# SPEC CPU®2017 Integer Rate Result

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## Hewlett Packard Enterprise

(Test Sponsor: HPE)

### ProLiant Compute ML350 Gen12
(3.50 GHz, Intel Xeon 6507P)

$SPECrate^{®}2017\_int\_base = 209$

$SPECrate^{®}2017\_int\_peak = 215$

**CPU2017 License:** 3      **Test Date:** Mar-2025

**Test Sponsor:** HPE      **Hardware Availability:** Mar-2025

**Tested by:** HPE      **Software Availability:** Jun-2024

| Benchmark | Copies | base | peak |
|-----------|--------|------|------|
| 500.perlbench_r | 32 | 163 | 174 |
| 502.gcc_r | 32 | 172 | 212 |
| 505.mcf_r | 32 | 336 | |
| 520.omnetpp_r | 32 | 123 | |
| 523.xalancbmk_r | 32 | 279 | |
| 525.x264_r | 32 | 460 | 480 |
| 531.deepsjeng_r | 32 | 171 | |
| 541.leela_r | 32 | 149 | |
| 548.exchange2_r | 32 | 474 | |
| 557.xz_r | 32 | 87.3 | |

SPECrate®2017_int_base (209)  —  SPECrate®2017_int_peak (215)

## Hardware

CPU Name: Intel Xeon 6507P
 Max MHz: 4300
 Nominal: 3500
Enabled: 16 cores, 2 chips, 2 threads/core
Orderable: 1,2 Chips
Cache L1: 64 KB I + 48 KB D on chip per core
 L2: 2 MB I+D on chip per core
 L3: 48 MB I+D on chip per chip
 Other: None
Memory: 512 GB (16 x 32 GB 2Rx8 PC5-6400B-R)
Storage: 1 x 3.0 TB NVMe SSD
Other: CPU Cooling: Air

## Software

OS: SUSE Linux Enterprise Server 15 SP6
6.4.0-150600.21-default
Compiler: C/C++: Version 2024.1 of Intel oneAPI DPC++/C++
Compiler for Linux;
Fortran: Version 2024.1 of Intel Fortran Compiler
for Linux;
Parallel: No
Firmware: HPE BIOS Version v1.20 02/14/2025 released
Feb-2025
File System: btrfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other: jemalloc memory allocator V5.0.1
Power Management: BIOS set to prefer performance at
the cost of additional power usage

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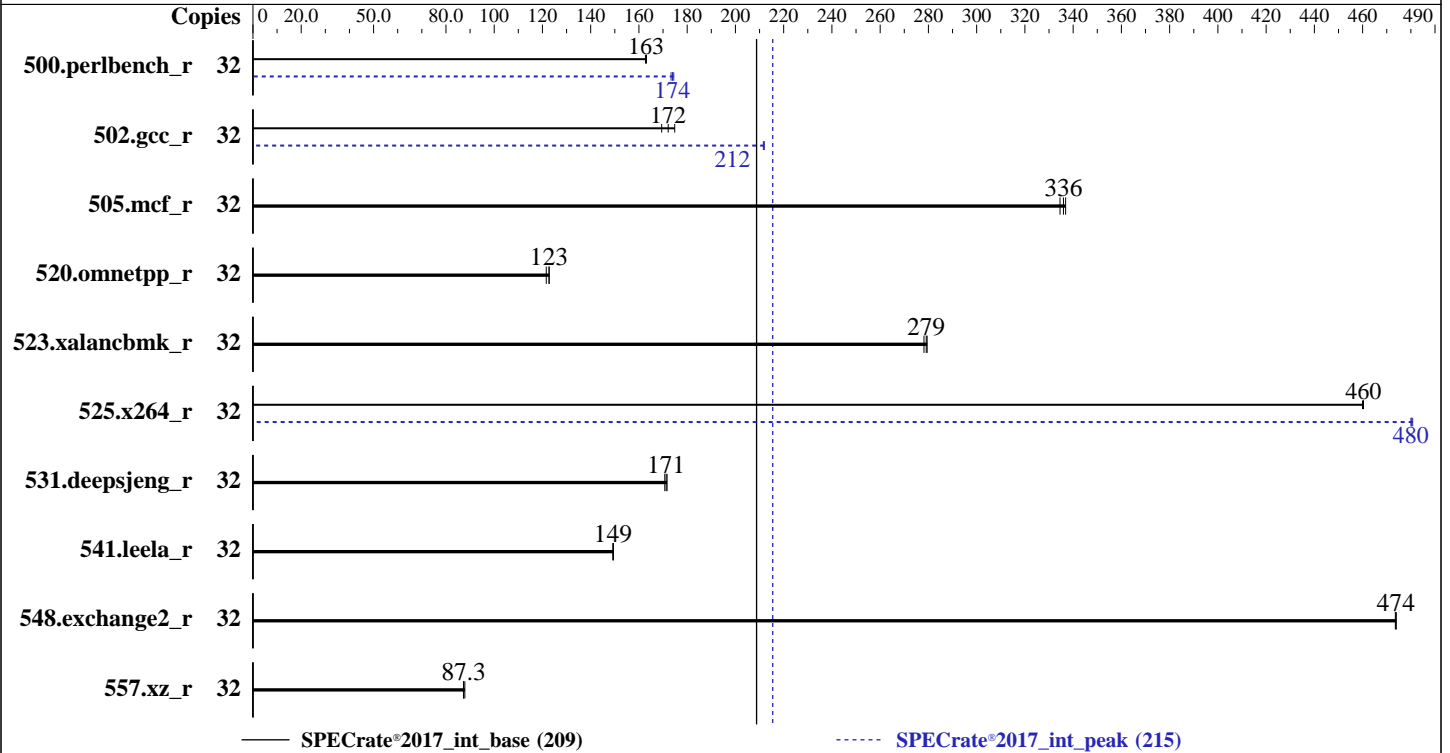(Test Sponsor: HPE)

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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 | 32 | 313 | 163 | 312 | 163 | **313** | **163** | 32 | 292 | 174 | **293** | **174** | 294 | 173 |
| 502.gcc_r | 32 | 267 | 169 | **263** | **172** | 259 | 175 | 32 | 214 | 212 | **214** | **212** | 214 | 212 |
| 505.mcf_r | 32 | 155 | 335 | 154 | 337 | **154** | **336** | 32 | 155 | 335 | 154 | 337 | **154** | **336** |
| 520.omnetpp_r | 32 | 345 | 122 | **342** | **123** | 342 | 123 | 32 | 345 | 122 | **342** | **123** | 342 | 123 |
| 523.xalancbmk_r | 32 | 121 | 279 | **121** | **279** | 121 | 278 | 32 | 121 | 279 | **121** | **279** | 121 | 278 |
| 525.x264_r | 32 | **122** | **460** | 122 | 460 | 122 | 460 | 32 | 117 | 480 | 117 | 481 | **117** | **480** |
| 531.deepsjeng_r | 32 | **214** | **171** | 214 | 172 | 215 | 171 | 32 | **214** | **171** | 214 | 172 | 215 | 171 |
| 541.leela_r | 32 | **355** | **149** | 355 | 149 | 355 | 149 | 32 | **355** | **149** | 355 | 149 | 355 | 149 |
| 548.exchange2_r | 32 | 177 | 474 | 177 | 474 | **177** | **474** | 32 | 177 | 474 | 177 | 474 | **177** | **474** |
| 557.xz_r | 32 | 393 | 87.8 | 396 | 87.3 | **396** | **87.3** | 32 | 393 | 87.8 | 396 | 87.3 | **396** | **87.3** |
| SPECrate®2017_int_base = | | **209** | | | | | | | | | | | | |
| SPECrate®2017_int_peak = | | **215** | | | | | | | | | | | | |

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

## Submit Notes

```
The numactl mechanism was used to bind copies to processors. The config file option 'submit'
was used to generate numactl commands to bind each copy to a specific processor.
For details, please see the config file.
```

## Operating System Notes

```
Stack size set to unlimited using "ulimit -s unlimited"
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>
```

## Environment Variables Notes

```
Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/home/cpu2017/lib/intel64:/home/cpu2017/lib/ia32:/home/cpu2017/je5.0.1-32"
MALLOC_CONF = "retain:true"
```

## General Notes

```
 Binaries compiled on a system with 2x Intel Xeon Platinum 8280M CPU + 384GB RAM
 memory using Red Hat Enterprise Linux 8.4
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.
 jemalloc, a general purpose malloc implementation
```

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## General Notes (Continued)

```
built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5
sources available from jemalloc.net or https://github.com/jemalloc/jemalloc/releases
```

## Platform Notes

```
BIOS Configuration:
Workload Profile set to General Throughput Compute
Enhanced Processor Performance Profile set to Aggressive
Thermal Configuration set to Maximum Cooling
Memory Patrol Scrubbing set to Disabled
Last Level Cache (LLC) Prefetch set to Enabled
XPT Prefetch set to disabled
Intel UPI Prefetch set to disabled
Workload Profile set to Custom
 DCU Stream Prefetcher set to Disabled
 Adjacent Sector Prefetch set to Disabled

 Sysinfo program /home/cpu2017/bin/sysinfo
 Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
 running on localhost Sat Mar 22 02:31:30 2025

 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 254 (254.10+suse.84.ge8d77af424)
 12. Services, from systemctl list-unit-files
 13. Linux kernel boot-time arguments, from /proc/cmdline
 14. cpupower frequency-info
 15. sysctl
 16. /sys/kernel/mm/transparent_hugepage
 17. /sys/kernel/mm/transparent_hugepage/khugepaged
 18. OS release
 19. Disk information
 20. /sys/devices/virtual/dmi/id
 21. dmidecode
 22. BIOS
 ------------------------------------------------------------


 ------------------------------------------------------------
 1. uname -a
   Linux localhost 6.4.0-150600.21-default #1 SMP PREEMPT_DYNAMIC Thu May 16 11:09:22 UTC 2024 (36c1e09)
   x86_64 x86_64 x86_64 GNU/Linux


 ------------------------------------------------------------
 2. w
   02:31:30 up 2 min,  6 users,  load average: 0.01, 0.02, 0.00
   USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
```

**(Continued on next page)**

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## Platform Notes (Continued)

```
        -----------------------------------------------------------
        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) 2062960
          max locked memory       (kbytes, -l) 8192
          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) 2062960
          virtual memory          (kbytes, -v) unlimited
          file locks                      (-x) unlimited

        -----------------------------------------------------------
        5. sysinfo process ancestry
         /usr/lib/systemd/systemd --switched-root --system --deserialize=31
         sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups
         sshd: root [priv]
         sshd: root@notty
         bash -c cd $SPEC/ && $SPEC/SPR_intrate.sh
         runcpu --nobuild --action validate --define default-platform-flags --define numcopies=32 -c
          ic2024.1-lin-sapphirerapids-rate-20240308.cfg --define smt-on --define cores=16 --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=32 --configfile
          ic2024.1-lin-sapphirerapids-rate-20240308.cfg --define smt-on --define cores=16 --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/cpu2017

        -----------------------------------------------------------
        6. /proc/cpuinfo
            model name      : Intel(R) Xeon(R) 6507P
            vendor_id       : GenuineIntel
            cpu family      : 6
            model           : 173
            stepping        : 1
            microcode       : 0x1000380
            bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs bhi
            cpu cores       : 8
            siblings        : 16
            2 physical ids (chips)
            32 processors (hardware threads)
            physical id 0: core ids 0-7
            physical id 1: core ids 0-7
            physical id 0: apicids 0-15
            physical id 1: apicids 128-143
          Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for
```

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## Platform Notes (Continued)

```
   virtualized systems.  Use the above data carefully.

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

   From lscpu from util-linux 2.39.3:
     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):                             32
     On-line CPU(s) list:                0-31
     Vendor ID:                          GenuineIntel
     BIOS Vendor ID:                     Intel(R) Corporation
     Model name:                         Intel(R) Xeon(R) 6507P
     BIOS Model name:                    Intel(R) Xeon(R) 6507P  CPU @ 3.5GHz
     BIOS CPU family:                    179
     CPU family:                         6
     Model:                              173
     Thread(s) per core:                 2
     Core(s) per socket:                 8
     Socket(s):                          2
     Stepping:                           1
     BogoMIPS:                           7000.00
     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 intel_ppin cdp_l2
                                         ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow 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 user_shstk avx_vnni avx512_bf16 wbnoinvd dtherm ida
                                         arat pln pts vnmi avx512vbmi umip pku ospke waitpkg avx512_vbmi2 gfni
                                         vaes vpclmulqdq avx512_vnni avx512_bitalg tme avx512_vpopcntdq la57
                                         rdpid bus_lock_detect cldemote movdiri movdir64b enqcmd fsrm md_clear
                                         serialize tsxldtrk pconfig arch_lbr ibt amx_bf16 avx512_fp16 amx_tile
                                         amx_int8 flush_l1d arch_capabilities
     Virtualization:                     VT-x
     L1d cache:                          768 KiB (16 instances)
     L1i cache:                          1 MiB (16 instances)
     L2 cache:                           32 MiB (16 instances)
     L3 cache:                           96 MiB (2 instances)
     NUMA node(s):                       2
     NUMA node0 CPU(s):                  0-7,16-23
     NUMA node1 CPU(s):                  8-15,24-31
     Vulnerability Gather data sampling: Not affected
     Vulnerability Itlb multihit:        Not affected
     Vulnerability L1tf:                 Not affected
     Vulnerability Mds:                  Not affected
     Vulnerability Meltdown:             Not affected
     Vulnerability Mmio stale data:      Not affected
     Vulnerability Reg file data sampling: Not affected
     Vulnerability Retbleed:             Not affected
     Vulnerability Spec rstack overflow: Not affected
```

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## Platform Notes (Continued)

```
  Vulnerability Spec store bypass:     Mitigation; Speculative Store Bypass disabled via prctl
  Vulnerability Spectre v1:            Mitigation; usercopy/swapgs barriers and __user pointer sanitization
  Vulnerability Spectre v2:            Mitigation; Enhanced / Automatic IBRS; IBPB conditional; RSB filling;
                                       PBRSB-eIBRS Not affected; BHI BHI_DIS_S
  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     768K   12 Data             1    64        1             64
      L1i       64K       1M   16 Instruction      1    64        1             64
      L2         2M      32M   16 Unified          2  2048        1             64
      L3        48M      96M   16 Unified          3 49152        1             64


  ------------------------------------------------------------
  8. numactl --hardware
  NOTE: a numactl 'node' might or might not correspond to a physical chip.
    available: 2 nodes (0-1)
    node 0 cpus: 0-7,16-23
    node 0 size: 257773 MB
    node 0 free: 256935 MB
    node 1 cpus: 8-15,24-31
    node 1 size: 257991 MB
    node 1 free: 257321 MB
    node distances:
    node   0   1
      0:  10  21
      1:  21  10


  ------------------------------------------------------------
  9. /proc/meminfo
    MemTotal:       528143684 kB


  ------------------------------------------------------------
  10. who -r
    run-level 3 Mar 22 02:28


  ------------------------------------------------------------
  11. Systemd service manager version: systemd 254 (254.10+suse.84.ge8d77af424)
    Default Target  Status
    multi-user      running


  ------------------------------------------------------------
  12. Services, from systemctl list-unit-files
    STATE           UNIT FILES
    enabled         apparmor auditd cron getty@ irqbalance issue-generator kbdsettings postfix purge-kernels
                    rollback sshd systemd-pstore wicked wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6
                    wickedd-nanny
    enabled-runtime systemd-remount-fs
    disabled        boot-sysctl ca-certificates chrony-wait chronyd console-getty debug-shell grub2-once
                    haveged hwloc-dump-hwdata issue-add-ssh-keys kexec-load lunmask rpmconfigcheck
                    serial-getty@ systemd-boot-check-no-failures systemd-confext systemd-network-generator
                    systemd-sysext systemd-time-wait-sync systemd-timesyncd target-isns targetcli targetclid
    indirect        pcscd systemd-userdbd wickedd


  ------------------------------------------------------------
  13. Linux kernel boot-time arguments, from /proc/cmdline
    BOOT_IMAGE=/boot/vmlinuz-6.4.0-150600.21-default
    root=UUID=4c5d4bc8-eb79-46e6-a7c0-66cda6da7717
    splash=silent
```

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## Platform Notes (Continued)

```
    mitigations=auto
    quiet
    security=apparmor

    ------------------------------------------------------------
14. cpupower frequency-info
    analyzing CPU 4:
      Unable to determine current policy
      boost state support:
        Supported: yes
        Active: yes

    ------------------------------------------------------------
15. 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

    ------------------------------------------------------------
16. /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

    ------------------------------------------------------------
17. /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

    ------------------------------------------------------------
18. OS release
    From /etc/*-release /etc/*-version
    os-release SUSE Linux Enterprise Server 15 SP6

    ------------------------------------------------------------
19. Disk information
SPEC is set to: /home/cpu2017
    Filesystem      Type   Size  Used Avail Use% Mounted on
```

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## Platform Notes (Continued)

```
  /dev/sda3      btrfs  3.0T  105G  2.8T   4% /home


  -------------------------------------------------------------
 20. /sys/devices/virtual/dmi/id
     Vendor:         HPE
     Product:        HPE ProLiant Compute ML350 Gen12
     Product Family: ProLiant
     Serial:         CZ48RP0120


  -------------------------------------------------------------
 21. dmidecode
   Additional information from dmidecode 3.4 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:
     13x Micron MTC20F2085S1RC64BD2 MWFF 32 GB 2 rank 6400
     3x Micron MTC20F2085S1RC64BD2 QSFF 32 GB 2 rank 6400


  -------------------------------------------------------------
 22. BIOS
 (This section combines info from /sys/devices and dmidecode.)
     BIOS Vendor:       HPE
     BIOS Version:      1.20
     BIOS Date:         02/14/2025
     BIOS Revision:     1.20
     Firmware Revision: 1.11
```

## Compiler Version Notes

```
==============================================================================================
C        | 502.gcc_r(peak)
----------------------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2024.1.0 Build 20240308
Copyright (C) 1985-2024 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)
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==============================================================================================
C        | 500.perlbench_r(base, peak) 502.gcc_r(base) 505.mcf_r(base, peak) 525.x264_r(base, peak)
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## Compiler Version Notes (Continued)

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

==============================================================================
C++     | 520.omnetpp_r(base, peak) 523.xalancbmk_r(base, peak) 531.deepsjeng_r(base, peak)
        | 541.leela_r(base, peak)
--------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
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--------------------------------------------------------------------------------

==============================================================================
Fortran | 548.exchange2_r(base, peak)
--------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
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--------------------------------------------------------------------------------
```

## 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`

## Base Optimization Flags

C benchmarks:
`-w -std=c11 -m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math`

**(Continued on next page)**

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

# SPEC CPU®2017 Integer Rate Result

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Hewlett Packard Enterprise
(Test Sponsor: HPE)

ProLiant Compute ML350 Gen12
(3.50 GHz, Intel Xeon 6507P)

SPECrate®2017_int_base = 209

SPECrate®2017_int_peak = 215

**CPU2017 License:** 3
**Test Sponsor:** HPE
**Tested by:** HPE

**Test Date:** Mar-2025
**Hardware Availability:** Mar-2025
**Software Availability:** Jun-2024

## Base Optimization Flags (Continued)

C benchmarks (continued):
```
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-L/opt/intel/oneapi/compiler/2024.1/lib -lqkmalloc
```

C++ benchmarks:
```
-w -std=c++14 -m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-L/opt/intel/oneapi/compiler/2024.1/lib -lqkmalloc
```

Fortran benchmarks:
```
-w -m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte -auto
-L/opt/intel/oneapi/compiler/2024.1/lib -lqkmalloc
```

## Peak Compiler Invocation

C benchmarks:
```
icx
```

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

Fortran benchmarks:
```
ifx
```

## Peak Portability Flags

500.perlbench_r: `-DSPEC_LP64 -DSPEC_LINUX_X64`
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`

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| **CPU2017 License:** 3 | **Test Date:** Mar-2025 |
|---|---|
| **Test Sponsor:** HPE | **Hardware Availability:** Mar-2025 |
| **Tested by:** HPE | **Software Availability:** Jun-2024 |

# Peak Optimization Flags

C benchmarks:

```
500.perlbench_r: -w -std=c11 -m64 -Wl,-z,muldefs
-fprofile-generate(pass 1)
-fprofile-use=default.profdata(pass 2) -xCORE-AVX2(pass 1)
-flto -Ofast -xCORE-AVX512 -ffast-math -mfpmath=sse
-funroll-loops -qopt-mem-layout-trans=4
-fno-strict-overflow
-L/opt/intel/oneapi/compiler/2024.1/lib -lqkmalloc
```

```
502.gcc_r: -m32 -L/opt/intel/oneapi/compiler/2024.1/lib32 -std=gnu89
-Wl,-z,muldefs -fprofile-generate(pass 1)
-fprofile-use=default.profdata(pass 2) -xCORE-AVX2(pass 1)
-flto -Ofast -xCORE-AVX512 -ffast-math -mfpmath=sse
-funroll-loops -qopt-mem-layout-trans=4
-L/usr/local/jemalloc32-5.0.1/lib -ljemalloc
```

```
505.mcf_r: basepeak = yes
```

```
525.x264_r: -w -std=c11 -m64 -Wl,-z,muldefs -xsapphirerapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fno-alias
-L/opt/intel/oneapi/compiler/2024.1/lib -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/HPE-Platform-Flags-Intel-GNR-rev1.1.html
http://www.spec.org/cpu2017/flags/Intel-ic2024-official-linux64.html

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|---|---|---|---|
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| **Test Sponsor:** | HPE | **Hardware Availability:** | Mar-2025 |
| **Tested by:** | HPE | **Software Availability:** | Jun-2024 |

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-Intel-GNR-rev1.1.xml
http://www.spec.org/cpu2017/flags/Intel-ic2024-official-linux64.xml

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

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