SPEC CPU®2017 Integer Rate Result

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FusionStor

Fusionstor Invento i6327 Series(Intel Xeon Platinum 8362)

$SPECrate^{®}2017\_int\_base = 483$
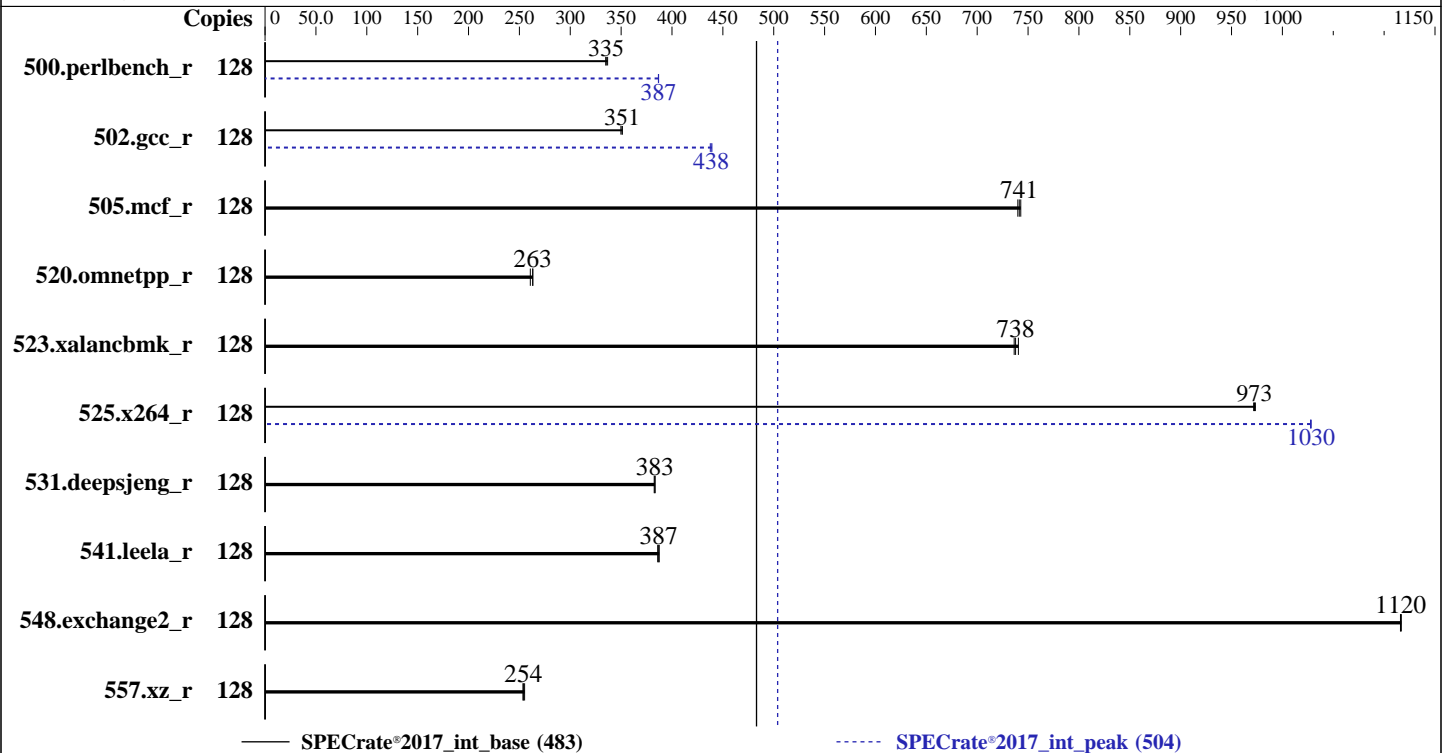
$SPECrate^{®}2017\_int\_peak = 504$

CPU2017 License: 6221
Test Sponsor: FusionStor
Tested by: FusionStor

Test Date: May-2023
Hardware Availability: Jun-2023
Software Availability: Dec-2022

Benchmark	Copies	base	peak
500.perlbench_r	128	335	387
502.gcc_r	128	351	438
505.mcf_r	128	741	
520.omnetpp_r	128	263	
523.xalancbmk_r	128	738	
525.x264_r	128	973	1030
531.deepsjeng_r	128	383	
541.leela_r	128	387	
548.exchange2_r	128	1120	
557.xz_r	128	254	

SPECrate®2017_int_base (483) ----- SPECrate®2017_int_peak (504)

Hardware

CPU Name: Intel Xeon Platinum 8362
 Max MHz: 3600
 Nominal: 2800
Enabled: 64 cores, 2 chips, 2 threads/core
Orderable: 1, 2 chip(s)
Cache L1: 32 KB I + 48 KB D on chip per core
 L2: 1.25 MB I+D on chip per core
 L3: 48 MB I+D on chip per chip
 Other: None
Memory: 1 TB (16 x 64 GB 2Rx4 PC4-3200AA-R)
Storage: 480GB(MZ-7KH4800)
Other: None

Software

OS: Red Hat Enterprise Linux 8.7 (Ootpa)
 4.18.0-425.10.1.el8_7.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 1.4 released Nov-2022
File System: xfs
System State: Run level 5 (multi-user mode)
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	128	605	337	608	335	**608**	**335**	128	**527**	**387**	527	387	527	387
502.gcc_r	128	518	350	**516**	**351**	516	351	128	**413**	**438**	414	438	413	439
505.mcf_r	128	**279**	**741**	280	740	278	743	128	**279**	**741**	280	740	278	743
520.omnetpp_r	128	**638**	**263**	644	261	638	263	128	**638**	**263**	644	261	638	263
523.xalancbmk_r	128	**183**	**738**	184	736	183	740	128	**183**	**738**	184	736	183	740
525.x264_r	128	**230**	**973**	231	972	230	973	128	218	1030	**218**	**1030**	218	1030
531.deepsjeng_r	128	383	383	**383**	**383**	383	383	128	383	383	**383**	**383**	383	383
541.leela_r	128	549	386	**548**	**387**	547	387	128	549	386	**548**	**387**	547	387
548.exchange2_r	128	300	1120	300	1120	**300**	**1120**	128	300	1120	300	1120	**300**	**1120**
557.xz_r	128	**544**	**254**	542	255	545	254	128	**544**	**254**	542	255	545	254
SPECrate®2017_int_base =		**483**												
SPECrate®2017_int_peak =		**504**												

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/speccpu/cpu2017/lib/intel64:/home/speccpu/cpu2017/lib/ia32:/home/speccpu/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>
  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
After the software update, Kernal was updated to 4.18.0-425.10.1.el8_7.x86_64
```

Platform Notes

```
BIOS Configuration:
VT-d = Disabled
Patrol Scrub = Disabled
SNC = Enable SNC2 (2-clusters)
SR-IOV Support = Disabled
LLC dead line alloc = Enabled
Power Policy = performance

 Sysinfo program /home/speccpu/cpu2017/bin/sysinfo
 Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
 running on localhost.localdomain Wed May 31 11:34:49 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 (239-68.el8_7.4)
 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
 -----------------------------------------------------------

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

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

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Platform Notes (Continued)

```
1. uname -a
   Linux localhost.localdomain 4.18.0-425.10.1.el8_7.x86_64 #1 SMP Wed Dec 14 16:00:01 EST 2022 x86_64 x86_64
   x86_64 GNU/Linux

----------------------------------------------------------
2. w
    11:34:49 up 30 min,  1 user,  load average: 0.04, 0.05, 0.11
   USER     TTY       FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
   mega-net :1        :1               11:09   ?xdm?  1:28   0.00s /usr/libexec/gdm-x-session
   --register-session --run-script gnome-session

----------------------------------------------------------
3. Username
   From environment variable $USER:  root
   From the command 'logname':       mega-net

----------------------------------------------------------
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) 4125567
   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) 4125567
   virtual memory          (kbytes, -v) unlimited
   file locks                      (-x) unlimited

----------------------------------------------------------
5. sysinfo process ancestry
 /usr/lib/systemd/systemd --switched-root --system --deserialize 17
 /usr/lib/systemd/systemd --user
 /usr/libexec/gnome-terminal-server
 bash
 su -
 -bash
 -bash
 runcpu --nobuild --action validate --define default-platform-flags --define numcopies=128 -c
   ic2023.0-lin-core-avx512-rate-20221201_intel_Fusion_stor.cfg --define cores=128 --define physicalfirst
   --define invoke_with_interleave --define drop_caches --tune base,peak -o all intrate
 runcpu --nobuild --action validate --define default-platform-flags --define numcopies=128 --configfile
   ic2023.0-lin-core-avx512-rate-20221201_intel_Fusion_stor.cfg --define cores=128 --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/CPU2017.001/templogs/preenv.intrate.001.0.log --lognum 001.0 --from_runcpu 2
 specperl $SPEC/bin/sysinfo
 $SPEC = /home/speccpu/cpu2017

----------------------------------------------------------
6. /proc/cpuinfo
    model name        : Intel(R) Xeon(R) Platinum 8362 CPU @ 2.80GHz
    vendor_id         : GenuineIntel
    cpu family        : 6
```

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Platform Notes (Continued)

```
      model           : 106
      stepping        : 6
      microcode       : 0xd000375
      bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs mmio_stale_data eibrs_pbrsb
      cpu cores       : 32
      siblings        : 64
      2 physical ids (chips)
      128 processors (hardware threads)
      physical id 0: core ids 0-31
      physical id 1: core ids 0-31
      physical id 0: apicids 0-63
      physical id 1: apicids 128-191
   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):            128
     On-line CPU(s) list: 0-127
     Thread(s) per core: 2
     Core(s) per socket: 32
     Socket(s):         2
     NUMA node(s):      4
     Vendor ID:         GenuineIntel
     BIOS Vendor ID:    Intel(R) Corporation
     CPU family:        6
     Model:             106
     Model name:        Intel(R) Xeon(R) Platinum 8362 CPU @ 2.80GHz
     BIOS Model name:   Intel(R) Xeon(R) Platinum 8362 CPU @ 2.80GHz
     Stepping:          6
     CPU MHz:           3600.000
     CPU max MHz:       3600.0000
     CPU min MHz:       800.0000
     BogoMIPS:          5600.00
     Virtualization:    VT-x
     L1d cache:         48K
     L1i cache:         32K
     L2 cache:          1280K
     L3 cache:          49152K
     NUMA node0 CPU(s): 0-15,64-79
     NUMA node1 CPU(s): 16-31,80-95
     NUMA node2 CPU(s): 32-47,96-111
     NUMA node3 CPU(s): 48-63,112-127
     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 intel_ppin 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 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
```

(Continued on next page)

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Platform Notes (Continued)

```
                        flush_l1d arch_capabilities


    ----------------------------------------------------------------
    8. numactl --hardware
    NOTE: a numactl 'node' might or might not correspond to a physical chip.
      available: 4 nodes (0-3)
      node 0 cpus: 0-15,64-79
      node 0 size: 257373 MB
      node 0 free: 240867 MB
      node 1 cpus: 16-31,80-95
      node 1 size: 258040 MB
      node 1 free: 257560 MB
      node 2 cpus: 32-47,96-111
      node 2 size: 257999 MB
      node 2 free: 255971 MB
      node 3 cpus: 48-63,112-127
      node 3 size: 258037 MB
      node 3 free: 254074 MB
      node distances:
      node   0   1   2   3
        0:  10  11  20  20
        1:  11  10  20  20
        2:  20  20  10  11
        3:  20  20  11  10


    ----------------------------------------------------------------
    9. /proc/meminfo
       MemTotal:      1056206640 kB


    ----------------------------------------------------------------
    10. who -r
       run-level 5 May 31 11:04


    ----------------------------------------------------------------
    11. Systemd service manager version: systemd 239 (239-68.el8_7.4)
       Default Target  Status
       graphical       running


    ----------------------------------------------------------------
    12. Services, from systemctl list-unit-files
       STATE     UNIT FILES
       enabled   ModemManager NetworkManager NetworkManager-dispatcher NetworkManager-wait-online
                 abrt-journal-core abrt-oops abrt-vmcore abrt-xorg abrtd accounts-daemon atd auditd autovt@
                 avahi-daemon bluetooth crond cups display-manager firewalld gdm getty@ import-state irqbalance
                 iscsi iscsi-onboot kdump ksm ksmtuned libstoragemgmt libvirtd lm_sensors loadmodules lvm2-monitor
                 mcelog mdmonitor meshagent microcode multipathd netcf-transaction nfs-convert
                 nvmefc-boot-connections ostree-remount pmcd pmie pmlogger rhsmcertd rngd rpcbind rsyslog
                 rtkit-daemon selinux-autorelabel-mark smartd sshd sssd syslog sysstat timedatex tuned udisks2 vdo
                 vgauthd vmtoolsd
       disabled  abrt-ccpp abrt-pstoreoops arp-ethers autofs blk-availability brltty canberra-system-bootup
                 canberra-system-shutdown canberra-system-shutdown-reboot cgdcbxd chrony-wait chronyd cni-dhcp
                 console-getty cpupower cups-browsed debug-shell dnsmasq dovecot ebtables fancontrol fcoe
                 grafana-server gssproxy httpd httpd@ ibacm initial-setup initial-setup-reconfiguration
                 insights-client-boot iprdump iprinit iprupdate ipsec iscsid iscsiuio kpatch kvm_stat ledmon
                 libvirt-guests lldpad man-db-restart-cache-update ndctl-monitor nfs-blkmap nfs-server nftables
                 nis-domainname nmb numad nvmf-autoconnect oddjobd pmfind pmie_farm pmlogger_farm pmproxy podman
                 podman-auto-update podman-kube@ podman-restart postfix powertop psacct qemu-guest-agent radvd
                 ras-mc-ctl rasdaemon rdisc rhcd rhsm rhsm-facts rrdcached saslauthd serial-getty@ smb snmpd
                 snmptrapd spamassassin speech-dispatcherd srp_daemon srp_daemon_port@ sshd-keygen@
                 switcheroo-control systemd-nspawn@ systemd-resolved target targetclid tcsd tog-pegasus trace-cmd
```

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Platform Notes (Continued)

```
              upower virtinterfaced virtnetworkd virtnodedevd virtnwfilterd virtproxyd virtqemud virtsecretd
              virtstoraged vncserver@ vncserver@:1 vsftpd wpa_supplicant
    indirect  pcscd spice-vdagentd sssd-autofs sssd-kcm sssd-nss sssd-pac sssd-pam sssd-ssh sssd-sudo virtlockd
              virtlogd vsftpd@
    masked    systemd-timedated


    -------------------------------------------------------------
13. Linux kernel boot-time arguments, from /proc/cmdline
    BOOT_IMAGE=(hd0,gpt2)/vmlinuz-4.18.0-425.10.1.el8_7.x86_64
    root=/dev/mapper/rhel-root
    ro
    crashkernel=auto
    resume=/dev/mapper/rhel-swap
    rd.lvm.lv=rhel/root
    rd.lvm.lv=rhel/swap
    rhgb
    quiet


    -------------------------------------------------------------
14. cpupower frequency-info
    analyzing CPU 0:
      current policy: frequency should be within 3.60 GHz and 3.60 GHz.
                      The governor "performance" may decide which speed to use
                      within this range.
      boost state support:
        Supported: yes
        Active: yes


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


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


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

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Platform Notes (Continued)

```
-------------------------------------------------------------
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 8.7 (Ootpa)
  redhat-release Red Hat Enterprise Linux release 8.7 (Ootpa)
  system-release Red Hat Enterprise Linux release 8.7 (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
  mmio_stale_data      Mitigation: Clear CPU buffers; SMT vulnerable
  retbleed             Not affected
  spec_store_bypass    Mitigation: Speculative Store Bypass disabled via prctl
  spectre_v1           Mitigation: usercopy/swapgs barriers and __user pointer sanitization
  spectre_v2           Mitigation: Enhanced IBRS, IBPB: conditional, RSB filling, PBRSB-eIBRS: SW sequence
  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: /home/speccpu/cpu2017
  Filesystem            Type  Size  Used Avail Use% Mounted on
  /dev/mapper/rhel-home xfs   372G   38G  335G  10% /home


-------------------------------------------------------------
22. /sys/devices/virtual/dmi/id
    Vendor:         FusionStor
    Product:        Invento i6327 Series
    Product Family: SMC X12


-------------------------------------------------------------
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:
    16x Samsung M393A8G40AB2-CWE 64 GB 2 rank 3200



-------------------------------------------------------------
24. BIOS
(This section combines info from /sys/devices and dmidecode.)
    BIOS Vendor:     American Megatrends International, LLC.
    BIOS Version:    1.4
```

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Platform Notes (Continued)

```
      BIOS Date:         07/11/2022
      BIOS Revision:     5.22
```

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)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201
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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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------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:

icx

(Continued on next page)

SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

FusionStor

Fusionstor Invento i6327 Series(Intel Xeon Platinum 8362)

SPECrate®2017_int_base = 483

SPECrate®2017_int_peak = 504

CPU2017 License: 6221

Test Sponsor: FusionStor

Tested by: FusionStor

Test Date: May-2023

Hardware Availability: Jun-2023

Software Availability: Dec-2022

Base Compiler Invocation (Continued)

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 -g -xCORE-AVX512 -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 -g -xCORE-AVX512 -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 -g -xCORE-AVX512 -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
```

Standard Performance Evaluation Corporation (info@spec.org)

https://www.spec.org/

FusionStor

Fusionstor Invento i6327 Series(Intel Xeon Platinum 8362)

SPECrate®2017_int_base = 483

SPECrate®2017_int_peak = 504

CPU2017 License: 6221　　　　　　　　　　　　　　　　**Test Date:**　　　　　May-2023
Test Sponsor:　FusionStor　　　　　　　　　　　　　　**Hardware Availability:** Jun-2023
Tested by:　　　FusionStor　　　　　　　　　　　　　　**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 -g -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 -g -xCORE-AVX512 -ffast-math -mfpmath=sse`
`-funroll-loops -qopt-mem-layout-trans=4`
`-L/usr/local/jemalloc32-5.0.1/lib -ljemalloc`

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FusionStor

Fusionstor Invento i6327 Series(Intel Xeon Platinum 8362)

$SPECrate®2017\_int\_base = 483$

$SPECrate®2017\_int\_peak = 504$

CPU2017 License:	6221	**Test Date:**	May-2023
Test Sponsor:	FusionStor	**Hardware Availability:**	Jun-2023
Tested by:	FusionStor	**Software Availability:**	Dec-2022

Peak Optimization Flags (Continued)

505.mcf_r: `basepeak = yes`

525.x264_r: `-w -std=c11 -m64 -Wl,-z,muldefs -g -xCORE-AVX512`
`-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/Fusionstor-Platform-Flags-Intel-ICX-rev3.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/Fusionstor-Platform-Flags-Intel-ICX-rev3.xml`

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

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