



SPEC CPU®2017 Integer Rate Result

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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

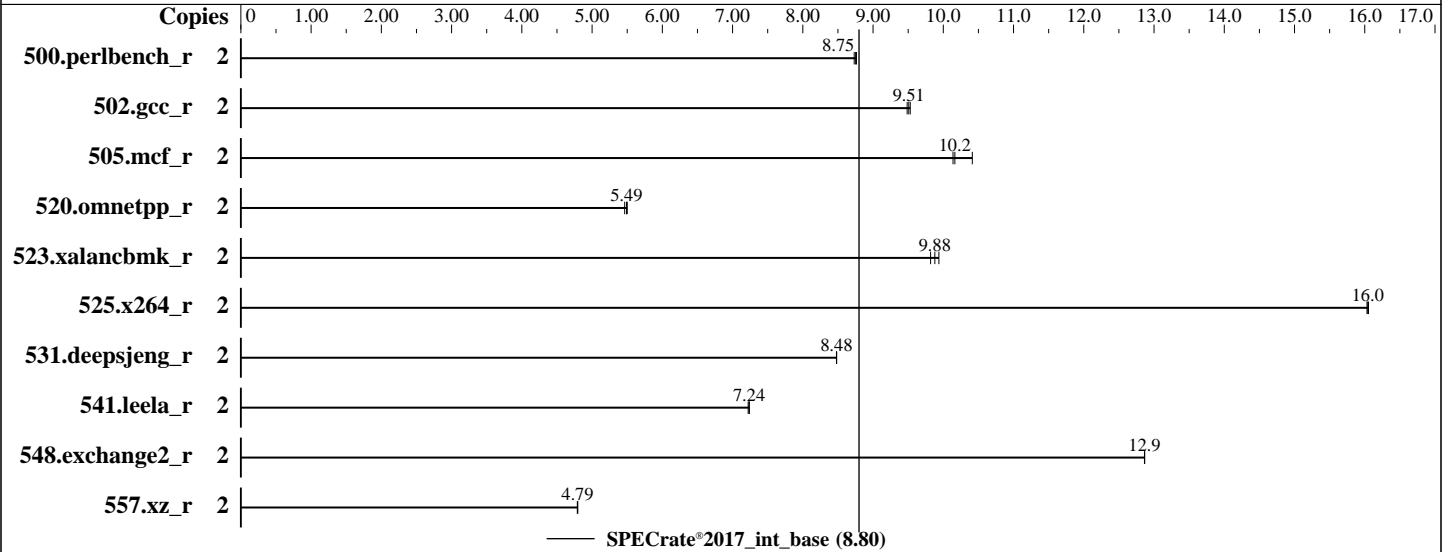
Test Sponsor: Fujitsu

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

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	2	364	8.75	365	8.73	363	8.76							
502.gcc_r	2	298	9.51	299	9.49	297	9.53							
505.mcf_r	2	319	10.1	310	10.4	318	10.2							
520.omnetpp_r	2	477	5.50	480	5.46	478	5.49							
523.xalancbmk_r	2	213	9.94	215	9.82	214	9.88							
525.x264_r	2	218	16.0	218	16.1	218	16.0							
531.deepsjeng_r	2	270	8.48	270	8.48	270	8.48							
541.leela_r	2	458	7.24	458	7.24	459	7.22							
548.exchange2_r	2	407	12.9	407	12.9	407	12.9							
557.xz_r	2	451	4.79	450	4.80	451	4.79							

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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/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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General Notes (Continued)

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

```
runcpu command invoked through numactl i.e.:
```

```
numactl --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 295195f888a3d7edble6e46a485a0011

running on linux-lg42 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
```

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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 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 cpuid
aperfperf 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 xsaves 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"

```

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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, 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)



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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
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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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

<http://www.spec.org/cpu2017/flags/Intel-ic19.0u1-official-linux64.2019-07-09.html>

<http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.2-BDW-RevG.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2017/flags/Intel-ic19.0u1-official-linux64.2019-07-09.xml>

<http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.2-BDW-RevG.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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