



SPEC® CPU2017 Integer Rate Result

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Fujitsu

PRIMERGY TX1330 M3, Intel Xeon E3-1220 v6, 3.0 GHz

SPECrate2017_int_base = 20.7

SPECrate2017_int_peak = Not Run

CPU2017 License: 19

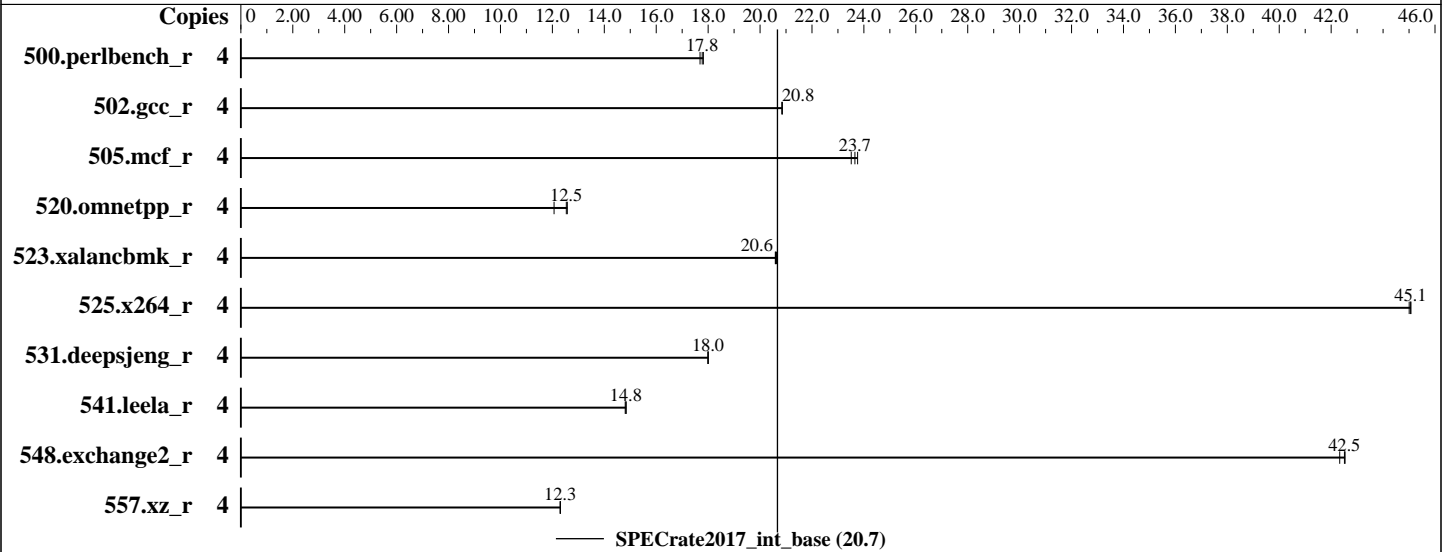
Test Sponsor: Fujitsu

Tested by: Fujitsu

Test Date: Oct-2017

Hardware Availability: May-2017

Software Availability: Sep-2017



Hardware

CPU Name: Intel Xeon E3-1220 v6
 Max MHz.: 3500
 Nominal: 3000
 Enabled: 4 cores, 1 chip
 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: 8 MB I+D on chip per chip
 Other: None
 Memory: 64 GB (4 x 16 GB 2Rx8 PC4-2400T-E)
 Storage: 1 x SATA, 500 GB, 7200RPM
 Other: None

Software

OS: SUSE Linux Enterprise Server 12 SP2 4.4.21-69-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: Fujitsu BIOS Version V5.0.0.11 R1.0.0 for D3373-B1x. Released Feb-2017
 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;
 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: sources available via jemalloc.net;



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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	4	357	17.8	360	17.7	358	17.8							
502.gcc_r	4	272	20.8	272	20.8	272	20.9							
505.mcf_r	4	275	23.5	273	23.7	272	23.8							
520.omnetpp_r	4	419	12.5	435	12.1	417	12.6							
523.xalancbmk_r	4	205	20.6	205	20.6	205	20.6							
525.x264_r	4	155	45.1	155	45.1	156	45.0							
531.deepsjeng_r	4	255	18.0	255	18.0	255	18.0							
541.leela_r	4	447	14.8	446	14.8	447	14.8							
548.exchange2_r	4	246	42.5	248	42.3	247	42.5							
557.xz_r	4	351	12.3	351	12.3	351	12.3							

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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 2
cpupower idle-set -d 3
Process tuning settings:
echo always > /sys/kernel/mm/transparent_hugepage/enabled
echo 1 > /proc/sys/vm/drop_caches
echo 1000000000 > /proc/sys/kernel/sched_min_granularity_ns
```

General Notes

Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/home/Benchmark/speccpu2017-bin0901/lib/ia32:/home/Benchmark/speccpu2017-bin0901/lib/intel64"
LD_LIBRARY_PATH = "\$LD_LIBRARY_PATH:/home/Benchmark/speccpu2017-bin0901/je5.0.1-32"
LD_LIBRARY_PATH = "\$LD_LIBRARY_PATH:/home/Benchmark/speccpu2017-bin0901/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

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General Notes (Continued)

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>

Platform Notes

Sysinfo program /home/Benchmark/speccpu2017-bin0901/bin/sysinfo
Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bcc091c0f
running on linux-n511 Thu Oct 19 10:52:26 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) CPU E3-1220 v6 @ 3.00GHz
1 "physical id"s (chips)
4 "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 : 4
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): 4
On-line CPU(s) list: 0-3
Thread(s) per core: 1
Core(s) per socket: 4
Socket(s): 1
NUMA node(s): 1
Vendor ID: GenuineIntel
CPU family: 6
Model: 158
Model name: Intel(R) Xeon(R) CPU E3-1220 v6 @ 3.00GHz
Stepping: 9
CPU MHz: 3139.092
CPU max MHz: 3500.0000
CPU min MHz: 800.0000
BogoMIPS: 6000.15

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Platform Notes (Continued)

Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 256K
L3 cache: 8192K
NUMA node0 CPU(s): 0-3

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 aperfmperf eagerfpu pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16 xtpr pdcm pcid 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 hwp hwp_notify hwp_act_window hwp_epp intel_pt tpr_shadow vnmi flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm mpx rdseed adx smap clflushopt xsaveopt xsavec xgetbv1

```
/proc/cpuinfo cache data
cache size : 8192 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
node 0 size: 64113 MB
node 0 free: 63611 MB
node distances:
node 0
0: 10
```

From /proc/meminfo

```
MemTotal: 65652660 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"
```

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Platform Notes (Continued)

```
VERSION_ID="12.2"
PRETTY_NAME="SUSE Linux Enterprise Server 12 SP2"
ID="sles"
ANSI_COLOR="0;32"
CPE_NAME="/o:suse:sles:12:sp2"
```

```
uname -a:
Linux linux-n511 4.4.21-69-default #1 SMP Tue Oct 25 10:58:20 UTC 2016 (9464f67)
x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 Oct 19 08:03
```

```
SPEC is set to: /home/Benchmark/speccpu2017-bin0901
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda7       xfs   424G   16G  408G   4% /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 FUJITSU // American Megatrends Inc. V5.0.0.11 R1.0.0 for D3373-B1x
02/20/2017
```

```
Memory:
4x Samsung M391A2K43BB1-CRC 16 GB 2 rank 2400
```

(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.xalanbmk_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.
```

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Compiler Version Notes (Continued)

FC 548.exchange2_r(base)

ifort (IFORT) 18.0.0 20170811
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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

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)

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-BDW-RevF.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-BDW-RevF.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 2017-10-19 10:52:25-0400.

Report generated on 2018-10-31 12:59:51 by CPU2017 PDF formatter v6067.

Originally published on 2017-11-14.