SPEC CPU®2017 Integer Speed Result

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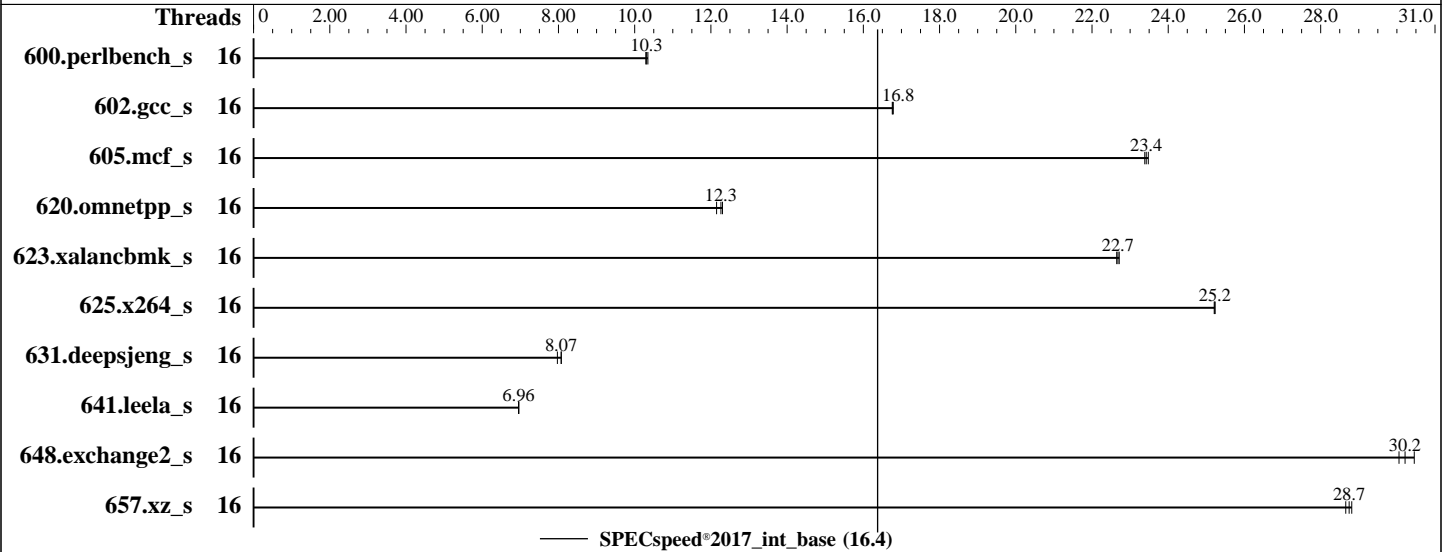## Fujitsu

$SPECspeed^{®}2017\_int\_base =$ 16.4

PRIMERGY RX1440 M2, AMD EPYC 9174F, 4.1 GHz

$SPECspeed^{®}2017\_int\_peak =$ Not Run

CPU2017 License: 19   **Test Date:** Jan-2024
Test Sponsor: Fujitsu   **Hardware Availability:** Feb-2024
Tested by: Fujitsu   **Software Availability:** Nov-2022

Benchmark	Threads	Result
600.perlbench_s	16	10.3
602.gcc_s	16	16.8
605.mcf_s	16	23.4
620.omnetpp_s	16	12.3
623.xalancbmk_s	16	22.7
625.x264_s	16	25.2
631.deepsjeng_s	16	8.07
641.leela_s	16	6.96
648.exchange2_s	16	30.2
657.xz_s	16	28.7

SPECspeed®2017_int_base (16.4)

Hardware

CPU Name: AMD EPYC 9174F
 Max MHz: 4400
 Nominal: 4100
Enabled: 16 cores, 1 chip
Orderable: 1 chip
Cache L1: 32 KB I + 32 KB D on chip per core
 L2: 1 MB I+D on chip per core
 L3: 256 MB I+D on chip per chip, 32 MB shared / 2 cores
 Other: None
Memory: 384 GB (12 x 32 GB 2Rx8 PC5-4800B-R)
Storage: 1 x SATA SSD, 3.84 TB
Other: None

Software

OS: Red Hat Enterprise Linux 9.0 (Plow)
 5.14.0-70.13.1.el9_0.x86_64
Compiler: C/C++/Fortran: Version 4.0.0 of AOCC
Parallel: Yes
Firmware: Fujitsu BIOS Version Version V5.0.0.27 R1.5.0 for D4130-A1x. Released May-2024
 tested as V5.0.0.27 R0.90.0 for D4130-A1x
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

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Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	16	172	10.3	**172**	**10.3**	172	10.3							
602.gcc_s	16	**237**	**16.8**	238	16.8	237	16.8							
605.mcf_s	16	**202**	**23.4**	201	23.5	202	23.4							
620.omnetpp_s	16	**133**	**12.3**	134	12.1	133	12.3							
623.xalancbmk_s	16	62.4	22.7	**62.5**	**22.7**	62.6	22.6							
625.x264_s	16	69.9	25.2	70.0	25.2	**69.9**	**25.2**							
631.deepsjeng_s	16	**178**	**8.07**	180	7.97	177	8.07							
641.leela_s	16	245	6.95	**245**	**6.96**	245	6.96							
648.exchange2_s	16	96.5	30.5	**97.3**	**30.2**	97.8	30.1							
657.xz_s	16	216	28.7	**215**	**28.7**	215	28.8							
SPECspeed®2017_int_base =			**16.4**											
SPECspeed®2017_int_peak =			**Not Run**											

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

Compiler Notes

```
The AMD64 AOCC Compiler Suite is available at
http://developer.amd.com/amd-aocc/
```

Submit Notes

```
The config file option 'submit' was used.
'numactl' was used to bind copies to the cores.
See the configuration file for details.
```

Operating System Notes

```
'ulimit -s unlimited' was used to set environment stack size limit
'ulimit -l 2097152' was used to set environment locked pages in memory limit

runcpu command invoked through numactl i.e.:
numactl --interleave=all runcpu <etc>

To limit dirty cache to 8% of memory, 'sysctl -w vm.dirty_ratio=8' run as root.
To limit swap usage to minimum necessary, 'sysctl -w vm.swappiness=1' run as root.
To free node-local memory and avoid remote memory usage,
'sysctl -w vm.zone_reclaim_mode=1' run as root.
To clear filesystem caches, 'sync; sysctl -w vm.drop_caches=3' run as root.
To disable address space layout randomization (ASLR) to reduce run-to-run
variability, 'sysctl -w kernel.randomize_va_space=0' run as root.

To enable Transparent Hugepages (THP) for all allocations,
'echo always > /sys/kernel/mm/transparent_hugepage/enabled' and
'echo always > /sys/kernel/mm/transparent_hugepage/defrag' run as root.
```

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Environment Variables Notes

```
Environment variables set by runcpu before the start of the run:
GOMP_CPU_AFFINITY = "0-15"
LD_LIBRARY_PATH = "/home/Benchmark/speccpu2017s/amd_speed_aocc400_znver4_A_lib/lib:"
LIBOMP_NUM_HIDDEN_HELPER_THREADS = "0"
MALLOC_CONF = "oversize_threshold:0,retain:true"
OMP_DYNAMIC = "false"
OMP_SCHEDULE = "static"
OMP_STACKSIZE = "128M"
OMP_THREAD_LIMIT = "16"
```

General Notes

```
Binaries were compiled on a system with 2x AMD EPYC 9174F CPU + 1.5TiB Memory using RHEL 8.6

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:
SMT Control = Disabled
Determinism Slider = Power
TDP Control = Manual
TDP Limit = 400
Package Power Limit Control = Manual
Package Power Limit = 400
APBDIS = 1
NUMA nodes per socket = NPS4
ACPI SRAT L3 Cache as NUMA Domain = Enabled
Periodic Directory Rinse (PDR) Tuning = Neutral
ACPI CST C2 Latency = 18
FAN Control = Full


 Sysinfo program /home/Benchmark/speccpu2017s/bin/sysinfo
 Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
 running on localhost.localdomain Wed Jan 24 00:34:32 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
```

(Continued on next page)

$SPECspeed^{®}2017\_int\_base =$ 16.4

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

Platform Notes (Continued)

```
  10. who -r
  11. Systemd service manager version: systemd 250 (250-6.el9_0)
  12. Failed units, from systemctl list-units --state=failed
  13. Services, from systemctl list-unit-files
  14. Linux kernel boot-time arguments, from /proc/cmdline
  15. cpupower frequency-info
  16. 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
  ------------------------------------------------------------


  ------------------------------------------------------------
  1. uname -a
    Linux localhost.localdomain 5.14.0-70.13.1.el9_0.x86_64 #1 SMP PREEMPT Thu Apr 14 12:42:38 EDT 2022 x86_64
    x86_64 x86_64 GNU/Linux


  ------------------------------------------------------------
  2. w
     00:34:32 up  4:28,  2 users,  load average: 4.25, 4.11, 2.62
    USER     TTY         LOGIN@   IDLE   JCPU   PCPU WHAT
    root     tty1     20:07   16.00s  0.86s  0.07s /bin/bash ./amd_speed_aocc400_znver4_A1.sh
    root     tty2     23:35   58:38   0.01s  0.01s -bash


  ------------------------------------------------------------
  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) 1543720
    max locked memory           (kbytes, -l) 2097152
    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) 1543720
    virtual memory              (kbytes, -v) unlimited
    file locks                      (-x) unlimited


  ------------------------------------------------------------
  5. sysinfo process ancestry
  /usr/lib/systemd/systemd rhgb --switched-root --system --deserialize 31
  login -- root
  -bash
  -bash
  python3 ./run_amd_intspeed_aocc400_znver4_A1.py
  /bin/bash ./amd_speed_aocc400_znver4_A1.sh
```

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Fujitsu

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AMD EPYC 9174F, 4.1 GHz

$SPECspeed®2017\_int\_base =$ 16.4

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

Test Date: Jan-2024
Hardware Availability: Feb-2024
Software Availability: Nov-2022

Platform Notes (Continued)

```
 runcpu --config amd_speed_aocc400_znver4_A1.cfg --tune base --reportable --iterations 3 intspeed
 runcpu --configfile amd_speed_aocc400_znver4_A1.cfg --tune base --reportable --iterations 3 --nopower
   --runmode speed --tune base --size test:train:refspeed intspeed --nopreenv --note-preenv --logfile
   $SPEC/tmp/CPU2017.001/templogs/preenv.intspeed.001.0.log --lognum 001.0 --from_runcpu 2
 specperl $SPEC/bin/sysinfo
$SPEC = /home/Benchmark/speccpu2017s


--------------------------------------------------------------
6. /proc/cpuinfo
   model name      : AMD EPYC 9174F 16-Core Processor
   vendor_id       : AuthenticAMD
   cpu family      : 25
   model           : 17
   stepping        : 1
   microcode       : 0xa101144
   bugs            : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass
   TLB size        : 3584 4K pages
   cpu cores       : 16
   siblings        : 16
   1 physical ids (chips)
   16 processors (hardware threads)
   physical id 0: core ids 0-1,16-17,32-33,48-49,64-65,80-81,96-97,112-113
   physical id 0: apicids 0-1,16-17,32-33,48-49,64-65,80-81,96-97,112-113
 Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for
 virtualized systems.  Use the above data carefully.


--------------------------------------------------------------
7. lscpu

From lscpu from util-linux 2.37.4:
   Architecture:             x86_64
   CPU op-mode(s):           32-bit, 64-bit
   Address sizes:            52 bits physical, 57 bits virtual
   Byte Order:               Little Endian
   CPU(s):                   16
   On-line CPU(s) list:      0-15
   Vendor ID:                AuthenticAMD
   BIOS Vendor ID:           Advanced Micro Devices, Inc.
   Model name:               AMD EPYC 9174F 16-Core Processor
   BIOS Model name:          AMD EPYC 9174F 16-Core Processor
   CPU family:               25
   Model:                    17
   Thread(s) per core:       1
   Core(s) per socket:       16
   Socket(s):                1
   Stepping:                 1
   Frequency boost:          enabled
   CPU max MHz:              4408.2998
   CPU min MHz:              1500.0000
   BogoMIPS:                 8188.13
   Flags:                    fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36
                             clflush mmx fxsr sse sse2 ht syscall nx mmxext fxsr_opt pdpe1gb rdtscp lm
                             constant_tsc rep_good nopl nonstop_tsc cpuid extd_apicid aperfmperf rapl
                             pni pclmulqdq monitor ssse3 fma cx16 pcid sse4_1 sse4_2 x2apic movbe
                             popcnt aes xsave avx f16c rdrand lahf_lm cmp_legacy svm extapic cr8_legacy
                             abm sse4a misalignsse 3dnowprefetch osvw ibs skinit wdt tce topoext
                             perfctr_core perfctr_nb bpext perfctr_llc mwaitx cpb cat_l3 cdp_l3
                             invpcid_single hw_pstate ssbd mba ibrs ibpb stibp vmmcall fsgsbase bmi1
                             avx2 smep bmi2 erms invpcid cqm rdt_a avx512f avx512dq rdseed adx smap
                             avx512ifma clflushopt clwb avx512cd sha_ni avx512bw avx512vl xsaveopt
```

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Tested by:	Fujitsu	**Software Availability:**	Nov-2022

Platform Notes (Continued)

```
                         xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local
                         avx512_bf16 clzero irperf xsaveerptr rdpru wbnoinvd amd_ppin arat npt lbrv
                         svm_lock nrip_save tsc_scale vmcb_clean flushbyasid decodeassists
                         pausefilter pfthreshold avic v_vmsave_vmload vgif v_spec_ctrl avx512vbmi
                         umip pku ospke avx512_vbmi2 gfni vaes vpclmulqdq avx512_vnni avx512_bitalg
                         avx512_vpopcntdq la57 rdpid overflow_recov succor smca fsrm flush_l1d
  Virtualization:        AMD-V
  L1d cache:             512 KiB (16 instances)
  L1i cache:             512 KiB (16 instances)
  L2 cache:              16 MiB (16 instances)
  L3 cache:              256 MiB (8 instances)
  NUMA node(s):          8
  NUMA node0 CPU(s):     0,1
  NUMA node1 CPU(s):     2,3
  NUMA node2 CPU(s):     4,5
  NUMA node3 CPU(s):     6,7
  NUMA node4 CPU(s):     8,9
  NUMA node5 CPU(s):     10,11
  NUMA node6 CPU(s):     12,13
  NUMA node7 CPU(s):     14,15
  Vulnerability Itlb multihit:   Not affected
  Vulnerability L1tf:            Not affected
  Vulnerability Mds:             Not affected
  Vulnerability Meltdown:        Not affected
  Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl
  Vulnerability Spectre v1:      Mitigation; usercopy/swapgs barriers and __user pointer sanitization
  Vulnerability Spectre v2:      Mitigation; Retpolines, IBPB conditional, IBRS_FW, STIBP disabled, 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      32K     512K    8 Data          1     64      1             64
     L1i      32K     512K    8 Instruction   1     64      1             64
     L2        1M      16M    8 Unified       2   2048      1             64
     L3       32M     256M   16 Unified       3  32768      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: 0-1
    node 0 size: 47436 MB
    node 0 free: 47021 MB
    node 1 cpus: 2-3
    node 1 size: 48383 MB
    node 1 free: 48106 MB
    node 2 cpus: 4-5
    node 2 size: 48383 MB
    node 2 free: 48020 MB
    node 3 cpus: 6-7
    node 3 size: 48383 MB
    node 3 free: 48110 MB
    node 4 cpus: 8-9
    node 4 size: 48383 MB
    node 4 free: 48190 MB
    node 5 cpus: 10-11
    node 5 size: 48383 MB
    node 5 free: 48212 MB
```

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SPECspeed®2017_int_base =   16.4

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Platform Notes (Continued)

```
  node 6 cpus: 12-13
  node 6 size: 48346 MB
  node 6 free: 48187 MB
  node 7 cpus: 14-15
  node 7 size: 48335 MB
  node 7 free: 48227 MB
  node distances:
  node   0   1   2   3   4   5   6   7
    0:  10  11  12  12  12  12  12  12
    1:  11  10  12  12  12  12  12  12
    2:  12  12  10  11  12  12  12  12
    3:  12  12  11  10  12  12  12  12
    4:  12  12  12  12  10  11  12  12
    5:  12  12  12  12  11  10  12  12
    6:  12  12  12  12  12  12  10  11
    7:  12  12  12  12  12  12  11  10


  ------------------------------------------------------------
9. /proc/meminfo
   MemTotal:       395299872 kB


  ------------------------------------------------------------
10. who -r
   run-level 3 Jan 23 20:06


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


  ------------------------------------------------------------
12. Failed units, from systemctl list-units --state=failed
     UNIT                    LOAD   ACTIVE SUB    DESCRIPTION
   * dnf-makecache.service loaded failed failed dnf makecache


  ------------------------------------------------------------
13. Services, from systemctl list-unit-files
   STATE           UNIT FILES
   enabled         NetworkManager NetworkManager-dispatcher NetworkManager-wait-online atd auditd bluetooth
                   crond dbus-broker firewalld getty@ insights-client-boot irqbalance iscsi iscsi-onboot
                   kdump libstoragemgmt lm_sensors lvm2-monitor mcelog mdmonitor microcode multipathd
                   nis-domainname nvmefc-boot-connections pmcd pmie pmlogger rhsmcertd rsyslog
                   selinux-autorelabel-mark smartd sshd sssd sysstat systemd-network-generator udisks2 upower
   enabled-runtime systemd-remount-fs
   disabled        arp-ethers blk-availability canberra-system-bootup canberra-system-shutdown
                   canberra-system-shutdown-reboot chrony-wait chronyd cni-dhcp console-getty cpupower
                   debug-shell fancontrol grafana-server iprdump iprinit iprupdate ipsec iscsid iscsiuio
                   kpatch kvm_stat ledmon man-db-restart-cache-update nftables nvmf-autoconnect pmfind
                   pmie_farm pmlogger_farm pmproxy podman podman-auto-update podman-restart postfix powertop
                   psacct ras-mc-ctl rasdaemon rdisc rhcd rhsm rhsm-facts rpmdb-rebuild rrdcached saslauthd
                   serial-getty@ sshd-keygen@ systemd-boot-check-no-failures systemd-pstore systemd-sysext
                   trace-cmd
   indirect        sssd-autofs sssd-kcm sssd-nss sssd-pac sssd-pam sssd-ssh sssd-sudo


  ------------------------------------------------------------
14. Linux kernel boot-time arguments, from /proc/cmdline
   BOOT_IMAGE=(hd0,gpt2)/vmlinuz-5.14.0-70.13.1.el9_0.x86_64
   root=/dev/mapper/rhel-root
   ro
   crashkernel=1G-4G:192M,4G-64G:256M,64G-:512M
```

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Platform Notes (Continued)

```
    resume=/dev/mapper/rhel-swap
    rd.lvm.lv=rhel/root
    rd.lvm.lv=rhel/swap
    rhgb
    quiet


   ----------------------------------------------------------
15. cpupower frequency-info
   analyzing CPU 0:
      current policy: frequency should be within 1.50 GHz and 4.10 GHz.
                      The governor "performance" may decide which speed to use
                      within this range.
      boost state support:
        Supported: yes
        Active: yes
        Boost States: 0
        Total States: 3
        Pstate-P0:  4100MHz


   ----------------------------------------------------------
16. sysctl
   kernel.numa_balancing             1
   kernel.randomize_va_space         0
   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                    8
   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                     1
   vm.watermark_boost_factor         15000
   vm.watermark_scale_factor         10
   vm.zone_reclaim_mode              1


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

Fujitsu

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Platform Notes (Continued)

```
  From /etc/*-release /etc/*-version
  os-release    Red Hat Enterprise Linux 9.0 (Plow)
  redhat-release Red Hat Enterprise Linux release 9.0 (Plow)
  system-release Red Hat Enterprise Linux release 9.0 (Plow)


  ---------------------------------------------------------------
  20. Disk information
  SPEC is set to: /home/Benchmark/speccpu2017s
    Filesystem              Type  Size  Used Avail Use% Mounted on
    /dev/mapper/rhel-home xfs   3.5T  110G  3.4T   4% /home


  ---------------------------------------------------------------
  21. /sys/devices/virtual/dmi/id
      Vendor:         FUJITSU
      Product:        PRIMERGY RX1440 M2
      Product Family: SERVER
      Serial:         xxxxxxxxxx


  ---------------------------------------------------------------
  22. 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:
      12x Samsung M321R4GA3BB6-CQKEG 32 GB 2 rank 4800



  ---------------------------------------------------------------
  23. BIOS
  (This section combines info from /sys/devices and dmidecode.)
    BIOS Vendor:      FUJITSU // American Megatrends Inc.
    BIOS Version:     V5.0.0.27 R0.90.0 for D4130-A1x
    BIOS Date:        12/21/2023
    BIOS Revision:    0.90
    Firmware Revision: 2.40
```

Compiler Version Notes

```
==================================================================================================
C      | 600.perlbench_s(base) 602.gcc_s(base) 605.mcf_s(base) 625.x264_s(base) 657.xz_s(base)
--------------------------------------------------------------------------------------------------
AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#434 2022_10_28) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-4.0.0/bin
--------------------------------------------------------------------------------------------------


==================================================================================================
C++    | 620.omnetpp_s(base) 623.xalancbmk_s(base) 631.deepsjeng_s(base) 641.leela_s(base)
--------------------------------------------------------------------------------------------------
AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#434 2022_10_28) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-4.0.0/bin
--------------------------------------------------------------------------------------------------


==================================================================================================
Fortran | 648.exchange2_s(base)
```

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SPEC CPU®2017 Integer Speed Result

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Fujitsu

PRIMERGY RX1440 M2,
AMD EPYC 9174F, 4.1 GHz

$SPECspeed^{®}2017\_int\_base =$ 16.4

$SPECspeed^{®}2017\_int\_peak =$ Not Run

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

Test Date: Jan-2024
Hardware Availability: Feb-2024
Software Availability: Nov-2022

Compiler Version Notes (Continued)

```
--------------------------------------------------------------------------------
AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#434 2022_10_28) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-4.0.0/bin
--------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
`clang`

C++ benchmarks:
`clang++`

Fortran benchmarks:
`flang`

Base Portability Flags

600.perlbench_s: `-DSPEC_LINUX_X64 -DSPEC_LP64`
602.gcc_s: `-DSPEC_LP64`
605.mcf_s: `-DSPEC_LP64`
620.omnetpp_s: `-DSPEC_LP64`
623.xalancbmk_s: `-DSPEC_LINUX -DSPEC_LP64`
625.x264_s: `-DSPEC_LP64`
631.deepsjeng_s: `-DSPEC_LP64`
641.leela_s: `-DSPEC_LP64`
648.exchange2_s: `-DSPEC_LP64`
657.xz_s: `-DSPEC_LP64`

Base Optimization Flags

C benchmarks:
`-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6`
`-Wl,-mllvm -Wl,-reduce-array-computations=3`
`-Wl,-allow-multiple-definition -O3 -march=znver4 -fveclib=AMDLIBM`
`-ffast-math -fopenmp -flto -fstruct-layout=7`
`-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000`
`-fremap-arrays -fstrip-mining -mllvm -reduce-array-computations=3`
`-DSPEC_OPENMP -zopt -fopenmp=libomp -lomp -lamdlibm -lflang`
`-lamdalloc`

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

Fujitsu

PRIMERGY RX1440 M2,
AMD EPYC 9174F, 4.1 GHz

SPECspeed®2017_int_base = 16.4

SPECspeed®2017_int_peak = Not Run

CPU2017 License:	19	**Test Date:**	Jan-2024
Test Sponsor:	Fujitsu	**Hardware Availability:**	Feb-2024
Tested by:	Fujitsu	**Software Availability:**	Nov-2022

Base Optimization Flags (Continued)

C++ benchmarks:
```
-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver4
-fveclib=AMDLIBM -ffast-math -fopenmp -flto
-mllvm -unroll-threshold=100 -finline-aggressive
-mllvm -loop-unswitch-threshold=200000
-mllvm -reduce-array-computations=3 -DSPEC_OPENMP -zopt
-fvirtual-function-elimination -fvisibility=hidden -fopenmp=libomp
-lomp -lamdlibm -lflang -lamdalloc-ext
```

Fortran benchmarks:
```
-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-inline-recursion=4 -Wl,-mllvm -Wl,-lsr-in-nested-loop
-Wl,-mllvm -Wl,-enable-iv-split -O3 -march=znver4 -fveclib=AMDLIBM
-ffast-math -fopenmp -flto -mllvm -optimize-strided-mem-cost
-mllvm -unroll-aggressive -mllvm -unroll-threshold=150 -fopenmp=libomp
-lomp -lamdlibm -lflang -lamdalloc
```

Base Other Flags

C benchmarks:
```
-Wno-return-type -Wno-unused-command-line-argument
```

C++ benchmarks:
```
-Wno-unused-command-line-argument
```

Fortran benchmarks:
```
-Wno-unused-command-line-argument
```

The flags files that were used to format this result can be browsed at
```
http://www.spec.org/cpu2017/flags/aocc400-flags.html
http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.0-Genoa-RevC.html
```

You can also download the XML flags sources by saving the following links:
```
http://www.spec.org/cpu2017/flags/aocc400-flags.xml
http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.0-Genoa-RevC.xml
```

SPEC CPU®2017 Integer Speed Result

Fujitsu

PRIMERGY RX1440 M2,
AMD EPYC 9174F, 4.1 GHz

$SPECspeed®2017\_int\_base =$ 16.4

$SPECspeed®2017\_int\_peak =$ Not Run

CPU2017 License: 19		**Test Date:**	Jan-2024
Test Sponsor:	Fujitsu	**Hardware Availability:**	Feb-2024
Tested by:	Fujitsu	**Software Availability:**	Nov-2022

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

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