# SPEC CPU®2017 Integer Rate Result

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# xFusion

FusionServer 5885H V7 (Intel Xeon Platinum 8460H)

## SPECrate®2017_int_base = 1540

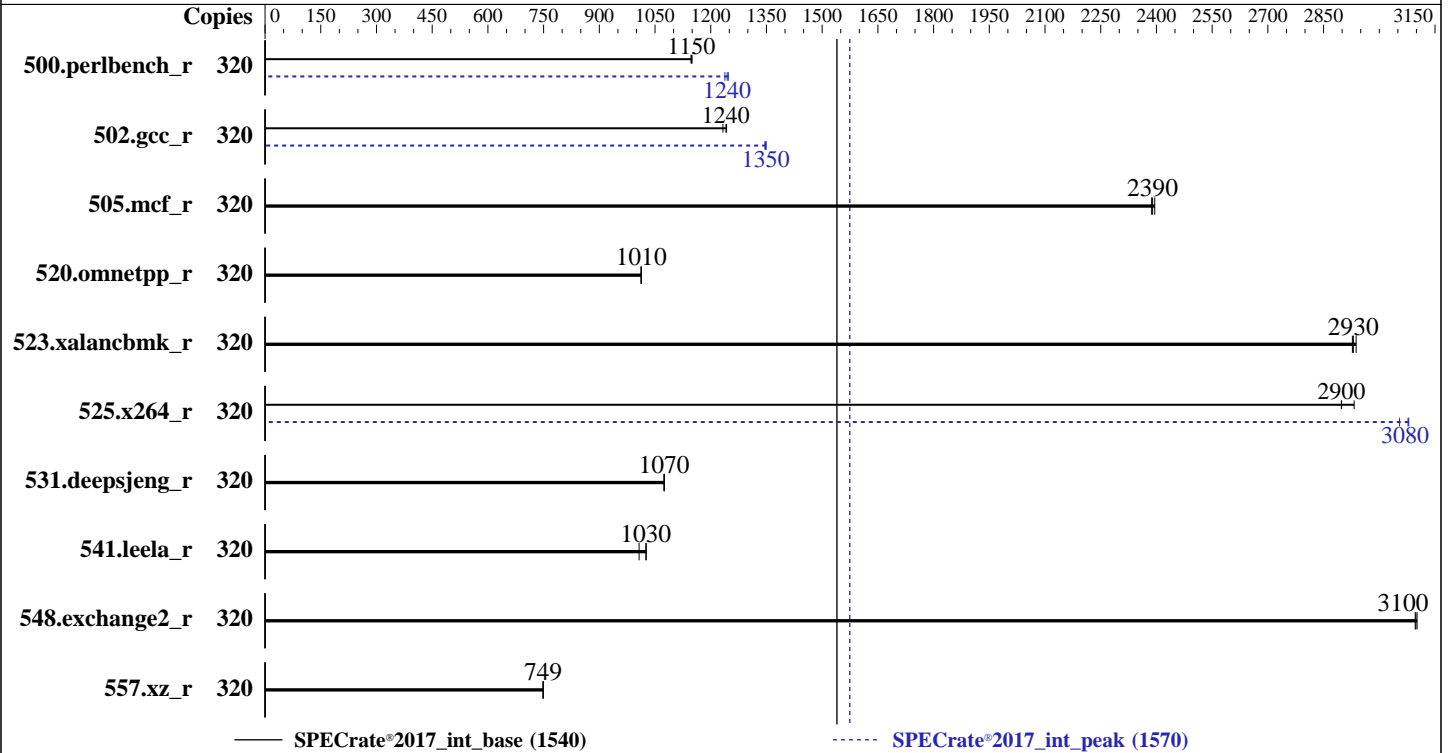## SPECrate®2017_int_peak = 1570

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

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



Copies

| Benchmark | Copies | Base | Peak |
|---|---|---|---|
| 500.perlbench_r | 320 | 1150 | 1240 |
| 502.gcc_r | 320 | 1240 | 1350 |
| 505.mcf_r | 320 | 2390 | |
| 520.omnetpp_r | 320 | 1010 | |
| 523.xalancbmk_r | 320 | 2930 | |
| 525.x264_r | 320 | 2900 | 3080 |
| 531.deepsjeng_r | 320 | 1070 | |
| 541.leela_r | 320 | 1030 | |
| 548.exchange2_r | 320 | 3100 | |
| 557.xz_r | 320 | 749 | |

SPECrate®2017_int_base (1540)    SPECrate®2017_int_peak (1570)

## Hardware

CPU Name: Intel Xeon Platinum 8460H
 Max MHz: 3800
 Nominal: 2200
Enabled: 160 cores, 4 chips, 2 threads/core
Orderable: 1,2,4 chips
Cache L1: 32 KB I + 48 KB D on chip per core
 L2: 2 MB I+D on chip per core
 L3: 105 MB I+D on chip per chip
 Other: None
Memory: 1 TB (32 x 32 GB 2Rx8 PC5-4800B-R)
Storage: 1 x 960 GB SATA SSD
Other: None

## Software

OS: Red Hat Enterprise Linux release 9.0 (Plow)
5.14.0-70.13.1.el9_0.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: No
Firmware: Version 2.00.34 Released Apr-2023
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-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 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 500.perlbench_r | 320 | 444 | 1150 | 443 | 1150 | **444** | **1150** | 320 | **409** | **1240** | 411 | 1240 | 408 | 1250 |
| 502.gcc_r | 320 | 368 | 1230 | 365 | 1240 | **365** | **1240** | 320 | 337 | 1350 | 336 | 1350 | **336** | **1350** |
| 505.mcf_r | 320 | **216** | **2390** | 217 | 2390 | 216 | 2400 | 320 | **216** | **2390** | 217 | 2390 | 216 | 2400 |
| 520.omnetpp_r | 320 | 414 | 1010 | 415 | 1010 | **414** | **1010** | 320 | 414 | 1010 | 415 | 1010 | **414** | **1010** |
| 523.xalancbmk_r | 320 | **115** | **2930** | 115 | 2930 | 115 | 2940 | 320 | **115** | **2930** | 115 | 2930 | 115 | 2940 |
| 525.x264_r | 320 | 191 | 2930 | 193 | 2900 | **193** | **2900** | 320 | 182 | 3080 | 183 | 3050 | **182** | **3080** |
| 531.deepsjeng_r | 320 | **341** | **1070** | 341 | 1070 | 341 | 1070 | 320 | **341** | **1070** | 341 | 1070 | 341 | 1070 |
| 541.leela_r | 320 | 526 | 1010 | **517** | **1030** | 516 | 1030 | 320 | 526 | 1010 | **517** | **1030** | 516 | 1030 |
| 548.exchange2_r | 320 | 270 | 3100 | **271** | **3100** | 271 | 3100 | 320 | 270 | 3100 | **271** | **3100** | 271 | 3100 |
| 557.xz_r | 320 | **461** | **749** | 461 | 749 | 462 | 748 | 320 | **461** | **749** | 461 | 749 | 462 | 748 |
| **SPECrate®2017_int_base =** | | **1540** | | | | | | | | | | | | |
| **SPECrate®2017_int_peak =** | | **1570** | | | | | | | | | | | | |

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.
```

## Submit Notes

```
  The numactl mechanism was used to bind copies to processors. The config file option 'submit'
  was used to generate numactl commands to bind each copy to a specific processor.
  For details, please see the config file.
```

## 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:
LD_LIBRARY_PATH =
    "/home/Uniautos/cpu2017/lib/intel64:/home/Uniautos/cpu2017/lib/ia32:/home/Uniautos/cpu2017/je5.0.1-32"
MALLOC_CONF = "retain:true"
```

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## 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
Filesystem page cache synced and cleared with:
sync; echo 3>        /proc/sys/vm/drop_caches
runcpu command invoked through numactl i.e.:
numactl --interleave=all runcpu <etc>
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 Performance
SNC Set to Enable SNC4 (4-clusters)

Sysinfo program /home/Uniautos/cpu2017/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost.localdomain Thu Jun  8 19:49:09 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 250 (250-6.el9_0)
12. Failed units, from systemctl list-units --state=failed
13. Services, from systemctl list-unit-files
14. Linux kernel boot-time arguments, from /proc/cmdline
15. cpupower frequency-info
16. tuned-adm active
17. sysctl
18. /sys/kernel/mm/transparent_hugepage
19. /sys/kernel/mm/transparent_hugepage/khugepaged
20. OS release
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 5.14.0-70.13.1.el9_0.x86_64 #1 SMP PREEMPT Thu Apr 14 12:42:38 EDT 2022 x86_64
  x86_64 x86_64 GNU/Linux

-------------------------------------------------------------
2. w
   19:49:09 up 2 min,  1 user,  load average: 0.90, 1.20, 0.53
  USER     TTY         LOGIN@   IDLE   JCPU   PCPU WHAT
  root     pts/0    19:47   13.00s  1.07s  0.03s -bash

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

-------------------------------------------------------------
4. ulimit -a
  real-time non-blocking time  (microseconds, -R) unlimited
  core file size              (blocks, -c) 0
  data seg size               (kbytes, -d) unlimited
  scheduling priority             (-e) 0
  file size                   (blocks, -f) unlimited
  pending signals                 (-i) 4125009
  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) 4125009
  virtual memory              (kbytes, -v) unlimited
  file locks                      (-x) unlimited

-------------------------------------------------------------
5. sysinfo process ancestry
 /usr/lib/systemd/systemd --switched-root --system --deserialize 30
 sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups
 sshd: root [priv]
 sshd: root@pts/0
 -bash
 /bin/sh ./run_rate.sh
 runcpu --define default-platform-flags --copies 320 -c ic2023.0-lin-sapphirerapids-rate-20221201.cfg
   --define smt-on --define cores=160 --define physicalfirst --define invoke_with_interleave --define
   drop_caches --tune base,peak -o all intrate
 runcpu --define default-platform-flags --copies 320 --configfile
   ic2023.0-lin-sapphirerapids-rate-20221201.cfg --define smt-on --define cores=160 --define physicalfirst
   --define invoke_with_interleave --define drop_caches --tune base,peak --output_format all --nopower
   --runmode rate --tune base:peak --size refrate intrate --nopreenv --note-preenv --logfile
   $SPEC/tmp/CPU2017.020/templogs/preenv.intrate.020.0.log --lognum 020.0 --from_runcpu 2
 specperl $SPEC/bin/sysinfo
 $SPEC = /home/Uniautos/cpu2017

-------------------------------------------------------------
6. /proc/cpuinfo
    model name      : Intel(R) Xeon(R) Platinum 8460H
    vendor_id       : GenuineIntel
    cpu family      : 6
    model           : 143
```

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## Platform Notes (Continued)

```
      stepping        : 8
      microcode       : 0x2b0001b0
      bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs
      cpu cores       : 40
      siblings        : 80
      4 physical ids (chips)
      320 processors (hardware threads)
      physical id 0: core ids 0-39
      physical id 1: core ids 0-39
      physical id 2: core ids 0-39
      physical id 3: core ids 0-39
      physical id 0: apicids 0-79
      physical id 1: apicids 128-207
      physical id 2: apicids 256-335
      physical id 3: apicids 384-463
    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 2.37.4:
      Architecture:                x86_64
      CPU op-mode(s):              32-bit, 64-bit
      Address sizes:               46 bits physical, 57 bits virtual
      Byte Order:                  Little Endian
      CPU(s):                      320
      On-line CPU(s) list:         0-319
      Vendor ID:                   GenuineIntel
      BIOS Vendor ID:              Intel(R) Corporation
      Model name:                  Intel(R) Xeon(R) Platinum 8460H
      BIOS Model name:             Intel(R) Xeon(R) Platinum 8460H
      CPU family:                  6
      Model:                       143
      Thread(s) per core:          2
      Core(s) per socket:          40
      Socket(s):                   4
      Stepping:                    8
      BogoMIPS:                    4400.00
      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 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 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
                                   avx_vnni avx512_bf16 wbnoinvd dtherm ida arat pln pts 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:                   7.5 MiB (160 instances)
      L1i cache:                   5 MiB (160 instances)
      L2 cache:                    320 MiB (160 instances)
```

**(Continued on next page)**

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## Platform Notes (Continued)

```
  L3 cache:                           420 MiB (4 instances)
  NUMA node(s):                       16
  NUMA node0 CPU(s):                  0-9,160-169
  NUMA node1 CPU(s):                  10-19,170-179
  NUMA node2 CPU(s):                  20-29,180-189
  NUMA node3 CPU(s):                  30-39,190-199
  NUMA node4 CPU(s):                  40-49,200-209
  NUMA node5 CPU(s):                  50-59,210-219
  NUMA node6 CPU(s):                  60-69,220-229
  NUMA node7 CPU(s):                  70-79,230-239
  NUMA node8 CPU(s):                  80-89,240-249
  NUMA node9 CPU(s):                  90-99,250-259
  NUMA node10 CPU(s):                 100-109,260-269
  NUMA node11 CPU(s):                 110-119,270-279
  NUMA node12 CPU(s):                 120-129,280-289
  NUMA node13 CPU(s):                 130-139,290-299
  NUMA node14 CPU(s):                 140-149,300-309
  NUMA node15 CPU(s):                 150-159,310-319
  Vulnerability Itlb multihit:        Not affected
  Vulnerability L1tf:                 Not affected
  Vulnerability Mds:                  Not affected
  Vulnerability Meltdown:             Not affected
  Vulnerability Spec store bypass:    Mitigation; Speculative Store Bypass disabled via prctl
  Vulnerability Spectre v1:           Mitigation; usercopy/swapgs barriers and __user pointer sanitization
  Vulnerability Spectre v2:           Mitigation; Enhanced IBRS, IBPB conditional, RSB filling
  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      7.5M  12 Data              1      64       1               64
    L1i      32K        5M   8 Instruction       1      64       1               64
    L2        2M       320M  16 Unified          2    2048       1               64
    L3      105M       420M  15 Unified          3  114688       1               64

------------------------------------------------------------
8. numactl --hardware
NOTE: a numactl 'node' might or might not correspond to a physical chip.
  available: 16 nodes (0-15)
  node 0 cpus: 0-9,160-169
  node 0 size: 63740 MB
  node 0 free: 62347 MB
  node 1 cpus: 10-19,170-179
  node 1 size: 64507 MB
  node 1 free: 64031 MB
  node 2 cpus: 20-29,180-189
  node 2 size: 64507 MB
  node 2 free: 63951 MB
  node 3 cpus: 30-39,190-199
  node 3 size: 64507 MB
  node 3 free: 64029 MB
  node 4 cpus: 40-49,200-209
  node 4 size: 64507 MB
  node 4 free: 64208 MB
  node 5 cpus: 50-59,210-219
  node 5 size: 64507 MB
  node 5 free: 64269 MB
  node 6 cpus: 60-69,220-229
  node 6 size: 64507 MB
  node 6 free: 64211 MB
```

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## Platform Notes (Continued)

```
   node 7 cpus: 70-79,230-239
   node 7 size: 64471 MB
   node 7 free: 64205 MB
   node 8 cpus: 80-89,240-249
   node 8 size: 64507 MB
   node 8 free: 64240 MB
   node 9 cpus: 90-99,250-259
   node 9 size: 64507 MB
   node 9 free: 64122 MB
   node 10 cpus: 100-109,260-269
   node 10 size: 64507 MB
   node 10 free: 64232 MB
   node 11 cpus: 110-119,270-279
   node 11 size: 64507 MB
   node 11 free: 64258 MB
   node 12 cpus: 120-129,280-289
   node 12 size: 64507 MB
   node 12 free: 64211 MB
   node 13 cpus: 130-139,290-299
   node 13 size: 64507 MB
   node 13 free: 64301 MB
   node 14 cpus: 140-149,300-309
   node 14 size: 64507 MB
   node 14 free: 64224 MB
   node 15 cpus: 150-159,310-319
   node 15 size: 64478 MB
   node 15 free: 64162 MB
   node distances:
   node   0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15
     0:  10  12  12  12  21  21  21  21  21  21  21  21  21  21  21  21
     1:  12  10  12  12  21  21  21  21  21  21  21  21  21  21  21  21
     2:  12  12  10  12  21  21  21  21  21  21  21  21  21  21  21  21
     3:  12  12  12  10  21  21  21  21  21  21  21  21  21  21  21  21
     4:  21  21  21  21  10  12  12  12  21  21  21  21  21  21  21  21
     5:  21  21  21  21  12  10  12  12  21  21  21  21  21  21  21  21
     6:  21  21  21  21  12  12  10  12  21  21  21  21  21  21  21  21
     7:  21  21  21  21  12  12  12  10  21  21  21  21  21  21  21  21
     8:  21  21  21  21  21  21  21  21  10  12  12  12  21  21  21  21
     9:  21  21  21  21  21  21  21  21  12  10  12  12  21  21  21  21
    10:  21  21  21  21  21  21  21  21  12  12  10  12  21  21  21  21
    11:  21  21  21  21  21  21  21  21  12  12  12  10  21  21  21  21
    12:  21  21  21  21  21  21  21  21  21  21  21  21  10  12  12  12
    13:  21  21  21  21  21  21  21  21  21  21  21  21  12  10  12  12
    14:  21  21  21  21  21  21  21  21  21  21  21  21  12  12  10  12
    15:  21  21  21  21  21  21  21  21  21  21  21  21  12  12  12  10

   ------------------------------------------------------------
   9. /proc/meminfo
     MemTotal:       1056040412 kB


   ------------------------------------------------------------
   10. who -r
     run-level 3 Jun 8 19:46


   ------------------------------------------------------------
   11. Systemd service manager version: systemd 250 (250-6.el9_0)
     Default Target  Status
     multi-user      degraded

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

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## Platform Notes (Continued)

```
12. Failed units, from systemctl list-units --state=failed
    UNIT          LOAD   ACTIVE SUB    DESCRIPTION
  * sep5.service loaded failed failed systemd script to load sep5 driver at boot time

    ----------------------------------------------------------
13. Services, from systemctl list-unit-files
    STATE             UNIT FILES
    enabled           NetworkManager NetworkManager-dispatcher NetworkManager-wait-online auditd chronyd crond
                      dbus-broker firewalld getty@ irqbalance kdump mdmonitor microcode nis-domainname rhsmcertd
                      rsyslog selinux-autorelabel-mark sep5 sshd sssd systemd-network-generator tuned udisks2
    enabled-runtime   systemd-remount-fs
    disabled          chrony-wait console-getty cpupower debug-shell kvm_stat man-db-restart-cache-update
                      nftables rdisc rhsm rhsm-facts rpmdb-rebuild serial-getty@ sshd-keygen@
                      systemd-boot-check-no-failures systemd-pstore systemd-sysext
    indirect          sssd-autofs sssd-kcm sssd-nss sssd-pac sssd-pam sssd-ssh sssd-sudo

    ----------------------------------------------------------
14. Linux kernel boot-time arguments, from /proc/cmdline
    BOOT_IMAGE=(hd0,gpt2)/vmlinuz-5.14.0-70.13.1.el9_0.x86_64
    root=UUID=058bfdf1-c62b-4fad-8d41-5c40aa179007
    ro
    crashkernel=1G-4G:192M,4G-64G:256M,64G-:512M
    resume=UUID=b47f1685-a5fa-4d39-b2d7-e3f6e95ad499
    nohz_full=1-479

    ----------------------------------------------------------
15. cpupower frequency-info
    analyzing CPU 0:
      Unable to determine current policy
      boost state support:
        Supported: yes
        Active: yes

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

    ----------------------------------------------------------
17. 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                 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

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

**(Continued on next page)**

## xFusion

FusionServer 5885H V7 (Intel Xeon Platinum 8460H)

SPECrate®2017_int_base = 1540

SPECrate®2017_int_peak = 1570

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

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

## Platform Notes (Continued)

```
18. /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

   --------------------------------------------------------------
19. /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

   --------------------------------------------------------------
20. OS release
   From /etc/*-release /etc/*-version
   os-release     Red Hat Enterprise Linux 9.0 (Plow)
   redhat-release Red Hat Enterprise Linux release 9.0 (Plow)
   system-release Red Hat Enterprise Linux release 9.0 (Plow)

   --------------------------------------------------------------
21. Disk information
SPEC is set to: /home/Uniautos/cpu2017
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/sda5      xfs   820G   41G  780G   5% /home

   --------------------------------------------------------------
22. /sys/devices/virtual/dmi/id
     Product:       5885H V7
     Product Family: EagleStream

   --------------------------------------------------------------
23. dmidecode
   Additional information from dmidecode 3.3 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:
     32x Samsung M321R4GA3BB6-CQKDG 32 GB 2 rank 4800


   --------------------------------------------------------------
24. BIOS
(This section combines info from /sys/devices and dmidecode.)
   BIOS Vendor:     Byosoft Corporation
   BIOS Version:    2.00.34
   BIOS Date:       04/18/2023
```

## Compiler Version Notes

```
==================================================================================================
C      | 502.gcc_r(peak)
--------------------------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2023.0.0 Build 20221201
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
--------------------------------------------------------------------------------------------------
```

**(Continued on next page)**

## xFusion

SPECrate®2017_int_base = 1540

FusionServer 5885H V7 (Intel Xeon Platinum 8460H)

SPECrate®2017_int_peak = 1570

## Compiler Version Notes (Continued)

```
==================================================================================================
C         | 500.perlbench_r(base, peak) 502.gcc_r(base) 505.mcf_r(base, peak) 525.x264_r(base, peak)
          | 557.xz_r(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         | 502.gcc_r(peak)
--------------------------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2023.0.0 Build 20221201
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
--------------------------------------------------------------------------------------------------


==================================================================================================
C         | 500.perlbench_r(base, peak) 502.gcc_r(base) 505.mcf_r(base, peak) 525.x264_r(base, peak)
          | 557.xz_r(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++       | 520.omnetpp_r(base, peak) 523.xalancbmk_r(base, peak) 531.deepsjeng_r(base, peak)
          | 541.leela_r(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 | 548.exchange2_r(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`

C++ benchmarks:
`icpx`

Fortran benchmarks:
`ifx`

## xFusion

FusionServer 5885H V7 (Intel Xeon Platinum 8460H)

SPECrate®2017_int_base = 1540

SPECrate®2017_int_peak = 1570

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

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

# Base Portability Flags

500.perlbench_r: `-DSPEC_LP64 -DSPEC_LINUX_X64`
502.gcc_r: `-DSPEC_LP64`
505.mcf_r: `-DSPEC_LP64`
520.omnetpp_r: `-DSPEC_LP64`
523.xalancbmk_r: `-DSPEC_LP64 -DSPEC_LINUX`
525.x264_r: `-DSPEC_LP64`
531.deepsjeng_r: `-DSPEC_LP64`
541.leela_r: `-DSPEC_LP64`
548.exchange2_r: `-DSPEC_LP64`
557.xz_r: `-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
-L/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin
-lqkmalloc
```

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/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin
-lqkmalloc
```

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 -auto
-L/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin
-lqkmalloc
```

# Peak Compiler Invocation

C benchmarks:
```
icx
```

C++ benchmarks:
```
icpx
```

Fortran benchmarks:
```
ifx
```

# SPEC CPU®2017 Integer Rate Result

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## xFusion

FusionServer 5885H V7 (Intel Xeon Platinum 8460H)

SPECrate®2017_int_base = 1540

SPECrate®2017_int_peak = 1570

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

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

## Peak Portability Flags

500.perlbench_r: `-DSPEC_LP64 -DSPEC_LINUX_X64`
502.gcc_r: `-D_FILE_OFFSET_BITS=64`
505.mcf_r: `-DSPEC_LP64`
520.omnetpp_r: `-DSPEC_LP64`
523.xalancbmk_r: `-DSPEC_LP64 -DSPEC_LINUX`
525.x264_r: `-DSPEC_LP64`
531.deepsjeng_r: `-DSPEC_LP64`
541.leela_r: `-DSPEC_LP64`
548.exchange2_r: `-DSPEC_LP64`
557.xz_r: `-DSPEC_LP64`

## Peak Optimization Flags

C benchmarks:

500.perlbench_r: `-w -std=c11 -m64 -Wl,-z,muldefs`
`-fprofile-generate`(pass 1)
`-fprofile-use=default.profdata`(pass 2) `-xCORE-AVX2`(pass 1)
`-flto -Ofast -xCORE-AVX512 -ffast-math -mfpmath=sse`
`-funroll-loops -qopt-mem-layout-trans=4`
`-fno-strict-overflow`
`-L/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin`
`-lqkmalloc`

502.gcc_r: `-m32`
`-L/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/ia32_lin`
`-std=gnu89 -Wl,-z,muldefs -fprofile-generate`(pass 1)
`-fprofile-use=default.profdata`(pass 2) `-xCORE-AVX2`(pass 1)
`-flto -Ofast -xCORE-AVX512 -ffast-math -mfpmath=sse`
`-funroll-loops -qopt-mem-layout-trans=4`
`-L/usr/local/jemalloc32-5.0.1/lib -ljemalloc`

505.mcf_r: `basepeak = yes`

525.x264_r: `-w -std=c11 -m64 -Wl,-z,muldefs -xsapphirerapids -Ofast`
`-ffast-math -flto -mfpmath=sse -funroll-loops`
`-qopt-mem-layout-trans=4 -fno-alias`
`-L/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin`
`-lqkmalloc`

557.xz_r: `basepeak = yes`

C++ benchmarks:

**(Continued on next page)**

Standard Performance Evaluation Corporation (info@spec.org)

https://www.spec.org/

## xFusion

FusionServer 5885H V7 (Intel Xeon Platinum 8460H)

SPECrate®2017_int_base = 1540

SPECrate®2017_int_peak = 1570

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

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

# Peak Optimization Flags (Continued)

520.omnetpp_r: `basepeak = yes`

523.xalancbmk_r: `basepeak = yes`

531.deepsjeng_r: `basepeak = yes`

541.leela_r: `basepeak = yes`

Fortran benchmarks:

548.exchange2_r: `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-SPR-V1.1-revC.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-SPR-V1.1-revC.xml`

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

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