Fujitsu
PRIMERGY TX1310 M3, Intel Pentium G4400, 3.30 GHz

SPECrate®2017_int_base = 8.80
SPECrate®2017_int_peak = Not Run

| CPU2017 License: | 19 |
| Test Sponsor: | Fujitsu |
| Tested by: | Fujitsu |
| Test Date: | May-2020 |
| Hardware Availability: | May-2017 |
| Software Availability: | Apr-2020 |

### Hardware
- **CPU Name:** Intel Pentium G4400
- **Max MHz:** 3300
- ** Nominal:** 3300
- **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:** 3 MB I+D on chip per chip
- **Other:** None
- **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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Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base</th>
<th>Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Copies</td>
<td>Seconds</td>
</tr>
<tr>
<td>500.perlbench_r</td>
<td>2</td>
<td>364</td>
</tr>
<tr>
<td>502.gcc_r</td>
<td>2</td>
<td>298</td>
</tr>
<tr>
<td>505.mcf_r</td>
<td>2</td>
<td>319</td>
</tr>
<tr>
<td>520.omnetpp_r</td>
<td>2</td>
<td>477</td>
</tr>
<tr>
<td>523.xalancbmk_r</td>
<td>2</td>
<td>213</td>
</tr>
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<td>2</td>
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</tr>
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<td>2</td>
<td>458</td>
</tr>
<tr>
<td>548.exchange2_r</td>
<td>2</td>
<td>407</td>
</tr>
<tr>
<td>557.xz_r</td>
<td>2</td>
<td>451</td>
</tr>
</tbody>
</table>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

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:

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

sync; echo 3> /proc/sys/vm/drop_caches  
runcpu command invoked through numacll i.e.:  
numact1 --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 295195f088a3d7ed61e646a4011  
running on linux-1g42 Sun May 24 19:58:51 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) Pentium(R) CPU G4400 @ 3.30GHz  
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)
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SPECrate®2017_int_base = 8.80
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Platform Notes (Continued)

NUMA node(s): 1
Vendor ID: GenuineIntel
CPU family: 6
Model: 94
Model name: Intel(R) Pentium(R) CPU G4400 @ 3.30GHz
Stepping: 3
CPU MHz: 3300.000
CPU max MHz: 3300.0000
CPU min MHz: 800.0000
BogoMIPS: 6624.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 256K
L3 cache: 3072K
NUMA node0 CPU(s): 0,1
Flags: fpu vme de pse tsc msr pae mce 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 cpuid aperfmperf tsc_known_freq pni pclmulqdq dtes64 monitor ds_cpl vmx est tm2 ssse3 sdbg cx16 xtpr 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 vnmi flexpriority ept vpid fsgsbase tsc_adjust erms invpcid rdseed smap clflushopt intel_pt xsaveopt xsavec xgetbv1 xsave dtherm arat pln pts hwp hwp_notify hwp_act_window hwp_epp md_clear flush_lld

/proc/cpuinfo cache data
   cache size: 3072 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: 63586 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"

(Continued on next page)
SPEC CPU®2017 Integer Rate Result

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| SPECrate®2017_int_base = 8.80 |
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CPU2017 License: 19
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Tested by: Fujitsu

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, IBPB: conditional, IBRS_FW, STIBP: disabled, RSB filling

run-level 3 May 21 23:10

SPEC is set to: /home/Benchmark/cpu2017-1.1.0
    Filesystem Type  Size  Used Avail Use% Mounted on
    /dev/md126p3  xfs  130G  33G  97G  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)
```
**SPEC CPU®2017 Integer Rate Result**

**Fujitsu**
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**SPECrade®2017_int_base = 8.80**

**SPECrade®2017_int_peak = Not Run**

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<th>Hardware Availability</th>
<th>Tested by</th>
<th>Software Availability</th>
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<td>Fujitsu</td>
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### Compiler Version Notes

<table>
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<tr>
<th>Language</th>
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<tr>
<td>C</td>
<td>500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base) 525.x264_r(base) 557.xz_r(base)</td>
</tr>
<tr>
<td>C++</td>
<td>520.omnetpp_r(base) 523.xalancbmk_r(base) 531.deepsjeng_r(base) 541.leela_r(base)</td>
</tr>
<tr>
<td>Fortran</td>
<td>548.exchange2_r(base)</td>
</tr>
</tbody>
</table>

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.

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.

Intel(R) Fortran 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.

### 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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SPEC CPU®2017 Integer Rate Result

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### Base Portability Flags (Continued)

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<td>557.xz_r: -DSPEC_LP64</td>
</tr>
</tbody>
</table>

### 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:


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