SPEC® CPU2017 Integer Rate Result

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Fujitsu

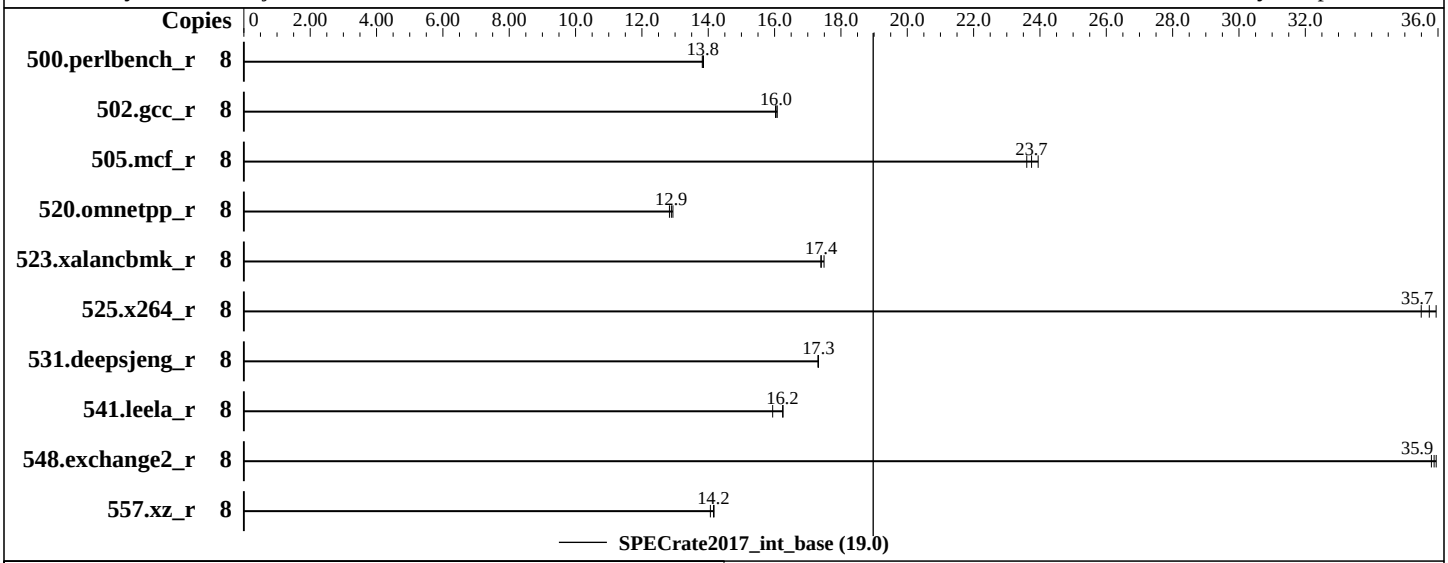
PRIMERGY CX1430 M1, Intel Xeon D-1521, 2.40GHz

SPECrate2017_int_base = 19.0

SPECrate2017_int_peak = Not Run

CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu

Test Date: Jun-2018
Hardware Availability: May-2018
Software Availability: Apr-2018



Hardware

CPU Name:	Intel Xeon D-1521
Max MHz.:	2700
Nominal:	2400
Enabled:	4 cores, 1 chip, 2 threads/core
Orderable:	1 chip
Cache L1:	32 KB I + 32 KB D on chip per core
L2:	256 KB I+D on chip per core
L3:	6 MB I+D on chip per chip
Other:	None
Memory:	128 GB (4 x 32 GB 2Rx4 PC4-2400T-R, running at 2133)
Storage:	1 x SAS HDD, 1 TB, 7200 RPM
Other:	None

Software

OS:	SUSE Linux Enterprise Server 12 SP2 4.4.114-92.64-default
Compiler:	C/C++: Version 18.0.1.163 of Intel C/C++ Compiler for Linux; Fortran: Version 18.0.1.163 of Intel Fortran Compiler for Linux
Parallel:	No
Firmware:	American Megatrends BIOS Version C419A020. Released Apr-2018
File System:	xfs
System State:	Run level 3 (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	8	**920**	**13.8**	919	13.9	922	13.8							
502.gcc_r	8	707	16.0	**706**	**16.0**	704	16.1							
505.mcf_r	8	540	23.9	**544**	**23.7**	548	23.6							
520.omnetpp_r	8	818	12.8	811	12.9	**814**	**12.9**							
523.xalancbmk_r	8	483	17.5	**485**	**17.4**	486	17.4							
525.x264_r	8	395	35.5	**392**	**35.7**	390	35.9							
531.deepsjeng_r	8	530	17.3	529	17.3	**529**	**17.3**							
541.leela_r	8	831	15.9	**816**	**16.2**	815	16.3							
548.exchange2_r	8	**584**	**35.9**	585	35.8	583	35.9							
557.xz_r	8	**610**	**14.2**	610	14.2	614	14.1							

SPECrate2017_int_base = 19.0

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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"
Set CPU frequency governor to maximum performance with:
cpupower -c all frequency-set -g performance
cpu idle state set with:
cpupower idle-set -d 1
```

General Notes

```
Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/home/SPECcpu/speccpu2017-ic18.1-20171215-1/icc18.1-lib/intel64"
LD_LIBRARY_PATH = "${LD_LIBRARY_PATH}:/home/SPECcpu/speccpu2017-ic18.1-20171215-1/je5.0.1-32"
LD_LIBRARY_PATH = "${LD_LIBRARY_PATH}:/home/SPECcpu/speccpu2017-ic18.1-20171215-1/je5.0.1-64"
 Binaries compiled on a system with 1x Intel Xeon D-1521 CPU + 128GB RAM
 memory using SUSE Linux Enterprise Server 12 SP2
 Transparent Huge Pages enabled by default
 Prior to runcpu invocation
 Filesystem page cache synced and cleared with:
 sync; echo 1 > /proc/sys/vm/drop_caches
 runcpu command invoked through numactl i.e.:
 numactl --interleave=all runcpu <etc>
```

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General Notes (Continued)

```
 jemalloc: configured and built at default for 32bit (i686) and 64bit (x86_64) targets;
 jemalloc: built with the RedHat Enterprise 7.4, and the system compiler gcc 4.8.5;
 jemalloc: jemalloc: sources available via jemalloc.net;
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:
 Intel Virtualization Technology = Disabled
 HWPM Support = Disabled
 Sysinfo program /home/SPECcpu/speccpu2017-ic18.1-20171215-1/bin/sysinfo
 Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bcc091c0f
 running on linux-grrg Mon Jun 25 23:43:46 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) CPU D-1521 @ 2.40GHz
       1  "physical id"s (chips)
       8 "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 : 4
       siblings  : 8
       physical 0: cores 0 1 2 3

 From lscpu:
      Architecture:          x86_64
      CPU op-mode(s):        32-bit, 64-bit
      Byte Order:            Little Endian
      CPU(s):                8
      On-line CPU(s) list:   0-7
      Thread(s) per core:    2
      Core(s) per socket:    4
      Socket(s):             1
      NUMA node(s):          1
      Vendor ID:             GenuineIntel
      CPU family:            6
      Model:                 86
```

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Platform Notes (Continued)

```
      Model name:            Intel(R) Xeon(R) CPU D-1521 @ 2.40GHz
      Stepping:              3
      CPU MHz:               1374.465
      CPU max MHz:           2700.0000
      CPU min MHz:           800.0000
      BogoMIPS:              4799.92
      Virtualization:        VT-x
      L1d cache:             32K
      L1i cache:             32K
      L2 cache:              256K
      L3 cache:              6144K
      NUMA node0 CPU(s):     0-7
      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 arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc aperfmperf
      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 invpcid_single pln pts dtherm
      intel_pt spec_ctrl retpoline kaiser tpr_shadow vnmi flexpriority ept vpid fsgsbase
      tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm cqm rdseed adx smap xsaveopt
      cqm_llc cqm_occup_llc

  /proc/cpuinfo cache data
     cache size : 6144 KB

  From numactl --hardware  WARNING: a numactl 'node' might or might not correspond to a
  physical chip.
    available: 1 nodes (0)
    node 0 cpus: 0 1 2 3 4 5 6 7
    node 0 size: 128659 MB
    node 0 free: 128088 MB
    node distances:
    node   0
      0:  10

  From /proc/meminfo
     MemTotal:       131746904 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
```

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Platform Notes (Continued)

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

 uname -a:
    Linux linux-grrg 4.4.114-92.64-default #1 SMP Thu Feb 1 19:18:19 UTC 2018 (c6ce5db)
    x86_64 x86_64 x86_64 GNU/Linux

 run-level 3 Jun 25 08:32

 SPEC is set to: /home/SPECcpu/speccpu2017-ic18.1-20171215-1
    Filesystem     Type  Size  Used Avail Use% Mounted on
    /dev/sda9      xfs   530G   26G  504G   5% /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 American Megatrends Inc. C419A020 04/03/2018
   Memory:
    4x Hynix Semiconductor HMA84GR7AFR4N-UH 32 GB 2 rank 2400, configured at 2133

 (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) 18.0.1 20171018
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)
------------------------------------------------------------------------------
```

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Compiler Version Notes (Continued)

```
icpc (ICC) 18.0.1 20171018
Copyright (C) 1985-2017 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------

==============================================================================
 FC  548.exchange2_r(base)
------------------------------------------------------------------------------
ifort (IFORT) 18.0.1 20171018
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

Base Optimization Flags

C benchmarks:
-Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=3 -L/usr/local/je5.0.1-64/lib -ljemalloc

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Base Optimization Flags (Continued)

C++ benchmarks:
-Wl,-z,muldefs -xCORE-AVX2 -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-AVX2 -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/Fujitsu-Platform-Settings-V1.2-SKL-RevD.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/Fujitsu-Platform-Settings-V1.2-SKL-RevD.xml

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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 2018-06-25 10:43:45-0400.
Report generated on 2018-10-31 18:55:42 by CPU2017 PS formatter v6067.
Originally published on 2018-07-10.