# SPEC® CPU2017 Integer Rate Result

**Fujitsu**

PRIMERGY TX1330 M4, Intel Core i3-8100, 3.60GHz

| SPECrate2017_int_base = 21.9 | SPECrate2017_int_peak = 23.3 |

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

## 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 HDD, 1TB, 7200RPM  
- **Other:** None

## Software

- **OS:** SUSE Linux Enterprise Server 15  
  4.12.14-23-default  
- **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:** No  
- **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:** 32/64-bit  
- **Other:** jemalloc memory allocator library V5.0.1

## Results

<table>
<thead>
<tr>
<th>SPECrate2017_int_base (21.9)</th>
<th>SPECrate2017_int_peak (23.3)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>500.perlbench_r</strong></td>
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</tr>
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<td><strong>502.gcc_r</strong></td>
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Copies
SPEC CPU2017 Integer Rate Result

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Results Table

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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"
Process tuning settings:
echo 500000 > /proc/sys/kernel/sched_cfs_bandwidth_slice_us

General Notes

Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/home/Benchmark/speccpu2017-ic19-20181011/icc19-lib/ia32"
LD_LIBRARY_PATH = "$LD_LIBRARY_PATH:/home/Benchmark/speccpu2017-ic19-20181011/icc19-lib/intel64"
LD_LIBRARY_PATH = "$LD_LIBRARY_PATH:/home/Benchmark/speccpu2017-ic19-20181011/je5.0.1-32"
LD_LIBRARY_PATH = "$LD_LIBRARY_PATH:/home/Benchmark/speccpu2017-ic19-20181011/je5.0.1-64"

Binaries compiled on a system with 2x Intel Xeon Silver 4108 CPU + 384GB RAM memory using SUSE Linux Enterprise Server 12 SP2
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

(Continued on next page)
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**General Notes (Continued)**

jemalloc: sources available via jemalloc.net

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:
Fan Control = Full
Sysinfo program /home/Benchmark/speccpu2017-ic19-20181011/bin/sysinfo
Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bcc091c0f
running on TX1330M4 Wed Oct 31 18:14:35 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) 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
Model name:         Intel(R) Core(TM) i3-8100 CPU @ 3.60GHz
Stepping:           11
```

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

```plaintext
CPU MHz:             3600.000  
CPU max MHz:         3600.0000  
CPU min MHz:         800.0000  
BogoMIPS:            7200.00  
Virtualization:      VT-x  
L1d cache:           32K  
L1i cache:           32K  
L2 cache:            256K  
L3 cache:            6144K  
NUMA node0 CPU(s):   0-3  
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 art arch_perfmon pebs bts rep_good noapic osfpm nonstop_tsc cpuid  
                     aperfmperf tsc_known_freq pni pclmulqdq dtc64 monitor ds_cpl vmx est tm2 ssse3 sdbg  
                     fma cx16 xtpr pdcm pcid sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes  
                     xsave avx fl64c rdrand lahf_lm abm 3nowprefetch cpuid_fault epb invpcid_single pti  
                     tpr_shadow vmm vsmx fmsb职vmsvc bugreport vmxset blandroid vfpve vmporph  
                     ept ptil64  
                     intel_ped hv avgcpu intel_pt xsaveopt xsavec xgetbv1 xsaveopt xsavec xsaveopt ibpb  
                     dtherm arat pln pts hwp hwp_notify hwp_act_window hwp_epp ssbd
```

```plaintext
/proc/cpuinfo cache data  
cache size : 6144 KB
```

```plaintext
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  
node 0 size: 63915 MB  
node 0 free: 63433 MB  
node distances:  
node 0 0: 10
```

```plaintext
From /proc/meminfo  
MemTotal:     65449900 kB  
HugePages_Total:       0  
Hugepagesize:     2048 kB
```

```plaintext
From /etc/*release* /etc/*version*  
os-release:  
NAME="SLES"  
VERSION="15"  
VERSION_ID="15"  
PRETTY_NAME="SUSE Linux Enterprise Server 15"  
ID="sles"  
ID_LIKE="suse"  
ANSI_COLOR="0;32"
```

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<table>
<thead>
<tr>
<th>Platform Notes (Continued)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPE_NAME=&quot;cpe:/o:suse:sles:15&quot;</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>uname -a:</td>
</tr>
<tr>
<td>Linux TX1330M4 4.12.14-23-default #1 SMP Tue May 29 21:04:44 UTC 2018 (cd0437b) x86_64 x86_64 GNU/Linux</td>
</tr>
<tr>
<td>run-level 3 Oct 31 18:07</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>SPEC is set to: /home/Benchmark/speccpu2017-ic19-20181011</td>
</tr>
<tr>
<td>Filesystem</td>
</tr>
<tr>
<td>/dev/sda3</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Additional information from dmidecode follows. WARNING: Use caution when you interpret this section. The 'dmidecode' program reads system data which is &quot;intended to allow hardware to be accurately determined&quot;, but the intent may not be met, as there are frequent changes to hardware, firmware, and the &quot;DMTF SMBIOS&quot; standard.</td>
</tr>
<tr>
<td>BIOS FUJITSU // American Megatrends Inc. V5.0.0.13 R1.0.0 for D3673-A1x 09/14/2018</td>
</tr>
<tr>
<td>Memory: 4x Samsung M391A2K43BB1-CTD 16 GB 2 rank 2667, configured at 2400</td>
</tr>
<tr>
<td></td>
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<tr>
<td>(End of data from sysinfo program)</td>
</tr>
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Compiler Version Notes

<table>
<thead>
<tr>
<th>CC</th>
<th>500.perlbench_r(base)</th>
<th>502.gcc_r(base)</th>
<th>505.mcf_r(base, peak)</th>
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<tr>
<th>icc (ICC)</th>
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Compiler Version Notes (Continued)

==============================================================================
CXXC 520.omnetpp_r(peak) 523.xalancbmk_r(peak) 531.deepsjeng_r(peak)
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==============================================================================
icpc (ICC) 19.0.0.117 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
==============================================================================
FC 548.exchange2_r(base, peak)
==============================================================================
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

500.perlbench_r: -DSPEC_LP64 -DSPEC_LINUX_X64
502.gcc_r: -DSPEC_LP64
505.mcf_r: -DSPEC_LP64
520.omnetpp_r: -DSPEC_LP64
523.xalancbmk_r: -DSPEC_LP64 -DSPEC_LINUX
525.x264_r: -DSPEC_LP64
531.deepsjeng_r: -DSPEC_LP64
541.leela_r: -DSPEC_LP64
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**Base Optimization Flags**

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`

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`

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`

**Peak Compiler Invocation**

C benchmarks (except as noted below):
- `icc -m64 -std=c11`

502 gcc_r: `icc -m32 -std=c11 -L/opt/intel/compilers_and_libraries_2019/linux/lib/ia32`

C++ benchmarks (except as noted below):
- `icpc -m64`

523 xalancbmk_r: `icpc -m32 -L/opt/intel/compilers_and_libraries_2019/linux/lib/ia32`

Fortran benchmarks:
- `ifort -m64`

**Peak Portability Flags**

500.perlbench_r: `-DSPEC_LP64 -DSPEC_LINUX_X64`
502 gcc_r: `-D_FILE_OFFSET_BITS=64`
505 mcf_r: `-DSPEC_LP64`
520 omnetpp_r: `-DSPEC_LP64`
523 xalancbmk_r: `-D_FILE_OFFSET_BITS=64 -DSPEC_LINUX`
525 x264_r: `-DSPEC_LP64`
531 deepsjeng_r: `-DSPEC_LP64`
541 leela_r: `-DSPEC_LP64`
548 exchange2_r: `-DSPEC_LP64`
557 xz_r: `-DSPEC_LP64`
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### Peak Optimization Flags

#### C benchmarks:

- 500.perlbench_r: `-Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo  
  -xCORE-AVX2 -O3 -no-prec-div -qopt-mem-layout-trans=3  
  -fno-strict-overflow -L/usr/local/je5.0.1-64/lib  
  -ljemalloc`

- 502.gcc_r: `-Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo  
  -xCORE-AVX2 -O3 -no-prec-div -qopt-mem-layout-trans=3  
  -L/usr/local/je5.0.1-32/lib -ljemalloc`

- 505.mcf_r: `basepeak = yes`

- 525.x264_r: `-Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div  
  -qopt-mem-layout-trans=3 -fno-alias  
  -L/usr/local/je5.0.1-64/lib -ljemalloc`

- 557.xz_r: `basepeak = yes`

#### C++ benchmarks:

- 520.omnetpp_r: `basepeak = yes`

- 523.xalancbmk_r: `-Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo  
  -xCORE-AVX2 -O3 -no-prec-div -qopt-mem-layout-trans=3  
  -L/usr/local/je5.0.1-32/lib -ljemalloc`

- 531.deepsjeng_r: `basepeak = yes`

- 541.leela_r: `basepeak = yes`

#### 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-RevA.xml](http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.0.2-CFL-RevA.xml)
# SPEC CPU2017 Integer Rate Result

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**Fujitsu**

PRIMERGY TX1330 M4, Intel Core i3-8100, 3.60GHz

| SPECrate2017_int_base = | 21.9 |
| SPECrate2017_int_peak = | 23.3 |

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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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