SPEC CPU®2017 Integer Speed Result

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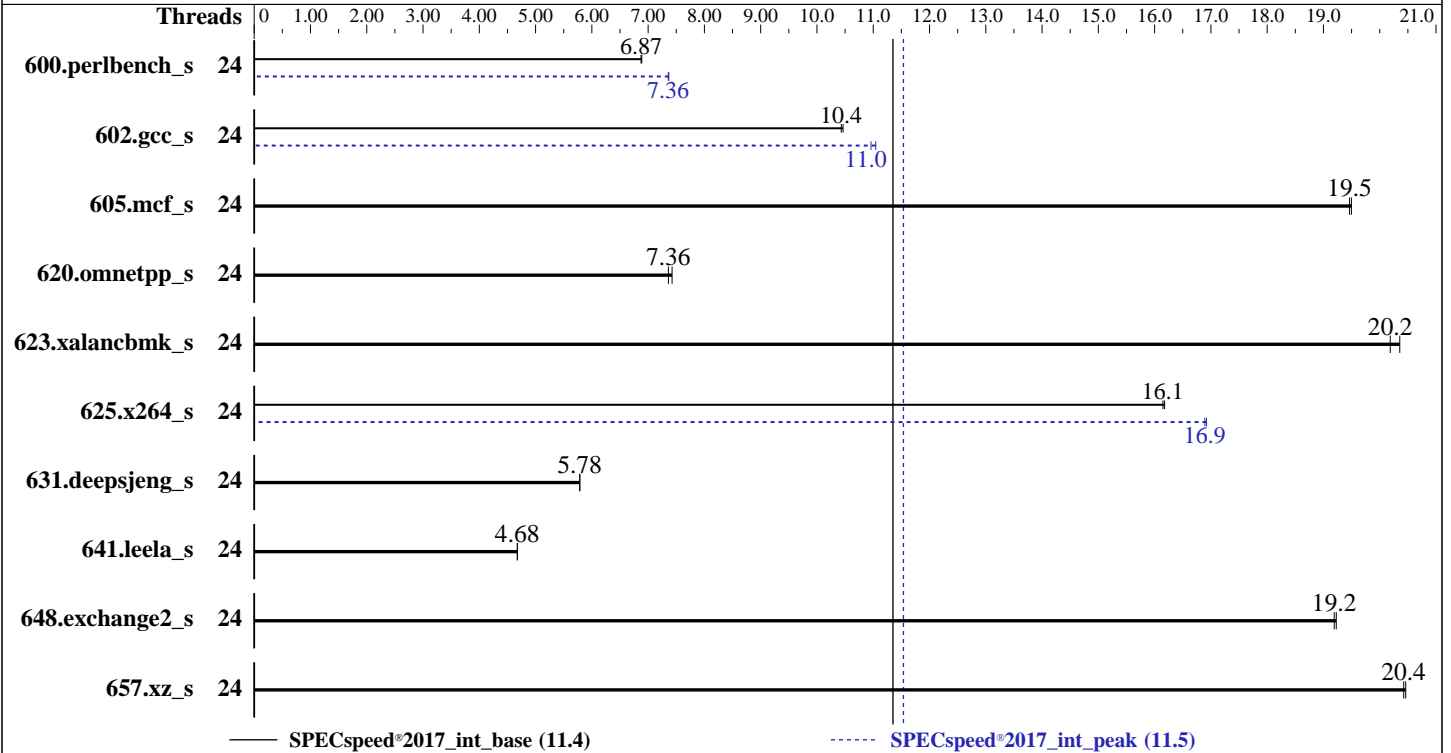## xFusion

FusionServer 1288H V6 (Intel Xeon Silver 4310)

$SPECspeed^{®}2017\_int\_base = 11.4$

$SPECspeed^{®}2017\_int\_peak = 11.5$

CPU2017 License: 6488
Test Sponsor: xFusion
Tested by: xFusion

Test Date: Jun-2023
Hardware Availability: Apr-2021
Software Availability: Dec-2022

Benchmark	Threads	Base	Peak
600.perlbench_s	24	6.87	7.36
602.gcc_s	24	10.4	11.0
605.mcf_s	24	19.5	
620.omnetpp_s	24	7.36	
623.xalancbmk_s	24	20.2	
625.x264_s	24	16.1	16.9
631.deepsjeng_s	24	5.78	
641.leela_s	24	4.68	
648.exchange2_s	24	19.2	
657.xz_s	24	20.4	

SPECspeed®2017_int_base (11.4)
SPECspeed®2017_int_peak (11.5)

Hardware

CPU Name: Intel Xeon Silver 4310
 Max MHz: 3300
 Nominal: 2100
Enabled: 24 cores, 2 chips
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: 18 MB I+D on chip per chip
 Other: None
Memory: 512 GB (16 x 32 GB 2Rx4 PC4-3200AA-R, running at 2666)
Storage: 1 x 1920 GB SATA SSD
Other: None

Software

OS: Red Hat Enterprise Linux release 8.4 (Ootpa)
 4.18.0-305.el8.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 1.55 Released May-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: 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	258	6.89	**258**	**6.87**			24	241	7.37	**241**	**7.36**		
602.gcc_s	24	381	10.5	**382**	**10.4**			24	361	11.0	**363**	**11.0**		
605.mcf_s	24	242	19.5	**243**	**19.5**			24	242	19.5	**243**	**19.5**		
620.omnetpp_s	24	220	7.43	**222**	**7.36**			24	220	7.43	**222**	**7.36**		
623.xalancbmk_s	24	**70.2**	**20.2**	69.6	20.4			24	**70.2**	**20.2**	69.6	20.4		
625.x264_s	24	**109**	**16.1**	109	16.2			24	104	16.9	**104**	**16.9**		
631.deepsjeng_s	24	248	5.79	**248**	**5.78**			24	248	5.79	**248**	**5.78**		
641.leela_s	24	365	4.68	**365**	**4.68**			24	365	4.68	**365**	**4.68**		
648.exchange2_s	24	**153**	**19.2**	153	19.2			24	**153**	**19.2**	153	19.2		
657.xz_s	24	**303**	**20.4**	302	20.5			24	**303**	**20.4**	302	20.5		
SPECspeed®2017_int_base =		**11.4**												
SPECspeed®2017_int_peak =		**11.5**												

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,compact"
LD_LIBRARY_PATH = "/spec2017-icc2023.0/lib/intel64:/spec2017-icc2023.0/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
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
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:
Performance Profile Set to Load Balance
Hyper-Threading Set to Disabled

Sysinfo program /spec2017-icc2023.0/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost.localdomain Wed Jun 21 06:46:36 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)
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
-------------------------------------------------------------

-------------------------------------------------------------
 1. uname -a
   Linux localhost.localdomain 4.18.0-305.el8.x86_64 #1 SMP Thu Apr 29 08:54:30 EDT 2021 x86_64 x86_64 x86_64
   GNU/Linux

-------------------------------------------------------------
```

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Platform Notes (Continued)

```
 2. w
   06:46:36 up 1 min,  1 user,  load average: 0.45, 0.21, 0.08
   USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
   root     tty1     -                06:46   12.00s  1.20s  0.00s -bash

  ----------------------------------------------------------
 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) 2060604
   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) 2060604
   virtual memory          (kbytes, -v) unlimited
   file locks                      (-x) unlimited

  ----------------------------------------------------------
 5. sysinfo process ancestry
  /usr/lib/systemd/systemd --switched-root --system --deserialize 17
  login -- root
  -bash
  -bash
  runcpu --define default-platform-flags -c ic2023.0-lin-core-avx512-speed-20221201.cfg --define cores=24
    --tune base,peak --iterations 2 -o all --define intspeedaffinity --define drop_caches intspeed
  runcpu --define default-platform-flags --configfile ic2023.0-lin-core-avx512-speed-20221201.cfg --define
    cores=24 --tune base,peak --iterations 2 --output_format all --define intspeedaffinity --define
    drop_caches --nopower --runmode speed --tune base:peak --size refspeed intspeed --nopreenv --note-preenv
    --logfile $SPEC/tmp/CPU2017.032/templogs/preenv.intspeed.032.0.log --lognum 032.0 --from_runcpu 2
  specperl $SPEC/bin/sysinfo
  $SPEC = /spec2017-icc2023.0

  ----------------------------------------------------------
 6. /proc/cpuinfo
    model name      : Intel(R) Xeon(R) Silver 4310 CPU @ 2.10GHz
    vendor_id       : GenuineIntel
    cpu family      : 6
    model           : 106
    stepping        : 6
    microcode       : 0xd000363
    bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs
    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
```

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Platform Notes (Continued)

```
   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):              24
     On-line CPU(s) list: 0-23
     Thread(s) per core:  1
     Core(s) per socket:  12
     Socket(s):           2
     NUMA node(s):        2
     Vendor ID:           GenuineIntel
     BIOS Vendor ID:      Intel(R) Corporation
     CPU family:          6
     Model:               106
     Model name:          Intel(R) Xeon(R) Silver 4310 CPU @ 2.10GHz
     BIOS Model name:     Intel(R) Xeon(R) Silver 4310 CPU @ 2.10GHz
     Stepping:            6
     CPU MHz:             3300.000
     CPU max MHz:         2101.0000
     CPU min MHz:         800.0000
     BogoMIPS:            4200.00
     Virtualization:      VT-x
     L1d cache:           48K
     L1i cache:           32K
     L2 cache:            1280K
     L3 cache:            18432K
     NUMA node0 CPU(s):   0-11
     NUMA node1 CPU(s):   12-23
     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 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 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.
     available: 2 nodes (0-1)
     node 0 cpus: 0-11
     node 0 size: 257145 MB
     node 0 free: 256311 MB
     node 1 cpus: 12-23
     node 1 size: 258042 MB
     node 1 free: 257653 MB
     node distances:
     node   0   1
```

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Platform Notes (Continued)

```
     0:  10  20
     1:  20  10


-------------------------------------------------------------
9. /proc/meminfo
   MemTotal:       527552308 kB


-------------------------------------------------------------
10. who -r
   run-level 3 Jun 21 06:45


-------------------------------------------------------------
11. Systemd service manager version: systemd 239 (239-45.el8)
   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 irqbalance iscsi iscsi-onboot kdump libstoragemgmt
               loadmodules lvm2-monitor mcelog mdmonitor microcode multipathd nis-domainname
               nvmefc-boot-connections 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 ebtables iprdump
               iprinit iprupdate ipsec iscsid iscsiuio kpatch kvm_stat ledmon nftables nvmf-autoconnect oddjobd
               psacct rdisc rhcd rhsm rhsm-facts serial-getty@ sshd-keygen@ systemd-resolved tcsd
   generated   SystemTap compile-server gcc-toolset-10-stap-server gcc-toolset-10-systemtap
               gcc-toolset-9-stap-server gcc-toolset-9-systemtap scripts startup
   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,gpt3)/boot/vmlinuz-4.18.0-305.el8.x86_64
   root=UUID=711de346-1631-4b60-a626-37488271d525
   ro
   crashkernel=auto
   resume=UUID=d6a3ac10-1ea1-4e42-a80b-54c427bcad19
   rhgb
   quiet


-------------------------------------------------------------
14. cpupower frequency-info
   analyzing CPU 0:
     current policy: frequency should be within 800 MHz and 2.10 GHz.
                     The governor "performance" may decide which speed to use
                     within this range.
     boost state support:
       Supported: yes
       Active: yes


-------------------------------------------------------------
15. tuned-adm active
   No current active profile.


-------------------------------------------------------------
16. sysctl
   kernel.numa_balancing            1
   kernel.randomize_va_space        2
```

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xFusion

SPECspeed®2017_int_base = 11.4

FusionServer 1288H V6 (Intel Xeon Silver 4310) SPECspeed®2017_int_peak = 11.5

CPU2017 License: 6488   **Test Date:**   Jun-2023
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Platform Notes (Continued)

```
   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                      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_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
   l1tf                 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
   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: /spec2017-icc2023.0
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/sda3      xfs   420G   30G  391G   8% /
```

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Platform Notes (Continued)

```
   ------------------------------------------------------------
 22. /sys/devices/virtual/dmi/id
     Vendor:         XFUSION
     Product:        1288H V6
     Product Family: Whitley
     Serial:         Serial


   ------------------------------------------------------------
 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 M393A4K40DB3-CWE 32 GB 2 rank 3200, configured at 2666


   ------------------------------------------------------------
 24. BIOS
 (This section combines info from /sys/devices and dmidecode.)
    BIOS Vendor:      XFUSION
    BIOS Version:     1.55
    BIOS Date:        05/09/2023
    BIOS Revision:    1.55
```

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
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:

icx

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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:
```
-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
-nostandard-realloc-lhs -align array32byte
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

Standard Performance Evaluation Corporation (info@spec.org)

https://www.spec.org/

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xFusion

FusionServer 1288H V6 (Intel Xeon Silver 4310)

$SPECspeed®2017\_int\_base = 11.4$

$SPECspeed®2017\_int\_peak = 11.5$

CPU2017 License: 6488	**Test Date:** Jun-2023
Test Sponsor: xFusion	**Hardware Availability:** Apr-2021
Tested by: xFusion	**Software Availability:** Dec-2022

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
```

```
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:

(Continued on next page)

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Peak Optimization Flags (Continued)

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/xFusion-Platform-Settings-ICX-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/xFusion-Platform-Settings-ICX-V1.2.xml`

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