# SPEC CPU®2017 Integer Rate Result

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## Hewlett Packard Enterprise

(Test Sponsor: HPE)

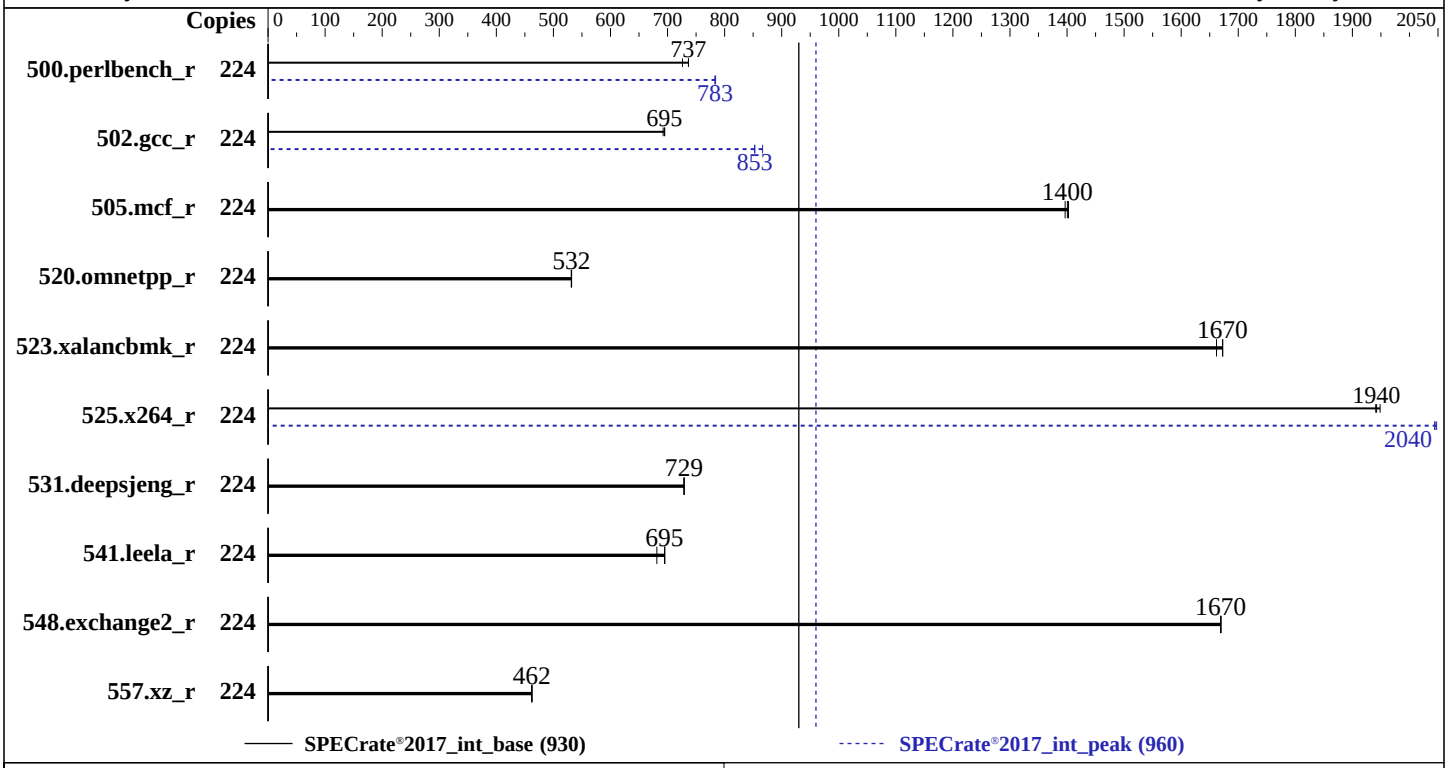
ProLiant ML350 Gen11
(2.00 GHz, Intel Xeon Platinum 8480+)

**SPECrate®2017_int_base = 930**

**SPECrate®2017_int_peak = 960**

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

**Test Date:** Nov-2022
**Hardware Availability:** Jan-2023
**Software Availability:** May-2022




## Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon Platinum 8480+ |
| Max MHz: | 3800 |
| Nominal: | 2000 |
| Enabled: | 112 cores, 2 chips, 2 threads/core |
| Orderable: | 1, 2 chip(s) |
| Cache L1: | 32 KB I + 48 KB D on chip per core |
| L2: | 2 MB I+D on chip per core |
| L3: | 105 MB I+D on chip per chip |
| Other: | None |
| Memory: | 1 TB (16 x 64 GB 2Rx4 PC5-4800B-R) |
| Storage: | 1 x 480 GB SATA SSD |
| Other: | None |

## Software

| | |
|---|---|
| OS: | Red Hat Enterprise Linux release 9.0 (Plow)<br>Kernel 5.14.0-70.13.1.el9_0.x86_64 |
| Compiler: | C/C++: Version 2022.1 of Intel oneAPI DPC++/C++ Compiler for Linux;<br>Fortran: Version 2022.1 of Intel Fortran Compiler for Linux; |
| Parallel: | No |
| Firmware: | HPE BIOS Version v1.20 11/24/2022 released Nov-2022 |
| File System: | xfs |
| 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 and OS set to prefer performance at the cost of additional power usage |

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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 | 224 | **484** | **737** | 491 | 726 | 484 | 737 | 224 | **455** | **783** | 455 | 783 | 455 | 784 |
| 502.gcc_r | 224 | 456 | 695 | **456** | **695** | 458 | 692 | 224 | 366 | 867 | 372 | 853 | **372** | **853** |
| 505.mcf_r | 224 | 258 | 1400 | 259 | 1400 | **258** | **1400** | 224 | 258 | 1400 | 259 | 1400 | **258** | **1400** |
| 520.omnetpp_r | 224 | **553** | **532** | 553 | 532 | 553 | 531 | 224 | **553** | **532** | 553 | 532 | 553 | 531 |
| 523.xalancbmk_r | 224 | **141** | **1670** | 142 | 1660 | 141 | 1670 | 224 | **141** | **1670** | 142 | 1660 | 141 | 1670 |
| 525.x264_r | 224 | **202** | **1940** | 201 | 1950 | 202 | 1940 | 224 | 192 | 2040 | 192 | 2050 | **192** | **2040** |
| 531.deepsjeng_r | 224 | **352** | **729** | 352 | 729 | 352 | 729 | 224 | **352** | **729** | 352 | 729 | 352 | 729 |
| 541.leela_r | 224 | 544 | 681 | **534** | **695** | 534 | 695 | 224 | 544 | 681 | **534** | **695** | 534 | 695 |
| 548.exchange2_r | 224 | 352 | 1670 | 351 | 1670 | **352** | **1670** | 224 | 352 | 1670 | 351 | 1670 | **352** | **1670** |
| 557.xz_r | 224 | 523 | 463 | 524 | 462 | **523** | **462** | 224 | 523 | 463 | 524 | 462 | **523** | **462** |

**SPECrate®2017_int_base = 930**

**SPECrate®2017_int_peak = 960**

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>
IRQ balance service was stopped using "systemctl stop irqbalance.service"
tuned-adm profile was set to Accelerator-Performance using "tuned-adm profile accelerator-performance"
perf-bias for all the CPUs is set using "cpupower set -b 0"
```

## 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
 sources available from jemalloc.net or https://github.com/jemalloc/jemalloc/releases
```

## Platform Notes

```
The system ROM used for this result contains Intel microcode version 0x2b000111 for
the Intel Xeon Platinum 8480+ processor.
BIOS Configuration:
 Workload Profile set to General Throughput Compute
 Thermal Configuration set to Maximum Cooling
 Enhanced Processor Performance Profile set to Aggressive
 Last-Level Cache (LLC) Dead Line Allocation set to Disabled
 Intel UPI Link Enablement set to Single Link
 D2K set to Disabled
 Workload Profile set to Custom
  DCU Stream Prefetcher set to Disabled
  Adjacent Sector Prefetch 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: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acafc64d
 running on localhost.localdomain Wed Nov 30 19:49:29 2022

 SUT (System Under Test) info as seen by some common utilities.
 For more information on this section, see
    https://www.spec.org/cpu2017/Docs/config.html#sysinfo

 From /proc/cpuinfo
    model name : Intel(R) Xeon(R) Platinum 8480+
       2  "physical id"s (chips)
       224 "processors"
    cores, siblings (Caution: counting these is hw and system dependent. The following
    excerpts from /proc/cpuinfo might not be reliable.  Use with caution.)
       cpu cores : 56
       siblings  : 112
       physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
       25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52
       53 54 55
       physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
       25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52
       53 54 55
```

**(Continued on next page)**

## Platform Notes (Continued)

```
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):                          224
      On-line CPU(s) list:             0-223
      Vendor ID:                       GenuineIntel
      BIOS Vendor ID:                  Intel(R) Corporation
      Model name:                      Intel(R) Xeon(R) Platinum 8480+
      BIOS Model name:                 Intel(R) Xeon(R) Platinum 8480+
      CPU family:                      6
      Model:                           143
      Thread(s) per core:              2
      Core(s) per socket:              56
      Socket(s):                       2
      Stepping:                        6
      BogoMIPS:                        4000.00
      Flags:                           fpu vme de pse tsc msr pae mce cx8 apic sep mtrr
      pge mca cmov pat pse36 clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx
      pdpe1gb rdtscp lm constant_tsc art arch_perfmon pebs bts rep_good nopl xtopology
      nonstop_tsc cpuid aperfmperf tsc_known_freq pni pclmulqdq dtes64 monitor ds_cpl vmx
      smx est tm2 ssse3 sdbg fma cx16 xtpr pdcm pcid dca sse4_1 sse4_2 x2apic movbe popcnt
      tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abm 3dnowprefetch cpuid_fault
      epb cat_l3 cat_l2 cdp_l3 invpcid_single cdp_l2 ssbd mba ibrs ibpb stibp
      ibrs_enhanced tpr_shadow vnmi flexpriority ept vpid ept_ad fsgsbase tsc_adjust bmi1
      avx2 smep bmi2 erms invpcid cqm rdt_a avx512f avx512dq rdseed adx smap avx512ifma
      clflushopt clwb intel_pt avx512cd sha_ni avx512bw avx512vl xsaveopt xsavec xgetbv1
      xsaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local split_lock_detect avx_vnni
      avx512_bf16 wbnoinvd dtherm ida arat pln pts avx512vbmi umip pku ospke waitpkg
      avx512_vbmi2 gfni vaes vpclmulqdq avx512_vnni avx512_bitalg tme avx512_vpopcntdq
      la57 rdpid bus_lock_detect cldemote movdiri movdir64b enqcmd fsrm md_clear serialize
      tsxldtrk pconfig arch_lbr avx512_fp16 amx_tile flush_l1d arch_capabilities
      Virtualization:                  VT-x
      L1d cache:                       5.3 MiB (112 instances)
      L1i cache:                       3.5 MiB (112 instances)
      L2 cache:                        224 MiB (112 instances)
      L3 cache:                        210 MiB (2 instances)
      NUMA node(s):                    8
      NUMA node0 CPU(s):               0-13,112-125
      NUMA node1 CPU(s):               14-27,126-139
      NUMA node2 CPU(s):               28-41,140-153
      NUMA node3 CPU(s):               42-55,154-167
      NUMA node4 CPU(s):               56-69,168-181
      NUMA node5 CPU(s):               70-83,182-195
      NUMA node6 CPU(s):               84-97,196-209
      NUMA node7 CPU(s):               98-111,210-223
      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; Enhanced IBRS, IBPB conditional, RSB
      filling
      Vulnerability Srbds:             Not affected
      Vulnerability Tsx async abort:   Not affected
```

**(Continued on next page)**

## Platform Notes (Continued)

```
From lscpu --cache:
     NAME ONE-SIZE ALL-SIZE WAYS TYPE        LEVEL   SETS PHY-LINE COHERENCY-SIZE
     L1d       48K     5.3M   12 Data            1     64        1             64
     L1i       32K     3.5M    8 Instruction     1     64        1             64
     L2         2M     224M   16 Unified         2   2048        1             64
     L3       105M     210M   15 Unified         3 114688        1             64

/proc/cpuinfo cache data
   cache size : 107520 KB

From numactl --hardware
WARNING: a numactl 'node' might or might not correspond to a physical chip.
  available: 8 nodes (0-7)
  node 0 cpus: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 112 113 114 115 116 117 118 119 120 121
  122 123 124 125
  node 0 size: 128730 MB
  node 0 free: 127658 MB
  node 1 cpus: 14 15 16 17 18 19 20 21 22 23 24 25 26 27 126 127 128 129 130 131 132 133
  134 135 136 137 138 139
  node 1 size: 129017 MB
  node 1 free: 128386 MB
  node 2 cpus: 28 29 30 31 32 33 34 35 36 37 38 39 40 41 140 141 142 143 144 145 146 147
  148 149 150 151 152 153
  node 2 size: 129017 MB
  node 2 free: 128358 MB
  node 3 cpus: 42 43 44 45 46 47 48 49 50 51 52 53 54 55 154 155 156 157 158 159 160 161
  162 163 164 165 166 167
  node 3 size: 129017 MB
  node 3 free: 128328 MB
  node 4 cpus: 56 57 58 59 60 61 62 63 64 65 66 67 68 69 168 169 170 171 172 173 174 175
  176 177 178 179 180 181
  node 4 size: 129017 MB
  node 4 free: 128567 MB
  node 5 cpus: 70 71 72 73 74 75 76 77 78 79 80 81 82 83 182 183 184 185 186 187 188 189
  190 191 192 193 194 195
  node 5 size: 129017 MB
  node 5 free: 128592 MB
  node 6 cpus: 84 85 86 87 88 89 90 91 92 93 94 95 96 97 196 197 198 199 200 201 202 203
  204 205 206 207 208 209
  node 6 size: 128981 MB
  node 6 free: 128499 MB
  node 7 cpus: 98 99 100 101 102 103 104 105 106 107 108 109 110 111 210 211 212 213 214
  215 216 217 218 219 220 221 222 223
  node 7 size: 128998 MB
  node 7 free: 128542 MB
  node distances:
  node   0   1   2   3   4   5   6   7
    0:  10  20  30  30  30  30  30  30
    1:  20  10  30  30  30  30  30  30
    2:  30  30  10  20  30  30  30  30
    3:  30  30  20  10  30  30  30  30
    4:  30  30  30  30  10  20  30  30
    5:  30  30  30  30  20  10  30  30
    6:  30  30  30  30  30  30  10  20
    7:  30  30  30  30  30  30  20  10

From /proc/meminfo
   MemTotal:       1056563552 kB
   HugePages_Total:       0
```

**(Continued on next page)**

## Platform Notes (Continued)

```
   Hugepagesize:       2048 kB

 /sbin/tuned-adm active
     Current active profile: accelerator-performance

 From /etc/*release* /etc/*version*
    os-release:
       NAME="Red Hat Enterprise Linux"
       VERSION="9.0 (Plow)"
       ID="rhel"
       ID_LIKE="fedora"
       VERSION_ID="9.0"
       PLATFORM_ID="platform:el9"
       PRETTY_NAME="Red Hat Enterprise Linux 9.0 (Plow)"
       ANSI_COLOR="0;31"
    redhat-release: Red Hat Enterprise Linux release 9.0 (Plow)
    system-release: Red Hat Enterprise Linux release 9.0 (Plow)
    system-release-cpe: cpe:/o:redhat:enterprise_linux:9::baseos

 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

 Kernel self-reported vulnerability status:

 CVE-2018-12207 (iTLB Multihit):                        Not affected
 CVE-2018-3620 (L1 Terminal Fault):                     Not affected
 Microarchitectural Data Sampling:                      Not affected
 CVE-2017-5754 (Meltdown):                              Not affected
 CVE-2018-3639 (Speculative Store Bypass):              Mitigation: Speculative Store
                                                        Bypass disabled via prctl
 CVE-2017-5753 (Spectre variant 1):                     Mitigation: usercopy/swapgs
                                                        barriers and __user pointer
                                                        sanitization
 CVE-2017-5715 (Spectre variant 2):                     Mitigation: Enhanced IBRS, IBPB:
                                                        conditional, RSB filling
 CVE-2020-0543 (Special Register Buffer Data Sampling): Not affected
 CVE-2019-11135 (TSX Asynchronous Abort):               Not affected

 run-level 3 Nov 30 19:48

 SPEC is set to: /home/cpu2017
    Filesystem            Type  Size  Used Avail Use% Mounted on
    /dev/mapper/rhel-home xfs   372G  148G  224G  40% /home

 From /sys/devices/virtual/dmi/id
     Vendor:         HPE
     Product:        ProLiant ML350 Gen11
     Product Family: ProLiant
     Serial:         CNX20800P4

 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 M321R8GA0BB0-CQKDG 64 GB 2 rank 4800

 BIOS:
    BIOS Vendor:       HPE
```

**(Continued on next page)**

## Platform Notes (Continued)

```
    BIOS Version:      1.20
    BIOS Date:         11/24/2022
    BIOS Revision:     1.20
    Firmware Revision: 1.20

 (End of data from sysinfo program)
```

## Compiler Version Notes

```
==============================================================================================================
C       | 502.gcc_r(peak)
--------------------------------------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2022.1.0 Build 20220316
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 2022.1.0 Build 20220316
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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 2022.1.0 Build 20220316
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
--------------------------------------------------------------------------------------------------------------

==============================================================================================================
Fortran | 548.exchange2_r(base, peak)
--------------------------------------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2022.1.0 Build 20220316
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
--------------------------------------------------------------------------------------------------------------
```

## Base Compiler Invocation

C benchmarks:
icx

C++ benchmarks:
icpx

Fortran benchmarks:
ifx

## Base Portability Flags

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

## Base Optimization Flags

C benchmarks:
-w -std=c11 -m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-L/usr/local/intel/compiler/2022.1.0/linux/compiler/lib/intel64_lin
-lqkmalloc

C++ benchmarks:
-w -m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-L/usr/local/intel/compiler/2022.1.0/linux/compiler/lib/intel64_lin
-lqkmalloc

Fortran benchmarks:
-w -m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte -auto
-L/usr/local/intel/compiler/2022.1.0/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-AVX512
-Ofast -ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fno-strict-overflow
-L/usr/local/intel/compiler/2022.1.0/linux/compiler/lib/intel64_lin
-lqkmalloc

502.gcc_r: -m32
-L/usr/local/intel/compiler/2022.1.0/linux/compiler/lib/ia32_lin
-std=gnu89 -Wl,-z,muldefs -fprofile-generate(pass 1)
-fprofile-use=default.profdata(pass 2) -xCORE-AVX512
-Ofast -ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -L/usr/local/jemalloc32-5.0.1/lib
-ljemalloc

**(Continued on next page)**

## Peak Optimization Flags (Continued)

505.mcf_r: `basepeak = yes`

525.x264_r: `-w -std=c11 -m64 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math -flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fno-alias -L/usr/local/intel/compiler/2022.1.0/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-rev1.1.html`
`http://www.spec.org/cpu2017/flags/Intel-ic2022-official-linux64_revA.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-rev1.1.xml`
`http://www.spec.org/cpu2017/flags/Intel-ic2022-official-linux64_revA.xml`


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

Tested with SPEC CPU®2017 v1.1.8 on 2022-11-30 09:19:28-0500.
Report generated on 2024-01-29 17:15:03 by CPU2017 PS formatter v6716.
Originally published on 2023-01-10.