SPEC CPU®2017 Integer Rate Result

Dell Inc.

SPECrate®2017_int_base = 215

PowerEdge C6420 (Intel Xeon Gold 6138, 2.00 GHz)

$SPECrate^{®}2017\_int\_peak = 223$
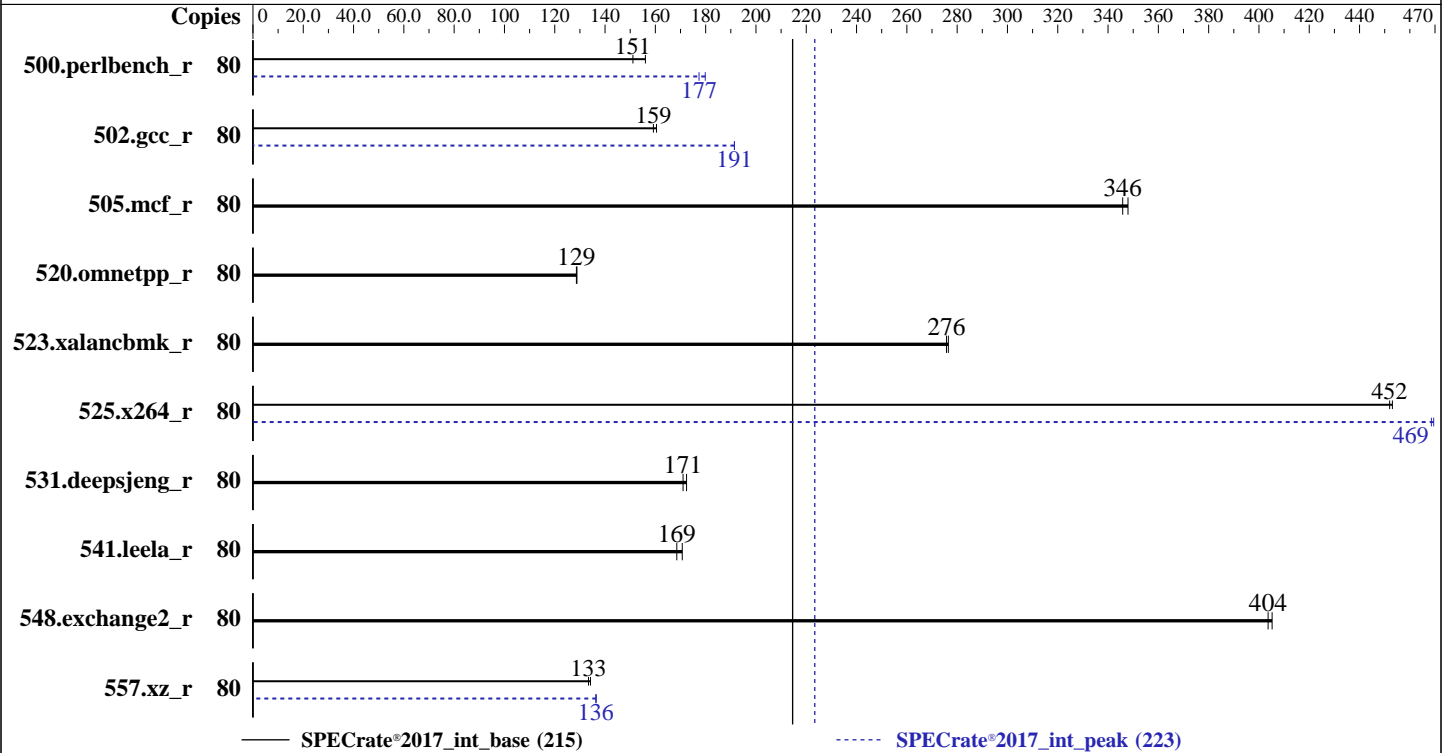
CPU2017 License: 55
Test Sponsor: Dell Inc.
Tested by: Dell Inc.

Test Date: Apr-2021
Hardware Availability: Apr-2019
Software Availability: Dec-2020

500.perlbench_r 80	151 / 177
502.gcc_r 80	159 / 191
505.mcf_r 80	346
520.omnetpp_r 80	129
523.xalancbmk_r 80	276
525.x264_r 80	452 / 469
531.deepsjeng_r 80	171
541.leela_r 80	169
548.exchange2_r 80	404
557.xz_r 80	133 / 136

SPECrate®2017_int_base (215)   SPECrate®2017_int_peak (223)

Hardware

CPU Name: Intel Xeon Gold 6138
  Max MHz: 3700
  Nominal: 2000
Enabled: 40 cores, 2 chips, 2 threads/core
Orderable: 1,2 chips
Cache L1: 32 KB I + 32 KB D on chip per core
  L2: 1 MB I+D on chip per core
  L3: 27.5 MB I+D on chip per chip
  Other: None
Memory: 320 GB (10 x 32 GB 2Rx4 PC4-2933Y-R, running at 2666)
Storage: 125 GB on tmpfs
Other: None

Software

OS: Red Hat Enterprise Linux 8.3 (Ootpa)
    4.18.0-240.el8.x86_64
Compiler: C/C++: Version 2021.1 of Intel oneAPI DPC++/C++
    Compiler Build 20201113 for Linux;
    Fortran: Version 2021.1 of Intel Fortran Compiler
    Classic Build 20201112 for Linux;
    C/C++: Version 2021.1 of Intel C/C++ Compiler
    Classic Build 20201112 for Linux
Parallel: No
Firmware: Version 2.9.1 released Aug-2020
File System: tmpfs
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.

SPEC CPU®2017 Integer Rate Result

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Dell Inc.

PowerEdge C6420 (Intel Xeon Gold 6138, 2.00 GHz)

$SPECrate^{®}2017\_int\_base = 215$

$SPECrate^{®}2017\_int\_peak = 223$

CPU2017 License: 55
Test Sponsor: Dell Inc.
Tested by: Dell Inc.

Test Date: Apr-2021
Hardware Availability: Apr-2019
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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	80	816	156	**843**	**151**			80	**718**	**177**	708	180		
502.gcc_r	80	**711**	**159**	706	160			80	592	191	**592**	**191**		
505.mcf_r	80	372	348	**374**	**346**			80	372	348	**374**	**346**		
520.omnetpp_r	80	815	129	**816**	**129**			80	815	129	**816**	**129**		
523.xalancbmk_r	80	**306**	**276**	306	276			80	**306**	**276**	306	276		
525.x264_r	80	309	453	**310**	**452**			80	298	469	**299**	**469**		
531.deepsjeng_r	80	532	172	**536**	**171**			80	532	172	**536**	**171**		
541.leela_r	80	776	171	**786**	**169**			80	776	171	**786**	**169**		
548.exchange2_r	80	**519**	**404**	517	405			80	**519**	**404**	517	405		
557.xz_r	80	644	134	**648**	**133**			80	633	137	**634**	**136**		

SPECrate®2017_int_base =	**215**
SPECrate®2017_int_peak =	**223**

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

Submit Notes

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

Operating System Notes

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

Environment Variables Notes

Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH =
      "/mnt/ramdisk/cpu2017-1.1.7-ic2021.1/lib/intel64:/mnt/ramdisk/cpu2017-1.
      1.7-ic2021.1/lib/ia32:/mnt/ramdisk/cpu2017-1.1.7-ic2021.1/je5.0.1-32"
MALLOC_CONF = "retain:true"

General Notes

Binaries compiled on a system with 1x Intel Core i9-7980XE CPU + 64GB RAM memory using Red Hat Enterprise Linux 8.1

Yes: 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)

(Continued on next page)

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

SPEC CPU®2017 Integer Rate Result

Dell Inc.

PowerEdge C6420 (Intel Xeon Gold 6138, 2.00 GHz)

$SPECrate^{®}2017\_int\_base = 215$

$SPECrate^{®}2017\_int\_peak = 223$

CPU2017 License: 55		**Test Date:**	Apr-2021
Test Sponsor:	Dell Inc.	**Hardware Availability:**	Apr-2019
Tested by:	Dell Inc.	**Software Availability:**	Dec-2020

General Notes (Continued)

```
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.

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>
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 settings:
            Sub NUMA Cluster : 2-Way Clustering
    Virtualization Technology : Disabled

              System Profile : Custom
        CPU Power Management : Maximum Performance
                        C1E : Disabled
                    C States : Autonomous
        Memory Patrol Scrub : Disabled
      Energy Efficiency Policy : Performance
  CPU Interconnect Bus Link
            Power Management : Disabled

Sysinfo program /mnt/ramdisk/cpu2017-1.1.7-ic2021.1/bin/sysinfo
Rev: r6538 of 2020-09-24 e8664e66d2d7080afeaa89d4b38e2f1c
running on localhost.localdomain Mon Apr 26 18:46:05 2021

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) Gold 6138 CPU @ 2.00GHz
      2  "physical id"s (chips)
      80 "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 : 20
      siblings  : 40
```

(Continued on next page)

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

Dell Inc.

PowerEdge C6420 (Intel Xeon Gold 6138, 2.00 GHz)

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SPECrate®2017_int_peak = 223

CPU2017 License: 55
Test Sponsor: Dell Inc.
Tested by: Dell Inc.

Test Date: Apr-2021
Hardware Availability: Apr-2019
Software Availability: Dec-2020

Platform Notes (Continued)

```
        physical 0: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
        physical 1: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28

   From lscpu:
        Architecture:          x86_64
        CPU op-mode(s):        32-bit, 64-bit
        Byte Order:            Little Endian
        CPU(s):                80
        On-line CPU(s) list:   0-79
        Thread(s) per core:    2
        Core(s) per socket:    20
        Socket(s):             2
        NUMA node(s):          4
        Vendor ID:             GenuineIntel
        CPU family:            6
        Model:                 85
        Model name:            Intel(R) Xeon(R) Gold 6138 CPU @ 2.00GHz
        Stepping:              4
        CPU MHz:               2742.070
        CPU max MHz:           3700.0000
        CPU min MHz:           1000.0000
        BogoMIPS:              4000.00
        Virtualization:        VT-x
        L1d cache:             32K
        L1i cache:             32K
        L2 cache:              1024K
        L3 cache:              28160K
        NUMA node0 CPU(s):     0,4,8,12,16,20,24,28,32,36,40,44,48,52,56,60,64,68,72,76
        NUMA node1 CPU(s):     1,5,9,13,17,21,25,29,33,37,41,45,49,53,57,61,65,69,73,77
        NUMA node2 CPU(s):     2,6,10,14,18,22,26,30,34,38,42,46,50,54,58,62,66,70,74,78
        NUMA node3 CPU(s):     3,7,11,15,19,23,27,31,35,39,43,47,51,55,59,63,67,71,75,79
        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 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 pti intel_ppin ssbd mba ibrs ibpb stibp 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 dtherm ida arat pln pts pku ospke
    md_clear flush_l1d

  /proc/cpuinfo cache data
     cache size : 28160 KB

  From numactl --hardware  WARNING: a numactl 'node' might or might not correspond to a
```

(Continued on next page)

Dell Inc.

$SPECrate^®2017\_int\_base = 215$

PowerEdge C6420 (Intel Xeon Gold 6138, 2.00 GHz)

$SPECrate^®2017\_int\_peak = 223$

CPU2017 License: 55
Test Sponsor: Dell Inc.
Tested by: Dell Inc.

Test Date: Apr-2021
Hardware Availability: Apr-2019
Software Availability: Dec-2020

Platform Notes (Continued)

```
physical chip.
  available: 4 nodes (0-3)
  node 0 cpus: 0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64 68 72 76
  node 0 size: 90836 MB
  node 0 free: 94822 MB
  node 1 cpus: 1 5 9 13 17 21 25 29 33 37 41 45 49 53 57 61 65 69 73 77
  node 1 size: 61293 MB
  node 1 free: 64313 MB
  node 2 cpus: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58 62 66 70 74 78
  node 2 size: 92745 MB
  node 2 free: 87026 MB
  node 3 cpus: 3 7 11 15 19 23 27 31 35 39 43 47 51 55 59 63 67 71 75 79
  node 3 size: 61837 MB
  node 3 free: 64156 MB
  node distances:
  node   0   1   2   3
    0:  10  21  11  21
    1:  21  10  21  11
    2:  11  21  10  21
    3:  21  11  21  10

From /proc/meminfo
   MemTotal:       328749668 kB
   HugePages_Total:        0
   Hugepagesize:        2048 kB

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

/sys/devices/system/cpu/cpu*/cpufreq/scaling_governor has
   performance

From /etc/*release* /etc/*version*
   os-release:
      NAME="Red Hat Enterprise Linux"
      VERSION="8.3 (Ootpa)"
      ID="rhel"
      ID_LIKE="fedora"
      VERSION_ID="8.3"
      PLATFORM_ID="platform:el8"
      PRETTY_NAME="Red Hat Enterprise Linux 8.3 (Ootpa)"
      ANSI_COLOR="0;31"
   redhat-release: Red Hat Enterprise Linux release 8.3 (Ootpa)
   system-release: Red Hat Enterprise Linux release 8.3 (Ootpa)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:8.3:ga

uname -a:
```

(Continued on next page)

SPEC CPU®2017 Integer Rate Result

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Dell Inc.

PowerEdge C6420 (Intel Xeon Gold 6138, 2.00 GHz)

SPECrate®2017_int_base = 215

SPECrate®2017_int_peak = 223

CPU2017 License: 55 **Test Date:** Apr-2021
Test Sponsor: Dell Inc. **Hardware Availability:** Apr-2019
Tested by: Dell Inc. **Software Availability:** Dec-2020

Platform Notes (Continued)

```
    Linux localhost.localdomain 4.18.0-240.el8.x86_64 #1 SMP Wed Sep 23 05:13:10 EDT 2020
    x86_64 x86_64 x86_64 GNU/Linux

  Kernel self-reported vulnerability status:

  CVE-2018-12207 (iTLB Multihit):            KVM: Mitigation: Split huge pages
  CVE-2018-3620 (L1 Terminal Fault):            Mitigation: PTE Inversion; VMX:
                                                conditional cache flushes, SMT
                                                vulnerable
  Microarchitectural Data Sampling:          Mitigation: Clear CPU buffers; SMT
                                                vulnerable
  CVE-2017-5754 (Meltdown):                     Mitigation: PTI
  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: Full generic
                                                retpoline, IBPB: conditional,
                                                IBRS_FW, STIBP: conditional, RSB
                                                filling
  CVE-2020-0543 (Special Register Buffer Data Sampling): Not affected
  CVE-2019-11135 (TSX Asynchronous Abort):      Mitigation: Clear CPU buffers; SMT
                                                vulnerable


  run-level 3 Apr 26 17:30

  SPEC is set to: /mnt/ramdisk/cpu2017-1.1.7-ic2021.1
     Filesystem       Type   Size  Used Avail Use% Mounted on
     tmpfs            tmpfs  125G  4.4G  121G   4% /mnt/ramdisk

  From /sys/devices/virtual/dmi/id
     Vendor:          Dell Inc.
     Product:         PowerEdge C6420
     Product Family: PowerEdge


  Additional information from dmidecode 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:
      6x 00AD00B300AD HMA84GR7CJR4N-WM 32 GB 2 rank 2933, configured at 2666
      1x 00AD063200AD HMA84GR7CJR4N-WM 32 GB 2 rank 2933, configured at 2666
      3x 00AD069D00AD HMA84GR7CJR4N-WM 32 GB 2 rank 2933, configured at 2666
      6x Not Specified Not Specified
```

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SPEC CPU®2017 Integer Rate Result

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Dell Inc.

PowerEdge C6420 (Intel Xeon Gold 6138, 2.00 GHz)

SPECrate®2017_int_base = 215

SPECrate®2017_int_peak = 223

Platform Notes (Continued)

```
 BIOS:
    BIOS Vendor:       Dell Inc.
    BIOS Version:      2.9.1
    BIOS Date:         08/10/2020
    BIOS Revision:     2.9

 (End of data from sysinfo program)
```

Compiler Version Notes

```
==============================================================================
C        | 500.perlbench_r(peak) 557.xz_r(peak)
------------------------------------------------------------------------------
Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R)
  64, Version 2021.1 Build 20201112_000000
Copyright (C) 1985-2020 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------


==============================================================================
C        | 502.gcc_r(peak)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version
  2021.1 Build 20201113
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) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
  Version 2021.1 Build 20201113
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 Classic for applications running on Intel(R)
  64, Version 2021.1 Build 20201112_000000
Copyright (C) 1985-2020 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------


==============================================================================
C        | 502.gcc_r(peak)
------------------------------------------------------------------------------
```

(Continued on next page)

Dell Inc.

SPECrate®2017_int_base = 215

PowerEdge C6420 (Intel Xeon Gold 6138, 2.00 GHz)

$SPECrate®2017\_int\_peak = 223$

CPU2017 License: 55　　　　　　　　　　　　　　　　　**Test Date:**　　　Apr-2021
Test Sponsor: Dell Inc.　　　　　　　　　　　　　　　**Hardware Availability:** Apr-2019
Tested by: Dell Inc.　　　　　　　　　　　　　　　　**Software Availability:** Dec-2020

Compiler Version Notes (Continued)

```
Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version
  2021.1 Build 20201113
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) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
  Version 2021.1 Build 20201113
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 Classic for applications running on Intel(R)
  64, Version 2021.1 Build 20201112_000000
Copyright (C) 1985-2020 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------


==============================================================================
C        | 502.gcc_r(peak)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version
  2021.1 Build 20201113
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) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
  Version 2021.1 Build 20201113
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) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
  Version 2021.1 Build 20201113
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------
```

(Continued on next page)

SPEC CPU®2017 Integer Rate Result

Dell Inc.

PowerEdge C6420 (Intel Xeon Gold 6138, 2.00 GHz)

SPECrate®2017_int_base = 215

SPECrate®2017_int_peak = 223

CPU2017 License: 55
Test Sponsor: Dell Inc.
Tested by: Dell Inc.

Test Date: Apr-2021
Hardware Availability: Apr-2019
Software Availability: Dec-2020

Compiler Version Notes (Continued)

```
==============================================================================
Fortran | 548.exchange2_r(base, peak)
------------------------------------------------------------------------------
Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on
  Intel(R) 64, Version 2021.1 Build 20201112_000000
Copyright (C) 1985-2020 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
`icx`

C++ benchmarks:
`icpx`

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:
```
-w -std=c11 -m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-mbranches-within-32B-boundaries
-L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin
-lqkmalloc
```

(Continued on next page)

https://www.spec.org/

Dell Inc.

PowerEdge C6420 (Intel Xeon Gold 6138, 2.00 GHz)

SPECrate®2017_int_base = 215

SPECrate®2017_int_peak = 223

CPU2017 License: 55　　　　　　　　　　　　　　　　　　**Test Date:** Apr-2021
Test Sponsor: Dell Inc.　　　　　　　　　　　　　　**Hardware Availability:** Apr-2019
Tested by: Dell Inc.　　　　　　　　　　　　　　　**Software Availability:** Dec-2020

Base Optimization Flags (Continued)

C++ benchmarks:
```
-w -m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-mbranches-within-32B-boundaries
-L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin
-lqkmalloc
```

Fortran benchmarks:
```
-w -m64 -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/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin
-lqkmalloc
```

Peak Compiler Invocation

C benchmarks (except as noted below):
```
icx
```

500.perlbench_r: `icc`

557.xz_r: `icc`

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

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`

(Continued on next page)

Dell Inc.

PowerEdge C6420 (Intel Xeon Gold 6138, 2.00 GHz)

SPECrate®2017_int_base = 215

SPECrate®2017_int_peak = 223

CPU2017 License: 55		**Test Date:**	Apr-2021
Test Sponsor:	Dell Inc.	**Hardware Availability:**	Apr-2019
Tested by:	Dell Inc.	**Software Availability:**	Dec-2020

Peak Portability Flags (Continued)

548.exchange2_r: `-DSPEC_LP64`
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/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin`
`-lqkmalloc`

502.gcc_r: `-m32`
`-L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/ia32_lin`
`-std=gnu89 -Wl,-z,muldefs -fprofile-generate`(pass 1)
`-fprofile-use=default.profdata`(pass 2) `-xCORE-AVX512 -flto`
`-Ofast`(pass 1) `-O3 -ffast-math -qopt-mem-layout-trans=4`
`-mbranches-within-32B-boundaries`
`-L/usr/local/jemalloc32-5.0.1/lib -ljemalloc`

505.mcf_r: basepeak = yes

525.x264_r: `-w -std=c11 -m64 -Wl,-z,muldefs -xCORE-AVX512 -flto`
`-O3 -ffast-math -qopt-mem-layout-trans=4 -fno-alias`
`-mbranches-within-32B-boundaries`
`-L/opt/intel/oneapi/compiler/2021.1.1/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/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin`
`-lqkmalloc`

C++ benchmarks:

520.omnetpp_r: basepeak = yes

523.xalancbmk_r: basepeak = yes

531.deepsjeng_r: basepeak = yes

(Continued on next page)

Dell Inc.

PowerEdge C6420 (Intel Xeon Gold 6138, 2.00 GHz)

$SPECrate^®2017\_int\_base = 215$

$SPECrate^®2017\_int\_peak = 223$

CPU2017 License: 55
Test Sponsor: Dell Inc.
Tested by: Dell Inc.

Test Date: Apr-2021
Hardware Availability: Apr-2019
Software Availability: Dec-2020

Peak Optimization Flags (Continued)

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/Intel-ic2021-official-linux64_revA.html`
`http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-revE12.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2017/flags/Intel-ic2021-official-linux64_revA.xml`
`http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-revE12.xml`

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

Tested with SPEC CPU®2017 v1.1.7 on 2021-04-26 19:46:04-0400.
Report generated on 2021-12-07 16:59:58 by CPU2017 PDF formatter v6442.
Originally published on 2021-12-07.