SPEC CPU®2017 Integer Rate Result

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xFusion

FusionServer 2488H V7 (Intel Xeon Gold 6434H)

SPECrate®2017_int_base = 395

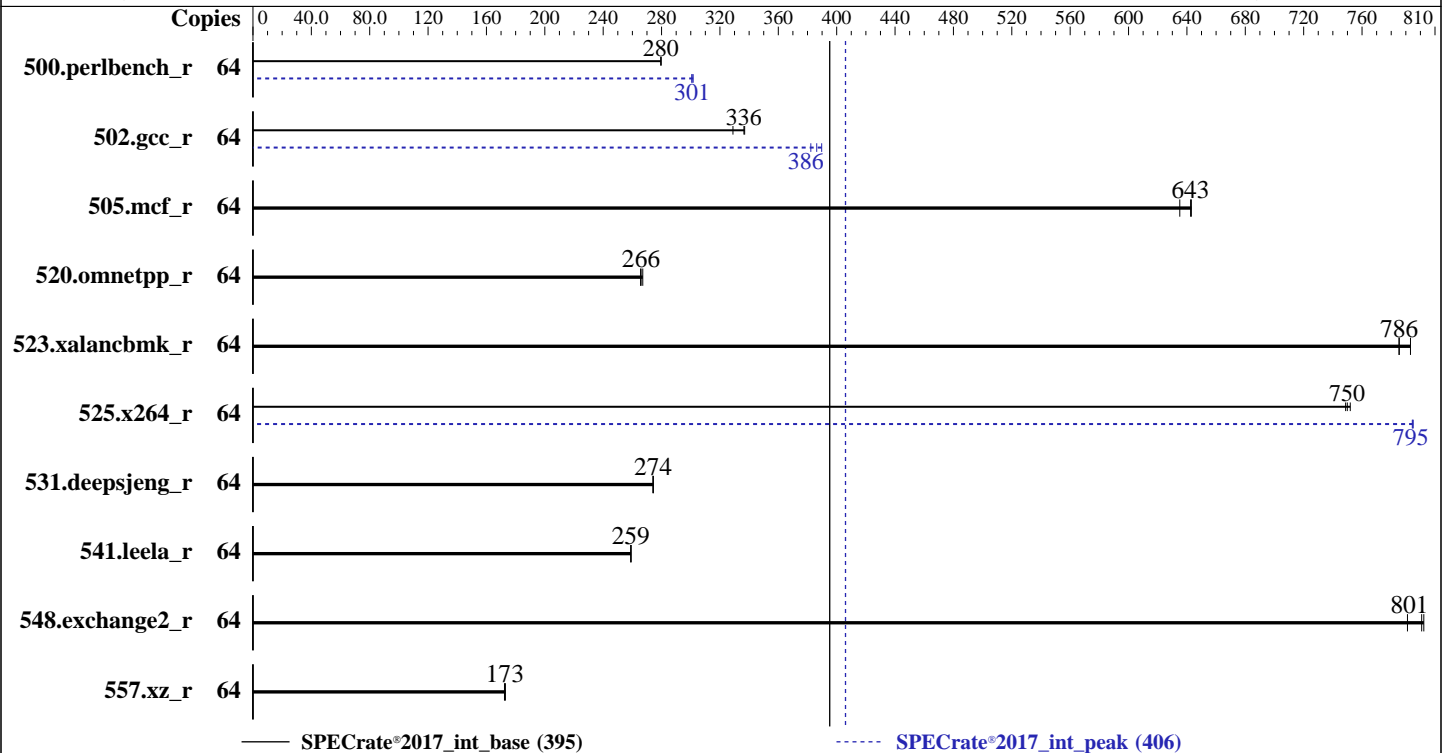### SPECrate®2017_int_peak = 406

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

Test Date: Sep-2023
Hardware Availability: Jul-2023
Software Availability: Dec-2022

Benchmark	Copies	base	peak
500.perlbench_r	64	280	301
502.gcc_r	64	336	386
505.mcf_r	64	643	
520.omnetpp_r	64	266	
523.xalancbmk_r	64	786	
525.x264_r	64	750	795
531.deepsjeng_r	64	274	
541.leela_r	64	259	
548.exchange2_r	64	801	
557.xz_r	64	173	

SPECrate®2017_int_base (395) SPECrate®2017_int_peak (406)

Hardware

CPU Name: Intel Xeon Gold 6434H
 Max MHz: 4100
 Nominal: 3700
Enabled: 32 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: 22.5 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 01.02.00.05 Released Jul-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	64	**364**	**280**	364	280	364	280	64	**339**	**301**	338	302	339	301
502.gcc_r	64	269	337	**269**	**336**	276	329	64	233	390	**235**	**386**	237	382
505.mcf_r	64	161	643	**161**	**643**	163	635	64	161	643	**161**	**643**	163	635
520.omnetpp_r	64	**316**	**266**	314	267	316	266	64	**316**	**266**	314	267	316	266
523.xalancbmk_r	64	86.1	785	**86.0**	**786**	85.2	793	64	86.1	785	**86.0**	**786**	85.2	793
525.x264_r	64	150	749	**149**	**750**	149	752	64	141	794	141	795	**141**	**795**
531.deepsjeng_r	64	268	274	267	274	**267**	**274**	64	268	274	267	274	**267**	**274**
541.leela_r	64	409	259	409	259	**409**	**259**	64	409	259	409	259	**409**	**259**
548.exchange2_r	64	**209**	**801**	209	802	212	791	64	**209**	**801**	209	802	212	791
557.xz_r	64	401	172	**400**	**173**	400	173	64	401	172	**400**	**173**	400	173
SPECrate®2017_int_base =		395												
SPECrate®2017_int_peak =		406												

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"
```

Standard Performance Evaluation Corporation (info@spec.org)

https://www.spec.org/

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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 SNC2 (2-clusters)

Sysinfo program /home/Uniautos/cpu2017/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost.localdomain Mon Sep 11 21:30:54 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
   21:30:54 up 3 min,  1 user,  load average: 0.13, 0.12, 0.05
  USER     TTY        LOGIN@   IDLE   JCPU   PCPU WHAT
  root     pts/0      21:28    6.00s  0.83s  0.00s tail -100f nohup.out

----------------------------------------------------------
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) 4125299
  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) 4125299
  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 64 -c ic2023.0-lin-sapphirerapids-rate-20221201.cfg --define
   smt-on --define cores=32 --define physicalfirst --define invoke_with_interleave --define drop_caches
   --tune base,peak -o all intrate
 runcpu --define default-platform-flags --copies 64 --configfile
   ic2023.0-lin-sapphirerapids-rate-20221201.cfg --define smt-on --define cores=32 --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/CPU2017.092/templogs/preenv.intrate.092.0.log --lognum 092.0 --from_runcpu 2
 specperl $SPEC/bin/sysinfo
 $SPEC = /home/Uniautos/cpu2017

----------------------------------------------------------
6. /proc/cpuinfo
    model name    : Intel(R) Xeon(R) Gold 6434H
    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       : 8
      siblings        : 16
      4 physical ids (chips)
      64 processors (hardware threads)
      physical id 0: core ids 0-7
      physical id 1: core ids 0-7
      physical id 2: core ids 0-7
      physical id 3: core ids 0-7
      physical id 0: apicids 0-15
      physical id 1: apicids 128-143
      physical id 2: apicids 256-271
      physical id 3: apicids 384-399
    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):                         64
      On-line CPU(s) list:            0-63
      Vendor ID:                      GenuineIntel
      BIOS Vendor ID:                 Intel(R) Corporation
      Model name:                     Intel(R) Xeon(R) Gold 6434H
      BIOS Model name:                Intel(R) Xeon(R) Gold 6434H
      CPU family:                     6
      Model:                          143
      Thread(s) per core:             2
      Core(s) per socket:             8
      Socket(s):                      4
      Stepping:                       8
      BogoMIPS:                       7400.00
      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:                      1.5 MiB (32 instances)
      L1i cache:                      1 MiB (32 instances)
      L2 cache:                       64 MiB (32 instances)
```

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Platform Notes (Continued)

```
   L3 cache:                        90 MiB (4 instances)
   NUMA node(s):                    8
   NUMA node0 CPU(s):               0-3,32-35
   NUMA node1 CPU(s):               4-7,36-39
   NUMA node2 CPU(s):               8-11,40-43
   NUMA node3 CPU(s):               12-15,44-47
   NUMA node4 CPU(s):               16-19,48-51
   NUMA node5 CPU(s):               20-23,52-55
   NUMA node6 CPU(s):               24-27,56-59
   NUMA node7 CPU(s):               28-31,60-63
   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     1.5M   12 Data             1    64        1             64
     L1i       32K       1M    8 Instruction     1    64        1             64
     L2         2M      64M   16 Unified          2  2048        1             64
     L3     22.5M      90M   15 Unified          3 24576        1             64

   -----------------------------------------------------------
 8. numactl --hardware
 NOTE: a numactl 'node' might or might not correspond to a physical chip.
   available: 8 nodes (0-7)
   node 0 cpus: 0-3,32-35
   node 0 size: 128218 MB
   node 0 free: 127562 MB
   node 1 cpus: 4-7,36-39
   node 1 size: 129022 MB
   node 1 free: 128141 MB
   node 2 cpus: 8-11,40-43
   node 2 size: 129022 MB
   node 2 free: 128737 MB
   node 3 cpus: 12-15,44-47
   node 3 size: 129022 MB
   node 3 free: 128816 MB
   node 4 cpus: 16-19,48-51
   node 4 size: 129022 MB
   node 4 free: 128807 MB
   node 5 cpus: 20-23,52-55
   node 5 size: 129022 MB
   node 5 free: 128749 MB
   node 6 cpus: 24-27,56-59
   node 6 size: 129022 MB
   node 6 free: 128784 MB
   node 7 cpus: 28-31,60-63
   node 7 size: 129011 MB
   node 7 free: 128725 MB
   node distances:
   node   0   1   2   3   4   5   6   7
     0:  10  12  21  21  21  21  21  21
     1:  12  10  21  21  21  21  21  21
     2:  21  21  10  12  21  21  21  21
```

(Continued on next page)

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Platform Notes (Continued)

```
      3:  21  21  12  10  21  21  21  21
      4:  21  21  21  21  10  12  21  21
      5:  21  21  21  21  12  10  21  21
      6:  21  21  21  21  21  21  10  12
      7:  21  21  21  21  21  21  12  10


   -------------------------------------------------------------
   9. /proc/meminfo
      MemTotal:       1056114640 kB


   -------------------------------------------------------------
   10. who -r
      run-level 3 Sep 11 21:27


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


   -------------------------------------------------------------
   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=1-72


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

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Platform Notes (Continued)

```
   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


   ----------------------------------------------------------
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   82G  738G  10% /home


   ----------------------------------------------------------
22. /sys/devices/virtual/dmi/id
   Vendor:        XFUSION
   Product:       2488H 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
```

(Continued on next page)

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Platform Notes (Continued)

```
      "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:      XFUSION
      BIOS Version:     01.02.00.05
      BIOS Date:        07/13/2023
```

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.
----------------------------------------------------------------------------------------


========================================================================================
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
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========================================================================================
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
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========================================================================================
C++    | 520.omnetpp_r(base, peak) 523.xalancbmk_r(base, peak) 531.deepsjeng_r(base, peak)
       | 541.leela_r(base, peak)
----------------------------------------------------------------------------------------
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========================================================================================
Fortran | 548.exchange2_r(base, peak)
----------------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201
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```

SPEC CPU®2017 Integer Rate Result

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xFusion

FusionServer 2488H V7 (Intel Xeon Gold 6434H)

SPECrate®2017_int_base = 395

SPECrate®2017_int_peak = 406

Base Compiler Invocation

C benchmarks:
`icx`

C++ benchmarks:
`icpx`

Fortran benchmarks:
`ifx`

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`

SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

xFusion

FusionServer 2488H V7 (Intel Xeon Gold 6434H)

SPECrate®2017_int_base = 395

SPECrate®2017_int_peak = 406

CPU2017 License: 6488

Test Sponsor: xFusion

Tested by: xFusion

Test Date: Sep-2023

Hardware Availability: Jul-2023

Software Availability: Dec-2022

Peak Compiler Invocation

C benchmarks:
`icx`

C++ benchmarks:
`icpx`

Fortran benchmarks:
`ifx`

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`

(Continued on next page)

Standard Performance Evaluation Corporation (info@spec.org)

https://www.spec.org/

xFusion

FusionServer 2488H V7 (Intel Xeon Gold 6434H)

SPECrate®2017_int_base = 395

SPECrate®2017_int_peak = 406

CPU2017 License: 6488	**Test Date:** Sep-2023
Test Sponsor: xFusion	**Hardware Availability:** Jul-2023
Tested by: xFusion	**Software Availability:** Dec-2022

Peak Optimization Flags (Continued)

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:

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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