## SPEC CPU®2017 Integer Rate Result

**Fujitsu**

PRIMERGY TX1310 M3, Intel Celeron G3930E, 2.90 GHz

<table>
<thead>
<tr>
<th>Test Sponsor:</th>
<th>Fujitsu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tested by:</td>
<td>Fujitsu</td>
</tr>
<tr>
<td>Test Date:</td>
<td>May-2020</td>
</tr>
<tr>
<td>Hardware Avail.:</td>
<td>May-2017</td>
</tr>
<tr>
<td>Software Avail.:</td>
<td>Apr-2020</td>
</tr>
</tbody>
</table>

### SPECrate®2017_int_base = 7.79

### SPECrate®2017_int_peak = Not Run

### Copies

<table>
<thead>
<tr>
<th>Test Case</th>
<th>Rate</th>
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<tbody>
<tr>
<td>500.perlbench_r</td>
<td>2</td>
</tr>
<tr>
<td>502.gcc_r</td>
<td>2</td>
</tr>
<tr>
<td>505.mcf_r</td>
<td>2</td>
</tr>
<tr>
<td>520.omnetpp_r</td>
<td>2</td>
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<tr>
<td>523.xalancbmk_r</td>
<td>2</td>
</tr>
<tr>
<td>525.x264_r</td>
<td>2</td>
</tr>
<tr>
<td>531.deepsjeng_r</td>
<td>2</td>
</tr>
<tr>
<td>541.leela_r</td>
<td>2</td>
</tr>
<tr>
<td>548.exchange2_r</td>
<td>2</td>
</tr>
<tr>
<td>557.xz_r</td>
<td>2</td>
</tr>
</tbody>
</table>

### Hardware

- **CPU Name:** Intel Celeron G3930E
- **Max MHz:** 2900
- **Nominal:** 2900
- **Enabled:** 2 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:** 2 MB I+D on chip per chip
- **Memory:** 64 GB (4 x 16 GB 2Rx8 PC4-2400V-E, running at 2133)
- **Storage:** 1 x 500 GB SATA HDD, 7200 RPM
- **Other:** None

### Software

- **OS:** SUSE Linux Enterprise Server 15 SP1 4.12.14-195-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 V5.0.0.11 R1.25.0 for D3521-A1x Released Apr-2020
- **File System:** xfs
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 64-bit
- **Peak Pointers:** Not Applicable
- **Other:** jemalloc memory allocator V5.0.1
- **Power Management:** BIOS set to prefer performance at the cost of additional power usage
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CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu

Results Table

<table>
<thead>
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<th>Benchmark</th>
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<td>4.21</td>
<td>510</td>
<td>4.23</td>
</tr>
</tbody>
</table>

Submit Notes
The numactl 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"
echo always > /sys/kernel/mm/transparent_hugepage/enabled
echo 1000000000 > /proc/sys/kernel/sched_min_granularity_ns
echo 1500000000 > /proc/sys/kernel/sched_wakeup_granularity_ns

Environment Variables Notes
Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = 
""/home/Benchmark/cpu2017-1.1.0/lib/ia32:/home/Benchmark/cpu2017-1.1.0/lib
b/intel64:/usr/local/je5.0.1-32:/usr/local/je5.0.1-64"

General Notes
Binaries compiled on a system with 1x Intel Core i9-7900X CPU + 32GB RAM
memory using Redhat Enterprise Linux 7.5
Transparent Huge Pages enabled by default
Prior to runcpu invocation
Filesystem page cache synced and cleared with:
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CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu

Test Date: May-2020
Hardware Availability: May-2017
Software Availability: Apr-2020

General Notes (Continued)

sync; echo 3 > /proc/sys/vm/drop_caches
runcpu command invoked through numacl i.e.:
numacl --interleave=all runcpu <etc>
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
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/cpu2017-1.1.0/bin/sysinfo
Rev: r6365 of 2019-08-21 295195f888a3d7ed1e6e46a485a0011
running on linux-1g42 Mon May 25 17:30:22 2020

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) Celeron(R) CPU G3930E @ 2.90GHz
1 "physical id"s (chips)
2 "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: 2
siblings: 2
physical 0: cores 0 1

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
Address sizes: 39 bits physical, 48 bits virtual
CPU(s): 2
On-line CPU(s) list: 0,1
Thread(s) per core: 1
Core(s) per socket: 2
Socket(s): 1

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

<table>
<thead>
<tr>
<th>NUMA node(s):</th>
<th>1</th>
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</thead>
<tbody>
<tr>
<td>Vendor ID:</td>
<td>GenuineIntel</td>
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<tr>
<td>CPU family:</td>
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<tr>
<td>Model:</td>
<td>158</td>
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<tr>
<td>Model name:</td>
<td>Intel(R) Celeron(R) CPU G3930E @ 2.90GHz</td>
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<tr>
<td>Stepping:</td>
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<tr>
<td>CPU MHz:</td>
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<tr>
<td>CPU max MHz:</td>
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<tr>
<td>CPU min MHz:</td>
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<td>BogoMIPS:</td>
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<td>Virtualization:</td>
<td>VT-x</td>
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<tr>
<td>L1d cache:</td>
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</tr>
<tr>
<td>L1i cache:</td>
<td>32K</td>
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<tr>
<td>L2 cache:</td>
<td>256K</td>
</tr>
<tr>
<td>L3 cache:</td>
<td>2048K</td>
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<td>NUMA node0 CPU(s):</td>
<td>0,1</td>
</tr>
<tr>
<td>Flags:</td>
<td>fpu vme de pse tsc msr pae mce cmov pat pse36 clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx pdpte1gb rdtscp lm constant_tsc arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc cpuid aperfmperf tsc_known_freq pni pclmulqdq dtes64 monitor ds_cpl vmx est tm2 ssbe3 sdbg cx16 xtrm pdcm pcid sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave rdrand lahf_lm abm 3dnowprefetch cpuid_fault epb invpcid_single pti ssbd ibrs ibpb stibp tpr_shadow vmmi flexpriority ept vpid fsgsbase tsc_adjust smep erms invpcid mxp rdseed smap clflushopt intel_pt xsaveopt xsaves dtherm arat pni pts hwp hwp_notify hwp_act_window hwp_epp md_clear flush_lld</td>
</tr>
</tbody>
</table>

/proc/cpuinfo cache data

- cache size: 2048 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
- node 0 size: 64038 MB
- node 0 free: 63588 MB
- node distances:
  - node 0
    - 0: 10

From /proc/meminfo

- MemTotal: 65575380 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

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

- os-release:
  - NAME="SLES"
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### Platform Notes (Continued)

```
VERSION="15-SP1"
VERSION_ID="15.1"
PRETTY_NAME="SUSE Linux Enterprise Server 15 SP1"
ID="sles"
ID_LIKE="suse"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:15:sp1"
```

```
uname -a:
Linux linux-1g42 4.12.14-195-default #1 SMP Tue May 7 10:55:11 UTC 2019 (8fba516)
x86_64 x86_64 x86_64 GNU/Linux
```

Kernel self-reported vulnerability status:

- **CVE-2018-3620** (L1 Terminal Fault): Mitigation: PTE Inversion; VMX: conditional cache flushes, SMT disabled
- **Microarchitectural Data Sampling:** Mitigation: Clear CPU buffers; SMT disabled
- **CVE-2017-5754** (Meltdown): Mitigation: PTI
- **CVE-2018-3639** (Speculative Store Bypass): Mitigation: Speculative Store Bypass disabled via prctl and seccomp
- **CVE-2017-5753** (Spectre variant 1): Mitigation: __user pointer sanitization
- **CVE-2017-5715** (Spectre variant 2): Mitigation: Indirect Branch Restricted Speculation, IBFB: conditional, IBRS_FW, STIBP: disabled, RSB filling

```
runc-level 3 May 25 17:28
SPEC is set to: /home/Benchmark/cpu2017-1.1.0
```

```
Filesystem     Type  Size  Used Avail Use% Mounted on
/dev/md126p3   xfs   130G   34G   96G  26% /home
```

From `/sys/devices/virtual/dmi/id`

- **BIOS:** FUJITSU // American Megatrends Inc. V5.0.0.11 R1.25.0 for D3521-A1x 04/06/2020
- **Vendor:** FUJITSU
- **Product:** PRIMERGY TX1310 M3
- **Serial:** YM9F000154

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.

**Memory:**

- 4x SK Hynix HMA82GU6AFR8N-UH 16 GB 2 rank 2400

*(End of data from sysinfo program)*
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Compiler Version Notes

==============================================================================
| C     | 500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base)                           |
|       | 525.x264_r(base) 557.xz_r(base)                                               |
==============================================================================

Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,        
Version 19.0.0.117 Build 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
==============================================================================

==============================================================================
| C++   | 520.omnetpp_r(base) 523.xalancbmk_r(base) 531.deepsjeng_r(base)               |
|       | 541.leela_r(base)                                                            |
==============================================================================

Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64,         
Version 19.0.0.117 Build 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
==============================================================================

==============================================================================
| Fortran | 548.exchange2_r(base)                                                       |
==============================================================================

Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R) 64,    
Version 19.0.0.117 Build 20180804
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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

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Base Portability Flags (Continued)

523.xalancbmk_r: -DSPEC_LP64 -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

Base Optimization Flags

C benchmarks:
-Wl,-z,muldefs -xSSE4.2 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=3 -L/usr/local/je5.0.1-64/lib -ljemalloc

C++ benchmarks:
-Wl,-z,muldefs -xSSE4.2 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=3 -L/usr/local/je5.0.1-64/lib -ljemalloc

Fortran benchmarks:
-Wl,-z,muldefs -xSSE4.2 -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-V1.2-BDW-RevG.xml

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