



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## ASUSTeK Computer Inc.

ASUS RS720-E10(Z12PP-D32) Server System  
(2.30 GHz, Intel Xeon Gold 6314U)

SPECspeed®2017\_int\_base = 12.3

SPECspeed®2017\_int\_peak = 12.5

CPU2017 License: 9016

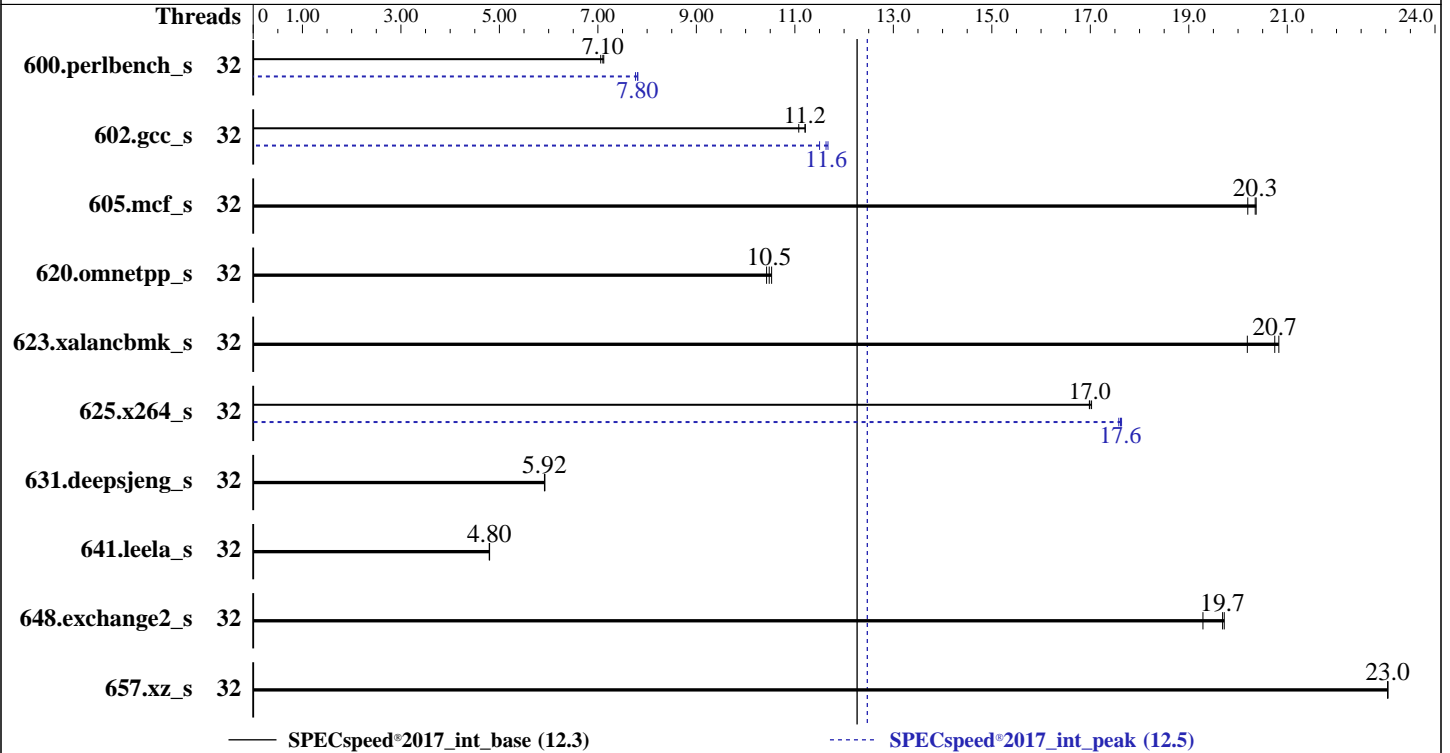
Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Sep-2022

Hardware Availability: Apr-2022

Software Availability: May-2022



### Hardware

CPU Name: Intel Xeon Gold 6314U  
 Max MHz: 3400  
 Nominal: 2300  
 Enabled: 32 cores, 1 chip  
 Orderable: 1 chip  
 Cache L1: 32 KB I + 48 KB D on chip per core  
 L2: 1.25 MB I+D on chip per core  
 L3: 48 MB I+D on chip per chip  
 Other: None  
 Memory: 512 GB (8 x 64 GB 2Rx4 PC4-3200AA-R)  
 Storage: 1 x 1 TB SATA SSD  
 Other: None

### Software

OS: Red Hat Enterprise Linux release 8.4 (Ootpa)  
 4.18.0-305.25.1.el8\_4.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: Yes  
 Firmware: Version 0802 released Apr-2022  
 File System: xfs  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: 64-bit  
 Other: jemalloc memory allocator V5.0.1  
 Power Management: BIOS and OS set to prefer performance  
 at the cost of additional power usage.



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## ASUSTeK Computer Inc.

ASUS RS720-E10(Z12PP-D32) Server System  
(2.30 GHz, Intel Xeon Gold 6314U)

SPECspeed®2017\_int\_base = 12.3

SPECspeed®2017\_int\_peak = 12.5

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Sep-2022

Hardware Availability: Apr-2022

Software Availability: May-2022

## Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	32	249	7.12	252	7.06	<b>250</b>	<b>7.10</b>	32	229	7.76	<b>227</b>	<b>7.80</b>	227	7.81
602.gcc_s	32	359	11.1	<b>355</b>	<b>11.2</b>	355	11.2	32	<b>342</b>	<b>11.6</b>	346	11.5	341	11.7
605.mcf_s	32	234	20.2	232	20.4	<b>232</b>	<b>20.3</b>	32	234	20.2	232	20.4	<b>232</b>	<b>20.3</b>
620.omnetpp_s	32	155	10.5	<b>156</b>	<b>10.5</b>	156	10.4	32	155	10.5	<b>156</b>	<b>10.5</b>	156	10.4
623.xalancbmk_s	32	<b>68.3</b>	<b>20.7</b>	70.2	20.2	68.0	20.8	32	<b>68.3</b>	<b>20.7</b>	70.2	20.2	68.0	20.8
625.x264_s	32	104	17.0	<b>104</b>	<b>17.0</b>	104	17.0	32	100	17.6	<b>100</b>	<b>17.6</b>	100	17.6
631.deepsjeng_s	32	242	5.92	242	5.92	<b>242</b>	<b>5.92</b>	32	242	5.92	242	5.92	<b>242</b>	<b>5.92</b>
641.leela_s	32	<b>356</b>	<b>4.80</b>	355	4.80	356	4.80	32	<b>356</b>	<b>4.80</b>	355	4.80	356	4.80
648.exchange2_s	32	<b>149</b>	<b>19.7</b>	149	19.7	152	19.3	32	<b>149</b>	<b>19.7</b>	149	19.7	152	19.3
657.xz_s	32	268	23.0	268	23.0	<b>268</b>	<b>23.0</b>	32	268	23.0	268	23.0	<b>268</b>	<b>23.0</b>

SPECspeed®2017\_int\_base = **12.3**

SPECspeed®2017\_int\_peak = **12.5**

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.

## Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"  
OS set to performance mode via cpupower frequency-set -g performance

## Environment Variables Notes

Environment variables set by runcpu before the start of the run:  
KMP\_AFFINITY = "granularity=fine,scatter"  
LD\_LIBRARY\_PATH = "/home/ic22u1/lib/intel64:/home/ic22u1/je5.0.1-64"  
MALLOCONF = "retain:true"  
OMP\_STACKSIZE = "192M"

## General Notes

Binaries compiled on a system with 2x Intel Xeon Platinum 8280M CPU + 384GB RAM  
memory using Redhat Enterprise Linux 8.0  
Transparent Huge Pages enabled by default

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## ASUSTeK Computer Inc.

ASUS RS720-E10(Z12PP-D32) Server System  
(2.30 GHz, Intel Xeon Gold 6314U)

SPECspeed®2017\_int\_base = 12.3

SPECspeed®2017\_int\_peak = 12.5

**CPU2017 License:** 9016

**Test Sponsor:** ASUSTeK Computer Inc.

**Tested by:** ASUSTeK Computer Inc.

**Test Date:** Sep-2022

**Hardware Availability:** Apr-2022

**Software Availability:** May-2022

### General Notes (Continued)

Prior to runcpu invocation

Filesystem page cache synced and cleared with:

```
sync; echo 3> /proc/sys/vm/drop_caches
```

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.

jemalloc, a general purpose malloc implementation

built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5

sources available from jemalloc.net or <https://github.com/jemalloc/jemalloc/releases>

### Platform Notes

BIOS Configuration:

VT-d = Disabled

Patrol Scrub = Disabled

Hyper-Threading = Disable

Engine Boost = Aggressive

SR-IOV Support = Disabled

BMC Configuration:

Fan mode = Full speed mode

Sysinfo program /home/ic22ul/bin/sysinfo

Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acaafc64d

running on localhost.localdomain Mon Sep 5 12:02:58 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 6314U CPU @ 2.30GHz
```

```
1 "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 : 32
```

```
siblings : 32
```

```
physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
```

```
25 26 27 28 29 30 31
```

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: 1

Core(s) per socket: 32

Socket(s): 1

NUMA node(s): 1

Vendor ID: GenuineIntel

BIOS Vendor ID: Intel

CPU family: 6

Model: 106

Model name: Intel(R) Xeon(R) Gold 6314U CPU @ 2.30GHz

BIOS Model name: Intel(R) Xeon(R) Gold 6314U CPU @ 2.30GHz

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## ASUSTeK Computer Inc.

ASUS RS720-E10(Z12PP-D32) Server System  
(2.30 GHz, Intel Xeon Gold 6314U)

SPECspeed®2017\_int\_base = 12.3

SPECspeed®2017\_int\_peak = 12.5

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Sep-2022

Hardware Availability: Apr-2022

Software Availability: May-2022

### Platform Notes (Continued)

```
Stepping: 6
CPU MHz: 2731.811
CPU max MHz: 3400.0000
CPU min MHz: 800.0000
BogoMIPS: 4600.00
Virtualization: VT-x
L1d cache: 48K
L1i cache: 32K
L2 cache: 1280K
L3 cache: 49152K
NUMA node0 CPU(s): 0-31
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
aperfperf 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 fl6c rdrand lahf_lm abm 3dnowprefetch cpuid_fault epb cat_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 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 hwp hwp_act_window
hwp_epp hwp_pkg_req avx512vbmi umip pku ospke avx512_vbmi2 gfni vaes vpclmulqdq
avx512_vnni avx512_bitalg tme avx512_vpopcntdq la57 rdpid fsrm md_clear pconfig
flush_lld arch_capabilities
```

```
/proc/cpuinfo cache data
cache size : 49152 KB
```

```
From numactl --hardware
WARNING: a numactl 'node' might or might not correspond to a physical chip.
available: 1 nodes (0)
node 0 cpus: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
28 29 30 31
node 0 size: 515625 MB
node 0 free: 514435 MB
node distances:
node 0
0: 10
```

```
From /proc/meminfo
MemTotal: 528000256 kB
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="8.4 (Ootpa)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="8.4"
PLATFORM_ID="platform:el8"
PRETTY_NAME="Red Hat Enterprise Linux 8.4 (Ootpa)"
```

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## ASUSTeK Computer Inc.

ASUS RS720-E10(Z12PP-D32) Server System  
(2.30 GHz, Intel Xeon Gold 6314U)

SPECspeed®2017\_int\_base = 12.3

SPECspeed®2017\_int\_peak = 12.5

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Sep-2022

Hardware Availability: Apr-2022

Software Availability: May-2022

### Platform Notes (Continued)

```

ANSI_COLOR="0;31"
redhat-release: Red Hat Enterprise Linux release 8.4 (Ootpa)
system-release: Red Hat Enterprise Linux release 8.4 (Ootpa)
system-release-cpe: cpe:/o:redhat:enterprise_linux:8.4:ga

uname -a:
Linux localhost.localdomain 4.18.0-305.25.1.el8_4.x86_64 #1 SMP Mon Oct 18 14:34:11
EDT 2021 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 Sep 5 12:02

SPEC is set to: /home/ic22ul
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs   878G  119G  760G  14% /home

From /sys/devices/virtual/dmi/id
Vendor:          ASUSTeK COMPUTER INC.
Product:         RS720-E10-RS12
Product Family: Server
Serial:          012345678901

Additional information from dmidecode 3.2 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:
  8x Samsung M393A8G40AB2-CWE 64 GB 2 rank 3200

BIOS:
  BIOS Vendor:    American Megatrends Inc.
  BIOS Version:   0802
  BIOS Date:      04/29/2022
  BIOS Revision:  8.2

(End of data from sysinfo program)

```

### Compiler Version Notes

```

=====
C | 600.perlbench_s(base, peak) 602.gcc_s(base, peak) 605.mcf_s(base, peak) 625.x264_s(base, peak)
  | 657.xz_s(base, peak)
=====

```

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## ASUSTeK Computer Inc.

ASUS RS720-E10(Z12PP-D32) Server System  
(2.30 GHz, Intel Xeon Gold 6314U)

SPECspeed®2017\_int\_base = 12.3

SPECspeed®2017\_int\_peak = 12.5

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Sep-2022

Hardware Availability: Apr-2022

Software Availability: May-2022

### Compiler Version Notes (Continued)

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++ | 620.omnetpp\_s(base, peak) 623.xalancbmk\_s(base, peak) 631.deepsjeng\_s(base, peak)  
| 641.leela\_s(base, peak)  
=====

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 | 648.exchange2\_s(base, peak)  
=====

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

600.perlbench\_s: -DSPEC\_LP64 -DSPEC\_LINUX\_X64  
602.gcc\_s: -DSPEC\_LP64  
605.mcf\_s: -DSPEC\_LP64  
620.omnetpp\_s: -DSPEC\_LP64  
623.xalancbmk\_s: -DSPEC\_LP64 -DSPEC\_LINUX  
625.x264\_s: -DSPEC\_LP64  
631.deepsjeng\_s: -DSPEC\_LP64  
641.leela\_s: -DSPEC\_LP64  
648.exchange2\_s: -DSPEC\_LP64  
657.xz\_s: -DSPEC\_LP64



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## ASUSTeK Computer Inc.

ASUS RS720-E10(Z12PP-D32) Server System  
(2.30 GHz, Intel Xeon Gold 6314U)

SPECspeed®2017\_int\_base = 12.3

SPECspeed®2017\_int\_peak = 12.5

**CPU2017 License:** 9016

**Test Sponsor:** ASUSTeK Computer Inc.

**Tested by:** ASUSTeK Computer Inc.

**Test Date:** Sep-2022

**Hardware Availability:** Apr-2022

**Software Availability:** May-2022

## Base Optimization Flags

C benchmarks:

```
-m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp
-DSPEC_OPENMP -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

C++ benchmarks:

```
-m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

Fortran benchmarks:

```
-m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

## Peak Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifx

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

```
600.perlbench_s: -m64 -std=c11 -Wl,-z,muldefs -fprofile-generate(pass 1)
-fprofile-use=default.profddata(pass 2) -xCORE-AVX512 -O3
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP
-fno-strict-overflow -L/usr/local/jemalloc64-5.0.1/lib
```

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

**ASUSTeK Computer Inc.**

ASUS RS720-E10(Z12PP-D32) Server System  
(2.30 GHz, Intel Xeon Gold 6314U)

SPECspeed®2017\_int\_base = 12.3

SPECspeed®2017\_int\_peak = 12.5

**CPU2017 License:** 9016

**Test Sponsor:** ASUSTeK Computer Inc.

**Tested by:** ASUSTeK Computer Inc.

**Test Date:** Sep-2022

**Hardware Availability:** Apr-2022

**Software Availability:** May-2022

## Peak Optimization Flags (Continued)

600.perlbench\_s (continued):

-ljemalloc

602.gcc\_s: -m64 -std=c11 -Wl,-z,muldefs -fprofile-generate(pass 1)

-fprofile-use=default.profdata(pass 2) -xCORE-AVX512 -O3

-ffast-math -flto -mfpmath=sse -funroll-loops

-qopt-mem-layout-trans=4 -fiopenmp -DSPEC\_OPENMP

-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

605.mcf\_s: basepeak = yes

625.x264\_s: -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -O3

-ffast-math -flto -mfpmath=sse -funroll-loops

-qopt-mem-layout-trans=4 -fiopenmp -DSPEC\_OPENMP

-fno-alias -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

657.xz\_s: basepeak = yes

C++ benchmarks:

620.omnetpp\_s: basepeak = yes

623.xalancbmk\_s: basepeak = yes

631.deepsjeng\_s: basepeak = yes

641.leela\_s: basepeak = yes

Fortran benchmarks:

648.exchange2\_s: basepeak = yes

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2017/flags/ASUSTekPlatform-Settings-z12-V1.2.html>

[http://www.spec.org/cpu2017/flags/Intel-ic2022-official-linux64\\_revA.2022-10-12.html](http://www.spec.org/cpu2017/flags/Intel-ic2022-official-linux64_revA.2022-10-12.html)

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

<http://www.spec.org/cpu2017/flags/ASUSTekPlatform-Settings-z12-V1.2.xml>

[http://www.spec.org/cpu2017/flags/Intel-ic2022-official-linux64\\_revA.2022-10-12.xml](http://www.spec.org/cpu2017/flags/Intel-ic2022-official-linux64_revA.2022-10-12.xml)





# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## ASUSTeK Computer Inc.

ASUS RS720-E10(Z12PP-D32) Server System  
(2.30 GHz, Intel Xeon Gold 6314U)

SPECspeed®2017\_int\_base = 12.3

SPECspeed®2017\_int\_peak = 12.5

**CPU2017 License:** 9016

**Test Sponsor:** ASUSTeK Computer Inc.

**Tested by:** ASUSTeK Computer Inc.

**Test Date:** Sep-2022

**Hardware Availability:** Apr-2022

**Software Availability:** May-2022

SPEC CPU and SPECspeed 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 2022-09-05 12:02:57-0400.  
Report generated on 2024-01-29 17:07:46 by CPU2017 PDF formatter v6716.  
Originally published on 2022-10-11.