SPEC CPU®2017 Integer Rate Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

Fujitsu

PRIMERGY RX4770 M5, Intel Xeon Platinum 8260Y, 2.40GHz

SPECrate®2017_int_base =   542
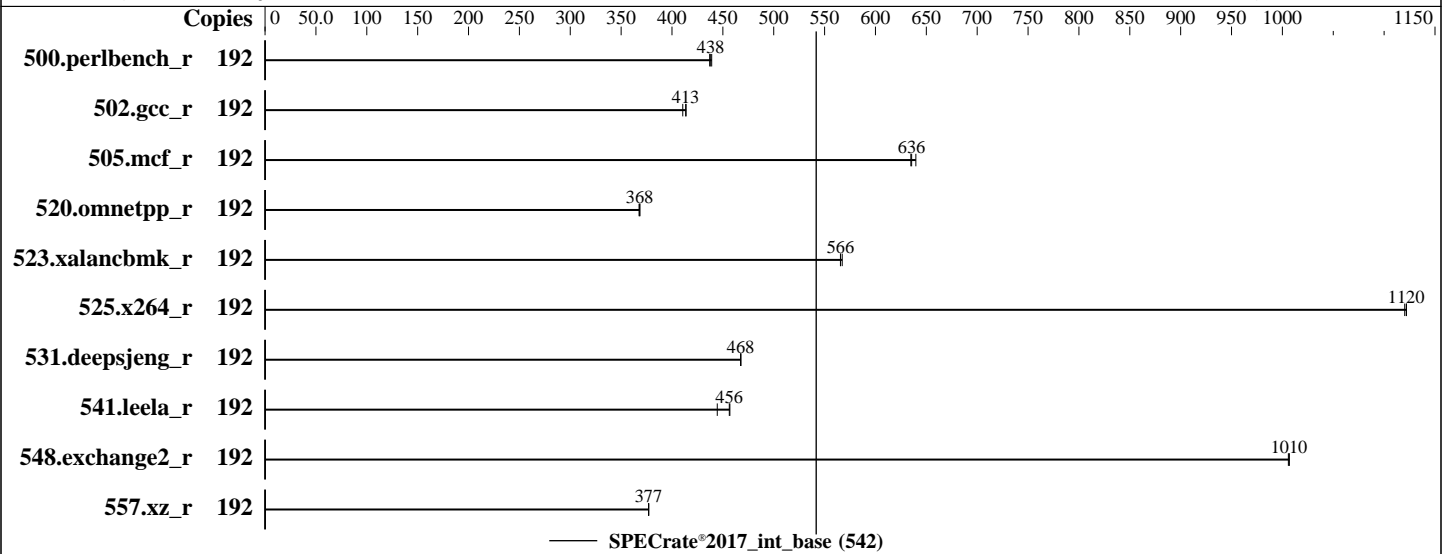
SPECrate®2017_int_peak = Not Run

CPU2017 License: 19

Test Sponsor: Fujitsu

Tested by: Fujitsu

Test Date: Jun-2019

Hardware Availability: Apr-2019

Software Availability: Feb-2019

Benchmark	Copies	Result
500.perlbench_r	192	438
502.gcc_r	192	413
505.mcf_r	192	636
520.omnetpp_r	192	368
523.xalancbmk_r	192	566
525.x264_r	192	1120
531.deepsjeng_r	192	468
541.leela_r	192	456
548.exchange2_r	192	1010
557.xz_r	192	377

SPECrate®2017_int_base (542)

Hardware

CPU Name: Intel Xeon Platinum 8260Y
 Max MHz: 3900
 Nominal: 2400
Enabled: 96 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: 35.75 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: --

Standard Performance Evaluation Corporation (info@spec.org)

https://www.spec.org/

SPEC CPU®2017 Integer Rate Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

Fujitsu

PRIMERGY RX4770 M5, Intel Xeon Platinum 8260Y, 2.40GHz

$SPECrate®2017\_int\_base =$ **542**

$SPECrate®2017\_int\_peak =$ Not Run

CPU2017 License: 19	**Test Date:**	Jun-2019
Test Sponsor: Fujitsu	**Hardware Availability:**	Apr-2019
Tested by: Fujitsu	**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	192	699	437	696	439	**698**	**438**							
502.gcc_r	192	657	414	**658**	**413**	662	411							
505.mcf_r	192	489	635	**488**	**636**	485	640							
520.omnetpp_r	192	685	368	**684**	**368**	684	368							
523.xalancbmk_r	192	358	566	357	567	**358**	**566**							
525.x264_r	192	300	1120	**300**	**1120**	300	1120							
531.deepsjeng_r	192	470	468	**471**	**468**	471	468							
541.leela_r	192	**697**	**456**	715	445	696	457							
548.exchange2_r	192	**500**	**1010**	500	1010	500	1010							
557.xz_r	192	**550**	**377**	550	377	550	377							
SPECrate®2017_int_base =		**542**												
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=1-191
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 2017-2020 Standard Performance Evaluation Corporation

Fujitsu

PRIMERGY RX4770 M5, Intel Xeon Platinum 8260Y, 2.40GHz

SPECrate®2017_int_base = 542

SPECrate®2017_int_peak = Not Run

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

Test Date: Jun-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
 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
 The marketing name for the processor in this result, which appears in the CPU name and hardware
 model areas, is different from sysinfo because a pre-production processor was used.
 The pre-production processor differs from the production processor in name only.
 Sysinfo program /home/Benchmark/speccpu2017-int/bin/sysinfo
 Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
 running on RX4770M5 Mon Jun 10 20:11:30 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) Platinum 8260C CPU @ 2.40GHz
       4  "physical id"s (chips)
       192 "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 : 24
       siblings  : 48
       physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 16 17 18 19 20 21 25 26 27 28 29
       physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 16 17 18 19 20 21 25 26 27 28 29
       physical 2: cores 0 1 2 3 5 6 8 9 10 11 12 13 16 17 18 19 20 21 22 25 26 27 28 29
       physical 3: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 16 17 18 19 20 21 25 26 27 28 29

 From lscpu:
    Architecture:        x86_64
    CPU op-mode(s):      32-bit, 64-bit
    Byte Order:          Little Endian
    CPU(s):              192
```

(Continued on next page)

Fujitsu

PRIMERGY RX4770 M5, Intel Xeon Platinum 8260Y, 2.40GHz

SPECrate®2017_int_base = 542

SPECrate®2017_int_peak = Not Run

CPU2017 License: 19	**Test Date:** Jun-2019
Test Sponsor: Fujitsu	**Hardware Availability:** Apr-2019
Tested by: Fujitsu	**Software Availability:** Feb-2019

Platform Notes (Continued)

```
      On-line CPU(s) list: 0-191
      Thread(s) per core:  2
      Core(s) per socket:  24
      Socket(s):           4
      NUMA node(s):        8
      Vendor ID:           GenuineIntel
      CPU family:          6
      Model:               85
      Model name:          Intel(R) Xeon(R) Platinum 8260C CPU @ 2.40GHz
      Stepping:            6
      CPU MHz:             2400.000
      CPU max MHz:         3900.0000
      CPU min MHz:         1000.0000
      BogoMIPS:            4800.00
      Virtualization:      VT-x
      L1d cache:           32K
      L1i cache:           32K
      L2 cache:            1024K
      L3 cache:            36608K
      NUMA node0 CPU(s):   0-3,7-9,13-15,19,20,96-99,103-105,109-111,115,116
      NUMA node1 CPU(s):   4-6,10-12,16-18,21-23,100-102,106-108,112-114,117-119
      NUMA node2 CPU(s):   24-27,31-33,37-39,43,44,120-123,127-129,133-135,139,140
      NUMA node3 CPU(s):   28-30,34-36,40-42,45-47,124-126,130-132,136-138,141-143
      NUMA node4 CPU(s):   48-51,54-56,60-62,67,68,144-147,150-152,156-158,163,164
      NUMA node5 CPU(s):   52,53,57-59,63-66,69-71,148,149,153-155,159-162,165-167
      NUMA node6 CPU(s):   72-75,79-81,85-87,91,92,168-171,175-177,181-183,187,188
      NUMA node7 CPU(s):   76-78,82-84,88-90,93-95,172-174,178-180,184-186,189-191
      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
    aperfmperf 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 f16c 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_l1d arch_capabilities

  /proc/cpuinfo cache data
     cache size : 36608 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 3 7 8 9 13 14 15 19 20 96 97 98 99 103 104 105 109 110 111 115 116
```

(Continued on next page)

Fujitsu

PRIMERGY RX4770 M5, Intel Xeon Platinum 8260Y, 2.40GHz

SPECrate®2017_int_base =   542

SPECrate®2017_int_peak = Not Run

Platform Notes (Continued)

```
   node 0 size: 191882 MB
   node 0 free: 185692 MB
   node 1 cpus: 4 5 6 10 11 12 16 17 18 21 22 23 100 101 102 106 107 108 112 113 114 117
   118 119
   node 1 size: 193531 MB
   node 1 free: 193236 MB
   node 2 cpus: 24 25 26 27 31 32 33 37 38 39 43 44 120 121 122 123 127 128 129 133 134
   135 139 140
   node 2 size: 193531 MB
   node 2 free: 193298 MB
   node 3 cpus: 28 29 30 34 35 36 40 41 42 45 46 47 124 125 126 130 131 132 136 137 138
   141 142 143
   node 3 size: 193531 MB
   node 3 free: 192507 MB
   node 4 cpus: 48 49 50 51 54 55 56 60 61 62 67 68 144 145 146 147 150 151 152 156 157
   158 163 164
   node 4 size: 193531 MB
   node 4 free: 193326 MB
   node 5 cpus: 52 53 57 58 59 63 64 65 66 69 70 71 148 149 153 154 155 159 160 161 162
   165 166 167
   node 5 size: 193531 MB
   node 5 free: 193334 MB
   node 6 cpus: 72 73 74 75 79 80 81 85 86 87 91 92 168 169 170 171 175 176 177 181 182
   183 187 188
   node 6 size: 193531 MB
   node 6 free: 193331 MB
   node 7 cpus: 76 77 78 82 83 84 88 89 90 93 94 95 172 173 174 178 179 180 184 185 186
   189 190 191
   node 7 size: 193329 MB
   node 7 free: 193109 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:       1583513616 kB
    HugePages_Total:        0
    Hugepagesize:        2048 kB

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

(Continued on next page)

SPEC CPU®2017 Integer Rate Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

Fujitsu

PRIMERGY RX4770 M5, Intel Xeon Platinum 8260Y, 2.40GHz

SPECrate®2017_int_base = 542

SPECrate®2017_int_peak = Not Run

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

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

Platform Notes (Continued)

```
    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"

 uname -a:
    Linux RX4770M5 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 Jun 10 20:04

 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)
 The marketing name for the processor in this result, which appears in the CPU name and hardware
 model areas, is different from sysinfo because a pre-production processor was used.
 The pre-production processor differs from the production processor in name only.
```

Compiler Version Notes

```
==============================================================================
C        | 500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base)
         | 525.x264_r(base) 557.xz_r(base)
```

(Continued on next page)

Standard Performance Evaluation Corporation (info@spec.org)   https://www.spec.org/

Fujitsu

PRIMERGY RX4770 M5, Intel Xeon Platinum 8260Y, 2.40GHz

SPECrate®2017_int_base =   542

SPECrate®2017_int_peak = Not Run

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

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

Compiler Version Notes (Continued)

```
--------------------------------------------------------------------------
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.
--------------------------------------------------------------------------


==========================================================================
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`

(Continued on next page)

Fujitsu

PRIMERGY RX4770 M5, Intel Xeon Platinum 8260Y, 2.40GHz

SPECrate®2017_int_base = 542

SPECrate®2017_int_peak = Not Run

CPU2017 License: 19	**Test Date:** Jun-2019
Test Sponsor: Fujitsu	**Hardware Availability:** Apr-2019
Tested by: Fujitsu	**Software Availability:** Feb-2019

Base Portability Flags (Continued)

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
```

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

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

Tested with SPEC CPU®2017 v1.0.5 on 2019-06-10 07:11:29-0400.
Report generated on 2020-01-27 16:13:04 by CPU2017 PDF formatter v6255.
Originally published on 2019-10-01.