Supermicro
SuperWorkstation 5039C-I (X11SCL-F, Intel Xeon E-2136)

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

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

Threads

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>SPECspeed2017_int_base</th>
<th>SPECspeed2017_int_peak</th>
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<td>15.6</td>
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<td>xalancbmk_s</td>
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<tr>
<td>deepsjeng_s</td>
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<tr>
<td>leela_s</td>
<td>12</td>
<td>5.41</td>
<td>5.41</td>
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</table>

Hardware
CPU Name: Intel Xeon E-2136
Max MHz.: 4500
Nominal: 3300
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 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 1.0a released Feb-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
### SPEC CPU2017 Integer Speed Result

**Supermicro**

SuperWorkstation 5039C-I (X11SCL-F, Intel Xeon E-2136)

---

**SPECspeed2017_int_base = 10.7**

**SPECspeed2017_int_peak = 11.0**

---

**Results Table**

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<tr>
<th>Benchmark</th>
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<th>Seconds</th>
<th>Ratio</th>
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<td>12</td>
<td>446</td>
<td>13.9</td>
<td>445</td>
<td>13.9</td>
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</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:

```bash
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.

SPEC CPU2017 Integer Speed Result

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SPECspeed2017_int_base = 10.7
SPECspeed2017_int_peak = 11.0

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

Test Date: Jun-2019
Hardware Availability: Nov-2018
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Platform Notes
Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
running on linux-65nv Wed Jun 19 06:17:27 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-2136 CPU @ 3.30GHz
  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-2136 CPU @ 3.30GHz
Stepping:              10
CPU MHz:               4400.175
CPU max MHz:           4500.0000
CPU min MHz:           800.0000
BogoMIPS:              6623.95
Virtualization:        VT-x
L1d cache:             32K
L1i cache:             32K
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
                         (Continued on next page)
SPEC CPU2017 Integer Speed Result

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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_epb intel_pt rsb_cxsw spec_ctrl retpoline
kaiser tpr_shadow vnmi flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep
bmi2 irls irls irls irls irls irls irls irls irls irls irls irls irls irls irls irls irls irls irls
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: 64331 MB
-node 0 free: 63845 MB
-node distances:
-node 0
-0: 10

From /proc/meminfo
-MemTotal: 65875688 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 CPU2017 Integer Speed Result

### Platform Notes (Continued)

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

run-level 3 Jun 19 06:12

SPEC is set to: /home/cpu2017

Filesystem     Type       Size  Used Avail Use% Mounted on
/dev/sda3      xfs       145G   40G  106G  28%  /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. 1.0a 02/14/2019
- Memory:
  4x Micron 18ADF2G72AZ-2G6H1R 16 GB 2 rank 2667

(End of data from sysinfo program)

### Compiler Version Notes

```
membership
```

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 SPEC CPU2017 Integer Speed Result  

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Tested by: Supermicro

Compiler Version Notes (Continued)

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:  
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
## SPEC CPU2017 Integer Speed Result

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</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`

### 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 -gopenmp -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 -gopenmp -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: basepeak = yes

Fortran benchmarks:

648.exchange2_s: basepeak = yes

The flags files that were used to format this result can be browsed at

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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 2019-06-18 18:17:26-0400.
Originally published on 2019-07-09.