SPEC CPU®2017 Integer Rate Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

Format sp. z o.o.
Intel R2208WF

$SPECrate^®2017_int_base = $ **255**

$SPECrate^®2017_int_peak = $ Not Run

CPU2017 License: 9032
Test Sponsor: Format sp. z o.o.
Tested by: Format sp. z o.o.

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

Copies		
500.perlbench_r	96	189
502.gcc_r	96	212
505.mcf_r	96	310
520.omnetpp_r	96	177
523.xalancbmk_r	96	297
525.x264_r	96	540
531.deepsjeng_r	96	214
541.leela_r	96	195
548.exchange2_r	96	491
557.xz_r	96	163

—— SPECrate®2017_int_base (255)

Hardware

CPU Name: Intel Xeon Gold 6252
 Max MHz: 3700
 Nominal: 2100
Enabled: 48 cores, 2 chips, 2 threads/core
Orderable: 1-2 chip
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: 384 GB (12 x 32 GB 2Rx4 PC4-2933Y-R)
Storage: 1x 800 GB SATA SSD
Other: None

Software

OS: CentOS Linux release 8.1.1911 (Core)
4.18.0-147.5.1.el8_1.x86_64
Compiler: C/C++: Version 19.0.5.281 of Intel C/C++ Build 20190815
Compiler for Linux;
Fortran: Version 19.0.5.281 of Intel Fortran Build 20190815
Compiler for Linux
Parallel: No
Firmware: Version R02.01.0010 released Jan-2020
File System: xfs
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.

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

SPEC CPU®2017 Integer Rate Result
Copyright 2017-2020 Standard Performance Evaluation Corporation

Format sp. z o.o.
Intel R2208WF

SPECrate®2017_int_base =   255

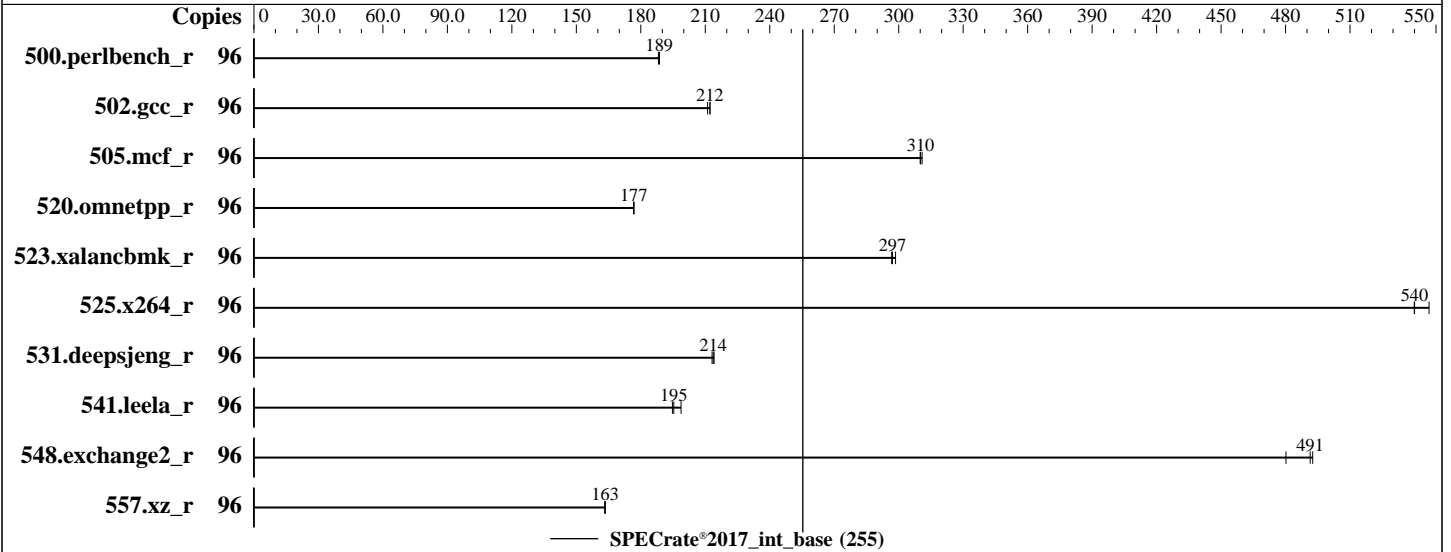SPECrate®2017_int_peak = Not Run

CPU2017 License: 9032
Test Sponsor: Format sp. z o.o.
Tested by: Format sp. z o.o.

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

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	96	**810**	**189**	812	188	810	189							
502.gcc_r	96	**641**	**212**	641	212	644	211							
505.mcf_r	96	**500**	**310**	500	310	499	311							
520.omnetpp_r	96	712	177	**713**	**177**	713	177							
523.xalancbmk_r	96	340	299	**341**	**297**	342	297							
525.x264_r	96	311	540	307	547	**311**	**540**							
531.deepsjeng_r	96	514	214	516	213	**515**	**214**							
541.leela_r	96	817	195	**814**	**195**	800	199							
548.exchange2_r	96	511	493	**512**	**491**	524	480							
557.xz_r	96	**635**	**163**	634	163	635	163							
SPECrate®2017_int_base =		**255**												
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"

Environment Variables Notes

Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH =
     "/home/pmankiewicz/cpu2017/lib/intel64:/home/pmankiewicz/cpu2017/lib/ia3
     2:/home/pmankiewicz/cpu2017/je5.0.1-32"

General Notes

Binaries compiled on a system with 1x Intel Core i9-7980XE CPU + 64GB RAM
memory using Redhat Enterprise Linux 8.0
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.:

(Continued on next page)

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

Format sp. z o.o.
Intel R2208WF

SPECrate®2017_int_base =   255

SPECrate®2017_int_peak = Not Run

CPU2017 License: 9032
Test Sponsor: Format sp. z o.o.
Tested by: Format sp. z o.o.

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

General Notes (Continued)

```
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

```
Last Level Cache (LLC) Prefetch set to Enabled
Energy/Performance Bias set to Performance
XPT Prefetch set to Enabled
Sub-NUMA Cluster (SNC) Configuration set to Enabled
System Acoustic and Performance: Fan Profile set to Performance
The build date 20190815 in sw_compiler is correct,
but the build date in the IC compiler version notes is not.

Sysinfo program /home/pmankiewicz/cpu2017/bin/sysinfo
Rev: r6365 of 2019-08-21 295195f888a3d7edb1e6e46a485a0011
running on node303.cbp.cluster Thu Feb 27 14:09:09 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 6252 CPU @ 2.10GHz
      2  "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 : 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 9 10 11 12 13 16 17 18 19 20 21 24 25 26 27 28 29

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:  24
      Socket(s):           2
```

(Continued on next page)

Format sp. z o.o.
Intel R2208WF

SPECrate®2017_int_base =   255

SPECrate®2017_int_peak = Not Run

CPU2017 License: 9032

Test Sponsor: Format sp. z o.o.

Tested by: Format sp. z o.o.

Test Date: Feb-2020

Hardware Availability: Feb-2019

Software Availability: Feb-2020

Platform Notes (Continued)

```
      NUMA node(s):           4
      Vendor ID:              GenuineIntel
      CPU family:             6
      Model:                  85
      Model name:             Intel(R) Xeon(R) Gold 6252 CPU @ 2.10GHz
      Stepping:               6
      CPU MHz:                2894.183
      CPU max MHz:            3700.0000
      CPU min MHz:            1000.0000
      BogoMIPS:               4200.00
      Virtualization:         VT-x
      L1d cache:              32K
      L1i cache:              32K
      L2 cache:               1024K
      L3 cache:               36608K
      NUMA node0 CPU(s):      0-3,7-9,13-15,19,20,48-51,55-57,61-63,67,68
      NUMA node1 CPU(s):      4-6,10-12,16-18,21-23,52-54,58-60,64-66,69-71
      NUMA node2 CPU(s):      24-27,31,32,36-38,42-44,72-75,79,80,84-86,90-92
      NUMA node3 CPU(s):      28-30,33-35,39-41,45-47,76-78,81-83,87-89,93-95
      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 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
    md_clear 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: 4 nodes (0-3)
    node 0 cpus: 0 1 2 3 7 8 9 13 14 15 19 20 48 49 50 51 55 56 57 61 62 63 67 68
    node 0 size: 95102 MB
    node 0 free: 94676 MB
    node 1 cpus: 4 5 6 10 11 12 16 17 18 21 22 23 52 53 54 58 59 60 64 65 66 69 70 71
    node 1 size: 96763 MB
    node 1 free: 95876 MB
    node 2 cpus: 24 25 26 27 31 32 36 37 38 42 43 44 72 73 74 75 79 80 84 85 86 90 91 92
    node 2 size: 96763 MB
    node 2 free: 96588 MB
```

(Continued on next page)

SPEC CPU®2017 Integer Rate Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

Format sp. z o.o.
Intel R2208WF

SPECrate®2017_int_base =   255

SPECrate®2017_int_peak = Not Run

CPU2017 License: 9032
Test Sponsor: Format sp. z o.o.
Tested by: Format sp. z o.o.

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

Platform Notes (Continued)

```
   node 3 cpus: 28 29 30 33 34 35 39 40 41 45 46 47 76 77 78 81 82 83 87 88 89 93 94 95
   node 3 size: 96762 MB
   node 3 free: 96587 MB
   node distances:
   node   0   1   2   3
     0:  10  11  21  21
     1:  11  10  21  21
     2:  21  21  10  11
     3:  21  21  11  10

 From /proc/meminfo
    MemTotal:       394640996 kB
    HugePages_Total:        0
    Hugepagesize:        2048 kB

 From /etc/*release* /etc/*version*
    centos-release: CentOS Linux release 8.1.1911 (Core)
    centos-release-upstream: Derived from Red Hat Enterprise Linux 8.1 (Source)
    os-release:
      NAME="CentOS Linux"
      VERSION="8 (Core)"
      ID="centos"
      ID_LIKE="rhel fedora"
      VERSION_ID="8"
      PLATFORM_ID="platform:el8"
      PRETTY_NAME="CentOS Linux 8 (Core)"
      ANSI_COLOR="0;31"
    redhat-release: CentOS Linux release 8.1.1911 (Core)
    system-release: CentOS Linux release 8.1.1911 (Core)
    system-release-cpe: cpe:/o:centos:centos:8

 uname -a:
    Linux node303.cbp.cluster 4.18.0-147.5.1.el8_1.x86_64 #1 SMP Wed Feb 5 02:00:39 UTC
    2020 x86_64 x86_64 x86_64 GNU/Linux

 Kernel self-reported vulnerability status:

 itlb_multihit:                        Processor vulnerable
 CVE-2018-3620 (L1 Terminal Fault):    Not affected
 Microarchitectural Data Sampling:     Not affected
 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: usercopy/swapgs barriers and __user
                                       pointer sanitization
 CVE-2017-5715 (Spectre variant 2):     Mitigation: Enhanced IBRS, IBPB: conditional,
                                       RSB filling
```

(Continued on next page)

Format sp. z o.o.
Intel R2208WF

SPECrate®2017_int_base =   255

SPECrate®2017_int_peak = Not Run

CPU2017 License: 9032
Test Sponsor: Format sp. z o.o.
Tested by: Format sp. z o.o.

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

Platform Notes (Continued)

```
   tsx_async_abort:                     Mitigation: Clear CPU buffers; SMT vulnerable

   run-level 3 Feb 27 14:08

   SPEC is set to: /home/pmankiewicz/cpu2017
      Filesystem          Type  Size  Used Avail Use% Mounted on
      /dev/mapper/cl-home xfs   690G   54G  636G   8% /home

   From /sys/devices/virtual/dmi/id
      BIOS:    Intel Corporation SE5C620.86B.02.01.0010.010620200716 01/06/2020
      Vendor:  Intel Corporation
      Product: S2600WFT
      Product Family: Family
      Serial:  BQWT82600308

   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:
      12x Micron 36ASF4G72PZ-2G9E2 32 GB 2 rank 2933
      12x NO DIMM NO DIMM

   (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 Compiler for applications running on Intel(R) 64, Version 19.0.5
  NextGen Technology Build 20190729
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++ Compiler for applications running on Intel(R) 64, Version 19.0.5
  NextGen Technology Build 20190729
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------


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

(Continued on next page)

Format sp. z o.o.
Intel R2208WF

SPECrate®2017_int_base =   255

SPECrate®2017_int_peak = Not Run

CPU2017 License: 9032
Test Sponsor: Format sp. z o.o.
Tested by: Format sp. z o.o.

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

Compiler Version Notes (Continued)

```
Fortran | 548.exchange2_r(base)
------------------------------------------------------------------------
Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)
  64, Version 19.0.5.281 Build 20190815
Copyright (C) 1985-2019 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
`icc`

C++ benchmarks:
`icpc`

Fortran benchmarks:
`ifort`

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:
`-m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -flto`
`-mfpmath=sse -funroll-loops -qnextgen -fuse-ld=gold`
`-qopt-mem-layout-trans=4`
`-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.5.281/linux/compiler/lib/intel64_lin`
`-lqkmalloc`

(Continued on next page)

Format sp. z o.o.
Intel R2208WF

SPECrate®2017_int_base =   255

SPECrate®2017_int_peak = Not Run

CPU2017 License: 9032
Test Sponsor: Format sp. z o.o.
Tested by: Format sp. z o.o.

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

Base Optimization Flags (Continued)

C++ benchmarks:
```
-m64 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -flto -mfpmath=sse
-funroll-loops -qnextgen -fuse-ld=gold -qopt-mem-layout-trans=4
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.5.281/linux/compiler/lib/intel64_lin
-lqkmalloc
```

Fortran benchmarks:
```
-m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ipo -no-prec-div
-qopt-mem-layout-trans=4 -nostandard-realloc-lhs
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.5.281/linux/compiler/lib/intel64_lin
-lqkmalloc
```

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2017/flags/Format-platform-settings-R22xxWF.html
http://www.spec.org/cpu2017/flags/Intel-ic19.0u5-official-linux64_revD.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/Format-platform-settings-R22xxWF.xml
http://www.spec.org/cpu2017/flags/Intel-ic19.0u5-official-linux64_revD.xml

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 06:09:09-0500.
Report generated on 2020-05-05 12:04:52 by CPU2017 PDF formatter v6255.
Originally published on 2020-05-05.