Fujitsu
PRIMERGY TX1330 M4, Intel Xeon E-2144G, 3.60GHz

SPECspeed2017_int_base = 10.1
SPECspeed2017_int_peak = Not Run

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

Threads

<table>
<thead>
<tr>
<th>600.perlbench_s</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>602.gcc_s</td>
<td>8</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>8</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>8</td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>8</td>
</tr>
<tr>
<td>625.x264_s</td>
<td>8</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>8</td>
</tr>
<tr>
<td>641.leela_s</td>
<td>8</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>8</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>8</td>
</tr>
</tbody>
</table>

Software

OS: Red Hat Enterprise Linux Server release 7.5 (Maipo) 3.10.0-862.el7.x86_64
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
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: Not Applicable
Other: jemalloc memory allocator library V5.0.1

Hardware

CPU Name: Intel Xeon E-2144G
Max MHz.: 4500
Nominal: 3600
Enabled: 4 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: 8 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

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

PRIMERGY TX1330 M4, Intel Xeon E-2144G, 3.60GHz

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Base</th>
<th>Seconds</th>
<th>Ratio</th>
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<tbody>
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<td>11.7</td>
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<tr>
<td>625.x264_s</td>
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<td>16.2</td>
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<td></td>
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</tr>
<tr>
<td>631.deepsjeng_s</td>
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<td>6.55</td>
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<td>641.leela_s</td>
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<td>5.41</td>
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<tr>
<td>648.exchange2_s</td>
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<td>15.7</td>
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<td>15.8</td>
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<tr>
<td>657.xz_s</td>
<td>8</td>
<td>504</td>
<td>12.3</td>
<td>504</td>
<td>12.3</td>
<td></td>
<td></td>
<td></td>
</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,scatter"
- OMP_STACKSIZE = "192M"
- LD_LIBRARY_PATH = "/home/Benchmark/speccpu2017-ic19/ic19.0-lib/ia32"
- LD_LIBRARY_PATH = "$LD_LIBRARY_PATH:/home/Benchmark/speccpu2017-ic19/ic19.0-lib/intel64"
- LD_LIBRARY_PATH = "$LD_LIBRARY_PATH:/home/Benchmark/speccpu2017-ic19/je5.0.1-32"
- LD_LIBRARY_PATH = "$LD_LIBRARY_PATH:/home/Benchmark/speccpu2017-ic19/je5.0.1-64"

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

jemalloc: configured and built at default for 32bit (i686) and 64bit (x86_64) targets
jemalloc: built with the RedHat Enterprise 7.4, and the system compiler gcc 4.8.5
jemalloc: sources available via jemalloc.net

(Continued on next page)
SPEC CPU2017 Integer Speed Result

Fujitsu
PRIMERGY TX1330 M4, Intel Xeon E-2144G, 3.60GHz

SPECspeed2017_int_base = 10.1
SPECspeed2017_int_peak = Not Run

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

General Notes (Continued)
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.
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:
DCU Streamer Prefetcher = Disabled
DDR PowerDown and idle counter = PCODE
CState Pre-Wake = Disabled
Package C-State Un-demotion = Enabled
REFRESH_2X_MODE = 1- Enabled for WARM or HOT
Sysinfo program /home/Benchmark/speccpu2017-ic19/bin/sysinfo
Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bccc091c0f
running on localhost.localdomain Wed Oct 31 14:57:43 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-2144G CPU @ 3.60GHz
  1 "physical id"s (chips)
  8 "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: 8
physical 0: cores 0 1 2 3

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 8
On-line CPU(s) list: 0-7
Thread(s) per core: 2
Core(s) per socket: 4
Socket(s): 1
NUMA node(s): 1
Vendor ID: GenuineIntel
CPU family: 6
Model: 158

(Continued on next page)
SPEC CPU2017 Integer Speed Result

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CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu
Test Date: Oct-2018
Hardware Availability: Nov-2018
Software Availability: Sep-2018

Platform Notes (Continued)

Model name: Intel(R) Xeon(R) E-2144G CPU @ 3.60GHz
Stepping: 10
CPU MHz: 4322.241
CPU max MHz: 4500.0000
CPU min MHz: 800.0000
BogoMIPS: 7200.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 256K
L3 cache: 8192K
NUMA node0 CPU(s): 0-7
Flags: fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge 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
aperfperf eagerfpu pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg
fma cx16 xtrr pdcm pcid sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes
xsave avx fl64 rdrand lahf_lm abm 3nowprefetch epb intel_pt tpr_shadow vnmi
flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 ets invpcid rtm
mpx rdseed adx smap clflushopt xsavesopt xsavec xgetbv1 ibpb ibrs stibp dtm
id arat pin pts hwp hwp_notify hwp_act_window hwp_epp spec_ctrl intel_stibp

/proc/cpuinfo cache data
cache size : 8192 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
node 0 size: 65278 MB
node 0 free: 63195 MB
node distances:
node 0
0: 10

From /proc/meminfo
MemTotal: 65545552 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"

(Continued on next page)
SPEC CPU2017 Integer Speed Result

Fujitsu
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CPU2017 License: 19
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Test Date: Oct-2018
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Platform Notes (Continued)

```plaintext
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
```

```plaintext
uname -a:
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 31 14:55
```

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 600.perlbench_s(base) 602.gcc_s(base) 605.mcf_s(base) 625.x264_s(base) 657.xz_s(base)
```
```
icc (ICC) 19.0.0.117 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
```
```
CXXC 620.omnetpp_s(base) 623.xalancbmk_s(base) 631.deepsjeng_s(base) 641.leela_s(base)
```
```
icpc (ICC) 19.0.0.117 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
```

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### Fujitsu

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</tr>
<tr>
<td>Software Availability:</td>
<td>Sep-2018</td>
</tr>
</tbody>
</table>

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#### Compiler Version Notes (Continued)

```bash
FC 648.exchange2_s(base)

ifort (IFORT) 19.0.0.117 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
```

---

#### Base Compiler Invocation

**C benchmarks:**

```bash
icc -m64 -std=c11
```

**C++ benchmarks:**

```bash
icpc -m64
```

**Fortran benchmarks:**

```bash
ifort -m64
```

---

#### Base Portability Flags

600.perlbench_s: -DSPEC_LP64 -DSPEC_LINUX_X64  
602.gcc_s: -DSPEC_LP64  
605.mcf_s: -DSPEC_LP64  
620.omnetpp_s: -DSPEC_LP64  
623.xalancbmk_s: -DSPEC_LP64 -DSPEC_LINUX  
625.x264_s: -DSPEC_LP64  
631.deepsjeng_s: -DSPEC_LP64  
641.leela_s: -DSPEC_LP64  
648.exchange2_s: -DSPEC_LP64  
657.xz_s: -DSPEC_LP64

---

#### Base Optimization Flags

**C benchmarks:**

```bash
-W1,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div  
-qopt-mem-layout-trans=3 -gopenmp -DSPEC_OPENMP  
-L/usr/local/je5.0.1-64/lib -ljemalloc
```

**C++ benchmarks:**

```bash
-W1,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div  
-qopt-mem-layout-trans=3 -L/usr/local/je5.0.1-64/lib -ljemalloc
```

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SPEC CPU2017 Integer Speed Result

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Base Optimization Flags (Continued)

Fortran benchmarks:
-Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=3 -nostandard-realloc-lhs -align array32byte
-L/usr/local/je5.0.1-64/lib -ljemalloc

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.0.2-CFL-RevB.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.2017-12-21.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.

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