



SPEC CPU®2017 Integer Speed Result

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Fujitsu

SPECspeed®2017_int_base = 14.6

PRIMERGY TX1330 M5, Intel Xeon E-2374G, 3.70GHz

SPECspeed®2017_int_peak = Not Run

CPU2017 License: 19

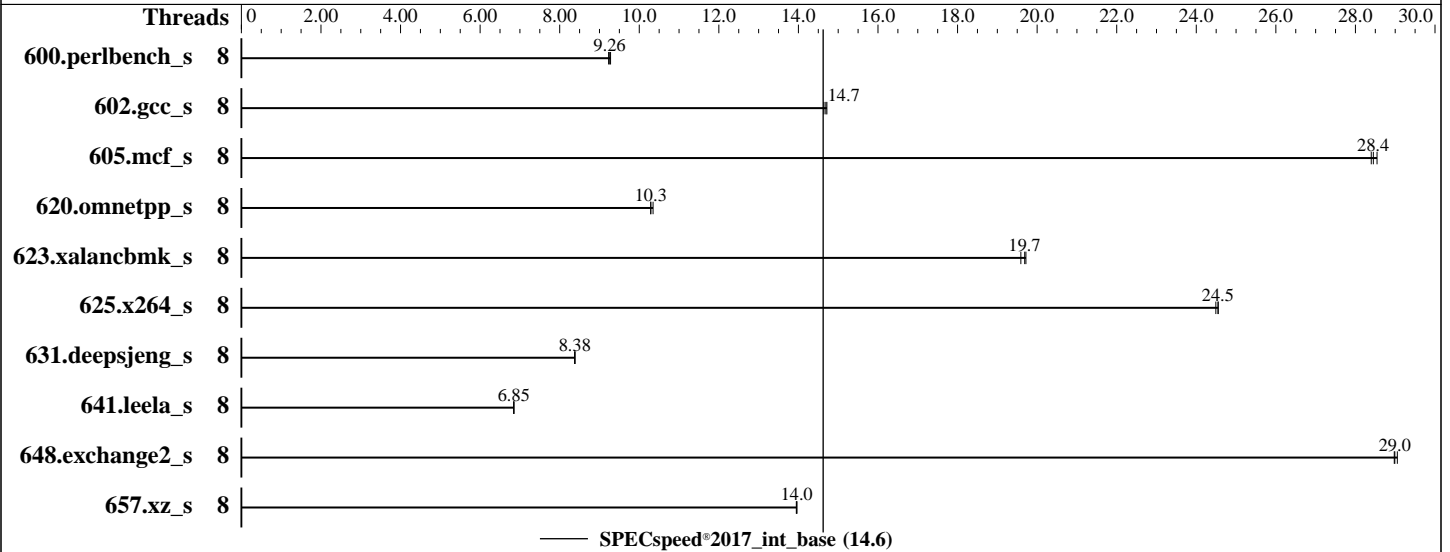
Test Sponsor: Fujitsu

Tested by: Fujitsu

Test Date: Jan-2022

Hardware Availability: Mar-2022

Software Availability: Jun-2021



Hardware

CPU Name: Intel Xeon E-2374G
 Max MHz: 5000
 Nominal: 3700
 Enabled: 4 cores, 1 chip, 2 threads/core
 Orderable: 1 chip
 Cache L1: 32 KB I + 48 KB D on chip per core
 L2: 512 KB I+D on chip per core
 L3: 8 MB I+D on chip per chip
 Other: None
 Memory: 32 GB (2 x 16 GB 2Rx8 PC4-3200AA-E, running at 2933)
 Storage: 1 x SATA M.2 SSD, 240GB
 Other: None

Software

OS: SUSE Linux Enterprise Server 15 SP3
 5.3.18-57-default
 Compiler: C/C++: Version 2021.1 of Intel oneAPI DPC++/C++
 Compiler Build 20201113 for Linux;
 Fortran: Version 2021.1 of Intel Fortran Compiler
 Classic Build 20201112 for Linux;
 Parallel: Yes
 Firmware: Fujitsu BIOS Version V5.0.0.22 R1.31.0 for
 D3931-A1x. Released Mar-2022
 tested as V5.0.0.22 R1.20.0 for D3931-A1x Jan-2022
 File System: xfs
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: Not Applicable
 Other: jemalloc memory allocator V5.0.1
 Power Management: BIOS set to prefer performance at the cost of
 additional power usage



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Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	8	192	9.26	192	9.23	191	9.28							
602.gcc_s	8	271	14.7	272	14.6	271	14.7							
605.mcf_s	8	166	28.4	165	28.5	166	28.4							
620.omnetpp_s	8	158	10.3	158	10.3	159	10.3							
623.xalancbmk_s	8	71.9	19.7	72.0	19.7	72.3	19.6							
625.x264_s	8	72.0	24.5	71.9	24.5	71.8	24.6							
631.deepsjeng_s	8	171	8.38	171	8.38	171	8.38							
641.leela_s	8	249	6.85	249	6.85	249	6.85							
648.exchange2_s	8	101	29.0	101	29.0	101	29.1							
657.xz_s	8	443	13.9	443	14.0	443	14.0							

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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"
cpupower -c all frequency-set -g performance

Environment Variables Notes

Environment variables set by runcpu before the start of the run:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH =
"/home/Benchmark/speccpu/lib/intel64:/home/Benchmark/speccpu/je5.0.1-64"
MALLOC_CONF = "retain:true"
OMP_STACKSIZE = "192M"

General Notes

Binaries compiled on a system with 1x Intel Core i9-7980XE CPU + 64GB 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
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.

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General Notes (Continued)

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>

Platform Notes

BIOS configuration:
Energy Efficient Turbo = Disabled
FAN Control = Full
SA GV High Gear = Gear1

Sysinfo program /home/Benchmark/speccpu/bin/sysinfo
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acafc64d
running on localhost Tue Jan 18 15:09:38 2022

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) E-2374G CPU @ 3.70GHz
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 from util-linux 2.36.2:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
Address sizes: 39 bits physical, 48 bits virtual
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: 167
Model name: Intel(R) Xeon(R) E-2374G CPU @ 3.70GHz
Stepping: 1
CPU MHz: 4900.000

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Platform Notes (Continued)

```

CPU max MHz:          5000.0000
CPU min MHz:          800.0000
BogoMIPS:              7392.00
Virtualization:       VT-x
L1d cache:            192 KiB
L1i cache:            128 KiB
L2 cache:              2 MiB
L3 cache:              8 MiB
NUMA node0 CPU(s):    0-7
Vulnerability Itlb multihit: Not affected
Vulnerability L1tf:    Not affected
Vulnerability Mds:     Not affected
Vulnerability Meltdown: Not affected
Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl and seccomp
Vulnerability Spectre v1: Mitigation; usercopy/swapgs barriers and __user pointer sanitization
Vulnerability Spectre v2: Mitigation; Enhanced IBRS, IBPB conditional, RSB filling
Vulnerability Srbds:    Not affected
Vulnerability Tsx async abort: Not affected
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 sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abm 3dnowprefetch cpuid_fault epb invpcid_single ssbd ibrs ibpb stibp ibrs_enhanced tpr_shadow vnmi flexpriority ept vpid ept_ad fsgsbase tsc_adjust bmi1 avx2 smep bmi2 erms invpcid mpx avx512f avx512dq rdseed adx smap avx512ifma clflushopt intel_pt avx512cd sha_ni avx512bw avx512vl xsaveopt xsavec xgetbv1 xsaves dtherm ida arat pln pts hwp hwp_notify hwp_act_window hwp_epp hwp_pkg_req avx512vbmi umip pku ospke avx512_vbmi2 gfni vaes vpclmulqdq avx512_vnni avx512_bitalg avx512_vpopcntdq rdpid fsrm md_clear flush_l1d arch_capabilities

```

From `lscpu --cache:`

NAME	ONE-SIZE	ALL-SIZE	WAYS	TYPE	LEVEL	SETS	PHY-LINE	COHERENCY-SIZE
L1d	48K	192K	12	Data	1	64	1	64
L1i	32K	128K	8	Instruction	1	64	1	64
L2	512K	2M	8	Unified	2	1024	1	64
L3	8M	8M	16	Unified	3	8192	1	64

`/proc/cpuinfo` cache data
cache size : 8192 KB

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

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Platform Notes (Continued)

```

available: 1 nodes (0)
node 0 cpus: 0 1 2 3 4 5 6 7
node 0 size: 31516 MB
node 0 free: 31071 MB
node distances:
node 0
0: 10

```

From /proc/meminfo

```

MemTotal: 32272424 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

```

/sys/devices/system/cpu/cpu*/cpufreq/scaling_governor has performance

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

```

os-release:
NAME="SLES"
VERSION="15-SP3"
VERSION_ID="15.3"
PRETTY_NAME="SUSE Linux Enterprise Server 15 SP3"
ID="sles"
ID_LIKE="suse"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:15:sp3"

```

uname -a:

```

Linux localhost 5.3.18-57-default #1 SMP Wed Apr 28 10:54:41 UTC 2021
(ba3c2e9/lp-5d9e8aa) x86_64 x86_64 x86_64 GNU/Linux

```

Kernel self-reported vulnerability status:

```

CVE-2018-12207 (iTLB Multihit): Not affected
CVE-2018-3620 (L1 Terminal Fault): Not affected
Microarchitectural Data Sampling: Not affected
CVE-2017-5754 (Meltdown): Not affected
CVE-2018-3639 (Speculative Store Bypass): Mitigation: Speculative Store
Bypass disabled via prctl and
seccomp
CVE-2017-5753 (Spectre variant 1): Mitigation: usercopy/swapgs
barriers and __user pointer
sanitization
CVE-2017-5715 (Spectre variant 2): Mitigation: Enhanced IBRS, IBPB:
conditional, RSB filling
CVE-2020-0543 (Special Register Buffer Data Sampling): Not affected
CVE-2019-11135 (TSX Asynchronous Abort): Not affected

```

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Platform Notes (Continued)

run-level 3 Jan 18 15:08

SPEC is set to: /home/Benchmark/speccpu
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda4 xfs 180G 43G 137G 24% /home

From /sys/devices/virtual/dmi/id
Vendor: FUJITSU
Product: PRIMERGY TX1330 M5
Product Family: SERVER
Serial: EWBUxxxxxxx

Additional information from dmidecode 3.2 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.

Memory:
2x Samsung M391A2K43DB1-CWE 16 GB 2 rank 3200, configured at 2933

BIOS:
BIOS Vendor: FUJITSU // American Megatrends International, LLC.
BIOS Version: V5.0.0.22 R1.20.0 for D3931-A1x
BIOS Date: 01/11/2022
BIOS Revision: 1.20

(End of data from sysinfo program)

Compiler Version Notes

=====
C | 600.perlbench_s(base) 602.gcc_s(base) 605.mcf_s(base)
 | 625.x264_s(base) 657.xz_s(base)
=====

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
Version 2021.1 Build 20201113
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
=====

=====
C++ | 620.omnetpp_s(base) 623.xalancbmk_s(base) 631.deepsjeng_s(base)
 | 641.leela_s(base)
=====

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
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Compiler Version Notes (Continued)

=====
Fortran | 648.exchange2_s(base)

Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on
Intel(R) 64, Version 2021.1 Build 20201112_000000
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

Base Compiler Invocation

C benchmarks:
icx

C++ benchmarks:
icpx

Fortran benchmarks:
ifort

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:
-DSPEC_OPENMP -std=c11 -m64 -fiopenmp -Wl,-z,muldefs -xCORE-AVX2
-O3 -ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -mbranches-within-32B-boundaries
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

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Base Optimization Flags (Continued)

C++ benchmarks:

```
-DSPEC_OPENMP -m64 -Wl,-z,muldefs -xCORE-AVX2 -O3 -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-mbranches-within-32B-boundaries
-L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin/
-lqkmalloc
```

Fortran benchmarks:

```
-m64 -xCORE-AVX2 -O3 -ipo -no-prec-div -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte -auto
-mbranches-within-32B-boundaries
```

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

<http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.0-RKL-RevD.html>
http://www.spec.org/cpu2017/flags/Intel-ic2021-official-linux64_revA.html

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

<http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.0-RKL-RevD.xml>
http://www.spec.org/cpu2017/flags/Intel-ic2021-official-linux64_revA.xml

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Tested with SPEC CPU®2017 v1.1.8 on 2022-01-18 01:09:38-0500.
Report generated on 2022-03-16 13:58:53 by CPU2017 PDF formatter v6442.
Originally published on 2022-03-16.