



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

## ASUSTeK Computer Inc.

ASUS ESC8000 G4(Z11PG-D24) Server System  
(2.70 GHz, Intel Xeon Gold 6258R)

SPECspeed®2017\_int\_base = 10.8

SPECspeed®2017\_int\_peak = 10.9

CPU2017 License: 9016

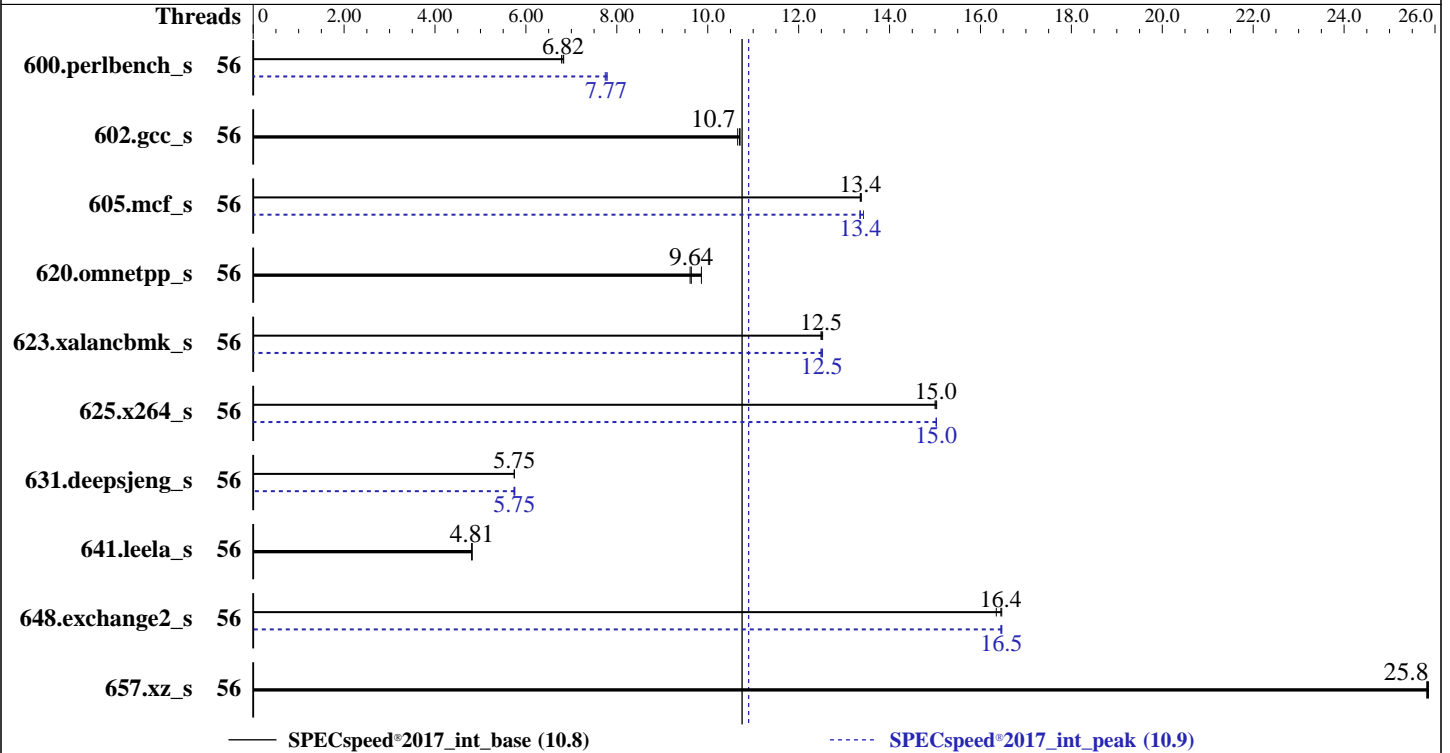
Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Feb-2020

Hardware Availability: Feb-2020

Software Availability: May-2019



### Hardware

CPU Name: Intel Xeon Gold 6258R  
 Max MHz: 4000  
 Nominal: 2700  
 Enabled: 56 cores, 2 chips  
 Orderable: 1, 2 chip(s)  
 Cache L1: 32 KB I + 32 KB D on chip per core  
 L2: 1 MB I+D on chip per core  
 L3: 38.5 MB I+D on chip per chip  
 Other: None  
 Memory: 768 GB (24 x 32 GB 2Rx4 PC4-2933Y-R)  
 Storage: 1 x 1 TB SATA SSD  
 Other: None

### Software

OS: SUSE Linux Enterprise Server 15  
 Kernel 4.12.14-23-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: Yes  
 Firmware: Version 6102 released Dec-2019  
 File System: xfs  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: 64-bit  
 Other: jemalloc: jemalloc memory allocator library 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 2017-2021 Standard Performance Evaluation Corporation

**ASUSTeK Computer Inc.**  
ASUS ESC8000 G4(Z11PG-D24) Server System  
(2.70 GHz, Intel Xeon Gold 6258R)

SPECspeed®2017\_int\_base = 10.8

SPECspeed®2017\_int\_peak = 10.9

**CPU2017 License:** 9016  
**Test Sponsor:** ASUSTeK Computer Inc.  
**Tested by:** ASUSTeK Computer Inc.

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

## Results Table

Benchmark	Base						Peak							
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	56	262	6.78	260	6.83	<b>260</b>	<b>6.82</b>	56	228	7.79	229	7.75	<b>229</b>	<b>7.77</b>
602.gcc_s	56	372	10.7	<b>372</b>	<b>10.7</b>	374	10.7	56	372	10.7	<b>372</b>	<b>10.7</b>	374	10.7
605.mcf_s	56	353	13.4	353	13.4	<b>353</b>	<b>13.4</b>	56	<b>353</b>	<b>13.4</b>	354	13.3	352	13.4
620.omnetpp_s	56	165	9.86	<b>169</b>	<b>9.64</b>	170	9.61	56	165	9.86	<b>169</b>	<b>9.64</b>	170	9.61
623.xalancbmk_s	56	113	12.5	113	12.5	<b>113</b>	<b>12.5</b>	56	113	12.5	113	12.5	<b>113</b>	<b>12.5</b>
625.x264_s	56	118	15.0	117	15.0	<b>117</b>	<b>15.0</b>	56	<b>117</b>	<b>15.0</b>	117	15.0	117	15.0
631.deepsjeng_s	56	249	5.75	<b>249</b>	<b>5.75</b>	249	5.74	56	<b>249</b>	<b>5.75</b>	249	5.76	250	5.74
641.leela_s	56	354	4.81	355	4.81	<b>354</b>	<b>4.81</b>	56	354	4.81	355	4.81	<b>354</b>	<b>4.81</b>
648.exchange2_s	56	179	16.5	<b>179</b>	<b>16.4</b>	180	16.3	56	<b>179</b>	<b>16.5</b>	179	16.4	179	16.5
657.xz_s	56	239	25.8	<b>239</b>	<b>25.8</b>	239	25.9	56	239	25.8	<b>239</b>	<b>25.8</b>	239	25.9

SPECspeed®2017\_int\_base = **10.8**

SPECspeed®2017\_int\_peak = **10.9**

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

## 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 = "/spec2017\_110/lib/intel64:/spec2017\_110/je5.0.1-64"  
OMP\_STACKSIZE = "192M"

## General Notes

Binaries compiled on a system with 1x Intel Core i9-7900X 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  
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.

The jemalloc library was

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

## ASUSTeK Computer Inc.

ASUS ESC8000 G4(Z11PG-D24) Server System  
(2.70 GHz, Intel Xeon Gold 6258R)

SPECspeed®2017\_int\_base = 10.8

SPECspeed®2017\_int\_peak = 10.9

**CPU2017 License:** 9016

**Test Sponsor:** ASUSTeK Computer Inc.

**Tested by:** ASUSTeK Computer Inc.

**Test Date:** Feb-2020

**Hardware Availability:** Feb-2020

**Software Availability:** May-2019

### General Notes (Continued)

configured and built at default for  
32bit (i686) and 64bit (x86\_64) targets;  
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  
HyperThreading = Disabled  
ENERGY\_PERF\_BIAS\_CFG mode = performance  
CSM Support = Disabled  
Engine Boost = Level3(Max)  
Enforce POR = Disable  
Memory Frequency = 2933  
LLC dead line allc = Disabled  
SR-IOV Support = Disabled

Sysinfo program /spec2017\_110/bin/sysinfo  
Rev: r6365 of 2019-08-21 295195f888a3d7edble6e46a485a0011  
running on linux-gh78 Tue Feb 11 10:57:37 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 6258R CPU @ 2.70GHz  
2 "physical id"s (chips)  
56 "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 : 28  
siblings : 28  
physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27  
28 29 30  
physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27  
28 29 30

From lscpu:  
Architecture: x86\_64  
CPU op-mode(s): 32-bit, 64-bit  
Byte Order: Little Endian

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

## ASUSTeK Computer Inc.

ASUS ESC8000 G4(Z11PG-D24) Server System  
(2.70 GHz, Intel Xeon Gold 6258R)

SPECspeed®2017\_int\_base = 10.8

SPECspeed®2017\_int\_peak = 10.9

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Feb-2020

Hardware Availability: Feb-2020

Software Availability: May-2019

### Platform Notes (Continued)

```

CPU(s): 56
On-line CPU(s) list: 0-55
Thread(s) per core: 1
Core(s) per socket: 28
Socket(s): 2
NUMA node(s): 2
Vendor ID: GenuineIntel
CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Gold 6258R CPU @ 2.70GHz
Stepping: 7
CPU MHz: 2700.000
CPU max MHz: 4000.0000
CPU min MHz: 1000.0000
BogoMIPS: 5400.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 39424K
NUMA node0 CPU(s): 0-27
NUMA node1 CPU(s): 28-55
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 tsc_known_freq 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 mba tpr_shadow vnmi flexpriority ept
vpid fsgsbase tsc_adjust bml 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
ibpb ibrs stibp dtherm ida arat pln pts hwp hwp_act_window hwp_epp hwp_pkg_req pku
ospke avx512_vnni arch_capabilities ssbd

```

```

/proc/cpuinfo cache data
cache size : 39424 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 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
node 0 size: 385563 MB
node 0 free: 384841 MB
node 1 cpus: 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52
53 54 55
node 1 size: 387043 MB

```

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

**ASUSTeK Computer Inc.**  
ASUS ESC8000 G4(Z11PG-D24) Server System  
(2.70 GHz, Intel Xeon Gold 6258R)

SPECspeed®2017\_int\_base = 10.8

SPECspeed®2017\_int\_peak = 10.9

**CPU2017 License:** 9016  
**Test Sponsor:** ASUSTeK Computer Inc.  
**Tested by:** ASUSTeK Computer Inc.

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

## Platform Notes (Continued)

```
node 1 free: 386677 MB
node distances:
node  0  1
  0:  10  21
  1:  21  10
```

```
From /proc/meminfo
MemTotal:          791149700 kB
HugePages_Total:      0
Hugepagesize:       2048 kB
```

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

```
uname -a:
Linux linux-gh78 4.12.14-23-default #1 SMP Tue May 29 21:04:44 UTC 2018 (cd0437b)
x86_64 x86_64 x86_64 GNU/Linux
```

Kernel self-reported vulnerability status:

```
CVE-2018-3620 (L1 Terminal Fault):      No status reported
Microarchitectural Data Sampling:      No status reported
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: __user pointer sanitization
CVE-2017-5715 (Spectre variant 2):      Mitigation: Indirect Branch Restricted Speculation, IBPB, IBRS_FW
```

```
run-level 3 Feb 11 10:57
```

```
SPEC is set to: /spec2017_110
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda4        xfs   929G  23G  906G   3% /
```

```
From /sys/devices/virtual/dmi/id
BIOS:      American Megatrends Inc. 6102 12/19/2019
Vendor:    ASUSTeK COMPUTER INC.
Product:   Z11PG-D24 Series
```

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

## ASUSTeK Computer Inc.

ASUS ESC8000 G4(Z11PG-D24) Server System  
(2.70 GHz, Intel Xeon Gold 6258R)

SPECspeed®2017\_int\_base = 10.8

SPECspeed®2017\_int\_peak = 10.9

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Feb-2020

Hardware Availability: Feb-2020

Software Availability: May-2019

### Platform Notes (Continued)

Product Family: Server

Serial: System Serial Number

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:

24x Samsung M393A4K40CB2-CVF 32 GB 2 rank 2933

(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)  
-----
```

```
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.  
-----
```

```
=====  
C++       | 620.omnetpp_s(base, peak) 623.xalancbmk_s(base, peak)  
       | 631.deepsjeng_s(base, peak) 641.leela_s(base, peak)  
-----
```

```
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   | 648.exchange2_s(base, peak)  
-----
```

```
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
```

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

**ASUSTeK Computer Inc.**

ASUS ESC8000 G4(Z11PG-D24) Server System  
(2.70 GHz, Intel Xeon Gold 6258R)

SPECspeed®2017\_int\_base = 10.8

SPECspeed®2017\_int\_peak = 10.9

**CPU2017 License:** 9016

**Test Sponsor:** ASUSTeK Computer Inc.

**Tested by:** ASUSTeK Computer Inc.

**Test Date:** Feb-2020

**Hardware Availability:** Feb-2020

**Software Availability:** May-2019

## Base Compiler Invocation (Continued)

C++ benchmarks:

icpc -m64

Fortran benchmarks:

ifort -m64

## 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

## Base Optimization Flags

C benchmarks:

-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div  
-qopt-mem-layout-trans=4 -qopenmp -DSPEC\_OPENMP  
-L/usr/local/je5.0.1-64/lib -ljemalloc

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:

-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-mem-layout-trans=4  
-nostandard-realloc-lhs

## Peak Compiler Invocation

C benchmarks:

icc -m64 -std=c11

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

**ASUSTeK Computer Inc.**

ASUS ESC8000 G4(Z11PG-D24) Server System  
(2.70 GHz, Intel Xeon Gold 6258R)

SPECspeed®2017\_int\_base = 10.8

SPECspeed®2017\_int\_peak = 10.9

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Feb-2020

Hardware Availability: Feb-2020

Software Availability: May-2019

## Peak Compiler Invocation (Continued)

C++ benchmarks:

icpc -m64

Fortran benchmarks:

ifort -m64

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

```
600.perlbench_s: -w1,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -O2
-xCORE-AVX512 -qopt-mem-layout-trans=4 -ipo -O3
-no-prec-div -DSPEC_SUPPRESS_OPENMP -qopenmp
-DSPEC_OPENMP -fno-strict-overflow
-L/usr/local/je5.0.1-64/lib -ljemalloc
```

602.gcc\_s: basepeak = yes

```
605.mcf_s: -w1,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo
-xCORE-AVX512 -O3 -no-prec-div -qopt-mem-layout-trans=4
-DSPEC_SUPPRESS_OPENMP -qopenmp -DSPEC_OPENMP
-L/usr/local/je5.0.1-64/lib -ljemalloc
```

```
625.x264_s: -w1,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=4 -qopenmp -DSPEC_OPENMP
-L/usr/local/je5.0.1-64/lib -ljemalloc
```

657.xz\_s: basepeak = yes

C++ benchmarks:

620.omnetpp\_s: basepeak = yes

```
623.xalancbmk_s: -w1,-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
```

(Continued on next page)





# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

**ASUSTeK Computer Inc.**

ASUS ESC8000 G4(Z11PG-D24) Server System  
(2.70 GHz, Intel Xeon Gold 6258R)

SPECspeed®2017\_int\_base = 10.8

SPECspeed®2017\_int\_peak = 10.9

**CPU2017 License:** 9016

**Test Sponsor:** ASUSTeK Computer Inc.

**Tested by:** ASUSTeK Computer Inc.

**Test Date:** Feb-2020

**Hardware Availability:** Feb-2020

**Software Availability:** May-2019

## Peak Optimization Flags (Continued)

623.xalancbmk\_s (continued):

-lqkmalloc

631.deepsjeng\_s: Same as 623.xalancbmk\_s

641.leela\_s: basepeak = yes

Fortran benchmarks:

-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-mem-layout-trans=4

-nostandard-realloc-lhs

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

<http://www.spec.org/cpu2017/flags/ASUSTekPlatform-Settings-z11-V2.0-revF.html>

<http://www.spec.org/cpu2017/flags/Intel-ic19.0u1-official-linux64.2019-07-09.html>

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

<http://www.spec.org/cpu2017/flags/ASUSTekPlatform-Settings-z11-V2.0-revF.xml>

<http://www.spec.org/cpu2017/flags/Intel-ic19.0u1-official-linux64.2019-07-09.xml>

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 v1.1.0 on 2020-02-10 21:57:37-0500.

Report generated on 2021-01-04 17:05:42 by CPU2017 PDF formatter v6255.

Originally published on 2020-03-16.