### SPEC® CFP2006 Result

**Fujitsu**

**PRIMERGY TX1320 M3, Intel Xeon E3-1280 v6, 3.9GHz**

**SPECfp®2006 = 106**

**SPECfp_base2006 = 105**

<table>
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<tr>
<th>CPU2006 license:</th>
<th>19</th>
<th>Test date:</th>
<th>Mar-2017</th>
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<tr>
<td>Test sponsor:</td>
<td>Fujitsu</td>
<td>Hardware Availability:</td>
<td>May-2017</td>
</tr>
<tr>
<td>Tested by:</td>
<td>Fujitsu</td>
<td>Software Availability:</td>
<td>Nov-2016</td>
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<tr>
<th>Benchmark</th>
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<td>57.0</td>
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<td>416.gamess</td>
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<td>433.milc</td>
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<td>434.zeusmp</td>
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<td>459.GemsFDTD</td>
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<tr>
<td>470.lbm</td>
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<td>481.wrf</td>
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<td>482.sphinx3</td>
<td>143</td>
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**SPECfp_base2006 = 105**

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### 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

### 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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PRIMERGY TX1320 M3, Intel Xeon E3-1280 v6, 3.9GHz

CPU2006 license: 19
Test sponsor: Fujitsu
Tested by: Fujitsu
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

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test sponsor: Fujitsu
hardware availability: May-2017
software availability: Nov-2016

Benchmark | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio
--- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---
410.bwaves | 88.4 | 154 | 87.9 | 155 | 87.9 | 155 | 88.4 | 154 | 87.9 | 155
416.gamess | 356 | 54.9 | 356 | 55.0 | 356 | 55.0 | 343 | 57.0 | 344 | 57.0
433.milc | 78.9 | 116 | 78.7 | 117 | 78.4 | 117 | 78.9 | 116 | 78.7 | 117
434.zeusmp | 39.7 | 229 | 39.7 | 229 | 39.7 | 229 | 39.7 | 229 | 39.7 | 229
435.gromacs | 94.8 | 75.3 | 95.0 | 75.1 | 95.0 | 75.2 | 94.8 | 75.3 | 95.0 | 75.1
436.cactusADM | 29.3 | 408 | 30.0 | 398 | 29.6 | 404 | 29.3 | 408 | 30.0 | 398
437.leslie3d | 79.0 | 119 | 79.1 | 119 | 79.0 | 119 | 79.0 | 119 | 79.0 | 119
444.namd | 208 | 38.6 | 208 | 38.6 | 208 | 38.6 | 204 | 39.4 | 205 | 39.2
447.dealII | 140 | 81.4 | 140 | 81.5 | 140 | 81.2 | 140 | 81.4 | 140 | 81.5
450.soplex | 144 | 58.0 | 144 | 57.9 | 142 | 58.8 | 144 | 58.0 | 144 | 57.9
453.povray | 71.0 | 74.9 | 69.9 | 76.1 | 70.5 | 75.5 | 62.2 | 85.5 | 62.5 | 85.1
454.calculix | 97.5 | 84.6 | 97.5 | 84.6 | 97.5 | 84.4 | 97.5 | 84.6 | 97.5 | 84.6
459.GemsFDTD | 116 | 91.5 | 116 | 91.8 | 116 | 91.7 | 114 | 93.2 | 114 | 93.1
465.tonto | 132 | 74.3 | 133 | 74.1 | 133 | 74.2 | 131 | 75.0 | 131 | 75.2
470.lbm | 65.8 | 209 | 65.9 | 209 | 65.8 | 209 | 65.8 | 209 | 65.9 | 209
481.wrf | 78.2 | 143 | 78.2 | 143 | 78.2 | 143 | 78.2 | 143 | 78.2 | 143
482.sphinx3 | 175 | 112 | 176 | 110 | 176 | 111 | 175 | 112 | 176 | 110

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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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-1rfj 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
cautions.)
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-1rfj 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.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
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-iipt32
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.

Tested with SPEC CPU2006 v1.2.
Originally published on 29 March 2017.