



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.

ASUS RS520A-E11(KMPA-U16) Server System
2.20 GHz, AMD EPYC 7773X

SPECspeed®2017_int_base = 12.5

SPECspeed®2017_int_peak = 12.6

CPU2017 License: 9016

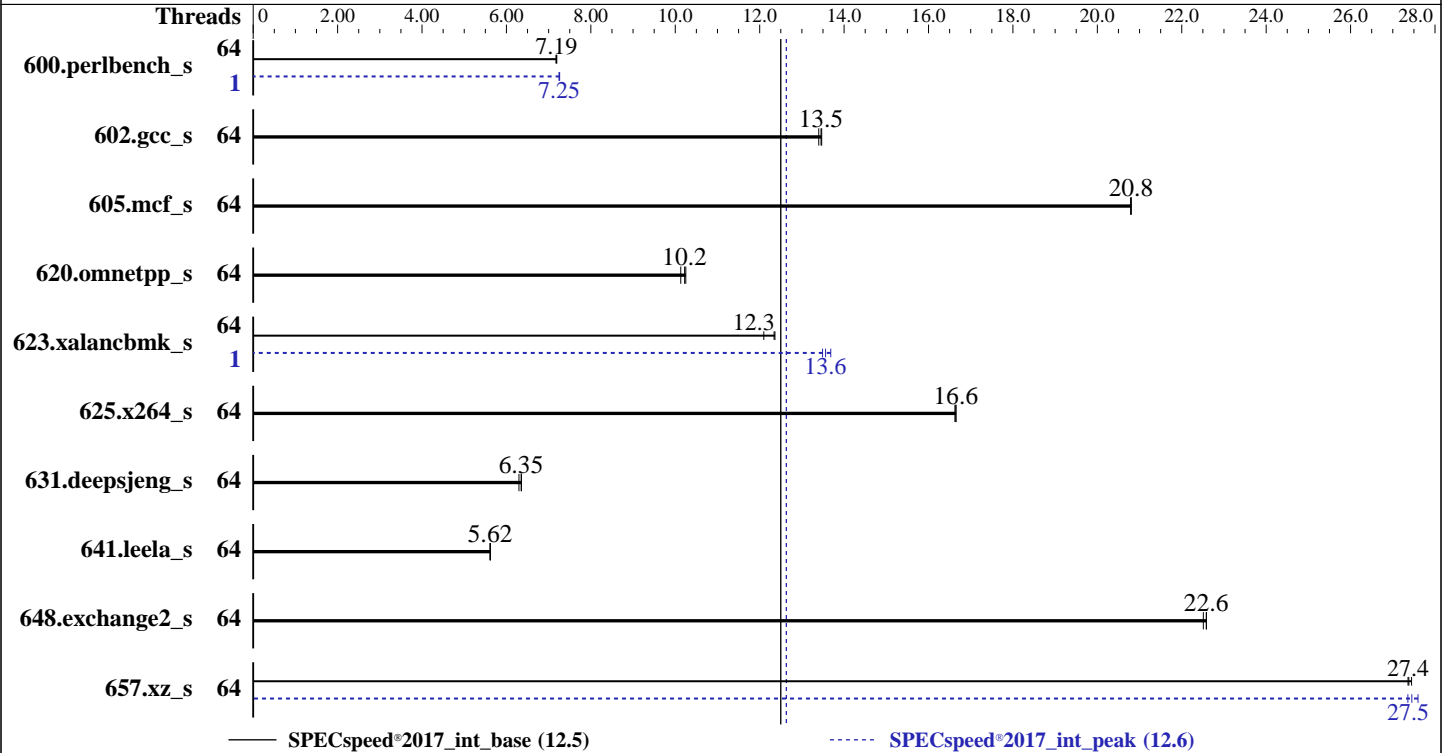
Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Feb-2022

Hardware Availability: Mar-2022

Software Availability: Dec-2021



Hardware

CPU Name: AMD EPYC 7773X
 Max MHz: 3500
 Nominal: 2200
 Enabled: 64 cores, 1 chip, 2 threads/core
 Orderable: 1 chip
 Cache L1: 32 KB I + 32 KB D on chip per core
 L2: 512 KB I+D on chip per core
 L3: 768 MB I+D on chip per chip, 96 MB shared / 8 cores
 Other: None
 Memory: 512 GB (8 x 64 GB 4Rx4 PC4-3200AA-L)
 Storage: 1 x 240 GB SATA SSD
 Other: None

Software

OS: SUSE Linux Enterprise Server 15 SP2 (x86_64)
 Kernel 5.3.18-22-default
 Compiler: C/C++/Fortran: Version 3.2.0 of AOCC
 Parallel: Yes
 Firmware: Version 0901 released Dec-2021
 File System: xfs
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: 64-bit
 Other: jemalloc: jemalloc memory allocator library v5.1.0
 Power Management: BIOS and OS set to prefer performance at the cost of additional power usage.



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.

ASUS RS520A-E11(KMPA-U16) Server System
2.20 GHz, AMD EPYC 7773X

SPECspeed®2017_int_base = 12.5

SPECspeed®2017_int_peak = 12.6

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Feb-2022

Hardware Availability: Mar-2022

Software Availability: Dec-2021

Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	64	247	7.19	247	7.19	247	7.17	1	245	7.25	244	7.26	245	7.25
602.gcc_s	64	296	13.5	296	13.5	297	13.4	64	296	13.5	296	13.5	297	13.4
605.mcf_s	64	227	20.8	227	20.8	227	20.8	64	227	20.8	227	20.8	227	20.8
620.omnetpp_s	64	160	10.2	159	10.2	161	10.1	64	160	10.2	159	10.2	161	10.1
623.xalancbmk_s	64	115	12.4	117	12.1	115	12.3	1	104	13.6	105	13.5	104	13.7
625.x264_s	64	106	16.6	106	16.6	106	16.7	64	106	16.6	106	16.6	106	16.7
631.deepsjeng_s	64	226	6.35	225	6.36	228	6.30	64	226	6.35	225	6.36	228	6.30
641.leela_s	64	304	5.61	304	5.62	304	5.62	64	304	5.61	304	5.62	304	5.62
648.exchange2_s	64	130	22.6	131	22.5	130	22.6	64	130	22.6	131	22.5	130	22.6
657.xz_s	64	225	27.4	226	27.4	226	27.4	64	225	27.5	226	27.4	224	27.6

SPECspeed®2017_int_base = **12.5**

SPECspeed®2017_int_peak = **12.6**

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Compiler Notes

The AMD64 AOCC Compiler Suite is available at
<http://developer.amd.com/amd-aocc/>

Submit Notes

The config file option 'submit' was used.
'numactl' was used to bind copies to the cores.
See the configuration file for details.

Operating System Notes

'ulimit -s unlimited' was used to set environment stack size limit
'ulimit -l 2097152' was used to set environment locked pages in memory limit
OS set to performance mode via cpupower frequency-set -g performance

runcpu command invoked through numactl i.e.:
numactl --interleave=all runcpu <etc>

To limit dirty cache to 8% of memory, 'sysctl -w vm.dirty_ratio=8' run as root.
To limit swap usage to minimum necessary, 'sysctl -w vm.swappiness=1' run as root.
To free node-local memory and avoid remote memory usage,
'sysctl -w vm.zone_reclaim_mode=1' run as root.
To clear filesystem caches, 'sync; sysctl -w vm.drop_caches=3' run as root.
To disable address space layout randomization (ASLR) to reduce run-to-run
variability, 'sysctl -w kernel.randomize_va_space=0' run as root.

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.

ASUS RS520A-E11(KMPA-U16) Server System
2.20 GHz, AMD EPYC 7773X

SPECspeed®2017_int_base = 12.5

SPECspeed®2017_int_peak = 12.6

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Feb-2022

Hardware Availability: Mar-2022

Software Availability: Dec-2021

Operating System Notes (Continued)

To enable Transparent Hugepages (THP) for all allocations,
'echo always > /sys/kernel/mm/transparent_hugepage/enabled' and
'echo always > /sys/kernel/mm/transparent_hugepage/defrag' run as root.

Environment Variables Notes

Environment variables set by runcpu before the start of the run:

GOMP_CPU_AFFINITY = "0-127"

LD_LIBRARY_PATH =

"/spec2017/amd_speed_aocc320_milanx_A_lib/lib:/spec2017/amd_speed_aocc320_milanx_A_lib/lib32:"

LIBOMP_NUM_HIDDEN_HELPER_THREADS = "0"

MALLOC_CONF = "retain:true"

OMP_DYNAMIC = "false"

OMP_SCHEDULE = "static"

OMP_STACKSIZE = "128M"

OMP_THREAD_LIMIT = "128"

Environment variables set by runcpu during the 600.perlbench_s peak run:

GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 623.xalanbmk_s peak run:

GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 657.xz_s peak run:

GOMP_CPU_AFFINITY = "0-63"

LIBOMP_NUM_HIDDEN_HELPER_THREADS = "0"

General Notes

Binaries were compiled on a system with 2x AMD EPYC 7742 CPU + 1TiB Memory using openSUSE 15.2

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: configured and built with GCC v4.8.2 in RHEL 7.4 (No options specified)

jemalloc 5.1.0 is available here:

<https://github.com/jemalloc/jemalloc/releases/download/5.1.0/jemalloc-5.1.0.tar.bz2>



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.

ASUS RS520A-E11(KMPA-U16) Server System
2.20 GHz, AMD EPYC 7773X

SPECspeed®2017_int_base = 12.5

SPECspeed®2017_int_peak = 12.6

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Feb-2022

Hardware Availability: Mar-2022

Software Availability: Dec-2021

Platform Notes

BIOS Configuration:
DLWM Support = Disabled
SVM Mode = Disabled
NUMA nodes per socket = NPS2
APBDIS = 1
Fix SOC P-state = P0
Engine Boost = Enabled
IOMMU = Disabled

Sysinfo program /spec2017/bin/sysinfo
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acafc64d
running on localhost Mon Feb 21 20:41:53 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 : AMD EPYC 7773X 64-Core Processor
1 "physical id"s (chips)
128 "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 : 64
siblings : 128
physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52
53 54 55 56 57 58 59 60 61 62 63

From lscpu from util-linux 2.33.1:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
Address sizes: 48 bits physical, 48 bits virtual
CPU(s): 128
On-line CPU(s) list: 0-127
Thread(s) per core: 2
Core(s) per socket: 64
Socket(s): 1
NUMA node(s): 2
Vendor ID: AuthenticAMD
CPU family: 25
Model: 1
Model name: AMD EPYC 7773X 64-Core Processor
Stepping: 2
CPU MHz: 2202.799
CPU max MHz: 2200.0000

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.

ASUS RS520A-E11(KMPA-U16) Server System
2.20 GHz, AMD EPYC 7773X

SPECspeed®2017_int_base = 12.5

SPECspeed®2017_int_peak = 12.6

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Feb-2022

Hardware Availability: Mar-2022

Software Availability: Dec-2021

Platform Notes (Continued)

```

CPU min MHz:          1500.0000
BogoMIPS:             4443.84
Virtualization:       AMD-V
L1d cache:           32K
L1i cache:           32K
L2 cache:            512K
L3 cache:            98304K
NUMA node0 CPU(s):   0-31,64-95
NUMA node1 CPU(s):   32-63,96-127
Flags:                fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov
pat pse36 clflush mmx fxsr sse sse2 ht syscall nx mmxext fxsr_opt pdpe1gb rdtscp lm
constant_tsc rep_good nopl nonstop_tsc cpuid extd_apicid aperfmperf pni pclmulqdq
monitor ssse3 fma cx16 pcid sse4_1 sse4_2 movbe popcnt aes xsave avx fl6c rdrand
lahf_lm cmp_legacy svm extapic cr8_legacy abm sse4a misalignsse 3dnowprefetch osvw
ibs skinit wdt tce topoext perfctr_core perfctr_nb bpext perfctr_llc mwaitx cpb
cat_l3 cdp_l3 invpcid_single hw_pstate ssbd mba ibrs ibpb stibp vmmcall fsgsbase
bmi1 avx2 smep bmi2 invpcid cqm rdt_a rdseed adx smap clflushopt clwb sha_ni
xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local
clzero irperf xsaveerptr wbnoinvd arat npt lbrv svm_lock nrip_save tsc_scale
vmcb_clean flushbyasid decodeassists pausefilter pfthreshold v_vmsave_vmload vgif
umip pku ospke vaes vpclmulqdq rdpid overflow_recov succor smca

```

```

/proc/cpuinfo cache data
cache size : 512 KB

```

From numactl --hardware

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

```

available: 2 nodes (0-1)
node 0 cpus: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
28 29 30 31 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88
89 90 91 92 93 94 95
node 0 size: 257843 MB
node 0 free: 257150 MB
node 1 cpus: 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56
57 58 59 60 61 62 63 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112
113 114 115 116 117 118 119 120 121 122 123 124 125 126 127
node 1 size: 257984 MB
node 1 free: 257148 MB
node distances:
node  0  1
  0:  10  12
  1:  12  10

```

From /proc/meminfo

```

MemTotal:          528207820 kB
HugePages_Total:      0
Hugepagesize:       2048 kB

```

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.

ASUS RS520A-E11(KMPA-U16) Server System
2.20 GHz, AMD EPYC 7773X

SPECspeed®2017_int_base = 12.5

SPECspeed®2017_int_peak = 12.6

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Feb-2022

Hardware Availability: Mar-2022

Software Availability: Dec-2021

Platform Notes (Continued)

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

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

os-release:

```
NAME="SLES"
VERSION="15-SP2"
VERSION_ID="15.2"
PRETTY_NAME="SUSE Linux Enterprise Server 15 SP2"
ID="sles"
ID_LIKE="suse"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:15:sp2"
```

uname -a:

```
Linux localhost 5.3.18-22-default #1 SMP Wed Jun 3 12:16:43 UTC 2020 (720aeba) 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: Full AMD retpoline, IBPB: conditional, IBRS_FW, STIBP: always-on, RSB filling
CVE-2020-0543 (Special Register Buffer Data Sampling):	Not affected
CVE-2019-11135 (TSX Asynchronous Abort):	Not affected

run-level 3 Feb 21 13:06

SPEC is set to: /spec2017

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sda4	xfs	199G	55G	145G	28%	/

From /sys/devices/virtual/dmi/id

```
Vendor: ASUSTeK COMPUTER INC.
Product: RS520A-E11-RS24U
Product Family: Server
```

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.

ASUS RS520A-E11(KMPA-U16) Server System
2.20 GHz, AMD EPYC 7773X

SPECspeed®2017_int_base = 12.5

SPECspeed®2017_int_peak = 12.6

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Feb-2022

Hardware Availability: Mar-2022

Software Availability: Dec-2021

Platform Notes (Continued)

Serial: 333366669999

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:

8x Samsung M386A8K40DM2-CWE 64 GB 4 rank 3200

8x Unknown Unknown

BIOS:

BIOS Vendor: American Megatrends Inc.

BIOS Version: 0901

BIOS Date: 12/03/2021

BIOS Revision: 9.1

(End of data from sysinfo program)

Compiler Version Notes

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

AMD clang version 13.0.0 (CLANG: AOCC_3.2.0-Build#128 2021_11_12) (based on
LLVM Mirror.Version.13.0.0)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc-compiler-3.2.0/bin
=====

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

AMD clang version 13.0.0 (CLANG: AOCC_3.2.0-Build#128 2021_11_12) (based on
LLVM Mirror.Version.13.0.0)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc-compiler-3.2.0/bin
=====

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

AMD clang version 13.0.0 (CLANG: AOCC_3.2.0-Build#128 2021_11_12) (based on

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.
ASUS RS520A-E11(KMPA-U16) Server System
2.20 GHz, AMD EPYC 7773X

SPECspeed®2017_int_base = 12.5

SPECspeed®2017_int_peak = 12.6

CPU2017 License: 9016
Test Sponsor: ASUSTeK Computer Inc.
Tested by: ASUSTeK Computer Inc.

Test Date: Feb-2022
Hardware Availability: Mar-2022
Software Availability: Dec-2021

Compiler Version Notes (Continued)

LLVM Mirror.Version.13.0.0)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc-compiler-3.2.0/bin

Base Compiler Invocation

C benchmarks:

clang

C++ benchmarks:

clang++

Fortran benchmarks:

flang

Base Portability Flags

600.perlbench_s: -DSPEC_LINUX_X64 -DSPEC_LP64
602.gcc_s: -DSPEC_LP64
605.mcf_s: -DSPEC_LP64
620.omnetpp_s: -DSPEC_LP64
623.xalancbmk_s: -DSPEC_LINUX -DSPEC_LP64
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:

-m64 -Wl,-allow-multiple-definition -Wl,-mllvm -Wl,-enable-licm-vrp
-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver3
-fveclib=AMDLIBM -ffast-math -fopenmp -flto -fstruct-layout=5
-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000
-fremap-arrays -mllvm -function-specialize -flv-function-specialization
-mllvm -enable-gvn-hoist -mllvm -global-vectorize-slp=true

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.

ASUS RS520A-E11(KMPA-U16) Server System
2.20 GHz, AMD EPYC 7773X

SPECspeed®2017_int_base = 12.5

SPECspeed®2017_int_peak = 12.6

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Feb-2022

Hardware Availability: Mar-2022

Software Availability: Dec-2021

Base Optimization Flags (Continued)

C benchmarks (continued):

```
-mllvm -enable-licm-vrp -mllvm -reduce-array-computations=3 -z muldefs
-DSPEC_OPENMP -fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang
```

C++ benchmarks:

```
-m64 -Wl,-mllvm -Wl,-region-vectorize
-Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver3
-fveclib=AMDLIBM -ffast-math -fopenmp -flto
-mllvm -enable-partial-unswitch -mllvm -unroll-threshold=100
-finline-aggressive -flv-function-specialization
-mllvm -loop-unswitch-threshold=200000 -mllvm -reroll-loops
-mllvm -aggressive-loop-unswitch -mllvm -extra-vectorizer-passes
-mllvm -reduce-array-computations=3 -mllvm -global-vectorize-slp=true
-mllvm -convert-pow-exp-to-int=false -z muldefs
-fvirtual-function-elimination -fvisibility=hidden -DSPEC_OPENMP
-fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang
```

Fortran benchmarks:

```
-m64 -Wl,-mllvm -Wl,-inline-recursion=4
-Wl,-mllvm -Wl,-lsr-in-nested-loop -Wl,-mllvm -Wl,-enable-iv-split
-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver3
-fveclib=AMDLIBM -ffast-math -fopenmp -flto -z muldefs
-mllvm -unroll-aggressive -mllvm -unroll-threshold=150 -DSPEC_OPENMP
-fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang
```

Base Other Flags

C benchmarks:

```
-Wno-unused-command-line-argument -Wno-return-type
```

C++ benchmarks:

```
-Wno-unused-command-line-argument -Wno-return-type
```

Fortran benchmarks:

```
-Wno-return-type
```



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.

ASUS RS520A-E11(KMPA-U16) Server System
2.20 GHz, AMD EPYC 7773X

SPECspeed®2017_int_base = 12.5

SPECspeed®2017_int_peak = 12.6

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Feb-2022

Hardware Availability: Mar-2022

Software Availability: Dec-2021

Peak Compiler Invocation

C benchmarks:

clang

C++ benchmarks:

clang++

Fortran benchmarks:

flang

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

```
600.perlbench_s: -m64 -Wl,-allow-multiple-definition
-Wl,-mllvm -Wl,-enable-licm-vrp
-Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver3 -fveclib=AMDLIBM -ffast-math -fopenmp
-flto -fstruct-layout=5 -mllvm -unroll-threshold=50
-freemap-arrays -flv-function-specialization
-mllvm -inline-threshold=1000 -mllvm -enable-gvn-hoist
-mllvm -global-vectorize-slp=true
-mllvm -function-specialize -mllvm -enable-licm-vrp
-mllvm -reduce-array-computations=3 -DSPEC_OPENMP
-fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang
```

602.gcc_s: basepeak = yes

605.mcf_s: basepeak = yes

625.x264_s: basepeak = yes

```
657.xz_s: -m64 -Wl,-allow-multiple-definition
-Wl,-mllvm -Wl,-enable-licm-vrp
-Wl,-mllvm -Wl,-do-block-reorder=aggressive
-Wl,-mllvm -Wl,-region-vectorize
-Wl,-mllvm -Wl,-function-specialize
```

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.

ASUS RS520A-E11(KMPA-U16) Server System
2.20 GHz, AMD EPYC 7773X

SPECspeed®2017_int_base = 12.5

SPECspeed®2017_int_peak = 12.6

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Feb-2022

Hardware Availability: Mar-2022

Software Availability: Dec-2021

Peak Optimization Flags (Continued)

657.xz_s (continued):

```
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver3 -fveclib=AMDLIBM -ffast-math -fopenmp
-flto -fstruct-layout=5 -mllvm -unroll-threshold=50
-mllvm -inline-threshold=1000 -fremap-arrays
-mllvm -function-specialize -flv-function-specialization
-mllvm -enable-gvn-hoist -mllvm -global-vectorize-slp=true
-mllvm -enable-licm-vrp -mllvm -reduce-array-computations=3
-mllvm -do-block-reorder=aggressive -DSPEC_OPENMP
-fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang
```

C++ benchmarks:

620.omnetpp_s: basepeak = yes

```
623.xalancbmk_s: -m64 -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-do-block-reorder=aggressive -Ofast
-march=znver3 -fveclib=AMDLIBM -ffast-math -fopenmp
-flto -finline-aggressive -mllvm -unroll-threshold=100
-flv-function-specialization -mllvm -enable-licm-vrp
-mllvm -reroll-loops -mllvm -aggressive-loop-unswitch
-mllvm -reduce-array-computations=3
-mllvm -global-vectorize-slp=true
-mllvm -do-block-reorder=aggressive
-fvirtual-function-elimination -fvisibility=hidden
-DSPEC_OPENMP -fopenmp=libomp -lomp -lamdlibm -ljemalloc
-lflang
```

631.deepsjeng_s: basepeak = yes

641.leela_s: basepeak = yes

Fortran benchmarks:

648.exchange2_s: basepeak = yes

Peak Other Flags

C benchmarks:

```
-Wno-unused-command-line-argument -Wno-return-type
```

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.

ASUS RS520A-E11(KMPA-U16) Server System
2.20 GHz, AMD EPYC 7773X

SPECspeed®2017_int_base = 12.5

SPECspeed®2017_int_peak = 12.6

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Feb-2022

Hardware Availability: Mar-2022

Software Availability: Dec-2021

Peak Other Flags (Continued)

C++ benchmarks:

-Wno-unused-command-line-argument -Wno-return-type

Fortran benchmarks:

-Wno-return-type

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

<http://www.spec.org/cpu2017/flags/ASUSTekPlatform-Settings-AMD-Milan-V1.5.html>

<http://www.spec.org/cpu2017/flags/aocc320-flags-A1.html>

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

<http://www.spec.org/cpu2017/flags/ASUSTekPlatform-Settings-AMD-Milan-V1.5.xml>

<http://www.spec.org/cpu2017/flags/aocc320-flags-A1.xml>

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 2022-02-21 07:41:52-0500.

Report generated on 2022-03-22 10:59:07 by CPU2017 PDF formatter v6442.

Originally published on 2022-03-22.