



SPEC CPU®2017 Integer Speed Result

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Tyrone Systems

(Test Sponsor: Netweb Pte Ltd)

Tyrone Camarero SDI100A3U-212
(2.30 GHz, Intel Xeon Platinum 8380)

SPECspeed®2017_int_base = 8.48

SPECspeed®2017_int_peak = 8.63

CPU2017 License: 006042

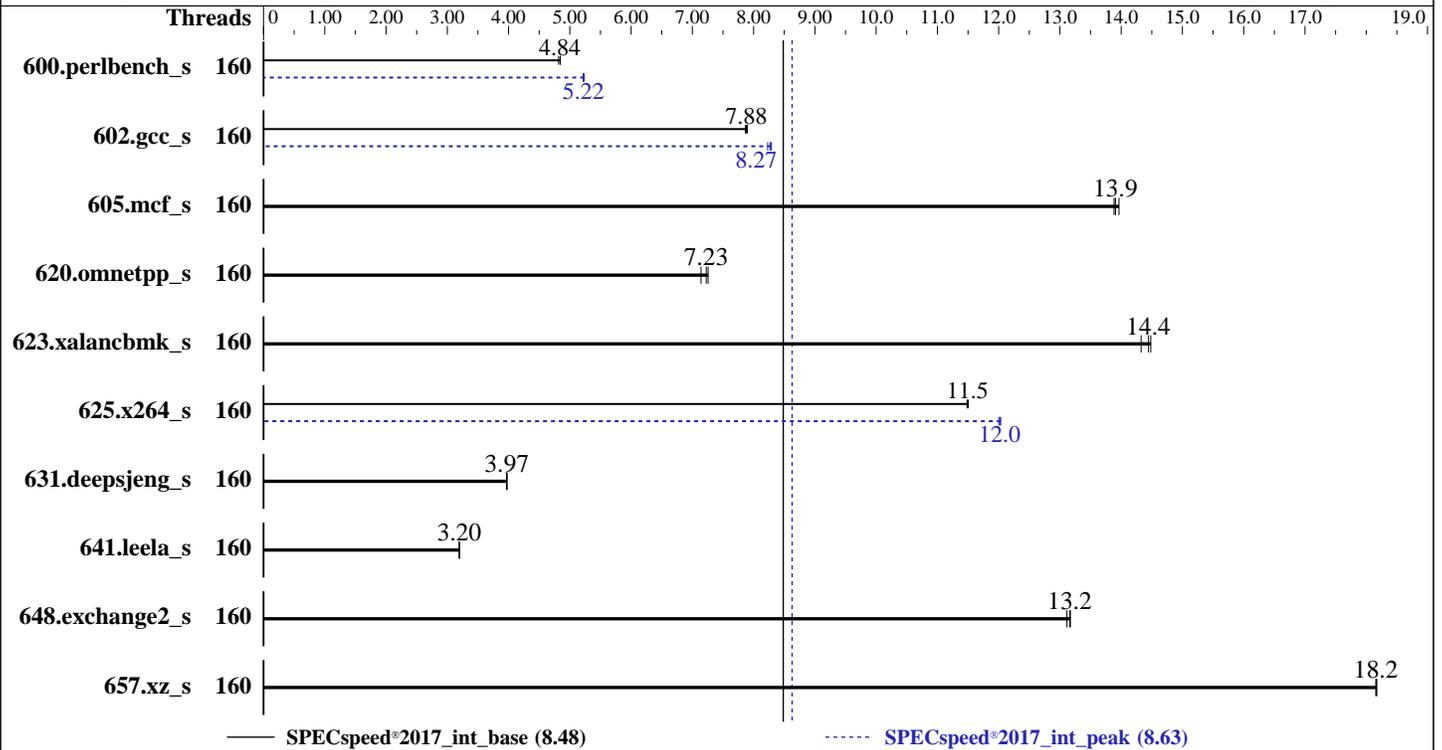
Test Sponsor: Netweb Pte Ltd

Tested by: Tyrone Systems

Test Date: Sep-2022

Hardware Availability: Jun-2021

Software Availability: May-2022



Hardware

CPU Name: Intel Xeon Platinum 8380
 Max MHz: 3400
 Nominal: 2300
 Enabled: 80 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: 60 MB I+D on chip per chip
 Other: None
 Memory: 1 TB (16 x 64 GB 2Rx4 PC4-3200AA-R)
 Storage: 1 x 512 GB NVMe SSD
 Other: None

Software

OS: Red Hat Enterprise Linux release 8.5 (Ootpa)
 4.18.0-348.el8.x86_64
 Compiler: C/C++: Version 2022.1 of Intel oneAPI DPC++/C++
 Compiler for Linux;
 Fortran: Version 2022.1 of Intel Fortran Compiler
 for Linux;
 Parallel: Yes
 Firmware: Version 1.2a released May-2022
 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.



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Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	160	366	4.84	369	4.82	<u>367</u>	<u>4.84</u>	160	339	5.23	<u>340</u>	<u>5.22</u>	340	5.22
602.gcc_s	160	506	7.87	504	7.90	<u>505</u>	<u>7.88</u>	160	<u>482</u>	<u>8.27</u>	484	8.23	480	8.29
605.mcf_s	160	340	13.9	<u>339</u>	<u>13.9</u>	338	14.0	160	340	13.9	<u>339</u>	<u>13.9</u>	338	14.0
620.omnetpp_s	160	228	7.14	225	7.26	<u>226</u>	<u>7.23</u>	160	228	7.14	225	7.26	<u>226</u>	<u>7.23</u>
623.xalancbmk_s	160	97.8	14.5	98.9	14.3	<u>98.1</u>	<u>14.4</u>	160	97.8	14.5	98.9	14.3	<u>98.1</u>	<u>14.4</u>
625.x264_s	160	<u>153</u>	<u>11.5</u>	153	11.5	154	11.5	160	<u>147</u>	<u>12.0</u>	147	12.0	147	12.0
631.deepsjeng_s	160	361	3.97	<u>361</u>	<u>3.97</u>	361	3.97	160	361	3.97	<u>361</u>	<u>3.97</u>	361	3.97
641.leela_s	160	<u>534</u>	<u>3.20</u>	534	3.20	533	3.20	160	<u>534</u>	<u>3.20</u>	534	3.20	533	3.20
648.exchange2_s	160	<u>223</u>	<u>13.2</u>	224	13.1	223	13.2	160	<u>223</u>	<u>13.2</u>	224	13.1	223	13.2
657.xz_s	160	340	18.2	340	18.2	<u>340</u>	<u>18.2</u>	160	340	18.2	340	18.2	<u>340</u>	<u>18.2</u>

SPECspeed®2017_int_base = **8.48**

SPECspeed®2017_int_peak = **8.63**

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Compiler Notes

SPEC has ruled that the compiler used for this result was performing a compilation that specifically improves the performance of the 523.xalancbmk_r / 623.xalancbmk_s benchmarks using a priori knowledge of the SPEC code and dataset to perform a transformation that has narrow applicability.

In order to encourage optimizations that have wide applicability (see rule 1.4 https://www.spec.org/cpu2017/Docs/runrules.html#rule_1.4), SPEC will no longer publish results using this optimization.

This result is left in the SPEC results database for historical reference.

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 2x Intel Xeon Platinum 8280M CPU + 384GB RAM memory using Redhat Enterprise Linux 8.0
Transparent Huge Pages enabled by default
Prior to runcpu invocation

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General Notes (Continued)

Filesystem page cache synced and cleared with:

```
sync; echo 3> /proc/sys/vm/drop_caches
```

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.

jemalloc, a general purpose malloc implementation

built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5

sources available from jemalloc.net or <https://github.com/jemalloc/jemalloc/releases>

Platform Notes

BIOS Settings:

Power Technology = Custom

ENERGY_PERF_BIAS_CFG mode = Maximum Performance

SNC (Sub NUMA) = Enable

KTI Prefetch = Enable

LLC Dead Line Alloc = Disable

Hyper-Threading = Enabled

Sysinfo program /home/cpu2017/bin/sysinfo

Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acafc64d

running on icelake2 Sat Sep 3 17:49:01 2022

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 8380 CPU @ 2.30GHz

2 "physical id"s (chips)

160 "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 : 40

siblings : 80

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 24
25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

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 24
25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

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): 160

On-line CPU(s) list: 0-159

Thread(s) per core: 2

Core(s) per socket: 40

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) Platinum 8380 CPU @ 2.30GHz

BIOS Model name: Intel(R) Xeon(R) Platinum 8380 CPU @ 2.30GHz

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Platform Notes (Continued)

```
Stepping: 6
CPU MHz: 2300.000
BogoMIPS: 4600.00
Virtualization: VT-x
L1d cache: 48K
L1i cache: 32K
L2 cache: 1280K
L3 cache: 61440K
NUMA node0 CPU(s): 0-19,80-99
NUMA node1 CPU(s): 20-39,100-119
NUMA node2 CPU(s): 40-59,120-139
NUMA node3 CPU(s): 60-79,140-159
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
aperfmpperf pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16
xtpr pdc_m 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 invpcid_single
intel_ppin ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow vnmi flexpriority ept
vpid ept_ad fsgsbase tsc_adjust sgx bmi1 hle avx2 smep bmi2 erms invpcid cqm rdt_a
avx512f avx512dq rdseed adx smap avx512ifma clflushopt clwb intel_pt avx512cd sha_ni
avx512bw avx512vl xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total
cqm_mbm_local split_lock_detect wbnoinvd dtherm ida arat pln pts avx512vbmi umip pku
ospke avx512_vbmi2 gfni vaes vpclmulqdq avx512_vnni avx512_bitalg tme
avx512_vpopcntdq la57 rdpid sgx_lc fsrm md_clear pconfig flush_lld arch_capabilities
```

```
/proc/cpuinfo cache data
cache size : 61440 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 80 81 82 83 84 85 86 87
88 89 90 91 92 93 94 95 96 97 98 99
```

node 0 size: 257628 MB

node 0 free: 232951 MB

```
node 1 cpus: 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 100 101 102
103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119
```

node 1 size: 258001 MB

node 1 free: 236225 MB

```
node 2 cpus: 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 120 121 122
123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139
```

node 2 size: 258039 MB

node 2 free: 236531 MB

```
node 3 cpus: 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 140 141 142
143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159
```

node 3 size: 258034 MB

node 3 free: 236565 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: 1056465088 kB

HugePages_Total: 0

Hugepagesize: 2048 kB

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Platform Notes (Continued)

```

/sbin/tuned-adm active
Current active profile: throughput-performance

From /etc/*release* /etc/*version*
os-release:
NAME="Red Hat Enterprise Linux"
VERSION="8.5 (Ootpa)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="8.5"
PLATFORM_ID="platform:el8"
PRETTY_NAME="Red Hat Enterprise Linux 8.5 (Ootpa)"
ANSI_COLOR="0;31"
redhat-release: Red Hat Enterprise Linux release 8.5 (Ootpa)
system-release: Red Hat Enterprise Linux release 8.5 (Ootpa)
system-release-cpe: cpe:/o:redhat:enterprise_linux:8::baseos

uname -a:
Linux icelake2 4.18.0-348.el8.x86_64 #1 SMP Mon Oct 4 12:17:22 EDT 2021 x86_64 x86_64
x86_64 GNU/Linux

Kernel self-reported vulnerability status:

CVE-2018-12207 (iTLB Multihit):           Not affected
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: usercopy/swapgs
                                           barriers and __user pointer
                                           sanitization
CVE-2017-5715 (Spectre variant 2):       Mitigation: Enhanced IBRS, IBPB:
                                           conditional, RSB filling
CVE-2020-0543 (Special Register Buffer Data Sampling): Not affected
CVE-2019-11135 (TSX Asynchronous Abort): Not affected

run-level 3 Sep 2 11:17

SPEC is set to: /home/cpu2017
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs  402G  149G  253G  37% /home

From /sys/devices/virtual/dmi/id
Vendor:         Tyrone Systems
Product:        Tyrone Camarero SDI100A3U-212
Product Family: SMC X12

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 SMBIOS" standard.
Memory:
16x Samsung M393A8G40AB2-CWE 64 GB 2 rank 3200

BIOS:
BIOS Vendor:    American Megatrends International, LLC.
BIOS Version:   1.2a
BIOS Date:      05/12/2022

```

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Platform Notes (Continued)

BIOS Revision: 5.22

(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) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2022.1.0 Build 20220316
Copyright (C) 1985-2022 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) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2022.1.0 Build 20220316
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
=====
```

```
=====
Fortran | 648.exchange2_s(base, peak)
=====
```

```
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2022.1.0 Build 20220316
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
=====
```

Base Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifx

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
```

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Base Portability Flags (Continued)

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 -g -std=c11 -Wl,-z,muldefs -xCORE-AVX2 -O3 -ffast-math -flto  
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp  
-DSPEC_OPENMP -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

C++ benchmarks:

```
-m64 -g -Wl,-z,muldefs -xCORE-AVX2 -O3 -ffast-math -flto  
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4  
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

Fortran benchmarks:

```
-m64 -g -Wl,-z,muldefs -xCORE-AVX2 -O3 -ffast-math -flto  
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4  
-nostandard-realloc-lhs -align array32byte  
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

Peak Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifx

Peak Portability Flags

Same as Base Portability Flags



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Peak Optimization Flags

C benchmarks:

```
600.perlbench_s: -m64 -g -std=c11 -Wl,-z,muldefs
-fprofile-generate(pass 1)
-fprofile-use=default.profdata(pass 2) -xCORE-AVX2 -O3
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP
-fno-strict-overflow -L/usr/local/jemalloc64-5.0.1/lib
-ljemalloc
```

```
602.gcc_s: -m64 -g -std=c11 -Wl,-z,muldefs
-fprofile-generate(pass 1)
-fprofile-use=default.profdata(pass 2) -xCORE-AVX2 -O3
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

605.mcf_s: basepeak = yes

```
625.x264_s: -m64 -g -std=c11 -Wl,-z,muldefs -xCORE-AVX2 -O3
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP
-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/Intel-ic2022-official-linux64_revA.html

<http://www.spec.org/cpu2017/flags/Tyrone-Platform-Settings-V1.2-ICX-revA.html>



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

http://www.spec.org/cpu2017/flags/Intel-ic2022-official-linux64_revA.xml
<http://www.spec.org/cpu2017/flags/Tyrone-Platform-Settings-V1.2-ICX-revA.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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