SPEC CPU®2017 Integer Speed Result

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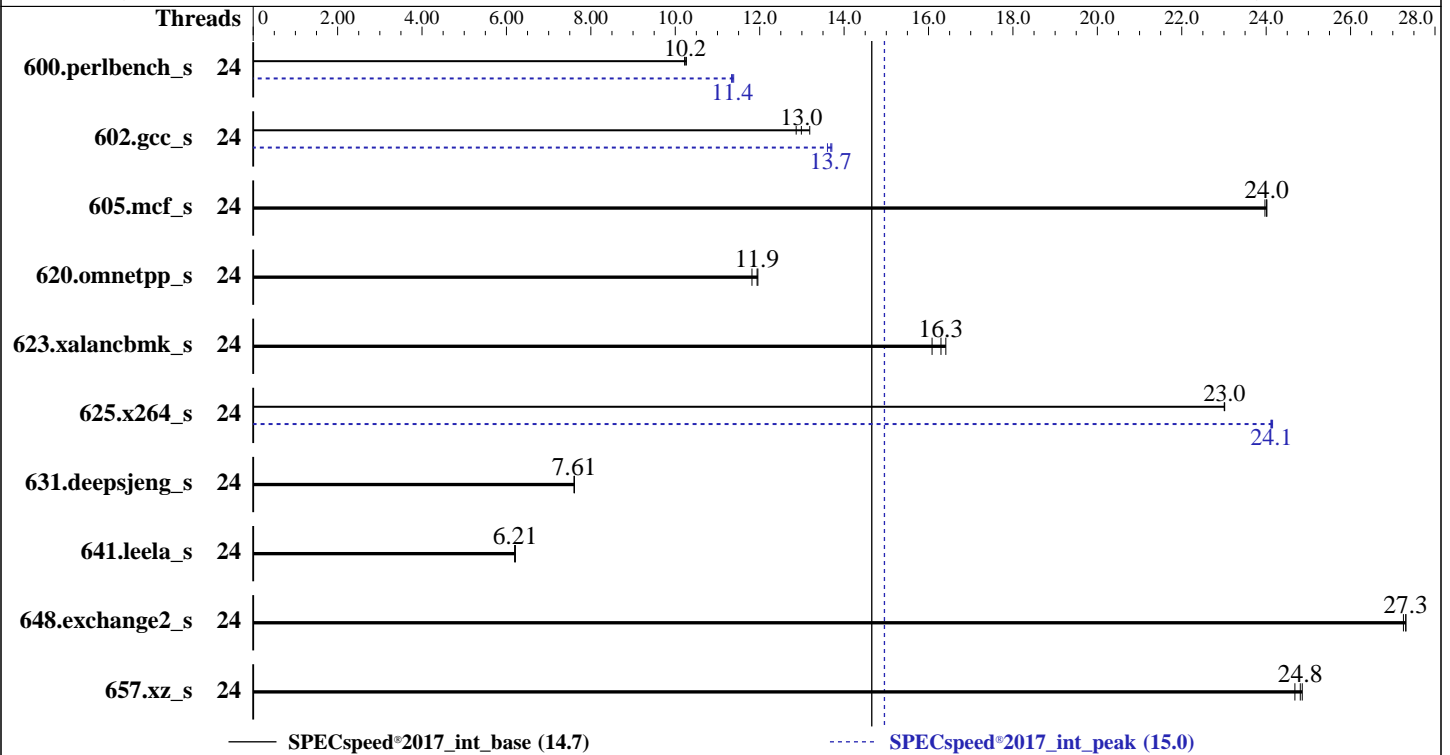## Nettrix

R620 G50 (Intel Xeon Silver 4510, 2.40 GHz)

$SPECspeed®2017\_int\_base = 14.7$

$SPECspeed®2017\_int\_peak = 15.0$

CPU2017 License: 6138
Test Sponsor: Nettrix
Tested by: Nettrix

Test Date: Apr-2024
Hardware Availability: Dec-2023
Software Availability: Jan-2024

Threads		
600.perlbench_s	24	10.2 / 11.4
602.gcc_s	24	13.0 / 13.7
605.mcf_s	24	24.0
620.omnetpp_s	24	11.9
623.xalancbmk_s	24	16.3
625.x264_s	24	23.0 / 24.1
631.deepsjeng_s	24	7.61
641.leela_s	24	6.21
648.exchange2_s	24	27.3
657.xz_s	24	24.8

SPECspeed®2017_int_base (14.7)   SPECspeed®2017_int_peak (15.0)

Hardware

CPU Name: Intel Xeon Silver 4510
 Max MHz: 4100
 Nominal: 2400
Enabled: 24 cores, 2 chips
Orderable: 1,2 chips
Cache L1: 32 KB I + 48 KB D on chip per core
 L2: 2 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 PC5-5600B-R, running at 4400)
Storage: 1 x 16 TB SATA HDD (7200 rpm)
Other: CPU Cooling: Air

Software

OS: SUSE Linux Enterprise Server 15 SP5
5.14.21-150500.53-default
Compiler: C/C++: Version 2023.2.3 of Intel oneAPI DPC++/C++ Compiler for Linux;
Fortran: Version 2023.2.3 of Intel Fortran Compiler for Linux;
Parallel: Yes
Firmware: Nettrix BIOS Version NNH1041261 released Dec-2023
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	24	173	10.3	**173**	**10.2**	174	10.2	24	156	11.4	**156**	**11.4**	157	11.3
602.gcc_s	24	**307**	**13.0**	310	12.9	302	13.2	24	293	13.6	**291**	**13.7**	290	13.7
605.mcf_s	24	197	24.0	197	24.0	**197**	**24.0**	24	197	24.0	197	24.0	**197**	**24.0**
620.omnetpp_s	24	**137**	**11.9**	136	12.0	138	11.8	24	**137**	**11.9**	136	12.0	138	11.8
623.xalancbmk_s	24	88.1	16.1	**87.0**	**16.3**	86.3	16.4	24	88.1	16.1	**87.0**	**16.3**	86.3	16.4
625.x264_s	24	76.7	23.0	76.6	23.0	**76.7**	**23.0**	24	**73.1**	**24.1**	73.2	24.1	73.0	24.2
631.deepsjeng_s	24	188	7.61	188	7.61	**188**	**7.61**	24	188	7.61	188	7.61	**188**	**7.61**
641.leela_s	24	275	6.21	**275**	**6.21**	275	6.19	24	275	6.21	275	6.21	275	6.19
648.exchange2_s	24	108	27.3	108	27.3	**108**	**27.3**	24	108	27.3	108	27.3	**108**	**27.3**
657.xz_s	24	250	24.7	**249**	**24.8**	249	24.9	24	250	24.7	**249**	**24.8**	249	24.9

SPECspeed®2017_int_base =	**14.7**
SPECspeed®2017_int_peak =	**15.0**

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

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/SPECcpu_20231121/lib/intel64:/home/SPECcpu_20231121/lib/ia32:/home/SPECcpu_20231121/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 Red Hat Enterprise Linux 8.4
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.
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
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
```

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Platform Notes

```
BIOS Configuration:
  Enable LP [Global] set to Single LP
  LLC Prefetch set to Enabled
  SNC (Sub NUMA) set to Disabled
  Patrol Scrub set to Disabled
  LLC dead line alloc set to Disabled
  XPT Prefetch set to Enabled
  KTI Prefetch set to Auto
  SR-IOV Support set to Disabled
  Energy Efficient Turbo set to Disabled

Sysinfo program /home/SPECcpu_20231121/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost Fri Apr 26 17:40:17 2024

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 249 (249.16+suse.171.gdad0071f15)
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. Disk information
21. /sys/devices/virtual/dmi/id
22. dmidecode
23. BIOS
------------------------------------------------------------


------------------------------------------------------------
1. uname -a
  Linux localhost 5.14.21-150500.53-default #1 SMP PREEMPT_DYNAMIC Wed May 10 07:56:26 UTC 2023 (b630043)
  x86_64 x86_64 x86_64 GNU/Linux


------------------------------------------------------------
2. w
   17:40:17 up  1:31,  1 user,  load average: 0.15, 0.21, 1.02
  USER      TTY       FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
  root      pts/0     10.32.5.20       16:12   16.00s  0.98s  0.00s tail -f nohup.out


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

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Platform Notes (Continued)

```
        ----------------------------------------------------------
        4. ulimit -a
          core file size          (blocks, -c) unlimited
          data seg size           (kbytes, -d) unlimited
          scheduling priority             (-e) 0
          file size               (blocks, -f) unlimited
          pending signals                 (-i) 4125309
          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) 4125309
          virtual memory          (kbytes, -v) unlimited
          file locks                      (-x) unlimited


        ----------------------------------------------------------
        5. sysinfo process ancestry
         /usr/lib/systemd/systemd --switched-root --system --deserialize 29
         sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups
         sshd: root@pts/0
         -bash
         sh ww-speed-test.sh
         runcpu --nobuild --action validate --define default-platform-flags -c
           ic2023.2.3-lin-sapphirerapids-speed-20231121.cfg --define cores=24 --tune base,peak -o all --define
           intspeedaffinity --define drop_caches intspeed
         runcpu --nobuild --action validate --define default-platform-flags --configfile
           ic2023.2.3-lin-sapphirerapids-speed-20231121.cfg --define cores=24 --tune base,peak --output_format all
           --define intspeedaffinity --define drop_caches --nopower --runmode speed --tune base:peak --size refspeed
           intspeed --nopreenv --note-preenv --logfile $SPEC/tmp/CPU2017.040/templogs/preenv.intspeed.040.0.log
           --lognum 040.0 --from_runcpu 2
         specperl $SPEC/bin/sysinfo
        $SPEC = /home/SPECcpu_20231121


        ----------------------------------------------------------
        6. /proc/cpuinfo
          model name      : INTEL(R) XEON(R) SILVER 4510
          vendor_id       : GenuineIntel
          cpu family      : 6
          model           : 143
          stepping        : 8
          microcode       : 0x2b000461
          bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs eibrs_pbrsb
          cpu cores       : 12
          siblings        : 12
          2 physical ids (chips)
          24 processors (hardware threads)
          physical id 0: core ids 0-11
          physical id 1: core ids 0-11
          physical id 0: apicids 0,2,4,6,8,10,12,14,16,18,20,22
          physical id 1: apicids 64,66,68,70,72,74,76,78,80,82,84,86
         Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for
         virtualized systems.  Use the above data carefully.


        ----------------------------------------------------------
        7. lscpu
```

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Platform Notes (Continued)

```
From lscpu from util-linux 2.37.4:
  Architecture:            x86_64
  CPU op-mode(s):          32-bit, 64-bit
  Address sizes:           52 bits physical, 57 bits virtual
  Byte Order:              Little Endian
  CPU(s):                  24
  On-line CPU(s) list:     0-23
  Vendor ID:               GenuineIntel
  Model name:              INTEL(R) XEON(R) SILVER 4510
  CPU family:              6
  Model:                   143
  Thread(s) per core:      1
  Core(s) per socket:      12
  Socket(s):               2
  Stepping:                8
  CPU max MHz:             4100.0000
  CPU min MHz:             800.0000
  BogoMIPS:                4800.00
  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 tsc_known_freq 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 cat_l2 cdp_l3
                           invpcid_single intel_ppin cdp_l2 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 rtm 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 avx_vnni avx512_bf16 wbnoinvd dtherm ida
                           arat pln pts hwp hwp_act_window hwp_epp hwp_pkg_req avx512vbmi umip pku
                           ospke waitpkg avx512_vbmi2 gfni vaes vpclmulqdq avx512_vnni avx512_bitalg
                           tme avx512_vpopcntdq la57 rdpid bus_lock_detect cldemote movdiri movdir64b
                           enqcmd fsrm md_clear serialize tsxldtrk pconfig arch_lbr avx512_fp16
                           amx_tile flush_l1d arch_capabilities
  Virtualization:          VT-x
  L1d cache:               1.1 MiB (24 instances)
  L1i cache:               768 KiB (24 instances)
  L2 cache:                48 MiB (24 instances)
  L3 cache:                60 MiB (2 instances)
  NUMA node(s):            2
  NUMA node0 CPU(s):       0-11
  NUMA node1 CPU(s):       12-23
  Vulnerability Itlb multihit:    Not affected
  Vulnerability L1tf:             Not affected
  Vulnerability Mds:              Not affected
  Vulnerability Meltdown:         Not affected
  Vulnerability Mmio stale data:  Not affected
  Vulnerability Retbleed:         Not affected
  Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl and seccomp
  Vulnerability Spectre v1:       Mitigation; usercopy/swapgs barriers and __user pointer sanitization
  Vulnerability Spectre v2:       Mitigation; Enhanced IBRS, IBPB conditional, RSB filling, PBRSB-eIBRS SW
                                  sequence
  Vulnerability Srbds:            Not affected
  Vulnerability Tsx async abort:  Not affected

From lscpu --cache:
     NAME ONE-SIZE ALL-SIZE WAYS TYPE         LEVEL  SETS PHY-LINE COHERENCY-SIZE
     L1d       48K     1.1M   12 Data             1    64        1             64
```

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Platform Notes (Continued)

```
      L1i       32K     768K   8 Instruction   1    64       1          64
      L2         2M      48M  16 Unified       2  2048       1          64
      L3        30M      60M  15 Unified       3 32768       1          64

    -----------------------------------------------------------
8. numactl --hardware
NOTE: a numactl 'node' might or might not correspond to a physical chip.
  available: 2 nodes (0-1)
  node 0 cpus: 0-11
  node 0 size: 515616 MB
  node 0 free: 513864 MB
  node 1 cpus: 12-23
  node 1 size: 515734 MB
  node 1 free: 514937 MB
  node distances:
  node   0   1
    0:  10  21
    1:  21  10

    -----------------------------------------------------------
9. /proc/meminfo
   MemTotal:       1056103520 kB

    -----------------------------------------------------------
10. who -r
  run-level 3 Apr 26 16:09

    -----------------------------------------------------------
11. Systemd service manager version: systemd 249 (249.16+suse.171.gdad0071f15)
  Default Target  Status
  multi-user      running

    -----------------------------------------------------------
12. Services, from systemctl list-unit-files
  STATE           UNIT FILES
  enabled         apparmor auditd cron getty@ haveged irqbalance issue-generator kbdsettings kdump
                  kdump-early postfix purge-kernels rollback sshd systemd-pstore wicked wickedd-auto4
                  wickedd-dhcp4 wickedd-dhcp6 wickedd-nanny
  enabled-runtime systemd-remount-fs
  disabled        boot-sysctl ca-certificates chrony-wait chronyd console-getty debug-shell ebtables
                  firewalld grub2-once haveged-switch-root issue-add-ssh-keys kexec-load lunmask nfs
                  nfs-blkmap rpcbind rpmconfigcheck serial-getty@ systemd-boot-check-no-failures
                  systemd-network-generator systemd-sysext systemd-time-wait-sync systemd-timesyncd tuned
  indirect        wickedd

    -----------------------------------------------------------
13. Linux kernel boot-time arguments, from /proc/cmdline
  BOOT_IMAGE=/boot/vmlinuz-5.14.21-150500.53-default
  root=UUID=c7ada9bf-a7a2-4807-aaee-b29cd1084e31
  splash=silent
  resume=/dev/disk/by-uuid/51c1f63c-3687-478c-9194-590f668c08a9
  mitigations=auto
  quiet
  security=apparmor
  crashkernel=316M,high
  crashkernel=72M,low

    -----------------------------------------------------------
14. cpupower frequency-info
  analyzing CPU 0:
```

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Platform Notes (Continued)

```
     current policy: frequency should be within 800 MHz and 4.10 GHz.
                     The governor "performance" may decide which speed to use
                     within this range.
     boost state support:
       Supported: yes
       Active: yes


    ----------------------------------------------------------------
    15. tuned-adm active
      It seems that tuned daemon is not running, preset profile is not activated.
      Preset profile: throughput-performance


    ----------------------------------------------------------------
    16. sysctl
      kernel.numa_balancing            1
      kernel.randomize_va_space        2
      vm.compaction_proactiveness     20
      vm.dirty_background_bytes        0
      vm.dirty_background_ratio       10
      vm.dirty_bytes                   0
      vm.dirty_expire_centisecs     3000
      vm.dirty_ratio                  20
      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                   60
      vm.watermark_boost_factor    15000
      vm.watermark_scale_factor       10
      vm.zone_reclaim_mode             0


    ----------------------------------------------------------------
    17. /sys/kernel/mm/transparent_hugepage
      defrag         always defer defer+madvise [madvise] never
      enabled        [always] madvise 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_shared           256
      max_ptes_swap              64
      pages_to_scan            4096
      scan_sleep_millisecs    10000


    ----------------------------------------------------------------
    19. OS release
      From /etc/*-release /etc/*-version
      os-release openSUSE Leap 15.5


    ----------------------------------------------------------------
    20. Disk information
    SPEC is set to: /home/SPECcpu_20231121
      Filesystem     Type  Size  Used Avail Use% Mounted on
```

(Continued on next page)

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Platform Notes (Continued)

```
   /dev/sdd3      xfs   14T   73G   14T   1% /home


   ------------------------------------------------------------
21. /sys/devices/virtual/dmi/id
     Vendor:         Nettrix
     Product:        N/A
     Product Family: Rack
     Serial:         N/A


   ------------------------------------------------------------
22. dmidecode
   Additional information from dmidecode 3.4 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 M321R8GA0PB0-CWMCH 64 GB 2 rank 5600, configured at 4400


   ------------------------------------------------------------
23. BIOS
  (This section combines info from /sys/devices and dmidecode.)
     BIOS Vendor:       American Megatrends International, LLC.
     BIOS Version:      NNH1041261
     BIOS Date:         12/13/2023
     BIOS Revision:     5.32
```

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 2023.2.3 Build x
Copyright (C) 1985-2023 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 2023.2.3 Build x
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
----------------------------------------------------------------------------------------------


==============================================================================================
Fortran  | 648.exchange2_s(base, peak)
----------------------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
----------------------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:

icx

(Continued on next page)

Standard Performance Evaluation Corporation (info@spec.org)   https://www.spec.org/

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Base Compiler Invocation (Continued)

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:
`-w -std=c11 -m64 -Wl,-z,muldefs -xsapphirerapids -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:
`-w -std=c++14 -m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math`
`-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4`
`-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc`

Fortran benchmarks:
`-w -m64 -Wl,-z,muldefs -xsapphirerapids -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`

SPEC CPU®2017 Integer Speed Result

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Nettrix

R620 G50 (Intel Xeon Silver 4510, 2.40 GHz)

SPECspeed®2017_int_base = 14.7

SPECspeed®2017_int_peak = 15.0

CPU2017 License: 6138
Test Sponsor: Nettrix
Tested by: Nettrix

Test Date: Apr-2024
Hardware Availability: Dec-2023
Software Availability: Jan-2024

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: `-w -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: `-w -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

625.x264_s: `-w -std=c11 -m64 -Wl,-z,muldefs -xsapphirerapids -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

(Continued on next page)

Standard Performance Evaluation Corporation (info@spec.org)
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Peak Optimization Flags (Continued)

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-ic2023p2-official-linux64.html`
`http://www.spec.org/cpu2017/flags/Nettrix-Platform-Settings-V1.3-SPR-revA.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2017/flags/Intel-ic2023p2-official-linux64.xml`
`http://www.spec.org/cpu2017/flags/Nettrix-Platform-Settings-V1.3-SPR-revA.xml`

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

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