



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

**ASUSTeK Computer Inc.**  
ASUS RS720-E10-RS12(Z12PP-D32) Server System  
(2.30 GHz, Intel Xeon Silver 4316)

SPECspeed®2017\_int\_base = 12.1

SPECspeed®2017\_int\_peak = 12.3

CPU2017 License: 9016

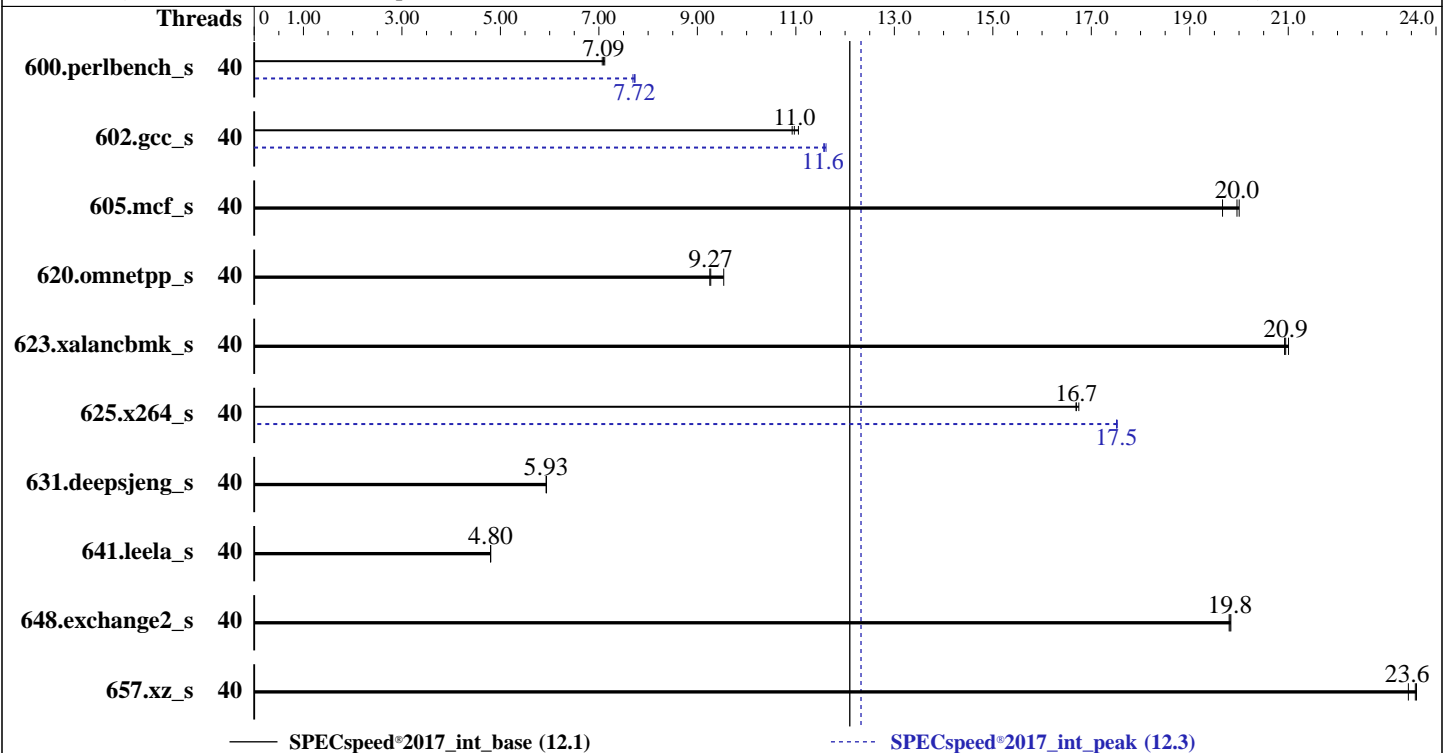
Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Mar-2023

Hardware Availability: Apr-2022

Software Availability: Dec-2022



## Hardware

CPU Name: Intel Xeon Silver 4316  
 Max MHz: 3400  
 Nominal: 2300  
 Enabled: 40 cores, 2 chips  
 Orderable: 1, 2 chip(s)  
 Cache L1: 32 KB I + 48 KB D on chip per core  
 L2: 1.25 MB I+D on chip per core  
 L3: 30 MB I+D on chip per chip  
 Other: None  
 Memory: 1 TB (16 x 64 GB 2Rx4 PC4-3200AA-R, running at 2666)  
 Storage: 1 x 1 TB SATA SSD  
 Other: None

## Software

OS: Red Hat Enterprise Linux release 8.4 (Ootpa) 4.18.0-305.25.1.el8\_4.x86\_64  
 Compiler: C/C++: Version 2023.0 of Intel oneAPI DPC++/C++ Compiler for Linux;  
 Fortran: Version 2023.0 of Intel Fortran Compiler for Linux;  
 Parallel: Yes  
 Firmware: Version 0802 released Apr-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 and OS 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	40	251	7.07	249	7.12	<b><u>250</u></b>	<b><u>7.09</u></b>	40	<b><u>230</u></b>	<b><u>7.72</u></b>	231	7.69	229	7.73
602.gcc_s	40	360	11.1	364	10.9	<b><u>363</u></b>	<b><u>11.0</u></b>	40	<b><u>344</u></b>	<b><u>11.6</u></b>	343	11.6	344	11.6
605.mcf_s	40	240	19.7	236	20.0	<b><u>237</u></b>	<b><u>20.0</u></b>	40	240	19.7	236	20.0	<b><u>237</u></b>	<b><u>20.0</u></b>
620.omnetpp_s	40	176	9.25	171	9.54	<b><u>176</u></b>	<b><u>9.27</u></b>	40	176	9.25	171	9.54	<b><u>176</u></b>	<b><u>9.27</u></b>
623.xalancbmk_s	40	67.5	21.0	<b><u>67.6</u></b>	<b><u>20.9</u></b>	67.7	20.9	40	67.5	21.0	<b><u>67.6</u></b>	<b><u>20.9</u></b>	67.7	20.9
625.x264_s	40	106	16.7	105	16.7	<b><u>106</u></b>	<b><u>16.7</u></b>	40	101	17.5	<b><u>101</u></b>	<b><u>17.5</u></b>	101	17.5
631.deepsjeng_s	40	242	5.93	241	5.94	<b><u>242</u></b>	<b><u>5.93</u></b>	40	242	5.93	241	5.94	<b><u>242</u></b>	<b><u>5.93</u></b>
641.leela_s	40	355	4.80	<b><u>355</u></b>	<b><u>4.80</u></b>	355	4.80	40	355	4.80	<b><u>355</u></b>	<b><u>4.80</u></b>	355	4.80
648.exchange2_s	40	148	19.8	148	19.8	<b><u>148</u></b>	<b><u>19.8</u></b>	40	148	19.8	148	19.8	<b><u>148</u></b>	<b><u>19.8</u></b>
657.xz_s	40	262	23.6	<b><u>262</u></b>	<b><u>23.6</u></b>	264	23.4	40	262	23.6	<b><u>262</u></b>	<b><u>23.6</u></b>	264	23.4

SPECspeed®2017\_int\_base = **12.1**

SPECspeed®2017\_int\_peak = **12.3**

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](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"  
OS set to performance mode via cpupower frequency-set -g performance

## Environment Variables Notes

Environment variables set by runcpu before the start of the run:  
KMP\_AFFINITY = "granularity=fine,scatter"  
LD\_LIBRARY\_PATH = "/home/ic23/lib/intel64:/home/ic23/je5.0.1-64"  
MALLOCONF = "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

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## General Notes (Continued)

Prior to runcpu invocation  
Filesystem page cache synced and cleared with:  
sync; echo 3> /proc/sys/vm/drop\_caches  
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.  
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 Configuration:  
VT-d = Disabled  
Patrol Scrub = Disabled  
Hyper-Threading = Disable  
Engine Boost = Aggressive  
SR-IOV Support = Disabled  
BMC Configuration:  
Fan mode = Full speed mode

Sysinfo program /home/ic23/bin/sysinfo  
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197  
running on localhost.localdomain Wed Mar 1 09:01:51 2023

SUT (System Under Test) info as seen by some common utilities.

-----  
Table of contents  
-----

1. uname -a
  2. w
  3. Username
  4. ulimit -a
  5. sysinfo process ancestry
  6. /proc/cpuinfo
  7. lscpu
  8. numactl --hardware
  9. /proc/meminfo
  10. who -r
  11. Systemd service manager version: systemd 239 (239-45.el8\_4.3)
  12. Services, from systemctl list-unit-files
  13. Linux kernel boot-time arguments, from /proc/cmdline
  14. cpupower frequency-info
  15. tuned-adm active
  16. sysctl
  17. /sys/kernel/mm/transparent\_hugepage
  18. /sys/kernel/mm/transparent\_hugepage/khugepaged
  19. OS release
  20. Kernel self-reported vulnerability status, from /sys/devices/system/cpu/vulnerabilities
  21. Disk information
  22. /sys/devices/virtual/dmi/id
  23. dmidecode
  24. BIOS
- 

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## Platform Notes (Continued)

-----  
1. `uname -a`  
Linux localhost.localdomain 4.18.0-305.25.1.el8\_4.x86\_64 #1 SMP Mon Oct 18 14:34:11 EDT 2021 x86\_64 x86\_64 x86\_64 GNU/Linux

-----  
2. `w`  
09:01:51 up 1 min, 1 user, load average: 0.22, 0.11, 0.04  
USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT  
root ttyl - 09:01 7.00s 1.09s 0.00s /bin/bash ./speed.sh

-----  
3. Username  
From environment variable \$USER: root

-----  
4. `ulimit -a`  
core file size (blocks, -c) 0  
data seg size (kbytes, -d) unlimited  
scheduling priority (-e) 0  
file size (blocks, -f) unlimited  
pending signals (-i) 4126718  
max locked memory (kbytes, -l) 64  
max memory size (kbytes, -m) unlimited  
open files (-n) 1024  
pipe size (512 bytes, -p) 8  
POSIX message queues (bytes, -q) 819200  
real-time priority (-r) 0  
stack size (kbytes, -s) unlimited  
cpu time (seconds, -t) unlimited  
max user processes (-u) 4126718  
virtual memory (kbytes, -v) unlimited  
file locks (-x) unlimited

-----  
5. `sysinfo process ancestry`  
/usr/lib/systemd/systemd --switched-root --system --deserialize 18  
login -- root  
-bash  
/bin/bash ./speed.sh  
/bin/bash ./speed.sh  
runcpu --nobuild --action validate --define default-platform-flags -c  
ic2023.0-lin-core-avx512-speed-20221201.cfg --define cores=40 --tune base,peak -o all --define  
intspeedaffinity --define drop\_caches intspeed  
runcpu --nobuild --action validate --define default-platform-flags --configfile  
ic2023.0-lin-core-avx512-speed-20221201.cfg --define cores=40 --tune base,peak --output\_format all  
--define intspeedaffinity --define drop\_caches --nopower --runmode speed --tune base:peak --size refspped  
intspeed --nopreenv --note-preenv --logfile \$SPEC/tmp/CPU2017.031/templogs/preenv.intspeed.031.0.log  
--lognum 031.0 --from\_runcpu 2  
specperl \$SPEC/bin/sysinfo  
\$SPEC = /home/ic23

-----  
6. `/proc/cpuinfo`  
model name : Intel(R) Xeon(R) Silver 4316 CPU @ 2.30GHz  
vendor\_id : GenuineIntel  
cpu family : 6  
model : 106  
stepping : 6  
microcode : 0xd000331

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## Platform Notes (Continued)

```
bugs          : spectre_v1 spectre_v2 spec_store_bypass swappg
cpu cores     : 20
siblings      : 20
2 physical ids (chips)
40 processors (hardware threads)
physical id 0: core ids 0-19
physical id 1: core ids 0-19
physical id 0: apicids 0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38
physical id 1: apicids 64,66,68,70,72,74,76,78,80,82,84,86,88,90,92,94,96,98,100,102
Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for
virtualized systems. Use the above data carefully.
```

### 7. lscpu

```
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):            40
On-line CPU(s) list: 0-39
Thread(s) per core: 1
Core(s) per socket: 20
Socket(s):         2
NUMA node(s):     2
Vendor ID:        GenuineIntel
BIOS Vendor ID:   Intel
CPU family:       6
Model:            106
Model name:       Intel(R) Xeon(R) Silver 4316 CPU @ 2.30GHz
BIOS Model name:  Intel(R) Xeon(R) Silver 4316 CPU @ 2.30GHz
Stepping:         6
CPU MHz:          1184.902
CPU max MHz:      3400.0000
CPU min MHz:      800.0000
BogoMIPS:         4600.00
Virtualization:   VT-x
L1d cache:        48K
L1i cache:        32K
L2 cache:         1280K
L3 cache:         30720K
NUMA node0 CPU(s): 0-19
NUMA node1 CPU(s): 20-39
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 invpcid_single intel_ppin ssbd mba ibrs ibpb
stibp ibrs_enhanced tpr_shadow vnmi flexpriority ept vpid ept_ad fsgsbase tsc_adjust
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 hwp hwp_act_window hwp_epp hwp_pkg_req avx512vbmi
umip pku ospke avx512_vbmi2 gfni vaes vpclmulqdq avx512_vnni avx512_bitalg tme
avx512_vpopcntdq la57 rdpid fsrm md_clear pconfig flush_l1d arch_capabilities
```

### 8. numactl --hardware

NOTE: a numactl 'node' might or might not correspond to a physical chip.

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## Platform Notes (Continued)

```
available: 2 nodes (0-1)
node 0 cpus: 0-19
node 0 size: 515667 MB
node 0 free: 514836 MB
node 1 cpus: 20-39
node 1 size: 516051 MB
node 1 free: 515575 MB
node distances:
node  0  1
  0:  10  20
  1:  20  10
```

```
-----
9. /proc/meminfo
MemTotal:      1056480756 kB
```

```
-----
10. who -r
run-level 3 Mar 1 09:00
```

```
-----
11. Systemd service manager version: systemd 239 (239-45.el8_4.3)
Default Target Status
multi-user      running
```

```
-----
12. Services, from systemctl list-unit-files
STATE UNIT FILES
enabled NetworkManager NetworkManager-dispatcher NetworkManager-wait-online atd auditd autovt@ chronyd
crond firewalld getty@ import-state insights-client-boot irqbalance iscsi iscsi-onboot kdump
libstoragemgmt lm_sensors loadmodules lvm2-monitor mcelog mdmonitor microcode multipathd
nvme-fc-boot-connections pmcd pmie pmlogger rhsmcertd rsyslog selinux-autorelabel-mark smartd sshd
sssd syslog sysstat timedatex tuned udisks2 vdo
disabled arp-ethers blk-availability chrony-wait console-getty cpupower debug-shell ebttables fancontrol
grafana-server iprddump iprint iprupdate ipsec iscsid iscsiuiop kpatch kvm_stat ledmon nftables
nis-domainname nvme-fc-autoconnect oddjobd pmfind pmie_check pmlogger_daily_report
pmlogger_daily_report-poll pmproxy podman-auto-update postfix powertop psacct ras-mc-ctl
rasdaemon rdisc rhcd rhsm rhsm-facts rrdcached saslauthd serial-getty@ sshd-keygen@
systemd-resolved tcsd
indirect sssd-autofs sssd-kcm sssd-nss sssd-pac sssd-pam sssd-ssh sssd-sudo
masked systemd-timedated
```

```
-----
13. Linux kernel boot-time arguments, from /proc/cmdline
BOOT_IMAGE=(hd0,gpt2)/vmlinuz-4.18.0-305.25.1.el8_4.x86_64
root=/dev/mapper/rhel-root
ro
resume=/dev/mapper/rhel-swap
rd.lvm.lv=rhel/root
rd.lvm.lv=rhel/swap
rhgb
quiet
```

```
-----
14. cpupower frequency-info
analyzing CPU 0:
current policy: frequency should be within 800 MHz and 3.40 GHz.
The governor "performance" may decide which speed to use
within this range.
boost state support:
```

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## Platform Notes (Continued)

Supported: yes  
Active: yes

-----  
15. tuned-adm active  
Current active profile: throughput-performance  
-----

-----  
16. sysctl  
kernel.numa\_balancing 1  
kernel.randomize\_va\_space 2  
vm.compaction\_proactiveness 0  
vm.dirty\_background\_bytes 0  
vm.dirty\_background\_ratio 10  
vm.dirty\_bytes 0  
vm.dirty\_expire\_centisecs 3000  
vm.dirty\_ratio 40  
vm.dirty\_writeback\_centisecs 500  
vm.dirtytime\_expire\_seconds 43200  
vm.extfrag\_threshold 500  
vm.min\_unmapped\_ratio 1  
vm.nr\_hugepages 0  
vm.nr\_hugepages\_mempolicy 0  
vm.nr\_overcommit\_hugepages 0  
vm.swappiness 10  
vm.watermark\_boost\_factor 15000  
vm.watermark\_scale\_factor 10  
vm.zone\_reclaim\_mode 0  
-----

-----  
17. /sys/kernel/mm/transparent\_hugepage  
defrag always defer+madvice [madvice] never  
enabled [always] madvice never  
hpage\_pmd\_size 2097152  
shmem\_enabled always within\_size advise [never] deny force  
-----

-----  
18. /sys/kernel/mm/transparent\_hugepage/khugepaged  
alloc\_sleep\_millisecs 60000  
defrag 1  
max\_ptes\_none 511  
max\_ptes\_swap 64  
pages\_to\_scan 4096  
scan\_sleep\_millisecs 10000  
-----

-----  
19. OS release  
From /etc/\*-release /etc/\*-version  
os-release Red Hat Enterprise Linux 8.4 (Ootpa)  
redhat-release Red Hat Enterprise Linux release 8.4 (Ootpa)  
system-release Red Hat Enterprise Linux release 8.4 (Ootpa)  
-----

-----  
20. Kernel self-reported vulnerability status, from /sys/devices/system/cpu/vulnerabilities  
itlb\_multihit Not affected  
lltf Not affected  
mds Not affected  
meltdown Not affected  
spec\_store\_bypass Mitigation: Speculative Store Bypass disabled via prctl and seccomp  
spectre\_v1 Mitigation: usercopy/swapgs barriers and \_\_user pointer sanitization  
-----

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## Platform Notes (Continued)

spectre\_v2 Mitigation: Enhanced IBRS, IBPB: conditional, RSB filling  
srbds Not affected  
tsx\_async\_abort Not affected  
For more information, see the Linux documentation on hardware vulnerabilities, for example  
<https://www.kernel.org/doc/html/latest/admin-guide/hw-vuln/index.html>

-----  
21. Disk information  
SPEC is set to: /home/ic23  
Filesystem Type Size Used Avail Use% Mounted on  
/dev/mapper/rhel-home xfs 878G 124G 755G 15% /home  
-----

22. /sys/devices/virtual/dmi/id  
Vendor: ASUSTeK COMPUTER INC.  
Product: RS720-E10-RS12  
Product Family: Server  
Serial: 012345678901  
-----

23. dmidecode  
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, configured at 2666  
-----

24. BIOS  
(This section combines info from /sys/devices and dmidecode.)  
BIOS Vendor: American Megatrends Inc.  
BIOS Version: 0802  
BIOS Date: 04/29/2022  
BIOS Revision: 8.2  
-----

## 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 2023.0.0 Build 20221201  
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 2023.0.0 Build 20221201  
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 2023.0.0 Build 20221201  
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(2.30 GHz, Intel Xeon Silver 4316)

SPECspeed®2017\_int\_base = 12.1

SPECspeed®2017\_int\_peak = 12.3

**CPU2017 License:** 9016  
**Test Sponsor:** ASUSTeK Computer Inc.  
**Tested by:** ASUSTeK Computer Inc.

**Test Date:** Mar-2023  
**Hardware Availability:** Apr-2022  
**Software Availability:** Dec-2022

## Compiler Version Notes (Continued)

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## 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  
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 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -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 -std=c++14 -Wl,-z,muldefs -xCORE-AVX512 -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 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -flto  
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

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SPECspeed®2017\_int\_base = 12.1

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## Base Optimization Flags (Continued)

Fortran benchmarks (continued):

```
-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

## Peak Optimization Flags

C benchmarks:

```
600.perlbench_s: -m64 -std=c11 -Wl,-z,muldefs -fprofile-generate(pass 1)  
-fprofile-use=default.profdata(pass 2) -xCORE-AVX2(pass 1)  
-flto -Ofast(pass 1) -xCORE-AVX512 -O3 -ffast-math  
-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 -std=c11 -Wl,-z,muldefs -fprofile-generate(pass 1)  
-fprofile-use=default.profdata(pass 2) -xCORE-AVX2(pass 1)  
-flto -Ofast(pass 1) -xCORE-AVX512 -O3 -ffast-math  
-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
```

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**CPU2017 License:** 9016

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## Peak Optimization Flags (Continued)

```
625.x264_s: -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -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-ic2023-official-linux64.html>

<http://www.spec.org/cpu2017/flags/ASUSTekPlatform-Settings-z12-V1.2.html>

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

<http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.xml>

<http://www.spec.org/cpu2017/flags/ASUSTekPlatform-Settings-z12-V1.2.xml>

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