SPEC® CPU2017 Integer Speed Result
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Fujitsu
PRIMERGY TX1330 M4, Intel Core i3-8100, 3.60GHz

SPECspeed2017_int_base = 7.97
SPECspeed2017_int_peak = Not Run

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

Threads
600.perbench_s 4
602.gcc_s 4
605.mcf_s 4
620.omnetpp_s 4
623.xalanchmk_s 4
625.x264_s 4
631.deepsjeng_s 4
641.leela_s 4
648.exchange2_s 4
657.xz_s 4

Threads SPECspeed2017_int_base (7.97)

Hardware
CPU Name: Intel Core i3-8100
Max MHz.: 3600
Nominal: 3600
Enabled: 4 cores, 1 chip
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: 6 MB I+D on chip per chip
Other: None
Memory: 64 GB (4 x 16 GB 2Rx8 PC4-2666V-E, running at 2400)
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: jemalloc memory allocator library V5.0.1
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<table>
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<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>600:perlbench_s</td>
<td>4</td>
<td>312</td>
<td>5.70</td>
<td>312</td>
<td>5.69</td>
<td>312</td>
<td>5.69</td>
<td></td>
</tr>
<tr>
<td>602:gcc_s</td>
<td>4</td>
<td>415</td>
<td>9.61</td>
<td>414</td>
<td>9.61</td>
<td>414</td>
<td>9.61</td>
<td></td>
</tr>
<tr>
<td>605:mcfs</td>
<td>4</td>
<td>389</td>
<td>12.1</td>
<td>389</td>
<td>12.1</td>
<td>390</td>
<td>12.1</td>
<td></td>
</tr>
<tr>
<td>620:omnetpp_s</td>
<td>4</td>
<td>289</td>
<td>5.64</td>
<td>292</td>
<td>5.59</td>
<td>291</td>
<td>5.60</td>
<td></td>
</tr>
<tr>
<td>625:x264_s</td>
<td>4</td>
<td>135</td>
<td>13.1</td>
<td>134</td>
<td>13.1</td>
<td>134</td>
<td>13.1</td>
<td></td>
</tr>
<tr>
<td>631:deepsjeng_s</td>
<td>4</td>
<td>268</td>
<td>5.36</td>
<td>268</td>
<td>5.35</td>
<td>268</td>
<td>5.35</td>
<td></td>
</tr>
<tr>
<td>641:leela_s</td>
<td>4</td>
<td>393</td>
<td>4.34</td>
<td>393</td>
<td>4.34</td>
<td>393</td>
<td>4.34</td>
<td></td>
</tr>
<tr>
<td>648:exchange2_s</td>
<td>4</td>
<td>232</td>
<td>12.7</td>
<td>232</td>
<td>12.7</td>
<td>231</td>
<td>12.7</td>
<td></td>
</tr>
<tr>
<td>657:zx_s</td>
<td>4</td>
<td>789</td>
<td>7.84</td>
<td>789</td>
<td>7.84</td>
<td>789</td>
<td>7.84</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 = "/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

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### SPECspeed2017_int_peak = Not Run

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<th>Test Date:</th>
<th>Nov-2018</th>
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<tr>
<td>Test Sponsor:</td>
<td>Fujitsu</td>
<td>Hardware Availability:</td>
<td>Nov-2018</td>
</tr>
<tr>
<td>Tested by:</td>
<td>Fujitsu</td>
<td>Software Availability:</td>
<td>Sep-2018</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>General Notes (Continued)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.</td>
</tr>
<tr>
<td>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.</td>
</tr>
<tr>
<td>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.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Platform Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS configuration:</td>
</tr>
<tr>
<td>DCU Streamer Prefetcher = Disabled</td>
</tr>
<tr>
<td>DDR PowerDown and idle counter = PCODE</td>
</tr>
<tr>
<td>CState Pre-Wake = Disabled</td>
</tr>
<tr>
<td>Package C-State Un-demotion = Enabled</td>
</tr>
<tr>
<td>REFRESH_2X_MODE = 1- Enabled for WARM or HOT</td>
</tr>
<tr>
<td>Sysinfo program /home/Benchmark/speccpu2017-ic19/bin/sysinfo</td>
</tr>
<tr>
<td>Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bccc091c0f</td>
</tr>
<tr>
<td>running on localhost.localdomain Wed Nov 7 13:20:22 2018</td>
</tr>
</tbody>
</table>

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](https://www.spec.org/cpu2017/Docs/config.html#sysinfo)

From /proc/cpuinfo

```
model name : Intel(R) Core(TM) i3-8100 CPU @ 3.60GHz
 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
```

From lscpu:

```
Architecture:          x86_64
CPU op-mode(s):        32-bit, 64-bit
Byte Order:            Little Endian
CPU(s):                4
On-line CPU(s) list:   0-3
Thread(s) per core:    1
Core(s) per socket:    4
Socket(s):             1
NUMA node(s):          1
Vendor ID:             GenuineIntel
CPU family:            6
Model:                 158
```

(Continued on next page)
## Platform Notes (Continued)

<table>
<thead>
<tr>
<th>Model name:</th>
<th>Intel (R) Core(TM) i3-8100 CPU @ 3.60GHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stepping:</td>
<td>11</td>
</tr>
<tr>
<td>CPU MHz:</td>
<td>3599.780</td>
</tr>
<tr>
<td>CPU max MHz:</td>
<td>3600.0000</td>
</tr>
<tr>
<td>CPU min MHz:</td>
<td>800.0000</td>
</tr>
<tr>
<td>BogoMIPS:</td>
<td>7200.00</td>
</tr>
<tr>
<td>Virtualization:</td>
<td>VT-x</td>
</tr>
<tr>
<td>L1d cache:</td>
<td>32K</td>
</tr>
<tr>
<td>L1i cache:</td>
<td>32K</td>
</tr>
<tr>
<td>L2 cache:</td>
<td>256K</td>
</tr>
<tr>
<td>L3 cache:</td>
<td>6144K</td>
</tr>
<tr>
<td>NUMA node0 CPU(s):</td>
<td>0-3</td>
</tr>
<tr>
<td>Flags:</td>
<td>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 aperf perf_eventaperf perf侏儒perfu pni pclmulqdq dtes64 monitor ds_cpl vmx est tm2 ssse3 sdbg fma cx16 xsave xcrstate xtsrch cpuid movbe popcnt tsc_deadline_timer aes xsave xsaveopt xsaves xsaves opt xsaveopt xgetbv1 ibpb ibrs stibp dtherm arat pln pts hwp hwp_notify hwp_act_window hwp_epp spec_ctrl intel_stibp</td>
</tr>
</tbody>
</table>

/proc/cpuinfo cache data

| cache size: | 6144 KB |

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

<table>
<thead>
<tr>
<th>available: 1 nodes (0)</th>
<th>node 0 cpus: 0 1 2 3</th>
<th>node 0 size: 65277 MB</th>
<th>node 0 free: 63205 MB</th>
<th>node distances:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>node 0</td>
<td>0</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

From /proc/meminfo

<table>
<thead>
<tr>
<th>MemTotal:</th>
<th>65545088 kB</th>
</tr>
</thead>
<tbody>
<tr>
<td>HugePages_Total:</td>
<td>0</td>
</tr>
<tr>
<td>Hugepagesize:</td>
<td>2048 kB</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>os-release:</th>
<th>NAME=&quot;Red Hat Enterprise Linux Server&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>VERSION=&quot;7.5 (Maipo)&quot;</td>
<td>ID=&quot;rhel&quot;</td>
</tr>
<tr>
<td>ID_LIKE=&quot;fedora&quot;</td>
<td>VARIANT=&quot;Server&quot;</td>
</tr>
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Platform Notes (Continued)

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:
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 Nov 7 13:19

SPEC is set to: /home/Benchmark/speccpu2017-ic19

Filesystem Type Size Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs 150G 59G 92G 40% /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, configured at 2400

(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.
(Continued on next page)
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**Compiler Version Notes (Continued)**

```plaintext
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:**
  - `icc -m64 -std=c11`

- **C++ benchmarks:**
  - `icpc -m64`

- **Fortran benchmarks:**
  - `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:**
  - `-Wl,-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:**
  - `-Wl,-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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## Fujitsu

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</table>

### 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:

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.

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