### SPEC CPU®2017 Integer Speed Result

**Supermicro**

A+ Server 1114S-WN10RT  
(H12SSW-NTR , AMD EPYC 7502)

| SPECspeed®2017_int_base = 8.73 | SPECspeed®2017_int_peak = 9.05 |

<table>
<thead>
<tr>
<th><strong>CPU2017 License:</strong> 001176</th>
<th><strong>Test Date:</strong> Jul-2020</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Test Sponsor:</strong> Supermicro</td>
<td><strong>Hardware Availability:</strong> Jul-2020</td>
</tr>
<tr>
<td><strong>Tested by:</strong> Supermicro</td>
<td><strong>Software Availability:</strong> Nov-2019</td>
</tr>
</tbody>
</table>

#### Threads

<table>
<thead>
<tr>
<th>specmark</th>
<th>600.perlbench_s</th>
<th>602.gcc_s</th>
<th>605.mcf_s</th>
<th>620.omnetpp_s</th>
<th>623.xalancbmk_s</th>
<th>625.x264_s</th>
<th>631.deepsjeng_s</th>
<th>641.leela_s</th>
<th>648.exchange2_s</th>
<th>657.xz_s</th>
</tr>
</thead>
<tbody>
<tr>
<td>32</td>
<td>32</td>
<td>32</td>
<td>32</td>
<td>32</td>
<td>32</td>
<td>32</td>
<td>32</td>
<td>32</td>
<td>32</td>
<td>32</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>4.60</td>
<td>5.12</td>
<td>9.68</td>
<td>4.92</td>
<td>9.36</td>
<td>4.82</td>
<td>16.0</td>
<td>4.23</td>
<td>6.2</td>
<td>18.6</td>
<td>20.4</td>
</tr>
</tbody>
</table>

---

### Hardware

**CPU Name:** AMD EPYC 7502  
**Max MHz:** 3350  
**Nominal:** 2500  
**Enabled:** 32 cores, 1 chip, 2 threads/core  
**Orderable:** 1 chip  
**Cache L1:** 32 KB I + 32 KB D on chip per core  
**Cache L2:** 512 KB I+D on chip per core  
**Cache L3:** 128 MB I+D on chip per chip, 16 MB shared / 4 cores  
**Other:** None  
**Memory:** 512 GB (8 x 64 GB 4Rx4 PC4-3200V-L)  
**Storage:** 1 x 250 GB SATA III SSD  
**Other:** None

---

### Software

**OS:** Ubuntu 19.04  
**Compiler:** kernel 5.0.0-37-generic  
**Parallel:** Yes  
**Firmware:** Version T20200706102212 released Jul-2020  
**File System:** ext4  
**System State:** Run level 5 (multi-user)  
**Base Pointers:** 64-bit  
**Peak Pointers:** 32/64-bit  
**Other:** None  
**Power Management:** BIOS set to prefer performance at the cost of additional power usage.
## SPEC CPU®2017 Integer Speed Result

This test result is for the SPEC CPU®2017 Integer Speed benchmark suite. The test was run on a Supermicro A+ Server 1114S-WN10RT (H12SSW-NTR, AMD EPYC 7502) with SPECspeed®2017_int_base = 8.73 and SPECspeed®2017_int_peak = 9.05. The test was conducted on July 2020.

### 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>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>32</td>
<td>385</td>
<td>4.61</td>
<td>386</td>
<td>4.60</td>
<td>386</td>
<td>4.60</td>
<td>1</td>
<td>345</td>
<td>5.14</td>
<td>345</td>
<td>5.14</td>
<td></td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>32</td>
<td>313</td>
<td>15.1</td>
<td>313</td>
<td>15.1</td>
<td>313</td>
<td>15.1</td>
<td>1</td>
<td>293</td>
<td>16.1</td>
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<td>16.1</td>
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</tr>
<tr>
<td>620.omnetpp_s</td>
<td>32</td>
<td>330</td>
<td>4.94</td>
<td>332</td>
<td>4.92</td>
<td>331</td>
<td>4.92</td>
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<td>328</td>
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<tr>
<td>623.xalanchmk_s</td>
<td>32</td>
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<td>9.36</td>
<td>152</td>
<td>9.32</td>
<td>150</td>
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<td>140</td>
<td>10.2</td>
<td>139</td>
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<tr>
<td>625.x264_s</td>
<td>32</td>
<td>140</td>
<td>12.6</td>
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<td>12.6</td>
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<td>12.8</td>
<td>137</td>
<td>12.9</td>
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<tr>
<td>631.deepsjeng_s</td>
<td>32</td>
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<td>4.75</td>
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<tr>
<td>641.leela_s</td>
<td>32</td>
<td>403</td>
<td>4.23</td>
<td>403</td>
<td>4.23</td>
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<td>403</td>
<td>4.23</td>
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<td>4.23</td>
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</tr>
<tr>
<td>648.exchange2_s</td>
<td>32</td>
<td>184</td>
<td>16.0</td>
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<td>16.0</td>
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<td>177</td>
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<tr>
<td>657.xz_s</td>
<td>32</td>
<td>303</td>
<td>20.4</td>
<td>303</td>
<td>20.4</td>
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<td>20.4</td>
<td>32</td>
<td>303</td>
<td>20.4</td>
<td>303</td>
<td>20.4</td>
<td></td>
</tr>
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</table>

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
'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>

Set dirty_ratio=8 to limit dirty cache to 8% of memory
Set swappiness=1 to swap only if necessary
Set zone_reclaim_mode=1 to free local node memory and avoid remote memory
sync then drop_caches=3 to reset caches before invoking runcpu

dirty_ratio, swappiness, zone_reclaim_mode and drop_caches were all set using privileged echo (e.g. echo 1 > /proc/sys/vm/swappiness).

Transparent huge pages set to 'always' for this run (OS default)
Supermicro
A+ Server 1114S-WN10RT
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SPEC CPU®2017 Integer Speed Result

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

SPECspeed®2017_int_base = 8.73
SPECspeed®2017_int_peak = 9.05

Test Date: Jul-2020
Hardware Availability: Jul-2020
Software Availability: Nov-2019

Environment Variables Notes

Environment variables set by runcpu before the start of the run:
GOMP_CPU_AFFINITY = "0-63"
LD_LIBRARY_PATH =
"/root/amd_speed_aocc200_rome_C_lib/64;/root/amd_speed_aocc200_rome_C_lib/32;"
MALLOC_CONF = "retain:true"
OMP_DYNAMIC = "false"
OMP_SCHEDULE = "static"
OMP_STACKSIZE = "128M"
OMP_THREAD_LIMIT = "64"

Environment variables set by runcpu during the 600.perlbench_s peak run:
GOMP_CPU_AFFINITY = "0"

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 623.xalancbmk_s peak run:
GOMP_CPU_AFFINITY = "0"
OMP_STACKSIZE = "128M"

Environment variables set by runcpu during the 625.x264_s peak run:
GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 631.deepsjeng_s peak run:
GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 648.exchange2_s peak run:
GOMP_CPU_AFFINITY = "0"

General Notes

Binaries were compiled on a system with 2x AMD EPYC 7601 CPU + 512GB Memory using Fedora 26

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)
SPEC CPU®2017 Integer Speed Result

Supermicro
A+ Server 1114S-WN10RT (H12SSW-NTR, AMD EPYC 7502)

SPECspeed®2017_int_base = 8.73
SPECspeed®2017_int_peak = 9.05

General Notes (Continued)

is mitigated in the system as tested and documented.

jemalloc: configured and built with GCC v9.1.0 in Ubuntu 19.04 with -O3 -znver2 -flto
jemalloc 5.1.0 is available here:
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 = 200
Package Power Limit Control = Manual
Package Power Limit = 200
APBDIS = 1
NUMA Nodes Per Socket = NPS4

Sysinfo program /root/bin/sysinfo
Rev: r6365 of 2019-08-21 295195f888a3d7edbl6e6a485a0011
running on steven Mon Jul  6 18:48:07 2020

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 7502 32-Core Processor
  1 "physical id"s (chips)
  64 "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 : 32
siblings : 64
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

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
Address sizes: 43 bits physical, 48 bits virtual
CPU(s): 64
On-line CPU(s) list: 0-63
Thread(s) per core: 2

(Continued on next page)
### Platform Notes (Continued)

- **Core(s) per socket:** 32
- **Socket(s):** 1
- **NUMA node(s):** 4
- **Vendor ID:** AuthenticAMD
- **CPU family:** 23
- **Model:** 49
- **Model name:** AMD EPYC 7502 32-Core Processor
- **Stepping:** 0
- **CPU MHz:** 1782.324
- **CPU max MHz:** 2500.0000
- **CPU min MHz:** 1500.0000
- **BogoMIPS:** 4999.95
- **Virtualization:** AMD-V

- **L1d cache:** 32K
- **L1i cache:** 32K
- **L2 cache:** 512K
- **L3 cache:** 16384K

- **NUMA node0 CPU(s):** 0-7,32-39
- **NUMA node1 CPU(s):** 8-15,40-47
- **NUMA node2 CPU(s):** 16-23,48-55
- **NUMA node3 CPU(s):** 24-31,56-63

- **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 nopt tsp cs cmov cx8 apicid aperfmperf pni pclmulqdq monitor extd_apicid cpuid pni pclmulqdq monitor extd_apicid cpuid

```
/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: 4 nodes (0-3)
  node 0 cpus: 0 1 2 3 4 5 6 7 32 33 34 35 36 37 38 39
  node 0 size: 128898 MB
  node 0 free: 128570 MB
  node 1 cpus: 8 9 10 11 12 13 14 15 40 41 42 43 44 45 46 47
  node 1 size: 129019 MB
  node 1 free: 128432 MB
  node 2 cpus: 16 17 18 19 20 21 22 23 48 49 50 51 52 53 54 55
```

(Continued on next page)
SPEC CPU®2017 Integer Speed Result
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SPECspeed®2017_int_base = 8.73
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Platform Notes (Continued)

node 2 size: 128995 MB
node 2 free: 128732 MB
node 3 cpus: 24 25 26 27 28 29 30 31 56 57 58 59 60 61 62 63
node 3 size: 129007 MB
node 3 free: 128753 MB
node distances:
node 0 1 2 3
0: 10 12 12 12
1: 12 10 12 12
2: 12 12 10 12
3: 12 12 12 10

From /proc/meminfo
MemTotal: 528303752 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
debian_version: buster/sid
os-release:
NAME="Ubuntu"
VERSION="19.04 (Disco Dingo)"
ID=ubuntu
ID_LIKE=debian
PRETTY_NAME="Ubuntu 19.04"
VERSION_ID="19.04"
HOME_URL="https://www.ubuntu.com/"
SUPPORT_URL="https://help.ubuntu.com/
uname -a:
Linux steven 5.0.0-37-generic #40-Ubuntu SMP Thu Nov 14 00:14:01 UTC 2019 x86_64
x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:

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 retпольne, IBPB: conditional, IBRS_FW, STIBP: conditional, RSB filling
tsx_async_abort: Not affected

(Continued on next page)
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SPEC speed® 2017_int_base = 8.73
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CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

Platform Notes (Continued)

run-level 5 Jul 6 18:47

SPEC is set to: /root

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 ext4 220G 17G 192G 8% /

From /sys/devices/virtual/dmi/id

BIOS: American Megatrends Inc. T20200706102212 07/06/2020
Vendor: Supermicro
Product: Super Server
Serial: 0123456789

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 SBIOS" standard.

Memory:
8x NO DIMM Unknown
8x SK Hynix HMAA8GR7AJR4N-XN 64 kB 2 rank 3200

(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)
==============================================================================
AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin

==============================================================================
C++ | 623.xalancbmk_s(peak)
==============================================================================
AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
Target: i386-unknown-linux-gnu
Thread model: posix
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin

(Continued on next page)
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CPU2017 License: 001176
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Compiler Version Notes (Continued)

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

AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin

==============================================================================
C++ | 623.xalancbmk_s(peak)

AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
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Target: i386-unknown-linux-gnu
Thread model: posix
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==============================================================================
C++ | 620.omnetpp_s(base, peak) 623.xalancbmk_s(base)
| 631.deepsjeng_s(base, peak) 641.leela_s(base, peak)

AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin

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

AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin

Base Compiler Invocation

C benchmarks:
clang

(Continued on next page)
### Base Compiler Invocation (Continued)

- **C++ benchmarks:**
  - clang++

- **Fortran benchmarks:**
  - flang

### Base Portability Flags

- 600.perlbench_s: -DSPC_LINUX_X64 -DSPC_LP64
- 602.gcc_s: -DSPC_LP64
- 605.mcf_s: -DSPC_LP64
- 620.omnetpp_s: -DSPC_LP64
- 623.xalanchbk_s: -DSPC_LINUX -DSPC_LP64
- 625.x264_s: -DSPC_LP64
- 631.deepsjeng_s: -DSPC_LP64
- 641.leela_s: -DSPC_LP64
- 648.exchange2_s: -DSPC_LP64
- 657.xz_s: -DSPC_LP64

### Base Optimization Flags

- **C benchmarks:**
  - -flto -Wl,-mllvm -Wl,-function-specialize
  - -Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-vector-library=LIBMVEC
  - -Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -ffast-math
  - -march=znver2 -fstruct-layout=3 -mllvm -unroll-threshold=50
  - -fremap-arrays -mllvm -function-specialize -mllvm -enable-gvn-hoist
  - -mllvm -reduce-array-computations=3 -mllvm -global-vectorize-slp
  - -mllvm -vector-library=LIBMVEC -mllvm -inline-threshold=1000
  - -flv-function-specialization -z muldefs -DSPC_OPENMP -fopenmp
  - -fopenmp=libomp -lomp -lpthread -ldl -lmvec -lamdlibm -ljemalloc
  - -flang

- **C++ benchmarks:**
  - -flto -Wl,-mllvm -Wl,-function-specialize
  - -Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-vector-library=LIBMVEC
  - -Wl,-mllvm -Wl,-reduce-array-computations=3
  - -Wl,-mllvm -Wl,-suppress-fmas -O3 -ffast-math -march=znver2
  - -mllvm -loop-unswitch-threshold=200000 -mllvm -vector-library=LIBMVEC
  - -mllvm -unroll-threshold=100 -flv-function-specialization

(Continued on next page)
Supermicro
A+ Server 1114S-WN10RT
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<tr>
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<tbody>
<tr>
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<td>Tested by: Supermicro</td>
<td>Software Availability: Nov-2019</td>
</tr>
</tbody>
</table>

### Base Optimization Flags (Continued)

C++ benchmarks (continued):
- mllvm -enable-partial-unswitch -z muldefs -DSPEC_OPENMP -fopenmp
  -fopenmp=libomp -lomp -lpthread -ldl -lmvec -lamdlibm -ljemalloc
  -lflang

Fortran benchmarks:
- fflto -flto -gomp -Wl,-mllvm -Wl,-function-specialize
  -Wl,-mllvm -flto -Wl,-region-vectorize -Wl,-mllvm -Wl,-vector-library=LIBMVEC
  -Wl,-mllvm -flto -Wl,-reduce-array-computations=3 -ffast-math
  -Wl,-mllvm -flto -Wl,-inline-recursion=4 -Wl,-mllvm -Wl,-lsr-in-nested-loop
  -Wl,-mllvm -flto -Wl,-enable-iv-split -O3 -march=znver2 -funroll-loops
  -Mrecursive -mllvm -flto -Wl,-vector-library=LIBMVEC -z muldefs
  -mllvm -disable-indvar-simplify -mllvm -unroll-aggressive
  -mllvm -unroll-threshold=150 -DSPEC_OPENMP -fopenmp -fopenmp=libomp
  -lomp -lpthread -ldl -lmvec -lamdlibm -ljemalloc -lflang

### Base Other Flags

C benchmarks:
- Wno-return-type

C++ benchmarks:
- Wno-return-type

Fortran benchmarks:
- Wno-return-type

### Peak Compiler Invocation

C benchmarks:
- clang

C++ benchmarks:
- clang++

Fortran benchmarks:
- flang
SPEC CPU®2017 Integer Speed Result

Supermicro
A+ Server 1114S-WN10RT
(H12SSW-NTR , AMD EPYC 7502)

SPECspeed®2017_int_base = 8.73
SPECspeed®2017_int_peak = 9.05

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

Test Date: Jul-2020
Hardware Availability: Jul-2020
Software Availability: Nov-2019

Peak 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 -D_FILE_OFFSET_BITS=64
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

Peak Optimization Flags

C benchmarks:

600.perlbench_s: -flto -Wl, -mllvm -Wl, -function-specialize
          -Wl, -mllvm -Wl, -region-vectorize
          -Wl, -mllvm -Wl, -vector-library=LIBMVEC
          -Wl, -mllvm -Wl, -reduce-array-computations=3
          -fprofile-instr-generate(pass 1)
          -fprofile-instr-use(pass 2) -Ofast -march=znver2
          -mno-sse4a -fstruct-layout=5
          -mlvm -vectorize-memory-aggressively
          -mlvm -function-specialize -mlvm -enable-gvn-hoist
          -mlvm -unroll-threshold=50 -fremap-arrays
          -mlvm -vector-library=LIBMVEC
          -mlvm -reduce-array-computations=3
          -mlvm -global-vectorize-slp -mlvm -inline-threshold=1000
          -flv-function-specialization -DSPEC_OPENMP -fopenmp
          -lmvec -landlibm -fopenmp=libomp -lomp -lpthread -ldl
          -ljemalloc -lflang

602.gcc_s: -flto -Wl, -mllvm -Wl, -function-specialize
          -Wl, -mllvm -Wl, -region-vectorize
          -Wl, -mllvm -Wl, -vector-library=LIBMVEC
          -Wl, -mllvm -Wl, -reduce-array-computations=3 -Ofast
          -march=znver2 -mno-sse4a -fstruct-layout=5
          -mlvm -vectorize-memory-aggressively
          -mlvm -function-specialize -mlvm -enable-gvn-hoist
          -mlvm -unroll-threshold=50 -fremap-arrays
          -mlvm -vector-library=LIBMVEC
          -mlvm -reduce-array-computations=3
          -mlvm -global-vectorize-slp -mlvm -inline-threshold=1000
          -flv-function-specialization -z muldefs -DSPEC_OPENMP

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

**602.gcc_s** (continued):

```bash
-fopenmp -fgnu89-inline -fopenmp=libomp -lomp -lpthread -ldl -ljemalloc
```

**605.mcf_s**:

```bash
```

**625.x264_s**: Same as 600.perlbench_s

**657.xz_s**: Basepeak = yes

**C++ benchmarks**:

**620.omnetpp_s**:

```bash
```

**623.xalancbmk_s**:

```bash
```

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

**Supermicro**

A+ Server 1114S-WN10RT  
(H12SSW-NTR, AMD EPYC 7502)

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**CPU2017 License:** 001176  
**Test Date:** Jul-2020  
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**Tested by:** Supermicro  
**Hardware Availability:** Jul-2020  
**Software Availability:** Nov-2019

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### Peak Optimization Flags (Continued)

623.xalancbmk_s (continued):
- `mllvm -vector-library=LIBMVEC`  
- `mllvm -inline-threshold=1000 -DSPEC_OPENMP -fopenmp`  
- `fopenmp=libomp -lomp -lpthread -ldl -ljemalloc`

631.deepsjeng_s: Same as 620.omnetpp_s

641.leela_s: basepeak = yes

**Fortran benchmarks:**
- `-flto -Wl,-mllvm -Wl,-function-specialize`  
- `-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-vector-library=LIBMVEC`  
- `-Wl,-mllvm -Wl,-reduce-array-computations=3 -ffast-math`  
- `-Wl,-mllvm -Wl,-inline-recursion=4 -Wl,-mllvm -Wl,-lsr-in-nested-loop`  
- `-Wl,-mllvm -Wl,-enable-lv-split -O3 -march=znver2 -funroll-loops`  
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- `-mllvm -unroll-threshold=150 -DSPEC_OPENMP -fopenmp -fopenmp=libomp`  
- `-lomp -lpthread -ldl -lmvec -lamdlibm -ljemalloc -lflang`

### Peak Other Flags

**C benchmarks:**
- `-Wno-return-type`

**C++ benchmarks (except as noted below):**
- `-Wno-return-type`

623.xalancbmk_s: `-Wno-return-type`  
- `L/sppo/dev/cpu2017/v110/amd_speed_aocc200_rome_C_lib/32`

**Fortran benchmarks:**
- `-Wno-return-type`

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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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Tested with SPEC CPU®2017 v1.1.0 on 2020-07-06 06:48:07-0400.
Originally published on 2020-09-01.