**SPEC® CPU2017 Integer Rate Result**

**Supermicro**
SuperServer 5019C-WR (X11SCW-F, Intel Xeon E-2186G)

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</table>

**Hardware**
- CPU Name: Intel Xeon E-2186G
- Max MHz.: 4700
- Nominal: 3800
- Enabled: 6 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: 12 MB I+D on chip per chip
- Other: None
- Memory: 64 GB (4 x 16 GB 2Rx8 PC4-2666V-E)
- Storage: 1 x 4 TB SATA III 7200 RPM
- Other: None

**Software**
- OS: SUSE Linux Enterprise Server 12 SP3
- Compiler: C/C++: Version 18.0.2.199 of Intel C/C++
- Compiler for Linux: Fortran: Version 18.0.2.199 of Intel Fortran
- Compiler for Linux: Fortran: Version 18.0.2.199 of Intel Fortran
- Parallel: No
- Firmware: Supermicro BIOS version 1.0 released Oct-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
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SPECrate2017_int_base = 41.6
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Results Table

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Submit Notes

The taskset mechanism was used to bind copies to processors. The config file option 'submit' was used to generate taskset commands to bind each copy to a specific processor. For details, please see the config file.

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:
LD_LIBRARY_PATH = "/home/cpu2017/lib/ia32:/home/cpu2017/lib/intel64:/home/cpu2017/je5.0.1-32:/home/cpu2017/je5.0.1-64"

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.
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**Supermicro**

SuperServer 5019C-WR (X11SCW-F, Intel Xeon E-2186G)

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

### General Notes (Continued)

jemalloc, a general purpose malloc implementation
built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5

### Platform Notes

Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcede8f2999c33d61f64985e45859ea9
running on linux-6ojl Wed Oct 24 17:18:44 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-2186G CPU @ 3.80GHz
- 1 "physical id"s (chips)
- 12 "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 : 6
- siblings : 12
- physical 0: cores 0 1 2 3 4 5

From lscpu:

- Architecture: x86_64
- CPU op-mode(s): 32-bit, 64-bit
- Byte Order: Little Endian
- CPU(s): 12
- On-line CPU(s) list: 0-11
- Thread(s) per core: 2
- Core(s) per socket: 6
- Socket(s): 1
- NUMA node(s): 1
- Vendor ID: GenuineIntel
- CPU family: 6
- Model: 158
- Model name: Intel(R) Xeon(R) E-2186G CPU @ 3.80GHz
- Stepping: 10
- CPU MHz: 4595.684
- CPU max MHz: 4700.0000
- CPU min MHz: 800.0000
- BogoMIPS: 7583.95
- Virtualization: VT-x
- L1d cache: 32K
- L1i cache: 32K

(Continued on next page)
SPEC CPU2017 Integer Rate Result

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Platform Notes (Continued)

L2 cache: 256K
L3 cache: 12288K
NUMA node0 CPU(s): 0-11
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 smx est tm2 ssse3 sdbg
  fma cx16 xtpr pdcm pcid sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer tsc
  task xsave avx f16c rdrand lahf_lm abm 3dnowprefetch ida arat epbi invpcid_single pln
  pts dtherm hwp_notify hwp_act_window hwp_epp intel_pt rsb_ctxtsw spec_ctrl retur
  line kaizer 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: 12288 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 8 9 10 11
  node 0 size: 64148 MB
  node 0 free: 63667 MB
  node distances:
    node 0
    0: 10

From /proc/meminfo
  MemTotal: 65688220 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"

(Continued on next page)
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Platform Notes (Continued)

ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:12:sp3"

uname -a:
        Linux linux-6ojl 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
CVE-2017-5753 (Spectre variant 1): Mitigation: Barriers
CVE-2017-5715 (Spectre variant 2): Mitigation: IBRS+IBPB

SPEC is set to: /home/cpu2017
Filesystem     Type  Size  Used Avail Use% Mounted on
/dev/nvme0n1p4 xfs   1.8T  4.0G  1.8T   1% /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 10/11/2018
Memory:
        4x Micron 18ADF2G72AZ-2G6H1R 16 GB 2 rank 2667

(End of data from sysinfo program)

Compiler Version Notes

================================================================================
 CC  500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base) 525.x264_r(base)
     557.xz_r(base)
================================================================================
icc (ICC) 18.0.2 20180210
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

================================================================================
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================================================================================
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### Compiler Version Notes (Continued)

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<td>ifort -m64</td>
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### Base Compiler Invocation

- **C benchmarks:** `icc -m64 -std=c11`
- **C++ benchmarks:** `icpc -m64`
- **Fortran benchmarks:** `ifort -m64`
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Base Portability Flags

500.perlbench_r: -DSPEC_LP64 -DSPEC_LINUX_X64
502.gcc_r: -DSPEC_LP64
505.mcf_r: -DSPEC_LP64
520.omnetpp_r: -DSPEC_LP64
523.xalancbmk_r: -DSPEC_LP64 -DSPEC_LINUX
525.x264_r: -DSPEC_LP64
531.deepsjeng_r: -DSPEC_LP64
541.leela_r: -DSPEC_LP64
548.exchange2_r: -DSPEC_LP64
557.xz_r: -DSPEC_LP64

Base Optimization Flags

C benchmarks:
-W1,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=3 -L/usr/local/je5.0.1-64/lib -ljemalloc

C++ benchmarks:
-W1,-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:
-W1,-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 (except as noted below):
icc -m64 -std=c11

502.gcc_r: icc -m32 -std=c11 -L/home/prasadj/specdev/IC18u2_Internal/lin_18_0_20180210/compiler/lib/ia32_lin

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

523.xalancbmk_r: icpc -m32 -L/home/prasadj/specdev/IC18u2_Internal/lin_18_0_20180210/compiler/lib/ia32_lin

Fortran benchmarks:
ifort -m64
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SuperServer 5019C-WR (X11SCW-F, Intel Xeon E-2186G)

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Peak Portability Flags

500.perlbench_r: -DSPEC_LP64 -DSPEC_LINUX_X64
502.gcc_r: -D_FILE_OFFSET_BITS=64
505.mcf_r: -DSPEC_LP64
520.omnetpp_r: -DSPEC_LP64
523.xalancbmk_r: -D_FILE_OFFSET_BITS=64 -DSPEC_LINUX
525.x264_r: -DSPEC_LP64
531.deepsjeng_r: -DSPEC_LP64
541.leela_r: -DSPEC_LP64
548.exchange2_r: -DSPEC_LP64
557.xz_r: -DSPEC_LP64

Peak Optimization Flags

C benchmarks:

500.perlbench_r: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo
-xCORE-AVX2 -O3 -no-prec-div -qopt-mem-layout-trans=3
-fno-strict-overflow -L/usr/local/je5.0.1-64/lib
-ljemalloc

502.gcc_r: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo
-xCORE-AVX2 -O3 -no-prec-div -qopt-mem-layout-trans=3
-L/usr/local/je5.0.1-32/lib -ljemalloc

505.mcf_r: basepeak = yes

525.x264_r: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo
-xCORE-AVX2 -O3 -no-prec-div -qopt-mem-layout-trans=3
-fno-alias -L/usr/local/je5.0.1-64/lib -ljemalloc

557.xz_r: basepeak = yes

C++ benchmarks:

520.omnetpp_r: basepeak = yes

523.xalancbmk_r: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo
-xCORE-AVX2 -O3 -no-prec-div -qopt-mem-layout-trans=3
-L/usr/local/je5.0.1-32/lib -ljemalloc

531.deepsjeng_r: basepeak = yes

541.leela_r: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo
-xCORE-AVX2 -O3 -no-prec-div -qopt-mem-layout-trans=3

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Peak Optimization Flags (Continued)

541.leela_r (continued):
-L/usr/local/je5.0.1-64/lib -ljemalloc

Fortran benchmarks:

548.exchange2_r: basepeak = yes

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

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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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