Fujitsu
PRIMERGY TX1330 M4, Intel Xeon E-2146G, 3.50GHz

CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu

Test Date: Oct-2018
Hardware Availability: Nov-2018
Software Availability: Sep-2018

SPECspeed2017_fp_base = 31.7
SPECspeed2017_fp_peak = Not Run

Threads

<table>
<thead>
<tr>
<th>SPECspeed2017_fp_base (31.7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>603.bwaves_s 6</td>
</tr>
<tr>
<td>607.cactuBSSN_s 6</td>
</tr>
<tr>
<td>619.libm_s 6</td>
</tr>
<tr>
<td>621.wrf_s 6</td>
</tr>
<tr>
<td>627.cam4_s 6</td>
</tr>
<tr>
<td>628.pop2_s 6</td>
</tr>
<tr>
<td>638.imagick_s 6</td>
</tr>
<tr>
<td>644.nab_s 6</td>
</tr>
<tr>
<td>649.fotonik3d_s 6</td>
</tr>
</tbody>
</table>

Hardware

CPU Name: Intel Xeon E-2146G
Max MHz.: 4500
Nominal: 3500
Enabled: 6 cores, 1 chip, 2 threads/core
Orderable: 1 chip
Cache L1: 32 KB I + 32 KB D on chip per core
L2: 256 KB I+D on chip per core
L3: 12 MB I+D on chip per chip
Other: None
Memory: 64 GB (4 x 16 GB 2Rx8 PC4-2666V-E)
Storage: 1 x SATA M.2 SSD, 240 GB
Other: None

Software

OS: Red Hat Enterprise Linux Server release 7.5 (Maipo)
Compiler: C/C++: Version 19.0.0.117 of Intel C/C++
Compiler for Linux:
Fortran: Version 19.0.0.117 of Intel Fortran Compiler for Linux
Parallel: Yes
Firmware: Fujitsu BIOS Version V5.0.0.13 R1.4.0 for D3673-A1x. Released Nov-2018 tested as V5.0.0.13 R1.0.0 for D3673-A1x Sep-2018
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: Not Applicable
Other: None
**Results Table**

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
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<tr>
<td>628.pop2_s</td>
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<tr>
<td>644.nab_s</td>
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<td>980</td>
<td>16.1</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**Submit Notes**

The taskset mechanism was used to bind copies to processors. The config file option 'submit' was used to generate taskset commands to bind each copy to a specific processor. For details, please see the config file.

**Operating System Notes**

Stack size set to unlimited using "ulimit -s unlimited"

**General Notes**

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

- KMP_AFFINITY = "granularity=fine,compact,1,0"
- OMP_STACKSIZE = "192M"
- LD_LIBRARY_PATH = "/home/Benchmark/speccpu2017-ic19/ic19.0-lib/intel64"

Binaries compiled on a system with 1x Intel Xeon E-2186G CPU + 64GB RAM memory using Red Hat Enterprise Linux Server release 7.5

Transparent Huge Pages enabled by default
Prior to runcpu invocation
Filesystem page cache synced and cleared with:
    sync; echo 3 > /proc/sys/vm/drop_caches

Yes: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5753 (Spectre variant 1) is mitigated in the system as tested and documented.

(Continued on next page)
General Notes (Continued)

Yes: The test sponsor attests, as of date of publication, that CVE-2017-5715 (Spectre variant 2) is mitigated in the system as tested and documented.

Platform Notes

BIOS configuration:
Energy Efficient Turbo = Disabled
Sysinfo program /home/Benchmark/speccpu2017-ic19/bin/sysinfo
Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bcc091c0f
running on localhost.localdomain Tue Oct 30 17:12:45 2018

SUT (System Under Test) info as seen by some common utilities.
For more information on this section, see
https://www.spec.org/cpu2017/Docs/config.html#sysinfo

From /proc/cpuinfo
  model name : Intel(R) Xeon(R) E-2146G CPU @ 3.50GHz
  1 "physical id"s (chips)
  12 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The following
excerts from /proc/cpuinfo might not be reliable. Use with caution.)
cpu cores : 6
siblings : 12
physical 0: cores 0 1 2 3 4 5

From lscpu:
  Architecture:          x86_64
  CPU op-mode(s):        32-bit, 64-bit
  Byte Order:            Little Endian
  CPU(s):                12
  On-line CPU(s) list:   0-11
  Thread(s) per core:    2
  Core(s) per socket:    6
  Socket(s):             1
  NUMA node(s):          1
  Vendor ID:             GenuineIntel
  CPU family:            6
  Model:                 158
  Model name:            Intel(R) Xeon(R) E-2146G CPU @ 3.50GHz
  Stepping:              10
  CPU MHz:               4342.529
  CPU max MHz:           4500.0000
  CPU min MHz:           800.0000
  BogoMIPS:              7008.00
  Virtualization:        VT-x
  L1d cache:             32K

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Fujitsu
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PROFILING RESULT

SPECspeak2017_fp_base = 31.7
SPECspeed2017_fp_peak = Not Run

CPU2017 License: 19
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Platform Notes (Continued)

L1i cache: 32K
L2 cache: 256K
L3 cache: 12288K
NUMA node0 CPU(s): 0-11

Flags:
  fpu vme de pse tsc msr pae mca cmov
  pat pse36 clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx pdpe1gb rdtscp
  lm constant_tsc arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc
  aperfmperf eagerfpu pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg
  fma cx16 xtpr pdcm pcid sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes
  xsave avx f16c rdrand lahf_lm abm 3dnowprefetch epb intel_pt tpr_shadow vnmi
  flexpriority ept vpid fsgsbase ts_cog_adjust bmi1 hle avx2 smep bmi2 ibr ds_coder
  stibp dtherm ida

cache size: 12288 KB

From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a
physical chip.

available: 1 nodes (0)
node 0 cpus: 0 1 2 3 4 5 6 7 8 9 10 11
node 0 size: 65277 MB
node 0 free: 63176 MB
node distances:
  node 0
    0: 10

From /proc/meminfo
MemTotal: 65543968 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
os-release:
  NAME="Red Hat Enterprise Linux Server"
  VERSION="7.5 (Maipo)"
  ID="rhel"
  ID_LIKE="fedora"
  VARIANT="Server"
  VARIANT_ID="server"
  VERSION_ID="7.5"
  PRETTY_NAME="Red Hat Enterprise Linux Server 7.5 (Maipo)"
redhat-release: Red Hat Enterprise Linux Server release 7.5 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.5 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.5:ga:server

uname -a:

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### Fujitsu

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**CPU2017 License:** 19  
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**Software Availability:** Sep-2018

#### Platform Notes (Continued)

Linux localhost.localdomain 3.10.0-862.el7.x86_64 #1 SMP Wed Mar 21 18:14:51 EDT 2018  
x86_64  x86_64  x86_64  GNU/Linux  
run-level 3  Oct 30 17:05  
SPEC is set to: /home/Benchmark/speccpu2017-ic19  
Filesystem          Type  Size  Used Avail Use% Mounted on  
/dev/mapper/rhel-home xfs   150G   33G  118G  22% /home  

Additional information from dmidecode follows. 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. V5.0.0.13 R1.0.0 for D3673-A1x  
09/14/2018  
Memory:  
4x SK Hynix HMA82GU7CJR8N-VK 16 GB 2 rank 2667  

(End of data from sysinfo program)

#### Compiler Version Notes

```
CC  619.lbm_s(base) 638.imagick_s(base) 644.nab_s(base)
```
```
icc (ICC) 19.0.0.117 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
```
```
--
```
FC  607.cactuBSSN_s(base)
```
```
icpc (ICC) 19.0.0.117 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
```
```
icc (ICC) 19.0.0.117 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
```
```
ifort (IFORT) 19.0.0.117 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
```
```
--
```
```
FC  603.bwaves_s(base) 649.fotonik3d_s(base) 654.roms_s(base)
```
```
ifort (IFORT) 19.0.0.117 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
```
```
(Continued on next page)
SPEC CPU2017 Floating Point Speed Result

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SPECspeed2017_fp_base = 31.7
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Compiler Version Notes (Continued)

==============================================================================
<table>
<thead>
<tr>
<th>CC 621.wrf_s(base) 627.cam4_s(base) 628.pop2_s(base)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ifort (IFORT) 19.0.0.117 20180804</td>
</tr>
<tr>
<td>Copyright (C) 1985-2018 Intel Corporation. All rights reserved.</td>
</tr>
<tr>
<td>icc (ICC) 19.0.0.117 20180804</td>
</tr>
<tr>
<td>Copyright (C) 1985-2018 Intel Corporation. All rights reserved.</td>
</tr>
</tbody>
</table>
==============================================================================

Base Compiler Invocation

C benchmarks:
icc -m64 -std=c11

Fortran benchmarks:
ifort -m64

Benchmarks using both Fortran and C:
ifort -m64 icc -m64 -std=c11

Benchmarks using Fortran, C, and C++:
icpc -m64 icc -m64 -std=c11 ifort -m64

Base Portability Flags

603.bwaves_s: -DSPEC_LP64
607.cactuBSSN_s: -DSPEC_LP64
619.lbm_s: -DSPEC_LP64
621.wrf_s: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
627.cam4_s: -DSPEC_LP64 -DSPEC_CASE_FLAG
628.pop2_s: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
-assume byterecl
638.imagick_s: -DSPEC_LP64
644.nab_s: -DSPEC_LP64
649.fotonik3d_s: -DSPEC_LP64
654.roms_s: -DSPEC_LP64
# SPEC CPU2017 Floating Point Speed Result

**Fujitsu**

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## Base Optimization Flags

C benchmarks:
- `xCORE-AVX2 -ipo -O3 -no-prec-div -gopt-prefetch -ffinite-math-only`  
- `gopt-mem-layout-trans=3 -qopenmp -DSPEC_OPENMP`

Fortran benchmarks:
- `DSPEC_OPENMP -xCORE-AVX2 -ipo -O3 -no-prec-div -gopt-prefetch`  
- `ffinite-math-only -gopt-mem-layout-trans=3 -qopenmp`  
- `nostandard-realloc-lhs -align array32byte`

Benchmarks using both Fortran and C:
- `xCORE-AVX2 -ipo -O3 -no-prec-div -gopt-prefetch -ffinite-math-only`  
- `gopt-mem-layout-trans=3 -qopenmp -DSPEC_OPENMP`  
- `nostandard-realloc-lhs -align array32byte`

Benchmarks using Fortran, C, and C++:
- `xCORE-AVX2 -ipo -O3 -no-prec-div -gopt-prefetch -ffinite-math-only`  
- `gopt-mem-layout-trans=3 -qopenmp -DSPEC_OPENMP`  
- `nostandard-realloc-lhs -align array32byte`

The flags files that were used to format this result can be browsed at:

You can also download the XML flags sources by saving the following links:
- [http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.0.2-CFL-RevB.xml](http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.0.2-CFL-RevB.xml)

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For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.

Tested with SPEC CPU2017 v1.0.2 on 2018-10-30 04:12:45-0400.  
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