## SPEC CPU® 2017 Integer Speed Result

**Supermicro**

SuperServer SYS-240P-TNRT  
(X12QCH+, Intel Xeon Platinum 8380HL)

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<table>
<thead>
<tr>
<th>Task</th>
<th>SPECspeed®2017_int_base</th>
<th>SPECspeed®2017_int_peak</th>
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<tbody>
<tr>
<td>600.perlbench_s</td>
<td>112</td>
<td>12.4</td>
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<tr>
<td>602.gcc_s</td>
<td>112</td>
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<td>605.mcf_s</td>
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<td>620.omnetpp_s</td>
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<td>623.xalancbmk_s</td>
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<td>625.x264_s</td>
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<tr>
<td>631.deepsjeng_s</td>
<td>112</td>
<td>18.1</td>
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<td>641.leela_s</td>
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<td>18.2</td>
</tr>
<tr>
<td>648.exchange2_s</td>
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<td>27.1</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>112</td>
<td>27.1</td>
</tr>
</tbody>
</table>

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### Hardware

- CPU Name: Intel Xeon Platinum 8380HL
- Max MHz: 4300
- Nominal: 2900
- Enabled: 112 cores, 4 chips
- Orderable: 1,2,4 chips
- Cache L1: 32 KB I + 32 KB D on chip per core
- L2: 1 MB I+D on chip per core
- L3: 38.5 MB I+D on chip per chip
- Other: None
- Memory: 3 TB (48 x 64 GB 2Rx4 PC4-3200AA-R, running at 2933)
- Storage: 1 x 200 GB SATA III SSD
- Other: None

### Software

- OS: Red Hat Enterprise Linux 8.2
- Compiler: C/C++: Version 19.1.1.217 of Intel C/C++ Compiler for Linux;
  Fortran: Version 19.1.1.217 of Intel Fortran Compiler for Linux
- Parallel: Yes
- Firmware: Version 1.0 released Sep-2020
- 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: BIOS set to prefer performance at the cost of additional power usage

### Test Details

- CPU2017 License: 001176
- Test Date: Oct-2020
- Test Sponsor: Supermicro
- Hardware Availability: Sep-2020
- Tested by: Supermicro
- Software Availability: Apr-2020
- CPU Name: Intel Xeon Platinum 8380HL
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Supermicro
SuperServer SYS-240P-TNRT
(X12QCH+, Intel Xeon Platinum 8380HL)

SPECspeed®2017_int_base = 12.4
SPECspeed®2017_int_peak = 12.6

Results Table

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<tr>
<th>Benchmark</th>
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Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Compiler Notes
The inconsistent Compiler version information under Compiler Version section is due to a discrepancy in Intel Compiler. The correct version of C/C++ compiler is: Version 19.1.1.217 Build 20200306 Compiler for Linux
The correct version of Fortran compiler is: Version 19.1.1.217 Build 20200306 Compiler for Linux

Operating System Notes
Stack size set to unlimited using "ulimit -s unlimited"

Environment Variables 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"
MALLOC_CONF = "retain:true"
OMP_STACKSIZE = "192M"

General Notes
Binaries compiled on a system with 1x Intel Core i9-7980XE CPU + 64GB RAM
memory using Redhat Enterprise Linux 8.0
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

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

Supermicro
SuperServer SYS-240P-TNRT (X12QCH+ , Intel Xeon Platinum 8380HL)

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<td>Supermicro</td>
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SPECspeed®2017_int_peak = 12.6

Test Date: Oct-2020
Hardware Availability: Sep-2020
Software Availability: Apr-2020

General Notes (Continued)

NA: 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

BIOS Settings:
Power Technology = Custom
Power Performance Tuning = BIOS Controls EPB
ENERGY_PERF_BIAS_CFG mode = Performance
Hyper-Threading = Disable
Stale AtoS = Disable
Patrol Scrub = Disable

Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r6365 of 2019-08-21 295195f888a3d7edble6e46a485a0011
running on X12QCH-01 Tue Oct 13 01:57:19 2020

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) Platinum 8380HL CPU @ 2.90GHz
  4 "physical id"s (chips)
  112 "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 : 28
siblings : 28
physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27 28 29 30
physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27 28 29 30
physical 2: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27 28 29 30
physical 3: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27 28 29 30

From lscpu:

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

**Supermicro**
SuperServer SYS-240P-TNRT  
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**CPU2017 License:** 001176  
**Test Date:** Oct-2020  
**Test Sponsor:** Supermicro  
**Tested by:** Supermicro

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**Platform Notes (Continued)**

- **Architecture:** x86_64  
- **CPU op-mode(s):** 32-bit, 64-bit  
- **Byte Order:** Little Endian  
- **CPU(s):** 112
- **On-line CPU(s) list:** 0-111
- **Thread(s) per core:** 1
- **Core(s) per socket:** 28
- **Socket(s):** 4
- **NUMA node(s):** 4
- **Vendor ID:** GenuineIntel  
- **CPU family:** 6  
- **Model:** 85
- **Model name:** Intel(R) Xeon(R) Platinum 8380HL CPU @ 2.90GHz  
- **Stepping:** 11  
- **CPU MHz:** 3054.607  
- **CPU max MHz:** 4300.0000  
- **CPU min MHz:** 1000.0000
- **BogoMIPS:** 5800.00  
- **Virtualization:** VT-x  
- **L1d cache:** 32K  
- **L1i cache:** 32K  
- **L2 cache:** 1024K  
- **L3 cache:** 39424K
- **NUMA node0 CPU(s):** 0-27  
- **NUMA node1 CPU(s):** 28-55  
- **NUMA node2 CPU(s):** 56-83  
- **NUMA node3 CPU(s):** 84-111
- **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 pdemsg rd浚 tsc mpl constant_tsc arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc cpuid aperfmperf pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16 xtpre pdcm pcd dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abm 3nowprefetch cpuid fault epb cat_l3 cdp_l3 invvpicd_single intel_ppin ssbd mba ibp bsb ibrs ibrs_ehanced tpr_shadow vnmi flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm cmqm mpx rdt_a avx512f avx512dq rdseed adx smap clflushopt clwb intel_pt avx512cd avx512bw avx512vl xsaveopt xsave xsavec xsaves cmqm llc cmq_occup_llc cmq_mbb_total cmq_mbb_local avx512_bf16 dtherm ida arat pln pts pku ospke avx512_vnni md_clear flush_l1d arch_capabilities

/proc/cpuinfo cache data  
**cache size :** 39424 KB  

From numactl --hardware  
WARNING: a numactl 'node' might or might not correspond to a physical chip.  
**available:** 4 nodes (0-3)  
**node 0 cpus:** 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27

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Supermicro
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SPECspeed®2017_int_base = 12.4
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Platform Notes (Continued)

node 0 size: 772677 MB
node 0 free: 772314 MB
node 1 cpus: 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52
53 54 55
node 1 size: 774109 MB
node 1 free: 773809 MB
node 2 cpus: 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
81 82 83
node 2 size: 774137 MB
node 2 free: 772336 MB
node 3 cpus: 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105
106 107 108 109 110 111
node 3 size: 774136 MB
node 3 free: 773802 MB
node distances:
node 0 1 2 3
0: 10 20 20 20
1: 20 10 20 20
2: 20 20 10 20
3: 20 20 20 10

From /proc/meminfo
MemTotal: 3169342504 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*

os-release:
NAME="Red Hat Enterprise Linux"
VERSION="8.2 (Ootpa)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="8.2"
PLATFORM_ID="platform:el8"
PRETTY_NAME="Red Hat Enterprise Linux 8.2 (Ootpa)"
ANSI_COLOR="0;31"
redhat-release: Red Hat Enterprise Linux release 8.2 (Ootpa)
system-release: Red Hat Enterprise Linux release 8.2 (Ootpa)
system-release-cpe: cpe:/o:redhat:enterprise_linux:8.2:ga

uname -a:
Linux X12QCH-01 4.18.0-193.el8.x86_64 #1 SMP Fri Mar 27 14:35:58 UTC 2020 x86_64
x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:
itelist_multihit: Not affected

(Continued on next page)
Supermicro
SuperServer SYS-240P-TNRT
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CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

SPECspeed®2017_int_base = 12.4
SPECspeed®2017_int_peak = 12.6

Test Date: Oct-2020
Hardware Availability: Sep-2020
Software Availability: Apr-2020

Platform Notes (Continued)

CVE-2018-3620 (L1 Terminal Fault): Not affected
Microarchitectural Data Sampling: Not affected
CVE-2017-5754 (Meltdown): Not affected
CVE-2018-3639 (Speculative Store Bypass): Mitigation: Speculative Store Bypass disabled via prctl and seccomp
CVE-2017-5753 (Spectre variant 1): Mitigation: userview/swaps barriers and __user pointer sanitization
CVE-2017-5715 (Spectre variant 2): Mitigation: Enhanced IBRS, IBPB: conditional, RSB filling
tsx_async_abort: Not affected

run-level 3 Oct 13 01:56

SPEC is set to: /home/cpu2017
Filesystem Type Size Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs 125G 11G 114G 9% /home

From /sys/devices/virtual/dmi/id
BIOS: American Megatrends International, LLC. 1.0 09/02/2020
Vendor: Supermicro
Product: Super Server
Product Family: Family
Serial: 0123456789

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.
Memory:
48x Samsung M393A8G40AB2-CWE 64 GB 2 rank 3200

(End of data from sysinfo program)

Compiler Version Notes

==============================================================================
C | 600.perlbench_s(base) 602.gcc_s(base, peak) 605.mcf_s(base, peak)
  | 625.x264_s(base, peak) 657.xz_s(base, peak)
==============================================================================

Intel(R) C Compiler for applications running on Intel(R) 64, Version 2021.1
NextGen Build 20200304
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

==============================================================================
C | 600.perlbench_s(peak)

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

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SPECspeed®2017_int_base = 12.4
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CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

Test Date: Oct-2020
Hardware Availability: Sep-2020
Software Availability: Apr-2020

Compiler Version Notes (Continued)

Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
Version 19.1.1.217 Build 20200306
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

------------------------------------------------------------------------------
C       | 600.perlbench_s(base) 602.gcc_s(base, peak) 605.mcf_s(base, peak)
       | 625.x264_s(base, peak) 657.xz_s(base, peak)
Intel(R) C Compiler for applications running on Intel(R) 64, Version 2021.1
NextGen Build 20200304
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------
C       | 600.perlbench_s(peak)
------------------------------------------------------------------------------
Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
Version 19.1.1.217 Build 20200306
Copyright (C) 1985-2020 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++ Compiler for applications running on Intel(R) 64, Version 2021.1
NextGen Build 20200304
Copyright (C) 1985-2020 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 19.1.1.217 Build 20200306
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------

Base Compiler Invocation

C benchmarks:
icc

(Continued on next page)
Supermicro
SuperServer SYS-240P-TNRT (X12QCH+ , Intel Xeon Platinum 8380HL)

SPECspeed®2017_int_base = 12.4
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Base Compiler Invocation (Continued)

C++ benchmarks:
icpc

Fortran benchmarks:
ifort

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

Base Optimization Flags

C benchmarks:
-m64 -qnextgen -std=c11
-Wl,-plugin-opt=-x86-branches-within-32B-boundaries -Wl,-z,muldefs
-xCORE-AVX512 -O3 -ffast-math -flto -mfpmath=sse -funroll-loops
-fuse-ld=gold -qopt-mem-layout-trans=4 -fopenmp -DSPEC_OPENMP
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

C++ benchmarks:
-m64 -qnextgen -Wl,-plugin-opt=-x86-branches-within-32B-boundaries
-Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -flto -mfpmath=sse
-funroll-loops -fuse-ld=gold -qopt-mem-layout-trans=4
-L/usr/local/IntelCompiler19/compilers_and_libraries_2020.1.217/linux/compiler/lib/intel64_lin
-lqkmalloc

Fortran benchmarks:
-m64 -Wl,-plugin-opt=-x86-branches-within-32B-boundaries -xCORE-AVX512
-O3 -ipo -no-prec-div -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte
-mbranches-within-32B-boundaries
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### Peak Compiler Invocation

- **C benchmarks:**  
  - icc

- **C++ benchmarks:**  
  - icpc

- **Fortran benchmarks:**  
  - ifort

### Peak Portability Flags

- 600.perlbench_s: -DSPEC_LP64 -DSPEC_LINUX_X64
- 602.gcc_s: -DSPEC_LP64(*) -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

(*) Indicates a portability flag that was found in a non-portability variable.

### Peak Optimization Flags

- **C benchmarks:**  
  - 600.perlbench_s: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2)  
  - -xCORE-AVX512 -ipo -O3 -no-prec-div  
  - -qopt-mem-layout-trans=4 -fno-strict-overflow  
  - -mbranches-within-32B-boundaries  
  - -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

- 602.gcc_s:  
  - -m64 -qnextgen -std=c11 -fuse-ld=gold  
  - -Wl,-plugin-opt=-x86-branches-within-32B-boundaries  
  - -Wl,-z,muldefs -fprofile-generate(pass 1)  
  - -fprofile-use=default.profdata(pass 2) -xCORE-AVX512 -flto  
  - -Ofast(pass 1) -O3 -ffast-math -qopt-mem-layout-trans=4  
  - -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

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Supermicro
SuperServer SYS-240P-TNRT (X12QCH+, Intel Xeon Platinum 8380HL)

SPEC CPU®2017 Integer Speed Result

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**Tested by:** Supermicro

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<td>Sep-2020</td>
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<th>Tested by</th>
<th>Software Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supermicro</td>
<td>Apr-2020</td>
</tr>
</tbody>
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**Peak Optimization Flags (Continued)**

605.mcf_s: basepeak = yes
625.x264_s: -m64 -qnextgen -std=c11
-Wl,-plugin-opt=-x86-branches-within-32B-boundaries
-Wl,-z,muldefs -xCORE-AVX512 -flto -O3 -ffast-math
-fuse-ld=gold -qopt-mem-layout-trans=4 -fno-alias
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

657.xz_s: basepeak = yes

C++ benchmarks:
620.omnetpp_s: basepeak = yes
623.xalancbmk_s: basepeak = yes
631.deepsjeng_s: basepeak = yes
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
http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-CLX-revG.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/Intel-ic19.1u1-official-linux64_revA.xml
http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-CLX-revG.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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