



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Dell Inc.

SPECrate®2017\_int\_base = 146

PowerEdge R650xs (Intel Xeon Gold 5315Y, 3.20 GHz)

SPECrate®2017\_int\_peak = Not Run

CPU2017 License: 55

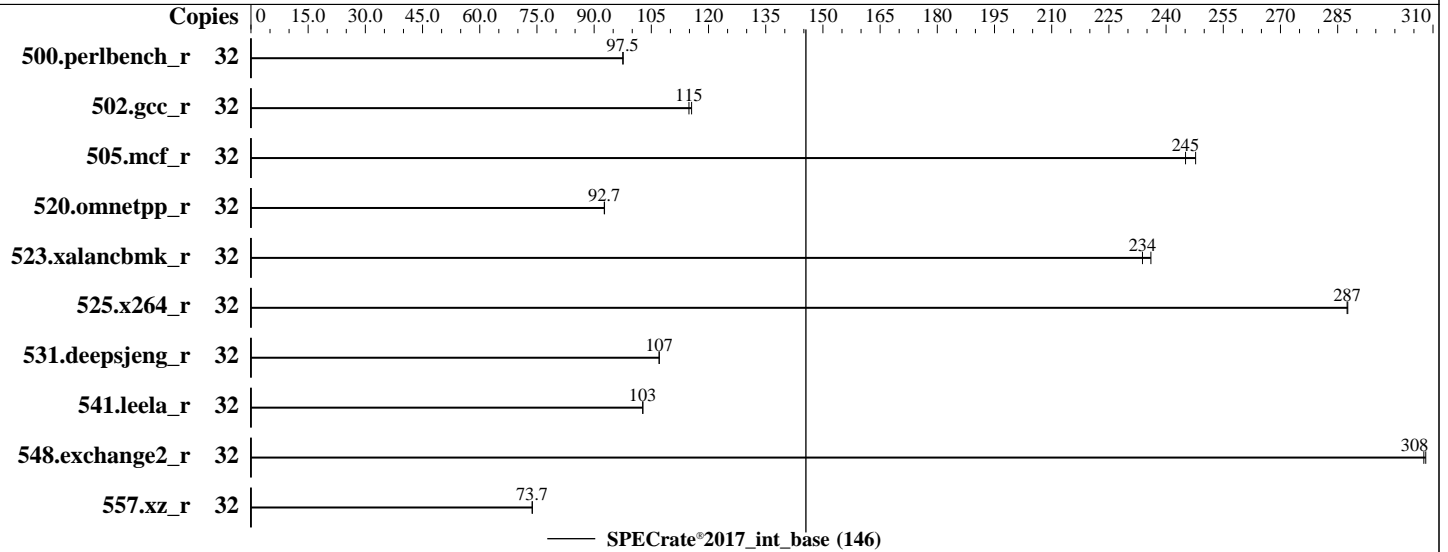
Test Date: Nov-2022

Test Sponsor: Dell Inc.

Hardware Availability: Jul-2021

Tested by: Dell Inc.

Software Availability: May-2022



### Hardware

CPU Name: Intel Xeon Gold 5315Y  
 Max MHz: 3600  
 Nominal: 3200  
 Enabled: 16 cores, 2 chips, 2 threads/core  
 Orderable: 1,2 chips  
 Cache L1: 32 KB I + 48 KB D on chip per core  
 L2: 1.25 MB I+D on chip per core  
 L3: 12 MB I+D on chip per chip  
 Other: None  
 Memory: 512 GB (16 x 32 GB 2Rx8 PC4-3200AA-R, running at 2933)  
 Storage: 40 GB on tmpfs  
 Other: None

### Software

OS: Red Hat Enterprise Linux 8.6 (Ootpa)  
 4.18.0-372.9.1.el8.x86\_64  
 Compiler: C/C++: Version 2022.1 of Intel oneAPI DPC++/C++ Compiler for Linux;  
 Fortran: Version 2022.1 of Intel Fortran Compiler for Linux;  
 Parallel: No  
 Firmware: Version 1.7.4 released Jun-2022  
 File System: tmpfs  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: Not Applicable  
 Other: None  
 Power Management: BIOS and OS set to prefer performance at the cost of additional power usage.



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017\_int\_base = 146

PowerEdge R650xs (Intel Xeon Gold 5315Y, 3.20 GHz)

SPECrate®2017\_int\_peak = Not Run

CPU2017 License: 55  
Test Sponsor: Dell Inc.  
Tested by: Dell Inc.

Test Date: Nov-2022  
Hardware Availability: Jul-2021  
Software Availability: May-2022

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	32	<b>523</b>	<b>97.5</b>	522	97.6									
502.gcc_r	32	392	116	<b>394</b>	<b>115</b>									
505.mcf_r	32	<b>211</b>	<b>245</b>	209	248									
520.omnetpp_r	32	453	92.7	<b>453</b>	<b>92.7</b>									
523.xalancbmk_r	32	<b>145</b>	<b>234</b>	143	236									
525.x264_r	32	195	288	<b>195</b>	<b>287</b>									
531.deepsjeng_r	32	342	107	<b>343</b>	<b>107</b>									
541.leela_r	32	515	103	<b>516</b>	<b>103</b>									
548.exchange2_r	32	272	308	<b>273</b>	<b>308</b>									
557.xz_r	32	468	73.8	<b>469</b>	<b>73.7</b>									

SPECrate®2017\_int\_base = 146

SPECrate®2017\_int\_peak = Not Run

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Compiler Notes

SPEC has ruled that the compiler used for this result was performing a compilation that specifically improves the performance of the 523.xalancbmk\_r / 623.xalancbmk\_s benchmarks using a priori knowledge of the SPEC code and dataset to perform a transformation that has narrow applicability.

In order to encourage optimizations that have wide applicability (see rule 1.4 [https://www.spec.org/cpu2017/Docs/runrules.html#rule\\_1.4](https://www.spec.org/cpu2017/Docs/runrules.html#rule_1.4)), SPEC will no longer publish results using this optimization.

This result is left in the SPEC results database for historical reference.

## 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 =
"/mnt/ramdisk/cpu2017-1.1.8-ic2022.1/lib/intel64:/mnt/ramdisk/cpu2017-1.1.8-ic2022.1/lib/ia32:/mnt/ramdisk/cpu2017-1.1.8-ic2022.1/je5.0.1-32"
MALLOC_CONF = "retain:true"
```



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017\_int\_base = 146

PowerEdge R650xs (Intel Xeon Gold 5315Y, 3.20 GHz)

SPECrate®2017\_int\_peak = Not Run

CPU2017 License: 55

Test Date: Nov-2022

Test Sponsor: Dell Inc.

Hardware Availability: Jul-2021

Tested by: Dell Inc.

Software Availability: May-2022

## General Notes

Binaries compiled on a system with 2x Intel Xeon Platinum 8280M CPU + 384GB RAM  
 memory using Red Hat Enterprise Linux 8.4  
 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) is mitigated in the system as tested and documented.

Benchmark run from a 40 GB ramdisk created with the cmd: "mount -t tmpfs -o size=40G tmpfs /mnt/ramdisk"

## Platform Notes

BIOS settings:

```

  DIMM Self Healing on
  Uncorrectable Memory Error : Disabled
  Virtualization Technology : Disabled
    Sub NUMA Cluster : 2-way Clustering
  DCU Streamer Prefetcher : Disabled
    LLC Prefetch : Disabled
  Dead Line LLC Alloc : Disabled
  Optimizer Mode : Enabled

  System Profile : Custom
  CPU Power Management : Maximum Performance
    C1E : Disabled
    C States : Autonomous
  Memory Patrol Scrub : Disabled
  Energy Efficiency Policy : Performance
  PCI ASPM L1 Link
  Power Management : Disabled

```

Sysinfo program /mnt/ramdisk/cpu2017-1.1.8-ic2022.1/bin/sysinfo  
 Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acafc64d  
 running on auvcetilleml1.corp.emc.com Sun Nov 13 22:12:16 2022

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 5315Y CPU @ 3.20GHz
 2 "physical id"s (chips)
32 "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 : 8
siblings : 16
physical 0: cores 0 1 2 3 4 5 6 7
physical 1: cores 0 1 2 3 4 5 6 7

```

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017\_int\_base = 146

PowerEdge R650xs (Intel Xeon Gold 5315Y, 3.20 GHz)

SPECrate®2017\_int\_peak = Not Run

CPU2017 License: 55

Test Date: Nov-2022

Test Sponsor: Dell Inc.

Hardware Availability: Jul-2021

Tested by: Dell Inc.

Software Availability: May-2022

## Platform Notes (Continued)

From lscpu from util-linux 2.32.1:

```

Architecture:          x86_64
CPU op-mode(s):        32-bit, 64-bit
Byte Order:             Little Endian
CPU(s):                 32
On-line CPU(s) list:   0-31
Thread(s) per core:    2
Core(s) per socket:    8
Socket(s):              2
NUMA node(s):          2
Vendor ID:              GenuineIntel
BIOS Vendor ID:        Intel
CPU family:             6
Model:                  106
Model name:             Intel(R) Xeon(R) Gold 5315Y CPU @ 3.20GHz
BIOS Model name:       Intel(R) Xeon(R) Gold 5315Y CPU @ 3.20GHz
Stepping:               6
CPU MHz:                3600.000
CPU max MHz:           3600.0000
CPU min MHz:           800.0000
BogoMIPS:               6400.00
L1d cache:              48K
L1i cache:              32K
L2 cache:                1280K
L3 cache:                12288K
NUMA node0 CPU(s):     0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30
NUMA node1 CPU(s):     1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31
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
aperfmpperf pni pclmulqdq dtes64 monitor ds_cpl 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 invpcid_single
intel_ppin ssbd mba ibrs ibpb stibp ibrs_enhanced fsgsbase tsc_adjust bmi1 avx2 smep
bmi2 erms invpcid cqm rdt_a avx512f avx512dq rdseed adx smap avx512ifma clflushopt
clwb intel_pt avx512cd sha_ni avx512bw avx512vl xsaveopt xsavec xgetbv1 xsaves
cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local split_lock_detect wbnoinvd dtherm
ida arat pln pts avx512vbmi umip pku ospke avx512_vbmi2 gfni vaes vpclmulqdq
avx512_vnni avx512_bitalg tme avx512_vpopcntdq la57 rdpid fsrm md_clear pconfig
flush_l1d arch_capabilities

```

```

/proc/cpuinfo cache data
cache size : 12288 KB

```

From numactl --hardware

WARNING: a numactl 'node' might or might not correspond to a physical chip.

```

available: 2 nodes (0-1)
node 0 cpus: 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30
node 0 size: 257138 MB
node 0 free: 251155 MB
node 1 cpus: 1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31
node 1 size: 258041 MB
node 1 free: 255101 MB
node distances:
node  0  1
 0:  10  20
 1:  20  10

```

From /proc/meminfo

MemTotal: 527543992 kB

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017\_int\_base = 146

PowerEdge R650xs (Intel Xeon Gold 5315Y, 3.20 GHz)

SPECrate®2017\_int\_peak = Not Run

CPU2017 License: 55

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Nov-2022

Hardware Availability: Jul-2021

Software Availability: May-2022

## Platform Notes (Continued)

HugePages\_Total: 0  
Hugepagesize: 2048 kB

/sbin/tuned-adm active  
Current active profile: throughput-performance

/sys/devices/system/cpu/cpu\*/cpufreq/scaling\_governor has performance

From /etc/\*release\* /etc/\*version\*

```
os-release:
NAME="Red Hat Enterprise Linux"
VERSION="8.6 (Ootpa)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="8.6"
PLATFORM_ID="platform:el8"
PRETTY_NAME="Red Hat Enterprise Linux 8.6 (Ootpa)"
ANSI_COLOR="0;31"
redhat-release: Red Hat Enterprise Linux release 8.6 (Ootpa)
system-release: Red Hat Enterprise Linux release 8.6 (Ootpa)
system-release-cpe: cpe:/o:redhat:enterprise_linux:8::baseos
```

uname -a:  
Linux auvcetilleml1.corp.emc.com 4.18.0-372.9.1.el8.x86\_64 #1 SMP Fri Apr 15 22:12:19 EDT 2022 x86\_64 x86\_64 x86\_64 GNU/Linux

Kernel self-reported vulnerability status:

```
CVE-2018-12207 (iTLB Multihit): Not affected
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
CVE-2020-0543 (Special Register Buffer Data Sampling): Not affected
CVE-2019-11135 (TSX Asynchronous Abort): Not affected
```

run-level 3 Nov 13 22:10

SPEC is set to: /mnt/ramdisk/cpu2017-1.1.8-ic2022.1  
Filesystem Type Size Used Avail Use% Mounted on  
tmpfs tmpfs 40G 3.6G 37G 9% /mnt/ramdisk

From /sys/devices/virtual/dmi/id  
Vendor: Dell Inc.  
Product: PowerEdge R650xs  
Product Family: PowerEdge  
Serial: GL216S3

Additional information from dmidecode 3.3 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.

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017\_int\_base = 146

PowerEdge R650xs (Intel Xeon Gold 5315Y, 3.20 GHz)

SPECrate®2017\_int\_peak = Not Run

CPU2017 License: 55

Test Date: Nov-2022

Test Sponsor: Dell Inc.

Hardware Availability: Jul-2021

Tested by: Dell Inc.

Software Availability: May-2022

## Platform Notes (Continued)

Memory:

11x 002C00B3002C 18ASF4G72PDZ-3G2E1 32 GB 2 rank 3200, configured at 2933  
5x 002C069D002C 18ASF4G72PDZ-3G2E1 32 GB 2 rank 3200, configured at 2933

BIOS:

BIOS Vendor: Dell Inc.  
BIOS Version: 1.7.4  
BIOS Date: 06/27/2022  
BIOS Revision: 1.7

(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) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2022.1.0 Build 20220316  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.  
=====

=====  
C++ | 520.omnetpp\_r(base) 523.xalancbmk\_r(base) 531.deepsjeng\_r(base) 541.leela\_r(base)  
=====

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2022.1.0 Build 20220316  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.  
=====

=====  
Fortran | 548.exchange2\_r(base)  
=====

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2022.1.0 Build 20220316  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.  
=====

## Base Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifx

## Base Portability Flags

500.perlbench\_r: -DSPEC\_LP64 -DSPEC\_LINUX\_X64

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017\_int\_base = 146

PowerEdge R650xs (Intel Xeon Gold 5315Y, 3.20 GHz)

SPECrate®2017\_int\_peak = Not Run

CPU2017 License: 55

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Nov-2022

Hardware Availability: Jul-2021

Software Availability: May-2022

## Base Portability Flags (Continued)

```
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:

```
-w -std=c11 -m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-L/usr/local/intel/compiler/2022.1.0/linux/compiler/lib/intel64_lin
-lqkmalloc
```

### C++ benchmarks:

```
-w -m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-L/usr/local/intel/compiler/2022.1.0/linux/compiler/lib/intel64_lin
-lqkmalloc
```

### Fortran benchmarks:

```
-w -m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte -auto
-L/usr/local/intel/compiler/2022.1.0/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/Intel-ic2022-official-linux64\\_revA.html](http://www.spec.org/cpu2017/flags/Intel-ic2022-official-linux64_revA.html)

<http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-Intel-Xeon-v1.2.html>

You can also download the XML flags sources by saving the following links:

[http://www.spec.org/cpu2017/flags/Intel-ic2022-official-linux64\\_revA.xml](http://www.spec.org/cpu2017/flags/Intel-ic2022-official-linux64_revA.xml)

<http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-Intel-Xeon-v1.2.xml>



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017\_int\_base = 146

PowerEdge R650xs (Intel Xeon Gold 5315Y, 3.20 GHz)

SPECrate®2017\_int\_peak = Not Run

CPU2017 License: 55

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Nov-2022

Hardware Availability: Jul-2021

Software Availability: May-2022

SPEC CPU and SPECrate are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester. For other inquiries, please contact [info@spec.org](mailto:info@spec.org).

Tested with SPEC CPU®2017 v1.1.8 on 2022-11-13 23:12:15-0500.

Report generated on 2024-01-29 17:10:43 by CPU2017 PDF formatter v6716.

Originally published on 2022-12-06.