**SPEC CPU®2017 Integer Speed Result**

**Supermicro**

SuperServer 5019C-WR (X11SCW-F, Intel Xeon E-2134)

<table>
<thead>
<tr>
<th>Threads</th>
<th>SPECspeed²017_int_base</th>
<th>SPECspeed²017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>10.4</td>
<td>10.6</td>
</tr>
</tbody>
</table>

**Hardware**

- **CPU Name:** Intel Xeon E-2134
- **Max MHz:** 4500
- **Nominal:** 3500
- **Enabled:** 4 cores, 1 chip, 2 threads/core
- **Orderable:** 1 chip
- **Cache L1:** 32 KB I + 32 KB D on chip per core
- **L2:** 256 KB I+D on chip per core
- **L3:** 8 MB I+D on chip per chip
- **Memory:** 64 GB (4 x 16 GB 2Rx8 PC4-2666V-E)
- **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:** --
### Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<tbody>
<tr>
<td>600.perlbench_s</td>
<td>8</td>
<td>245</td>
<td>7.26</td>
<td>244</td>
<td>7.27</td>
<td>246</td>
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<td>602.gcc_s</td>
<td>8</td>
<td>340</td>
<td>11.7</td>
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<td>11.7</td>
<td>341</td>
<td>11.7</td>
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<tr>
<td>605.mcf_s</td>
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<td>15.5</td>
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<td>620.omnetpp_s</td>
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<td>16.8</td>
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<tr>
<td>631.deepsjeng_s</td>
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<td>6.44</td>
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<td>6.43</td>
<td>223</td>
<td>6.44</td>
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<td>641.leela_s</td>
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<td>5.36</td>
<td>318</td>
<td>5.36</td>
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<tr>
<td>648.exchange2_s</td>
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<td>16.0</td>
<td>185</td>
<td>15.9</td>
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<tr>
<td>657.xz_s</td>
<td>8</td>
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<td>12.2</td>
<td>508</td>
<td>12.2</td>
<td>508</td>
<td>12.2</td>
</tr>
</tbody>
</table>

**SPECspeed\textsuperscript{2017} \text{int\_base} = 10.4**  
**SPECspeed\textsuperscript{2017} \text{int\_peak} = 10.6**

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:
- \texttt{KMP\_AFFINITY} = "granularity=fine,scatter"
- \texttt{LD\_LIBRARY\_PATH} = "\texttt{/home/cpu2017/lib/intel64/:/home/cpu2017/je5.0.1-64}"
- \texttt{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:

```sh
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.

jemalloc, a general purpose malloc implementation

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

Supermicro
SuperServer 5019C-WR (X11SCW-F, Intel Xeon E-2134)

SPECspeed®2017_int_base = 10.4
SPECspeed®2017_int_peak = 10.6

Platform Notes
Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcd08f2999c33d61f64985e45859ea9
running on linux-65nv Tue Aug 13 13:53:30 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:               4337.894
CPU max MHz:           4500.0000
CPU min MHz:           800.0000
BogoMIPS:              7007.99
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
                       pat pse36 clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx pdpe1gb rdtsscp
                       lm constant_tsc art arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc
                       aperfmperf eagerfpu pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg

(Continued on next page)
SPEC CPU®2017 Integer Speed Result  
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Supermicro
SuperServer 5019C-WR (X11SCW-F, Intel Xeon E-2134)

SPECspeed®2017_int_base = 10.4
SPECspeed®2017_int_peak = 10.6

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

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

Platform Notes (Continued)

fma cx16 xtpr pdcm pcid sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abm 3dnowprefetch ida arat epb invpcid_single pln pts dtherm hwp hwp_notify hwp_act_window hwp_epo intel_pt rsb_ctxsw spec_ctrl retpoline kaiser tpr_shadow vmmi flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2  erms invpcid rtm mpx rdseed adx smap clflushopt xsaveopt xsavec xgetbv1

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: 64333 MB
node 0 free: 48814 MB
node distances:
node 0
0: 10

From /proc/meminfo
MemTotal: 65877324 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)
SPEC CPU®2017 Integer Speed Result

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SuperServer 5019C-WR (X11SCW-F, Intel Xeon E-2134)

SPECspeed®2017_int_base = 10.4
SPECspeed®2017_int_peak = 10.6

CPU2017 License: 001176
Test Sponsor: Supermicro
Test Date: Aug-2019
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Hardware Availability: Nov-2018
Software Availability: Nov-2018

Platform Notes (Continued)

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

run-level 3 Aug 12 17:53

SPEC is set to: /home/cpu2017

<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/sda3</td>
<td>xfs</td>
<td>145G</td>
<td>27G</td>
<td>118G</td>
<td>19%</td>
<td>/home</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. 1.0b 05/16/2019
Memory:
4x Micron 18ADF2G72AZ-2G6H1R 16 GB 2 rank 2667

(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 19.0.1.144 Build 20181018
Copyright (C) 1985-2018 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 19.0.1.144 Build 20181018
Copyright (C) 1985-2018 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 19.0.1.144 Build 20181018
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
Supermicro
SuperServer 5019C-WR (X11SCW-F, Intel Xeon E-2134)

SPECspeed\textsuperscript{2017\_int\_peak} = 10.6
SPECspeed\textsuperscript{2017\_int\_base} = 10.4

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<th>Hardware Availability</th>
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<tr>
<td>001176</td>
<td>Aug-2019</td>
<td>Nov-2018</td>
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<th>Tested by</th>
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</thead>
<tbody>
<tr>
<td>Supermicro</td>
<td>Supermicro</td>
</tr>
</tbody>
</table>

**Base Compiler Invocation**

C benchmarks:
\texttt{icc -m64 -std=c11}

C++ benchmarks:
\texttt{icpc -m64}

Fortran benchmarks:
\texttt{ifort -m64}

**Base Portability Flags**

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

**Base Optimization Flags**

C benchmarks:
\texttt{-W1, -z, muldefs -xCORE-AVX2 -ipo -O3 \ -no-prec-div}
\texttt{-qopt-mem-layout-trans=4 \ -qopenmp \ -DSPEC\_OPENMP}
\texttt{-L/usr/local/je5.0.1-64/lib \ -ljemalloc}

C++ benchmarks:
\texttt{-W1, -z, muldefs -xCORE-AVX2 -ipo -O3 \ -no-prec-div}
\texttt{-qopt-mem-layout-trans=4}
\texttt{-L/usr/local/IntelCompiler19/compilers\_and\_libraries\_2019.1.144/linux/compiler/lib/intel64}
\texttt{-lqkmalloc}

Fortran benchmarks:
\texttt{-xCORE-AVX2 \ -ipo \ -O3 \ -no-prec-div \ -qopt-mem-layout-trans=4}
\texttt{-nostandard-realloc-lhs}
**Supermicro**

SuperServer 5019C-WR (X11SCW-F, Intel Xeon E-2134)

<table>
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<th>SPECspeed\textsuperscript{®}2017\textsubscript{int_peak} = 10.6</th>
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<tbody>
<tr>
<td>Test Sponsor: Supermicro</td>
<td>SPECspeed\textsuperscript{®}2017\textsubscript{int_base} = 10.4</td>
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<td>Tested by: Supermicro</td>
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</tr>
<tr>
<td></td>
<td>Software Availability: Nov-2018</td>
</tr>
</tbody>
</table>

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### Peak Compiler Invocation

C benchmarks:
```shell
icc -m64 -std=c11
```

C++ benchmarks:
```shell
icpc -m64
```

Fortran benchmarks:
```shell
ifort -m64
```

---

### Peak Portability Flags

Same as Base Portability Flags

---

### Peak Optimization Flags

C benchmarks:

```shell
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 -DSPEC\_OPENMP -fno-strict-overflow -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 -ipo -O3 -qopenmp -DSPEC\_OPENMP -DSPEC\_OPENMP -fno-strict-overflow -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 -gopenmp -DSPEC\_OPENMP -fno-strict-overflow -L/usr/local/je5.0.1-64/lib -ljemalloc

657.xz_s: basepeak = yes
```

C++ benchmarks:

(Continued on next page)
# SPEC CPU®2017 Integer Speed Result

## Supermicro

**SuperServer 5019C-WR (X11SCW-F, Intel Xeon E-2134)**

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### CPU2017 License: 001176

- **Test Date:** Aug-2019
- **Test Sponsor:** Supermicro
- **Tested by:** Supermicro
- **Hardware Availability:** Nov-2018
- **Software Availability:** Nov-2018

### Peak Optimization Flags (Continued)

- **620.omnetpp_s**: basepeak = yes

- **623.xalancbmk_s**:
  - `-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`

- **631.deepsjeng_s**: basepeak = yes

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

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