## SPEC® CPU2017 Integer Rate Result

### Fujitsu

**PRIMERGY RX2530 M5, Intel Xeon Gold 6240, 2.60GHz**

<table>
<thead>
<tr>
<th>CPU2017 License:</th>
<th>19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor:</td>
<td>Fujitsu</td>
</tr>
<tr>
<td>Tested by:</td>
<td>Fujitsu</td>
</tr>
<tr>
<td>Test Date:</td>
<td>Apr-2019</td>
</tr>
<tr>
<td>Hardware Availability:</td>
<td>May-2019</td>
</tr>
<tr>
<td>Software Availability:</td>
<td>Feb-2019</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
</tr>
</thead>
<tbody>
<tr>
<td>500.perlbench_r</td>
<td>72</td>
</tr>
<tr>
<td>502.gcc_r</td>
<td>72</td>
</tr>
<tr>
<td>505.mcf_r</td>
<td>72</td>
</tr>
<tr>
<td>520.omnetpp_r</td>
<td>72</td>
</tr>
<tr>
<td>523.xalanchmk_r</td>
<td>72</td>
</tr>
<tr>
<td>525.x264_r</td>
<td>72</td>
</tr>
<tr>
<td>531.deepsjeng_r</td>
<td>72</td>
</tr>
<tr>
<td>541.leela_r</td>
<td>72</td>
</tr>
<tr>
<td>548.exchange2_r</td>
<td>72</td>
</tr>
<tr>
<td>557.xz_r</td>
<td>72</td>
</tr>
</tbody>
</table>

**SPECrate2017_int_base = 222**

**SPECrate2017_int_peak = Not Run**

### Hardware

<table>
<thead>
<tr>
<th>CPU Name:</th>
<th>Intel Xeon Gold 6240</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max MHz.:</td>
<td>3900</td>
</tr>
<tr>
<td>Nominal:</td>
<td>2600</td>
</tr>
<tr>
<td>Enabled:</td>
<td>36 cores, 2 chips, 2 threads/core</td>
</tr>
<tr>
<td>Orderable:</td>
<td>1.2 chips</td>
</tr>
<tr>
<td>Cache L1:</td>
<td>32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>L2:</td>
<td>1 MB I+D on chip per core</td>
</tr>
<tr>
<td>L3:</td>
<td>24.75 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other:</td>
<td>None</td>
</tr>
<tr>
<td>Memory:</td>
<td>768 GB (24 x 32 GB 2Rx4 PC4-2933Y-R)</td>
</tr>
<tr>
<td>Storage:</td>
<td>1 x SATA M.2 SSD, 240GB</td>
</tr>
<tr>
<td>Other:</td>
<td>None</td>
</tr>
</tbody>
</table>

### Software

<table>
<thead>
<tr>
<th>OS:</th>
<th>SUSE Linux Enterprise Server 15</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4.12.14-25.28-default</td>
</tr>
<tr>
<td>Compiler:</td>
<td>C/C++: Version 19.0.1.144 of Intel C/C++</td>
</tr>
<tr>
<td></td>
<td>Compiler Build 20181018 for Linux;</td>
</tr>
<tr>
<td></td>
<td>Fortran: Version 19.0.1.144 of Intel Fortran</td>
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<tr>
<td></td>
<td>Compiler Build 20181018 for Linux</td>
</tr>
<tr>
<td>Parallel:</td>
<td>No</td>
</tr>
<tr>
<td>Firmware:</td>
<td>Fujitsu BIOS Version V5.0.0.14 R1.8.0 for D3383-B1x. Released Jun-2019 tested as V5.0.0.14 R1.2.0 for D3383-B1x Feb-2019</td>
</tr>
<tr>
<td>File System:</td>
<td>xfs</td>
</tr>
<tr>
<td>System State:</td>
<td>Run level 3 (multi-user)</td>
</tr>
<tr>
<td>Base Pointers:</td>
<td>64-bit</td>
</tr>
<tr>
<td>Peak Pointers:</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Other:</td>
<td>None</td>
</tr>
</tbody>
</table>
SPEC CPU2017 Integer Rate Result

Fujitsu
PRIMERGY RX2530 M5, Intel Xeon Gold 6240, 2.60GHz

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

SPECrate2017_int_base = 222
SPECrate2017_int_peak = Not Run

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

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
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<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<tr>
<td>500.perlbench_r</td>
<td>72</td>
<td>668</td>
<td>172</td>
<td>669</td>
<td>171</td>
<td>667</td>
<td>172</td>
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<td>72</td>
<td>589</td>
<td>173</td>
<td>583</td>
<td>175</td>
<td>586</td>
<td>174</td>
</tr>
<tr>
<td>505.mcf_r</td>
<td>72</td>
<td>396</td>
<td>294</td>
<td>395</td>
<td>294</td>
<td>394</td>
<td>295</td>
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<td>72</td>
<td>645</td>
<td>146</td>
<td>643</td>
<td>147</td>
<td>643</td>
<td>147</td>
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<tr>
<td>523.xalanbmk_r</td>
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<td>247</td>
<td>311</td>
<td>245</td>
<td>308</td>
<td>247</td>
</tr>
<tr>
<td>525.x264_r</td>
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<td>451</td>
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<td>455</td>
<td>279</td>
<td>452</td>
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<tr>
<td>531.deepsjeng_r</td>
<td>72</td>
<td>438</td>
<td>188</td>
<td>438</td>
<td>188</td>
<td>438</td>
<td>189</td>
</tr>
<tr>
<td>541.leela_r</td>
<td>72</td>
<td>664</td>
<td>180</td>
<td>671</td>
<td>178</td>
<td>651</td>
<td>183</td>
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<tr>
<td>548.exchange2_r</td>
<td>72</td>
<td>466</td>
<td>405</td>
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<td>405</td>
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<tr>
<td>557.xz_r</td>
<td>72</td>
<td>523</td>
<td>149</td>
<td>524</td>
<td>148</td>
<td>523</td>
<td>149</td>
</tr>
</tbody>
</table>

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=1-111

General Notes

Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/home/Benchmark/speccpu2017-1.0.5/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>
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.

(Continued on next page)
Fujitsu
PRIMERGY RX2530 M5, Intel Xeon Gold 6240, 2.60GHz

SPECrate2017_int_base = 222
SPECrate2017_int_peak = Not Run

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

General Notes (Continued)
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:
Patrol Scrub = Disabled
DCU Ip Prefetcher = Disabled
DCU Streamer Prefetcher = Disabled
Fan Control = Full
Stale Atos = Enable
WR CRC feature Control = Disabled
Sysinfo program /home/Benchmark/speccpu2017-1.0.5/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
running on RX2530M5 Mon Apr 8 10:17:04 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 6240 CPU @ 2.60GHz
  2 "physical id"s (chips)
  72 "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 : 18
  siblings : 36
  physical 0: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
  physical 1: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27

From lscpu:
  Architecture: x86_64
  CPU op-mode(s): 32-bit, 64-bit
  Byte Order: Little Endian
  CPU(s): 72
  On-line CPU(s) list: 0-71
  Thread(s) per core: 2
  Core(s) per socket: 18
  Socket(s): 2
  NUMA node(s): 4
  Vendor ID: GenuineIntel
  CPU family: 6
  Model: 85
  Model name: Intel(R) Xeon(R) Gold 6240 CPU @ 2.60GHz
  Stepping: 6
SPEC CPU2017 Integer Rate Result

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Hardware Availability: May-2019
Software Availability: Feb-2019

Platform Notes (Continued)

CPU MHz: 2600.000
CPU max MHz: 3900.0000
CPU min MHz: 1000.0000
BogoMIPS: 5200.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 25344K
NUMA node0 CPU(s): 0-2,5,6,9,10,14,15,16-17,39,40,43,44,47-49,52,53
NUMA node1 CPU(s): 18-20,23,24,27,28,32,33,54-56,59,60,63,64,68,69
NUMA node3 CPU(s): 21,22,25,26,29-31,34,35,37,58,61,62,65-67,70,71

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
xtrr pdcm pcid dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave
avx f16c rdrand lahf_lm abm 3nowprefetch cpuid_fault epb cat_l3 cdp_l3
invpcid_single ssbd mba ibrs ibpb stibp ibrs-enhanced tpr_shadow vmmi flexpriority
eft vpid fsbgbase tsc_adjust bml1 hle avx2 smep bmi2 1rms invpctid rtm cqm mpx rdtd_a
avx512f avx512dq rdsed adx smap clflushopt clwb intel_pt avx512cd avx512bw avx512vl
xsaveopt xsavec xsaveas cqm llc cqm_occup_llc cqm_mbb_total cqm_mbb_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 : 25344 KB

From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a
drimum chip.
available: 4 nodes (0-3)
node 0 cpus: 0 1 2 5 6 9 10 14 15 36 37 38 41 42 45 46 50 51
node 0 size: 191968 MB
node 0 free: 191638 MB
node 1 cpus: 3 4 7 8 11 12 13 16 17 39 40 43 44 47 48 49 52 53
node 1 size: 193503 MB
node 1 free: 193144 MB
node 2 cpus: 18 19 20 23 24 27 28 32 33 54 55 56 59 60 63 64 68 69
node 2 size: 193532 MB
node 2 free: 193290 MB
node 3 cpus: 21 22 25 26 29 30 31 34 35 57 58 61 62 65 66 70 71
node 3 size: 193319 MB
node 3 free: 193056 MB
node distances:
node 0 1 2 3
  0: 10 11 21 21

(Continued on next page)
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Platform Notes (Continued)

1:  11  10  21  21
2:  21  21  10  11
3:  21  21  11  10

From /proc/meminfo
MemTotal:       790859320 kB
HugePages_Total:       0
Hugepagesize:       2048 kB

From /etc/*release* /etc/*version*
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 RX2530M5 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 Apr 8 10:13

SPEC is set to: /home/Benchmark/speccpu2017-1.0.5

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 R1.2.0 for D3383-B1x 02/28/2019
Memory:
24x Samsung M393A4K40CB2-CVF 32 GB 2 rank 2933, configured at 2934

(End of data from sysinfo program)
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Test Date: Apr-2019
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Compiler Version Notes
==============================================================================
CC  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.
------------------------------------------------------------------------------
==============================================================================
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 19.0.1.144 Build 20181018
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------
==============================================================================
FC  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

(Continued on next page)
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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 -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

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.0-CSL-RevA.xml

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

Tested with SPEC CPU2017 v1.0.5 on 2019-04-07 21:17:03-0400.  