



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

Supermicro

Microcloud SuperServer SYS-530MT-H12TRF
(X12STE-F, Intel Xeon E-2378G)

SPECspeed®2017_int_base = 15.5

SPECspeed®2017_int_peak = 15.9

CPU2017 License: 001176

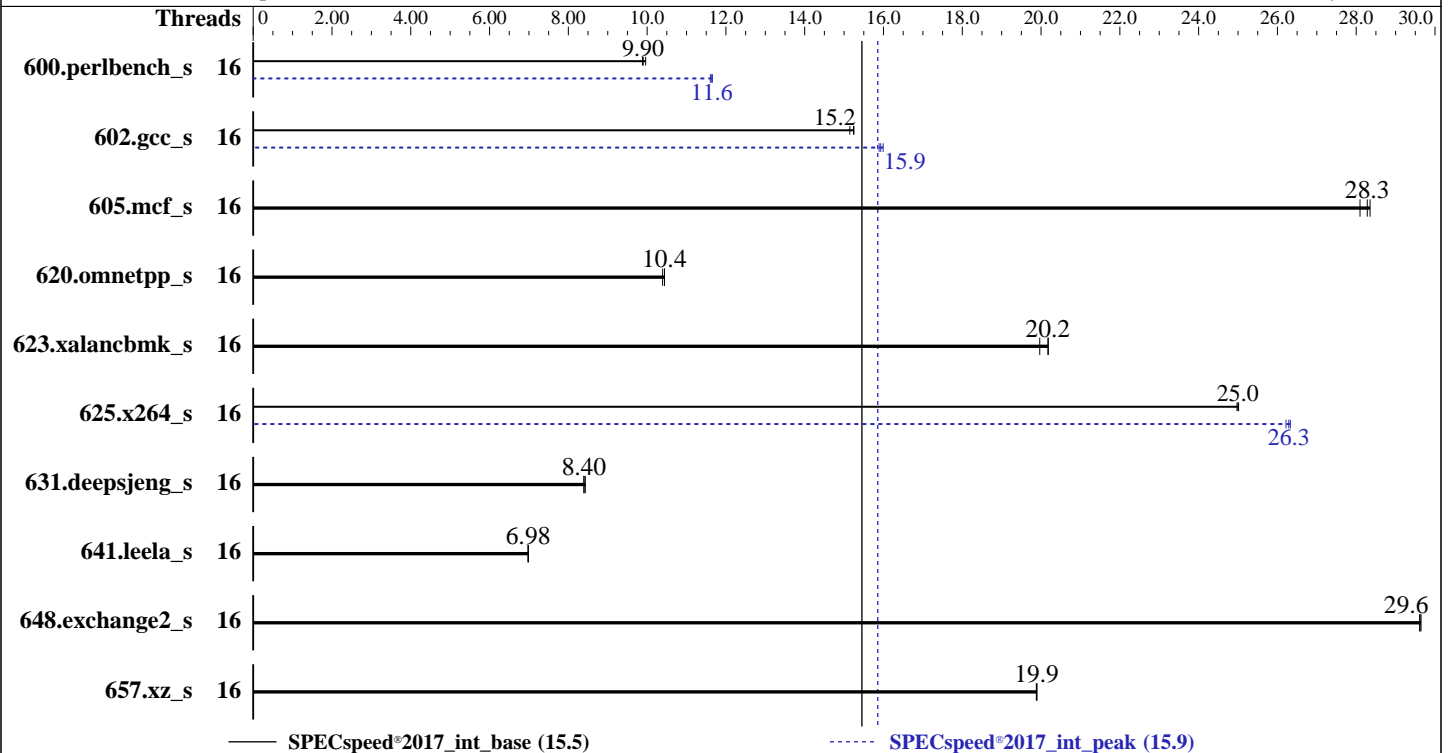
Test Sponsor: Supermicro

Tested by: Supermicro

Test Date: Oct-2021

Hardware Availability: Sep-2021

Software Availability: May-2021



Hardware

CPU Name: Intel Xeon E-2378G
 Max MHz: 5100
 Nominal: 2800
 Enabled: 8 cores, 1 chip, 2 threads/core
 Orderable: 1 xhip
 Cache L1: 32 KB I + 48 KB D on chip per core
 L2: 512 KB I+D on chip per core
 L3: 16 MB I+D on chip per chip
 Other: None
 Memory: 128 GB (4 x 32 GB 2Rx8 PC4-3200AA-E)
 Storage: 1 x 200 GB SATA III SSD
 Other: None

Software

OS: Red Hat Enterprise Linux release 8.4
 Kernel 4.18.0-305.el8.x86_64
 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;
 C/C++: Version 2021.1 of Intel C/C++ Compiler Classic Build 20201112 for Linux
 Parallel: Yes
 Firmware: Version 1.0 released Sep-2021
 File System: xfs
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: 64-bit
 Other: jemalloc memory allocator V5.0.1
 Power Management: OS set to prefer performance at the cost of additional power usage.



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

Supermicro

Microcloud SuperServer SYS-530MT-H12TRF
(X12STE-F, Intel Xeon E-2378G)

SPECspeed®2017_int_base = 15.5

SPECspeed®2017_int_peak = 15.9

CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

Test Date: Oct-2021
Hardware Availability: Sep-2021
Software Availability: May-2021

Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	16	179	9.90	178	9.96	180	9.88	16	152	11.7	152	11.6	153	11.6
602.gcc_s	16	263	15.1	261	15.2	261	15.2	16	249	16.0	250	15.9	251	15.9
605.mcf_s	16	167	28.4	167	28.3	168	28.1	16	167	28.4	167	28.3	168	28.1
620.omnetpp_s	16	156	10.4	156	10.4	157	10.4	16	156	10.4	156	10.4	157	10.4
623.xalancbmk_s	16	71.0	20.0	70.2	20.2	70.2	20.2	16	71.0	20.0	70.2	20.2	70.2	20.2
625.x264_s	16	70.6	25.0	70.5	25.0	70.6	25.0	16	67.3	26.2	67.0	26.3	67.1	26.3
631.deepsjeng_s	16	171	8.40	170	8.43	171	8.39	16	171	8.40	170	8.43	171	8.39
641.leela_s	16	244	6.98	244	6.98	244	6.98	16	244	6.98	244	6.98	244	6.98
648.exchange2_s	16	99.3	29.6	99.3	29.6	99.2	29.6	16	99.3	29.6	99.3	29.6	99.2	29.6
657.xz_s	16	311	19.9	311	19.9	311	19.9	16	311	19.9	311	19.9	311	19.9

SPECspeed®2017_int_base = **15.5**

SPECspeed®2017_int_peak = **15.9**

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"

Environment Variables Notes

Environment variables set by runcpu before the start of the run:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/home/cpu2017/lib/intel64:/home/cpu2017/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.
jemalloc, a general purpose malloc implementation

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

Supermicro

Microcloud SuperServer SYS-530MT-H12TRF
(X12STE-F, Intel Xeon E-2378G)

SPECspeed®2017_int_base = 15.5

SPECspeed®2017_int_peak = 15.9

CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

Test Date: Oct-2021
Hardware Availability: Sep-2021
Software Availability: May-2021

General Notes (Continued)

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

Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acafc64d
running on X12STH-02 Thu Oct 7 20:37:52 2021

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-2378G CPU @ 2.80GHz
1 "physical id"s (chips)
16 "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 : 8
siblings : 16
physical 0: cores 0 1 2 3 4 5 6 7

From lscpu from util-linux 2.32.1:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 16
On-line CPU(s) list: 0-15
Thread(s) per core: 2
Core(s) per socket: 8
Socket(s): 1
NUMA node(s): 1
Vendor ID: GenuineIntel
BIOS Vendor ID: Intel(R) Corporation
CPU family: 6
Model: 167
Model name: Intel(R) Xeon(R) E-2378G CPU @ 2.80GHz
BIOS Model name: Intel(R) Xeon(R) E-2378G CPU @ 2.80GHz
Stepping: 1
CPU MHz: 4111.703
CPU max MHz: 2801.0000
CPU min MHz: 800.0000
BogoMIPS: 5616.00
Virtualization: VT-x

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

Supermicro

Microcloud SuperServer SYS-530MT-H12TRF
(X12STE-F, Intel Xeon E-2378G)

SPECspeed®2017_int_base = 15.5

SPECspeed®2017_int_peak = 15.9

CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

Test Date: Oct-2021
Hardware Availability: Sep-2021
Software Availability: May-2021

Platform Notes (Continued)

```

L1d cache:          48K
L1i cache:          32K
L2 cache:           512K
L3 cache:           16384K
NUMA node0 CPU(s): 0-15
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
xsaves xgetbv1 xsaves dtherm ida arat pln pts avx512vbmi umip pku ospke avx512_vbmi2
gfni vaes vpclmulqdq avx512_vnni avx512_bitalg avx512_vpopcntdq rdpid fsrm md_clear
flush_lld arch_capabilities

```

```

/proc/cpuinfo cache data
cache size : 16384 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 8 9 10 11 12 13 14 15
node 0 size: 128808 MB
node 0 free: 112385 MB
node distances:
node    0
0:     10

```

```

From /proc/meminfo
MemTotal:      131899856 kB
HugePages_Total:      0
Hugepagesize:    2048 kB

```

```

/sbin/tuned-adm active
Current active profile: throughput-performance

```

```

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

```

```

From /etc/*release* /etc/*version*
os-release:
NAME="Red Hat Enterprise Linux"
VERSION="8.4 (Ootpa)"
ID="rhel"

```

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

Supermicro

Microcloud SuperServer SYS-530MT-H12TRF
(X12STE-F, Intel Xeon E-2378G)

SPECspeed®2017_int_base = 15.5

SPECspeed®2017_int_peak = 15.9

CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

Test Date: Oct-2021
Hardware Availability: Sep-2021
Software Availability: May-2021

Platform Notes (Continued)

```
ID_LIKE="fedora"
VERSION_ID="8.4"
PLATFORM_ID="platform:el8"
PRETTY_NAME="Red Hat Enterprise Linux 8.4 (Ootpa)"
ANSI_COLOR="0;31"
```

```
redhat-release: Red Hat Enterprise Linux release 8.4 (Ootpa)
system-release: Red Hat Enterprise Linux release 8.4 (Ootpa)
system-release-cpe: cpe:/o:redhat:enterprise_linux:8.4:ga
```

```
uname -a:
Linux X12STH-02 4.18.0-305.el8.x86_64 #1 SMP Thu Apr 29 08:54:30 EDT 2021 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

```
run-level 3 Oct 5 14:12
```

```
SPEC is set to: /home/cpu2017
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda4       xfs   184G  23G  161G  13% /
```

```
From /sys/devices/virtual/dmi/id
Vendor:          PM_1631628443
Product:         PPM_1631628443
Serial:          PS_1631628443
```

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:
4x Micron Technology 18ADF4G72AZ-3G2B3 32 GB 2 rank 3200

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

Supermicro

Microcloud SuperServer SYS-530MT-H12TRF
(X12STE-F, Intel Xeon E-2378G)

SPECspeed®2017_int_base = 15.5

SPECspeed®2017_int_peak = 15.9

CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

Test Date: Oct-2021
Hardware Availability: Sep-2021
Software Availability: May-2021

Platform Notes (Continued)

BIOS:

BIOS Vendor: American Megatrends International, LLC.
BIOS Version: 1.0
BIOS Date: 09/17/2021
BIOS Revision: 5.22

(End of data from sysinfo program)

Compiler Version Notes

=====
C | 600.perlbench_s(peak)

Intel(R) C 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.

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

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 | 600.perlbench_s(peak)

Intel(R) C 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.

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

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.

=====

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

Supermicro

Microcloud SuperServer SYS-530MT-H12TRF
(X12STE-F, Intel Xeon E-2378G)

SPECspeed®2017_int_base = 15.5

SPECspeed®2017_int_peak = 15.9

CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

Test Date: Oct-2021
Hardware Availability: Sep-2021
Software Availability: May-2021

Compiler Version Notes (Continued)

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

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.

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

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



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

Supermicro

Microcloud SuperServer SYS-530MT-H12TRF
(X12STE-F , Intel Xeon E-2378G)

SPECspeed®2017_int_base = 15.5

SPECspeed®2017_int_peak = 15.9

CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

Test Date: Oct-2021
Hardware Availability: Sep-2021
Software Availability: May-2021

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
```

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
```

Peak Compiler Invocation

C benchmarks (except as noted below):

icx

600.perlbench_s: icc

C++ benchmarks:

icpx

Fortran benchmarks:

ifort

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

Supermicro

Microcloud SuperServer SYS-530MT-H12TRF
(X12STE-F, Intel Xeon E-2378G)

SPECspeed®2017_int_base = 15.5

SPECspeed®2017_int_peak = 15.9

CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

Test Date: Oct-2021
Hardware Availability: Sep-2021
Software Availability: May-2021

Peak Optimization Flags (Continued)

```
600.perlbench_s: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2)
-xCORE-AVX2 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=4 -fno-strict-overflow
-mbranches-within-32B-boundaries
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

```
602.gcc_s: -m64 -std=c11 -Wl,-z,muldefs -fprofile-generate(pass 1)
-fprofile-use=default.profddata(pass 2) -xCORE-AVX2 -flto
-Ofast(pass 1) -O3 -ffast-math -qopt-mem-layout-trans=4
-mbranches-within-32B-boundaries
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

605.mcf_s: basepeak = yes

```
625.x264_s: -DSPEC_OPENMP -fiopenmp -std=c11 -m64 -Wl,-z,muldefs
-xCORE-AVX2 -flto -O3 -ffast-math
-qopt-mem-layout-trans=4 -fno-alias
-mbranches-within-32B-boundaries
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

657.xz_s: basepeak = yes

C++ benchmarks:

620.omnetpp_s: basepeak = yes

623.xalancbmk_s: basepeak = yes

631.deepsjeng_s: basepeak = yes

641.leela_s: basepeak = yes

Fortran benchmarks:

648.exchange2_s: basepeak = yes

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

http://www.spec.org/cpu2017/flags/Intel-ic2021-official-linux64_revA.html

<http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-RKL-revA.html>

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

http://www.spec.org/cpu2017/flags/Intel-ic2021-official-linux64_revA.xml

<http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-RKL-revA.xml>



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

Supermicro

Microcloud SuperServer SYS-530MT-H12TRF
(X12STE-F , Intel Xeon E-2378G)

SPECspeed®2017_int_base = 15.5

SPECspeed®2017_int_peak = 15.9

CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

Test Date: Oct-2021
Hardware Availability: Sep-2021
Software Availability: May-2021

SPEC CPU and SPECspeed are registered trademarks 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 CPU®2017 v1.1.8 on 2021-10-07 08:37:52-0400.
Report generated on 2021-10-28 11:35:51 by CPU2017 PDF formatter v6442.
Originally published on 2021-10-26.