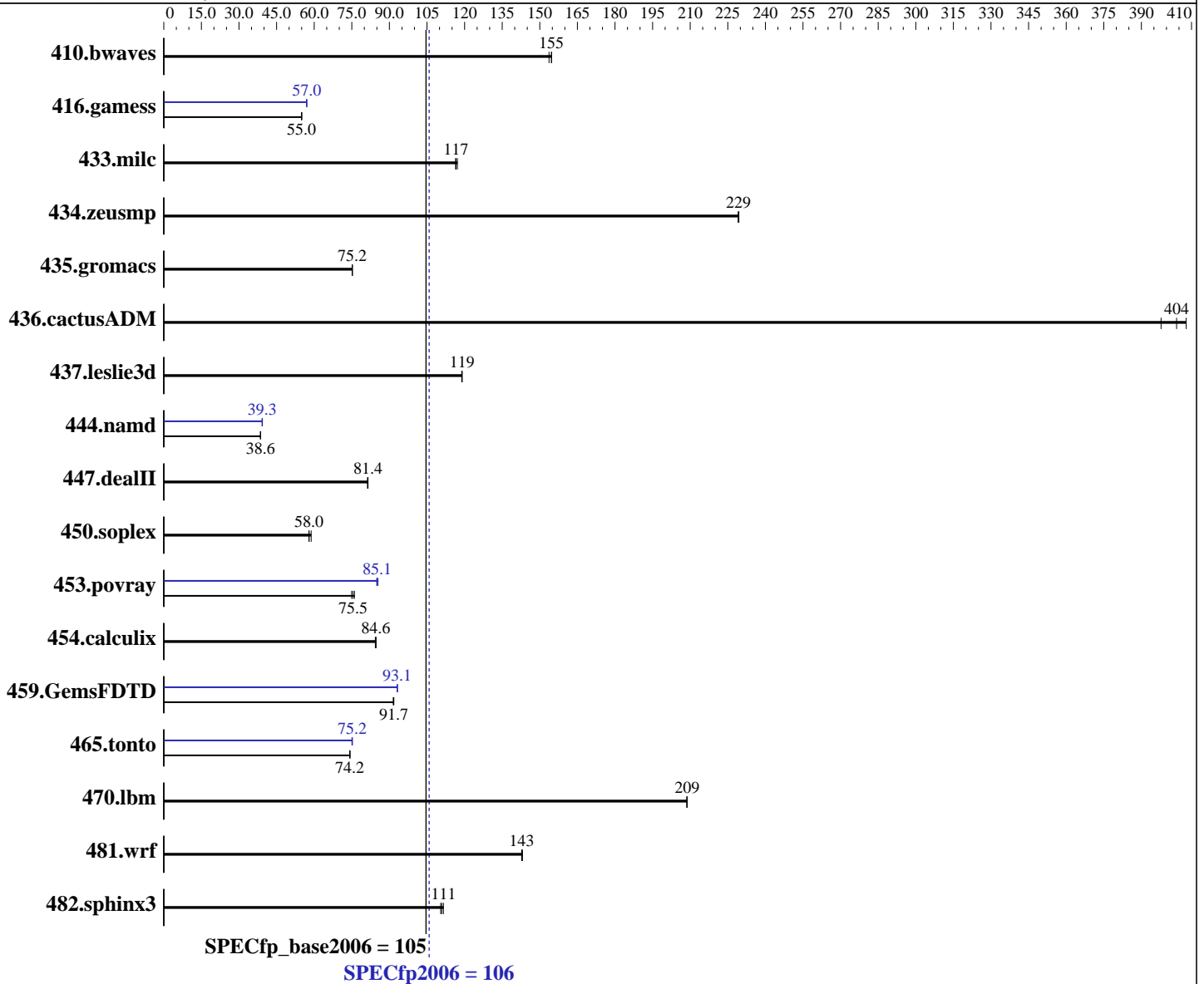
Test date: Mar-2017

Test sponsor: Fujitsu

Hardware Availability: May-2017

Tested by: Fujitsu

Software Availability: Nov-2016



### Hardware

CPU Name: Intel Xeon E3-1280 v6  
 CPU Characteristics: Intel Turbo Boost Technology up to 4.20 GHz  
 CPU MHz: 3900  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 1 chip, 4 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: SUSE Linux Enterprise Server 12 SP2 (x86\_64) 4.4.21-68-default  
 Compiler: C/C++: Version 17.0.0.098 of Intel C/C++ Compiler for Linux;  
 Fortran: Version 17.0.0.098 of Intel Fortran Compiler for Linux  
 Auto Parallel: Yes  
 File System: xfs  
 System State: Run level 3 ((multi-user))

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L3 Cache: 8 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 64 GB (4 x 16 GB 2Rx8 PC4-2400T-E)  
 Disk Subsystem: 2 x SAS, 600 GB, 15000 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	88.4	154	87.9	155	<b><u>87.9</u></b>	<b><u>155</u></b>	88.4	154	87.9	155	<b><u>87.9</u></b>	<b><u>155</u></b>
416.gamess	356	54.9	356	55.0	<b><u>356</u></b>	<b><u>55.0</u></b>	343	57.0	344	57.0	<b><u>343</u></b>	<b><u>57.0</u></b>
433.milc	78.9	116	<b><u>78.7</u></b>	<b><u>117</u></b>	78.4	117	78.9	116	<b><u>78.7</u></b>	<b><u>117</u></b>	78.4	117
434.zeusmp	<b><u>39.7</u></b>	<b><u>229</u></b>	39.7	229	39.7	229	<b><u>39.7</u></b>	<b><u>229</u></b>	39.7	229	39.7	229
435.gromacs	94.8	75.3	95.0	75.1	<b><u>95.0</u></b>	<b><u>75.2</u></b>	94.8	75.3	95.0	75.1	<b><u>95.0</u></b>	<b><u>75.2</u></b>
436.cactusADM	29.3	408	30.0	398	<b><u>29.6</u></b>	<b><u>404</u></b>	29.3	408	30.0	398	<b><u>29.6</u></b>	<b><u>404</u></b>
437.leslie3d	79.0	119	79.1	119	<b><u>79.0</u></b>	<b><u>119</u></b>	79.0	119	79.1	119	<b><u>79.0</u></b>	<b><u>119</u></b>
444.namd	208	38.6	208	38.6	<b><u>208</u></b>	<b><u>38.6</u></b>	204	39.4	205	39.2	<b><u>204</u></b>	<b><u>39.3</u></b>
447.dealII	<b><u>140</u></b>	<b><u>81.4</u></b>	140	81.5	141	81.2	<b><u>140</u></b>	<b><u>81.4</u></b>	140	81.5	141	81.2
450.soplex	<b><u>144</u></b>	<b><u>58.0</u></b>	144	57.9	142	58.8	<b><u>144</u></b>	<b><u>58.0</u></b>	144	57.9	142	58.8
453.povray	71.0	74.9	69.9	76.1	<b><u>70.5</u></b>	<b><u>75.5</u></b>	62.2	85.5	<b><u>62.5</u></b>	<b><u>85.1</u></b>	62.6	84.9
454.calculix	<b><u>97.5</u></b>	<b><u>84.6</u></b>	97.5	84.6	97.8	84.4	<b><u>97.5</u></b>	<b><u>84.6</u></b>	97.5	84.6	97.8	84.4
459.GemsFDTD	116	91.5	116	91.8	<b><u>116</u></b>	<b><u>91.7</u></b>	114	93.2	<b><u>114</u></b>	<b><u>93.1</u></b>	114	93.1
465.tonto	132	74.3	133	74.1	<b><u>133</u></b>	<b><u>74.2</u></b>	131	75.0	131	75.2	<b><u>131</u></b>	<b><u>75.2</u></b>
470.lbm	65.8	209	65.9	209	<b><u>65.8</u></b>	<b><u>209</u></b>	65.8	209	65.9	209	<b><u>65.8</u></b>	<b><u>209</u></b>
481.wrf	<b><u>78.2</u></b>	<b><u>143</u></b>	78.2	143	78.1	143	<b><u>78.2</u></b>	<b><u>143</u></b>	78.2	143	78.1	143
482.sphinx3	175	112	176	110	<b><u>176</u></b>	<b><u>111</u></b>	175	112	176	110	<b><u>176</u></b>	<b><u>111</u></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"
Turbo mode set with :
cpupower -c all frequency-set -g performance
cpupower idle-set -d 2
cpupower idle-set -d 3
cpupower idle-set -d 4
echo always > /sys/kernel/mm/transparent_hugepage/enabled
KMP_AFFINITY = "granularity=fine,scatter"
OMP_NUM_THREADS = "4"
```



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Hardware Availability: May-2017

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## Platform Notes

BIOS Settings:

Hyper-threading = Disabled

Sysinfo program /home/benchmark/speccpu-20160922-updated/config/sysinfo.rev6993

Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)

running on linux-lrfj Sat Mar 4 18:56:15 2017

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

model name : Intel(R) Xeon(R) CPU E3-1280 v6 @ 3.90GHz

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 : 4

siblings : 4

physical 0: cores 0 1 2 3

cache size : 8192 KB

From /proc/meminfo

MemTotal: 65834924 kB

HugePages\_Total: 0

Hugepagesize: 2048 kB

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

SuSE-release:

SUSE Linux Enterprise Server 12 (x86\_64)

VERSION = 12

PATCHLEVEL = 2

# 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-SP2"

VERSION\_ID="12.2"

PRETTY\_NAME="SUSE Linux Enterprise Server 12 SP2"

ID="sles"

ANSI\_COLOR="0;32"

CPE\_NAME="cpe:/o:suse:sles:12:sp2"

uname -a:

Linux linux-lrfj 4.4.21-68-default #1 SMP Tue Oct 18 18:19:37 UTC 2016 (63cf368) x86\_64 x86\_64 x86\_64 GNU/Linux

run-level 3 Mar 4 18:54

SPEC is set to: /home/benchmark/speccpu-20160922-updated

Filesystem Type Size Used Avail Use% Mounted on  
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## Platform Notes (Continued)

/dev/sda3 xfs 890G 6.6G 883G 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.

BIOS FUJITSU // American Megatrends Inc. V5.0.0.11 R1.0.0 for D3373-B1x  
02/20/2017

Memory:

4x Samsung M391A2K43BB1-CRC 16 GB 2 rank 2400 MHz

(End of data from sysinfo program)

## General Notes

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

LD\_LIBRARY\_PATH = \*/home/benchmark/speccpu-20160922-updated/libs/32:/home/benchmark/speccpu-20160922-updated/libs/64:/home/benchmark/speccpu-20160922-updated/sh10.2\*

Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM  
memory using Redhat Enterprise Linux 7.2

Transparent Huge Pages enabled with:

echo always > /sys/kernel/mm/transparent\_hugepage/enabled

This result was measured on the PRIMERGY TX1320 M3. The PRIMERGY TX1320 M3  
and the PRIMERGY TX1330 M3 are electronically equivalent.

## 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

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## Base Portability Flags (Continued)

```

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

```

## Base Optimization Flags

C benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch

C++ benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch

Fortran benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch

Benchmarks using both Fortran and C:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch

## 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



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## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

433.milc: basepeak = yes

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

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

447.dealII: basepeak = yes

450.soplex: basepeak = yes

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

Fortran benchmarks:

410.bwaves: basepeak = yes

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

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

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

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

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## Peak Optimization Flags (Continued)

Benchmarks using both Fortran and C:

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-ic17.0-official-linux64.html>

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

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

<http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64.xml>

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

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

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