



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

## Fujitsu

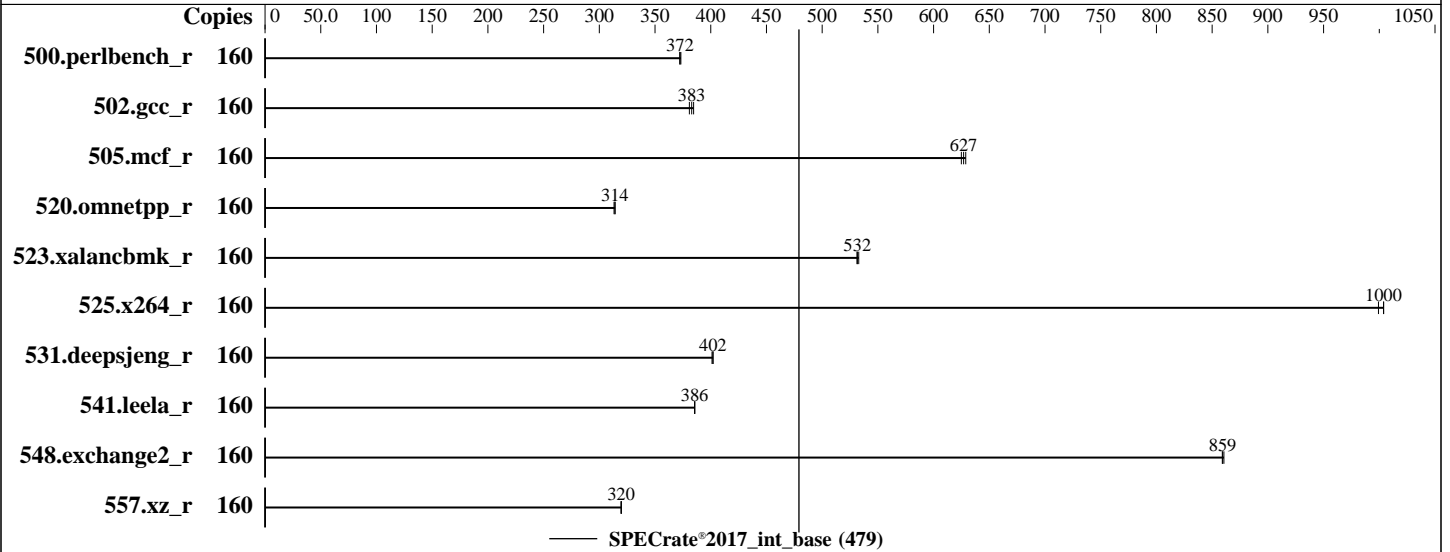
PRIMERGY RX4770 M5, Intel Xeon Gold 6248, 2.50GHz

SPECrate®2017\_int\_base = 479

SPECrate®2017\_int\_peak = Not Run

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

Test Date: Aug-2019  
Hardware Availability: Apr-2019  
Software Availability: Feb-2019



### Hardware

CPU Name: Intel Xeon Gold 6248  
Max MHz: 3900  
Nominal: 2500  
Enabled: 80 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: 27.5 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 19.0.1.144 of Intel C/C++ Compiler for Linux;  
Fortran: Version 19.0.1.144 of Intel Fortran Compiler for Linux  
Parallel: No  
Firmware: Fujitsu BIOS for D3753-C1x Version V5.0.0.14 R1.8.0 released Jun-2019  
File System: xfs  
System State: Run level 3 (multi-user)  
Base Pointers: 64-bit  
Peak Pointers: Not Applicable  
Other: None  
Power Management: --



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

## Fujitsu

PRIMERGY RX4770 M5, Intel Xeon Gold 6248, 2.50GHz

SPECrate®2017\_int\_base = 479

SPECrate®2017\_int\_peak = Not Run

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

Test Date: Aug-2019  
Hardware Availability: Apr-2019  
Software Availability: Feb-2019

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	160	<b>684</b>	<b>372</b>	684	372	683	373							
502.gcc_r	160	589	385	<b>592</b>	<b>383</b>	595	381							
505.mcf_r	160	414	625	411	629	<b>412</b>	<b>627</b>							
520.omnetpp_r	160	668	314	670	313	<b>668</b>	<b>314</b>							
523.xalancbmk_r	160	318	531	<b>318</b>	<b>532</b>	317	533							
525.x264_r	160	279	1000	280	999	<b>279</b>	<b>1000</b>							
531.deepsjeng_r	160	<b>456</b>	<b>402</b>	457	401	456	402							
541.leela_r	160	687	386	<b>687</b>	<b>386</b>	687	386							
548.exchange2_r	160	<b>488</b>	<b>859</b>	488	859	487	861							
557.xz_r	160	541	320	<b>541</b>	<b>320</b>	541	320							

SPECrate®2017\_int\_base = 479

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=1-159  
Process tuning settings:  
echo 10000000 > /proc/sys/kernel/sched\_min\_granularity\_ns

## General Notes

Environment variables set by runcpu before the start of the run:  
LD\_LIBRARY\_PATH = "/home/Benchmark/speccpu2017-int/lib/intel64"

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:  
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.

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

## Fujitsu

PRIMERGY RX4770 M5, Intel Xeon Gold 6248, 2.50GHz

SPECrate®2017\_int\_base = 479

SPECrate®2017\_int\_peak = Not Run

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

**Test Date:** Aug-2019  
**Hardware Availability:** Apr-2019  
**Software Availability:** Feb-2019

### General Notes (Continued)

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

HWPM = Native Mode with no legacy

LLC Prefetcher = Disable

Override OS Energy Performance = Enable

Patrol Scrub = Disabled

WR CRC feature Control = Disabled

XPT Prefetch = Enable

Sysinfo program /home/Benchmark/speccpu2017-int/bin/sysinfo

Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9

running on SLES15-BMT Sun Aug 4 17:22:56 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) Xeon(R) Gold 6248 CPU @ 2.50GHz

4 "physical id"s (chips)

160 "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 : 20

siblings : 40

physical 0: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28

physical 1: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28

physical 2: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28

physical 3: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28

From lscpu:

Architecture: x86\_64

CPU op-mode(s): 32-bit, 64-bit

Byte Order: Little Endian

CPU(s): 160

On-line CPU(s) list: 0-159

Thread(s) per core: 2

Core(s) per socket: 20

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

## Fujitsu

PRIMERGY RX4770 M5, Intel Xeon Gold 6248, 2.50GHz

SPECrate®2017\_int\_base = 479

SPECrate®2017\_int\_peak = Not Run

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

Test Date: Aug-2019  
Hardware Availability: Apr-2019  
Software Availability: Feb-2019

### Platform Notes (Continued)

```

Socket(s): 4
NUMA node(s): 8
Vendor ID: GenuineIntel
CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Gold 6248 CPU @ 2.50GHz
Stepping: 6
CPU MHz: 2500.000
CPU max MHz: 3900.0000
CPU min MHz: 1000.0000
BogoMIPS: 5000.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 28160K
NUMA node0 CPU(s): 0-2,5,6,10-12,15,16,80-82,85,86,90-92,95,96
NUMA node1 CPU(s): 3,4,7-9,13,14,17-19,83,84,87-89,93,94,97-99
NUMA node2 CPU(s): 20-22,25,26,30-32,35,36,100-102,105,106,110-112,115,116
NUMA node3 CPU(s): 23,24,27-29,33,34,37-39,103,104,107-109,113,114,117-119
NUMA node4 CPU(s): 40-42,45,46,50-52,55,56,120-122,125,126,130-132,135,136
NUMA node5 CPU(s): 43,44,47-49,53,54,57-59,123,124,127-129,133,134,137-139
NUMA node6 CPU(s): 60-62,65,66,70-72,75,76,140-142,145,146,150-152,155,156
NUMA node7 CPU(s): 63,64,67-69,73,74,77-79,143,144,147-149,153,154,157-159
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 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 : 28160 KB
```

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 2 5 6 10 11 12 15 16 80 81 82 85 86 90 91 92 95 96
node 0 size: 191883 MB
node 0 free: 185736 MB
node 1 cpus: 3 4 7 8 9 13 14 17 18 19 83 84 87 88 89 93 94 97 98 99

```

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

## Fujitsu

PRIMERGY RX4770 M5, Intel Xeon Gold 6248, 2.50GHz

SPECrate®2017\_int\_base = 479

SPECrate®2017\_int\_peak = Not Run

CPU2017 License: 19

Test Sponsor: Fujitsu

Tested by: Fujitsu

Test Date: Aug-2019

Hardware Availability: Apr-2019

Software Availability: Feb-2019

### Platform Notes (Continued)

```

node 1 size: 193532 MB
node 1 free: 193286 MB
node 2 cpus: 20 21 22 25 26 30 31 32 35 36 100 101 102 105 106 110 111 112 115 116
node 2 size: 193532 MB
node 2 free: 193207 MB
node 3 cpus: 23 24 27 28 29 33 34 37 38 39 103 104 107 108 109 113 114 117 118 119
node 3 size: 193532 MB
node 3 free: 193244 MB
node 4 cpus: 40 41 42 45 46 50 51 52 55 56 120 121 122 125 126 130 131 132 135 136
node 4 size: 193532 MB
node 4 free: 193304 MB
node 5 cpus: 43 44 47 48 49 53 54 57 58 59 123 124 127 128 129 133 134 137 138 139
node 5 size: 193532 MB
node 5 free: 193285 MB
node 6 cpus: 60 61 62 65 66 70 71 72 75 76 140 141 142 145 146 150 151 152 155 156
node 6 size: 193502 MB
node 6 free: 193268 MB
node 7 cpus: 63 64 67 68 69 73 74 77 78 79 143 144 147 148 149 153 154 157 158 159
node 7 size: 193359 MB
node 7 free: 192319 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: 1583519648 kB

HugePages\_Total: 0

Hugepagesize: 2048 kB

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

os-release:

NAME="SLES"

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"

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

## Fujitsu

PRIMERGY RX4770 M5, Intel Xeon Gold 6248, 2.50GHz

SPECrate®2017\_int\_base = 479

SPECrate®2017\_int\_peak = Not Run

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

**Test Date:** Aug-2019  
**Hardware Availability:** Apr-2019  
**Software Availability:** Feb-2019

### Platform Notes (Continued)

```
uname -a:
Linux SLES15-BMT 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-2017-5754 (Meltdown): Not affected
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 Aug 4 17:20
```

```
SPEC is set to: /home/Benchmark/speccpu2017-int
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda5        xfs   343G   30G  314G   9% /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 FUJITSU // American Megatrends Inc. V5.0.0.14 R1.8.0 for D3753-C1x
06/06/2019
```

```
Memory:
48x Micron 36ASF4G72PZ-2G9E2 32 GB 2 rank 2933, configured at 2934
```

(End of data from sysinfo program)

### 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 19.0.1.144 Build 20181018  
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 19.0.1.144 Build 20181018  
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
```

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

## Fujitsu

PRIMERGY RX4770 M5, Intel Xeon Gold 6248, 2.50GHz

SPECrate®2017\_int\_base = 479

SPECrate®2017\_int\_peak = Not Run

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

Test Date: Aug-2019  
Hardware Availability: Apr-2019  
Software Availability: Feb-2019

## Compiler Version Notes (Continued)

-----  
=====  
Fortran | 548.exchange2\_r(base)  
-----

Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R) 64, Version 19.0.1.144 Build 20181018  
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  
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\_2019.1.144/linux/compiler/lib/intel64  
-lqkmalloc

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

## Fujitsu

PRIMERGY RX4770 M5, Intel Xeon Gold 6248,  
2.50GHz

SPECrate®2017\_int\_base = 479

SPECrate®2017\_int\_peak = Not Run

**CPU2017 License:** 19

**Test Sponsor:** Fujitsu

**Tested by:** Fujitsu

**Test Date:** Aug-2019

**Hardware Availability:** Apr-2019

**Software Availability:** Feb-2019

## Base Optimization Flags (Continued)

C++ benchmarks:

```
-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div  
-qopt-mem-layout-trans=4  
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.1.144/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_2019.1.144/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-ic18.0-official-linux64.2019-04-02.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-ic18.0-official-linux64.2019-04-02.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](mailto:info@spec.org).

Tested with SPEC CPU®2017 v1.0.5 on 2019-08-04 04:22:56-0400.

Report generated on 2019-10-01 14:30:58 by CPU2017 PDF formatter v6255.

Originally published on 2019-10-01.