### SPEC CPU®2017 Integer Rate Result

**Tyrone Systems**  
(Test Sponsor: Netweb Pte Ltd)  
Tyrone Camarero ID1100C2R-28  
(2.40 GHz, Intel Xeon Gold 6336Y)

<table>
<thead>
<tr>
<th>CPU2017 License: 006042</th>
<th>Test Date: Aug-2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor: Netweb Pte Ltd</td>
<td>Hardware Availability: Apr-2021</td>
</tr>
<tr>
<td>Tested by: Tyrone Systems</td>
<td>Software Availability: Jun-2021</td>
</tr>
</tbody>
</table>

#### SPECrate®2017
- **int_base** = 325
- **int_peak** = 336

**Tested by:** Tyrone Systems  
**Test Sponsor:** Netweb Pte Ltd  
**Hardware Availability:** Apr-2021  
**Software Availability:** Jun-2021

**Hardware**
- **CPU Name:** Intel Xeon Gold 6336Y
- **Max MHz:** 3600
- **Nominal:** 2400
- **Enabled:** 48 cores, 2 chips, 2 threads/core
- **Orderable:** 1.2 Chips
- **Cache L1:** 32 KB I + 48 KB D on chip per core
- **L2:** 1.25 MB I+D on chip per core
- **L3:** 36 MB I+D on chip per chip
- **Other:** None
- **Memory:** 1 TB (32 x 32 GB 1Rx4 PC4-3200AA-R)
- **Storage:** 1 x 250 GB SATA SSD
- **Other:** None

**Software**
- **OS:** CentOS Linux release 8.4.2105
- **Kernel:** 4.18.0-305.3.1.el8.x86_64
- **Compiler:** C/C++: Version 2021.1 of Intel oneAPI DPC++/C++  
  Compiler Build 20201113 for Linux;  
  Fortran: Version 2021.1 of Intel Fortran Compiler  
  Classic Build 20201112 for Linux;  
  C/C++: Version 2021.1 of Intel C/C++ Compiler  
  Classic Build 20201112 for Linux
- **Parallel:** No
- **Firmware:** Version SE5C620.86B.01.01.0003.2104260124  
  released Apr-2021
- **File System:** xfs
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 64-bit
- **Peak Pointers:** 32/64-bit
- **Other:** jemalloc memory allocator V5.0.1
- **Power Management:** BIOS set to prefer performance at the cost of additional power usage.

### Benchmark Results

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>SPECrate®2017_int_base</th>
<th>SPECrate®2017_int_peak</th>
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<tr>
<td>perlbench_r</td>
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<td>gcc_r</td>
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<tr>
<td>leela_r</td>
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<tr>
<td>xz_r</td>
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**SPECrate®2017_int_base (325)**  
**SPECrate®2017_int_peak (336)**
## Results Table

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<tr>
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<td>561</td>
<td>185</td>
<td>562</td>
<td>184</td>
<td>561</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/lib/intel64:/home/cpu2017/lib/ia32:/home/cpu2017/je5.0.1-32"
MALLOC_CONF = "retain:true"
```

**General Notes**

Binaries compiled locally by Netweb
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
```
runcpu command invoked through numaclt i.e.:
SPEC CPU®2017 Integer Rate Result

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SPECrate®2017_int_peak = 336

CPU2017 License: 006042
Test Sponsor: Netweb Pte Ltd
Test Date: Aug-2021
Tested by: Tyrone Systems
Hardware Availability: Apr-2021
Software Availability: Jun-2021

General Notes (Continued)

numactl --interleave=all runcpu <etc>

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-2017-5753 (Spectre variant 1) is mitigated in the system as tested and documented.
NA: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.

Platform Notes

BIOS Settings:
Power Technology set to Custom
Power Performance Tuning set to BIOS Controls EPB
ENERGY_PERF_BIAS_CFG mode set to Performance
LLC Dead Line Alloc set to Disable

Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acafc64d
running on localhost.localdomain Sat Aug 21 14:19:48 2021

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 6336Y 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 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

From lscpu from util-linux 2.32.1:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 96
On-line CPU(s) list: 0-95
Thread(s) per core: 2

(Continued on next page)
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Test Date: Aug-2021
Hardware Availability: Apr-2021
Software Availability: Jun-2021

Platform Notes (Continued)

Core(s) per socket: 24
Socket(s): 2
NUMA node(s): 4
Vendor ID: GenuineIntel
BIOS Vendor ID: Intel(R) Corporation
CPU family: 6
Model: 106
Model name: Intel(R) Xeon(R) Gold 6336Y CPU @ 2.40GHz
BIOS Model name: Intel(R) Xeon(R) Gold 6336Y CPU @ 2.40GHz
Stepping: 6
CPU MHz: 2286.413
CPU max MHz: 3600.0000
CPU min MHz: 800.0000
BogoMIPS: 4800.00
Virtualization: VT-x
L1d cache: 48K
L1i cache: 32K
L2 cache: 1280K
L3 cache: 36864K
NUMA node0 CPU(s): 0-11,48-59
NUMA node1 CPU(s): 12-23,60-71
NUMA node2 CPU(s): 24-35,72-83
NUMA node3 CPU(s): 36-47,84-95

Flags: fpu vme de pse tsc msr pae mce cmov pat pse36 clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx pdpe1gb rdtscp lm 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 xptr pdcm pcid dca sse4_1_l1sse4_2_x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abm 3nowprefetch cpuid_fault epb cat_13 invpcid_single ssbd mba ibrs ibpb stibp ibrs_enhanced fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 ertms invpcid cqm rdt_a avx512f avx512dq rdseed adx smap avx512ifma clflushopt clwb intel_pt avx512cd sha_ni avx512bw avx512vl xsaveopt xsaves xsavecs xsaveopt xgetbv1 xsavec qmmf qm mbt cqnm qmsb qhwm sharing split_lock detected wbinvd dtherm ida arat pln pts hwp hwp_act_window hwp_epp hwp_pkreq avx512vmbi umip pku ospke avx512_vmbi2 gfni vaes vpmclmulqdq avx512_vnni avx512_bitalg tme avx512_vpopcntdq la57 rdpid fsrm md_clear pconfig flush_lld arch_capabilities

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 48 49 50 51 52 53 54 55 56 57 58 59
node 0 size: 257671 MB
node 0 free: 256667 MB
node 1 cpus: 12 13 14 15 16 17 18 19 20 21 22 23 60 61 62 63 64 65 66 67 68 69 70 71

(Continued on next page)
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Platform Notes (Continued)

node 1 size: 258042 MB
node 1 free: 257712 MB
node 2 cpus: 24 25 26 27 28 29 30 31 32 33 34 35 72 73 74 75 76 77 78 79 80 81 82 83
node 2 size: 258042 MB
node 2 free: 257721 MB
node 3 cpus: 36 37 38 39 40 41 42 43 44 45 46 47 84 85 86 87 88 89 90 91 92 93 94 95
node 3 size: 258002 MB
node 3 free: 257603 MB
node distances:
node 0 1 2 3
0: 10 11 20 20
1: 11 10 20 20
2: 20 20 10 11
3: 20 20 11 10

From /proc/meminfo
MemTotal: 1056521556 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

/sbin/tuned-adm active
Current active profile: throughput-performance
/sys/devices/system/cpu/cpu*/cpufreq/scaling_governor has performance

From /etc/*release* /etc/*version*
centos-release: CentOS Linux release 8.4.2105
centos-release-upstream: Derived from Red Hat Enterprise Linux 8.4
os-release:
NAME="CentOS Linux"
VERSION="8"
ID="centos"
ID_LIKE="rhel fedora"
VERSION_ID="8"
PLATFORM_ID="platform:el8"
PRETTY_NAME="CentOS Linux 8"
ANSI_COLOR="0;31"
redhat-release: CentOS Linux release 8.4.2105
system-release: CentOS Linux release 8.4.2105
system-release-suse: openSUSELeap:15.1
system-release-cpe: cpe:/o:centos:centos:8

uname -a:
Linux localhost.localdomain 4.18.0-305.3.1.el8.x86_64 #1 SMP Tue Jun 1 16:14:33 UTC 2021 x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:

(Continued on next page)
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SPECrate®2017_int_base = 325
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Platform Notes (Continued)

CVE-2018-12207 (iTLB Multihit): Not affected
CVE-2018-3620 (L1 Terminal Fault): Not affected
Microarchitectural Data Sampling: Not affected
CVE-2017-5754 (Meltdown): Mitigation: Speculative Store Bypass disabled via prctl and seccomp
CVE-2018-3639 (Speculative Store Bypass): Mitigation: usercopy/swapgs barriers and __user pointer sanitization
CVE-2017-5753 (Spectre variant 1): Mitigation: Enhanced IBRS, IBPB: conditional, RSB filling
CVE-2017-5715 (Spectre variant 2): Not affected
CVE-2020-0543 (Special Register Buffer Data Sampling): Not affected
CVE-2019-11135 (TSX Asynchronous Abort): Not affected

run-level 3 Aug 21 14:17

SPEC is set to: /home/cpu2017

Filesystem Type Size Used Avail Use% Mounted on
/dev/mapper/cl-home xfs 163G 70G 94G 43% /home

From /sys/devices/virtual/dmi/id
Vendor: Intel Corporation
Product: WHITLEY
Product Family: Family
Serial: UNKNOWN

Additional information from dmidecode 3.2 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 SM BIOS" standard.

Memory:
32x Micron 18ASF4G72PZ-3G2E1 32 GB 1 rank 3200

BIOS:
BIOS Vendor: Intel Corporation
BIOS Version: SE5C620.86B.01.01.0003.2104260124
BIOS Date: 04/26/2021

(End of data from sysinfo program)

Compiler Version Notes

==============================================================================
| C  | 500.perlbench_r(peak) 557.xz_r(peak)

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

(Tyrone Systems)

(Test Sponsor: Netweb Pte Ltd)

**SPEC CPU®2017 Int: 2017 Integer Rate Result**

Copyright 2017-2021 Standard Performance Evaluation Corporation

**Tyrone Camarero IDI100C2R-28**

(2.40 GHz, Intel Xeon Gold 6336Y)

**SPECrater®2017_int_base** = 325

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**Compiler Version Notes (Continued)**

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Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R) 64, Version 2021.1 Build 20201112_000000

Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

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C | 502.gcc_r(peak)

---

Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2021.1 Build 20201113

Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

---

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

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Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2021.1 Build 20201113

Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

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C | 500.perlbench_r(peak) 557.xz_r(peak)

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Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R) 64, Version 2021.1 Build 20201112_000000

Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

---

C | 502.gcc_r(peak)

---

Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2021.1 Build 20201113

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

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Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2021.1 Build 20201113

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## Compiler Version Notes (Continued)

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<th>C</th>
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<th>548.exchange2_r(base, peak)</th>
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(2.40 GHz, Intel Xeon Gold 6336Y)

**SPECrate®2017_int_base = 325**
**SPECrate®2017_int_peak = 336**

**Base Compiler Invocation**

C benchmarks:
icx

C++ benchmarks:
icpx

Fortran benchmarks:
ifort

**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:
-w -std=c11 -m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math
-ffast-math -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-mbranches-within-32B-boundaries
-L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin
-1qkmalloc

C++ benchmarks:
-w -m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-mbranches-within-32B-boundaries
-L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin
-1qkmalloc

Fortran benchmarks:
-w -m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ipo -no-prec-div
-qopt-mem-layout-trans=4 -nostandard-realloc-lhs -align array32byte
-auto -mbranches-within-32B-boundaries

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

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### Tyrone Systems

**Tyrone Camarero ID1100C2R-28**

(2.40 GHz, Intel Xeon Gold 6336Y)

### SPECrate®2017 Integer Results

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## Base Optimization Flags (Continued)

For Fortran benchmarks (continued):

- `-L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin`
- `-lgkmalloc`

### Peak Compiler Invocation

#### C benchmarks (except as noted below):

- `icx`

- `500.perlbench_r: icc`

- `557.xz_r: icc`

#### C++ benchmarks:

- `icpx`

#### Fortran benchmarks:

- `ifort`

### 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: -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`

### Peak Optimization Flags

#### C benchmarks:

- `500.perlbench_r: -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`

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

Tyrone Systems
(Test Sponsor: Netweb Pte Ltd)

Tyrone Camarero IDI100C2R-28
(2.40 GHz, Intel Xeon Gold 6336Y)

SPECrate®2017_int_base = 325
SPECrate®2017_int_peak = 336

CPU2017 License: 006042
Test Sponsor: Netweb Pte Ltd
Tested by: Tyrone Systems

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Peak Optimization Flags (Continued)

500.perlbench_r (continued):
- L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin
  - lqkmalloc

502.gcc_r: -m32
- L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/ia32_lin
  - std=gnu89
  - Wl,-z,muldefs
  - fprofile-generate(pass 1)
  - fprofile-use=default.profdata(pass 2)
  - xCORE-AVX512
  - flto
  - Ofast(pass 1)
  - O3
  - fffast-math
  - gopt-mem-layout-trans=4
  - mbranches-within-32B-boundaries
  - L/usr/local/je5.0.1-32/lib
  - ljemalloc

505.mcf_r: basepeak = yes

525.x264_r: -w
- std=c11
- m64
- Wl,-z,muldefs
- xCORE-AVX512
- flto
- O3
- fffast-math
- gopt-mem-layout-trans=4
- fno-alias
- mbranches-within-32B-boundaries
- L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin
- lqkmalloc

557.xz_r: -Wl,-z,muldefs
- xCORE-AVX512
- ipo
- O3
- no-prec-div
- gopt-mem-layout-trans=4
- mbranches-within-32B-boundaries
- L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin
- lqkmalloc

C++ benchmarks:

520.omnetpp_r: basepeak = yes

523.xalancbmk_r: basepeak = yes

531.deepsjeng_r: basepeak = yes

541.leela_r: basepeak = yes

Fortran benchmarks:

548.exchange2_r: basepeak = yes

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2017/flags/Tyrone-Platform-Settings-V1.2-CLX-revI.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/Intel-ic2021-official-linux64_revA.xml
http://www.spec.org/cpu2017/flags/Tyrone-Platform-Settings-V1.2-CLX-revI.xml
## SPEC CPU®2017 Integer Rate Result

Tyrone Systems  
(Test Sponsor: Netweb Pte Ltd)  
Tyrone Camarero IDI100C2R-28  
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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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