**Fujitsu**
PRIMERGY TX1330 M5, Intel Pentium Gold G6405, 4.10GHz

<table>
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<tr>
<th>Copies</th>
<th>SPECrate®2017_int_base</th>
<th>SPECrate®2017_int_peak</th>
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</thead>
<tbody>
<tr>
<td>0.200</td>
<td>12.3</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

**Hardware**

CPU Name: Intel Pentium Gold G6405
Max MHz: 4100
Enabled: 2 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: 4 MB I+D on chip per chip
Other: None
Memory: 32 GB (2 x 16 GB 2Rx8 PC4-3200AA-E, running at 2667)
Storage: 1 x SATA M.2 SSD, 240GB
Other: None

**Software**

OS: SUSE Linux Enterprise Server 15 SP3
Compiler: C++: Version 2021.1 of Intel oneAPI DPC++/C++ Compiler Build 20201113 for Linux;
Fortran: Version 2021.1 of Intel Fortran Compiler Classic Build 20201112 for Linux;
Parallel: No
Firmware: Fujitsu BIOS Version V5.0.0.22 R1.31.0 for D3931-A1x. Released Mar-2022
tested as V5.0.0.22 R1.20.0 for D3931-A1x Jan-2022
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: Not Applicable
Other: None
Power Management: BIOS set to prefer performance at the cost of additional power usage
Fujitsu
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CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu

Results Table

<table>
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<tr>
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<td>470</td>
<td>9.19</td>
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</tbody>
</table>

SPECrate®2017_int_base = 16.3
SPECrate®2017_int_peak = Not Run

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

Submit Notes

The config file option 'submit' was used.

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"
cpupower -c all frequency-set -g performance

Environment Variables Notes

Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = 
"/home/Benchmark/speccpu/lib/intel64:/home/Benchmark/speccpu/lib/ia32:/home/Benchmark/speccpu/je5.0.1-32"

MALLOC_CONF = "retain:true"

General Notes

Binaries compiled on a system with 1x Intel Core i9-7980XE CPU + 64GB RAM memory using Red Hat Enterprise Linux 8.1
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
runcpu command invoked through numactl i.e.:
numactl --interleave=all runcpu <etc>

(Continued on next page)
**Fujitsu**
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**SPECrat®2017_int_base = 16.3**
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<table>
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<th>CPU2017 License</th>
<th>Fujitsu</th>
<th>Test Date: Feb-2022</th>
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<tbody>
<tr>
<td>Test Sponsor</td>
<td>Fujitsu</td>
<td>Hardware Availability: Mar-2022</td>
</tr>
<tr>
<td>Tested by</td>
<td>Fujitsu</td>
<td>Software Availability: Jun-2021</td>
</tr>
</tbody>
</table>

**General Notes (Continued)**

NA: 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:
Adjacent Cache Line Prefetch = Disabled
Package C-State limit = C6
Per Core P State OS control mode = Disabled
FAN Control = Full

Sysinfo program /home/Benchmark/speccpu/bin/sysinfo
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16aca64d
running on localhost Mon Feb 14 10:07:49 2022

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) Gold G6405 CPU @ 4.10GHz
- 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 : 2
  - siblings : 4
  - physical 0: cores 0 1

From lscpu from util-linux 2.36.2:
- 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): 4
- On-line CPU(s) list: 0-3
- Thread(s) per core: 2
- Core(s) per socket: 2
- Socket(s): 1
- NUMA node(s): 1
- Vendor ID: GenuineIntel
- CPU family: 6

(Continued on next page)
Fujitsu
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SPEC CPU®2017 Integer Rate Result
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CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu

Test Date: Feb-2022
Hardware Availability: Mar-2022
Software Availability: Jun-2021

Platform Notes (Continued)

Model: 165
Model name: Intel(R) Pentium(R) Gold G6405 CPU @ 4.10GHz
Stepping: 3
CPU MHz: 3902.944
CPU max MHz: 4100.0000
CPU min MHz: 800.0000
BogoMIPS: 8199.79
Virtualization: VT-x
L1d cache: 64 KiB
L1i cache: 64 KiB
L2 cache: 512 KiB
L3 cache: 4 MiB
NUMA node0 CPU(s): 0-3
Vulnerability Itlb multihit: KVM: Mitigation: VMX disabled
Vulnerability L1itf: Not affected
Vulnerability Mds: Not affected
Vulnerability Meltdown: Not affected
Vulnerability Spectre store bypass: Mitigation; Speculative Store Bypass disabled via prctl and seccomp
Vulnerability Spectre v1: Mitigation; usercopy/swapgs barriers and __user pointer sanitization
Vulnerability Spectre v2: Mitigation; Enhanced IBRS, IBPB conditional, RSB filling
Vulnerability Srbd: Not affected
Vulnerability Tsx async abort: Not affected
Flags: fpu vme de pse36 clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx pdpelgb rdtscp lm constant_tsc art arch_perfmon pebs bts rep_good nopl nxtopology nonstop_tsc cpuid aperfmpref pni pclmulqdq dtes64 monitor ds_cpl vmx est tm2 ssse3 sdbg cx16 xtrp pdcm pcid pseed sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave rdrand lahf_lm abm 3dnowprefetch cpuid_fault epb invpcid_single ssbd ibrs ibpb stibp ibrs_enhanced tpr_shadow vmx1 flexpriority ept vpid ept_ad fsgsbase tsc_adjust smep erms invpcmd mpx rdseed smap clflushopt intel_pt xsaveopt xsavec xsetbv1 xsaves dtherm arat pln pts hwp hwp_notify hwp_act_window hwp_epp md_clear flush_l1d arch_capabilities

From lscpu --cache:
NAME ONE-SIZE ALL-SIZE WAYS TYPE LEVEL SETS PHY-LINE COHERENCY-SIZE
L1d 32K 64K 8 Data 1 64 1 64
L1i 32K 64K 8 Instruction 1 64 1 64
L2 256K 512K 4 Unified 2 1024 1 64
L3 4M 4M 16 Unified 3 4096 1 64

From numactl --hardware
cache size: 4096 KB

(Continued on next page)
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Platform Notes (Continued)

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: 31545 MB
node 0 free: 31110 MB
node distances:
node 0
0:  10

From /proc/meminfo
MemTotal: 32303016 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

/sys/devices/system/cpu/cpu*/cpufreq/scaling_governor has performance

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

os-release:
NAME="SLES"
VERSION="15-SP3"
VERSION_ID="15.3"
PRETTY_NAME="SUSE Linux Enterprise Server 15 SP3"
ID=sles
ID_LIKE="suse"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:15:sp3"

uname -a:
Linux localhost 5.3.18-57-default #1 SMP Wed Apr 28 10:54:41 UTC 2021
(ba3c2e9/1p-5d9e8aa) x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:

CVE-2018-12207 (iTLB Multihit):
KVM: Mitigation: VMX disabled
CVE-2018-3620 (L1 Terminal Fault):
Not affected
Microarchitectural Data Sampling:
Not affected
CVE-2017-5754 (Meltdown):
MITIGATION: Speculative Store Bypass disabled via prctl and seccomp
CVE-2018-3639 (Speculative Store Bypass):
CVE-2017-5753 (Spectre variant 1):
Mitigation: usercopy/swaps barriers and __user pointer sanitization
CVE-2017-5715 (Spectre variant 2):
Mitigation: Enhanced IBRS, IBPB: conditional, RSB filling
CVE-2020-0543 (Special Register Buffer Data Sampling): Not affected

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

**Fujitsu**

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**Test Sponsor:** Fujitsu  
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<table>
<thead>
<tr>
<th>Platform Notes (Continued)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVE-2019-11135 (TSX Asynchronous Abort): Not affected</td>
</tr>
<tr>
<td>run-level 3 Feb 14 10:07</td>
</tr>
</tbody>
</table>

**Filesystem**  
/dev/sda4 xfs 180G 44G 137G 24% /home

**From /sys/devices/virtual/dmi/id**  
Vendor: FUJITSU  
Product: PRIMERGY TX1330 M5  
Product Family: SERVER  
Serial: EWBUxxxxxx

Additional information from dmidecode 3.2 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:**  
2x Samsung M391A2K43DB1-CWE 16 GB 2 rank 3200, configured at 2667

**BIOS:**  
BIOS Vendor: FUJITSU // American Megatrends International, LLC.  
BIOS Version: V5.0.0.22 R1.20.0 for D3931-A1x  
BIOS Date: 01/11/2022  
BIOS Revision: 1.20

(End of data from sysinfo program)

**Compiler Version Notes**

```
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<th>Compiler Version Notes</th>
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<tbody>
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<tr>
<td>Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2021.1 Build 20201113</td>
</tr>
<tr>
<td>Copyright (C) 1985-2020 Intel Corporation. All rights reserved.</td>
</tr>
<tr>
<td>C++</td>
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<td>Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2021.1 Build 20201113</td>
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SPEC CPU®2017 Integer Rate Result

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Tested by: Fujitsu
Hardware Availability: Mar-2022
Software Availability: Jun-2021

Compiler Version Notes (Continued)
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------
Fortran | 548.exchange2_r(base)
------------------------------------------------------------------------------
Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on
Intel(R) 64, Version 2021.1 Build 20201112_000000
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------
Base Compiler Invocation
C benchmarks:
icx
C++ benchmarks:
icpx
Fortran benchmarks:
ifort

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
548.exchange2_r: -DSPEC_LP64
557.xz_r: -DSPEC_LP64

Base Optimization Flags
C benchmarks:
-w -std=c11 -m64 -Wl,-z,muldefs -xSSE4.2 -O3 -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-mbranches-within-32B-boundaries

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Base Optimization Flags (Continued)

C benchmarks (continued):
-L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin
-lqkmalloc

C++ benchmarks:
-w -m64 -Wl,-z,muldefs -xSSE4.2 -O3 -ffast-math -flto -mfpmath=sse
-funroll-loops -qopt-mem-layout-trans=4
-mbranches-within-32B-boundaries
-L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin
-lqkmalloc

Fortran benchmarks:
-w -m64 -Wl,-z,muldefs -xSSE4.2 -O3 -ipo -no-prec-div
-qopt-mem-layout-trans=4 -nostandard-realloc-lhs -align array32byte
-auto -mbranches-within-32B-boundaries
-L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin
-lqkmalloc

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-RKL-RevD.xml
http://www.spec.org/cpu2017/flags/Intel-ic2021-official-linux64_revA.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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