<table>
<thead>
<tr>
<th>SPEC CPU®2017 Integer Rate Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copyright 2017-2024 Standard Performance Evaluation Corporation</td>
</tr>
</tbody>
</table>

Hewlett Packard Enterprise  
(Test Sponsor: HPE)  
ProLiant DL380a Gen11  
(2.70 GHz, Intel Xeon Max 9462)  

<table>
<thead>
<tr>
<th>SPECrate®2017_int_base = 604</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate®2017_int_peak = 622</td>
</tr>
</tbody>
</table>

**Hardware**

<table>
<thead>
<tr>
<th>CPU Name:</th>
<th>Intel Xeon Max 9462</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max MHz:</td>
<td>3500</td>
</tr>
<tr>
<td>Nominal:</td>
<td>2700</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>75 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other:</td>
<td>None</td>
</tr>
<tr>
<td>Memory:</td>
<td>640 GB (16 x 32 GB 2Rx8 PC5-4800B-R + 2 x 64 GB HBM)</td>
</tr>
<tr>
<td>Storage:</td>
<td>1 x 1.6 TB NVMe SSD</td>
</tr>
<tr>
<td>Other:</td>
<td>None</td>
</tr>
</tbody>
</table>

**Software**

<table>
<thead>
<tr>
<th>OS:</th>
<th>Red Hat Enterprise Linux 9.0 (Plow)</th>
</tr>
</thead>
<tbody>
<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 05/18/2023 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>

<table>
<thead>
<tr>
<th>Copies</th>
<th>SPECrate®2017_int_base (604)</th>
</tr>
</thead>
<tbody>
<tr>
<td>500.perlbench_r</td>
<td>128</td>
</tr>
<tr>
<td>502.gcc_r</td>
<td>128</td>
</tr>
<tr>
<td>505.mcf_r</td>
<td>128</td>
</tr>
<tr>
<td>520.omnetpp_r</td>
<td>128</td>
</tr>
<tr>
<td>523.xalancbmk_r</td>
<td>128</td>
</tr>
<tr>
<td>525.x264_r</td>
<td>128</td>
</tr>
<tr>
<td>531.deepsjeng_r</td>
<td>128</td>
</tr>
<tr>
<td>541.leela_r</td>
<td>128</td>
</tr>
<tr>
<td>548.exchange2_r</td>
<td>128</td>
</tr>
<tr>
<td>557.xz_r</td>
<td>128</td>
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**Test Sponsor:** HPE  
**Test Date:** Jun-2023  
**Hardware Availability:** Jun-2023  
**Software Availability:** Dec-2022
SPEC CPU®2017 Integer Rate Result

Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL380a Gen11
(2.70 GHz, Intel Xeon Max 9462)

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

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

Results Table

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<thead>
<tr>
<th>Benchmark</th>
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<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<th>Ratio</th>
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<tbody>
<tr>
<td>500.perlbench_r</td>
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<td>478</td>
<td>426</td>
<td>480</td>
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<tr>
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<td>128</td>
<td>479</td>
<td>426</td>
<td>480</td>
<td>425</td>
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<td>426</td>
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<td>445</td>
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<td>541.leela_r</td>
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</tr>
<tr>
<td>548.exchange2_r</td>
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<td>1240</td>
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<td>270</td>
<td>1240</td>
<td>128</td>
<td>270</td>
<td>1240</td>
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</tr>
<tr>
<td>557.xz_r</td>
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<td>533</td>
</tr>
</tbody>
</table>

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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"
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
built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5

Platform Notes

The system ROM used for this result contains Intel microcode version 0x2c000261 for the Intel Xeon Max 9462 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
  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

Sysinfo program /home/cpu2017/bin/sysinfo
Rev: e6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc97bec197
running on localhost.localdomain Thu Jun 8 22:00:54 2023

SUT (System Under Test) info as seen by some common utilities.

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1. uname -a
2. w
3. Username
4. ulimit -a
5. sysinfo process ancestry
6. /proc/cpupinfo
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
14. cpupower frequency-info
15. tuned-adm active

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SPEC CPU®2017 Integer Rate Result

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Platform Notes (Continued)

16. sysctl
17. /sys/kernel/mm/transparent_hugepage
18. /sys/kernel/mm/transparent_hugepage/klargepages
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
22:00:54 up 7 min, 2 users, load average: 0.00, 0.02, 0.00
USER TTY LOGIN@ IDLE JCPU PCPU WHAT
root tty1 21:54 6:29 0.00s 0.00s -bash
root pts/0 21:54 20.00s 1.28s 0.00s -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) 2062698
 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) 2062698
 virtual memory (kbytes, -v) unlimited
 file locks (-x) unlimited

------------------------------------------------------------
5. sysinfo process ancestry
/usr/lib/systemd/systemd --switched-root --system --deserialize 18
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
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

(Continued on next page)
SPEC CPU®2017 Integer Rate Result
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CPU2017 License: 3
Test Sponsor: HPE
Tested by: HPE

Platform Notes (Continued)

--runmode rate --tune base:peak --size refrate intrate --nopreenv --note preenv --logfile
SPEC/tmp/CFU2017.001/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) CPU Max 9462
vendor_id : GenuineIntel
cpu family : 6
model : 143
stepping : 8
microcode : 0x2c000261
bugs : spectre_v1 spectre_v2 spec_store_bypass swapgs
cpu cores : 32
siblings : 64
2 physical ids (chips)
128 processors (hardware threads)
physical id 0: core ids 0-31
physical id 1: core ids 0-31
physical id 0: apicids 0-63
physical id 1: apicids 128-191
Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for virtualized systems. Use the above data carefully.

7. lscpu
From lscpu from util-linux 2.37.4:
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) CPU Max 9462
BIOS Model name: Intel (R) Xeon (R) CPU Max 9462
CPU family: 6
Model: 143
Thread(s) per core: 2
Core(s) per socket: 32
Socket(s): 2
Stepping: 8
BogoMIPS: 5400.00
Flags:

(Continued on next page)
Hewlett Packard Enterprise
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Tested by: HPE

Platform Notes (Continued)

bus_lock_detect cldemote movdiri movdir64b enqcmd farm md_clear serialize
tsxldtrk pconfig arch_lbr avx512_fp16 amx_tile flush_l1d arch_capabilities

L1d cache: 3 MiB (64 instances)
L1i cache: 2 MiB (64 instances)
L2 cache: 128 MiB (64 instances)
L3 cache: 150 MiB (2 instances)
NUMA node(s): 8
NUMA node0 CPU(s): 0-7,64-71
NUMA node1 CPU(s): 8-15,72-79
NUMA node2 CPU(s): 16-23,80-87
NUMA node3 CPU(s): 24-31,88-95
NUMA node4 CPU(s): 32-39,96-103
NUMA node5 CPU(s): 40-47,104-111
NUMA node6 CPU(s): 48-55,112-119
NUMA node7 CPU(s): 56-63,120-127
Vulnerability Itlb multihit: Not affected
Vulnerability L1f: Not affected
Vulnerability Mds: Not affected
Vulnerability Meltdown: Not affected
Vulnerability Spectre store bypass: Mitigation; Speculative Store Bypass disabled via prctl
Vulnerability Spectre v1: Mitigation; usercopy/swaps barriers and __user pointer sanitization
Vulnerability Spectre v2: Mitigation; Enhanced IBRS, IBPB conditional, RSB filling
Vulnerability Srbds: Not affected
Vulnerability Tsx async abort: Not affected

From lscpu --cache:
NAME ONE-SIZE ALL-SIZE WAYS TYPE LEVEL SETS PHY-LINE COHERENCY-SIZE
L1d 48K 3M 12 Data 1 64 1 64
L1i 32K 2M 8 Instruction 1 64 1 64
L2 2M 128M 16 Unified 2 2048 1 64
L3 75M 150M 15 Unified 3 81920 1 64

8. numactl --hardware
NOTE: a numactl 'node' might or might not correspond to a physical chip.
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Platform Notes (Continued)

node distances:

node    0   1   2   3   4   5   6   7
0:  10  17  17  17  26  26  26  26
1:  17  10  17  17  26  26  26  26
2:  17  17  10  17  26  26  26  26
3:  17  17  17  10  26  26  26  26
4:  26  26  26  26  10  17  17  17
5:  26  26  26  26  17  10  17  17
6:  26  26  26  26  17  17  10  17
7:  26  26  26  26  17  17  17  10

9. /proc/meminfo
   MemTotal:    528091496 kB

10. who -r
    run-level 3 Jun 8 21:53

11. Systemd service manager version: systemd 250 (250-6.e19_0)
    Default Target:  
    multi-user  

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

13. Linux kernel boot-time arguments, from /proc/cmdline
    BOOT_IMAGE=(hd0,gpt2)/vmlinuz-5.14.0-70.13.1.e19_0.x86_64
    root=/dev/mapper/rhel-root
    ro
    resume=/dev/mapper/rhel-swap
    rd.lvm.lv=rhel/root
    rd.lvm.lv=rhel/swap

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

(Continued on next page)
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**Platform Notes (Continued)**

```
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                      40
vm.dirty_writeback_centisecs       500
vm.dirtytime_expire_seconds        43200
vm.extr frag_threshold             500
vm.min_unmapped_ratio              1
vm.nr_hugepages                    0
vm.nr_hugepages_mempolicy          0
vm.nr_overcommit_hugepages         0
vm.swappiness                      10
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
pagem_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-home xfs   1.4T  160G  1.3T  12% /home

21. /sys/devices/virtual/dmi/id
Vendor:                  HPE
Product:                 ProLiant DL380a Gen11
Product Family:          ProLiant
Serial:                  CNX22602MZ

22. dmidecode
Additional information from dmidecode 3.3 follows. WARNING: Use caution when you interpret this section.
```

(Continued on next page)
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Platform Notes (Continued)

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:
7x Hynix HMCGB8AEBRA168N 32 GB 2 rank 4800
6x Hynix HMCGB8MEBRA113N 32 GB 2 rank 4800
3x Hynix HMCGB8MEBRA115N 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: 05/18/2023
BIOS Revision: 1.40
Firmware Revision: 1.30

Compiler Version Notes

C | 502.gcc_r(peak)

Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2023.0.0 Build 20221201
Copyright (C) 1985-2022 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)

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 | 502.gcc_r(peak)

Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2023.0.0 Build 20221201
Copyright (C) 1985-2022 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)

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, 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 2023.0.0 Build 20221201
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## SPEC CPU®2017 Integer Rate Result

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<tr>
<th>Test Sponsor:</th>
<th>HPE</th>
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<tbody>
<tr>
<td>Hardware Availability:</td>
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<tr>
<td>Software Availability:</td>
<td>Dec-2022</td>
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### Compiler Version Notes (Continued)

**Fortran | 548.exchange2_r(base, peak)**

---

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201

---

### Base Compiler Invocation

**C benchmarks:**

- icx

**C++ benchmarks:**

- icpx

**Fortran benchmarks:**

- ifx

### Base Portability Flags

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Flags</th>
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<tbody>
<tr>
<td>500.perlbench_r</td>
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<tr>
<td>502.gcc_r</td>
<td>-DSPEC_LP64</td>
</tr>
<tr>
<td>505.mcf_r</td>
<td>-DSPEC_LP64</td>
</tr>
<tr>
<td>520.omnetpp_r</td>
<td>-DSPEC_LP64</td>
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<tr>
<td>523.xalancbmk_r</td>
<td>-DSPEC_LP64 -DSPEC_LINUX</td>
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<tr>
<td>525.x264_r</td>
<td>-DSPEC_LP64</td>
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<tr>
<td>531.deepsjeng_r</td>
<td>-DSPEC_LP64</td>
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<tr>
<td>557.xz_r</td>
<td>-DSPEC_LP64</td>
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</table>

### 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`

(Continued on next page)
Hewlett Packard Enterprise
ProLiant DL380a Gen11
(2.70 GHz, Intel Xeon Max 9462)

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

SPEC CPU®2017 Integer Rate Result
Copyright 2017-2024 Standard Performance Evaluation Corporation

SPECrate®2017_int_base = 604
SPECrate®2017_int_peak = 622

HPE

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

Base Optimization Flags (Continued)

Fortran benchmarks:
-w -m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math -flto
-mfpmath=sse -funroll-loops -gopt-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

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)

(Continued on next page)
Hewlett Packard Enterprise  
(Test Sponsor: HPE)  
ProLiant DL380a Gen11  
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**SPEC CPU®2017 Integer Rate Result**  
Copyright 2017-2024 Standard Performance Evaluation Corporation  

**SPECrate®2017_int_base = 604**  
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**CPU2017 License:** 3  
**Test Sponsor:** HPE  
**Tested by:** HPE  
**Test Date:** Jun-2023  
**Hardware Availability:** Jun-2023  
**Software Availability:** Dec-2022  

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### Peak Optimization Flags (Continued)

500.perlbench_r (continued):  
- flto -Ofast -xCORE-AVX512 -ffast-math -mfpmath=sse  
- funroll-loops -qopt-mem-layout-trans=4  
- fno-strict-overflow  
- L/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin  
- lqkmalloc  

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)  
- 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/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin  
- 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-SPR-rev2.1.html  
http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.html  

You can also download the XML flags sources by saving the following links:  
http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-Intel-SPR-rev2.1.xml  
http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.xml
### SPEC CPU®2017 Integer Rate Result

**Hewlett Packard Enterprise**  
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ProLiant DL380a Gen11  
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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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