SPEC CPU®2017 Integer Rate Result

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KTNF
(Test Sponsor: Telecommunications Technology Association)

KTNF KR580S1
(2.50 GHz, Intel Xeon Gold 6248)

$SPECrate^{®}2017\_int\_base$ = **226**
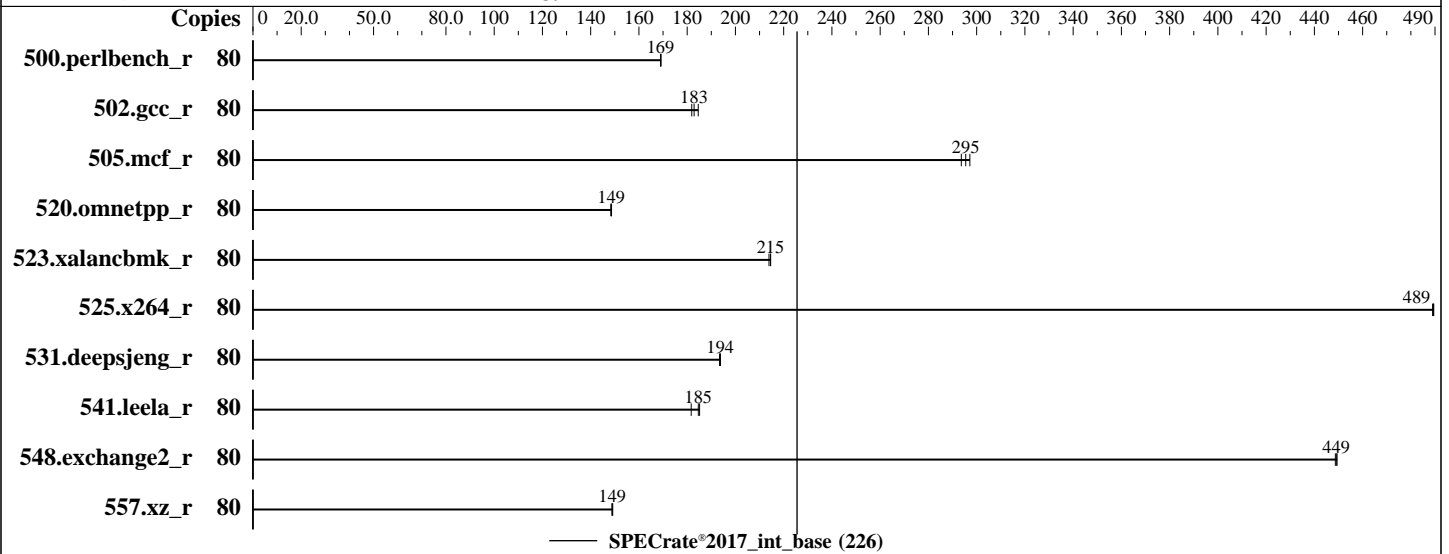
$SPECrate^{®}2017\_int\_peak$ = Not Run

CPU2017 License: 83	**Test Date:** Oct-2020
Test Sponsor: Telecommunications Technology Association	**Hardware Availability:** Jul-2019
Tested by: Telecommunications Technology Association	**Software Availability:** Oct-2020

Copies scale: 0 20.0 50.0 80.0 100 120 140 160 180 200 220 240 260 280 300 320 340 360 380 400 420 440 460 490

Benchmark	Copies	Result
500.perlbench_r	80	169
502.gcc_r	80	183
505.mcf_r	80	295
520.omnetpp_r	80	149
523.xalancbmk_r	80	215
525.x264_r	80	489
531.deepsjeng_r	80	194
541.leela_r	80	185
548.exchange2_r	80	449
557.xz_r	80	149

——— **SPECrate®2017_int_base (226)**

Hardware

CPU Name: Intel Xeon Gold 6248
 Max MHz: 3900
 Nominal: 2500
Enabled: 40 cores, 2 chips, 2 threads/core
Orderable: 2 chip
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: 384 GB (12 x 32 GB 2Rx4 PC4-2933Y-R, running at 2666)
Storage: 1 X 477 GB SATA SSD
Other: None

Software

OS: SLES Linux Enterprise Server 15 SP2
5.3.18-24.24-default
Compiler: C/C++: Version 19.0.4.227 of Intel C/C++ Compiler for Linux;
Fortran: Version 19.0.4.227 of Intel Fortran Compiler for Linux
Parallel: No
Firmware: Version KM-H620-212B-KT-P released Nov-2019
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/

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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	80	**754**	**169**	753	169	754	169							
502.gcc_r	80	623	182	**619**	**183**	614	185							
505.mcf_r	80	435	297	440	294	**438**	**295**							
520.omnetpp_r	80	708	148	706	149	**707**	**149**							
523.xalancbmk_r	80	**394**	**215**	394	215	395	214							
525.x264_r	80	286	489	286	489	**286**	**489**							
531.deepsjeng_r	80	473	194	**473**	**194**	474	193							
541.leela_r	80	729	182	**718**	**185**	716	185							
548.exchange2_r	80	**467**	**449**	466	449	467	449							
557.xz_r	80	579	149	581	149	**580**	**149**							
SPECrate®2017_int_base =		**226**												
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 config file option 'submit' was used.
```

Environment Variables Notes

```
Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH =
     "/home/spec/cpu2017/ia32:/home/spec/cpu2017/intel64:/home/spec/cpu2017/j
     e5.0.1-32:/home/spec/cpu2017/je5.0.1-64"
```

General Notes

```
Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/home/spec/cpu2017/ia32
:/home/spec/cpu2017/intel64
:/home/spec/cpu2017/je5.0.1-32
:/home/spec/cpu2017/je5.0.1-64"
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.
Console Redirection -> Disabled
SR-IOV Support -> Disabled
IMC Interleaving -> 1-way Interleave
```

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Tested by:	Telecommunications Technology Association	**Software Availability:**	Oct-2020

General Notes (Continued)

```
PassThrough DMA -> Enable
Intel VT for Directed I/O(VT-d) -> Enable
ATS -> Enable
Posted Interrupt -> Enable
Coherency Support(Non-Isoch) -> Enable
CPU P State Control -> Energy Efficient Turbo -> Enable
Package C State Control -> Package C State -> C0/C1 State
```

Platform Notes

```
 Sysinfo program /home/spec/cpu2017/bin/sysinfo
 Rev: r6365 of 2019-08-21 295195f888a3d7edb1e6e46a485a0011
 running on speck1 Fri Oct 30 15:52:07 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 6248 CPU @ 2.50GHz
       2  "physical id"s (chips)
       80 "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

 From lscpu:
      Architecture:        x86_64
      CPU op-mode(s):      32-bit, 64-bit
      Byte Order:          Little Endian
      Address sizes:       46 bits physical, 48 bits virtual
      CPU(s):              80
      On-line CPU(s) list: 0-79
      Thread(s) per core:  2
      Core(s) per socket:  20
      Socket(s):           2
      NUMA node(s):        4
      Vendor ID:           GenuineIntel
      CPU family:          6
      Model:               85
      Model name:          Intel(R) Xeon(R) Gold 6248 CPU @ 2.50GHz
      Stepping:            7
```

(Continued on next page)

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Platform Notes (Continued)

```
        CPU MHz:              3260.843
        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):    0-2,5,6,10-12,15,16,40-42,45,46,50-52,55,56
        NUMA node1 CPU(s):    3,4,7-9,13,14,17-19,43,44,47-49,53,54,57-59
        NUMA node2 CPU(s):    20-22,25,26,30-32,35,36,60-62,65,66,70-72,75,76
        NUMA node3 CPU(s):    23,24,27-29,33,34,37-39,63,64,67-69,73,74,77-79
        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 ept_ad 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 : 28160 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 5 6 10 11 12 15 16 40 41 42 45 46 50 51 52 55 56
   node 0 size: 95265 MB
   node 0 free: 86456 MB
   node 1 cpus: 3 4 7 8 9 13 14 17 18 19 43 44 47 48 49 53 54 57 58 59
   node 1 size: 96729 MB
   node 1 free: 91860 MB
   node 2 cpus: 20 21 22 25 26 30 31 32 35 36 60 61 62 65 66 70 71 72 75 76
   node 2 size: 96763 MB
   node 2 free: 79164 MB
   node 3 cpus: 23 24 27 28 29 33 34 37 38 39 63 64 67 68 69 73 74 77 78 79
   node 3 size: 96525 MB
   node 3 free: 83562 MB
   node distances:
   node   0   1   2   3
     0:  10  11  21  21
```

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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:       394530548 kB
    HugePages_Total:       0
    Hugepagesize:       2048 kB

 From /etc/*release* /etc/*version*
    os-release:
       NAME="SLES"
       VERSION="15-SP2"
       VERSION_ID="15.2"
       PRETTY_NAME="SUSE Linux Enterprise Server 15 SP2"
       ID="sles"
       ID_LIKE="suse"
       ANSI_COLOR="0;32"
       CPE_NAME="cpe:/o:suse:sles:15:sp2"

 uname -a:
    Linux speck1 5.3.18-24.24-default #1 SMP Tue Oct 6 06:49:22 UTC 2020 (a291df1) x86_64
    x86_64 x86_64 GNU/Linux

 Kernel self-reported vulnerability status:

 itlb_multihit:                         KVM: Mitigation: VMX disabled
 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
 srbds:                                 Not affected
 tsx_async_abort:                       Mitigation: Clear CPU buffers; SMT vulnerable

 run-level 3 2020-10-29 13:58

 SPEC is set to: /home/spec/cpu2017
    Filesystem     Type  Size  Used Avail Use% Mounted on
    /dev/sda3      xfs   477G  121G  357G  26% /home

 From /sys/devices/virtual/dmi/id
     BIOS:    American Megatrends Inc. KM-H620-212B-KT-P 11/28/2019
```

(Continued on next page)

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Platform Notes (Continued)

```
      Vendor:  KTNF Co.,Ltd
      Product: KM-H620

 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 Hynix HMA84GR7CJR4N-WM 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)
------------------------------------------------------------------------------
icc (ICC) 19.0.4.227 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)
------------------------------------------------------------------------------
icpc (ICC) 19.0.4.227 20190416
Copyright (C) 1985-2019 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------


==============================================================================
Fortran | 548.exchange2_r(base)
------------------------------------------------------------------------------
ifort (IFORT) 19.0.4.227 20190416
Copyright (C) 1985-2019 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
icc -m64 -std=c11

C++ benchmarks:
icpc -m64

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Base Compiler Invocation (Continued)

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/opt/intel/lib/intel64 -lqkmalloc
```

C++ benchmarks:
```
-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=4 -L/opt/intel/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/opt/intel/lib/intel64 -lqkmalloc
```

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2017/flags/KTNF-Platform-Flags-Version-KM-H620-10B1-SA2.html
http://www.spec.org/cpu2017/flags/Intel-ic19.0u1-official-linux64.2020-11-25.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/KTNF-Platform-Flags-Version-KM-H620-10B1-SA2.xml
http://www.spec.org/cpu2017/flags/Intel-ic19.0u1-official-linux64.2020-11-25.xml

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

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