### SPEC CPU®2017 Integer Rate Result

**Supermicro**

**SuperStorage 2029P-ACR24L (X11DPH-T, Intel Xeon Gold 6240R)**

**SPECrates:**
- **SPECrates®2017_int_base =** 273
- **SPECrates®2017_int_peak =** Not Run

**CPU2017 License:** 001176
**Test Date:** Dec-2019

**Test Sponsor:** Supermicro
**Hardware Availability:** Feb-2020

**Tested by:** Supermicro
**Software Availability:** Jun-2019

---

#### Hardware

<table>
<thead>
<tr>
<th>Software</th>
<th>OS: SUSE Linux Enterprise Server 15 SP1 4.12.14-195-default</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compiler:</td>
<td>C/C++: Version 19.0.4.227 of Intel C/C++ Compiler Build 20190416 for Linux; Fortran: Version 19.0.4.227 of Intel Fortran Compiler Build 20190416 for Linux</td>
</tr>
<tr>
<td>Parallel:</td>
<td>No</td>
</tr>
<tr>
<td>Firmware:</td>
<td>version 3.2 released Oct-2019</td>
</tr>
<tr>
<td>File System:</td>
<td>xfs</td>
</tr>
<tr>
<td>System State:</td>
<td>Run level 3 (Multi-user mode with networking)</td>
</tr>
<tr>
<td>Base Pointers:</td>
<td>64-bit</td>
</tr>
<tr>
<td>Peak Pointers:</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Other:</td>
<td>None</td>
</tr>
</tbody>
</table>

#### SPECrate®2017_int_base (273)

<table>
<thead>
<tr>
<th>Benchmarks</th>
<th>Copies</th>
</tr>
</thead>
<tbody>
<tr>
<td>500.perlbench_r</td>
<td>6</td>
</tr>
<tr>
<td>502.gcc_r</td>
<td>6</td>
</tr>
<tr>
<td>505.mcf_r</td>
<td>6</td>
</tr>
<tr>
<td>520.omnetpp_r</td>
<td>6</td>
</tr>
<tr>
<td>523.xalancbmk_r</td>
<td>6</td>
</tr>
<tr>
<td>525.x264_r</td>
<td>6</td>
</tr>
<tr>
<td>531.deepsjeng_r</td>
<td>6</td>
</tr>
<tr>
<td>541.leela_r</td>
<td>6</td>
</tr>
<tr>
<td>548.exchange2_r</td>
<td>6</td>
</tr>
<tr>
<td>557.xz_r</td>
<td>6</td>
</tr>
</tbody>
</table>

**CPU Name:** Intel Xeon Gold 6240R  
**Max MHz:** 4000  
**Nominal:** 2400  
**Enabled:** 48 cores, 2 chips, 2 threads/core  
**Orderable:** 1.2 chips  
**Cache L1:** 32 KB I + 32 KB D on chip per core  
**L2:** 1 MB I+D on chip per core  
**L3:** 35.75 MB I+D on chip per chip  
**Other:** None  
**Memory:** 192 GB (12 x 16 GB 2Rx4 PC4-2933V-R)  
**Storage:** 800 GB SATA 3 SSD  
**Other:** None  
**Power Management:** BIOS set to max performance at the cost of additional power usage.
**SPEC CPU®2017 Integer Rate Result**

Copyright 2017-2020 Standard Performance Evaluation Corporation

**Supermicro**

SuperStorage 2029P-ACR24L (X11DPH-T, Intel Xeon Gold 6240R)

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>500.perlbench_r</td>
<td>96</td>
<td>746</td>
<td>205</td>
<td>748</td>
<td>204</td>
<td>749</td>
<td>204</td>
</tr>
<tr>
<td>502.gcc_r</td>
<td>96</td>
<td>605</td>
<td>225</td>
<td>608</td>
<td>224</td>
<td>610</td>
<td>223</td>
</tr>
<tr>
<td>505.mcf_r</td>
<td>96</td>
<td>453</td>
<td>342</td>
<td>453</td>
<td>343</td>
<td>454</td>
<td>342</td>
</tr>
<tr>
<td>520.omnetpp_r</td>
<td>96</td>
<td>736</td>
<td>171</td>
<td>737</td>
<td>171</td>
<td>737</td>
<td>171</td>
</tr>
<tr>
<td>523.xalancbmk_r</td>
<td>96</td>
<td>342</td>
<td>297</td>
<td>342</td>
<td>296</td>
<td>343</td>
<td>296</td>
</tr>
<tr>
<td>525.x264_r</td>
<td>96</td>
<td>292</td>
<td>576</td>
<td>292</td>
<td>576</td>
<td>292</td>
<td>576</td>
</tr>
<tr>
<td>531.deepsjeng_r</td>
<td>96</td>
<td>474</td>
<td>232</td>
<td>473</td>
<td>232</td>
<td>473</td>
<td>232</td>
</tr>
<tr>
<td>541.leela_r</td>
<td>96</td>
<td>713</td>
<td>223</td>
<td>726</td>
<td>219</td>
<td>725</td>
<td>219</td>
</tr>
<tr>
<td>548.exchange2_r</td>
<td>96</td>
<td>464</td>
<td>542</td>
<td>463</td>
<td>544</td>
<td>463</td>
<td>544</td>
</tr>
<tr>
<td>557.xz_r</td>
<td>96</td>
<td>579</td>
<td>179</td>
<td>578</td>
<td>179</td>
<td>580</td>
<td>179</td>
</tr>
</tbody>
</table>

**Submit Notes**

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl 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"

**Environment Variables Notes**

Environment variables set by runcpu before the start of the run:

LD_LIBRARY_PATH =

"/home/cpu2017-1.1.0/lib/intel64:/home/cpu2017-1.1.0/lib/ia32:/home/cpu2017-1.1.0/ja5.0.1-32"

**General Notes**

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

Filesyste page cache synced and cleared with:

```bash
csync; echo 3>/proc/sys/vm/drop_caches
runcpu command invoked through numactl i.e.:
```

(Continued on next page)
SPEC CPU®2017 Integer Rate Result
Copyright 2017-2020 Standard Performance Evaluation Corporation

Supermicro
SuperStorage 2029P-ACR24L (X11DPH-T, Intel Xeon Gold 6240R)

SPECrate®2017_int_base = 273
SPECrate®2017_int_peak = Not Run

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

Test Date: Dec-2019
Hardware Availability: Feb-2020
Software Availability: Jun-2019

General Notes (Continued)

numactl --interleave=all runcpu <etc>
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.
Yes: The test sponsor attests, as of date of publication, that CVE-2018-3640 (Spectre variant 3a) is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2018-3639 (Spectre variant 4) is mitigated in the system as tested and documented.

Platform Notes

BIOS Settings:
Monitor/Mwait = Disable
Intel Virtualization Technology = Disable
Power Technology = Custom
Power Performance Tuning = BIOS Controls EPB
ENERGY_PERF_BIAS_CFG mode = Maximum Performance
Enhanced Halt Stat (C1E) = Disable
SNC = Enable
Stale Atos = Enable
LLC Dead Line Alloc = Disable
IMC Interleaving = 1-way Interleave
ADDDC Sparing = Disable
Patrol Scrub = Disable

Sysinfo program /home/cpu2017-1.1.0/bin/sysinfo
Rev: r6365 of 2019-08-21 295195f888a3d7edbble6e46a485a0011
running on linux-fsxm Sat Dec 14 15:21:58 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) Gold 6240R CPU @ 2.40GHz
        2 "physical id"s (chips)
        96 "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 : 24
    siblings : 48
    physical 0: cores 0 1 2 3 4 5 6 9 10 11 12 13 16 17 18 19 20 21 24 25 26 27 28 29
    physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 16 17 18 19 20 21 25 26 27 28 29

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

**Supermicro**

SuperStorage 2029P-ACR24L (X11DPH-T, Intel Xeon Gold 6240R)

<table>
<thead>
<tr>
<th>SPECrate®2017_int_base</th>
<th>273</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate®2017_int_peak</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

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

---

**Platform Notes (Continued)**

From `lscpu`:
- **Architecture:** x86_64
- **CPU op-mode(s):** 32-bit, 64-bit
- **Byte Order:** Little Endian
- **Address sizes:** 46 bits physical, 48 bits virtual
- **CPU(s):** 96
- **On-line CPU(s) list:** 0-95
- **Thread(s) per core:** 2
- **Core(s) per socket:** 24
- **Socket(s):** 2
- **NUMA node(s):** 4
- **Vendor ID:** GenuineIntel
- **CPU family:** 6
- **Model:** 85
- **Model name:** Intel(R) Xeon(R) Gold 6240R CPU @ 2.40GHz
- **Stepping:** 7
- **CPU MHz:** 2400.000
- **CPU max MHz:** 4000.0000
- **CPU min MHz:** 1000.0000
- **BogoMIPS:** 4800.00
- **Virtualization:** VT-x
- **L1d cache:** 32K
- **L1i cache:** 32K
- **L2 cache:** 1024K
- **L3 cache:** 36608K

**NUMA node0 CPU(s):** 0-3,7,8,12-14,18-20,48-51,55,56,60-62,66-68
**NUMA node1 CPU(s):** 4-6,9-11,15-17,21-23,52-54,57-59,63-65,69-71
**NUMA node2 CPU(s):** 24-27,31-33,37-39,43,44,72-75,79-81,85-87,91,92
**NUMA node3 CPU(s):** 28-30,34-36,40-42,45-47,76-78,82-84,88-90,93-95

**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 cpuid
- aperfmperf pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16
- xtpr pdcm pcid dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave
- avx f16c rdrand lahf_lm abm 3dnowprefetch cpuid_fault epb cat_l3 cdg_l3
- invpcid_single intel_pni ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow vnmi
- flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 irdq invpcid rdmsk
- cmp xmr pxr dtc_a avx512f avx512dq rdseed adx smap clflushopt clwb intel_pt avx512cd
- avx512bw avx512vl xsavesopt xsavec xgetbv1 xsaveas cqm_llc cqm_occupa_llc cqm_mbb_total
- cqm_mbb_local dtherm ida arat pln pts pku ospke avx512_vnni md_clear flush_lld
- arch_capabilities

/proc/cpuinfo cache data
- cache size : 36608 KB

From `numactl --hardware` WARNING: a numactl 'node' might or might not correspond to a...

(Continued on next page)
Supermicro
SuperStorage 2029P-ACR24L (X11DPH-T, Intel Xeon Gold 6240R)

SPEC CPU® 2017 Integer Rate Result

SPECrat®2017_int_base = 273
SPECrat®2017_int_peak = Not Run

CPU2017 License: 001176
Test Sponsor: Supermicro
Test Date: Dec-2019
 Tested by: Supermicro
Hardware Availability: Feb-2020
Software Availability: Jun-2019

Platform Notes (Continued)

physical chip.
available: 4 nodes (0-3)

node 0 cpus: 0 1 2 3 7 8 12 13 14 18 19 20 48 49 50 51 55 56 60 61 62 66 67 68
node 0 size: 46964 MB
node 0 free: 46617 MB

node 1 cpus: 4 5 6 9 10 11 15 16 17 21 22 23 52 53 54 57 58 59 63 64 65 69 70 71
node 1 size: 48379 MB
node 1 free: 48122 MB

node 2 cpus: 24 25 26 27 31 32 33 37 38 39 43 44 72 73 74 75 79 80 81 85 86 87 91 92
node 2 size: 48350 MB
node 2 free: 48143 MB

node 3 cpus: 28 29 30 34 35 36 40 41 42 45 46 47 76 77 78 82 83 84 88 89 90 93 94 95
node 3 size: 48377 MB
node 3 free: 48152 MB

node distances:

node 0 1 2 3
0: 10 11 21 21
1: 11 10 21 21
2: 21 21 10 11
3: 21 21 11 10

From /proc/meminfo
MemTotal: 196681552 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release*/etc/*version*
os-release:
NAME="SLES"
VERSION="15-SP1"
VERSION_ID="15.1"
PRETTY_NAME="SUSE Linux Enterprise Server 15 SP1"
ID="sles"
ID_LIKE="suse"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:15:sp1"

uname -a:
Linux linux-fsxm 4.12.14-195-default #1 SMP Tue May 7 10:55:11 UTC 2019 (8fba516)
x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:

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

(Continued on next page)
Supermicro
SuperStorage 2029P-ACR24L (X11DPH-T, Intel Xeon Gold 6240R)

SPEC CPU®2017 Integer Rate Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

SPECrate®2017_int_base = 273
SPECrate®2017_int_peak = Not Run

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

Platform Notes (Continued)

via prctl and seccomp

CVE-2017-5753 (Spectre variant 1):
Mitigation: ___user pointer sanitization

CVE-2017-5715 (Spectre variant 2):
Mitigation: Enhanced IBRS, IBPB: conditional, RSB filling

run-level 3 Dec 14 15:18

SPEC is set to: /home/cpu2017-1.1.0

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda3 xfs 711G 122G 589G 18% /home

From /sys/devices/virtual/dmi/id
BIOS: American Megatrends Inc. 3.2 10/22/2019
Vendor: Supermicro
Product: Super Server
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:
4x NO DIMM NO DIMM
12x SK Hynix HMA82GR7JJR8-N-WM 16 GB 2 rank 2933

(End of data from sysinfo program)

Compiler Version Notes

C 500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base)
525.x264_r(base) 557.xz_r(base)

Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.

C++ 520.omnetpp_r(base) 523.xalancbmk_r(base) 531.deepsjeng_r(base)
541.leela_r(base)

Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64,
Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.
Supermicro
SuperStorage 2029P-ACR24L (X11DPH-T, Intel Xeon Gold 6240R)

SPEC crate® 2017 int base = 273
SPEC crate® 2017 int peak = Not Run

CPU 2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

Test Date: Dec-2019
Hardware Availability: Feb-2020
Software Availability: Jun-2019

Compiler Version Notes (Continued)

==============================================================================
Fortran | 548.exchange2_r(base)
==============================================================================
Intel (R) Fortran Intel (R) 64 Compiler for applications running on Intel (R)
64, Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 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

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-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=4
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.4.227/linux/compiler/lib/intel64
-lqkmalloc

(Continued on next page)
Supermicro
SuperStorage 2029P-ACR24L (X11DPH-T, Intel Xeon Gold 6240R)

<table>
<thead>
<tr>
<th>Spec CPU®2017 Integer Rate Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate®2017_int_base = 273</td>
</tr>
<tr>
<td>SPECrate®2017_int_peak = Not Run</td>
</tr>
</tbody>
</table>

CPU2017 License: 001176
Test Sponsor: Supermicro
Test Date: Dec-2019
Tested by: Supermicro
Hardware Availability: Feb-2020
Software Availability: Jun-2019

**Base Optimization Flags (Continued)**

C++ benchmarks:
- `-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div`
- `-qopt-mem-layout-trans=4`
- `-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.4.227/linux/compiler/lib/intel64`
- `-lqkmalloc`

Fortran benchmarks:
- `-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div`
- `-qopt-mem-layout-trans=4 -nostandard-realloc-lhs -align array32byte`
- `-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.4.227/linux/compiler/lib/intel64`
- `-lqkmalloc`

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-revF.2020-01-09.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-CLX-revF.2020-01-09.xml

SPEC CPU and SPECrate are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEC CPU®2017 v1.1.0 on 2019-12-14 18:21:57-0500.
Report generated on 2020-04-14 14:10:06 by CPU2017 PDF formatter v6255.
Originally published on 2020-04-14.