**SPEC CPU®2017 Integer Speed Result**

**Supermicro**
A+ Server 2024US-TRT  
(H12DSU-iN, AMD EPYC 7453)

<table>
<thead>
<tr>
<th>Threads</th>
<th>SPECspeed®2017_int_base</th>
<th>SPECspeed®2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>600.perlbench_s: 12.0</td>
<td>11.2</td>
</tr>
<tr>
<td>1</td>
<td>602.gcc_s: 13.2</td>
<td>13.2</td>
</tr>
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<td>1</td>
<td>605.mcf_s: 19.1</td>
<td>19.1</td>
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<tr>
<td>1</td>
<td>620.omnetpp_s: 5.87</td>
<td>5.87</td>
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<tr>
<td>1</td>
<td>623.xalancbmk_s: 12.9</td>
<td>12.9</td>
</tr>
<tr>
<td>1</td>
<td>625.x264_s: 15.8</td>
<td>15.8</td>
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<tr>
<td>1</td>
<td>631.deepsjeng_s: 6.16</td>
<td>6.16</td>
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<tr>
<td>1</td>
<td>641.leela_s: 5.49</td>
<td>5.49</td>
</tr>
<tr>
<td>1</td>
<td>648.exchange2_s: 22.2</td>
<td>22.2</td>
</tr>
<tr>
<td>1</td>
<td>657.xz_s: 23.2</td>
<td>23.2</td>
</tr>
</tbody>
</table>

**Hardware**

- **CPU Name**: AMD EPYC 7453  
- **Max MHz**: 3450  
- **Nominal**: 2750  
- **Enabled**: 56 cores, 2 chips, 2 threads/core  
- **Orderable**: 1.2 chips  
- **Cache L1**: 32 KB I + 32 KB D on chip per core  
- **L2**: 512 KB I+D on chip per core  
- **L3**: 64 MB I+D on chip per core, 16 MB shared / 7 cores  
- **Other**: None  
- **Memory**: 512 GB (16 x 32 GB 2Rx4 PC4-3200AA-R)  
- **Storage**: 1 x 200 GB SATA III SSD  
- **Other**: None

**Software**

- **OS**: Ubuntu 20.04.2 LTS  
- **Kernel**: 5.4.0-73-generic  
- **Compiler**: C/C++/Fortran: Version 3.0.0 of AOCC  
- **Parallel**: Yes  
- **Firmware**: Version 2.0 released Feb-2021  
- **File System**: ext4  
- **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 set to prefer performance at the cost of additional power usage.
Supermicro
A+ Server 2024US-TRT
(H12DSU-iN , AMD EPYC 7453)

SPEC CPU®2017 Integer Speed Result
Copyright 2017-2021 Standard Performance Evaluation Corporation

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
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<tr>
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<td>6.23</td>
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<td>602.gcc_s</td>
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<td>330</td>
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<tr>
<td>623.xalancbmk_s</td>
<td>56</td>
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<td>13.1</td>
<td>110</td>
<td>12.9</td>
<td>56</td>
<td>108</td>
<td>16.0</td>
<td></td>
</tr>
<tr>
<td>625.x264_s</td>
<td>56</td>
<td>112</td>
<td>15.8</td>
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<td>15.8</td>
<td>1</td>
<td>110</td>
<td>16.0</td>
<td></td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>56</td>
<td>232</td>
<td>6.16</td>
<td>232</td>
<td>6.17</td>
<td>56</td>
<td>232</td>
<td>6.16</td>
<td></td>
</tr>
<tr>
<td>641.leela_s</td>
<td>56</td>
<td>310</td>
<td>5.50</td>
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<td>5.48</td>
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<tr>
<td>648.exchange2_s</td>
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<td>133</td>
<td>22.2</td>
<td>133</td>
<td>22.2</td>
<td>56</td>
<td>133</td>
<td>22.2</td>
<td></td>
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<tr>
<td>657.xz_s</td>
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<td>266</td>
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<td>266</td>
<td>23.2</td>
<td>56</td>
<td>266</td>
<td>23.3</td>
<td></td>
</tr>
</tbody>
</table>

SPECspeed®2017_int_base = 11.1
SPECspeed®2017_int_peak = 11.2

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
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.
To enable Transparent Hugepages (THP) for all allocations,

(Continued on next page)
## SPEC CPU®2017 Integer Speed Result

**Supermicro**

A+ Server 2024US-TRT  
(H12DSU-iN, AMD EPYC 7453)

| SPECspeed®2017_int_base | 11.1 |
| SPECspeed®2017_int_peak | 11.2 |

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

| Test Date: | May-2021 |
| Hardware Availability: | Mar-2021 |
| Software Availability: | Apr-2021 |

### Operating System Notes (Continued)

'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 = "0-111"`
- `LD_LIBRARY_PATH = "/home/cpu2017/amd_speed_aocc300_milan_B_lib/lib;/home/cpu2017/amd_speed_aocc300_milan_B_lib/lib32:"`
- `MALLOCONF = "retain:true"
- `OMP_DYNAM = "false"
- `OMP_SCHEDULE = "static"
- `OMP_STACKSIZE = "128M"
- `OMP_THREAD_LIMIT = "112"

Environment variables set by runcpu during the 602.gcc_s peak run:

- `GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 605.mcf_s peak run:

- `GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 620.omnetpp_s peak run:

- `GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 625.x264_s peak run:

- `GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 641.leela_s peak run:

- `GOMP_CPU_AFFINITY = "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:

(Continued on next page)
Supermicro
A+ Server 2024US-TRT
(H12DSU-1N, AMD EPYC 7453)

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

SPECspeed®2017_int_base = 11.1
SPECspeed®2017_int_peak = 11.2

Test Date: May-2021
Hardware Availability: Mar-2021
Software Availability: Apr-2021

General Notes (Continued)
https://github.com/jemalloc/jemalloc/releases/download/5.1.0/jemalloc-5.1.0.tar.bz2

Platform Notes

BIOS Settings:
Determinism Control = Manual
Determinism Slider = Power
cTDP Control = Manual
cTDP = 240
Package Power Limit Control = Manual
Package Power Limit = 240
APBDIS = 1
NUMA Nodes Per Socket = NPS4

Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16aca64d
running on h12dsu-7453 Mon May 24 17:59:59 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: AMD EPYC 7453 28-Core Processor
  2 "physical id"s (chips)
  112 "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: 28
siblings: 56
physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27
28 29 30
physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27
28 29 30

From lscpu from util-linux 2.34:
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): 112
On-line CPU(s) list: 0-111
Thread(s) per core: 2
Core(s) per socket: 28
Socket(s): 2

(Continued on next page)
**SPEC CPU®2017 Integer Speed Result**

**Supermicro**

A+ Server 2024US-TRT (H12DSU-iN, AMD EPYC 7453)

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base</th>
<th>SPECspeed®2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.1</td>
<td>11.2</td>
</tr>
</tbody>
</table>

**Platform Notes (Continued)**

- NUMA node(s): 8
- Vendor ID: AuthenticAMD
- CPU family: 25
- Model: 1
- Model name: AMD EPYC 7453 28-Core Processor
- Stepping: 1
- Frequency boost: enabled
- CPU MHz: 1799.546
- CPU max MHz: 2750.0000
- CPU min MHz: 1500.0000
- BogoMIPS: 5499.65
- Virtualization: AMD-V
- L1d cache: 1.8 MiB
- L1i cache: 1.8 MiB
- L2 cache: 28 MiB
- L3 cache: 128 MiB
- NUMA node0 CPU(s): 0-6, 56-62
- NUMA node1 CPU(s): 7-13, 63-69
- NUMA node2 CPU(s): 14-20, 70-76
- NUMA node3 CPU(s): 21-27, 77-83
- NUMA node4 CPU(s): 28-34, 84-90
- NUMA node5 CPU(s): 35-41, 91-97
- NUMA node6 CPU(s): 42-48, 98-104
- NUMA node7 CPU(s): 49-55, 105-111

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 sanitation
Vulnerability Spectre v2: Mitigation; Full AMD retpoline, IBFB conditional, IBRS_FW, STIBP always-on, 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 mmx fxsr sse sse2 hlt 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 f16c rdrand lahf_lm cmp_legacy svm extapic cr8_legacy abm sse4a misalignsse 3nowprefetch osvw ibs k8t mwaitx cpb cat_l3 cdp_l3 invpcid_single hw_pstate ssbd mba ibrs ibpb stibp vmmcall fsgsbase bmi1 avx2 smep bmi2 erms invpcid cmn rdt_a rdsseed adx smap cflushopt clwb sha ni xsaveopt xsaves xsavec xgetbv1 xsaves cmn_llc cmn_occup_llc cmn_mbn_total cmn_mbn_local clzero irperf xsaveepr wbnoinvd arat npt lbv svm_lock nrip_save tsc_scale vmcb_clean flushbyasid decodeassist pausefilter pfthreshold

(Continued on next page)
SPEC CPU®2017 Integer Speed Result

Supermicro
A+ Server 2024US-TRT
(H12DSU-IN, AMD EPYC 7453)

SPECspeed®2017_int_base = 11.1
SPECspeed®2017_int_peak = 11.2

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

Test Date: May-2021
Hardware Availability: Mar-2021
Software Availability: Apr-2021

Platform Notes (Continued)

v_vmsave_vmload vgif umip pku ospke vaes vpclmulqdq rdpid overflow_recov succor smca

From lscpu --cache:

<table>
<thead>
<tr>
<th>NAME</th>
<th>ONE-SIZE</th>
<th>ALL-SIZE</th>
<th>WAYS</th>
<th>TYPE</th>
<th>LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1d</td>
<td>32K</td>
<td>1.8M</td>
<td>8</td>
<td>Data</td>
<td>1</td>
</tr>
<tr>
<td>L1i</td>
<td>32K</td>
<td>1.8M</td>
<td>8</td>
<td>Instruction</td>
<td>1</td>
</tr>
<tr>
<td>L2</td>
<td>512K</td>
<td>28M</td>
<td>8</td>
<td>Unified</td>
<td>2</td>
</tr>
<tr>
<td>L3</td>
<td>16M</td>
<td>128M</td>
<td>16</td>
<td>Unified</td>
<td>3</td>
</tr>
</tbody>
</table>

/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: 8 nodes (0-7)

node 0 cpus: 0 1 2 3 4 5 6 56 57 58 59 60 61 62
node 0 size: 64382 MB
node 0 free: 63985 MB

node 1 cpus: 7 8 9 10 11 12 13 63 64 65 66 67 68 69
node 1 size: 64508 MB
node 1 free: 64062 MB

node 2 cpus: 14 15 16 17 18 19 20 71 72 73 74 75 76
node 2 size: 64508 MB
node 2 free: 64153 MB

node 3 cpus: 21 22 23 24 25 26 27 77 78 79 80 81 82 83
node 3 size: 64496 MB
node 3 free: 64060 MB

node 4 cpus: 28 29 30 31 32 33 34 84 85 86 87 88 89 90
node 4 size: 64508 MB
node 4 free: 63996 MB

node 5 cpus: 35 36 37 38 39 40 41 91 92 93 94 95 96 97
node 5 size: 64508 MB
node 5 free: 64012 MB

node 6 cpus: 42 43 44 45 46 47 48 98 99 100 101 102 103 104
node 6 size: 64484 MB
node 6 free: 64116 MB

node 7 cpus: 49 50 51 52 53 54 55 105 106 107 108 109 110 111
node 7 size: 64507 MB
node 7 free: 64162 MB

node distances:

(Continued on next page)
SPEC CPU®2017 Integer Speed Result

Supermicro
A+ Server 2024US-TRT (H12DSU-iN, AMD EPYC 7453)

SPECspeed®2017_int_base = 11.1
SPECspeed®2017_int_peak = 11.2

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

<table>
<thead>
<tr>
<th>Platform Notes (Continued)</th>
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<tbody>
<tr>
<td>6: 32 32 32 32 12 12 10 12</td>
</tr>
<tr>
<td>7: 32 32 32 32 12 12 12 10</td>
</tr>
</tbody>
</table>

From /proc/meminfo
MemTotal: 528284340 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

/usr/bin/lsb_release -d
Ubuntu 20.04.2 LTS

From /etc/*release* /etc/*version*
debian_version: bullseye/sid
os-release:
  NAME="Ubuntu"
  VERSION="20.04.2 LTS (Focal Fossa)"
  ID=ubuntu
  ID_LIKE=debian
  PRETTY_NAME="Ubuntu 20.04.2 LTS"
  VERSION_ID="20.04"
  HOME_URL="https://www.ubuntu.com/"
  SUPPORT_URL="https://help.ubuntu.com/"

uname -a:
Linux h12dsu-7453 5.4.0-73-generic #82-Ubuntu SMP Wed Apr 14 17:39:42 UTC 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/swapsgs barriers and __user pointer sanitization
CVE-2017-5715 (Spectre variant 2):
  Mitigation: Full AMD retpoline, IBPB: conditional, IBRS_FW, STIBP:
Supermicro
A+ Server 2024US-TRT
(H12DSU-1N, AMD EPYC 7453)

SPECspeed®2017_int_base = 11.1
SPECspeed®2017_int_peak = 11.2

Platform Notes (Continued)
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 May 24 03:46
SPEC is set to: /home/cpu2017
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda3 ext4 178G 18G 152G 11% /

From /sys/devices/virtual/dmi/id
Vendor: Supermicro
Product: AS-2024US-TRT
Serial: 0123456789

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:
16x NO DIMM Unknown
16x SK Hynix HMAA4GR7AJR8N-XN 32 GB 2 rank 3200

BIOS:
BIOS Vendor: American Megatrends Inc.
BIOS Version: 2.0
BIOS Date: 02/22/2021
BIOS Revision: 5.22

(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 12.0.0 (CLANG: AOCC_3.0.0-Build#78 2020_12_10) (based on LLVM Mirror.Version.12.0.0)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc-compiler-3.0.0/bin
==============================================================================
C++     | 620.omnetpp_s(base, peak) 623.xalancbmk_s(base, peak)

(Continued on next page)
Supermicro
A+ Server 2024US-TRT
(H12DSU-iN , AMD EPYC 7453)

SPECspeed®2017_int_base = 11.1
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Compiler Version Notes (Continued)

<table>
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<th>631.deepsjeng_s(base, peak) 641.leela_s(base, peak)</th>
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</table>

AMD clang version 12.0.0 (CLANG: AOCC_3.0.0-Build#78 2020_12_10) (based on LLVM Mirror.Version.12.0.0)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc-compiler-3.0.0/bin

Fortran | 648.exchange2_s(base, peak)

AMD clang version 12.0.0 (CLANG: AOCC_3.0.0-Build#78 2020_12_10) (based on LLVM Mirror.Version.12.0.0)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc-compiler-3.0.0/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.xalancbk_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
## SPEC CPU®2017 Integer Speed Result

**Supermicro**

**A+ Server 2024US-TRT**

(H12DSU-iN , AMD EPYC 7453)

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<tr>
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<td>11.2</td>
</tr>
</tbody>
</table>

### Base Optimization Flags

#### C benchmarks:
- -m64 -mno-adx -mno-sse4a -Wl,-allow-multiple-definition
- -Wl,-mlibvm -Wl,-enable-licm-vrp -Wl,-mlibvm -Wl,-region-vectorize
- -Wl,-mlibvm -Wl,-function-specialize
- -Wl,-mlibvm -Wl,-align-all-nofallthru-blocks=6
- -Wl,-mlibvm -Wl,-reduce-array-computations=3 -O3 -march=znver3
- -fveclib=AMDLIBM -ffast-math -flto -fstruct-layout=5
- -mlibvm -unroll-threshold=50 -mlibvm -inline-threshold=1000
- -fremap-arrays -mlibvm -function-specialize -flv-function-specialization
- -mlibvm -enable-gvn-hoist -mlibvm -global-vectorize-slp=true
- -mlibvm -enable-licm-vrp -mlibvm -reduce-array-computations=3 -z muldefs
- -DSPEC_OPENMP -fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc
- -lflang -lflangrti

#### C++ benchmarks:
- -m64 -std=c++98 -mno-adx -mno-sse4a
- -Wl,-mlibvm -Wl,-do-block-reorder=aggressive
- -Wl,-mlibvm -Wl,-region-vectorize -Wl,-mlibvm -Wl,-function-specialize
- -Wl,-mlibvm -Wl,-align-all-nofallthru-blocks=6
- -Wl,-mlibvm -Wl,-reduce-array-computations=3 -O3 -march=znver3
- -fveclib=AMDLIBM -ffast-math -flto -mlibvm -enable-partial-unswitch
- -mlibvm -unroll-threshold=100 -finline-aggressive
- -flv-function-specialization -mlibvm -loop-unswitch=threshold=200000
- -mlibvm -reroll-loops -mlibvm -aggressive-loop-unswitch
- -mlibvm -extra-vectorizer-passes -mlibvm -reduce-array-computations=3
- -mlibvm -global-vectorize-slp=true -mlibvm -convert-pow-exp-to-int=false
- -z muldefs -mlibvm -do-block-reorder=aggressive
- -fvirtual-function-elimination -ffvisibility=hidden -DSPEC_OPENMP
- -fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc
- -lflang -lflangrti

#### Fortran benchmarks:
- -m64 -mno-adx -mno-sse4a -Wl,-mlibvm -Wl,-inline-recursion=4
- -Wl,-mlibvm -Wl,-lslr-in-nested-loop -Wl,-mlibvm -Wl,-enable-iv-split
- -Wl,-mlibvm -Wl,-region-vectorize -Wl,-mlibvm -Wl,-function-specialize
- -Wl,-mlibvm -Wl,-align-all-nofallthru-blocks=6
- -Wl,-mlibvm -Wl,-reduce-array-computations=3 -O3 -march=znver3
- -fveclib=AMDLIBM -ffast-math -flto -z muldefs
- -mlibvm -unroll-aggressive -mlibvm -unroll-threshold=150 -DSPEC_OPENMP
- -fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc
- -lflang -lflangrti
SPECCPU®2017 Integer Speed Result

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Supermicro
A+ Server 2024US-TRT
(H12DSU-iN, AMD EPYC 7453)

SPECspeed®2017_int_base = 11.1
SPECspeed®2017_int_peak = 11.2

CPU2017 License: 001176
Test Sponsor: Supermicro
Test Date: May-2021
Tested by: Supermicro
Hardware Availability: Mar-2021
Software Availability: Apr-2021

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

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: basepeak = yes

(Continued on next page)
Peak Optimization Flags (Continued)

602.gcc_s (continued):
-mlir -function-specialize -mlir -enable-lcvm-vrp
-mlir -reduce-array-computations=3 -DSPEC_OPENMP -fopenmp
-fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang

605.mcf_s: Same as 602.gcc_s

625.x264_s: Same as 602.gcc_s

657.xz_s: basepeak = yes

C++ benchmarks:

620.omnetpp_s: -m64 -std=c++98 -mno-adx -mno-sse4a
-Wl,-mlir -Wl,-do-block-reorder=aggressive
-Wl,-mlir -Wl,-function-specialize
-Wl,-mlir -Wl,-align-all-nofallback-blocks=6
-Wl,-mlir -Wl,-reduce-array-computations=3 -Ofast
-march=znver3 -fveclib=AMDLIBM -ffast-math -flto
-finline-aggressive -mlir -unroll-threshold=100
-fvml-function-specialization -mlir -enable-lcvm-vrp
-mlir -reroll-loops -mlir -aggressive-loop-unswitch
-mlir -reduce-array-computations=3
-mlir -global-vectorize-slp=true
-mlir -do-block-reorder=aggressive
-fvirtual-function-elimination -fvisibility=hidden
-DSPEC_OPENMP -fopenmp -fopenmp=libomp -lomp -lamdlibm
-ljemalloc -lflang

623.xalancbmk_s: basepeak = yes

631.deepsjeng_s: basepeak = yes

641.leela_s: Same as 620.omnetpp_s

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

<table>
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<tr>
<th>Supermicro</th>
<th>SPECspeed®2017_int_base = 11.1</th>
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<tr>
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<td>SPECspeed®2017_int_peak = 11.2</td>
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</table>

### 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:

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

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**CPU2017 License:** 001176  
**Test Date:** May-2021  
**Test Sponsor:** Supermicro  
**Tested by:** Supermicro  
**Hardware Availability:** Mar-2021  
**Software Availability:** Apr-2021  

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Report generated on 2021-06-08 20:08:24 by CPU2017 PDF formatter v6442.  
Originally published on 2021-06-08.