Supermicro
SuperServer 5019C-M (X11SCM-F, Intel Xeon E-2174G)

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

Threads

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>SPECspeed2017_int_base</th>
<th>SPECspeed2017_int_peak</th>
</tr>
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<tbody>
<tr>
<td>600.perlbench_s</td>
<td>4</td>
<td>8.71</td>
<td>11.9</td>
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<tr>
<td>602.gcc_s</td>
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<td>11.8</td>
<td>13.5</td>
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<tr>
<td>605.mcf_s</td>
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<td>6.55</td>
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<tr>
<td>620.omnetpp_s</td>
<td>4</td>
<td>5.36</td>
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<tr>
<td>623.xalancbmk_s</td>
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<td></td>
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<tr>
<td>625.x264_s</td>
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<tr>
<td>641.leela_s</td>
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<tr>
<td>648.exchange2_s</td>
<td>4</td>
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<td></td>
</tr>
<tr>
<td>657.xz_s</td>
<td>4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Hardware
CPU Name: Intel Xeon E-2174G
Max MHz.: 4700
Nominal: 3800
Enabled: 4 cores, 1 chip
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
Other: None
Memory: 64 GB (4 x 16 GB 2Rx8 PC4-2666V-E)
Storage: 1 x 1 TB SATA III 7200 RPM
Other: None

Software
OS: SUSE Linux Enterprise Server 12 SP3 (x86_64)
Kernel 4.4.114-94.11-default
Compiler: C/C++: Version 18.0.2.199 of Intel C/C++
Fortran: Version 18.0.2.199 of Intel Fortran
Parallel: Yes
Firmware: Supermicro BIOS version 1.0 released Sep-2018
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other: jemalloc memory allocator library V5.0.1
Supermicro
SuperServer 5019C-M (X11SCM-F, Intel Xeon E-2174G)

**SPECspeed2017_int_base = 9.73**
**SPECspeed2017_int_peak = 10.1**

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<tr>
<th>Benchmark</th>
<th>4</th>
<th>247</th>
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<tr>
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<td>682</td>
<td>9.06</td>
<td>682</td>
<td>9.07</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/ia32:/home/cpu2017/lib/intel64:/home/cpu2017/je5.0.1-32:/home/cpu2017/je5.0.1-64"
OMP_STACKSIZE = "192M"

Binaries compiled on a system with 1x Intel Core i7-6700K 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.
jemalloc, a general purpose malloc implementation
SPEC CPU2017 Integer Speed Result
Copyright 2017-2018 Standard Performance Evaluation Corporation

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SuperServer 5019C-M (X11SCM-F, Intel Xeon E-2174G)

SPECspeed2017_int_base = 9.73
SPECspeed2017_int_peak = 10.1

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

Test Date: Oct-2018
Hardware Availability: Nov-2018
Software Availability: Mar-2018

Platform Notes

BIOS Settings:
Hyper-Threading = Disable
Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcde8f2999c33d6f64985e45859ea9
running on linux-nj8e Mon Oct 22 17:54:49 2018

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-2174G CPU @ 3.80GHz
  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) Xeon(R) E-2174G CPU @ 3.80GHz
Stepping: 10
CPU MHz: 4561.047
CPU max MHz: 4700.0000
CPU min MHz: 800.0000
BogoMIPS: 7583.51
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 256K
L3 cache: 8192K
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

(Continued on next page)
Platform Notes (Continued)

lm constant_tsc art arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc
aperfmpref eagerfpu pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg
fma cx16 xtrr 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_epp intel_pt rsb_ctxsw spec_ctrl retpoline
kaiser tpr_shadow vnmi flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep
bmi2 erms invpcid rtm mpx rdseed adx smap clflushopt xsaveopt xsavec xgetbv1

/proc/cpuinfo 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
  node 0 size: 64151 MB
  node 0 free: 63646 MB
  node distances:
    node 0
    0: 10

From /proc/meminfo
  MemTotal: 65690648 kB
  HugePages_Total: 0
  Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
  SUSE Linux Enterprise Server 12 SP3

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-nj8e 4.4.114-94.11-default #1 SMP Thu Feb 1 19:28:26 UTC 2018 (4309ff9)

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

- **x86_64 x86_64 x86_64 GNU/Linux**

Kernel self-reported vulnerability status:

- **CVE-2017-5754 (Meltdown):** Mitigation: PTI
- **CVE-2017-5753 (Spectre variant 1):** Mitigation: Barriers
- **CVE-2017-5715 (Spectre variant 2):** Mitigation: IBRS+IBPB

run-level 3 Oct 22 17:53

SPEC is set to: /home/cpu2017

Filesystem | Type | Size | Used | Avail | Use% | Mounted on
---|---|---|---|---|---|---
/dev/sda4 | xfs | 890G | 30G | 860G | 4% | /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. 1.0 09/19/2018
- Memory:
  - 4x Micron 18ADF2G72AZ-2G6H1R 16 GB 2 rank 2667

(End of data from sysinfo program)

### 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)

icpc (ICC) 18.0.2 20180210
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
```

```
CC  600.perlbench_s(peak) 602.gcc_s(peak) 605.mcf_s(peak) 657.xz_s(peak)

icpc (ICC) 18.0.2 20180210
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
```

```
CXXC 620.omnetpp_s(base) 623.xalancbmk_s(base) 631.deepsjeng_s(base)
       641.leela_s(base)

icpc (ICC) 18.0.2 20180210
```

(Continued on next page)
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Compiler Version Notes (Continued)
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

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641.leela_s(peak)

icpc (ICC) 18.0.2 20180210
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

FC 648.exchange2_s(base, peak)

ifort (IFORT) 18.0.2 20180210
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

Base Compiler Invocation

C benchmarks:
icc -m64 -std=c11

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

**SPEC CPU2017 Integer Speed Result**

**Base Optimization Flags**

C benchmarks:
- `-Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div`
- `-qopt-mem-layout-trans=3 -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=3 -L/usr/local/je5.0.1-64/lib -ljemalloc`

Fortran benchmarks:
- `-Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div`
- `-qopt-mem-layout-trans=3 -nostandard-realloc-lhs`
- `-L/usr/local/je5.0.1-64/lib -ljemalloc`

**Peak Compiler Invocation**

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

C++ benchmarks (except as noted below):
- `icpc -m64`

623.xalancbmk_s: `icpc -m32 -L/home/prasadj/specdev/IC18u2_Internal/lin_18_0_20180210/compiler/lib/ia32_lin`

Fortran benchmarks:
- `ifort -m64`

**Peak 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: `-D_FILE_OFFSET_BITS=64 -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 CPU2017 Integer Speed Result

**Supermicro**  
SuperServer 5019C-M (X11SCM-F, Intel Xeon E-2174G)  

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**Tested by:** Supermicro  
**Test Date:** Oct-2018  
**Hardware Availability:** Nov-2018  
**Software Availability:** Mar-2018

## Peak Optimization Flags

### C benchmarks:

- **600.perlbench_s:**  
  `-Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -O2`  
  `-xCORE-AVX2 -qopt-prefetch -ipo -O3`  
  `-qopt-mem-layout-trans=3 -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-prefetch -ipo -O3`  
  `-qopt-mem-layout-trans=3 -no-prec-div`  
  `-DSPEC_SUPPRESS_OPENMP -qopenmp -DSPEC_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-prefetch`  
  `-qopt-mem-layout-trans=3 -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-prefetch -qopt-mem-layout-trans=3 -qopenmp`  
  `-DSPEC_OPENMP -L/usr/local/je5.0.1-64/lib -ljemalloc`

- **657.xz_s:** Same as 602.gcc_s

### C++ benchmarks:

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

- **623.xalancbmk_s:**  
  `-Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo`  
  `-xCORE-AVX2 -O3 -no-prec-div -qopt-prefetch`  
  `-qopt-mem-layout-trans=3 -DSPEC_SUPPRESS_OPENMP -qopenmp`  
  `-DSPEC_OPENMP -L/usr/local/je5.0.1-32/lib -ljemalloc`

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

- **641.leela_s:** basepeak = yes

### Fortran benchmarks:

- `-Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch`  
- `-qopt-mem-layout-trans=3 -nostandard-realloc-lhs`  
- `-L/usr/local/je5.0.1-64/lib -ljemalloc`
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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:
http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.2017-12-21.xml
http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-SKL-revD.xml

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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 2018-10-22 05:54:49-0400.
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