## SPEC® CPU2017 Integer Speed Result

**ASUSTeK Computer Inc.**

ASUS RS300-E10(P11C-C/4L) Server System
(3.50 GHz, Intel Xeon E-2134)

**SPECspeed2017_int_base = 10.6**  
**SPECspeed2017_int_peak = 10.8**

<table>
<thead>
<tr>
<th>Threads</th>
<th>600.perlbench_s</th>
<th>602.gcc_s</th>
<th>605.mcf_s</th>
<th>620.omnetpp_s</th>
<th>623.xalancbmk_s</th>
<th>625.x264_s</th>
<th>631.deepsjeng_s</th>
<th>641.leela_s</th>
<th>648.exchange2_s</th>
<th>657.xz_s</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>8.54</td>
<td></td>
<td></td>
<td>7.26</td>
<td>7.16</td>
<td>8</td>
<td>6.51</td>
<td>5.42</td>
<td>12.3</td>
<td>12.6</td>
</tr>
<tr>
<td>11.9</td>
<td>12.2</td>
<td>15.6</td>
<td>15.5</td>
<td>14.6</td>
<td>14.6</td>
<td>17.0</td>
<td>17.0</td>
<td>16.2</td>
<td>16.2</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>11.9</td>
<td>12.2</td>
<td>15.6</td>
<td>15.5</td>
<td>14.6</td>
<td>17.0</td>
<td>17.0</td>
<td>16.2</td>
<td>16.2</td>
<td></td>
</tr>
</tbody>
</table>

### Hardware

<table>
<thead>
<tr>
<th>CPU Name:</th>
<th>Intel Xeon E-2134</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max MHz.:</td>
<td>4500</td>
</tr>
<tr>
<td>Nominal:</td>
<td>3500</td>
</tr>
<tr>
<td>Enabled:</td>
<td>4 cores, 1 chip, 2 threads/core</td>
</tr>
<tr>
<td>Orderable:</td>
<td>1 chip</td>
</tr>
<tr>
<td>Cache L1:</td>
<td>32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>L2:</td>
<td>256 KB I+D on chip per core</td>
</tr>
<tr>
<td>L3:</td>
<td>8 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other:</td>
<td>None</td>
</tr>
<tr>
<td>Memory:</td>
<td>64 GB (4 x 16 GB 2Rx8 PC4-2666V-E)</td>
</tr>
<tr>
<td>Storage:</td>
<td>1 x 500 GB SATA HDD, 7200RPM</td>
</tr>
<tr>
<td>Other:</td>
<td>None</td>
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</tbody>
</table>

### Software

<table>
<thead>
<tr>
<th>OS:</th>
<th>SUSE Linux Enterprise Server 12 (x86_64) SP3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compiler:</td>
<td>C/C++: Version 19.0.1.144 of Intel C/C++ Compiler Build 20181018 for Linux; Fortran: Version 19.0.1.144 of Intel Fortran Compiler Build 20181018 for Linux</td>
</tr>
<tr>
<td>Parallel:</td>
<td>Yes</td>
</tr>
<tr>
<td>Firmware:</td>
<td>Version 0502 released Nov-2018</td>
</tr>
<tr>
<td>File System:</td>
<td>btrfs</td>
</tr>
<tr>
<td>System State:</td>
<td>Run level 3 (multi-user)</td>
</tr>
<tr>
<td>Base Pointers:</td>
<td>64-bit</td>
</tr>
<tr>
<td>Peak Pointers:</td>
<td>64-bit</td>
</tr>
<tr>
<td>Other:</td>
<td>jemalloc: jemalloc memory allocator library V5.0.1</td>
</tr>
</tbody>
</table>

**CPU2017 License:** 9016  
**Test Date:** May-2019  
**Test Sponsor:** ASUSTeK Computer Inc.  
**Hardware Availability:** Dec-2018  
**Software Availability:** Nov-2018
SPEC CPU2017 Integer Speed Result

ASUSTeK Computer Inc.

ASUS RS300-E10(P11C-C/4L) Server System
(3.50 GHz, Intel Xeon E-2134)

SPECspeed2017_int_base = 10.6
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ASUSTeK Computer Inc.

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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:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/spec2017_new/lib/ia32:/spec2017_new/lib/intel64:
/spec2017_new/je5.0.1-32:/spec2017_new/je5.0.1-64"
OMP_STACKSIZE = "192M"

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
jemalloc: configured and built at default for
32bit (i686) and 64bit (x86_64) targets;
jemalloc: built with the RedHat Enterprise 7.4,
and the system compiler gcc 4.8.5;
jemalloc: sources available from jemalloc.net or

Yes: 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.
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Tested by: ASUSTeK Computer Inc.
Software Availability: Nov-2018

BIOS Configuration:
VT-d = Disabled
AES = Disabled

Sysinfo program /spec2017_new/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
running on linux-pmm5 Fri May 24 10:12:32 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) E-2134 CPU @ 3.50GHz
1 "physical id"s (chips)
8 "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 : 4
siblings : 8
physical 0: cores 0 1 2 3

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 8
On-line CPU(s) list: 0-7
Thread(s) per core: 2
Core(s) per socket: 4
Socket(s): 1
NUMA node(s): 1
Vendor ID: GenuineIntel
CPU family: 6
Model: 158
Model name: Intel(R) Xeon(R) E-2134 CPU @ 3.50GHz
Stepping: 10
CPU MHz: 4330.981
CPU max MHz: 4500.0000
CPU min MHz: 800.0000
BogoMIPS: 7007.96
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 256K
L3 cache: 8192K
NUMA node0 CPU(s): 0-7
Flags: fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov

(Continued on next page)
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Test Date: May-2019
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Platform Notes (Continued)

pat pse36 clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx pdpstkld rdtscp
lm constant_tsc art arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc
aperfmperf eagerfpu pni pclmulqdq dtex64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg
fma cx16 xtrm pdcm pcid sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer xsave
avx f16c rdrand lahf_lm abm 3dnowprefetch ida arat epb invpcid_single pln pts dtherm
hwp hwuotify hudp_act_window hudp_6pp intel_pt rsb_ctxsw spec_ctrl stibp retopotline
kaiser tpr_shadow vnmi flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep
bmi2 erts invpcid rtm mpx rdseed adx smap clflushopt xsaveopt xsavec xgetbv1

/platforminfo cache data
  cache size : 8192 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
  node 0 size: 64315 MB
  node 0 free: 63813 MB
  node distances:
    node 0
    0: 10

From /proc/meminfo
  MemTotal: 65859064 kB
  HugePages_Total: 0
  Hugepagesize: 2048 kB

From /proc/meminfo
  MemTotal: 65859064 kB
  HugePages_Total: 0
  Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
  SuSE-release:
     SUSE Linux Enterprise Server 12 (x86_64)
     VERSION = 12
     PATCHLEVEL = 3
     # This file is deprecated and will be removed in a future service pack or release.
     # Please check /etc/os-release for details about this release.
  os-release:
     NAME="SLES"
     VERSION="12-SP3"
     VERSION_ID="12.3"
     PRETTY_NAME="SUSE Linux Enterprise Server 12 SP3"
     ID="sles"
     ANSI_COLOR="0;32"
     CPE_NAME="cpe:/o:suse:sles:12:sp3"

uname -a:
  Linux linux-pmm5 4.4.120-94.17-default #1 SMP Wed Mar 14 17:23:00 UTC 2018 (cf3a7bb)
  x86_64 x86_64 x86_64 GNU/Linux

(Continued on next page)
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CPU2017 License: 9016
Test Sponsor: ASUSTeK Computer Inc.
Tested by: ASUSTeK Computer Inc.

Platform Notes (Continued)

Kernel self-reported vulnerability status:

CVE-2017-5754 (Meltdown): Mitigation: PTI
CVE-2017-5753 (Spectre variant 1): Mitigation: __user pointer sanitization
CVE-2017-5715 (Spectre variant 2): Mitigation: IBRS+IBPB

run-level 3 May 24 10:08

SPEC is set to: /spec2017_new

<table>
<thead>
<tr>
<th>Filesystem</th>
<th>Type</th>
<th>Size</th>
<th>Used</th>
<th>Avail</th>
<th>Use%</th>
<th>Mounted on</th>
</tr>
</thead>
<tbody>
<tr>
<td>/dev/sda2</td>
<td>btrfs</td>
<td>445G</td>
<td>129G</td>
<td>316G</td>
<td>29%</td>
<td>/</td>
</tr>
</tbody>
</table>

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. 0502 11/15/2018

Memory:
4x Samsung M391A2K43BB1-CTD 16 GB 2 rank 2667, configured at 2666

Compiler Version Notes

==============================================================================
CC  600.perlbench_s(base) 602.gcc_s(base) 605.mcf_s(base) 625.x264_s(base, peak) 657.xz_s(base)
==============================================================================
Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
Version 19.0.1.144 Build 20181018
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
==============================================================================
CXXC 620.omnetpp_s(base) 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,
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- **SPEC speed2017_int_peak** = 10.8

**Compiler Version Notes (Continued)**

```markdown
Version 19.0.1.144 Build 20181018  
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
```

---

CXXC 620.omnetpp_s(peak)

---

Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64,  
Version 19.0.1.144 Build 20181018  
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

---

FC 648.exchange2_s(base, peak)

---

Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R) 64,  
Version 19.0.1.144 Build 20181018  
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

---

## Base Compiler Invocation

C benchmarks:

```sh
icc -m64 -std=c11
```

C++ benchmarks:

```sh
icpc -m64
```

Fortran benchmarks:

```sh
ifort -m64
```

## Base Portability Flags

```bash
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
```
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Hardware Availability: Dec-2018
Software Availability: Nov-2018

Base Optimization Flags

C benchmarks:
- Wl,-z,muldefs -xCORE-AVX2 -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-AVX2 -ipo -O3 -no-prec-div
- qopt-mem-layout-trans=4
- L/usr/local/IntelCompiler19/compilers_and_libraries_2019.1.144/linux/compiler/lib/intel64
- lqkmalloc

Fortran benchmarks:
- xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-mem-layout-trans=4
- nostandard-realloc-lhs

Peak Compiler Invocation

C benchmarks:
icc -m64 -std=c11

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:
600.perlbench_s: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -O2
- xCORE-AVX2 -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

(Continued on next page)
Peak Optimization Flags (Continued)

602.gcc_s: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -O2 -xCORE-AVX2 -qopt-mem-layout-trans=4 -ipo -O3 -no-prec-div -DSPEC_SUPPRESS_OPENMP -L/usr/local/je5.0.1-64/lib -ljemalloc

605.mcf_s: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo -xCORE-AVX2 -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: -Wl,-z,muldefs -xCORE-AVX2 -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: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -O2 -xCORE-AVX2 -qopt-mem-layout-trans=4 -ipo -O3 -no-prec-div -DSPEC_SUPPRESS_OPENMP -qopenmp -DSPEC_OPENMP -L/usr/local/je5.0.1-64/lib -ljemalloc

C++ benchmarks:

620.omnetpp_s: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo -xCORE-AVX2 -O3 -no-prec-div -qopt-mem-layout-trans=4 -DSPEC_SUPPRESS_OPENMP -L/usr/local/IntelCompiler19/compilers_and_libraries_2019.1.144/linux/compiler/lib/intel64 -lqkmalloc


631.deepsjeng_s: Same as 623.xalancbmk_s

641.leela_s: Same as 623.xalancbmk_s

Fortran benchmarks:

-xCORE-AVX2 -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

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
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<tbody>
<tr>
<td>SPECspeed2017_int_base</td>
<td>10.6</td>
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<tr>
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<tr>
<td>Hardware Availability</td>
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</tbody>
</table>

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


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

**Tested with SPEC CPU2017 v1.0.5 on 2019-05-23 22:12:31-0400.**  
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