## SPEC CPU®2017 Integer Speed Result

**Supermicro**

SuperServer 5019C-WR (X11SCW-F, Intel Core i3-8100T)

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base</th>
<th>SPECspeed®2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.23</td>
<td>7.39</td>
</tr>
</tbody>
</table>

**CPU2017 License:** 001176  
**Test Sponsor:** Supermicro  
**Tested by:** Supermicro  
**CPU2017 License:** 001176  
**Test Sponsor:** Supermicro  
**Tested by:** Supermicro  
**CPU2017 License:** 001176  
**Test Sponsor:** Supermicro  
**Tested by:** Supermicro  

### Hardware

- **CPU Name:** Intel Core i3-8100T  
- **Max MHz:** 3100  
- **Nominal:** 3100  
- **Enabled:** 4 cores, 1 chip  
- **Orderable:** 1 chip  
- **Cache L1:** 32 KB I + 32 KB D on chip per core  
- **Cache L2:** 256 KB I+D on chip per core  
- **Cache L3:** 6 MB I+D on chip per chip  
- **Other:** None  
- **Memory:** 64 GB (4 x 16 GB 2Rx8 PC4-2666V-E, running at 2400)  
- **Storage:** 1 x 200 GB SATA III SSD  
- **Other:** None

### Software

- **OS:** SUSE Linux Enterprise Server 12 SP3 (x86_64)  
- **Kernel:** 4.4.114-94.11-default  
- **Compiler:** C/C++: Version 19.0.1.144 of Intel C/C++, Compiler for Linux;  
  Fortran: Version 19.0.1.144 of Intel Fortran Compiler for Linux  
- **Parallel:** Yes  
- **Firmware:** Version 1.0b released May-2019  
- **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:** --

### Threads

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
</tr>
</thead>
<tbody>
<tr>
<td>perlbench_s</td>
<td>4</td>
</tr>
<tr>
<td>gcc_s</td>
<td>4</td>
</tr>
<tr>
<td>mcf_s</td>
<td>4</td>
</tr>
<tr>
<td>omnetpp_s</td>
<td>4</td>
</tr>
<tr>
<td>xalanchbmk_s</td>
<td>4</td>
</tr>
<tr>
<td>x264_s</td>
<td>4</td>
</tr>
<tr>
<td>deepsjeng_s</td>
<td>4</td>
</tr>
<tr>
<td>leela_s</td>
<td>4</td>
</tr>
<tr>
<td>exchange2_s</td>
<td>4</td>
</tr>
<tr>
<td>xz_s</td>
<td>4</td>
</tr>
</tbody>
</table>

### Results

- **SPECspeed®2017_int_base:** 7.23
- **SPECspeed®2017_int_peak:** 7.39

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Page 1

Standard Performance Evaluation Corporation (info@spec.org)  
https://www.spec.org/
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<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Base</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Peak</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>4</td>
<td>351</td>
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<td><strong>5.07</strong></td>
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<td>5.08</td>
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<td>602.gcc_s</td>
<td>4</td>
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<td>476</td>
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<td>8.61</td>
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<td>605.mcf_s</td>
<td>4</td>
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<td>431</td>
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<td>429</td>
<td>11.0</td>
<td>4</td>
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<tr>
<td>620.omnetpp_s</td>
<td>4</td>
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<td><strong>5.48</strong></td>
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<td>623.xalanchmk_s</td>
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<tr>
<td>625.x264_s</td>
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<td><strong>11.8</strong></td>
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<tr>
<td>631.deepsjeng_s</td>
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<td>313</td>
<td><strong>4.58</strong></td>
<td>313</td>
<td>4.57</td>
<td>4</td>
<td>313</td>
<td>4.58</td>
<td><strong>313</strong></td>
<td><strong>4.58</strong></td>
<td>313</td>
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<tr>
<td>641.leea_s</td>
<td>4</td>
<td><strong>461</strong></td>
<td>460</td>
<td><strong>3.70</strong></td>
<td>461</td>
<td>3.70</td>
<td>4</td>
<td>463</td>
<td>3.68</td>
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<td><strong>3.70</strong></td>
<td>461</td>
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<tr>
<td>648.exchange2_s</td>
<td>4</td>
<td>265</td>
<td>266</td>
<td><strong>11.1</strong></td>
<td>265</td>
<td>11.1</td>
<td>4</td>
<td>265</td>
<td>11.1</td>
<td>266</td>
<td>11.0</td>
<td><strong>266</strong></td>
</tr>
<tr>
<td>657.xz_s</td>
<td>4</td>
<td>881</td>
<td>880</td>
<td><strong>7.03</strong></td>
<td>879</td>
<td>7.03</td>
<td>4</td>
<td><strong>861</strong></td>
<td><strong>7.18</strong></td>
<td>861</td>
<td>7.18</td>
<td>862</td>
</tr>
</tbody>
</table>

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"

### General Notes

**Environment variables set by runcpu before the start of the run:**
- KMP_AFFINITY = "granularity=fine,scatter"
- LD_LIBRARY_PATH = ":/home/cpu2017/lib/intel64:/home/cpu2017/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

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.
**Platform Notes**

Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
running on linux-65nv Tue Sep 10 05:47:41 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) Core(TM) i3-8100T CPU @ 3.10GHz
- 1 "physical id"s (chips)
- 4 "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 : 4
  - 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): 4
- On-line CPU(s) list: 0-3
- Thread(s) per core: 1
- Core(s) per socket: 4
- Socket(s): 1
- NUMA node(s): 1
- Vendor ID: GenuineIntel
- CPU family: 6
- Model: 158
- Model name: Intel(R) Core(TM) i3-8100T CPU @ 3.10GHz
- Stepping: 11
- CPU MHz: 3100.048
- CPU max MHz: 3100.0000
- CPU min MHz: 800.0000
- BogoMIPS: 6191.99
- Virtualization: VT-x
- L1d cache: 32K
- L1i cache: 32K
- L2 cache: 256K
- L3 cache: 6144K
- NUMA node0 CPU(s): 0-3
- 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 aperfmperf eagerfpu pni pclmulqdq dtes64 monitor ds_cpl vmx est tm2 ssse3 sdbg fma

(Continued on next page)
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**Platform Notes (Continued)**

cx16 xtpr pdcm pcid sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abm 3dnowprefetch arat epb invpcid_single pln pts dtherm hwp hwp_notify hwp_act_window hwp_epp intel_pt rsb_ctxsw spec_ctrl retpoline kaiser tpr_shadow vmni fpxi priority ept vpid fsgsbase tsc_adjust bmi1 avx2 smep bmi2 erms invpcid mpx rdseed adx smap clflushopt xsaveopt xsaves xgetbv1

```
/pro/cpuinto cache data
    cache size: 6144 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
  node 0 size: 64332 MB
  node 0 free: 50642 MB
  node distances:
    node 0
      0: 10
```

From /proc/meminfo
```
MemTotal:       65876956 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-65nv 4.4.114-94.11-default #1 SMP Thu Feb 1 19:28:26 UTC 2018 (4309ff9)
    x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:
```
CVE-2017-5754 (Meltdown): Mitigation: PTI
```

(Continued on next page)
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**SPECspeed®2017_int_base = 7.23**

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**Platform Notes (Continued)**

CVE-2017-5753 (Spectre variant 1): Mitigation: Barriers
CVE-2017-5715 (Spectre variant 2): Mitigation: IBRS+IBPB

run-level 3 Sep 9 15:48

SPEC is set to: /home/cpu2017

Filesystem | Type  | Size  | Used | Avail | Use%  | Mounted on
---|-------|-------|------|-------|-------|---------
/dev/sda3  | xfs   | 145G  | 25G  | 120G  | 18%   | /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. 1.0b 05/16/2019

Memory:
4x Micron 18ADF2G72AZ-2G6H1R 16 GB 2 rank 2667, configured at 2400

(End of data from sysinfo program)

---

**Compiler Version Notes**

<table>
<thead>
<tr>
<th>C</th>
<th>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)</th>
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<tbody>
<tr>
<td></td>
<td>Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64, Version 19.0.1.144 Build 20181018</td>
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<tr>
<td></td>
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<table>
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<tr>
<th>C++</th>
<th>620.omnetpp_s(base, peak) 623.xalancbmk_s(base, peak) 631.deepsjeng_s(base, peak) 641.leela_s(base, peak)</th>
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<tr>
<th>Fortran</th>
<th>648.exchange2_s(base, peak)</th>
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### Base Compiler Invocation

**C benchmarks:**

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

**C++ benchmarks:**

```
icpc -m64
```

**Fortran benchmarks:**

```
ifort -m64
```

### Base Portability Flags

<table>
<thead>
<tr>
<th>Base Portability Flags</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>-DSPEC_LP64 -DSPEC_LINUX_X64</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>-DSPEC_LP64</td>
</tr>
<tr>
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<td>648.exchange2_s</td>
<td>-DSPEC_LP64</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>-DSPEC_LP64</td>
</tr>
</tbody>
</table>

### 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
```
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Test Sponsor: Supermicro
Tested by: Supermicro

Test Date: Sep-2019
Hardware Availability: Nov-2018
Software Availability: Nov-2018

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

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 -xCORE-AVX2 -ipo -O3 -no-prec-div
-DSPEC_SUPPRESS_OPENMP -qopenmp
-DSPEC_OPENMP -L/usr/local/je5.0.1-64/lib -ljemalloc

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

C++ benchmarks:

620.omnetpp_s: basepeak = yes
623.xalancbmk_s: basepeak = yes
631.deepsjeng_s: basepeak = yes

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

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

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