## SPEC CPU®2017 Integer Rate Result

Hewlett Packard Enterprise  
(Test Sponsor: HPE)  
Synergy 480 Gen11  
(2.80 GHz, Intel Xeon Platinum 8462Y+)  

**SPECrater®2017_int_base = 676**  
**SPECrater®2017_int_peak = 699**

### Hardware

<table>
<thead>
<tr>
<th>Specified</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name</td>
<td>Intel Xeon Platinum 8462Y+</td>
</tr>
<tr>
<td>Max MHz</td>
<td>4100</td>
</tr>
<tr>
<td>Nominal</td>
<td>2800</td>
</tr>
<tr>
<td>Enabled</td>
<td>64 cores, 2 chips, 2 threads/core</td>
</tr>
<tr>
<td>Orderable</td>
<td>1, 2 chip(s)</td>
</tr>
<tr>
<td>Cache L1</td>
<td>32 KB I + 48 KB D on chip per core</td>
</tr>
<tr>
<td>L2</td>
<td>2 MB I+D on chip per core</td>
</tr>
<tr>
<td>L3</td>
<td>60 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other</td>
<td>None</td>
</tr>
<tr>
<td>Memory</td>
<td>512 GB (16 x 32 GB 2Rx8 PC5-4800B-R)</td>
</tr>
<tr>
<td>Storage</td>
<td>1 x 480 GB SATA SSD</td>
</tr>
<tr>
<td>Other</td>
<td>None</td>
</tr>
</tbody>
</table>

### Software

<table>
<thead>
<tr>
<th>Specified</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>OS</td>
<td>Red Hat Enterprise Linux 9.0 (Plow)</td>
</tr>
<tr>
<td>Compiler</td>
<td>C/C++: Version 2023.0 of Intel oneAPI DPC++/C++ Compiler for Linux; Fortran: Version 2023.0 of Intel Fortran Compiler for Linux;</td>
</tr>
<tr>
<td>Parallel</td>
<td>No</td>
</tr>
<tr>
<td>Firmware</td>
<td>HPE BIOS Version v1.40 06/29/2023 released Jun-2023</td>
</tr>
<tr>
<td>File System</td>
<td>xfs</td>
</tr>
<tr>
<td>System State</td>
<td>Run level 3 (multi-user)</td>
</tr>
<tr>
<td>Base Pointers</td>
<td>64-bit</td>
</tr>
<tr>
<td>Peak Pointers</td>
<td>32/64-bit</td>
</tr>
<tr>
<td>Other</td>
<td>jemalloc memory allocator V5.0.1</td>
</tr>
<tr>
<td>Power Management</td>
<td>BIOS and OS set to prefer performance at the cost of additional power usage</td>
</tr>
</tbody>
</table>

### Copied

<table>
<thead>
<tr>
<th>Specified</th>
<th>Value</th>
</tr>
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<tbody>
<tr>
<td>Copies 500.perlbench_r</td>
<td>128</td>
</tr>
<tr>
<td></td>
<td>500</td>
</tr>
<tr>
<td></td>
<td>5439</td>
</tr>
<tr>
<td></td>
<td>521</td>
</tr>
<tr>
<td>Copies 502.gcc_r</td>
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<tr>
<td></td>
<td>640</td>
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</tr>
<tr>
<td>Copies 505.mcf_r</td>
<td>128</td>
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<td></td>
<td>401</td>
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<tr>
<td>Copies 520.omnetpp_r</td>
<td>128</td>
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<td></td>
<td>1280</td>
</tr>
<tr>
<td></td>
<td>1350</td>
</tr>
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<td>1430</td>
</tr>
<tr>
<td>Copies 523.xalanchmk_r</td>
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<tr>
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<tr>
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<td>492</td>
</tr>
<tr>
<td>Copies 531.deepsjeng_r</td>
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</tr>
<tr>
<td></td>
<td>477</td>
</tr>
<tr>
<td>Copies 541.leela_r</td>
<td>128</td>
</tr>
<tr>
<td></td>
<td>303</td>
</tr>
<tr>
<td></td>
<td>SPECrate®2017_int_base (676)</td>
</tr>
<tr>
<td></td>
<td>SPECrate®2017_int_peak (699)</td>
</tr>
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</table>
Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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</thead>
<tbody>
<tr>
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<td>128</td>
<td>407</td>
<td>501</td>
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<td>500</td>
<td>128</td>
<td>378</td>
<td>539</td>
<td>379</td>
<td>538</td>
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<tr>
<td>502.gcc_r</td>
<td>128</td>
<td>348</td>
<td>520</td>
<td>348</td>
<td>521</td>
<td>347</td>
<td>522</td>
<td>128</td>
<td>283</td>
<td>640</td>
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<td>193</td>
<td>1070</td>
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<tr>
<td>520.omnetpp_r</td>
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<td>419</td>
<td>401</td>
<td>421</td>
<td>399</td>
<td>419</td>
<td>401</td>
<td>128</td>
<td>419</td>
<td>401</td>
<td>421</td>
<td>399</td>
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<td>1280</td>
<td>106</td>
<td>1280</td>
<td>128</td>
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<td>1280</td>
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<tr>
<td>525.x264_r</td>
<td>128</td>
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<td>1350</td>
<td>166</td>
<td>1350</td>
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<td>1350</td>
<td>128</td>
<td>157</td>
<td>1430</td>
<td>157</td>
<td>1430</td>
</tr>
<tr>
<td>531.deepsjeng_r</td>
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<td>298</td>
<td>492</td>
<td>298</td>
<td>492</td>
<td>298</td>
<td>492</td>
<td>128</td>
<td>298</td>
<td>492</td>
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<td>492</td>
</tr>
<tr>
<td>541.leela_r</td>
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<td>444</td>
<td>477</td>
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<td>477</td>
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<tr>
<td>548.exchange2_r</td>
<td>128</td>
<td>232</td>
<td>1440</td>
<td>236</td>
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<td>232</td>
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<td>1440</td>
<td>236</td>
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<td>557.xz_r</td>
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<td>449</td>
<td>308</td>
<td>457</td>
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<td>303</td>
<td>128</td>
<td>449</td>
<td>308</td>
<td>457</td>
<td>303</td>
</tr>
</tbody>
</table>

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"
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
   perf-bias for all the CPUs is set using "cpupower set -b 0"
   runcpu command invoked through numactl i.e.:
   numactl --interleave=all runcpu <etc>
Hewlett Packard Enterprise  
(Test Sponsor: HPE)  
Synergy 480 Gen11  
(2.80 GHz, Intel Xeon Platinum 8462Y+)

| SPECrate®2017_int_base = 676 |
| SPECrate®2017_int_peak = 699 |

**CPU2017 License:** 13  
**Test Date:** Sep-2023  
**Test Sponsor:** HPE

| Hardware Availability: | Jun-2023 |
| Test Date: | Sep-2023 |
| Test Sponsor: | HPE |

| Software Availability: | Dec-2022 |
| Tested by: | HPE |

---

### 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  
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

The system ROM used for this result contains Intel microcode version 0x2b0004a1 for the Intel Xeon Platinum 8462Y+ processor.  
**BIOS Configuration:**  
- Workload Profile set to General Throughput Compute  
- Memory Patrol Scrubbing set to Disabled  
- Last Level Cache (LLC) Dead Line Allocation set to Disabled  
- Intel UPI Link Enablement set to Single Link  
- Enhanced Processor Performance Profile set to Aggressive  
- Thermal Configuration set to Maximum Cooling  
- Workload Profile set to Custom  
- Adjacent Sector Prefetch set to Disabled  
- DCU Stream Prefetcher set to Disabled  
- Intel UPI Link Power Management set to Enabled  
- Minimum Processor Idle Power Package C-State set to Package C6 (non-retention) State  

Sysinfo program /home/cpu2017/bin/sysinfo  
Rev: r6732 of 2022-11-07 fe91c89b7ed5c6ae2c92cc097bec197  
running on localhost.localdomain Thu Sep 21 17:25:42 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/cputime  
7. lscpu  
8. numactl --hardware  
9. /proc/meminfo  
10. who -r  
11. Systemd service manager version: systemd 250 (250-6.el9_0)  
12. Services, from systemctl list-unit-files  
13. Linux kernel boot-time arguments, from /proc/cmdline

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<table>
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<th>SPECrate®2017_int_base = 676</th>
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</tbody>
</table>

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**Test Sponsor:** HPE  
**Tested by:** HPE  
**Test Date:** Sep-2023  
**Hardware Availability:** Jun-2023  
**Software Availability:** Dec-2022

### Platform Notes (Continued)

14. cpupower frequency-info  
15. tuned-adm active  
16. sysctl  
17. /sys/kernel/mm/transparent_hugepage  
18. /sys/kernel/mm/transparent_hugepage/klugepaged  
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 GNU/Linux

---

2. `w`

<table>
<thead>
<tr>
<th>USER</th>
<th>TTY</th>
<th>LOGIN@</th>
<th>IDLE</th>
<th>JCPU</th>
<th>PCPU</th>
<th>WHAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>root</td>
<td>tty1</td>
<td>17:24</td>
<td>1:33</td>
<td>0.00s</td>
<td>0.00s</td>
<td>-bash</td>
</tr>
<tr>
<td>root</td>
<td>pts/0</td>
<td>17:24</td>
<td>10.00s</td>
<td>0.79s</td>
<td>0.01s</td>
<td>-bash</td>
</tr>
</tbody>
</table>

---

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) 0                                  |
   | 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) 2062687                          |
   | virtual memory (kbytes, -v) unlimited                   |
   | file locks (-x) unlimited                               |

---

5. `sysinfo process ancestry`

   ```bash
   /usr/lib/systemd/systemd --switched-root --system --deserialize 30
   sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups
   sshd: root [priv]
   sshd: root@pts/0
   -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,peak -o all intrate
   runcpu --nobuild --action validate --define default-platform-flags --define numcopies=128 --configfile
   ```

(Continued on next page)
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SPEC CPU®2017 Integer Rate Result

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CPU2017 License: 13
Test Sponsor: HPE
Tested by: HPE

Test Date: Sep-2023
Hardware Availability: Jun-2023
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Platform Notes (Continued)

ic2023.0-lin-sapphirerapids-rate-20221201.cfg --define smt-on --define cores=64 --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) Platinum 8462Y+
vendor_id : GenuineIntel
.cpu family : 6
.model : 143
.stepping : 8
.microcode : 0x2b0004a1
.bugs : spectre_v1 spectre_v2 spec_store_bypass swapgs

Numbers of processors (hardware threads)

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

core ids: 32

Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for virtualized systems. Use the above data carefully.

7. lscpu

---
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
BIOS Vendor ID: Intel(R) Corporation
Model name: Intel(R) Xeon(R) Platinum 8462Y+
BIOS Model name: Intel(R) Xeon(R) Platinum 8462Y+
CPU family: 6
Model: 143
Thread(s) per core: 2
Core(s) per socket: 32
Stepping: 8
BogoMIPS: 5600.00

Flags:
fpu vme de pse tsc msr pae mce cmov pat pse36 clflush dtes64 mda cmov stpmem pse37孰 mce ss tm hlt

---

(Continued on next page)
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Platform Notes (Continued)

split_lock_detect avx_vnni avx512_bf16 whinoinvd dtherm ida arat pin pts
avx512vbmi umip pku ospe waitpkg avx512_vbmi2 gfni vaes vpclmulqdq
avx512_vnni avx512_bitalg tme avx512_vpopcntdq la57 rdpid bus_lock_detect
oldemote movdiri movdir64b enqcmd fsrm md_clear serialize tsxldtrk pconfi
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): 4
NUMA node0 CPU(s): 0-15,64-79
NUMA node1 CPU(s): 16-31,80-95
NUMA node2 CPU(s): 32-47,96-111
NUMA node3 CPU(s): 48-63,112-127
Vulnerability Itlb multihit: Not affected
Vulnerability Lttf: Not affected
Vulnerability Msds: Not affected
Vulnerability Mtdown: 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; Enhanced IBRS, IBPB conditional, RSB filling
Vulnerability Srbds: Not affected
Vulnerability Tsx async abort: Not affected

From lscpu --cache:

<table>
<thead>
<tr>
<th>NAME</th>
<th>ONE-SIZE</th>
<th>ALL-SIZE</th>
<th>WAYS</th>
<th>TYPE</th>
<th>LEVEL</th>
<th>SETS</th>
<th>PHY-LINE</th>
<th>COHERENCY-SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1d</td>
<td>48K</td>
<td>3M</td>
<td>12</td>
<td>Data</td>
<td>1</td>
<td>64</td>
<td>1</td>
<td>64</td>
</tr>
<tr>
<td>L1i</td>
<td>32K</td>
<td>2M</td>
<td>8</td>
<td>Instruction</td>
<td>1</td>
<td>64</td>
<td>1</td>
<td>64</td>
</tr>
<tr>
<td>L2</td>
<td>2M</td>
<td>128M</td>
<td>16</td>
<td>Unified</td>
<td>2</td>
<td>2048</td>
<td>1</td>
<td>64</td>
</tr>
<tr>
<td>L3</td>
<td>60M</td>
<td>120M</td>
<td>15</td>
<td>Unified</td>
<td>3</td>
<td>65536</td>
<td>1</td>
<td>64</td>
</tr>
</tbody>
</table>

8. numactl --hardware
NOTE: a numactl 'node' might or might not correspond to a physical chip.
available: 4 nodes (0-3)
node 0 cpus: 0-15,64-79
node 0 size: 128708 MB
node 0 free: 127438 MB
node 1 cpus: 16-31,80-95
node 1 size: 129017 MB
node 1 free: 128413 MB
node 2 cpus: 32-47,96-111
node 2 size: 128980 MB
node 2 free: 128512 MB
node 3 cpus: 48-63,112-127
node 3 size: 129006 MB
node 3 free: 128515 MB
node distances:
node 0 1 2 3
0: 10 20 30 30
1: 20 10 30 30
2: 30 30 10 20
3: 30 30 20 10

9. /proc/meminfo
MemTotal: 528089696 kB
Platform Notes (Continued)

10. who -r
   run-level 3 Sep 21 17:23

11. Systemd service manager version: systemd 250 (250-6.e19.0)
    Default Target  Status
    multi-user     running

12. Services, from systemctl list-unit-files
    STATE            UNIT FILES
    enabled          NetworkManager NetworkManager-dispatcher NetworkManager-wait-online auditd chrony cron
dbus-broker firewalld getty@ irqbalance systemd lvm2-monitor microcode
nis-domainname rhsmcertd rsyslog selinux-autorelabel-mark sshd ssd
systemd-network-generator tuned udisks2
    enabled-runtime systemd-remount-fs
    disabled        blk-availability chrony-wait console-getty cpupower debug-shell kvm_stat
    man-db-restart-cache-update nftables powertop rdisc rhsm rhsm-facts rpmdrb-rebuild
    serial-getty@ sshd-keygen@ systemd-boot-check-no-failures systemd-pstore systemd-sysvext
    indirect        sssd-autofs sssd-kcm sssd-nss sssd-pac sssd-pam sssd-ssh sssd-sudo

13. Linux kernel boot-time arguments, from /proc/cmdline
    BOOT_IMAGE=(hd1,gpt2)/vmlinuz-5.14.0-70.13.1.e19_0.x86_64
    root=/dev/mapper/rhel-root00
    ro
    resume=/dev/mapper/rhel-swap00
    rd.lvm.lv=rhel/root00
    rd.lvm.lv=rhel/swap00

14. cpupower frequency-info
    analyzing CPU 0:
    Unable to determine current policy
    boost state support:  Supported: yes
    Active: yes

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

16. sysctl
    kernel.numa_balancing 1
    kernel.randomize_va_space 2
    vm.compartment_proactiveness 20
    vm.dirty_background_bytes 0
    vm.dirty_background_ratio 10
    vm.dirty_bytes 0
    vm.dirty_expire_centisecs 3000
    vm.dirty_ratio 40
    vm.dirty_writeback_centisecs 500
    vm.dirtytime_expire_seconds 43200
    vm.extrfrag_threshold 500
    vm.min_unmapped_ratio 1
    vm.nr_hugepages 0
    vm.nr_hugepages_mempolicy 0
    vm.nr_overcommit_hugepages 0
    vm.swappiness 10

(Continued on next page)
Hewlett Packard Enterprise  
(Test Sponsor: HPE)  
Synergy 480 Gen11  
(2.80 GHz, Intel Xeon Platinum 8462Y+)

SPECrate®2017_int_base = 676  
SPECrate®2017_int_peak = 699

CPU2017 License: 13  
Test Sponsor: HPE  
Tested by: HPE

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

Platform Notes (Continued)

```plaintext
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
   pagen_to_scan 4096
   scan_sleep_millisecs 10000

19. OS release
   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/cpu2017
   Filesystem Type Size Used Avail Use% Mounted on
   /dev/mapper/rhel-home00 xfs 372G 19G 354G 5% /home

21. /sys/devices/virtual/dmi/id
   Vendor: HPE
   Product: Synergy 480 Gen11
   Product Family: Synergy
   Serial: F221PP0019

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:
   16x Samsung M321R4GA3BB6-CQKDG 32 GB 2 rank 4800

23. BIOS
   (This section combines info from /sys/devices and dmidecode.)
   BIOS Vendor: HPE
   BIOS Version: 1.40
   BIOS Date: 06/29/2023
   BIOS Revision: 1.40
   Firmware Revision: 1.45
```
Hewlett Packard Enterprise
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Compiler Version Notes

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<th>Compiler Invocation</th>
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<td>C</td>
<td>502.gcc_r(peak)</td>
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<tr>
<td>C++</td>
<td>520.omnetpp_r(base, peak) 523.xalancbmk_r(base, peak) 531.deepsjeng_r(base, peak) 541.leela_r(base, peak)</td>
</tr>
<tr>
<td>Fortran</td>
<td>548.exchange2_r(base, peak)</td>
</tr>
</tbody>
</table>

Base Compiler Invocation

- C benchmarks:
  - icx

- C++ benchmarks:
  - icpx

- Fortran benchmarks:
  - ifx
SPEC CPU®2017 Integer Rate Result

Hewlett Packard Enterprise
(Test Sponsor: HPE)
Synergy 480 Gen11
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CPU2017 License: 13
Test Sponsor: HPE
Tested by: HPE

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

Peak Compiler Invocation

C benchmarks:
icx

C++ benchmarks:
icpx

Fortran benchmarks:
ifx
**SPEC CPU®2017 Integer Rate Result**

**Hewlett Packard Enterprise**  
(Test Sponsor: HPE)  
Synergy 480 Gen11  
(2.80 GHz, Intel Xeon Platinum 8462Y+)

### SPECrate®2017 int_base = 676  
SPECrate®2017 int_peak = 699

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<th>Test Date: Sep-2023</th>
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**Peak Portability Flags**

- 500.perlbench_r: -DSPEC_LP64 -DSPEC_LINUX_X64
- 502.gcc_r: -D_FILE_OFFSET_BITS=64
- 505.mcf_r: -DSPEC_LP64
- 520.omnetpp_r: -DSPEC_LP64
- 523.xalancbmk_r: -DSPEC_LP64 -DSPEC_LINUX
- 525.x264_r: -DSPEC_LP64
- 531.deepsjeng_r: -DSPEC_LP64
- 541.leela_r: -DSPEC_LP64
- 548.exchange2_r: -DSPEC_LP64
- 557.xz_r: -DSPEC_LP64

**Peak Optimization Flags**

**C benchmarks:**

- 500.perlbench_r: -w -std=c11 -m64 -Wl,-z,muldefs
  -fprofile=generate(pass 1)
  -fprofile-use=default.profdata(pass 2) -xCORE-AVX2(pass 1)
  -ffast-math -mfpmath=sse
  -funroll-loops -qopt-mem-layout-trans=4
  -ffree-functions
  -funroll-loops -qopt-mem-layout-trans=4
  -L/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin
  -ljemalloc

- 502.gcc_r: -m32
  -L/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/ia32_lin
  -std=gnu89 -Wl,-z,muldefs -fprofile=generate(pass 1)
  -fprofile-use=default.profdata(pass 2) -xCORE-AVX2(pass 1)
  -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/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin
  -ljemalloc

- 557.xz_r: basepeak = yes

**C++ benchmarks:**

(Continued on next page)
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Peak Optimization Flags (Continued)

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-SPR-rev2.4.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-Intel-SPR-rev2.4.xml

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

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