Tyrone Systems
(Test Sponsor: Netweb Pte Ltd)
DIT400TR-48RL
(2.70 GHz, Intel Xeon Platinum 8280L)

SPECspeed®2017_int_base = 10.1
SPECspeed®2017_int_peak = 10.4

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

Threads

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>112</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>112</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>112</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>112</td>
</tr>
<tr>
<td>623.xalanchmk_s</td>
<td>112</td>
</tr>
<tr>
<td>625.x264_s</td>
<td>112</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>112</td>
</tr>
<tr>
<td>641.leela_s</td>
<td>112</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>112</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>112</td>
</tr>
</tbody>
</table>

SPECspeed®2017_int_base (10.1) SPECspeed®2017_int_peak (10.4)

Hardware

CPU Name: Intel Xeon Platinum 8280L
Max MHz: 4000
Nominal: 2700
Enabled: 56 cores, 2 chips, 2 threads/core
Orderable: 1, 2 (chip)s
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: 384 GB (12 x 32 GB 2Rx4 PC4-2933Y-R)
Storage: 1 x 480 GB SSD
Other: None

Software

OS: CentOS Linux release 7.7.1908 (Core)
Compiler: C/C++: Version 19.0.4.243 of Intel C/C++
Compiler Build 20190416 for Linux;
Fortran: Version 19.0.4.243 of Intel Fortran
Compiler Build 20190416 for Linux
Parallel: Yes
Firmware: Version V8.101 released Aug-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
Power Management: Default
Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>112</td>
<td>261</td>
<td>6.80</td>
<td>259</td>
<td>6.84</td>
<td>112</td>
<td>224</td>
<td>7.92</td>
<td>223</td>
<td>7.95</td>
<td>224</td>
<td>7.93</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>112</td>
<td>384</td>
<td>12.3</td>
<td>384</td>
<td>12.3</td>
<td>112</td>
<td>379</td>
<td>12.5</td>
<td>379</td>
<td>12.5</td>
<td>379</td>
<td>12.4</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>112</td>
<td>203</td>
<td>8.02</td>
<td>203</td>
<td>8.05</td>
<td>112</td>
<td>199</td>
<td>8.21</td>
<td>195</td>
<td>8.34</td>
<td>195</td>
<td>8.36</td>
</tr>
<tr>
<td>623.xalanchmk_s</td>
<td>112</td>
<td>118</td>
<td>12.0</td>
<td>119</td>
<td>11.9</td>
<td>112</td>
<td>118</td>
<td>12.0</td>
<td>118</td>
<td>12.0</td>
<td>119</td>
<td>11.9</td>
</tr>
<tr>
<td>625.x264_s</td>
<td>112</td>
<td>122</td>
<td>14.5</td>
<td>122</td>
<td>14.5</td>
<td>112</td>
<td>122</td>
<td>14.5</td>
<td>122</td>
<td>14.5</td>
<td>122</td>
<td>14.5</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>112</td>
<td>264</td>
<td>5.43</td>
<td>263</td>
<td>5.45</td>
<td>112</td>
<td>264</td>
<td>5.43</td>
<td>263</td>
<td>5.45</td>
<td>271</td>
<td>5.28</td>
</tr>
<tr>
<td>641.leela_s</td>
<td>112</td>
<td>361</td>
<td>4.73</td>
<td>360</td>
<td>4.74</td>
<td>112</td>
<td>360</td>
<td>4.74</td>
<td>360</td>
<td>4.74</td>
<td>362</td>
<td>4.72</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>112</td>
<td>183</td>
<td>16.1</td>
<td>182</td>
<td>16.2</td>
<td>112</td>
<td>182</td>
<td>16.2</td>
<td>182</td>
<td>16.2</td>
<td>184</td>
<td>16.0</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>112</td>
<td>251</td>
<td>24.6</td>
<td>254</td>
<td>24.3</td>
<td>112</td>
<td>254</td>
<td>24.3</td>
<td>256</td>
<td>24.2</td>
<td>261</td>
<td>23.7</td>
</tr>
</tbody>
</table>

**Compiler Notes**

SPEC has learned that this result, which used an evaluation compiler, was submitted contrary to the compiler license terms. Intel has granted a one-time waiver for this result.

**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/ia32:/home/cpu2017/lib/intel64:/home/cpu2017/je5.0.1-32:/home/cpu2017/je5.0.1-64"
OMP_STACKSIZE = "192M"

**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
Filesystem page cache synced and cleared with: sync; echo 3>/proc/sys/vm/drop_caches

(Continued on next page)
**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**

The system was tested with a pre-production version of the Intel Xeon Platinum 8280L, which had a nominal MHz of 2.6 GHz. Production chips have a nominal MHz of 2.7 GHz and therefore performance may be slightly faster than what was tested.

Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r6365 of 2019-08-21 295195f88a3d7edbbe6e46a485a0011
running on NODE4 Wed Feb 5 23:27:07 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 8280L CPU @ 2.60GHz
- 2 "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 : 56
- 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

From lscpu:
- 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: 2
- Core(s) per socket: 28
- Socket(s): 2

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

Tyrone Systems
(Test Sponsor: Netweb Pte Ltd)
DIT400TR-48RL
(2.70 GHz, Intel Xeon Platinum 8280L)

SPECspeed®2017_int_base = 10.1
SPECspeed®2017_int_peak = 10.4

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

Platform Notes (Continued)

NUMA node(s):          2
Vendor ID:             GenuineIntel
CPU family:            6
Model:                 85
Model name:            Intel(R) Xeon(R) Platinum 8280L CPU @ 2.60GHz
Stepping:              5
CPU MHz:               999.914
CPU max MHz:           3900.0000
CPU min MHz:           1000.0000
BogoMIPS:              5200.00
Virtualization:        VT-x
L1d cache:             32K
L1i cache:             32K
L2 cache:              1024K
L3 cache:              39424K
NUMA node0 CPU(s):     0-27,56-83
NUMA nodel CPU(s):     28-55,84-111
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 pdpe1gb rdtsscp
lm constant_tsc art arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc
aperfmpref eagerfpu pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg
fma cx16 xtrt pdcm pcid dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes
xsave avx f16c rdrand lahf_lm abm 3nowprefetch ebpx cat _13 cdp _13 intel_p6in
intel_pt ssbd mba ibrs ibpb stibp tpr_shadow vnmi flexpriority ept vpid fsgsbase

tsc_adjust bml1 hle avx2 smep bmi2 erms invpcid rtm cmq mpx rd_a avx512f avx512dq
rdseed adx smap clflushopt clwb avx512cd avx512bw avx512vl xsaveopt xsavec xgetbv

cq m_l1c cqm_occup_llc cqm_mbb_total cqm_mbb_local dtherm ida arat pln pts hwp
hwp_act_window hwp_epp hwp_pkg_req pku ospke spec_ctrl intel_stibp flush_lld
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: 2 nodes (0-1)
    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
                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 0 size: 195228 MB
    node 0 free: 155283 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 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 1 size: 196608 MB
    node 1 free: 158796 MB
    node distances:
        node 0 1

(Continued on next page)
Tyrone Systems
(Test Sponsor: Netweb Pte Ltd)
DIT400TR-48RL
(2.70 GHz, Intel Xeon Platinum 8280L)

SPEC CPU®2017 Integer Speed Result
Copyright 2017-2020 Standard Performance Evaluation Corporation

SPECspeed®2017_int_base = 10.1
SPECspeed®2017_int_peak = 10.4

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

Test Date: Feb-2020
Hardware Availability: Sep-2019
Software Availability: Aug-2019

Platform Notes (Continued)

From /proc/meminfo
MemTotal: 394852372 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
centos-release: CentOS Linux release 7.7.1908 (Core)
centos-release-upstream: Derived from Red Hat Enterprise Linux 7.7 (Source)

uname -a:
Linux NODE4 3.10.0-1062.el7.x86_64 #1 SMP Wed Aug 7 18:08:02 UTC 2019 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:
CVE-2018-3620 (L1 Terminal Fault): Not affected
Microarchitectural Data Sampling: Vulnerable: Clear CPU buffers attempted, no microcode; SMT vulnerable
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: Load fences, __user pointer sanitization
CVE-2017-5715 (Spectre variant 2): Mitigation: Full retpoline, IBPB

run-level 3 Feb 4 06:00

SPEC is set to: /home/cpu2017
Filesystem Type Size Used Avail Use% Mounted on
/dev/mapper/centos-home xfs 392G 221G 171G 57% /home

From /sys/devices/virtual/dmi/id

(Continued on next page)
Tyrone Systems
(Test Sponsor: Netweb Pte Ltd)
DIT400TR-48RL
(2.70 GHz, Intel Xeon Platinum 8280L)

**SPEC CPU®2017 Integer Speed Result**

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base</th>
<th>10.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed®2017_int_peak</td>
<td>10.4</td>
</tr>
</tbody>
</table>

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

**Platform Notes (Continued)**

- BIOS: American Megatrends Inc. V8.101 08/02/2019
- Vendor: Tyrone Systems
- Product: TP12XH-L2I
- Serial: empty

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: 12x Samsung M393A4K40CB2-CVF 32 GB 2 rank 2933

(End of data from sysinfo program)

**Compiler Version Notes**

---

**C**

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

---

**Intel (R) C Intel (R) 64 Compiler for applications running on Intel (R) 64, Version 19.0.4.243 Build 20190416**

Copyright (C) 1985-2019 Intel Corporation. All rights reserved.

**icc:** NOTE: The evaluation period for this product ends on 2-nov-2019 UTC.

---

**C++**

- 620.omnetpp_s(base, peak)
- 623.xalancbmk_s(base, peak)
- 631.deepsjeng_s(base, peak)
- 641.leela_s(base, peak)

---

**Intel (R) C++ Intel (R) 64 Compiler for applications running on Intel (R) 64, Version 19.0.4.243 Build 20190416**

Copyright (C) 1985-2019 Intel Corporation. All rights reserved.

**icpc:** NOTE: The evaluation period for this product ends on 2-nov-2019 UTC.

---

**Fortran**

- 648.exchange2_s(base, peak)

---

**Intel (R) Fortran Intel (R) 64 Compiler for applications running on Intel (R) 64, Version 19.0.4.243 Build 20190416**

Copyright (C) 1985-2019 Intel Corporation. All rights reserved.

**ifort:** NOTE: The evaluation period for this product ends on 2-nov-2019 UTC.
SPEC CPU®2017 Integer Speed Result

Tyrone Systems  
(Test Sponsor: Netweb Pte Ltd)  
DIT400TR-48RL  
(2.70 GHz, Intel Xeon Platinum 8280L)  

SPECspeak®2017_int_base = 10.1  
SPECspeak®2017_int_peek = 10.4

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

Test Date: Feb-2020  
Hardware Availability: Sep-2019  
Software Availability: Aug-2019

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

Base Optimization Flags

C benchmarks:  
-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div  
-qopt-mem-layout-trans=4 -gopenmp -DSPEC_OPENMP  
-L/usr/local/je5.0.1-64/lib -ljemalloc

C++ benchmarks:  
-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div  
-qopt-mem-layout-trans=4  
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.4.243/linux/compiler/lib/intel64  
-lqkmalloc

Fortran benchmarks:  
-xCORE-AVX512 -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-AVX512 -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

602.gcc_s: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -O2
-xCORE-AVX512 -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-AVX512 -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-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=4 -qopenmp -DSPEC_OPENMP
-L/usr/local/je5.0.1-64/lib -ljemalloc

657.xz_s: -Wl,-z,muldefs -xCORE-AVX512 -qopt-mem-layout-trans=4 -ipo -O3
-no-prec-div -DSPEC_SUPPRESS_OPENMP -qopenmp
-DSPEC_OPENMP -L/usr/local/je5.0.1-64/lib -ljemalloc

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

Tyrone Systems  
(Test Sponsor: Netweb Pte Ltd)  
DIT400TR-48RL  
(2.70 GHz, Intel Xeon Platinum 8280L)  

**SPECspeed®2017_int_base = 10.1**  
**SPECspeed®2017_int_peak = 10.4**

<table>
<thead>
<tr>
<th>CPU2017 License: 006042</th>
<th>Test Date: Feb-2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor: Netweb Pte Ltd</td>
<td>Hardware Availability: Sep-2019</td>
</tr>
<tr>
<td>Tested by: Netweb</td>
<td>Software Availability: Aug-2019</td>
</tr>
</tbody>
</table>

**Peak Optimization Flags (Continued)**

C++ benchmarks:

620.omnetpp_s: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo  
-xCORE-AVX512 -O3 -no-prec-div -qopt-mem-layout-trans=4  
-DSPEC_SUPPRESS_OPENMP  
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.4.243/linux/compiler/lib/intel64  
-lqkmalloc

623.xalancbmk_s: -Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div  
-qopt-mem-layout-trans=4  
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.4.243/linux/compiler/lib/intel64  
-lqkmalloc

631.deepsjeng_s: Same as 623.xalancbmk_s

641.leela_s: Same as 623.xalancbmk_s

Fortran benchmarks:

-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-mem-layout-trans=4  
-nostandard-realloc-lhs

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

http://www.spec.org/cpu2017/flags/TyroneIT-Platform-Settings-V1-CLX-revA.html  

You can also download the XML flags sources by saving the following links:

http://www.spec.org/cpu2017/flags/TyroneIT-Platform-Settings-V1-CLX-revA.xml  

SPEC CPU and SPECspeed 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 2020-02-05 23:27:06-0500.  
Report generated on 2020-10-29 21:04:54 by CPU2017 PDF formatter v6255.  
Originally published on 2020-04-17.