# SPEC CPU®2017 Integer Speed Result

## Dell Inc.

PowerEdge R740xd (Intel Xeon Bronze 3206R, 1.90 GHz)

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base</th>
<th>4.97</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed®2017_int_peak</td>
<td>5.04</td>
</tr>
</tbody>
</table>

**CPU2017 License:** 55  
**Test Sponsor:** Dell Inc.  
**Tested by:** Dell Inc.  
**Test Date:** Oct-2019  
**Hardware Availability:** Feb-2020  
**Software Availability:** Oct-2019

### Hardware

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name</td>
<td>Intel Xeon Bronze 3206R</td>
</tr>
<tr>
<td>Max MHz</td>
<td>1900</td>
</tr>
<tr>
<td>Nominal</td>
<td>1900</td>
</tr>
<tr>
<td>Enabled</td>
<td>16 cores, 2 chips</td>
</tr>
<tr>
<td>Orderable</td>
<td>1.2 chips</td>
</tr>
<tr>
<td>Cache L1</td>
<td>32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>L2</td>
<td>1 MB I+D on chip per core</td>
</tr>
<tr>
<td>L3</td>
<td>11 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other</td>
<td>None</td>
</tr>
<tr>
<td>Memory</td>
<td>384 GB (24 x 16 GB 2Rx8 PC4-2933V-R, running at 2133)</td>
</tr>
<tr>
<td>Storage</td>
<td>1 x 960 GB SATA SSD</td>
</tr>
<tr>
<td>Other</td>
<td>None</td>
</tr>
</tbody>
</table>

### Software

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>OS</td>
<td>Ubuntu 18.04.2 LTS</td>
</tr>
<tr>
<td>kernel</td>
<td>4.15.0-65-generic</td>
</tr>
<tr>
<td>Compiler</td>
<td>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</td>
</tr>
<tr>
<td>Parallel</td>
<td>Yes</td>
</tr>
<tr>
<td>Firmware</td>
<td>Version 2.4.5 released Sep-2019</td>
</tr>
<tr>
<td>File System</td>
<td>ext4</td>
</tr>
<tr>
<td>System State</td>
<td>Run level 5 (multi-user)</td>
</tr>
<tr>
<td>Base Pointers</td>
<td>64-bit</td>
</tr>
<tr>
<td>Peak Pointers</td>
<td>64-bit</td>
</tr>
<tr>
<td>Other</td>
<td>jemalloc memory allocator V5.0.1</td>
</tr>
<tr>
<td>Power Management</td>
<td>BIOS set to prefer performance at the cost of additional power usage</td>
</tr>
</tbody>
</table>

---

**Threads**

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>16</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>16</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>16</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>16</td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>16</td>
</tr>
<tr>
<td>625.x264_s</td>
<td>16</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>16</td>
</tr>
<tr>
<td>641.leela_s</td>
<td>16</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>16</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>16</td>
</tr>
</tbody>
</table>

**SPECspeed®2017_int_base (4.97)**

**SPECspeed®2017_int_peak (5.04)**
# SPEC CPU®2017 Integer Speed Result

Dell Inc.

PowerEdge R740xd (Intel Xeon Bronze 3206R, 1.90 GHz)

Copyright 2017-2020 Standard Performance Evaluation Corporation

## Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>16</td>
<td>564</td>
<td>3.15</td>
<td>566</td>
<td>3.13</td>
<td>563</td>
<td>3.15</td>
<td>16</td>
<td>495</td>
<td>3.59</td>
<td>492</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>16</td>
<td>771</td>
<td>5.17</td>
<td>768</td>
<td>5.18</td>
<td>780</td>
<td>5.10</td>
<td>16</td>
<td>771</td>
<td>5.17</td>
<td>768</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>16</td>
<td>709</td>
<td>6.66</td>
<td>708</td>
<td>6.67</td>
<td>710</td>
<td>6.65</td>
<td>16</td>
<td>709</td>
<td>6.66</td>
<td>708</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>16</td>
<td>436</td>
<td>3.74</td>
<td>437</td>
<td>3.73</td>
<td>441</td>
<td>3.69</td>
<td>16</td>
<td>436</td>
<td>3.74</td>
<td>437</td>
</tr>
<tr>
<td>623.xalanchmk_s</td>
<td>16</td>
<td>237</td>
<td>5.97</td>
<td>237</td>
<td>5.98</td>
<td>237</td>
<td>5.97</td>
<td>16</td>
<td>237</td>
<td>5.97</td>
<td>237</td>
</tr>
<tr>
<td>625.x264_s</td>
<td>16</td>
<td>255</td>
<td>6.91</td>
<td>255</td>
<td>6.91</td>
<td>255</td>
<td>6.91</td>
<td>16</td>
<td>255</td>
<td>6.91</td>
<td>255</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>16</td>
<td>506</td>
<td>2.83</td>
<td>506</td>
<td>2.83</td>
<td>507</td>
<td>2.83</td>
<td>16</td>
<td>506</td>
<td>2.83</td>
<td>506</td>
</tr>
<tr>
<td>641.leela_s</td>
<td>16</td>
<td>764</td>
<td>2.23</td>
<td>764</td>
<td>2.23</td>
<td>764</td>
<td>2.23</td>
<td>16</td>
<td>764</td>
<td>2.23</td>
<td>764</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>16</td>
<td>389</td>
<td>7.56</td>
<td>386</td>
<td>7.62</td>
<td>386</td>
<td>7.62</td>
<td>16</td>
<td>389</td>
<td>7.56</td>
<td>386</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>16</td>
<td>542</td>
<td>11.4</td>
<td>539</td>
<td>11.5</td>
<td>542</td>
<td>11.4</td>
<td>16</td>
<td>538</td>
<td>11.5</td>
<td>540</td>
</tr>
</tbody>
</table>

### SPECspeed®2017_int_base = 4.97

### SPECspeed®2017_int_peak = 5.04

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

## 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:
- KMP_AFFINITY = "granularity=fine,scatter"
- LD_LIBRARY_PATH = "/home/cpu2017/lib/intel64:/home/cpu2017/je5.0.1-64"
- OMP_STACKSIZE = "192M"

## General Notes

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
```

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:
Virtualization Technology disabled
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
CPU Interconnect Bus Link Power Management enabled
PCI ASPM L1 Link Power Management enabled

Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r6365 of 2019-08-21 295195f888a3d7ed81e6e46a485a0011
running on intel-sut Mon Oct 21 14:25:50 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) Bronze 3206R CPU @ 1.90GHz
  2 "physical id"s (chips)
  16 "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 : 8
siblings : 8
physical 0: cores 0 1 2 3 4 5 6 7
physical 1: cores 0 1 2 3 4 5 6 7

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 16
On-line CPU(s) list: 0-15
Thread(s) per core: 1
Core(s) per socket: 8
Socket(s): 2
NUMA node(s): 2
Vendor ID: GenuineIntel
CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Bronze 3206R CPU @ 1.90GHz
Stepping: 7
CPU MHz: 1839.566
**SPEC CPU®2017 Integer Speed Result**

**Dell Inc.**

PowerEdge R740xd (Intel Xeon Bronze 3206R, 1.90 GHz)

---

**SPECspeed®2017_int_base = 4.97**

**SPECspeed®2017_int_peak = 5.04**

---

**Platform Notes (Continued)**

BogoMIPS: 3800.00

Virtualization: VT-x

L1d cache: 32K

L1i cache: 32K

L2 cache: 1024K

L3 cache: 11264K

NUMA node0 CPU(s): 0,2,4,6,8,10,12,14

NUMA node1 CPU(s): 1,3,5,7,9,11,13,15

Flags: fpu vme de pse mcr 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 x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abm 3dnowprefetch cpuid_fault eb  cat _l3 cdp _l3 invpcid_single intel_pmm ssbd mba ibrs ibpb ibrs_enhanced tpr_shadow vmmflex ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm cmq mx rt _m rdt _a avx512 vnni md_clear flush_l1d

/proc/cpuinfo cache data

cache size : 11264 KB

From numactl --hardware  WARNING: a numactl 'node' might or might not correspond to a physical chip.

available: 2 nodes (0-1)

node 0 cpus: 0 2 4 6 8 10 12 14

node 0 size: 191895 MB

node 0 free: 191533 MB

node 1 cpus: 1 3 5 7 9 11 13 15

node 1 size: 193533 MB

node 1 free: 193153 MB

node distances:

node 0 1

0: 10 21

1: 21 10

From /proc/meminfo

MemTotal: 394680180 kB

HugePages_Total: 0

Hugepagesize: 2048 kB

/usr/bin/lsb_release -d

Ubuntu 18.04.2 LTS

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

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

Dell Inc.
PowerEdge R740xd (Intel Xeon Bronze 3206R, 1.90 GHz)

SPECspeed®2017_int_base = 4.97
SPECspeed®2017_int_peak = 5.04

CPU2017 License: 55
Test Sponsor: Dell Inc.
Tested by: Dell Inc.
Test Date: Oct-2019
Hardware Availability: Feb-2020
Software Availability: Oct-2019

Platform Notes (Continued)

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 4.15.0-65-generic #74-Ubuntu SMP Tue Sep 17 17:06:04 UTC 2019 x86_64
x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:

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

run-level 5 Oct 21 14:16

SPEC is set to: /home/cpu2017
  Filesystem  Type  Size  Used Avail Use% Mounted on
  /dev/sda2    ext4  439G  36G  381G   9% /

From /sys/devices/virtual/dmi/id
  BIOS:    Dell Inc. 2.4.5 09/22/2019
  Vendor:  Dell Inc.
  Product: PowerEdge R740xd
  Product Family: PowerEdge
  Serial:  F5BMCS2

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:
  12x 002C069D002C 18ASF2G72PDZ-2G9E1 16 GB 2 rank 2933, configured at 2133
  7x 00AD00B300AD HMA82GR7CJR8N-WM 16 GB 2 rank 2933, configured at 2133

(Continued on next page)
## Dell Inc.
PowerEdge R740xd (Intel Xeon Bronze 3206R, 1.90 GHz)

| SPECspeed®2017_int_base | 4.97 |
| SPECspeed®2017_int_peak | 5.04 |

**CPU2017 License:** 55  
**Test Sponsor:** Dell Inc.  
**Tested by:** Dell Inc.  
**Test Date:** Oct-2019  
**Hardware Availability:** Feb-2020  
**Software Availability:** Oct-2019

### Platform Notes (Continued)

5x 00AD063200AD HMA82GR7CJR8N–WM 16 GB 2 rank 2933, configured at 2133

(End of data from sysinfo program)

### Compiler Version Notes

```
C
600.perlbench_s(base, peak) 602.gcc_s(base, peak) 605.mcf_s(base, peak) 625.x264_s(base, peak) 657.xz_s(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++
620.omnetpp_s(base, peak) 623.xalancbmk_s(base, peak) 631.deepsjeng_s(base, peak) 641.leela_s(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
648.exchange2_s(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.

### Base Compiler Invocation

C benchmarks:
```
icc -m64 -std=c11
```

C++ benchmarks:
```
icpc -m64
```

Fortran benchmarks:
```
ifort -m64
```
SPEC CPU®2017 Integer Speed Result

Dell Inc.
PowerEdge R740xd (Intel Xeon Bronze 3206R, 1.90 GHz)

| SPECspeed®2017_int_base = 4.97 |
| SPECspeed®2017_int_peak = 5.04 |

CPU2017 License: 55
Test Sponsor: Dell Inc.
Tested by: Dell Inc.
Test Date: Oct-2019
Hardware Availability: Feb-2020
Software Availability: Oct-2019

Base Portability Flags

| 600.perlbench_s: -DSPEC_LP64 -DSPEC_LINUX_X64 |
| 602.gcc_s: -DSPEC_LP64 |
| 605.mcf_s: -DSPEC_LP64 |
| 620.omnetpp_s: -DSPEC_LP64 |
| 623.xalancbmk_s: -DSPEC_LP64 -DSPEC_LINUX |
| 625.x264_s: -DSPEC_LP64 |
| 631.deepsjeng_s: -DSPEC_LP64 |
| 641.leela_s: -DSPEC_LP64 |
| 648.exchange2_s: -DSPEC_LP64 |
| 657.xz_s: -DSPEC_LP64 |

Base Optimization Flags

C benchmarks:
-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=4 -qopenmp -DSPEC_OPENMP
-L/usr/local/je5.0.1-64/lib -ljemalloc

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:
-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-mem-layout-trans=4
-nostandard-realloc-lhs

Peak Compiler Invocation

C benchmarks:
icc -m64 -std=c11

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64
## SPEC CPU®2017 Integer Speed Result

### Dell Inc.

**PowerEdge R740xd (Intel Xeon Bronze 3206R, 1.90 GHz)**

***SPECspeed**2017_int_base = 4.97***

***SPECspeed**2017_int_peak = 5.04***

<table>
<thead>
<tr>
<th>CPU2017 License: 55</th>
<th>Test Date: Oct-2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor: Dell Inc.</td>
<td>Hardware Availability: Feb-2020</td>
</tr>
<tr>
<td>Tested by: Dell Inc.</td>
<td>Software Availability: Oct-2019</td>
</tr>
</tbody>
</table>

### Peak Portability Flags

Same as Base Portability Flags

### Peak Optimization Flags

**C benchmarks:**

- **600.perlbench_s:** `-Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -O2 -xCORE-AVX512 -qopt-mem-layout-trans=4 -ipo -O3 -no-prec-div -DSPEC_SUPPRESS_OPENMP -qopenmp -DSPEC_OPENMP -fno-strict-overflow -L/usr/local/je5.0.1-64/lib -ljemalloc`

- **602.gcc_s:** `basepeak = yes`

- **605.mcf_s:** `basepeak = yes`

- **625.x264_s:** `-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-mem-layout-trans=4 -qopenmp -DSPEC_OPENMP -L/usr/local/je5.0.1-64/lib -ljemalloc`

- **657.xz_s:** `-Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -O2 -xCORE-AVX512 -qopt-mem-layout-trans=4 -ipo -O3 -no-prec-div -DSPEC_SUPPRESS_OPENMP -qopenmp -DSPEC_OPENMP -L/usr/local/je5.0.1-64/lib -ljemalloc`

**C++ benchmarks:**

- **620.omnetpp_s:** `basepeak = yes`

- **623.xalancbnk_s:** `basepeak = yes`

- **631.deepsjeng_s:** `-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`

- **641.leela_s:** `basepeak = yes`

**Fortran benchmarks:**

- **648.exchange2_s:** `basepeak = yes`
# SPEC CPU®2017 Integer Speed Result

## Dell Inc.

PowerEdge R740xd (Intel Xeon Bronze 3206R, 1.90 GHz)

---

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base</th>
<th>4.97</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed®2017_int_peak</td>
<td>5.04</td>
</tr>
</tbody>
</table>

---

**CPU2017 License:** 55  
**Test Sponsor:** Dell Inc.  
**Tested by:** Dell Inc.  
**Test Date:** Oct-2019  
**Hardware Availability:** Feb-2020  
**Software Availability:** Oct-2019

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 and SPECspeed 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 2019-10-21 10:25:49-0400.  
Originally published on 2020-02-29.