## SPEC® CPU2017 Integer Rate Result

**CPU Name:** Intel Pentium Gold G5600  
**Max MHz.:** 3900  
**Nominal:** 3900  
**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:** 64 GB (4 x 16 GB 2Rx8 PC4-2666V-E, running at 2400)  
**Storage:** 1 x 200 GB SATA III SSD  
**Other:** None

### Software

**OS:** SUSE Linux Enterprise Server 12 SP3 (x86_64)  
**Kernel:** 4.4.114-94.11-default  
**Compiler:** 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:** Version 1.0a released 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 V5.0.1

---

<table>
<thead>
<tr>
<th>Test Case</th>
<th>Copies</th>
<th>SPECrate2017_int_base</th>
<th>SPECrate2017_int_peak</th>
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<tr>
<td>perlbench_r</td>
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<td>gcc_r</td>
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<td>xalancbmk_r</td>
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<td>deepsjeng_r</td>
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<td>xz_r</td>
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**Hardware Availability:** Oct-2018  
**Software Availability:** Sep-2018  
**Test Date:** Feb-2019
**SPEC CPU2017 Integer Rate Result**

**Supermicro**  
SuperWorkstation 5039C-T (X11SCA, Intel Pentium Gold G5600)

| SPECrate2017_int_base = 13.2 |
| SPECrate2017_int_peak = 14.3 |

**CPU2017 License:** 001176  
**Test Date:** Feb-2019  
**Test Sponsor:** Supermicro  
**Hardware Availability:** Oct-2018  
**Tested by:** Supermicro  
**Software Availability:** Sep-2018

---

**Test Results**

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<td>548.exchange2_r</td>
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<td>4</td>
<td>500</td>
<td>8.64</td>
<td>497</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:

```
LD_LIBRARY_PATH = "/home/cpu2017/lib/ia32:/home/cpu2017/lib/intel64:/home/cpu2017/je5.0.1-32:/home/cpu2017/je5.0.1-64"
```

Binaries compiled on a system with 1x Intel Core i9-799X 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:

```
sync; echo 3>/proc/sys/vm/drop_caches
```

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.

jemalloc, a general purpose malloc implementation

(Continued on next page)
Supermicro
SuperWorkstation 5039C-T (X11SCA , Intel Pentium Gold G5600)

SPECrate2017_int_peak = 14.3
SPECrate2017_int_base = 13.2

CPU2017 License: 001176
Test Sponsor: Supermicro
Test Date: Feb-2019
Hardware Availability: Oct-2018
Tested by: Supermicro
Software Availability: Sep-2018

General Notes (Continued)
built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5

Platform Notes
Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
running on linux-65nv Wed Feb 27 14:57:15 2019
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 G5600 CPU @ 3.90GHz
  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:
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: 2
Core(s) per socket: 2
Socket(s): 1
NUMA node(s): 1
Vendor ID: GenuineIntel
CPU family: 6
Model: 158
Model name: Intel(R) Pentium(R) Gold G5600 CPU @ 3.90GHz
Stepping: 11
CPU MHz: 3900.000
CPU max MHz: 3900.0000
CPU min MHz: 800.0000
BogoMIPS: 7823.69
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 256K

(Continued on next page)
## SPEC CPU2017 Integer Rate Result

**Supermicro**  
SuperWorkstation 5039C-T (X11SCA, Intel Pentium Gold G5600)

<table>
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<th>SPECrate2017_int_base</th>
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**CPU2017 License:** 001176  
**Test Date:** Feb-2019  
**Test Sponsor:** Supermicro  
**Hardware Availability:** Oct-2018  
**Tested by:** Supermicro  
**Software Availability:** Sep-2018

### Platform Notes (Continued)

- **L3 cache:** 4096K
- **NUMA node0 CPU(s):** 0-3
- **Flags:** `fpu vme de pse tsc msr pae 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 nopl pge 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 nopl xtopology nonstop_tsc aperfmperf eagerfpu 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 arat epb invpcid_single pln pts dtherm hwp hwp_notify hwp_act_window hwp_epp intel_pt rsb_ctxtsw spec_ctrl retpoline kaiser tpr_shadow vmx flexpriority ept vpid fsgsbase tsc_adjust smep erms invpcid mpx rdseed smap clflushopt xsaveopt xsavec xgetbv1`  

```bash  
/proccpuinfo cache data  
cache size: 4096 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 2 3  
- node 0 size: 64285 MB  
- node 0 free: 57155 MB  
- node distances:  
  - node 0  
  - 0: 10

From `/proc/meminfo`  
- `MemTotal:` 65828412 kB  
- `HugePages_Total:` 0  
- `Hugepagesize:` 2048 kB

From `/etc/*release* /etc/*version*`  
**SuSE-release:**  
- SUSE Linux Enterprise Server 12 (x86_64)  
  - `VERSION = 12`  
  - `PATCHLEVEL = 3`  
  - `PRETTY_NAME="SUSE Linux Enterprise Server 12 SP3"`  
  - `ID="sles"`  
  - `ANSI_COLOR="0;32"`  
  - `CPE_NAME="cpe:/o:suse:sles:12:sp3"`

```bash  
uname -a:
```

(Continued on next page)
SPEC CPU2017 Integer Rate Result

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SPECrate2017_int_base = 13.2
SPECrate2017_int_peak = 14.3

CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

Test Date: Feb-2019
Hardware Availability: Oct-2018
Software Availability: Sep-2018

Platform Notes (Continued)

Linux linux-65nv 4.4.114-94.11-default #1 SMP Thu Feb 1 19:28:26 UTC 2018 (4309ff9)
x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:
CVE-2017-5754 (Meltdown): Mitigation: PTI
CVE-2017-5753 (Spectre variant 1): Mitigation: Barriers
CVE-2017-5715 (Spectre variant 2): Mitigation: IBRS+IBPB

run-level 3 Feb 27 14:32

SPEC is set to: /home/cpu2017

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda3 xfs 145G 9.5G 135G 7% /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 American Megatrends Inc. 1.0a 09/27/2018
Memory:
  4x Micron 18ADF2G72AZ-2G6H1R 16 GB 2 rank 2667, configured at 2400

(End of data from sysinfo program)

Compiler Version Notes

==============================================================================
CC  502.gcc_r(peak)
Intel(R) C Intel(R) 64 Compiler for applications running on IA-32, Version 19.0.0.117 Build 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

==============================================================================
CC  500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base, peak) 525.x264_r(base, peak) 557.xz_r(base, peak)

==============================================================================
CC  500.perlbench_r(peak)

(Continued on next page)
Supermicro
SuperWorkstation 5039C-T (X11SCA, Intel Pentium Gold G5600)

SPEC CPU2017 Integer Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

SPECrate2017_int_base = 13.2
SPECrate2017_int_peak = 14.3

CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

Compiler Version Notes (Continued)

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.

CXXC 523.xalancbmk_r(peak)

Intel(R) C++ Intel(R) 64 Compiler for applications running on IA-32, Version 19.0.0.117 Build 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

CXXC 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.

CXXC 520.omnetpp_r(peak) 531.deepsjeng_r(peak) 541.leela_r(peak)

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.

FC 548.exchange2_r(base, peak)

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

(Continued on next page)
Supermicro
SuperWorkstation 5039C-T (X11SCA, Intel Pentium Gold G5600)

SPECrate2017_int_base = 13.2
SPECrate2017_int_peak = 14.3

CPU2017 License: 001176
Test Date: Feb-2019
Test Sponsor: Supermicro
Hardware Availability: Oct-2018
Tested by: Supermicro
Software Availability: Sep-2018

Base Compiler Invocation (Continued)

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
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

Peak Compiler Invocation

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

(Continued on next page)
Peak Compiler Invocation (Continued)

C++ benchmarks (except as noted below):

icpc -m64

523.xalancbmk_r: icpc -m32 -L/usr/local/IntelCompiler19/compilers_and_libraries_2019.0.117/linux/compiler/lib/ia32_lin

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.xalanchbk_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

Peak Optimization Flags

C benchmarks:

500.perlbench_r: -Wl,-z,-mdefs -prof-gen(pass 1) -prof-use(pass 2) -ipo
-xSSE4.2 -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,-mdefs -prof-gen(pass 1) -prof-use(pass 2) -ipo
-xSSE4.2 -O3 -no-prec-div -qopt-mem-layout-trans=3
-L/usr/local/je5.0.1-32/lib -ljemalloc

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

525.x264_r: -Wl,-z,-mdefs -xSSE4.2 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=3 -fno-alias
-L/usr/local/je5.0.1-64/lib -ljemalloc

(Continued on next page)
Supermicro
SuperWorkstation 5039C-T (X11SCA, Intel Pentium Gold G5600)

SPECrate2017_int_base = 13.2
SPECrate2017_int_peak = 14.3

CPU2017 License: 001176
Test Date: Feb-2019
Test Sponsor: Supermicro
Hardware Availability: Oct-2018
Tested by: Supermicro
Software Availability: Sep-2018

Peak Optimization Flags (Continued)

557.xz_r: basepeak = yes

C++ benchmarks:
520.omnetpp_r: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo
-xSSE4.2 -O3 -no-prec-div -qopt-mem-layout-trans=3
-L/usr/local/je5.0.1-64/lib -ljemalloc

523.xalancbmk_r: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo
-xSSE4.2 -O3 -no-prec-div -qopt-mem-layout-trans=3
-L/usr/local/je5.0.1-32/lib -ljemalloc

531.deepsjeng_r: Same as 520.omnetpp_r
541.leela_r: Same as 520.omnetpp_r

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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For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.

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