



SPEC® CPU2017 Integer Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Huawei

SPECrate2017_int_base = 551

Huawei 8100 V5 (Intel Xeon Platinum 8153)

SPECrate2017_int_peak = Not Run

CPU2017 License: 3175

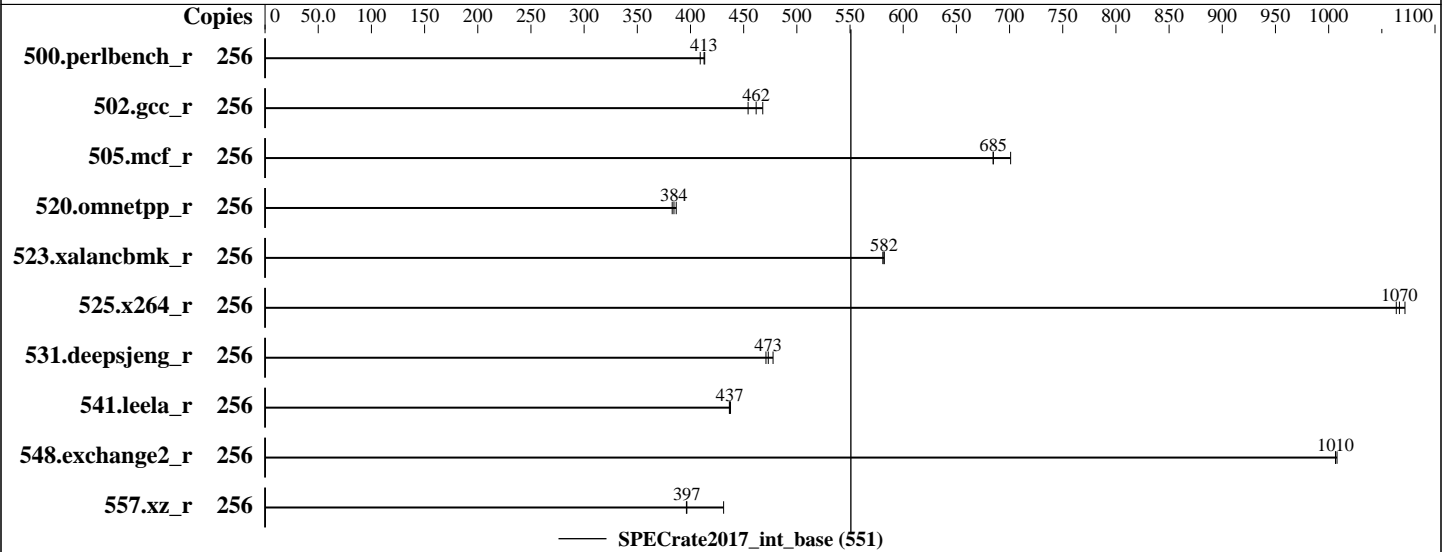
Test Sponsor: Huawei

Tested by: Huawei

Test Date: Jun-2018

Hardware Availability: Jul-2018

Software Availability: Mar-2018



Hardware

CPU Name: Intel Xeon Platinum 8153
 Max MHz.: 2800
 Nominal: 2000
 Enabled: 128 cores, 8 chips, 2 threads/core
 Orderable: 2,4,8 chips
 Cache L1: 32 KB I + 32 KB D on chip per core
 L2: 1 MB I+D on chip per core
 L3: 22 MB I+D on chip per chip
 Other: None
 Memory: 1536 GB (48 x 32 GB 2Rx4 PC4-2666V-R)
 Storage: 2 x 900 GB SAS HDD 10K RPM, RAID 0
 Other: None

Software

OS: SUSE Linux Enterprise Server 12 SP2
 4.4.120-92.70-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: Version 0.80 released Feb-2018
 File System: ext4
 System State: Run level 5 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: Not Applicable
 Other: jemalloc: jemalloc memory allocator library V5.0.1



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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	256	986	413	996	409	987	413							
502.gcc_r	256	785	462	775	468	798	454							
505.mcf_r	256	590	701	604	685	604	685							
520.omnetpp_r	256	874	384	877	383	869	387							
523.xalancbmk_r	256	464	582	465	581	464	582							
525.x264_r	256	418	1070	421	1060	420	1070							
531.deepsjeng_r	256	614	478	623	471	620	473							
541.leela_r	256	969	438	971	437	970	437							
548.exchange2_r	256	666	1010	666	1010	665	1010							
557.xz_r	256	641	431	698	396	697	397							

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

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: configured and built at default for

32bit (i686) and 64bit (x86_64) targets;

jemalloc: built with the RedHat Enterprise 7.4,

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General Notes (Continued)

and the system compiler gcc 4.8.5;
jemalloc: sources available from jemalloc.net or
<https://github.com/jemalloc/jemalloc/releases>;
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) 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.

Platform Notes

BIOS configuration:
Sub NUMA Cluster (SNC) set to enabled
IMC (Integrated memory controller) Interleaving set to 1 way interleave
Xtended Prediction Table (XPT) Prefetch set to Enable
Memory Patrol Scrub set to Disable
Last Level Cache (LLC) Prefetch set to Disable
Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bcc091c0f
running on linux-0mnb Tue Jun 5 23:05:39 2018

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) Platinum 8153 CPU @ 2.00GHz
8 "physical id"s (chips)
256 "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 : 16
siblings : 32
physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
physical 2: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
physical 3: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
physical 4: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
physical 5: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
physical 6: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
physical 7: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit

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Platform Notes (Continued)

```

Byte Order:                Little Endian
CPU(s):                    256
On-line CPU(s) list:      0-255
Thread(s) per core:       2
Core(s) per socket:       16
Socket(s):                 8
NUMA node(s):             16
Vendor ID:                 GenuineIntel
CPU family:                6
Model:                    85
Model name:               Intel(R) Xeon(R) Platinum 8153 CPU @ 2.00GHz
Stepping:                 4
CPU MHz:                  2000.040
BogoMIPS:                 4000.08
Virtualization:          VT-x
L1d cache:               32K
L1i cache:               32K
L2 cache:                1024K
L3 cache:                22528K
NUMA node0 CPU(s):       0-3,8-11,128-131,136-139
NUMA node1 CPU(s):       4-7,12-15,132-135,140-143
NUMA node2 CPU(s):       16-19,24-27,144-147,152-155
NUMA node3 CPU(s):       20-23,28-31,148-151,156-159
NUMA node4 CPU(s):       32-35,40-43,160-163,168-171
NUMA node5 CPU(s):       36-39,44-47,164-167,172-175
NUMA node6 CPU(s):       48-51,56-59,176-179,184-187
NUMA node7 CPU(s):       52-55,60-63,180-183,188-191
NUMA node8 CPU(s):       64-67,72-75,192-195,200-203
NUMA node9 CPU(s):       68-71,76-79,196-199,204-207
NUMA node10 CPU(s):      80-83,88-91,208-211,216-219
NUMA node11 CPU(s):      84-87,92-95,212-215,220-223
NUMA node12 CPU(s):      96-99,104-107,224-227,232-235
NUMA node13 CPU(s):     100-103,108-111,228-231,236-239
NUMA node14 CPU(s):     112-115,120-123,240-243,248-251
NUMA node15 CPU(s):     116-119,124-127,244-247,252-255
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 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 invpcid_single pln pts dtherm
intel_pt rsb_ctxsw spec_ctrl stibp retpoline kaiser tpr_shadow vnmi flexpriority ept
vpid fsgsbase tsc_adjust bmil hle avx2 smep bmi2 erms invpcid rtm cqm mpx avx512f
avx512dq rdseed adx smap clflushopt clwb avx512cd avx512bw avx512vl xsaveopt xsavec
xgetbv1 cqm_llc cqm_occup_llc

```

/proc/cpuinfo cache data

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Platform Notes (Continued)

cache size : 22528 KB

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

available: 16 nodes (0-15)

node 0 cpus: 0 1 2 3 8 9 10 11 128 129 130 131 136 137 138 139

node 0 size: 94993 MB

node 0 free: 94660 MB

node 1 cpus: 4 5 6 7 12 13 14 15 132 133 134 135 140 141 142 143

node 1 size: 96762 MB

node 1 free: 96471 MB

node 2 cpus: 16 17 18 19 24 25 26 27 144 145 146 147 152 153 154 155

node 2 size: 96762 MB

node 2 free: 96554 MB

node 3 cpus: 20 21 22 23 28 29 30 31 148 149 150 151 156 157 158 159

node 3 size: 96762 MB

node 3 free: 96623 MB

node 4 cpus: 32 33 34 35 40 41 42 43 160 161 162 163 168 169 170 171

node 4 size: 96762 MB

node 4 free: 96603 MB

node 5 cpus: 36 37 38 39 44 45 46 47 164 165 166 167 172 173 174 175

node 5 size: 96762 MB

node 5 free: 96628 MB

node 6 cpus: 48 49 50 51 56 57 58 59 176 177 178 179 184 185 186 187

node 6 size: 96762 MB

node 6 free: 96381 MB

node 7 cpus: 52 53 54 55 60 61 62 63 180 181 182 183 188 189 190 191

node 7 size: 96762 MB

node 7 free: 96583 MB

node 8 cpus: 64 65 66 67 72 73 74 75 192 193 194 195 200 201 202 203

node 8 size: 96762 MB

node 8 free: 96598 MB

node 9 cpus: 68 69 70 71 76 77 78 79 196 197 198 199 204 205 206 207

node 9 size: 96762 MB

node 9 free: 96616 MB

node 10 cpus: 80 81 82 83 88 89 90 91 208 209 210 211 216 217 218 219

node 10 size: 96762 MB

node 10 free: 96621 MB

node 11 cpus: 84 85 86 87 92 93 94 95 212 213 214 215 220 221 222 223

node 11 size: 96762 MB

node 11 free: 96623 MB

node 12 cpus: 96 97 98 99 104 105 106 107 224 225 226 227 232 233 234 235

node 12 size: 96762 MB

node 12 free: 96628 MB

node 13 cpus: 100 101 102 103 108 109 110 111 228 229 230 231 236 237 238 239

node 13 size: 96762 MB

node 13 free: 96642 MB

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Platform Notes (Continued)

```

node 14 cpus: 112 113 114 115 120 121 122 123 240 241 242 243 248 249 250 251
node 14 size: 96762 MB
node 14 free: 96591 MB
node 15 cpus: 116 117 118 119 124 125 126 127 244 245 246 247 252 253 254 255
node 15 size: 96605 MB
node 15 free: 96486 MB
node distances:
node  0  1  2  3  4  5  6  7  8  9 10 11 12 13 14 15
 0: 10 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
 1: 20 10 20 20 20 20 20 20 20 20 20 20 20 20 20 20
 2: 20 20 10 20 20 20 20 20 20 20 20 20 20 20 20 20
 3: 20 20 20 10 20 20 20 20 20 20 20 20 20 20 20 20
 4: 20 20 20 20 10 20 20 20 20 20 20 20 20 20 20 20
 5: 20 20 20 20 20 10 20 20 20 20 20 20 20 20 20 20
 6: 20 20 20 20 20 20 10 20 20 20 20 20 20 20 20 20
 7: 20 20 20 20 20 20 20 10 20 20 20 20 20 20 20 20
 8: 20 20 20 20 20 20 20 20 10 20 20 20 20 20 20 20
 9: 20 20 20 20 20 20 20 20 20 10 20 20 20 20 20 20
10: 20 20 20 20 20 20 20 20 20 20 10 20 20 20 20 20
11: 20 20 20 20 20 20 20 20 20 20 20 10 20 20 20 20
12: 20 20 20 20 20 20 20 20 20 20 20 20 10 20 20 20
13: 20 20 20 20 20 20 20 20 20 20 20 20 20 10 20 20
14: 20 20 20 20 20 20 20 20 20 20 20 20 20 20 10 20
15: 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 10

```

From /proc/meminfo

```

MemTotal:      1583378172 kB
HugePages_Total:      0
Hugepagesize:    2048 kB

```

/usr/bin/lsb_release -d

SUSE Linux Enterprise Server 12 SP2

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

SuSE-release:

SUSE Linux Enterprise Server 12 (x86_64)

VERSION = 12

PATCHLEVEL = 2

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-SP2"

VERSION_ID="12.2"

PRETTY_NAME="SUSE Linux Enterprise Server 12 SP2"

ID="sles"

ANSI_COLOR="0;32"

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Platform Notes (Continued)

CPE_NAME="cpe:/o:suse:sles:12:sp2"

uname -a:

```
Linux linux-0mnb 4.4.120-92.70-default #1 SMP Wed Mar 14 15:59:43 UTC 2018 (52a83de)
x86_64 x86_64 x86_64 GNU/Linux
```

run-level 5 Jun 5 22:27

SPEC is set to: /home/cpu2017

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sda4	btrfs	1.5T	14G	1.5T	1%	/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 INSYDE Corp. 0.80 02/24/2018

Memory:

48x NO DIMM NO DIMM
48x Samsung M393A4K40BB2-CTD 32 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)
=====

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.

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Compiler Version Notes (Continued)

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

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



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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.html>

<http://www.spec.org/cpu2017/flags/Huawei-Platform-Settings-SKL-V1.7.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.xml>

<http://www.spec.org/cpu2017/flags/Huawei-Platform-Settings-SKL-V1.7.xml>

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

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