



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

Fujitsu

PRIMERGY RX4770 M5, Intel Xeon Gold 6256,
3.60 GHz

SPECrate®2017_int_base = 379

SPECrate®2017_int_peak = Not Run

CPU2017 License: 19

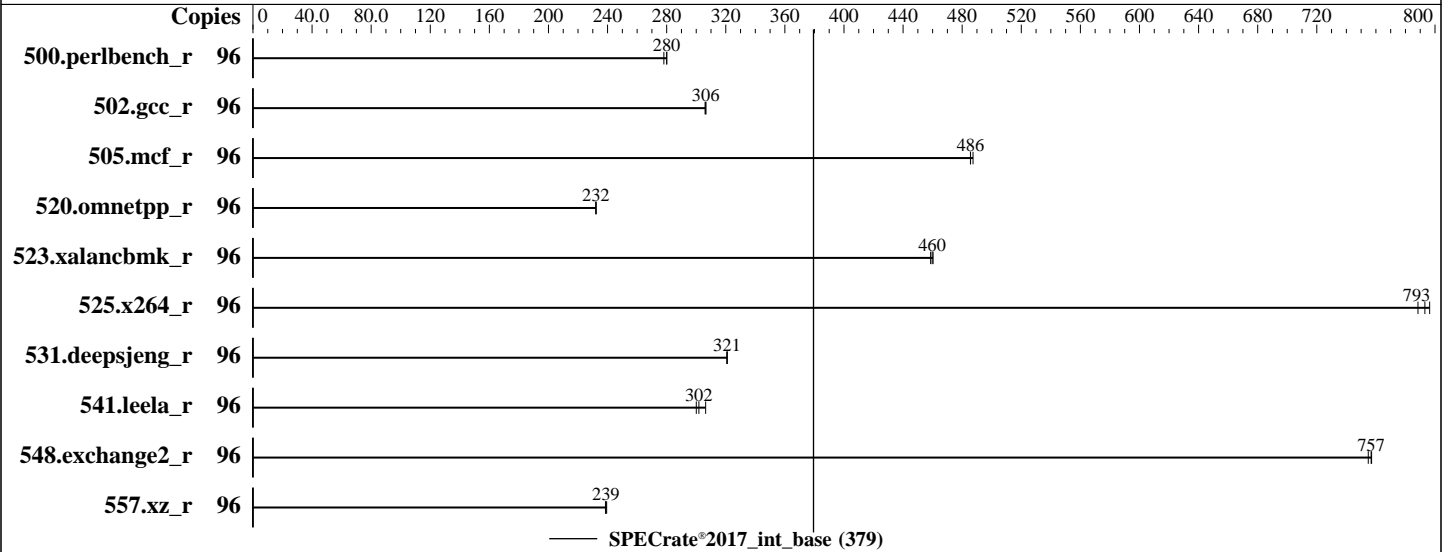
Test Sponsor: Fujitsu

Tested by: Fujitsu

Test Date: Mar-2020

Hardware Availability: Feb-2020

Software Availability: May-2019



Hardware

CPU Name: Intel Xeon Gold 6256
 Max MHz: 4500
 Nominal: 3600
 Enabled: 48 cores, 4 chips, 2 threads/core
 Orderable: 2,4 chips
 Cache L1: 32 KB I + 32 KB D on chip per core
 L2: 1 MB I+D on chip per core
 L3: 33 MB I+D on chip per chip
 Other: None
 Memory: 1536 GB (48 x 32 GB 2Rx4 PC4-2933Y-R)
 Storage: 1 x SATA M.2 SSD, 480 GB
 Other: None

Software

OS: SUSE Linux Enterprise Server 15
 4.12.14-25.28-default
 Compiler: C/C++: Version 19.0.4.227 of Intel C/C++
 Compiler Build 20190416 for Linux;
 Fortran: Version 19.0.4.227 of Intel Fortran
 Compiler Build 20190416 for Linux
 Parallel: No
 Firmware: Fujitsu BIOS Version V5.0.0.14 R1.18.0 for D3753-C1x
 released Apr-2020
 File System: btrfs
 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



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

Fujitsu

PRIMERGY RX4770 M5, Intel Xeon Gold 6256,
3.60 GHz

SPECrate®2017_int_base = 379

SPECrate®2017_int_peak = Not Run

CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu

Test Date: Mar-2020
Hardware Availability: Feb-2020
Software Availability: May-2019

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	96	546	280	550	278	546	280							
502.gcc_r	96	444	306	443	307	444	306							
505.mcf_r	96	319	486	319	486	318	487							
520.omnetpp_r	96	543	232	542	232	543	232							
523.xalancbmk_r	96	221	460	221	459	220	460							
525.x264_r	96	211	796	212	793	213	788							
531.deepsjeng_r	96	343	321	343	321	343	321							
541.leela_r	96	530	300	527	302	519	306							
548.exchange2_r	96	332	757	333	755	332	757							
557.xz_r	96	434	239	435	239	433	239							

SPECrate®2017_int_base = 379

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 numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl 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"
Kernel Boot Parameter set with : nohz_full=1-95
Process tuning settings:
echo 10000000 > /proc/sys/kernel/sched_min_granularity_ns

Environment Variables Notes

Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH =
"/home/Benchmark/speccpu2017-1.1.0/lib/intel64:/home/Benchmark/speccpu2017-1.1.0/lib/ia32:/home/Benchmark/speccpu2017-1.1.0/je5.0.1-32"

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

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

Fujitsu

PRIMERGY RX4770 M5, Intel Xeon Gold 6256,
3.60 GHz

SPECrate®2017_int_base = 379

SPECrate®2017_int_peak = Not Run

CPU2017 License: 19

Test Sponsor: Fujitsu

Tested by: Fujitsu

Test Date: Mar-2020

Hardware Availability: Feb-2020

Software Availability: May-2019

General Notes (Continued)

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>

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:
DCU Streamer Prefetcher = Disabled
Fan Control = Full
Energy Performance = Performance
Hardware Prefetcher = Disabled
HWPM = Native Mode with no legacy
Override OS Energy Performance = Enable
Patrol Scrub = Disabled
WR CRC feature Control = Disabled
XPT Prefetch = Enable

Sysinfo program /home/Benchmark/speccpu2017-1.1.0/bin/sysinfo
Rev: r6365 of 2019-08-21 295195f888a3d7edble6e46a485a0011
running on RX4770M5-CLXR Thu Feb 27 23:57:32 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) Xeon(R) Gold 6256 CPU @ 3.60GHz
4 "physical id"s (chips)
96 "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 : 12
siblings : 24
physical 0: cores 0 1 4 9 10 11 12 16 21 25 28 29
physical 1: cores 1 2 4 10 13 16 19 21 25 26 28 29
physical 2: cores 0 1 3 8 9 12 18 21 25 27 28 29
physical 3: cores 0 2 4 5 8 11 13 17 19 20 24 26

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

Fujitsu

PRIMERGY RX4770 M5, Intel Xeon Gold 6256,
3.60 GHz

SPECrate®2017_int_base = 379

SPECrate®2017_int_peak = Not Run

CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu

Test Date: Mar-2020
Hardware Availability: Feb-2020
Software Availability: May-2019

Platform Notes (Continued)

From lscpu:

```

Architecture:          x86_64
CPU op-mode(s):        32-bit, 64-bit
Byte Order:             Little Endian
CPU(s):                 96
On-line CPU(s) list:   0-95
Thread(s) per core:    2
Core(s) per socket:    12
Socket(s):              4
NUMA node(s):          8
Vendor ID:              GenuineIntel
CPU family:             6
Model:                  85
Model name:             Intel(R) Xeon(R) Gold 6256 CPU @ 3.60GHz
Stepping:               7
CPU MHz:                3600.000
CPU max MHz:           4500.0000
CPU min MHz:           1200.0000
BogoMIPS:               7200.00
Virtualization:         VT-x
L1d cache:              32K
L1i cache:              32K
L2 cache:               1024K
L3 cache:               33792K
NUMA node0 CPU(s):     0,1,3,4,7,9,48,49,51,52,55,57
NUMA node1 CPU(s):     2,5,6,8,10,11,50,53,54,56,58,59
NUMA node2 CPU(s):     12,13,15,17,20,21,60,61,63,65,68,69
NUMA node3 CPU(s):     14,16,18,19,22,23,62,64,66,67,70,71
NUMA node4 CPU(s):     24,25,27,28,30,32,72,73,75,76,78,80
NUMA node5 CPU(s):     26,29,31,33-35,74,77,79,81-83
NUMA node6 CPU(s):     36,37,40,43,46,47,84,85,88,91,94,95
NUMA node7 CPU(s):     38,39,41,42,44,45,86,87,89,90,92,93

```

```

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
aperfmpperf pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16
xtpr pdcm pcid dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave
avx fl6c rdrand lahf_lm abm 3dnowprefetch cpuid_fault epb cat_l3 cdp_l3
invpcid_single intel_ppin ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow vnmi
flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm
cqm mpx rdt_a avx512f avx512dq rdseed adx smap clflushopt clwb intel_pt avx512cd
avx512bw avx512vl xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total
cqm_mbm_local dtherm ida arat pln pts hwp hwp_act_window hwp_epp hwp_pkg_req pku
ospke avx512_vnni flush_lld arch_capabilities

```

```

/proc/cpuinfo cache data
cache size : 33792 KB

```

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

Fujitsu

PRIMERGY RX4770 M5, Intel Xeon Gold 6256,
3.60 GHz

SPECrate®2017_int_base = 379

SPECrate®2017_int_peak = Not Run

CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu

Test Date: Mar-2020
Hardware Availability: Feb-2020
Software Availability: May-2019

Platform Notes (Continued)

From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a physical chip.

```

available: 8 nodes (0-7)
node 0 cpus: 0 1 3 4 7 9 48 49 51 52 55 57
node 0 size: 191890 MB
node 0 free: 185769 MB
node 1 cpus: 2 5 6 8 10 11 50 53 54 56 58 59
node 1 size: 193533 MB
node 1 free: 193242 MB
node 2 cpus: 12 13 15 17 20 21 60 61 63 65 68 69
node 2 size: 193533 MB
node 2 free: 193352 MB
node 3 cpus: 14 16 18 19 22 23 62 64 66 67 70 71
node 3 size: 193533 MB
node 3 free: 193078 MB
node 4 cpus: 24 25 27 28 30 32 72 73 75 76 78 80
node 4 size: 193533 MB
node 4 free: 193354 MB
node 5 cpus: 26 29 31 33 34 35 74 77 79 81 82 83
node 5 size: 193533 MB
node 5 free: 193342 MB
node 6 cpus: 36 37 40 43 46 47 84 85 88 91 94 95
node 6 size: 193504 MB
node 6 free: 193274 MB
node 7 cpus: 38 39 41 42 44 45 86 87 89 90 92 93
node 7 size: 193314 MB
node 7 free: 193123 MB
node distances:
node  0  1  2  3  4  5  6  7
 0: 10 11 21 21 21 21 21 21
 1: 11 10 21 21 21 21 21 21
 2: 21 21 10 11 21 21 21 21
 3: 21 21 11 10 21 21 21 21
 4: 21 21 21 21 10 11 21 21
 5: 21 21 21 21 11 10 21 21
 6: 21 21 21 21 21 21 10 11
 7: 21 21 21 21 21 21 11 10

```

```

From /proc/meminfo
MemTotal:      1583489648 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

Copyright 2017-2020 Standard Performance Evaluation Corporation

Fujitsu

PRIMERGY RX4770 M5, Intel Xeon Gold 6256,
3.60 GHz

SPECrate®2017_int_base = 379

SPECrate®2017_int_peak = Not Run

CPU2017 License: 19

Test Sponsor: Fujitsu

Tested by: Fujitsu

Test Date: Mar-2020

Hardware Availability: Feb-2020

Software Availability: May-2019

Platform Notes (Continued)

```

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

```

uname -a:

```

Linux RX4770M5-CLXR 4.12.14-25.28-default #1 SMP Wed Jan 16 20:00:47 UTC 2019
(dd6077c) x86_64 x86_64 x86_64 GNU/Linux

```

Kernel self-reported vulnerability status:

```

CVE-2018-3620 (L1 Terminal Fault):          Not affected
Microarchitectural Data Sampling:         No status reported
CVE-2017-5754 (Meltdown):                 Not affected
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: Enhanced IBRS, IBPB: conditional,
RSB filling

```

run-level 3 Feb 27 23:53

SPEC is set to: /home/Benchmark/speccpu2017-1.1.0

```

Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/sda2       btrfs    445G   59G  386G  14% /home

```

From /sys/devices/virtual/dmi/id

```

BIOS: FUJITSU // American Megatrends Inc. V5.0.0.14 R1.18.0 for D3753-Clx
02/11/2020
Vendor: FUJITSU
Product: PRIMERGY RX4770 M5
Product Family: SERVER
Serial: YMTJ000009

```

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:

```

47x Micron 36ASF4G72PZ-2G9E2 32 GB 2 rank 2933, configured at 2934
1x Samsung M393A4K40CB2-CVF 32 GB 2 rank 2933, configured at 2934

```

(End of data from sysinfo program)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

Fujitsu

PRIMERGY RX4770 M5, Intel Xeon Gold 6256,
3.60 GHz

SPECrate®2017_int_base = 379

SPECrate®2017_int_peak = Not Run

CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu

Test Date: Mar-2020
Hardware Availability: Feb-2020
Software Availability: May-2019

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 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 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 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 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 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 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

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

Fujitsu

PRIMERGY RX4770 M5, Intel Xeon Gold 6256,
3.60 GHz

SPECrate®2017_int_base = 379

SPECrate®2017_int_peak = Not Run

CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu

Test Date: Mar-2020
Hardware Availability: Feb-2020
Software Availability: May-2019

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 -xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=4
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.4.227/linux/compiler/lib/intel64
-lqkmalloc
```

C++ benchmarks:

```
-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=4
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.4.227/linux/compiler/lib/intel64
-lqkmalloc
```

Fortran benchmarks:

```
-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=4 -nostandard-realloc-lhs -align array32byte
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.4.227/linux/compiler/lib/intel64
-lqkmalloc
```

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-V1.0-CSL-RevE.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-V1.0-CSL-RevE.xml>

SPEC CPU and SPECrate are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEC CPU®2017 v1.1.0 on 2020-02-27 09:57:31-0500.
Report generated on 2020-04-14 14:17:56 by CPU2017 PDF formatter v6255.
Originally published on 2020-04-14.