



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_int\_base = 9.66

PowerEdge R670 (Intel Xeon 6780E)

SPECspeed®2017\_int\_peak = 9.87

CPU2017 License: 6573

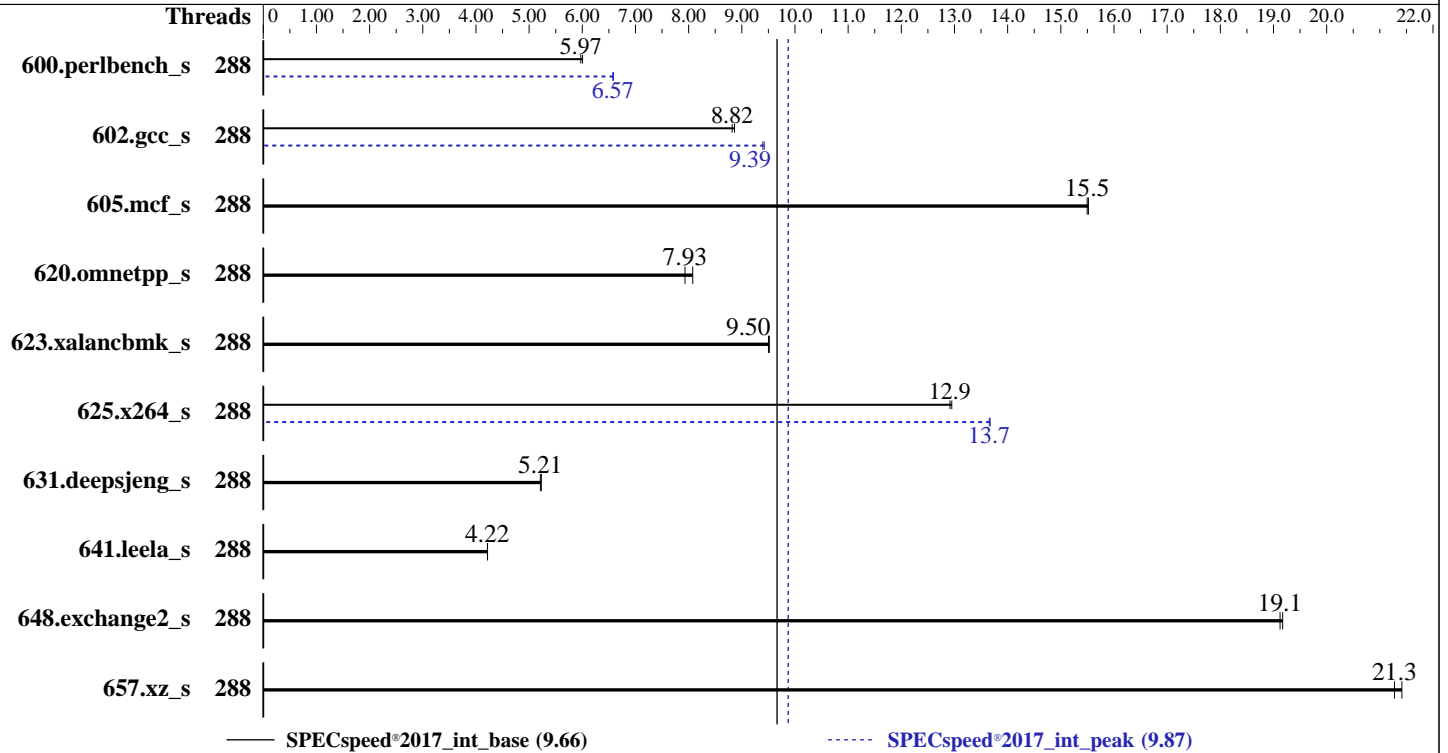
Test Date: Aug-2024

Test Sponsor: Dell Inc.

Hardware Availability: Jul-2024

Tested by: Dell Inc.

Software Availability: Jun-2024



### Hardware

CPU Name: Intel Xeon 6780E  
 Max MHz: 3000  
 Nominal: 2200  
 Enabled: 288 cores, 2 chips  
 Orderable: 1,2 chips  
 Cache L1: 64 KB I + 32 KB D on chip per core  
 L2: 4 MB I+D on chip per core  
 L3: 108 MB I+D on chip per chip  
 Other: None  
 Memory: 1 TB (16 x 64 GB 2Rx4 PC5-6400B-R)  
 Storage: 150 GB on tmpfs  
 Other: CPU Cooling: Air

### Software

OS: SUSE Linux Enterprise Server 15 SP6  
 6.4.0-150600.21-default  
 Compiler: C/C++: Version 2024.1 of Intel oneAPI DPC++/C++  
 Compiler for Linux;  
 Fortran: Version 2024.1 of Intel Fortran Compiler  
 for Linux;  
 Parallel: Yes  
 Firmware: Version 1.0.1 released Jun-2024  
 File System: tmpfs  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: 64-bit  
 Other: jemalloc memory allocator V5.0.1  
 Power Management: BIOS set to prefer performance at the cost of  
 additional power usage.



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECSpeed®2017\_int\_base = 9.66

PowerEdge R670 (Intel Xeon 6780E)

SPECSpeed®2017\_int\_peak = 9.87

CPU2017 License: 6573  
Test Sponsor: Dell Inc.  
Tested by: Dell Inc.

Test Date: Aug-2024  
Hardware Availability: Jul-2024  
Software Availability: Jun-2024

## Results Table

Benchmark	Base						Peak							
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	288	296	6.00	<u>297</u>	<u>5.97</u>			288	<u>270</u>	<u>6.57</u>	269	6.59		
602.gcc_s	288	<u>452</u>	<u>8.82</u>	449	8.86			288	423	9.42	<u>424</u>	<u>9.39</u>		
605.mcf_s	288	304	15.5	<u>305</u>	<u>15.5</u>			288	304	15.5	<u>305</u>	<u>15.5</u>		
620.omnetpp_s	288	202	8.08	<u>206</u>	<u>7.93</u>			288	202	8.08	<u>206</u>	<u>7.93</u>		
623.xalancbmk_s	288	149	9.52	<u>149</u>	<u>9.50</u>			288	149	9.52	<u>149</u>	<u>9.50</u>		
625.x264_s	288	<u>137</u>	<u>12.9</u>	136	12.9			288	129	13.7	<u>129</u>	<u>13.7</u>		
631.deepsjeng_s	288	274	5.23	<u>275</u>	<u>5.21</u>			288	274	5.23	<u>275</u>	<u>5.21</u>		
641.leela_s	288	<u>405</u>	<u>4.22</u>	404	4.22			288	<u>405</u>	<u>4.22</u>	404	4.22		
648.exchange2_s	288	153	19.2	<u>154</u>	<u>19.1</u>			288	153	19.2	<u>154</u>	<u>19.1</u>		
657.xz_s	288	289	21.4	<u>291</u>	<u>21.3</u>			288	289	21.4	<u>291</u>	<u>21.3</u>		

SPECSpeed®2017\_int\_base = 9.66

SPECSpeed®2017\_int\_peak = 9.87

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 =  
"/mnt/ramdisk/cpu2017-1.1.9-ic2024.1/lib/intel64:/mnt/ramdisk/cpu2017-1.1.9-ic2024.1/je5.0.1-64"  
MALLOC\_CONF = "retain:true"  
OMP\_STACKSIZE = "192M"

## General Notes

Binaries compiled on a system with 2x Intel Xeon Platinum 8280M CPU + 384GB RAM memory using Redhat Enterprise Linux 8.0  
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  
sources available from jemalloc.net or https://github.com/jemalloc/jemalloc/releases

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.

Benchmark run from a 150 GB ramdisk created with the cmd: "mount -t tmpfs -o size=150G tmpfs /mnt/ramdisk"



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_int\_base = 9.66

PowerEdge R670 (Intel Xeon 6780E)

SPECspeed®2017\_int\_peak = 9.87

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Aug-2024

Hardware Availability: Jul-2024

Software Availability: Jun-2024

## Platform Notes

### BIOS settings:

```

      ADDDC Setting : Disabled
      DIMM Self Healing on
      Uncorrectable Memory Error : Disabled

      DCU Streamer Prefetcher : Enabled

      System Profile : Custom
      CPU Power Management : Maximum Performance
      Energy Efficient Turbo : Disabled
      C1E : Disabled
      C States : Autonomous
      Energy Efficiency Policy : Performance
      CPU Interconnect Bus
      Link Power Management : Disabled
      PCI ASPM L1 Link
      Power Management : Disabled

```

```

Sysinfo program /mnt/ramdisk/cpu2017-1.1.9-ic2024.1/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on DN01113-R670 Tue Aug 13 05:15:33 2024

```

SUT (System Under Test) info as seen by some common utilities.

### Table of contents

- ```

-----
1. uname -a
2. w
3. Username
4. ulimit -a
5. sysinfo process ancestry
6. /proc/cpuinfo
7. lscpu
8. numactl --hardware
9. /proc/meminfo
10. who -r
11. Systemd service manager version: systemd 254 (254.10+suse.84.ge8d77af424)
12. Services, from systemctl list-unit-files
13. Linux kernel boot-time arguments, from /proc/cmdline
14. cpupower frequency-info
15. sysctl
16. /sys/kernel/mm/transparent_hugepage
17. /sys/kernel/mm/transparent_hugepage/khugepaged
18. OS release
19. Disk information
20. /sys/devices/virtual/dmi/id
21. dmidecode
22. BIOS
-----

-----
1. uname -a
   Linux DN01113-R670 6.4.0-150600.21-default #1 SMP PREEMPT_DYNAMIC Thu May 16 11:09:22 UTC 2024 (36c1e09)
   x86_64 x86_64 x86_64 GNU/Linux
-----

-----
2. w
   05:15:33 up 25 min,  1 user,  load average: 0.13, 0.03, 0.01

```

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_int\_base = 9.66

PowerEdge R670 (Intel Xeon 6780E)

SPECspeed®2017\_int\_peak = 9.87

CPU2017 License: 6573  
Test Sponsor: Dell Inc.  
Tested by: Dell Inc.

Test Date: Aug-2024  
Hardware Availability: Jul-2024  
Software Availability: Jun-2024

## Platform Notes (Continued)

```

USER      TTY      FROM          LOGIN@  IDLE   JCPU   PCPU WHAT
root      tty1    -             05:14  28.00s 1.43s  0.00s /bin/bash
/home/DellFiles/bin/Intel/dell-run-speccpu.sh speed --define DL-BIOSinc=Dell-BIOS_Xeon-7.inc --define DL-BIOS-adddcD=1 --define DL-VERS=5.3.3 --output_format html,pdf,txt

```

```

-----
3. Username
   From environment variable $USER:  root

```

```

-----
4. ulimit -a
   core file size          (blocks, -c) unlimited
   data seg size           (kbytes, -d) unlimited
   scheduling priority     (-e) 0
   file size                (blocks, -f) unlimited
   pending signals         (-i) 4126034
   max locked memory       (kbytes, -l) 8192
   max memory size         (kbytes, -m) unlimited
   open files               (-n) 1024
   pipe size                (512 bytes, -p) 8
   POSIX message queues    (bytes, -q) 819200
   real-time priority      (-r) 0
   stack size               (kbytes, -s) unlimited
   cpu time                 (seconds, -t) unlimited
   max user processes      (-u) 4126034
   virtual memory           (kbytes, -v) unlimited
   file locks               (-x) unlimited

```

```

-----
5. sysinfo process ancestry
/usr/lib/systemd/systemd --switched-root --system --deserialize=42 linux
login -- root
-bash
/bin/bash /home/DellFiles/bin/DELL_speed.sh
/bin/bash /home/DellFiles/bin/dell-run-main.sh speed
/bin/bash /home/DellFiles/bin/dell-run-main.sh speed
/bin/bash /home/DellFiles/bin/Intel/dell-run-speccpu.sh speed --define DL-BIOSinc=Dell-BIOS_Xeon-7.inc
--define DL-BIOS-adddcD=1 --define DL-VERS=5.3.3 --output_format html,pdf,txt
/bin/bash /home/DellFiles/bin/Intel/dell-run-speccpu.sh speed --define DL-BIOSinc=Dell-BIOS_Xeon-7.inc
--define DL-BIOS-adddcD=1 --define DL-VERS=5.3.3 --output_format html,pdf,txt
runcpu --nobuild --action validate --define default-platform-flags -c
ic2024.1-lin-sierraforest-speed-20240308.cfg --define cores=288 --tune base,peak -o all --define
intspeedaffinity --define smt-on --define drop_caches --iterations 2 --define
DL-BIOSinc=Dell-BIOS_Xeon-7.inc --define DL-BIOS-adddcD=1 --define DL-VERS=5.3.3 --output_format
html,pdf,txt intspeed
runcpu --nobuild --action validate --define default-platform-flags --configfile
ic2024.1-lin-sierraforest-speed-20240308.cfg --define cores=288 --tune base,peak --output_format all
--define intspeerdaffinity --define smt-on --define drop_caches --iterations 2 --define
DL-BIOSinc=Dell-BIOS_Xeon-7.inc --define DL-BIOS-adddcD=1 --define DL-VERS=5.3.3 --output_format
html,pdf,txt --nopower --runmode speed --tune base:peak --size refspeerd intspeed --nopreenv --note-preenv
--logfile $SPEC/tmp/CPU2017.001/temlogs/preenv.intspeed.001.0.log --lognum 001.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /mnt/ramdisk/cpu2017-1.1.9-ic2024.1

```

```

-----
6. /proc/cpuinfo
   model name              : Intel(R) Xeon(R) 6780E
   vendor_id                : GenuineIntel
   cpu family               : 6
   model                    : 175

```

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_int\_base = 9.66

PowerEdge R670 (Intel Xeon 6780E)

SPECspeed®2017\_int\_peak = 9.87

CPU2017 License: 6573  
Test Sponsor: Dell Inc.  
Tested by: Dell Inc.

Test Date: Aug-2024  
Hardware Availability: Jul-2024  
Software Availability: Jun-2024

## Platform Notes (Continued)

```
stepping      : 3
microcode     : 0x30001b3
bugs          : spectre_v1 spectre_v2 spec_store_bypass swapgs bhi
cpu cores     : 144
siblings      : 144
2 physical ids (chips)
288 processors (hardware threads)
physical id 0: core ids 0-143
physical id 1: core ids 0-143
physical id 0: apicids
0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40,42,44,46,48,50,52,54,56,58,60,62,64,66,68,70,72
,74,76,78,80,82,84,86,88,90,92,94,96,98,100,102,104,106,108,110,112,114,116,118,120,122,124,126,128,130,1
32,134,136,138,140,142,144,146,148,150,152,154,156,158,160,162,164,166,168,170,172,174,176,178,180,182,18
4,186,188,190,192,194,196,198,200,202,204,206,208,210,212,214,216,218,220,222,224,226,228,230,232,234,236
,238,240,242,244,246,248,250,252,254,256,258,260,262,264,266,268,270,272,274,276,278,280,282,284,286
physical id 1: apicids
512,514,516,518,520,522,524,526,528,530,532,534,536,538,540,542,544,546,548,550,552,554,556,558,560,562,5
64,566,568,570,572,574,576,578,580,582,584,586,588,590,592,594,596,598,600,602,604,606,608,610,612,614,61
6,618,620,622,624,626,628,630,632,634,636,638,640,642,644,646,648,650,652,654,656,658,660,662,664,666,668
,670,672,674,676,678,680,682,684,686,688,690,692,694,696,698,700,702,704,706,708,710,712,714,716,718,720
,722,724,726,728,730,732,734,736,738,740,742,744,746,748,750,752,754,756,758,760,762,764,766,768,770,772,7
74,776,778,780,782,784,786,788,790,792,794,796,798
```

Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for virtualized systems. Use the above data carefully.

### 7. lscpu

From lscpu from util-linux 2.39.3:

```
Architecture:          x86_64
CPU op-mode(s):        32-bit, 64-bit
Address sizes:          52 bits physical, 48 bits virtual
Byte Order:             Little Endian
CPU(s):                 288
On-line CPU(s) list:   0-287
Vendor ID:              GenuineIntel
BIOS Vendor ID:        Intel
Model name:             Intel(R) Xeon(R) 6780E
BIOS Model name:       Intel(R) Xeon(R) 6780E  CPU @ 2.2GHz
BIOS CPU family:        179
CPU family:             6
Model:                  175
Thread(s) per core:    1
Core(s) per socket:    144
Socket(s):              2
Stepping:               3
BogoMIPS:               4400.00
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 fl6c rdrand lahf_lm abm
3dnowprefetch cpuid_fault epb cat_l3 cat_l2 cdp_l3 intel_ppin cdp_l2
ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow flexpriority ept
vpid ept_ad fsgsbase tsc_adjust bml avx2 smep bmi2 erms invpcid cqm
rdt_a rdseed adx smap clflushopt clwb intel_pt sha_ni xsaveopt xsavec
xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local
split_lock_detect user_shstk avx_vnni lam wbnoinvd dtherm ida arat
```

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_int\_base = 9.66

PowerEdge R670 (Intel Xeon 6780E)

SPECspeed®2017\_int\_peak = 9.87

CPU2017 License: 6573  
Test Sponsor: Dell Inc.  
Tested by: Dell Inc.

Test Date: Aug-2024  
Hardware Availability: Jul-2024  
Software Availability: Jun-2024

## Platform Notes (Continued)

pln pts vmni umip pku ospke waitpkg gfni vaes vpcmlmulqdg tme rdpid  
bus\_lock\_detect cldemote movdiri movdir64b enqcmd fsrm md\_clear  
serialize pconfig arch\_lbr ibt flush\_lld arch\_capabilities  
VT-x

### Virtualization:

L1d cache: 9 MiB (288 instances)  
L1i cache: 18 MiB (288 instances)  
L2 cache: 288 MiB (72 instances)  
L3 cache: 216 MiB (2 instances)  
NUMA node(s): 2  
NUMA node0 CPU(s):

0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148, 150, 152, 154, 156, 158, 160, 162, 164, 166, 168, 170, 172, 174, 176, 178, 180, 182, 184, 186, 188, 190, 192, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, 222, 224, 226, 228, 230, 232, 234, 236, 238, 240, 242, 244, 246, 248, 250, 252, 254, 256, 258, 260, 262, 264, 266, 268, 270, 272, 274, 276, 278, 280, 282, 284, 286

### NUMA node1 CPU(s):

1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61, 63, 65, 67, 69, 71, 73, 75, 77, 79, 81, 83, 85, 87, 89, 91, 93, 95, 97, 99, 101, 103, 105, 107, 109, 111, 113, 115, 117, 119, 121, 123, 125, 127, 129, 131, 133, 135, 137, 139, 141, 143, 145, 147, 149, 151, 153, 155, 157, 159, 161, 163, 165, 167, 169, 171, 173, 175, 177, 179, 181, 183, 185, 187, 189, 191, 193, 195, 197, 199, 201, 203, 205, 207, 209, 211, 213, 215, 217, 219, 221, 223, 225, 227, 229, 231, 233, 235, 237, 239, 241, 243, 245, 247, 249, 251, 253, 255, 257, 259, 261, 263, 265, 267, 269, 271, 273, 275, 277, 279, 281, 283, 285, 287

Vulnerability Gather data sampling: Not affected  
Vulnerability Itlb multihit: Not affected  
Vulnerability L1tf: Not affected  
Vulnerability Mds: Not affected  
Vulnerability Meltdown: Not affected  
Vulnerability Mmio stale data: Not affected  
Vulnerability Reg file data sampling: Not affected  
Vulnerability Retbleed: Not affected  
Vulnerability Spec rstack overflow: Not affected  
Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl  
Vulnerability Spectre v1: Mitigation; usercopy/swaps barriers and \_\_user pointer sanitization  
Vulnerability Spectre v2: Mitigation; Enhanced / Automatic IBRS; IBPB conditional; RSB filling; PBRSE-eIBRS Not affected; BHI BHI\_DIS\_S  
Vulnerability Srbds: Not affected  
Vulnerability Tsx async abort: Not affected

### From lscpu --cache:

| NAME | ONE-SIZE | ALL-SIZE | WAYS | TYPE        | LEVEL | SETS   | PHY-LINE | COHERENCY-SIZE |
|------|----------|----------|------|-------------|-------|--------|----------|----------------|
| L1d  | 32K      | 9M       | 8    | Data        | 1     | 64     | 1        | 64             |
| L1i  | 64K      | 18M      | 8    | Instruction | 1     | 128    | 1        | 64             |
| L2   | 4M       | 288M     | 16   | Unified     | 2     | 4096   | 1        | 64             |
| L3   | 108M     | 216M     | 12   | Unified     | 3     | 147456 | 1        | 64             |

### 8. numactl --hardware

NOTE: 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, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148, 150, 152, 154, 156, 158, 160, 162, 164, 166, 168, 170, 172, 174, 176, 178, 180, 182, 184, 186, 188, 190, 192, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, 222, 224, 226, 228, 230, 232, 234, 236, 238, 240, 242, 244, 246, 248, 250, 252, 254, 256, 258, 260, 262, 264, 266, 268, 270, 272, 274, 276, 278, 280, 282, 284, 286

node 0 size: 515590 MB

node 0 free: 504071 MB

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_int\_base = 9.66

PowerEdge R670 (Intel Xeon 6780E)

SPECspeed®2017\_int\_peak = 9.87

CPU2017 License: 6573  
Test Sponsor: Dell Inc.  
Tested by: Dell Inc.

Test Date: Aug-2024  
Hardware Availability: Jul-2024  
Software Availability: Jun-2024

## Platform Notes (Continued)

```
node 1 cpus:
1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31,33,35,37,39,41,43,45,47,49,51,53,55,57,59,61,63,65,67,69,71,73,7
5,77,79,81,83,85,87,89,91,93,95,97,99,101,103,105,107,109,111,113,115,117,119,121,123,125,127,129,131,133,1
35,137,139,141,143,145,147,149,151,153,155,157,159,161,163,165,167,169,171,173,175,177,179,181,183,185,187,
189,191,193,195,197,199,201,203,205,207,209,211,213,215,217,219,221,223,225,227,229,231,233,235,237,239,241
,243,245,247,249,251,253,255,257,259,261,263,265,267,269,271,273,275,277,279,281,283,285,287
node 1 size: 515944 MB
node 1 free: 514678 MB
node distances:
node 0 1
0: 10 21
1: 21 10
```

```
-----
9. /proc/meminfo
MemTotal: 1056291848 kB
```

```
-----
10. who -r
run-level 3 Aug 13 04:51
```

```
-----
11. Systemd service manager version: systemd 254 (254.10+suse.84.ge8d77af424)
Default Target Status
multi-user running
```

```
-----
12. Services, from systemctl list-unit-files
STATE UNIT FILES
enabled YaST2-Firstboot YaST2-Second-Stage apparmor auditd cron display-manager firewalld getty@
irqbalance issue-generator kbdsettings klog lvm2-monitor nscd nvme-fc-boot-connections
nvmf-autotconnect postfix purge-kernels rollback rsyslog smartd sshd systemd-pstore wicked
wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6 wickedd-nanny
enabled-runtime systemd-remount-fs
disabled autofs autoyast-initscripts blk-availability boot-sysctl ca-certificates chrony-wait
chronyd console-getty cups cups-browsed debug-shell ebttables exchange-bmc-os-info fsidd
gpm grub2-once haveged ipmi ipmievd issue-add-ssh-keys kexec-load lunmask man-db-create
multipathd nfs nfs-blkmap rpcbind rpmconfigcheck rsyncd serial-getty@ smartd_generate_opts
snmpd snmptrapd systemd-boot-check-no-failures systemd-confext systemd-network-generator
systemd-sysextd systemd-time-wait-sync systemd-timesyncd udisks2 vncserver@
indirect systemd-userdbd wickedd
```

```
-----
13. Linux kernel boot-time arguments, from /proc/cmdline
BOOT_IMAGE=/boot/vmlinuz-6.4.0-150600.21-default
root=UUID=ab78c1eb-763f-4bbd-bae6-2e79c83e47d6
linux
splash=silent
mitigations=auto
quiet
security=apparmor
```

```
-----
14. cpupower frequency-info
analyzing CPU 1:
Unable to determine current policy
boost state support:
Supported: yes
Active: yes
```

(Continued on next page)





# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_int\_base = 9.66

PowerEdge R670 (Intel Xeon 6780E)

SPECspeed®2017\_int\_peak = 9.87

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Aug-2024

Hardware Availability: Jul-2024

Software Availability: Jun-2024

## Platform Notes (Continued)

### 15. sysctl

```

kernel.numa_balancing      1
kernel.randomize_va_space  2
vm.compaction_proactiveness 20
vm.dirty_background_bytes  0
vm.dirty_background_ratio  10
vm.dirty_bytes             0
vm.dirty_expire_centisecs  3000
vm.dirty_ratio             20
vm.dirty_writeback_centisecs 500
vm.dirtytime_expire_seconds 43200
vm.extfrag_threshold       500
vm.min_unmapped_ratio      1
vm.nr_hugepages            0
vm.nr_hugepages_mempolicy  0
vm.nr_overcommit_hugepages 0
vm.swappiness              60
vm.watermark_boost_factor  15000
vm.watermark_scale_factor  10
vm.zone_reclaim_mode       0

```

### 16. /sys/kernel/mm/transparent\_hugepage

```

defrag      always defer defer+madvice [madvice] never
enabled     [always] madvice never
hpage_pmd_size 2097152
shmem_enabled always within_size advise [never] deny force

```

### 17. /sys/kernel/mm/transparent\_hugepage/khugepaged

```

alloc_sleep_millisecs  60000
defrag                 1
max_ptes_none          511
max_ptes_shared        256
max_ptes_swap          64
pages_to_scan          4096
scan_sleep_millisecs  10000

```

### 18. OS release

```

From /etc/*-release /etc/*-version
os-release SUSE Linux Enterprise Server 15 SP6

```

### 19. Disk information

```

SPEC is set to: /mnt/ramdisk/cpu2017-1.1.9-ic2024.1
Filesystem      Type  Size  Used Avail Use% Mounted on
tmpfs           tmpfs 150G  5.0G 146G   4% /mnt/ramdisk

```

### 20. /sys/devices/virtual/dmi/id

```

Vendor:      Dell Inc.
Product:     PowerEdge R670
Product Family: PowerEdge
Serial:      DN01113

```

### 21. dmidecode

Additional information from dmidecode 3.4 follows. WARNING: Use caution when you interpret this section.

(Continued on next page)





# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_int\_base = 9.66

PowerEdge R670 (Intel Xeon 6780E)

SPECspeed®2017\_int\_peak = 9.87

CPU2017 License: 6573  
Test Sponsor: Dell Inc.  
Tested by: Dell Inc.

Test Date: Aug-2024  
Hardware Availability: Jul-2024  
Software Availability: Jun-2024

## Platform Notes (Continued)

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:

9x 00AD042300AD HMC94AHBRA480N 64 GB 2 rank 6400  
7x 00AD063200AD HMC94AHBRA277N 64 GB 2 rank 6400

### 22. BIOS

(This section combines info from /sys/devices and dmidecode.)

BIOS Vendor: Dell Inc.  
BIOS Version: 1.0.1  
BIOS Date: 06/20/2024  
BIOS Revision: 1.0

## 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) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308  
Copyright (C) 1985-2024 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) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308  
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.

Fortran | 648.exchange2\_s(base, peak)

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308  
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.

## Base Compiler Invocation

C benchmarks:  
icx

C++ benchmarks:  
icpx

Fortran benchmarks:  
ifx



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_int\_base = 9.66

PowerEdge R670 (Intel Xeon 6780E)

SPECspeed®2017\_int\_peak = 9.87

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Aug-2024

Hardware Availability: Jul-2024

Software Availability: Jun-2024

## 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:

```
-w -std=c11 -m64 -Wl,-z,muldefs -xsierraforest -O3 -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp
-DSPEC_OPENMP -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

C++ benchmarks:

```
-w -std=c++14 -m64 -Wl,-z,muldefs -xsierraforest -O3 -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

Fortran benchmarks:

```
-w -m64 -Wl,-z,muldefs -xsierraforest -O3 -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

## Peak Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifx



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_int\_base = 9.66

PowerEdge R670 (Intel Xeon 6780E)

SPECspeed®2017\_int\_peak = 9.87

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Aug-2024

Hardware Availability: Jul-2024

Software Availability: Jun-2024

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

```
600.perlbench_s: -w -m64 -std=c11 -Wl,-z,muldefs
-fprofile-generate(pass 1)
-fprofile-use=default.profdata(pass 2) -xCORE-AVX2 -flto
-Ofast(pass 1) -O3 -ffast-math -mfpmath=sse
-funroll-loops -qopt-mem-layout-trans=4 -fiopenmp
-DSPEC_OPENMP -fno-strict-overflow
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

```
602.gcc_s: -w -m64 -std=c11 -Wl,-z,muldefs
-fprofile-generate(pass 1)
-fprofile-use=default.profdata(pass 2) -xCORE-AVX2 -flto
-Ofast(pass 1) -O3 -ffast-math -mfpmath=sse
-funroll-loops -qopt-mem-layout-trans=4 -fiopenmp
-DSPEC_OPENMP -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

605.mcf\_s: basepeak = yes

```
625.x264_s: -w -std=c11 -m64 -Wl,-z,muldefs -xsierraforest -O3
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP
-fno-alias -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

657.xz\_s: basepeak = yes

C++ benchmarks:

620.omnetpp\_s: basepeak = yes

623.xalancbmk\_s: basepeak = yes

631.deepsjeng\_s: basepeak = yes

641.leela\_s: basepeak = yes

Fortran benchmarks:

648.exchange2\_s: basepeak = yes



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_int\_base = 9.66

PowerEdge R670 (Intel Xeon 6780E)

SPECspeed®2017\_int\_peak = 9.87

**CPU2017 License:** 6573

**Test Sponsor:** Dell Inc.

**Tested by:** Dell Inc.

**Test Date:** Aug-2024

**Hardware Availability:** Jul-2024

**Software Availability:** Jun-2024

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

<http://www.spec.org/cpu2017/flags/Intel-ic2024-official-linux64.html>

<http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-Intel-Xeon-v1.9.html>

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

<http://www.spec.org/cpu2017/flags/Intel-ic2024-official-linux64.xml>

<http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-Intel-Xeon-v1.9.xml>

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](mailto:info@spec.org).

Tested with SPEC CPU®2017 v1.1.9 on 2024-08-13 05:15:32-0400.

Report generated on 2024-08-29 10:51:26 by CPU2017 PDF formatter v6716.

Originally published on 2024-08-27.