SPEC CPU®2017 Integer Rate Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

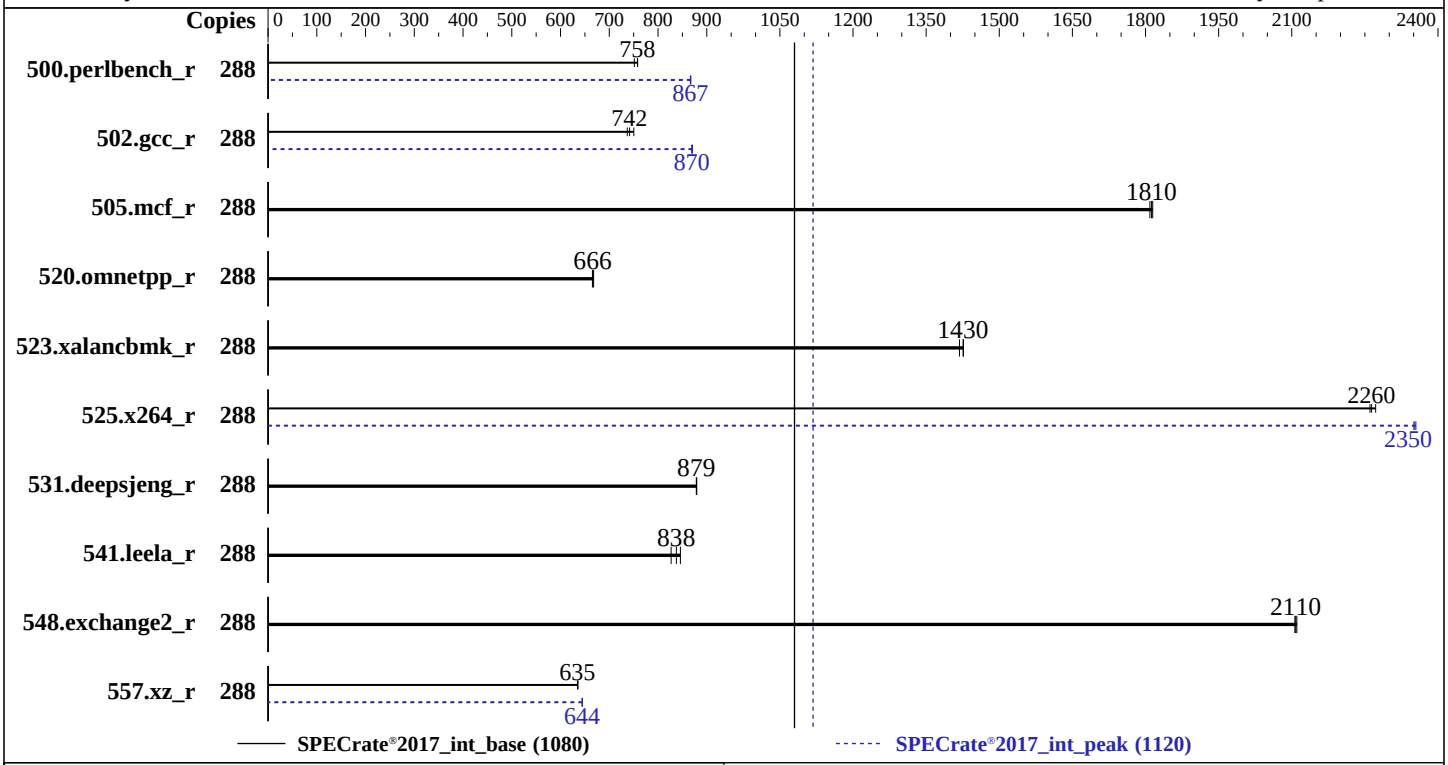
Superdome Flex 280
(3.10 GHz, Intel Xeon Platinum 8354H)

SPECrate®2017_int_base = 1080

SPECrate®2017_int_peak = 1120

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

Test Date: Nov-2020
Hardware Availability: Nov-2020
Software Availability: Apr-2020



Hardware

CPU Name:	Intel Xeon Platinum 8354H
Max MHz:	4300
Nominal:	3100
Enabled:	144 cores, 8 chips, 2 threads/core
Orderable:	2, 4, 8 chip(s)
Cache L1:	32 KB I + 32 KB D on chip per core
L2:	1 MB I+D on chip per core
L3:	24.75 MB I+D on chip per chip
Other:	None
Memory:	6 TB (48 x 128 GB 4Rx4 PC4-3200AA-L)
Storage:	2 x 480 GB SSD SATA
Other:	None

Software

OS:	Red Hat Enterprise Linux release 8.2 (Ootpa) Kernel 4.18.0-193.el8.x86_64
Compiler:	C/C++: Version 19.1.1.217 of Intel C/C++ Compiler Build 20200306 for Linux; Fortran: Version 19.1.1.217 of Intel Fortran Compiler Build 20200306 for Linux;
Parallel:	No
Firmware:	HPE Firmware Bundle Version 1.0.142 released Oct-2020
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 HPE Foundation Software 2.4, Build 734.0820.200723T0100.a.rhel82hpe-200723T0100
Power Management:	BIOS set to prefer performance at the cost of additional power usage

SPEC CPU®2017 Integer Rate Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise
(Test Sponsor: HPE)
Superdome Flex 280
(3.10 GHz, Intel Xeon Platinum 8354H)

SPECrate®2017_int_base = 1080

SPECrate®2017_int_peak = 1120

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

Test Date: Nov-2020
Hardware Availability: Nov-2020
Software Availability: Apr-2020

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	288	610	751	605	758	**605**	**758**	288	529	866	**529**	**867**	529	867
502.gcc_r	288	**550**	**742**	553	737	543	750	288	**469**	**870**	469	869	468	871
505.mcf_r	288	**257**	**1810**	256	1810	257	1810	288	**257**	**1810**	256	1810	257	1810
520.omnetpp_r	288	566	668	**567**	**666**	568	665	288	566	668	**567**	**666**	568	665
523.xalancbmk_r	288	213	1430	**213**	**1430**	214	1420	288	213	1430	**213**	**1430**	214	1420
525.x264_r	288	223	2260	**223**	**2260**	222	2270	288	214	2350	**214**	**2350**	215	2350
531.deepsjeng_r	288	**376**	**879**	375	879	376	879	288	**376**	**879**	375	879	376	879
541.leela_r	288	577	827	564	846	**569**	**838**	288	577	827	564	846	**569**	**838**
548.exchange2_r	288	**358**	**2110**	358	2110	358	2110	288	**358**	**2110**	358	2110	358	2110
557.xz_r	288	490	635	**490**	**635**	489	636	288	**483**	**644**	482	645	483	644

SPECrate®2017_int_base = 1080

SPECrate®2017_int_peak = 1120

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

Compiler Notes

```
The inconsistent Compiler version information under Compiler Version section is due to a discrepancy in Intel Compiler.
The correct version of C/C++ compiler is: Version 19.1.1.217 Build 20200306 Compiler for Linux
The correct version of Fortran compiler is: Version 19.1.1.217 Build 20200306 Compiler for Linux
```

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>
Tuned-adm profile was set to Throughput-Performance using "tuned-adm profile throughput-performance"
```

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-
```

(Continued on next page)

Environment Variables Notes (Continued)

```
     32"
MALLOC_CONF = "retain:true"
```

General Notes

```
Binaries compiled on a system with 1x Intel Core i9-7980XE CPU + 64GB RAM
memory using Redhat Enterprise Linux 8.0
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

```
BIOS Configuration:
 Workload Profile set to HPC
 Workload Profile set to Custom
  Minimum Processor Idle Power Core C-State set to C6 State
  Sub-NUMA Clustering set to Enabled
  DCU Stream Prefetcher set to Disabled

Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r6365 of 2019-08-21 295195f888a3d7edb1e6e46a485a0011
running on ch-622.fchst.rdlabs.hpecorp.net Fri Nov 13 08:02:41 2020

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 8354H CPU @ 3.10GHz
      8  "physical id"s (chips)
      288 "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 : 18
      siblings  : 36
      physical 0: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 1: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 2: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
```

(Continued on next page)

Platform Notes (Continued)

```
      physical 3: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 4: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 5: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 6: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 7: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27

 From lscpu:
      Architecture:          x86_64
      CPU op-mode(s):        32-bit, 64-bit
      Byte Order:            Little Endian
      CPU(s):                288
      On-line CPU(s) list:   0-287
      Thread(s) per core:    2
      Core(s) per socket:    18
      Socket(s):             8
      NUMA node(s):          16
      Vendor ID:             GenuineIntel
      CPU family:            6
      Model:                 85
      Model name:            Intel(R) Xeon(R) Platinum 8354H CPU @ 3.10GHz
      Stepping:              11
      CPU MHz:               4014.343
      CPU max MHz:           4300.0000
      CPU min MHz:           1000.0000
      BogoMIPS:              6199.96
      Virtualization:        VT-x
      L1d cache:             32K
      L1i cache:             32K
      L2 cache:              1024K
      L3 cache:              25344K
      NUMA node0 CPU(s):     0-2,5,6,9,10,14,15,144-146,149,150,153,154,158,159
      NUMA node1 CPU(s):     3,4,7,8,11-13,16,17,147,148,151,152,155-157,160,161
      NUMA node2 CPU(s):     18-20,23,24,27,28,32,33,162-164,167,168,171,172,176,177
      NUMA node3 CPU(s):     21,22,25,26,29-31,34,35,165,166,169,170,173-175,178,179
      NUMA node4 CPU(s):     36-38,41,42,45,46,50,51,180-182,185,186,189,190,194,195
      NUMA node5 CPU(s):     39,40,43,44,47-49,52,53,183,184,187,188,191-193,196,197
      NUMA node6 CPU(s):     54-56,59,60,63,64,68,69,198-200,203,204,207,208,212,213
      NUMA node7 CPU(s):     57,58,61,62,65-67,70,71,201,202,205,206,209-211,214,215
      NUMA node8 CPU(s):     72-74,77,78,81,82,86,87,216-218,221,222,225,226,230,231
      NUMA node9 CPU(s):     75,76,79,80,83-85,88,89,219,220,223,224,227-229,232,233
      NUMA node10 CPU(s):    90-92,95,96,99,100,104,105,234-236,239,240,243,244,248,249
      NUMA node11 CPU(s):    93,94,97,98,101-103,106,107,237,238,241,242,245-247,250,251
      NUMA node12 CPU(s):    108-110,113,114,117,118,122,123,252-254,257,258,261,262,266,267
      NUMA node13 CPU(s):    111,112,115,116,119-121,124,125,255,256,259,260,263-265,268,269
      NUMA node14 CPU(s):    126-128,131,132,135,136,140,141,270-272,275,276,279,280,284,285
      NUMA node15 CPU(s):    129,130,133,134,137-139,142,143,273,274,277,278,281-283,286,287
      Flags:                 fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov
```

(Continued on next page)

Platform Notes (Continued)

```
      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 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 cdp_l3
      invpcid_single intel_ppin ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow vnmi
      flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm
      cqm mpx rdt_a avx512f avx512dq rdseed adx smap clflushopt clwb intel_pt avx512cd
      avx512bw avx512vl xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total
      cqm_mbm_local avx512_bf16 dtherm ida arat pln pts pku ospke avx512_vnni md_clear
      flush_l1d arch_capabilities

 /proc/cpuinfo cache data
    cache size : 25344 KB

 From numactl --hardware  WARNING: a numactl 'node' might or might not correspond to a
 physical chip.
   available: 16 nodes (0-15)
   node 0 cpus: 0 1 2 5 6 9 10 14 15 144 145 146 149 150 153 154 158 159
   node 0 size: 385549 MB
   node 0 free: 385298 MB
   node 1 cpus: 3 4 7 8 11 12 13 16 17 147 148 151 152 155 156 157 160 161
   node 1 size: 387067 MB
   node 1 free: 386965 MB
   node 2 cpus: 18 19 20 23 24 27 28 32 33 162 163 164 167 168 171 172 176 177
   node 2 size: 387067 MB
   node 2 free: 386957 MB
   node 3 cpus: 21 22 25 26 29 30 31 34 35 165 166 169 170 173 174 175 178 179
   node 3 size: 387067 MB
   node 3 free: 386963 MB
   node 4 cpus: 36 37 38 41 42 45 46 50 51 180 181 182 185 186 189 190 194 195
   node 4 size: 387067 MB
   node 4 free: 386866 MB
   node 5 cpus: 39 40 43 44 47 48 49 52 53 183 184 187 188 191 192 193 196 197
   node 5 size: 387067 MB
   node 5 free: 386006 MB
   node 6 cpus: 54 55 56 59 60 63 64 68 69 198 199 200 203 204 207 208 212 213
   node 6 size: 387067 MB
   node 6 free: 386976 MB
   node 7 cpus: 57 58 61 62 65 66 67 70 71 201 202 205 206 209 210 211 214 215
   node 7 size: 387040 MB
   node 7 free: 386938 MB
   node 8 cpus: 72 73 74 77 78 81 82 86 87 216 217 218 221 222 225 226 230 231
   node 8 size: 387067 MB
   node 8 free: 386978 MB
   node 9 cpus: 75 76 79 80 83 84 85 88 89 219 220 223 224 227 228 229 232 233
   node 9 size: 387067 MB
```

(Continued on next page)

Platform Notes (Continued)

```
   node 9 free: 386965 MB
   node 10 cpus: 90 91 92 95 96 99 100 104 105 234 235 236 239 240 243 244 248 249
   node 10 size: 387067 MB
   node 10 free: 386973 MB
   node 11 cpus: 93 94 97 98 101 102 103 106 107 237 238 241 242 245 246 247 250 251
   node 11 size: 387067 MB
   node 11 free: 386967 MB
   node 12 cpus: 108 109 110 113 114 117 118 122 123 252 253 254 257 258 261 262 266 267
   node 12 size: 387067 MB
   node 12 free: 386940 MB
   node 13 cpus: 111 112 115 116 119 120 121 124 125 255 256 259 260 263 264 265 268 269
   node 13 size: 387067 MB
   node 13 free: 386978 MB
   node 14 cpus: 126 127 128 131 132 135 136 140 141 270 271 272 275 276 279 280 284 285
   node 14 size: 387067 MB
   node 14 free: 386973 MB
   node 15 cpus: 129 130 133 134 137 138 139 142 143 273 274 277 278 281 282 283 286 287
   node 15 size: 386035 MB
   node 15 free: 385942 MB
   node distances:
   node   0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15
     0:  10  13  16  16  16  16  24  24  16  16  16  16  16  16  16  16
     1:  13  10  16  16  16  16  24  24  16  16  16  16  16  16  16  16
     2:  16  16  10  13  24  24  16  16  16  16  16  16  16  16  16  16
     3:  16  16  13  10  24  24  16  16  16  16  16  16  16  16  16  16
     4:  16  16  24  24  10  13  16  16  16  16  16  16  16  16  16  16
     5:  16  16  24  24  13  10  16  16  16  16  16  16  16  16  16  16
     6:  24  24  16  16  16  16  10  13  16  16  16  16  16  16  16  16
     7:  24  24  16  16  16  16  13  10  16  16  16  16  16  16  16  16
     8:  16  16  16  16  16  16  16  16  10  13  16  16  16  16  24  24
     9:  16  16  16  16  16  16  16  16  13  10  16  16  16  16  24  24
    10:  16  16  16  16  16  16  16  16  16  16  10  13  24  24  16  16
    11:  16  16  16  16  16  16  16  16  16  16  13  10  24  24  16  16
    12:  16  16  16  16  16  16  16  16  16  16  24  24  10  13  16  16
    13:  16  16  16  16  16  16  16  16  16  16  24  24  13  10  16  16
    14:  16  16  16  16  16  16  16  16  24  24  16  16  16  16  10  13
    15:  16  16  16  16  16  16  16  16  24  24  16  16  16  16  13  10

 From /proc/meminfo
    MemTotal:       6339075760 kB
    HugePages_Total:       0
    Hugepagesize:       2048 kB

 /usr/bin/lsb_release -d
    Red Hat Enterprise Linux release 8.2 (Ootpa)

 From /etc/*release* /etc/*version*
```

(Continued on next page)

Platform Notes (Continued)

```
    hpe-foundation-release: HPE Foundation Software 2.4, Build
    734.0820.200723T0100.a.rhel82hpe-200723T0100
    os-release:
       NAME="Red Hat Enterprise Linux"
       VERSION="8.2 (Ootpa)"
       ID="rhel"
       ID_LIKE="fedora"
       VERSION_ID="8.2"
       PLATFORM_ID="platform:el8"
       PRETTY_NAME="Red Hat Enterprise Linux 8.2 (Ootpa)"
       ANSI_COLOR="0;31"
    redhat-release: Red Hat Enterprise Linux release 8.2 (Ootpa)
    system-release: Red Hat Enterprise Linux release 8.2 (Ootpa)
    system-release-cpe: cpe:/o:redhat:enterprise_linux:8.2:ga

  uname -a:
     Linux ch-622.fchst.rdlabs.hpecorp.net 4.18.0-193.el8.x86_64 #1 SMP Fri Mar 27 14:35:58
     UTC 2020 x86_64 x86_64 x86_64 GNU/Linux

  Kernel self-reported vulnerability status:

  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 and seccomp
  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
  tsx_async_abort:                          Not affected

  run-level 3 Nov 13 07:58

  SPEC is set to: /home/cpu2017
     Filesystem           Type  Size  Used Avail Use% Mounted on
     /dev/mapper/rhel-home xfs   392G   29G  363G   8% /home

  From /sys/devices/virtual/dmi/id
      BIOS:    HPE Bundle:1.0.142 SFW:008.000.189.000.2010080501 10/08/2020
      Vendor:  HPE
      Product: Superdome Flex 280
      Product Family: 1590PID02020001
      Serial:  5UF0090539

  Additional information from dmidecode follows.  WARNING: Use caution when you interpret
```

(Continued on next page)

Platform Notes (Continued)

```
 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:
     48x Hynix HMABAGL7ABR4N-XN 128 GB 4 rank 3200
     48x NO DIMM NO DIMM

 (End of data from sysinfo program)
```

Compiler Version Notes

```
==============================================================================
C       | 502.gcc_r(peak)
------------------------------------------------------------------------------
Intel(R) C Compiler for applications running on IA-32, Version 2021.1 NextGen
  Build 20200304
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------

==============================================================================
C       | 500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base, peak)
        | 525.x264_r(base, peak) 557.xz_r(base)
------------------------------------------------------------------------------
Intel(R) C Compiler for applications running on Intel(R) 64, Version 2021.1
  NextGen Build 20200304
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------

==============================================================================
C       | 500.perlbench_r(peak) 557.xz_r(peak)
------------------------------------------------------------------------------
Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
  Version 19.1.1.217 Build 20200306
Copyright (C) 1985-2020 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------

==============================================================================
C       | 502.gcc_r(peak)
------------------------------------------------------------------------------
Intel(R) C Compiler for applications running on IA-32, Version 2021.1 NextGen
  Build 20200304
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------

==============================================================================
C       | 500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base, peak)
```

(Continued on next page)

Compiler Version Notes (Continued)

```
        | 525.x264_r(base, peak) 557.xz_r(base)
------------------------------------------------------------------------------
Intel(R) C Compiler for applications running on Intel(R) 64, Version 2021.1
  NextGen Build 20200304
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------

==============================================================================
C       | 500.perlbench_r(peak) 557.xz_r(peak)
------------------------------------------------------------------------------
Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
  Version 19.1.1.217 Build 20200306
Copyright (C) 1985-2020 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------

==============================================================================
C       | 502.gcc_r(peak)
------------------------------------------------------------------------------
Intel(R) C Compiler for applications running on IA-32, Version 2021.1 NextGen
  Build 20200304
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------

==============================================================================
C       | 500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base, peak)
        | 525.x264_r(base, peak) 557.xz_r(base)
------------------------------------------------------------------------------
Intel(R) C Compiler for applications running on Intel(R) 64, Version 2021.1
  NextGen Build 20200304
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------

==============================================================================
C       | 500.perlbench_r(peak) 557.xz_r(peak)
------------------------------------------------------------------------------
Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
  Version 19.1.1.217 Build 20200306
Copyright (C) 1985-2020 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) C++ Compiler for applications running on Intel(R) 64, Version 2021.1
  NextGen Build 20200304
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
```

(Continued on next page)

Compiler Version Notes (Continued)

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

==============================================================================
Fortran | 548.exchange2_r(base, peak)
------------------------------------------------------------------------------
Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)
  64, Version 19.1.1.217 Build 20200306
Copyright (C) 1985-2020 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
icc

C++ benchmarks:
icpc

Fortran benchmarks:
ifort

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:
-m64 -qnextgen -std=c11
-Wl,-plugin-opt=-x86-branches-within-32B-boundaries -Wl,-z,muldefs
-xCORE-AVX512 -O3 -ffast-math -flto -mfpmath=sse -funroll-loops
-fuse-ld=gold -qopt-mem-layout-trans=4

(Continued on next page)

Base Optimization Flags (Continued)

C benchmarks (continued):
-L/usr/local/IntelCompiler19/compilers_and_libraries_2020.1.217/linux/compiler/lib/intel64_lin
-lqkmalloc

C++ benchmarks:
-m64 -qnextgen -Wl,-plugin-opt=-x86-branches-within-32B-boundaries
-Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -flto -mfpmath=sse
-funroll-loops -fuse-ld=gold -qopt-mem-layout-trans=4
-L/usr/local/IntelCompiler19/compilers_and_libraries_2020.1.217/linux/compiler/lib/intel64_lin
-lqkmalloc

Fortran benchmarks:
-m64 -Wl,-plugin-opt=-x86-branches-within-32B-boundaries -Wl,-z,muldefs
-xCORE-AVX512 -O3 -ipo -no-prec-div -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte -auto
-mbranches-within-32B-boundaries
-L/usr/local/IntelCompiler19/compilers_and_libraries_2020.1.217/linux/compiler/lib/intel64_lin
-lqkmalloc

Peak Compiler Invocation

C benchmarks:
icc

C++ benchmarks:
icpc

Fortran benchmarks:
ifort

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

(Continued on next page)

Peak Portability Flags (Continued)

557.xz_r: -DSPEC_LP64

Peak Optimization Flags

C benchmarks:

500.perlbench_r: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2)
-xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=4 -fno-strict-overflow
-mbranches-within-32B-boundaries
-L/usr/local/IntelCompiler19/compilers_and_libraries_2020.1.217/linux/compiler/lib/intel64_lin
-lqkmalloc

502.gcc_r: -m32
-L/usr/local/IntelCompiler19/compilers_and_libraries_2020.1.217/linux/compiler/lib/ia32_lin
-std=gnu89
-Wl,-plugin-opt=-x86-branches-within-32B-boundaries
-Wl,-z,muldefs -fprofile-generate(pass 1)
-fprofile-use=default.profdata(pass 2) -xCORE-AVX512 -flto
-Ofast(pass 1) -O3 -ffast-math -qnextgen -fuse-ld=gold
-qopt-mem-layout-trans=4 -L/usr/local/jemalloc32-5.0.1/lib
-ljemalloc

505.mcf_r: basepeak = yes

525.x264_r: -m64 -qnextgen -std=c11
-Wl,-plugin-opt=-x86-branches-within-32B-boundaries
-Wl,-z,muldefs -xCORE-AVX512 -flto -O3 -ffast-math
-fuse-ld=gold -qopt-mem-layout-trans=4 -fno-alias
-L/usr/local/IntelCompiler19/compilers_and_libraries_2020.1.217/linux/compiler/lib/intel64_lin
-lqkmalloc

557.xz_r: -Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=4 -mbranches-within-32B-boundaries
-L/usr/local/IntelCompiler19/compilers_and_libraries_2020.1.217/linux/compiler/lib/intel64_lin
-lqkmalloc

C++ benchmarks:

520.omnetpp_r: basepeak = yes

523.xalancbmk_r: basepeak = yes

(Continued on next page)

Peak Optimization Flags (Continued)

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-V1.3-CLX-revC.html`
`http://www.spec.org/cpu2017/flags/Intel-ic19.1u1-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-V1.3-CLX-revC.xml`
`http://www.spec.org/cpu2017/flags/Intel-ic19.1u1-official-linux64_revA.xml`

SPEC CPU and SPECrate are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEC CPU®2017 v1.1.0 on 2020-11-12 21:32:41-0500.
Report generated on 2020-12-08 17:13:31 by CPU2017 PS formatter v6255.
Originally published on 2020-12-08.