



SPEC® CPU2017 Integer Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL580 Gen10

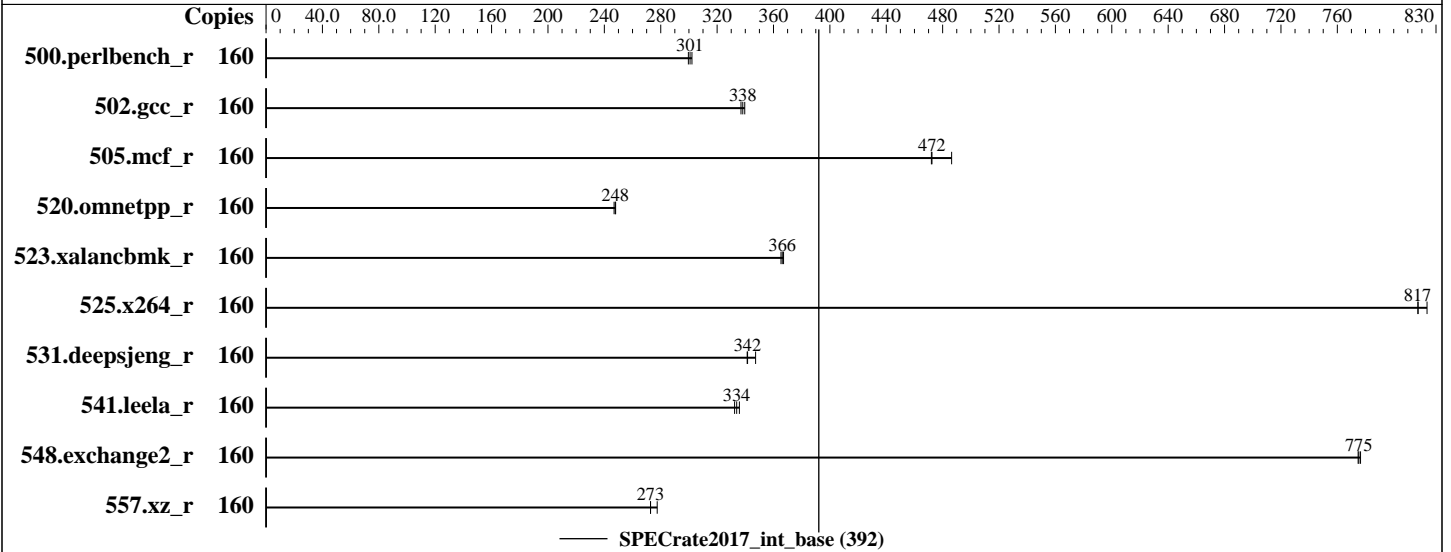
(2.40 GHz, Intel Xeon Gold 6148)

SPECrate2017_int_base = 392

SPECrate2017_int_peak = Not Run

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

Test Date: Dec-2017
Hardware Availability: Oct-2017
Software Availability: Sep-2017



Hardware

CPU Name: Intel Xeon Gold 6148
Max MHz.: 3700
Nominal: 2400
Enabled: 80 cores, 4 chips, 2 threads/core
Orderable: 1, 2, 4 chip(s)
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: 768 GB (48 x 16 GB 2Rx8 PC4-2666V-R)
Storage: 1 x 600 GB SAS 15 K, RAID 0
Other: None

Software

OS: SUSE Linux Enterprise Server 12 (x86_64) SP3
Kernel 4.4.73-5-default
Compiler: C/C++: Version 18.0.0.128 of Intel C/C++ Compiler for Linux;
Fortran: Version 18.0.0.128 of Intel Fortran Compiler for Linux
Parallel: No
Firmware: HPE BIOS Version U34 09/29/2017 released Oct-2017
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: Not Applicable
Other: jemalloc memory allocator library V5.0.1



SPEC CPU2017 Integer Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL580 Gen10

(2.40 GHz, Intel Xeon Gold 6148)

SPECrate2017_int_base = 392

SPECrate2017_int_peak = Not Run

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

Test Date: Dec-2017
Hardware Availability: Oct-2017
Software Availability: Sep-2017

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	160	843	302	847	301	850	300							
502.gcc_r	160	670	338	667	340	672	337							
505.mcf_r	160	532	486	547	472	548	472							
520.omnetpp_r	160	847	248	846	248	850	247							
523.xalancbmk_r	160	460	367	461	366	463	365							
525.x264_r	160	343	817	340	824	343	817							
531.deepsjeng_r	160	528	347	537	342	537	341							
541.leela_r	160	797	332	794	334	789	336							
548.exchange2_r	160	541	775	540	776	541	775							
557.xz_r	160	623	277	634	273	634	273							

SPECrate2017_int_base = 392

SPECrate2017_int_peak = Not Run

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"
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>
irqbalance disabled with "service irqbalance stop"
tuned profile set with "tuned-adm profile throughput-performance"
VM Dirty ratio was set to 40 using "echo 40 > /proc/sys/vm/dirty_ratio"
Numa balancing was disabled using "echo 0 > /proc/sys/kernel/numa_balancing"

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 i7-4790K CPU + 32GB RAM
memory using Redhat Enterprise Linux 7.4

No: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown)

(Continued on next page)



SPEC CPU2017 Integer Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL580 Gen10

(2.40 GHz, Intel Xeon Gold 6148)

SPECrate2017_int_base = 392

SPECrate2017_int_peak = Not Run

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Dec-2017

Hardware Availability: Oct-2017

Software Availability: Sep-2017

General Notes (Continued)

is mitigated in the system as tested and documented.

No: 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.

No: 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.

This benchmark result is intended to provide perspective on past performance using the historical hardware and/or software described on this result page.

The system as described on this result page was formerly generally available. At the time of this publication, it may not be shipping, and/or may not be supported, and/or may fail to meet other tests of General Availability described in the SPEC OSG Policy document, <http://www.spec.org/osg/policy.htm>.

This measured result may not be representative of the result that would be measured were this benchmark run with hardware and software available as of the publication date.

jemalloc: configured and built at default for 32bit (i686) and 64bit (x86_64) targets; built with RedHat Enterprise 7.4, and the system compiler gcc 4.8.5; sources available from jemalloc.net or <https://github.com/jemalloc/jemalloc/releases>

Platform Notes

BIOS Configuration:

Thermal Configuration set to Maximum Cooling

Memory Patrol Scrubbing set to Disabled

LLC Prefetch set to Enabled

LLC Dead Line Allocation set to Disabled

Stale A to S set to Enabled

Workload Profile set to General Throughput Compute

Minimum Processor Idle Power Core C-State set to C1E State

Sysinfo program /home/cpu2017/bin/sysinfo

Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bcc091c0f

running on linux-j6ss Mon Dec 18 23:34:58 2017

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 6148 CPU @ 2.40GHz

4 "physical id"s (chips)

160 "processors"

(Continued on next page)



SPEC CPU2017 Integer Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL580 Gen10

(2.40 GHz, Intel Xeon Gold 6148)

SPECrate2017_int_base = 392

SPECrate2017_int_peak = Not Run

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Dec-2017

Hardware Availability: Oct-2017

Software Availability: Sep-2017

Platform Notes (Continued)

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 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
physical 1: cores 0 1 2 3 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
physical 2: cores 0 1 2 3 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
physical 3: cores 0 1 2 3 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):                 160
On-line CPU(s) list:   0-159
Thread(s) per core:    2
Core(s) per socket:    20
Socket(s):              4
NUMA node(s):          8
Vendor ID:              GenuineIntel
CPU family:             6
Model:                  85
Model name:             Intel(R) Xeon(R) Gold 6148 CPU @ 2.40GHz
Stepping:               4
CPU MHz:                2394.399
BogoMIPS:               4788.79
Virtualization:        VT-x
L1d cache:              32K
L1i cache:              32K
L2 cache:               1024K
L3 cache:               28160K
NUMA node0 CPU(s):     0-9,80-89
NUMA node1 CPU(s):     10-19,90-99
NUMA node2 CPU(s):     20-29,100-109
NUMA node3 CPU(s):     30-39,110-119
NUMA node4 CPU(s):     40-49,120-129
NUMA node5 CPU(s):     50-59,130-139
NUMA node6 CPU(s):     60-69,140-149
NUMA node7 CPU(s):     70-79,150-159

```

```

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
aperfmpperf eagerfpu 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 ida arat epb pln pts dtherm intel_pt
tpr_shadow vnmi flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2
erms invpcid rtm cqm mpx avx512f avx512dq rdseed adx smap clflushopt clwb avx512cd

```

(Continued on next page)



SPEC CPU2017 Integer Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL580 Gen10

(2.40 GHz, Intel Xeon Gold 6148)

SPECrate2017_int_base = 392

SPECrate2017_int_peak = Not Run

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

Test Date: Dec-2017
Hardware Availability: Oct-2017
Software Availability: Sep-2017

Platform Notes (Continued)

avx512bw avx512vl xsaveopt xsavec xgetbv1 cqm_llc cqm_occup_llc pku ospke

```
/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: 8 nodes (0-7)
node 0 cpus: 0 1 2 3 4 5 6 7 8 9 80 81 82 83 84 85 86 87 88 89
node 0 size: 96347 MB
node 0 free: 95993 MB
node 1 cpus: 10 11 12 13 14 15 16 17 18 19 90 91 92 93 94 95 96 97 98 99
node 1 size: 96765 MB
node 1 free: 96542 MB
node 2 cpus: 20 21 22 23 24 25 26 27 28 29 100 101 102 103 104 105 106 107 108 109
node 2 size: 96765 MB
node 2 free: 96633 MB
node 3 cpus: 30 31 32 33 34 35 36 37 38 39 110 111 112 113 114 115 116 117 118 119
node 3 size: 96765 MB
node 3 free: 96618 MB
node 4 cpus: 40 41 42 43 44 45 46 47 48 49 120 121 122 123 124 125 126 127 128 129
node 4 size: 96765 MB
node 4 free: 96640 MB
node 5 cpus: 50 51 52 53 54 55 56 57 58 59 130 131 132 133 134 135 136 137 138 139
node 5 size: 96765 MB
node 5 free: 96628 MB
node 6 cpus: 60 61 62 63 64 65 66 67 68 69 140 141 142 143 144 145 146 147 148 149
node 6 size: 96765 MB
node 6 free: 96638 MB
node 7 cpus: 70 71 72 73 74 75 76 77 78 79 150 151 152 153 154 155 156 157 158 159
node 7 size: 96763 MB
node 7 free: 96641 MB
```

```
node distances:
node  0  1  2  3  4  5  6  7
 0:  10  21  31  31  31  31  31  31
 1:  21  10  31  31  31  31  31  31
 2:  31  31  10  21  31  31  31  31
 3:  31  31  21  10  31  31  31  31
 4:  31  31  31  31  10  21  31  31
 5:  31  31  31  31  21  10  31  31
 6:  31  31  31  31  31  31  10  21
 7:  31  31  31  31  31  31  21  10
```

```
From /proc/meminfo
MemTotal: 792270792 kB
HugePages_Total: 0
Hugepagesize: 2048 kB
```

(Continued on next page)



SPEC CPU2017 Integer Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL580 Gen10

(2.40 GHz, Intel Xeon Gold 6148)

SPECrate2017_int_base = 392

SPECrate2017_int_peak = Not Run

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Dec-2017

Hardware Availability: Oct-2017

Software Availability: Sep-2017

Platform Notes (Continued)

```
/usr/bin/lsb_release -d
SUSE Linux Enterprise Server 12 SP3
```

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

```
SuSE-release:
```

```
SUSE Linux Enterprise Server 12 (x86_64)
```

```
VERSION = 12
```

```
PATCHLEVEL = 3
```

```
# This file is deprecated and will be removed in a future service pack or release.
```

```
# Please check /etc/os-release for details about this release.
```

```
os-release:
```

```
NAME="SLES"
```

```
VERSION="12-SP3"
```

```
VERSION_ID="12.3"
```

```
PRETTY_NAME="SUSE Linux Enterprise Server 12 SP3"
```

```
ID="sles"
```

```
ANSI_COLOR="0;32"
```

```
CPE_NAME="cpe:/o:suse:sles:12:sp3"
```

```
uname -a:
```

```
Linux linux-j6ss 4.4.73-5-default #1 SMP Tue Jul 4 15:33:39 UTC 2017 (b7ce4e4) x86_64
x86_64 x86_64 GNU/Linux
```

```
run-level 3 Dec 18 23:33
```

```
SPEC is set to: /home/cpu2017
```

```
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda4        xfs   517G  194G  323G  38% /home
```

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 HPE U34 09/29/2017
```

```
Memory:
```

```
48x UNKNOWN NOT AVAILABLE 16 GB 2 rank 2666
```

(End of data from sysinfo program)

Compiler Version Notes

```
=====
CC 500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base) 525.x264_r(base)
557.xz_r(base)
=====
```

(Continued on next page)



SPEC CPU2017 Integer Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL580 Gen10

(2.40 GHz, Intel Xeon Gold 6148)

SPECrate2017_int_base = 392

SPECrate2017_int_peak = Not Run

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

Test Date: Dec-2017
Hardware Availability: Oct-2017
Software Availability: Sep-2017

Compiler Version Notes (Continued)

icc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.

=====
CXXC 520.omnetpp_r(base) 523.xalancbmk_r(base) 531.deepsjeng_r(base)
541.leela_r(base)

=====
icpc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.

=====
FC 548.exchange2_r(base)

=====
ifort (IFORT) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.

Base Compiler Invocation

C benchmarks:

icc

C++ benchmarks:

icpc

Fortran benchmarks:

ifort

Base Portability Flags

500.perlbench_r: -DSPEC_LP64 -DSPEC_LINUX_X64
502 gcc_r: -DSPEC_LP64
505.mcf_r: -DSPEC_LP64
520.omnetpp_r: -DSPEC_LP64
523.xalancbmk_r: -DSPEC_LP64 -DSPEC_LINUX
525.x264_r: -DSPEC_LP64
531.deepsjeng_r: -DSPEC_LP64
541.leela_r: -DSPEC_LP64
548.exchange2_r: -DSPEC_LP64
557.xz_r: -DSPEC_LP64



SPEC CPU2017 Integer Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL580 Gen10

(2.40 GHz, Intel Xeon Gold 6148)

SPECrate2017_int_base = 392

SPECrate2017_int_peak = Not Run

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Dec-2017

Hardware Availability: Oct-2017

Software Availability: Sep-2017

Base Optimization Flags

C benchmarks:

```
-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div  
-qopt-mem-layout-trans=3 -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=3 -L/usr/local/je5.0.1-64/lib -ljemalloc
```

Fortran benchmarks:

```
-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div  
-qopt-mem-layout-trans=3 -nostandard-realloc-lhs -align array32byte  
-L/usr/local/je5.0.1-64/lib -ljemalloc
```

Base Other Flags

C benchmarks:

```
-m64 -std=c11
```

C++ benchmarks:

```
-m64
```

Fortran benchmarks:

```
-m64
```

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

<http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.2017-10-19.html>

<http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-Intel-V1.2-SKX-revG.html>

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

<http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.2017-10-19.xml>

<http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-Intel-V1.2-SKX-revG.xml>

SPEC is a registered trademark 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 CPU2017 v1.0.2 on 2017-12-19 00:34:57-0500.

Report generated on 2018-10-31 18:07:49 by CPU2017 PDF formatter v6067.

Originally published on 2018-06-13.