SPEC CPU®2017 Integer Rate Result

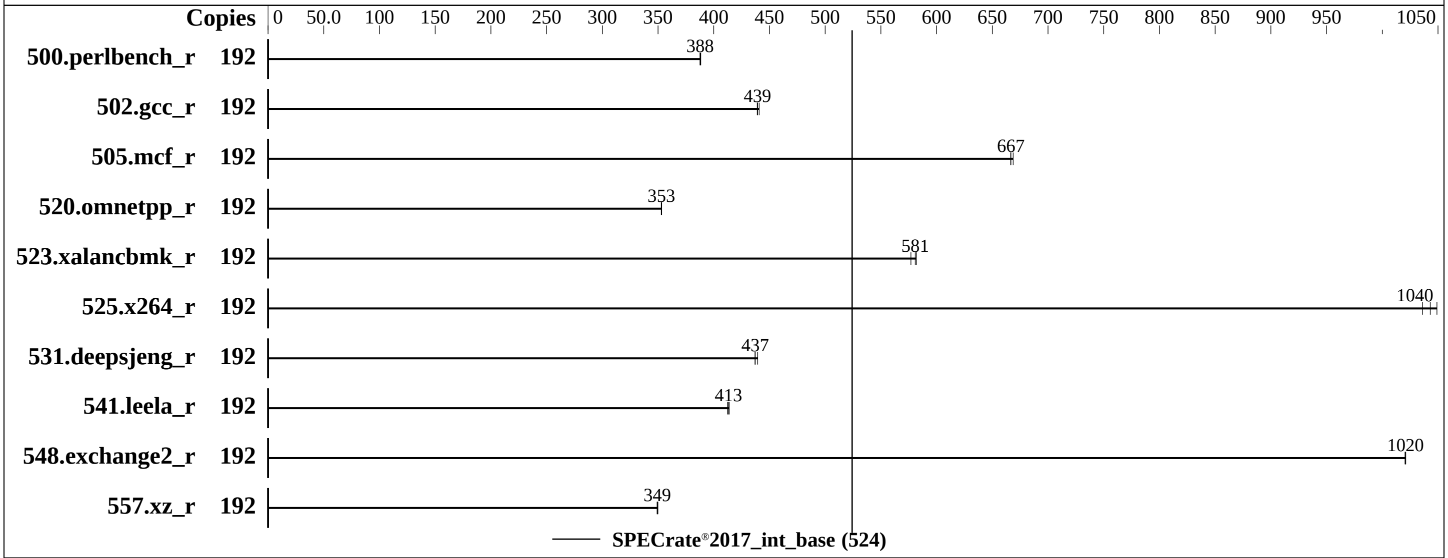
Supermicro

SuperServer 2049U-TR4
(X11QPH+, Intel Xeon Gold 6252)

SPECrate®2017_int_base = 524

SPECrate®2017_int_peak = Not Run

CPU2017 License:	001176	**Test Date:**	Oct-2019
Test Sponsor:	Supermicro	**Hardware Availability:**	Apr-2019
Tested by:	Supermicro	**Software Availability:**	Jun-2019



Hardware

CPU Name:	Intel Xeon Gold 6252
Max MHz:	3700
Nominal:	2100
Enabled:	96 cores, 4 chips, 2 threads/core
Orderable:	1,2,4 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:	800 GB SATA 3 SSD
Other:	None

Software

OS:	SUSE Linux Enterprise Server 15 SP1 4.12.14-195-default
Compiler:	C/C++: Version 19.0.4.227 of Intel C/C++ Compiler Build 20190416 for Linux; Fortran: Version 19.0.4.227 of Intel Fortran Compiler Build 20190416 for Linux;
Parallel:	No
Firmware:	version 3.1b released Oct-2019
File System:	xfs
System State:	Run level 3 (Multi-user mode with networking)
Base Pointers:	64-bit
Peak Pointers:	Not Applicable
Other:	None
Power Management:	--

Results Table

	Base							Peak						
Benchmark	**Copies**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Copies**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**
500.perlbench_r	192	788	388	**788**	**388**	787	388							
502.gcc_r	192	**619**	**439**	617	441	619	439							
505.mcf_r	192	**465**	**667**	466	667	464	669							
520.omnetpp_r	192	714	353	713	353	**713**	**353**							
523.xalancbmk_r	192	**349**	**581**	349	582	351	577							
525.x264_r	192	325	1040	320	1050	**322**	**1040**							
531.deepsjeng_r	192	503	437	**503**	**437**	501	439							
541.leela_r	192	**769**	**413**	771	412	768	414							
548.exchange2_r	192	493	1020	**493**	**1020**	493	1020							
557.xz_r	192	594	349	**593**	**349**	593	350							

SPECrate®2017_int_base = 524

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"
```

General Notes

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

 Binaries compiled on a system with 1x Intel Core i9-799X 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.
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)
```

(Continued on next page)

General Notes (Continued)

```
is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2018-3640 (Spectre variant 3a)
is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2018-3639 (Spectre variant 4)
is mitigated in the system as tested and documented.
```

Platform Notes

```
BIOS Settings:
Intel Virtualization Technology = Disable
Power Technology = Custom
Power Performance Tuning = BIOS Controls EPB
Energy Performance BIAS Setting = Max Performance
Super Performance Mode = Enable
SNC = Enable
Stale Atos = Disable
LLC Dead Line Alloc = Disable
IMC Interleaving = 1-way Interleave
ADDDC Sparing = Disable
Patrol Scrub = Disable
 Sysinfo program /home/cpu2017/bin/sysinfo
 Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
 running on linux-fsxm Fri Oct 25 16:22:53 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 6252 CPU @ 2.10GHz
       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 5 6 8 9 10 11 12 13 16 17 18 19 20 21 22 25 26 27 28 29
       physical 2: 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 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
      Address sizes:       46 bits physical, 48 bits virtual
```

(Continued on next page)

Platform Notes (Continued)

```
      CPU(s):                192
      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) Gold 6252 CPU @ 2.10GHz
      Stepping:              6
      CPU MHz:               2100.000
      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):     0-3,7-9,13-15,19,20,96-99,103-105,109-111,115,116
      NUMA node1 CPU(s):     4-6,10-12,16-18,21-23,100-102,106-108,112-114,117-119
      NUMA node2 CPU(s):     24-27,30-32,36-38,43,44,120-123,126-128,132-134,139,140
      NUMA node3 CPU(s):     28,29,33-35,39-42,45-47,124,125,129-131,135-138,141-143
      NUMA node4 CPU(s):     48-51,55-57,61-63,67,68,144-147,151-153,157-159,163,164
      NUMA node5 CPU(s):     52-54,58-60,64-66,69-71,148-150,154-156,160-162,165-167
      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 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: 8 nodes (0-7)
```

(Continued on next page)

Supermicro
SuperServer 2049U-TR4
(X11QPH+, Intel Xeon Gold 6252)

SPECrate®2017_int_base = 524
SPECrate®2017_int_peak = Not Run

CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro
Test Date: Oct-2019
Hardware Availability: Apr-2019
Software Availability: Jun-2019

Platform Notes (Continued)

```
    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
    node 0 size: 192117 MB
    node 0 free: 191824 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: 193501 MB
    node 1 free: 193262 MB
    node 2 cpus: 24 25 26 27 30 31 32 36 37 38 43 44 120 121 122 123 126 127 128 132 133
    134 139 140
    node 2 size: 193531 MB
    node 2 free: 193359 MB
    node 3 cpus: 28 29 33 34 35 39 40 41 42 45 46 47 124 125 129 130 131 135 136 137 138
    141 142 143
    node 3 size: 193531 MB
    node 3 free: 193349 MB
    node 4 cpus: 48 49 50 51 55 56 57 61 62 63 67 68 144 145 146 147 151 152 153 157 158
    159 163 164
    node 4 size: 193531 MB
    node 4 free: 193355 MB
    node 5 cpus: 52 53 54 58 59 60 64 65 66 69 70 71 148 149 150 154 155 156 160 161 162
    165 166 167
    node 5 size: 193531 MB
    node 5 free: 193354 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: 193198 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: 193529 MB
    node 7 free: 193312 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:       1583928900 kB
    HugePages_Total:       0
    Hugepagesize:       2048 kB
```

(Continued on next page)

Platform Notes (Continued)

```
From /etc/*release* /etc/*version*
   os-release:
      NAME="SLES"
      VERSION="15-SP1"
      VERSION_ID="15.1"
      PRETTY_NAME="SUSE Linux Enterprise Server 15 SP1"
      ID="sles"
      ID_LIKE="suse"
      ANSI_COLOR="0;32"
      CPE_NAME="cpe:/o:suse:sles:15:sp1"

uname -a:
   Linux linux-fsxm 4.12.14-195-default #1 SMP Tue May 7 10:55:11 UTC 2019 (8fba516)
   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 Oct 25 16:21

SPEC is set to: /home/cpu2017
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/sda3      xfs   711G   86G  626G  13% /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 American Megatrends Inc. 3.1b 10/10/2019
  Memory:
   48x Hynix HMA84GR7CJR4N-WM 32 GB 2 rank 2933

(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 19.0.4.227 Build 20190416
```

(Continued on next page)

Compiler Version Notes (Continued)

```
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++ Intel(R) 64 Compiler for applications running on Intel(R) 64,
  Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 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 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 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

Supermicro

SuperServer 2049U-TR4
(X11QPH+, Intel Xeon Gold 6252)

SPECrate®2017_int_base = 524

SPECrate®2017_int_peak = Not Run

CPU2017 License:	001176	**Test Date:**	Oct-2019
Test Sponsor:	Supermicro	**Hardware Availability:**	Apr-2019
Tested by:	Supermicro	**Software Availability:**	Jun-2019

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_2019.4.227/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_2019.4.227/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_2019.4.227/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-ic19.0u1-official-linux64.2019-07-09.html
http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-CLX-revD.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/Intel-ic19.0u1-official-linux64.2019-07-09.xml
http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-CLX-revD.xml

Tested with SPEC CPU®2017 v1.0.5 on 2019-10-25 19:22:52-0400.
Report generated on 2019-11-12 14:56:55 by CPU2017 PS formatter v6255.
Originally published on 2019-11-12.