SPEC CPU®2017 Integer Rate Result

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Fujitsu

PRIMERGY RX2540 M7, Intel Xeon Gold 6430, 2.10GHz

SPECrate®2017_int_base = 526

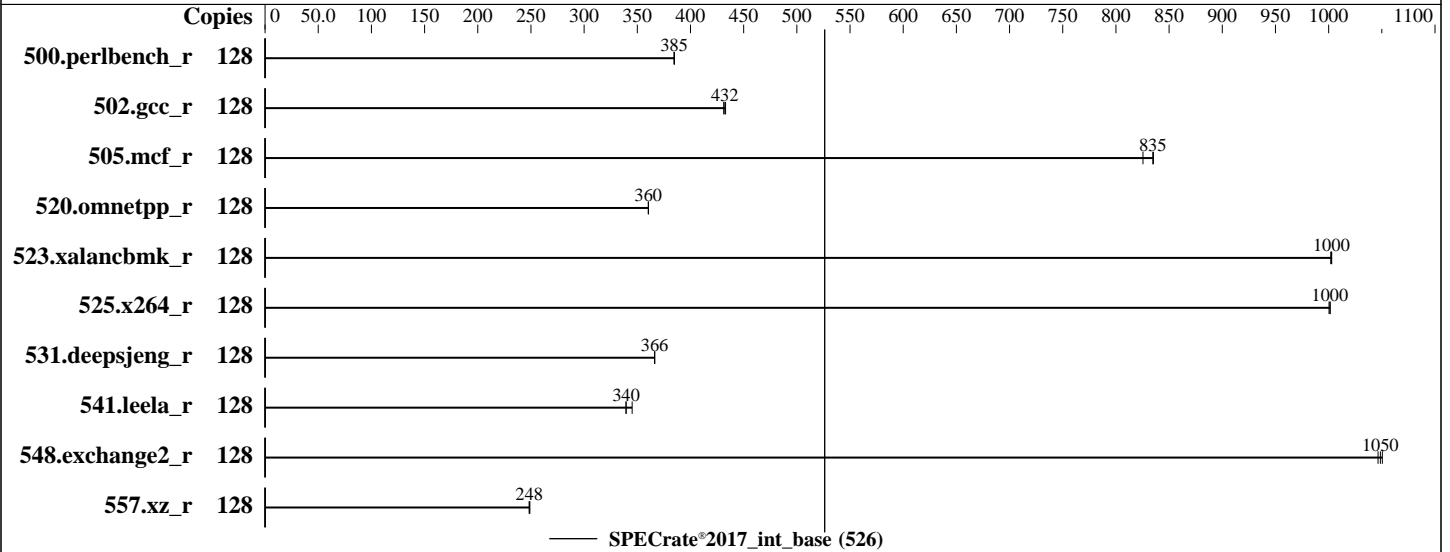SPECrate®2017_int_peak = Not Run

CPU2017 License: 19

Test Sponsor: Fujitsu

Tested by: Fujitsu

Test Date: Mar-2023

Hardware Availability: Mar-2023

Software Availability: Dec-2022

Benchmark	Copies	Result
500.perlbench_r	128	385
502.gcc_r	128	432
505.mcf_r	128	835
520.omnetpp_r	128	360
523.xalancbmk_r	128	1000
525.x264_r	128	1000
531.deepsjeng_r	128	366
541.leela_r	128	340
548.exchange2_r	128	1050
557.xz_r	128	248

SPECrate®2017_int_base (526)

Hardware

CPU Name: Intel Xeon Gold 6430
Max MHz: 3400
Nominal: 2100
Enabled: 64 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: 60 MB I+D on chip per chip
Other: None
Memory: 1 TB (16 x 64 GB 2Rx4 PC5-4800B-R, running at 4400)
Storage: 1 x SATA SSD, 1.92TB
Other: None

Software

OS: SUSE Linux Enterprise Server 15 SP4
5.14.21-150400.22-default
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: Fujitsu BIOS Version V1.0.0.0 R1.10.0 for D3983-A1x. Released Mar-2023
tested as V1.0.0.0 R0.24.1 for D3983-A1x Jan-2023
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: Not Applicable
Other: None
Power Management: BIOS 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	530	385	530	385	**530**	**385**							
502.gcc_r	128	420	431	**419**	**432**	419	433							
505.mcf_r	128	**248**	**835**	251	825	248	835							
520.omnetpp_r	128	466	361	466	360	**466**	**360**							
523.xalancbmk_r	128	**135**	**1000**	135	1000	135	1000							
525.x264_r	128	224	1000	**224**	**1000**	224	1000							
531.deepsjeng_r	128	401	366	400	366	**400**	**366**							
541.leela_r	128	**624**	**340**	614	345	625	339							
548.exchange2_r	128	319	1050	320	1050	**320**	**1050**							
557.xz_r	128	555	249	**556**	**248**	556	248							
SPECrate®2017_int_base =		**526**												
SPECrate®2017_int_peak =		**Not Run**												

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/benchmark/speccpu-1.1.9/lib/intel64:/home/benchmark/speccpu-1.1.9/lib/ia32:/home/benchmark/spec
    cpu-1.1.9/je5.0.1-32"
MALLOC_CONF = "retain:true"
```

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$SPECrate^{®}2017\_int\_base =$ 526

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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.
```

Platform Notes

```
BIOS configuration:
DCU Streamer Prefetcher = Disabled
Package C State limit = C0
CPU Performance Boost = Aggressive
SNC (Sub NUMA) = Enable SNC4
FAN Control = Full

Sysinfo program /home/benchmark/speccpu-1.1.9/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost Mon Mar 27 19:48:27 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 249 (249.11+suse.124.g2bc0b2c447)
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. sysctl
17. /sys/kernel/mm/transparent_hugepage
18. /sys/kernel/mm/transparent_hugepage/khugepaged
19. OS release
20. Disk information
21. /sys/devices/virtual/dmi/id
22. dmidecode
23. BIOS
------------------------------------------------------------

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

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Platform Notes (Continued)

```
1. uname -a
  Linux localhost 5.14.21-150400.22-default #1 SMP PREEMPT_DYNAMIC Wed May 11 06:57:18 UTC 2022 (49db222)
  x86_64 x86_64 x86_64 GNU/Linux

-----------------------------------------------------------
2. w
  19:48:27 up  3:33,  2 users,  load average: 0.58, 43.13, 89.49
  USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
  root     tty1     -                16:17    3:30m  2.41s  0.13s
  /home/benchmark/ptu_v4.0/UNIFIED_SERVER_PTAT_V4.0.0_20230110/ptat -mon -i 5000000 -filter 0x3f -y -ts -csv
  -log
  root     pts/0    10.118.163.62    16:16    3:31m  0.12s  0.12s -bash

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

-----------------------------------------------------------
4. ulimit -a
  core file size          (blocks, -c) unlimited
  data seg size           (kbytes, -d) unlimited
  scheduling priority             (-e) 0
  file size               (blocks, -f) unlimited
  pending signals                 (-i) 4125247
  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) 4125247
  virtual memory          (kbytes, -v) unlimited
  file locks                      (-x) unlimited

-----------------------------------------------------------
5. sysinfo process ancestry
 /usr/lib/systemd/systemd --switched-root --system --deserialize 30
 login -- root
 -bash
 -bash
 runcpu --nobuild --action validate --define default-platform-flags --define numcopies=128 -c
   ic2023.0-lin-sapphirerapids-rate-20221201.cfg --define smt-on --define cores=64 --define physicalfirst
   --define invoke_with_interleave --define drop_caches --tune base -o all intrate
 runcpu --nobuild --action validate --define default-platform-flags --define numcopies=128 --configfile
   ic2023.0-lin-sapphirerapids-rate-20221201.cfg --define smt-on --define cores=64 --define physicalfirst
   --define invoke_with_interleave --define drop_caches --tune base --output_format all --nopower --runmode
   rate --tune base --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/benchmark/speccpu-1.1.9

-----------------------------------------------------------
6. /proc/cpuinfo
    model name      : Intel(R) Xeon(R) Gold 6430
    vendor_id       : GenuineIntel
    cpu family      : 6
    model           : 143
    stepping        : 8
```

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Platform Notes (Continued)

```
    microcode       : 0x2b000130
    bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs
    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 2.37.2:
  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):                     128
  On-line CPU(s) list:        0-127
  Vendor ID:                  GenuineIntel
  Model name:                 Intel(R) Xeon(R) Gold 6430
  CPU family:                 6
  Model:                      143
  Thread(s) per core:         2
  Core(s) per socket:         32
  Socket(s):                  2
  Stepping:                   8
  CPU max MHz:                3400.0000
  CPU min MHz:                800.0000
  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 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 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 hle
                              avx2 smep bmi2 erms invpcid rtm 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 hwp hwp_act_window hwp_epp hwp_pkg_req 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:                  3 MiB (64 instances)
  L1i cache:                  2 MiB (64 instances)
  L2 cache:                   128 MiB (64 instances)
  L3 cache:                   120 MiB (2 instances)
  NUMA node(s):               8
  NUMA node0 CPU(s):          0-7,64-71
  NUMA node1 CPU(s):          8-15,72-79
```

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Platform Notes (Continued)

```
  NUMA node2 CPU(s):           16-23,80-87
  NUMA node3 CPU(s):           24-31,88-95
  NUMA node4 CPU(s):           32-39,96-103
  NUMA node5 CPU(s):           40-47,104-111
  NUMA node6 CPU(s):           48-55,112-119
  NUMA node7 CPU(s):           56-63,120-127
  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 and seccomp
  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       3M  12 Data            1    64       1             64
    L1i      32K       2M   8 Instruction     1    64       1             64
    L2        2M     128M  16 Unified         2  2048       1             64
    L3       60M     120M  15 Unified         3 65536       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: 0-7,64-71
  node 0 size: 128600 MB
  node 0 free: 126664 MB
  node 1 cpus: 8-15,72-79
  node 1 size: 128985 MB
  node 1 free: 128398 MB
  node 2 cpus: 16-23,80-87
  node 2 size: 129019 MB
  node 2 free: 128416 MB
  node 3 cpus: 24-31,88-95
  node 3 size: 129019 MB
  node 3 free: 128398 MB
  node 4 cpus: 32-39,96-103
  node 4 size: 129019 MB
  node 4 free: 128423 MB
  node 5 cpus: 40-47,104-111
  node 5 size: 129019 MB
  node 5 free: 128437 MB
  node 6 cpus: 48-55,112-119
  node 6 size: 129019 MB
  node 6 free: 128423 MB
  node 7 cpus: 56-63,120-127
  node 7 size: 128650 MB
  node 7 free: 128022 MB
  node distances:
  node   0   1   2   3   4   5   6   7
    0:  10  12  12  12  21  21  21  21
    1:  12  10  12  12  21  21  21  21
    2:  12  12  10  12  21  21  21  21
    3:  12  12  12  10  21  21  21  21
    4:  21  21  21  21  10  12  12  12
    5:  21  21  21  21  12  10  12  12
    6:  21  21  21  21  12  12  10  12
```

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Platform Notes (Continued)

```
     7:  21  21  21  21  12  12  12  10


   -----------------------------------------------------------
9. /proc/meminfo
   MemTotal:       1056087804 kB


   -----------------------------------------------------------
10. who -r
   run-level 3 Mar 27 16:15


   -----------------------------------------------------------
11. Systemd service manager version: systemd 249 (249.11+suse.124.g2bc0b2c447)
   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         YaST2-Firstboot YaST2-Second-Stage apparmor auditd cron display-manager getty@ haveged
                   irqbalance iscsi issue-generator kbdsettings kdump kdump-early klog libvirtd lvm2-monitor
                   nscd postfix purge-kernels rollback rsyslog sep5 smartd sshd wicked wickedd-auto4
                   wickedd-dhcp4 wickedd-dhcp6 wickedd-nanny
   enabled-runtime systemd-remount-fs
   disabled        autofs autoyast-initscripts blk-availability boot-sysctl ca-certificates chrony-wait
                   chronyd console-getty cups cups-browsed debug-shell dnsmasq ebtables exchange-bmc-os-info
                   firewalld gpm grub2-once haveged-switch-root ipmi ipmievd iscsi-init iscsid
                   issue-add-ssh-keys kexec-load ksm kvm_stat libvirt-guests lunmask man-db-create multipathd
                   nfs nfs-blkmap nfs-server nfsserver rdisc rpcbind rpmconfigcheck rsyncd serial-getty@
                   smartd_generate_opts snmpd snmptrapd strongswan strongswan-starter svnserve
                   systemd-boot-check-no-failures systemd-network-generator systemd-nspawn@ systemd-sysext
                   systemd-time-wait-sync systemd-timesyncd tcsd udisks2 virtinterfaced virtnetworkd
                   virtnodedevd virtnwfilterd virtproxyd virtqemud virtsecretd virtstoraged
   indirect        pcscd virtlockd virtlogd wickedd


   -----------------------------------------------------------
14. Linux kernel boot-time arguments, from /proc/cmdline
   BOOT_IMAGE=/boot/vmlinuz-5.14.21-150400.22-default
   root=UUID=0fc48b86-32e9-4597-b40a-5581420df75f
   splash=silent
   resume=/dev/disk/by-uuid/82af1018-ea10-4182-81e8-fe09e4c70bd4
   mitigations=auto
   quiet
   security=apparmor
   crashkernel=322M,high
   crashkernel=72M,low


   -----------------------------------------------------------
15. cpupower frequency-info
   analyzing CPU 0:
     current policy: frequency should be within 800 MHz and 3.40 GHz.
                     The governor "powersave" may decide which speed to use
                     within this range.
     boost state support:
       Supported: yes
       Active: yes
```

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Platform Notes (Continued)

```
      ----------------------------------------------------------
      16. 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                 20
        vm.dirty_writeback_centisecs  500
        vm.dirtytime_expire_seconds 43200
        vm.extfrag_threshold          500
        vm.min_unmapped_ratio           1
        vm.nr_hugepages                 0
        vm.nr_hugepages_mempolicy       0
        vm.nr_overcommit_hugepages      0
        vm.swappiness                  60
        vm.watermark_boost_factor   15000
        vm.watermark_scale_factor      10
        vm.zone_reclaim_mode            0


      ----------------------------------------------------------
      17. /sys/kernel/mm/transparent_hugepage
        defrag        always defer defer+madvise [madvise] never
        enabled       [always] madvise never
        hpage_pmd_size 2097152
        shmem_enabled  always within_size advise [never] deny force


      ----------------------------------------------------------
      18. /sys/kernel/mm/transparent_hugepage/khugepaged
        alloc_sleep_millisecs  60000
        defrag                     1
        max_ptes_none            511
        max_ptes_shared          256
        max_ptes_swap             64
        pages_to_scan           4096
        scan_sleep_millisecs   10000


      ----------------------------------------------------------
      19. OS release
        From /etc/*-release /etc/*-version
        os-release SUSE Linux Enterprise Server 15 SP4


      ----------------------------------------------------------
      20. Disk information
      SPEC is set to: /home/benchmark/speccpu-1.1.9
        Filesystem    Type  Size  Used Avail Use% Mounted on
        /dev/sda3     xfs   741G   38G  703G   6% /home


      ----------------------------------------------------------
      21. /sys/devices/virtual/dmi/id
          Vendor:         FUJITSU
          Product:        PRIMERGY RX2540 M7
          Product Family: SERVER
          Serial:         EWCEXXXXXX


      ----------------------------------------------------------
      22. dmidecode
```

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Platform Notes (Continued)

```
   Additional information from dmidecode 3.2 follows.  WARNING: Use caution when you interpret this section.
 The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately
 determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the
 "DMTF SMBIOS" standard.
 Memory:
   3x Samsung M321R8GA0BB0-CQKDG 64 GB 2 rank 4800, configured at 4400
   4x Samsung M321R8GA0BB0-CQKMG 64 GB 2 rank 4800, configured at 4400
   9x Samsung M321R8GA0BB0-CQKVG 64 GB 2 rank 4800, configured at 4400


 ----------------------------------------------------------
 23. BIOS
 (This section combines info from /sys/devices and dmidecode.)
   BIOS Vendor:       FUJITSU
   BIOS Version:      V1.0.0.0 R0.24.1 for D3983-A1x
   BIOS Date:         01/06/2023
   BIOS Revision:     0.24
   Firmware Revision: 2.0
```

Compiler Version Notes

```
==============================================================================================
C     | 500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base) 525.x264_r(base) 557.xz_r(base)
----------------------------------------------------------------------------------------------
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) 523.xalancbmk_r(base) 531.deepsjeng_r(base) 541.leela_r(base)
----------------------------------------------------------------------------------------------
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)
----------------------------------------------------------------------------------------------
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

C++ benchmarks:
icpx

Fortran benchmarks:
ifx

SPEC CPU®2017 Integer Rate Result

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Fujitsu

PRIMERGY RX2540 M7, Intel Xeon Gold 6430, 2.10GHz

SPECrate®2017_int_base =   526

SPECrate®2017_int_peak = Not Run

CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu

Test Date: Mar-2023
Hardware Availability: Mar-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
```

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.0-SPR-RevB.html
http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.0-SPR-RevB.xml
http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.xml

Standard Performance Evaluation Corporation (info@spec.org)

https://www.spec.org/

SPEC CPU®2017 Integer Rate Result

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CPU2017 License: 19		**Test Date:**	Mar-2023
Test Sponsor: Fujitsu		**Hardware Availability:**	Mar-2023
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