# SPEC CPU®2017 Integer Rate Result

## Dell Inc.

Dell Inc. tested the PowerEdge FC640 (Intel Xeon Gold 6222V, 1.80GHz) system with SPEC CPU®2017 to achieve the following results:

- **SPECrate®2017_int_base** = 198
- **SPECrate®2017_int_peak** = 205

### Hardware Specifications

**CPU Name:** Intel Xeon Gold 6222V  
**Max MHz:** 3600  
**Nominal:** 1800  
**Enabled:** 40 cores, 2 chips, 2 threads/core  
**Orderable:** 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:** 384 GB (12 x 32 GB 2Rx4 PC4-2933Y-R, running at 2400)  
**Storage:** 1 x 480 GB SATA SSD  
**Other:** None

### Software Specifications

**OS:** Ubuntu 18.04.2 LTS  
**Compiler:** C/C++: Version 19.0.4.227 of Intel C/C++ Compiler Build 20190416 for Linux; Fortran: Version 19.0.4.227 of Intel Fortran Compiler Build 20190416 for Linux  
**Parallel:** No  
**Firmware:** Version 2.2.11 released Jun-2019  
**File System:** ext4  
**System State:** Run level 5 (multi-user)  
**Base Pointers:** 64-bit  
**Peak Pointers:** 32/64-bit  
**Other:** jemalloc memory allocator V5.0.1  
**Power Management:** --

### Test Information

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

---

### Benchmark Results

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>SPECrate®2017_int_base</th>
<th>SPECrate®2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>perlbench_r</td>
<td>80</td>
<td>149</td>
<td>172</td>
</tr>
<tr>
<td>gcc_r</td>
<td>80</td>
<td>165</td>
<td>188</td>
</tr>
<tr>
<td>mcf_r</td>
<td>80</td>
<td>133</td>
<td>133</td>
</tr>
<tr>
<td>omnetpp_r</td>
<td>80</td>
<td>133</td>
<td>133</td>
</tr>
<tr>
<td>xalancbmk_r</td>
<td>80</td>
<td>219</td>
<td>231</td>
</tr>
<tr>
<td>x264_r</td>
<td>80</td>
<td>394</td>
<td>415</td>
</tr>
<tr>
<td>deepsjeng_r</td>
<td>80</td>
<td>160</td>
<td>160</td>
</tr>
<tr>
<td>leela_r</td>
<td>80</td>
<td>153</td>
<td>153</td>
</tr>
<tr>
<td>exchange2_r</td>
<td>80</td>
<td>387</td>
<td>387</td>
</tr>
<tr>
<td>xz_r</td>
<td>80</td>
<td>133</td>
<td>133</td>
</tr>
</tbody>
</table>

---

**Note:** The table above shows the raw score for each benchmark. The line `--- SPECrate®2017_int_base (198)` and `----- SPECrate®2017_int_peak (205)` are indicators for baseline and peak performance respectively.
Dell Inc.

PowerEdge FC640 (Intel Xeon Gold 6222V, 1.80GHz)

---

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

---

**Results Table**

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>500.perlbench_r</td>
<td>80</td>
<td>857</td>
<td>149</td>
<td>857</td>
<td>149</td>
<td>856</td>
<td>149</td>
</tr>
<tr>
<td>502.gcc_r</td>
<td>80</td>
<td>687</td>
<td>165</td>
<td>682</td>
<td>166</td>
<td>685</td>
<td>165</td>
</tr>
<tr>
<td>505.mcf_r</td>
<td>80</td>
<td>504</td>
<td>257</td>
<td>503</td>
<td>257</td>
<td>503</td>
<td>257</td>
</tr>
<tr>
<td>520.omnetpp_r</td>
<td>80</td>
<td>789</td>
<td>133</td>
<td>788</td>
<td>133</td>
<td>788</td>
<td>133</td>
</tr>
<tr>
<td>523.xalancbmk_r</td>
<td>80</td>
<td>385</td>
<td>219</td>
<td>387</td>
<td>218</td>
<td>383</td>
<td>221</td>
</tr>
<tr>
<td>525.x264_r</td>
<td>80</td>
<td>357</td>
<td>393</td>
<td>355</td>
<td>394</td>
<td>356</td>
<td>394</td>
</tr>
<tr>
<td>531.deepsjeng_r</td>
<td>80</td>
<td>575</td>
<td>152</td>
<td>575</td>
<td>160</td>
<td>571</td>
<td>161</td>
</tr>
<tr>
<td>541.leela_r</td>
<td>80</td>
<td>874</td>
<td>152</td>
<td>867</td>
<td>153</td>
<td>867</td>
<td>153</td>
</tr>
<tr>
<td>548.exchange2_r</td>
<td>80</td>
<td>539</td>
<td>389</td>
<td>542</td>
<td>387</td>
<td>542</td>
<td>387</td>
</tr>
<tr>
<td>557.xz_r</td>
<td>80</td>
<td>649</td>
<td>133</td>
<td>649</td>
<td>133</td>
<td>651</td>
<td>133</td>
</tr>
</tbody>
</table>

---

**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"

---

**General Notes**

Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/home/cpu2017/lib/ia32:/home/cpu2017/lib/intel64:/home/cpu2017/je5.0.1-32:/home/cpu2017/je5.0.1-64"

Binaries compiled on a system with 1x Intel Core i9-7900X CPU + 32GB RAM memory using Redhat Enterprise Linux 7.5
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.
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.:

---

(Continued on next page)
Dell Inc.

PowerEdge FC640 (Intel Xeon Gold 6222V, 1.80GHz)

SPEC CPU®2017 Integer Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

 SPECrate®2017_int_base = 198
 SPECrate®2017_int_peak = 205

<table>
<thead>
<tr>
<th>CPU2017 License:</th>
<th>55</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor:</td>
<td>Dell Inc.</td>
</tr>
<tr>
<td>Tested by:</td>
<td>Dell Inc.</td>
</tr>
<tr>
<td>Test Date:</td>
<td>Sep-2019</td>
</tr>
<tr>
<td>Hardware Availability:</td>
<td>Apr-2019</td>
</tr>
<tr>
<td>Software Availability:</td>
<td>Sep-2019</td>
</tr>
</tbody>
</table>

General Notes (Continued)

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

Platform Notes

BIOS settings:
ADDDC setting disabled
Sub NUMA Cluster enabled
Virtualization Technology disabled
DCU Streamer Prefetcher enabled
System Profile set to Custom
CPU Performance set to Maximum Performance
C States set to Autonomous
C1E disabled
Uncore Frequency set to Dynamic
Energy Efficiency Policy set to Performance
Memory Patrol Scrub disabled
Logical Processor enabled
CPU Interconnect Bus Link Power Management disabled
PCI ASPM L1 Link Power Management disabled
Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcede8f2999c33d61f64985e45859ea9
running on intel-sut Mon Sep 23 23:53:17 2019

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 6222V CPU @ 1.80GHz
    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
    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

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

### Dell Inc. PowerEdge FC640 (Intel Xeon Gold 6222V, 1.80GHz)

<table>
<thead>
<tr>
<th>CPU2017 License: 55</th>
<th>Test Date: Sep-2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor: Dell Inc.</td>
<td>Hardware Availability: Apr-2019</td>
</tr>
<tr>
<td>Tested by: Dell Inc.</td>
<td>Software Availability: Sep-2019</td>
</tr>
</tbody>
</table>

### SPECrate®2017_int_base = 198

### SPECrate®2017_int_peak = 205

## Platform Notes (Continued)

- 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 6222V CPU @ 1.80GHz
- Stepping: 7
- CPU MHz: 1636.510
- BogoMIPS: 3600.00
- 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 xtrr 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_pinn ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow vnmi flexpriority ept vpid fsgsbase tsc_adjust bml1 hle avx2 smep bmi2 erms invpcid rtm cqm mpx rdtd_a avx512f avx512dq rdseed adx smap clflushopt clwb intel_pt avx512cd avx512bw avx512vl xsaveopt xsaveprec xsaves cqm_llc cqm_occput llc cqm_mbb_total cqm_mbb_local dtherm ida arat pln pts pkup ospke avx512_vnni md_clear flush_l1d arch_capabilities

```
/proc/cpuinfo cache data
cache size : 28160 KB
```

From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a 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: 95144 MB
- node 0 free: 94897 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: 96764 MB
- node 1 free: 96511 MB
- node 2 cpus: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58 62 66 70 74 78

(Continued on next page)
Dell Inc.
PowerEdge FC640 (Intel Xeon Gold 6222V, 1.80GHz)

SPEC CPU®2017 Integer Rate Result
Copyright 2017-2019 Standard Performance Evaluation Corporation

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

SPECrater®2017_int_base = 198
SPECrater®2017_int_peak = 205

Test Date: Sep-2019
Hardware Availability: Apr-2019
Software Availability: Sep-2019

Platform Notes (Continued)

node 2 size: 96743 MB
node 2 free: 96485 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: 96762 MB
node 3 free: 96385 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: 394665044 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
Ubuntu 18.04.2 LTS

From /etc/*release* /etc/*version*
debian_version: buster/sid
os=release:
NAME="Ubuntu"
VERSION="18.04.2 LTS (Bionic Beaver)"
ID=ubuntu
ID_LIKE=debian
PRETTY_NAME="Ubuntu 18.04.2 LTS"
VERSION_ID="18.04"
HOME_URL="https://www.ubuntu.com/"
SUPPORT_URL="https://help.ubuntu.com/"
uname -a:
Linux intel-sut 4.15.0-64-generic #73-Ubuntu SMP Thu Sep 12 13:16:13 UTC 2019 x86_64
x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:
CVE-2017-5754 (Meltdown): Not affected
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

run-level 5 Sep 23 23:52

SPEC is set to: /home/cpu2017

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

Dell Inc.

PowerEdge FC640 (Intel Xeon Gold 6222V, 1.80GHz)

SPECrate®2017_int_base = 198
SPECrate®2017_int_peak = 205

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

Test Date: Sep-2019
Hardware Availability: Apr-2019
Software Availability: Sep-2019

Platform Notes (Continued)

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 ext4 439G 35G 382G 9% /

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.

BIOS Dell Inc. 2.2.11 06/14/2019
Memory:
3x 00AD00B300AD HMA84GR7CJR4N-WM 32 GB 2 rank 2933, configured at 2400
6x 00AD063200AD HMA84GR7CJR4N-WM 32 GB 2 rank 2933, configured at 2400
3x 00AD069D00AD HMA84GR7CJR4N-WM 32 GB 2 rank 2933, configured at 2400
4x Not Specified Not Specified

(End of data from sysinfo program)

Compiler Version Notes

==============================================================================
C | 502.gcc_r(peak)
-----------------------------------------------------------------------------
Intel(R) C Intel(R) 64 Compiler for applications running on IA-32, Version
19.0.4.227 Build 20190416
Copyright (C) 1985-2019 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) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.
-----------------------------------------------------------------------------
C | 502.gcc_r(peak)
-----------------------------------------------------------------------------
Intel(R) C Intel(R) 64 Compiler for applications running on IA-32, Version
19.0.4.227 Build 20190416
Copyright (C) 1985-2019 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)

(Continued on next page)
### Dell Inc. PowerEdge FC640 (Intel Xeon Gold 6222V, 1.80GHz)

<table>
<thead>
<tr>
<th>CPU2017 License: 55</th>
<th>Test Date: Sep-2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor: Dell Inc.</td>
<td>Hardware Availability: Apr-2019</td>
</tr>
<tr>
<td>Tested by: Dell Inc.</td>
<td>Software Availability: Sep-2019</td>
</tr>
</tbody>
</table>

#### SPEC CPU®2017 Integer Rate Result

| SPECrate®2017_int_base = 198 | SPECrate®2017_int_peak = 205 |

---

#### Compiler Version Notes (Continued)

Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64, Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.

C++ | 523.xalancbmk_r(peak)

Intel(R) C++ Intel(R) 64 Compiler for applications running on IA-32, Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.

C++ | 520.omnetpp_r(base, peak) 523.xalancbmk_r(base) 531.deepsjeng_r(base, peak) 541.leela_r(base, peak)

Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64, Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.

C++ | 523.xalancbmk_r(peak)

Intel(R) C++ Intel(R) 64 Compiler for applications running on IA-32, Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.

C++ | 520.omnetpp_r(base, peak) 523.xalancbmk_r(base) 531.deepsjeng_r(base, peak) 541.leela_r(base, peak)

Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64, Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.

Fortran | 548.exchange2_r(base, peak)

Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R) 64, Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.
Dell Inc.

PowerEdge FC640 (Intel Xeon Gold 6222V, 1.80GHz)

| SPECrate®2017_int_base = 198 |
| SPECrate®2017_int_peak = 205 |

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

Test Date: Sep-2019
Hardware Availability: Apr-2019
Software Availability: Sep-2019

Base Compiler Invocation

C benchmarks:
  icc -m64 -std=c11

C++ benchmarks:
  icpc -m64

Fortran benchmarks:
  ifort -m64

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:
  -Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
  -qopt-mem-layout-trans=4
  -L/usr/local/IntelCompiler19/compilers_and_libraries_2019.4.227/linux/compiler/lib/intel64
  -lqkmalloc

C++ benchmarks:
  -Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
  -qopt-mem-layout-trans=4
  -L/usr/local/IntelCompiler19/compilers_and_libraries_2019.4.227/linux/compiler/lib/intel64
  -lqkmalloc

Fortran benchmarks:
  -Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
  -qopt-mem-layout-trans=4 -nostandard-realloc-lhs -align array32byte
  -L/usr/local/IntelCompiler19/compilers_and_libraries_2019.4.227/linux/compiler/lib/intel64
  -lqkmalloc
<table>
<thead>
<tr>
<th>CPU2017 License: 55</th>
<th>Test Date: Sep-2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor: Dell Inc.</td>
<td>Hardware Availability: Apr-2019</td>
</tr>
<tr>
<td>Tested by: Dell Inc.</td>
<td>Software Availability: Sep-2019</td>
</tr>
</tbody>
</table>

### Peak Compiler Invocation

C benchmarks (except as noted below):

```plaintext
icc -m64 -std=c11
```

$02.gcc_r: icc -m32 -std=c11 -L/usr/local/IntelCompiler19/compilers_and_libraries_2019.4.227/linux/compiler/lib/ia32_lin

C++ benchmarks (except as noted below):

```plaintext
icpc -m64
```

$23.xalancbmk_r: icpc -m32 -L/usr/local/IntelCompiler19/compilers_and_libraries_2019.4.227/linux/compiler/lib/ia32_lin

Fortran benchmarks:

```plaintext
ifort -m64
```

### Peak Portability Flags

```plaintext
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: -D_FILE_OFFSET_BITS=64 -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:

```plaintext
500.perlbench_r: -Wl, -z, muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo
-xCORE-AVX512 -O3 -no-prec-div -qopt-mem-layout-trans=4
-fno-strict-overflow
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.4.227/linux/compiler/lib/intel64
-lqkmalloc

502.gcc_r: -Wl, -z, muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo
-xCORE-AVX512 -O3 -no-prec-div -qopt-mem-layout-trans=4
-L/usr/local/je5.0.1-32/lib -ljemalloc

505.mcf_r: -Wl, -z, muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=4
```

(Continued on next page)
Dell Inc.
PowerEdge FC640 (Intel Xeon Gold 6222V, 1.80GHz)

<table>
<thead>
<tr>
<th>SPECrate®2017_int_base = 198</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate®2017_int_peak = 205</td>
</tr>
</tbody>
</table>

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

### Peak Optimization Flags (Continued)

505.mcf_r (continued):
- `-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.4.227/linux/compiler/lib/intel64`  
- `-lqkmalloc`

525.x264_r: `-Wl,-z, muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div  
-qqopt-mem-layout-trans=4 -fno-alias  
-`-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.4.227/linux/compiler/lib/intel64`  
-`-lqkmalloc`

557.xz_r: Same as 505.mcf_r

C++ benchmarks:

520.omnetpp_r: `-Wl,-z, muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div  
-qqopt-mem-layout-trans=4  
-`-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.4.227/linux/compiler/lib/intel64`  
-`-lqkmalloc`

523.xalancbmk_r: `-Wl,-z, muldefs -prof-gen(pass 1) -prof-use(pass 2)  
-xCORE-AVX512 -O3 -no-prec-div -qqopt-mem-layout-trans=4  
-`-L/usr/local/je5.0.1-32/lib`  
-`-ljemalloc`

531.deepsjeng_r: Same as 520.omnetpp_r

541.leela_r: Same as 520.omnetpp_r

Fortran benchmarks:

 `-Wl,-z, muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div  
-qqopt-mem-layout-trans=4 -nostandard-realloc-lhs -align array32byte  
-`-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.4.227/linux/compiler/lib/intel64`  
-`-lqkmalloc`

The flags files that were used to format this result can be browsed at


You can also download the XML flags sources by saving the following links:

## SPEC CPU®2017 Integer Rate Result

**Dell Inc.**

PowerEdge FC640 (Intel Xeon Gold 6222V, 1.80GHz)

<table>
<thead>
<tr>
<th>SPECrate®2017_int_base</th>
<th>198</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate®2017_int_peak</td>
<td>205</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Test Date</th>
<th>Sep-2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardware Availability</td>
<td>Apr-2019</td>
</tr>
<tr>
<td>Software Availability</td>
<td>Sep-2019</td>
</tr>
</tbody>
</table>

---

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 v1.0.5 on 2019-09-23 19:53:17-0400.  
Originally published on 2019-12-10.