SPEC CPU®2017 Integer Rate Result

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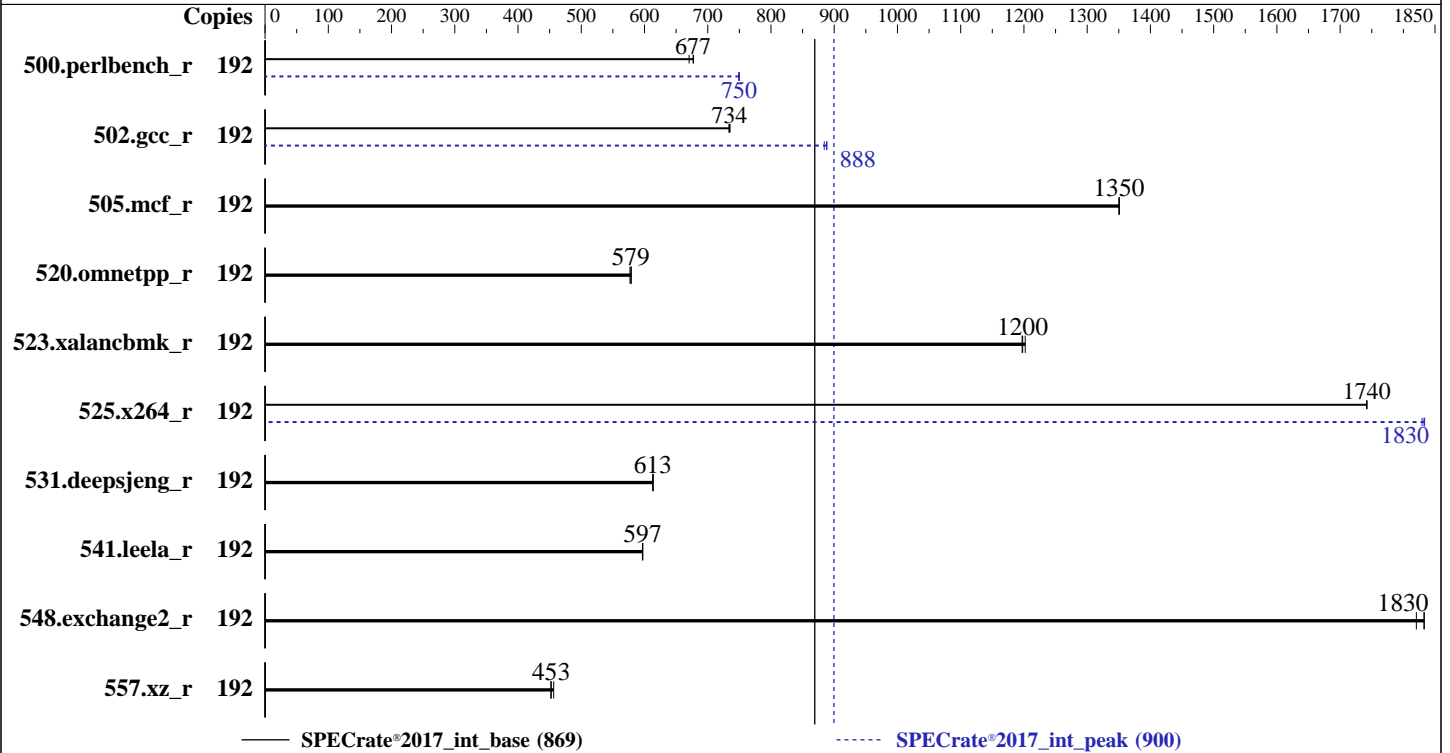## xFusion

FusionServer 5288 V7 (Intel Xeon Platinum 8558)

$SPECrate^{®}2017\_int\_base = 869$

$SPECrate^{®}2017\_int\_peak = 900$

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

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

Copies

Benchmark	Copies	base	peak
500.perlbench_r	192	677	750
502.gcc_r	192	734	888
505.mcf_r	192	1350	
520.omnetpp_r	192	579	
523.xalancbmk_r	192	1200	
525.x264_r	192	1740	1830
531.deepsjeng_r	192	613	
541.leela_r	192	597	
548.exchange2_r	192	1830	
557.xz_r	192	453	

—— SPECrate®2017_int_base (869)   ------- SPECrate®2017_int_peak (900)

Hardware

CPU Name: Intel Xeon Platinum 8558
 Max MHz: 4000
 Nominal: 2100
Enabled: 96 cores, 2 chips, 2 threads/core
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: 260 MB I+D on chip per chip
 Other: None
Memory: 512 GB (16 x 32 GB 2Rx8 PC5-5600B-R, running at 5200)
Storage: 1 x 1.92 TB SATA SSD
Other: CPU Cooling: Air

Software

OS: Red Hat Enterprise Linux 9.2 (Plow)
5.14.0-284.11.1.el9_2.x86_64
Compiler: C/C++: Version 2024.0.2 of Intel oneAPI DPC++/C++ Compiler for Linux;
Fortran: Version 2024.0.2 of Intel Fortran Compiler for Linux;
Parallel: No
Firmware: Version 01.01.03.05 Released Apr-2024
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	192	456	671	**452**	**677**	451	678	192	408	750	**408**	**750**	408	749
502.gcc_r	192	370	735	**370**	**734**	371	734	192	307	884	306	888	**306**	**888**
505.mcf_r	192	230	1350	**230**	**1350**	230	1350	192	230	1350	**230**	**1350**	230	1350
520.omnetpp_r	192	437	577	435	579	**435**	**579**	192	437	577	435	579	**435**	**579**
523.xalancbmk_r	192	**169**	**1200**	169	1200	169	1200	192	**169**	**1200**	169	1200	169	1200
525.x264_r	192	**193**	**1740**	193	1740	193	1740	192	183	1830	**183**	**1830**	184	1830
531.deepsjeng_r	192	**359**	**613**	359	613	359	613	192	**359**	**613**	359	613	359	613
541.leela_r	192	**533**	**597**	532	597	533	597	192	**533**	**597**	532	597	533	597
548.exchange2_r	192	274	1830	**275**	**1830**	276	1820	192	274	1830	**275**	**1830**	276	1820
557.xz_r	192	454	456	**458**	**453**	459	452	192	454	456	**458**	**453**	459	452

SPECrate®2017_int_base =	**869**
SPECrate®2017_int_peak =	**900**

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

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/speccpu2017/lib/intel64:/home/Uniautos/speccpu2017/lib/ia32:/home/Uniautos/speccpu2017
    /je5.0.1-32"
MALLOC_CONF = "retain:true"
```

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.
```

(Continued on next page)

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General Notes (Continued)

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

```
Performance Profile Set to Performance
SNC Set to Enable SNC2 (2-clusters)
Enable LP [Global] Set to ALL LPs

 Sysinfo program /home/Uniautos/speccpu2017/bin/sysinfo
 Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
 running on localhost.localdomain Wed Jun 19 18:52:16 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 252 (252-13.el9_2)
 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
 --------------------------------------------------------------


 --------------------------------------------------------------
 1. uname -a
   Linux localhost.localdomain 5.14.0-284.11.1.el9_2.x86_64 #1 SMP PREEMPT_DYNAMIC Wed Apr 12 10:45:03 EDT
   2023 x86_64 x86_64 x86_64 GNU/Linux


 --------------------------------------------------------------
 2. w
    18:52:16 up 4 min,  1 user,  load average: 0.02, 0.10, 0.06
    USER     TTY        LOGIN@   IDLE   JCPU   PCPU WHAT
    root     tty1       18:51    8.00s  1.41s  0.07s -bash

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

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Platform Notes (Continued)

```
 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) 2060063
   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) 2060063
   virtual memory              (kbytes, -v) unlimited
   file locks                       (-x) unlimited

 ------------------------------------------------------------
 5. sysinfo process ancestry
  /usr/lib/systemd/systemd --switched-root --system --deserialize 31
  login -- root
  -bash
  -bash
  runcpu --define default-platform-flags --copies 192 -c ic2024.0.2-lin-sapphirerapids-rate-20231213.cfg
    --define smt-on --define cores=96 --define physicalfirst --define invoke_with_interleave --define
    drop_caches --tune base,peak -o all intrate
  runcpu --define default-platform-flags --copies 192 --configfile
    ic2024.0.2-lin-sapphirerapids-rate-20231213.cfg --define smt-on --define cores=96 --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/CPU2017.125/templogs/preenv.intrate.125.0.log --lognum 125.0 --from_runcpu 2
  specperl $SPEC/bin/sysinfo
 $SPEC = /home/Uniautos/speccpu2017


 ------------------------------------------------------------
 6. /proc/cpuinfo
    model name        : INTEL(R) XEON(R) PLATINUM 8558
    vendor_id         : GenuineIntel
    cpu family        : 6
    model             : 207
    stepping          : 2
    microcode         : 0x21000200
    bugs              : spectre_v1 spectre_v2 spec_store_bypass swapgs eibrs_pbrsb
    cpu cores         : 48
    siblings          : 96
    2 physical ids (chips)
    192 processors (hardware threads)
    physical id 0: core ids 0-47
    physical id 1: core ids 0-47
    physical id 0: apicids 0-95
    physical id 1: apicids 128-223
  Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for
  virtualized systems.  Use the above data carefully.
```

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Platform Notes (Continued)

```
       ----------------------------------------------------------
       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):                  192
         On-line CPU(s) list:     0-191
         Vendor ID:               GenuineIntel
         BIOS Vendor ID:          Intel(R) Corporation
         Model name:              INTEL(R) XEON(R) PLATINUM 8558
         BIOS Model name:         INTEL(R) XEON(R) PLATINUM 8558
         CPU family:              6
         Model:                   207
         Thread(s) per core:      2
         Core(s) per socket:      48
         Socket(s):               2
         Stepping:                2
         BogoMIPS:                4200.00
         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
                                  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 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 ibt amx_bf16 avx512_fp16 amx_tile
                                  amx_int8 flush_l1d arch_capabilities
         Virtualization:          VT-x
         L1d cache:               4.5 MiB (96 instances)
         L1i cache:               3 MiB (96 instances)
         L2 cache:                192 MiB (96 instances)
         L3 cache:                520 MiB (2 instances)
         NUMA node(s):            4
         NUMA node0 CPU(s):       0-23,96-119
         NUMA node1 CPU(s):       24-47,120-143
         NUMA node2 CPU(s):       48-71,144-167
         NUMA node3 CPU(s):       72-95,168-191
         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
         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
```

(Continued on next page)

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Platform Notes (Continued)

```
From lscpu --cache:
    NAME ONE-SIZE ALL-SIZE WAYS TYPE        LEVEL   SETS PHY-LINE COHERENCY-SIZE
    L1d      48K     4.5M   12 Data           1     64       1              64
    L1i      32K       3M    8 Instruction    1     64       1              64
    L2        2M     192M   16 Unified        2   2048       1              64
    L3      260M     520M   20 Unified        3 212992       1              64


-----------------------------------------------------------
8. numactl --hardware
NOTE: a numactl 'node' might or might not correspond to a physical chip.
  available: 4 nodes (0-3)
  node 0 cpus: 0-23,96-119
  node 0 size: 128071 MB
  node 0 free: 121189 MB
  node 1 cpus: 24-47,120-143
  node 1 size: 129013 MB
  node 1 free: 128425 MB
  node 2 cpus: 48-71,144-167
  node 2 size: 128974 MB
  node 2 free: 128329 MB
  node 3 cpus: 72-95,168-191
  node 3 size: 128999 MB
  node 3 free: 125248 MB
  node distances:
  node   0   1   2   3
    0:  10  12  21  21
    1:  12  10  21  21
    2:  21  21  10  12
    3:  21  21  12  10


-----------------------------------------------------------
9. /proc/meminfo
   MemTotal:      527419864 kB


-----------------------------------------------------------
10. who -r
  run-level 3 Jun 19 18:48


-----------------------------------------------------------
11. Systemd service manager version: systemd 252 (252-13.el9_2)
  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 crond
                  dbus-broker getty@ insights-client-boot irqbalance kdump lvm2-monitor mdmonitor microcode
                  nis-domainname rhsmcertd rsyslog selinux-autorelabel-mark sep5 sshd sssd
                  systemd-boot-update systemd-network-generator tuned udisks2
  enabled-runtime systemd-remount-fs
  disabled        blk-availability console-getty cpupower debug-shell dnf-system-upgrade firewalld kvm_stat
                  man-db-restart-cache-update nftables rdisc rhcd rhsm rhsm-facts rpmdb-rebuild
                  selinux-check-proper-disable serial-getty@ sshd-keygen@ systemd-boot-check-no-failures
```

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Platform Notes (Continued)

```
                    systemd-pstore systemd-sysext
  indirect          sssd-autofs sssd-kcm sssd-nss sssd-pac sssd-pam sssd-ssh sssd-sudo systemd-sysupdate
                    systemd-sysupdate-reboot

  ----------------------------------------------------------
14. Linux kernel boot-time arguments, from /proc/cmdline
   BOOT_IMAGE=(hd0,gpt2)/vmlinuz-5.14.0-284.11.1.el9_2.x86_64
   root=/dev/mapper/rhel-root
   ro
   crashkernel=1G-4G:192M,4G-64G:256M,64G-:512M
   resume=/dev/mapper/rhel-swap
   rd.lvm.lv=rhel/root
   rd.lvm.lv=rhel/swap


  ----------------------------------------------------------
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


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

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Platform Notes (Continued)

```
    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 9.2 (Plow)
      redhat-release Red Hat Enterprise Linux release 9.2 (Plow)
      system-release Red Hat Enterprise Linux release 9.2 (Plow)

    ---------------------------------------------------------------
    21. Disk information
    SPEC is set to: /home/Uniautos/speccpu2017
      Filesystem             Type  Size  Used Avail Use% Mounted on
      /dev/mapper/rhel-home xfs   1.7T  240G  1.5T  14% /home

    ---------------------------------------------------------------
    22. /sys/devices/virtual/dmi/id
        Vendor:         XFUSION
        Product:        5288 V7
        Product Family: Eagle Stream
        Serial:         12345678


    ---------------------------------------------------------------
    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:
        2x Samsung M321R4GA3PB0-CWMCH 32 GB 2 rank 5600, configured at 5200
        14x Samsung M321R4GA3PB0-CWMXH 32 GB 2 rank 5600, configured at 5200


    ---------------------------------------------------------------
    24. BIOS
    (This section combines info from /sys/devices and dmidecode.)
        BIOS Vendor:       XFUSION
        BIOS Version:      01.01.03.05
        BIOS Date:         04/12/2024
        BIOS Revision:     3.5
```

Compiler Version Notes

```
==============================================================================================
C      | 502.gcc_r(peak)
----------------------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2024.0.2 Build 20231213
Copyright (C) 1985-2023 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 2024.0.2 Build 20231213
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
```

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Compiler Version Notes (Continued)

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Copyright (C) 1985-2023 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 2024.0.2 Build 20231213
Copyright (C) 1985-2023 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 2024.0.2 Build 20231213
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
--------------------------------------------------------------------------------


================================================================================
Fortran | 548.exchange2_r(base, peak)
--------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.0.2 Build 20231213
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
--------------------------------------------------------------------------------
```

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`

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xFusion

FusionServer 5288 V7 (Intel Xeon Platinum 8558)

SPECrate®2017_int_base = 869

SPECrate®2017_int_peak = 900

Base Portability Flags (Continued)

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/opt/intel/oneapi/compiler/2024.0/lib -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/opt/intel/oneapi/compiler/2024.0/lib -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/opt/intel/oneapi/compiler/2024.0/lib -lqkmalloc
```

Peak Compiler Invocation

C benchmarks:
```
icx
```

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

Fortran benchmarks:
```
ifx
```

Peak Portability Flags

500.perlbench_r: `-DSPEC_LP64 -DSPEC_LINUX_X64`

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xFusion

FusionServer 5288 V7 (Intel Xeon Platinum 8558)

SPECrate®2017_int_base = 869

SPECrate®2017_int_peak = 900

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

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

Peak Portability Flags (Continued)

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/opt/intel/oneapi/compiler/2024.0/lib -lqkmalloc`

502.gcc_r: `-m32 -L/opt/intel/oneapi/compiler/2024.0/lib32 -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/opt/intel/oneapi/compiler/2024.0/lib -lqkmalloc`

557.xz_r: basepeak = yes

C++ benchmarks:

520.omnetpp_r: basepeak = yes

523.xalancbmk_r: basepeak = yes

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xFusion

FusionServer 5288 V7 (Intel Xeon Platinum 8558)

SPECrate®2017_int_base = 869

SPECrate®2017_int_peak = 900

Peak Optimization Flags (Continued)

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/xFusion-Platform-Settings-EMR-V1.1.html`
`http://www.spec.org/cpu2017/flags/Intel-ic2024-official-linux64.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2017/flags/xFusion-Platform-Settings-EMR-V1.1.xml`
`http://www.spec.org/cpu2017/flags/Intel-ic2024-official-linux64.xml`

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

Tested with SPEC CPU®2017 v1.1.9 on 2024-06-19 06:52:15-0400.
Report generated on 2024-07-17 11:47:27 by CPU2017 PDF formatter v6716.
Originally published on 2024-07-16.