SPEC CPU®2017 Integer Rate Result

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Fujitsu

PRIMEQUEST 4400E, Intel Xeon Platinum 8468H, 2.10GHz

$SPECrate^{®}2017_int_base = $ **1660**

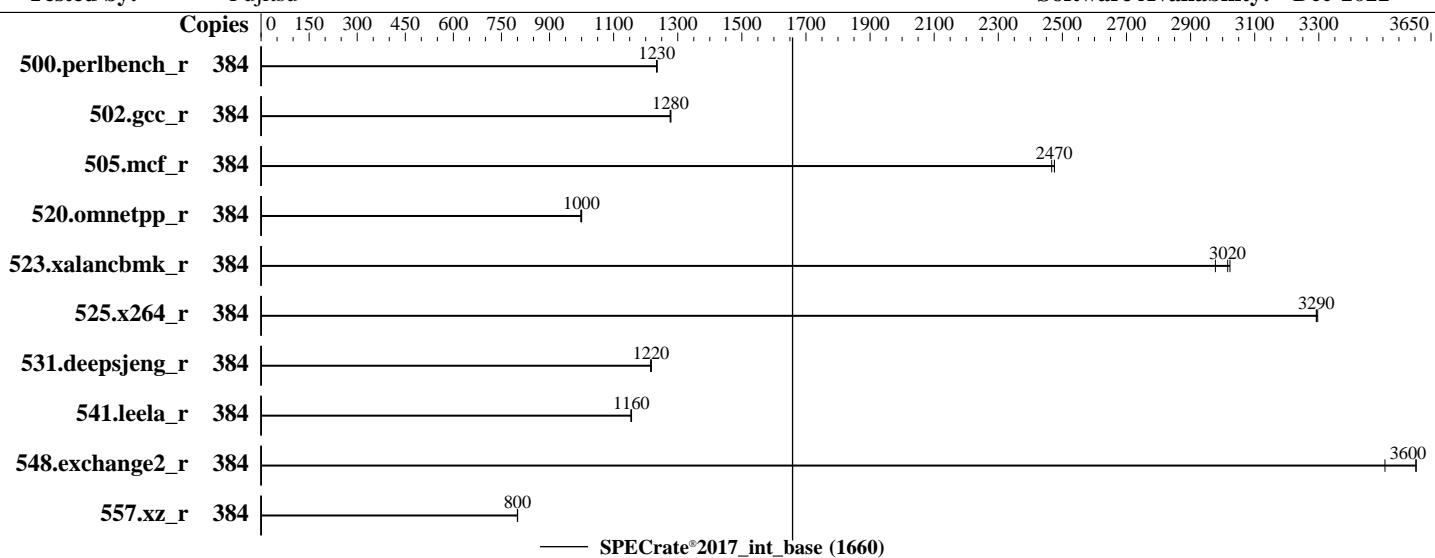$SPECrate^{®}2017_int_peak = $ Not Run

CPU2017 License: 19	**Test Date:** Jun-2023
Test Sponsor: Fujitsu	**Hardware Availability:** Jun-2023
Tested by: Fujitsu	**Software Availability:** Dec-2022

Copies

Benchmark	Copies	Result
500.perlbench_r	384	1230
502.gcc_r	384	1280
505.mcf_r	384	2470
520.omnetpp_r	384	1000
523.xalancbmk_r	384	3020
525.x264_r	384	3290
531.deepsjeng_r	384	1220
541.leela_r	384	1160
548.exchange2_r	384	3600
557.xz_r	384	800

SPECrate®2017_int_base (1660)

Hardware

CPU Name: Intel Xeon Platinum 8468H
 Max MHz: 3800
 Nominal: 2100
Enabled: 192 cores, 4 chips, 2 threads/core
Orderable: 2,4 chips
Cache L1: 32 KB I + 48 KB D on chip per core
 L2: 2 MB I+D on chip per core
 L3: 105 MB I+D on chip per chip
 Other: None
Memory: 2 TB (32 x 64 GB 2Rx4 PC5-4800B-R)
Storage: 1 x 1.92 TB SATA SSD
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 D3984-A1x. Released Jun-2023
 tested as V1.0.0.0 R0.18.0 for D3984-A1x Apr-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 ofadditional power usage

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

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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	384	**495**	**1230**	495	1240	495	1230							
502.gcc_r	384	**425**	**1280**	425	1280	426	1280							
505.mcf_r	384	251	2480	**251**	**2470**	252	2470							
520.omnetpp_r	384	505	997	**504**	**1000**	504	1000							
523.xalancbmk_r	384	134	3020	136	2980	**134**	**3020**							
525.x264_r	384	204	3290	**204**	**3290**	204	3300							
531.deepsjeng_r	384	362	1220	**362**	**1220**	361	1220							
541.leela_r	384	551	1150	550	1160	**550**	**1160**							
548.exchange2_r	384	**279**	**3600**	279	3600	287	3510							
557.xz_r	384	518	800	**518**	**800**	519	800							
SPECrate®2017_int_base =	**1660**													
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/lib/intel64:/home/Benchmark/speccpu/lib/ia32:/home/Benchmark/speccpu/je5.0.1-
    32"
MALLOC_CONF = "retain:true"
```

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General Notes

```
Binaries compiled on a system with 2x Intel Xeon Platinum 8280M CPU + 384GB RAM
memory using Red Hat Enterprise Linux 8.4
Transparent Huge Pages enabled by default
Prior to runcpu invocation
Filesystem page cache synced and cleared with:
sync; echo 3>        /proc/sys/vm/drop_caches
runcpu command invoked through numactl i.e.:
numactl --interleave=all runcpu <etc>
NA: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown)
is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5753 (Spectre variant 1)
is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5715 (Spectre variant 2)
is mitigated in the system as tested and documented.
```

Platform Notes

```
BIOS configuration:
DCU Streamer Prefetcher = Disabled
Package C State limit = C0
LLC Dead Line Alloc = Disabled
CPU Performance Boost = Aggressive
SNC (Sub NUMA) = Enable SNC4
FAN Control = Full
System date was wrongly set. The actual date is Jun-2023

Sysinfo program /home/Benchmark/speccpu/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost Fri Apr 29 21:46:32 2022

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
                   21:46:32 up 46 min,  1 user,  load average: 0.08, 0.02, 0.05
                  USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
                  root     tty1     -                21:46   16.00s  3.10s  0.36s /home/Benchmark/PTU/ptat -mon -i 5000000
                  -filter 0x3f -ts -y

                -----------------------------------------------------------
                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) 8253599
                  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) 8253599
                  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=384 -c
                   ic2023.0-lin-sapphirerapids-rate-20221201.cfg --define smt-on --define cores=192 --define physicalfirst
                   --define invoke_with_interleave --define drop_caches --tune base -o all intrate
                 runcpu --nobuild --action validate --define default-platform-flags --define numcopies=384 --configfile
                   ic2023.0-lin-sapphirerapids-rate-20221201.cfg --define smt-on --define cores=192 --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

                -----------------------------------------------------------
                6. /proc/cpuinfo
                    model name      : Intel(R) Xeon(R) Platinum 8468H
                    vendor_id       : GenuineIntel
                    cpu family      : 6
                    model           : 143
                    stepping        : 6
```

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Platform Notes (Continued)

```
    microcode       : 0x2b0001b0
    bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs
    cpu cores       : 48
    siblings        : 96
    4 physical ids (chips)
    384 processors (hardware threads)
    physical id 0: core ids 0-47
    physical id 1: core ids 0-47
    physical id 2: core ids 0-47
    physical id 3: core ids 0-47
    physical id 0: apicids 0-95
    physical id 1: apicids 128-223
    physical id 2: apicids 256-351
    physical id 3: apicids 384-479
  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):                    384
    On-line CPU(s) list:       0-383
    Vendor ID:                 GenuineIntel
    Model name:                Intel(R) Xeon(R) Platinum 8468H
    CPU family:                6
    Model:                     143
    Thread(s) per core:        2
    Core(s) per socket:        48
    Socket(s):                 4
    Stepping:                  6
    CPU max MHz:               3800.0000
    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:                 9 MiB (192 instances)
    L1i cache:                 6 MiB (192 instances)
    L2 cache:                  384 MiB (192 instances)
```

(Continued on next page)

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Platform Notes (Continued)

```
  L3 cache:                        420 MiB (4 instances)
  NUMA node(s):                    16
  NUMA node0 CPU(s):               0-11,192-203
  NUMA node1 CPU(s):               12-23,204-215
  NUMA node2 CPU(s):               24-35,216-227
  NUMA node3 CPU(s):               36-47,228-239
  NUMA node4 CPU(s):               48-59,240-251
  NUMA node5 CPU(s):               60-71,252-263
  NUMA node6 CPU(s):               72-83,264-275
  NUMA node7 CPU(s):               84-95,276-287
  NUMA node8 CPU(s):               96-107,288-299
  NUMA node9 CPU(s):               108-119,300-311
  NUMA node10 CPU(s):              120-131,312-323
  NUMA node11 CPU(s):              132-143,324-335
  NUMA node12 CPU(s):              144-155,336-347
  NUMA node13 CPU(s):              156-167,348-359
  NUMA node14 CPU(s):              168-179,360-371
  NUMA node15 CPU(s):              180-191,372-383
  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       9M  12 Data             1      64        1             64
    L1i       32K       6M   8 Instruction      1      64        1             64
    L2         2M     384M  16 Unified          2    2048        1             64
    L3       105M     420M  15 Unified          3  114688        1             64

  -----------------------------------------------------------
8. numactl --hardware
NOTE: a numactl 'node' might or might not correspond to a physical chip.
  available: 16 nodes (0-15)
  node 0 cpus: 0-11,192-203
  node 0 size: 128597 MB
  node 0 free: 127130 MB
  node 1 cpus: 12-23,204-215
  node 1 size: 129017 MB
  node 1 free: 128192 MB
  node 2 cpus: 24-35,216-227
  node 2 size: 129017 MB
  node 2 free: 128087 MB
  node 3 cpus: 36-47,228-239
  node 3 size: 129017 MB
  node 3 free: 127737 MB
  node 4 cpus: 48-59,240-251
  node 4 size: 129017 MB
  node 4 free: 128651 MB
  node 5 cpus: 60-71,252-263
  node 5 size: 129017 MB
  node 5 free: 128648 MB
  node 6 cpus: 72-83,264-275
  node 6 size: 128983 MB
  node 6 free: 128642 MB
```

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Platform Notes (Continued)

```
   node 7 cpus: 84-95,276-287
   node 7 size: 129017 MB
   node 7 free: 128656 MB
   node 8 cpus: 96-107,288-299
   node 8 size: 129017 MB
   node 8 free: 128699 MB
   node 9 cpus: 108-119,300-311
   node 9 size: 129017 MB
   node 9 free: 128614 MB
   node 10 cpus: 120-131,312-323
   node 10 size: 129017 MB
   node 10 free: 128597 MB
   node 11 cpus: 132-143,324-335
   node 11 size: 129017 MB
   node 11 free: 128692 MB
   node 12 cpus: 144-155,336-347
   node 12 size: 129017 MB
   node 12 free: 128696 MB
   node 13 cpus: 156-167,348-359
   node 13 size: 129017 MB
   node 13 free: 128734 MB
   node 14 cpus: 168-179,360-371
   node 14 size: 129017 MB
   node 14 free: 128740 MB
   node 15 cpus: 180-191,372-383
   node 15 size: 128610 MB
   node 15 free: 128329 MB
   node distances:
   node   0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15
     0:  10  12  12  12  21  21  21  21  21  21  21  21  31  31  31  31
     1:  12  10  12  12  21  21  21  21  21  21  21  21  31  31  31  31
     2:  12  12  10  12  21  21  21  21  21  21  21  21  31  31  31  31
     3:  12  12  12  10  21  21  21  21  21  21  21  21  31  31  31  31
     4:  21  21  21  21  10  12  12  12  31  31  31  31  21  21  21  21
     5:  21  21  21  21  12  10  12  12  31  31  31  31  21  21  21  21
     6:  21  21  21  21  12  12  10  12  31  31  31  31  21  21  21  21
     7:  21  21  21  21  12  12  12  10  31  31  31  31  21  21  21  21
     8:  21  21  21  21  31  31  31  31  10  12  12  12  21  21  21  21
     9:  21  21  21  21  31  31  31  31  12  10  12  12  21  21  21  21
    10:  21  21  21  21  31  31  31  31  12  12  10  12  21  21  21  21
    11:  21  21  21  21  31  31  31  31  12  12  12  10  21  21  21  21
    12:  31  31  31  31  21  21  21  21  21  21  21  21  10  12  12  12
    13:  31  31  31  31  21  21  21  21  21  21  21  21  12  10  12  12
    14:  31  31  31  31  21  21  21  21  21  21  21  21  12  12  10  12
    15:  31  31  31  31  21  21  21  21  21  21  21  21  12  12  12  10

   ------------------------------------------------------------
 9. /proc/meminfo
   MemTotal:       2112946480 kB


   ------------------------------------------------------------
 10. who -r
   run-level 3 Apr 29 21:01


   ------------------------------------------------------------
 11. Systemd service manager version: systemd 249 (249.11+suse.124.g2bc0b2c447)
   Default Target  Status
   multi-user      degraded

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

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Platform Notes (Continued)

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

  ----------------------------------------------------------
13. Services, from systemctl list-unit-files
    STATE           UNIT FILES
    enabled         YaST2-Firstboot YaST2-Second-Stage apparmor auditd bluetooth cron display-manager getty@
                    haveged irqbalance iscsi issue-generator kbdsettings kdump kdump-early klog 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        accounts-daemon appstream-sync-cache autofs autoyast-initscripts blk-availability
                    bluetooth-mesh boot-sysctl ca-certificates chrony-wait chronyd console-getty cups
                    cups-browsed debug-shell ebtables exchange-bmc-os-info firewalld gpm grub2-once
                    haveged-switch-root ipmi ipmievd iscsi-init iscsid iscsiuio issue-add-ssh-keys kexec-load
                    lunmask man-db-create multipathd nfs nfs-blkmap nmb numad ostree-remount rdisc rpcbind
                    rpmconfigcheck rsyncd rtkit-daemon serial-getty@ smartd_generate_opts smb snmpd snmptrapd
                    speech-dispatcherd systemd-boot-check-no-failures systemd-network-generator systemd-sysext
                    systemd-time-wait-sync systemd-timesyncd udisks2 upower
    indirect        wickedd

  ----------------------------------------------------------
14. Linux kernel boot-time arguments, from /proc/cmdline
    BOOT_IMAGE=/boot/vmlinuz-5.14.21-150400.22-default
    root=UUID=8b4cf1a0-f943-46c1-a409-c2bca0c1173e
    splash=silent
    mitigations=auto
    quiet
    security=apparmor
    crashkernel=324M,high
    crashkernel=72M,low

  ----------------------------------------------------------
15. cpupower frequency-info
    analyzing CPU 0:
      current policy: frequency should be within 800 MHz and 3.80 GHz.
                      The governor "powersave" may decide which speed to use
                      within this range.
      boost state support:
        Supported: yes
        Active: yes

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

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Platform Notes (Continued)

```
   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
   Filesystem      Type  Size  Used Avail Use% Mounted on
   /dev/sda2       xfs   1.8T   55G  1.7T   4% /


  ----------------------------------------------------------
21. /sys/devices/virtual/dmi/id
     Vendor:        FUJITSU LIMITED


  ----------------------------------------------------------
22. dmidecode
   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:
     9x Samsung M321R8GA0BB0-CQKDG 64 GB 2 rank 4800
     4x Samsung M321R8GA0BB0-CQKEG 64 GB 2 rank 4800
     1x Samsung M321R8GA0BB0-CQKMG 64 GB 2 rank 4800
    18x Samsung M321R8GA0BB0-CQKVG 64 GB 2 rank 4800



  ----------------------------------------------------------
23. BIOS
(This section combines info from /sys/devices and dmidecode.)
   BIOS Vendor:      FUJITSU
   BIOS Version:     V1.0.0.0 R0.18.0 for D3986-A1
   BIOS Date:        04/03/2023
   BIOS Revision:    0.18
   Firmware Revision: 1.0
```

SPEC CPU®2017 Integer Rate Result

Fujitsu

PRIMEQUEST 4400E, Intel Xeon Platinum 8468H, 2.10GHz

$SPECrate®2017\_int\_base =$ 1660

$SPECrate®2017\_int\_peak =$ Not Run

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

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

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
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------


==============================================================================
Fortran | 548.exchange2_r(base)
------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
`icx`

C++ benchmarks:
`icpx`

Fortran benchmarks:
`ifx`

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`

Fujitsu

PRIMEQUEST 4400E, Intel Xeon Platinum 8468H,
2.10GHz

SPECrate®2017_int_base =   1660

SPECrate®2017_int_peak = Not Run

CPU2017 License:	19	**Test Date:**	Jun-2023
Test Sponsor:	Fujitsu	**Hardware Availability:**	Jun-2023
Tested by:	Fujitsu	**Software Availability:**	Dec-2022

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/Intel-ic2023-official-linux64.html
http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.0-SPR-RevB.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/Fujitsu-Platform-Settings-V1.0-SPR-RevB.xml
```

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

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