Supermicro
A+ Server 1114S-WN10RT
(H12SSW-NTR , AMD EPYC 7662)

SPEC CPU®2017 Integer Speed Result

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**Supermicro**
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**SPEC**

**SPEC CPU**

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**SPECspeed**

**SPECspeed®2017_int_base = 8.60**

**SPECspeed®2017_int_peak = 8.95**

**CPU2017 License:** 001176

**Test Sponsor:** Supermicro

**Tested by:** Supermicro

**Test Date:** Jul-2020

**Hardware Availability:** Jul-2020

**Software Availability:** Nov-2019

**Threads**

<table>
<thead>
<tr>
<th>Test</th>
<th>Threads</th>
<th>SPECspeed®2017_int_base</th>
<th>SPECspeed®2017_int_peak</th>
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<tbody>
<tr>
<td>perlbench</td>
<td>64</td>
<td>5.65</td>
<td>9.53</td>
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<tr>
<td>gcc</td>
<td>64</td>
<td>9.38</td>
<td>14.9</td>
</tr>
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<td>mcf</td>
<td>64</td>
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<td>15.9</td>
</tr>
<tr>
<td>omnetpp</td>
<td>64</td>
<td>9.22</td>
<td>10.0</td>
</tr>
<tr>
<td>xalancbmk</td>
<td>64</td>
<td>4.02</td>
<td>12.4</td>
</tr>
<tr>
<td>x264</td>
<td>64</td>
<td>4.39</td>
<td>12.7</td>
</tr>
<tr>
<td>deepsjeng</td>
<td>64</td>
<td>4.17</td>
<td>15.8</td>
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<tr>
<td>leela</td>
<td>64</td>
<td>16.8</td>
<td></td>
</tr>
<tr>
<td>exchange2</td>
<td>64</td>
<td>20.5</td>
<td></td>
</tr>
<tr>
<td>xz</td>
<td>64</td>
<td>12.0</td>
<td></td>
</tr>
</tbody>
</table>

**Software**

**OS:** Ubuntu 19.04

**Compiler:** C/C++/Fortran: Version 2.0.0 of AOCC

**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:** jemalloc: jemalloc memory allocator library v5.1.0

**Power Management:** BIOS set to prefer performance at the cost of additional power usage.

**Hardware**

**CPU Name:** AMD EPYC 7662

**Max MHz:** 3300

**Nominal:** 2000

**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:** 256 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

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Standard Performance Evaluation Corporation (info@spec.org) https://www.spec.org/
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SPECspeed®2017_int_base = 8.60
SPECspeed®2017_int_peak = 8.95

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>
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</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>64</td>
<td>390</td>
<td>4.55</td>
<td>390</td>
<td>4.56</td>
<td>389</td>
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<td>602.gcc_s</td>
<td>64</td>
<td>420</td>
<td>9.48</td>
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<td>418</td>
<td>9.53</td>
<td>1</td>
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<td>605.mcf_s</td>
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<td>318</td>
<td>14.9</td>
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<td>14.9</td>
<td>317</td>
<td>14.9</td>
<td>1</td>
<td>296</td>
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<td>620.omnetpp_s</td>
<td>64</td>
<td>328</td>
<td>4.97</td>
<td>333</td>
<td>4.89</td>
<td>335</td>
<td>4.87</td>
<td>1</td>
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<td>64</td>
<td>154</td>
<td>9.20</td>
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<td>142</td>
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<tr>
<td>625.x264_s</td>
<td>64</td>
<td>146</td>
<td>12.1</td>
<td>142</td>
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<td>142</td>
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<td>301</td>
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<td>323</td>
<td>4.43</td>
<td>317</td>
<td>4.52</td>
<td>1</td>
<td>293</td>
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<td>641.leela_s</td>
<td>64</td>
<td>409</td>
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<td>410</td>
<td>4.16</td>
<td>64</td>
<td>409</td>
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<tr>
<td>648.exchange2_s</td>
<td>64</td>
<td>186</td>
<td>15.8</td>
<td>186</td>
<td>15.8</td>
<td>186</td>
<td>15.8</td>
<td>1</td>
<td>180</td>
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<tr>
<td>657.xz_s</td>
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<td>20.5</td>
<td>303</td>
<td>20.4</td>
<td>64</td>
<td>302</td>
</tr>
</tbody>
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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)
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Environment Variables Notes

Environment variables set by runcpu before the start of the run:
GOMP_CPU_AFFINITY = "0-127"
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 = "128"

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)
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**CPU2017 License:** 000116
**Test Sponsor:** Supermicro
**Tested by:** Supermicro

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

---

**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 = 240
Package Power Limit Control = Manual
Package Power Limit = 240
APBDIS = 1
NUMA Nodes Per Socket = NPS4

Sysinfo program /root/bin/sysinfo
Rev: r6365 of 2019-08-21 295195f888a3d7edbe1e6e46a485a0011
running on steven Sat Jul 11 09:35:27 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 7662 64-Core Processor
  1  "physical id"s (chips)
  128 "processors"
core, 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:
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): 128
On-line CPU(s) list: 0-127

(Continued on next page)
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**Test Sponsor:** Supermicro  
**Tested by:** Supermicro

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<td>Jul-2020</td>
</tr>
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<td>Nov-2019</td>
</tr>
</tbody>
</table>

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**Platform Notes (Continued)**

- **Thread(s) per core:** 2  
- **Core(s) per socket:** 64  
- **Socket(s):** 1  
- **NUMA node(s):** 4  
- **Vendor ID:** AuthenticAMD  
- **CPU family:** 23  
- **Model:** 49  
- **Model name:** AMD EPYC 7662 64-Core Processor  
- **Stepping:** 0  
- **CPU MHz:** 3205.038  
- **CPU max MHz:** 2000.0000  
- **CPU min MHz:** 1500.0000  
- **BogoMIPS:** 4000.23  
- **Virtualization:** AMD-V  
- **L1d cache:** 32K  
- **L1i cache:** 32K  
- **L2 cache:** 512K  
- **L3 cache:** 16384K  
- **NUMA node0 CPU(s):** 0-15,64-79  
- **NUMA node1 CPU(s):** 16-31,80-95  
- **NUMA node2 CPU(s):** 32-47,96-111  
- **NUMA node3 CPU(s):** 48-63,112-127  
- **Flags:** fpu vme de pse tsc msr pae mce cmov pat pse36 clflush mmx fxsr sse sse2 ht syscall nx smmxext fxsr_opt pdpe1gb rdtscp lm constant_tsc rep_good nopl xtopology nonstop_tsc cpuid extd_apicid aperfmperf pni pclmulqdq monitor ssse3 fma cx16 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 skinit ldt tce topoext perfctr_core perfctr_nb bext perfctr_llc mwaitx cpb cat_l3 cdp_l3 hw_pstate sme ssbd mba sev ibrs ibpb stibp vmmcall fsgsbase bmi1 avx2 smep bmi2 cmqm rdt_a rdsseed adx smap clflushopt clwb sha ni xsaveopt xsaves xsave vcmov cx16 arat npt lbrv svm_lock nrrip_save tsc_scale vmcb_clean flushbyasid decodeassist pfthreshold avic v_vmsave_vmload vgif umip rdpid overflow_recov succor smca

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

<table>
<thead>
<tr>
<th>available:</th>
<th>4 nodes (0-3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>node 0 cpus:</td>
<td>0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79</td>
</tr>
<tr>
<td>node 0 size:</td>
<td>128894 MB</td>
</tr>
<tr>
<td>node 0 free:</td>
<td>128425 MB</td>
</tr>
<tr>
<td>node 1 cpus:</td>
<td>16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95</td>
</tr>
</tbody>
</table>

(Continued on next page)
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</tr>
</tbody>
</table>

Platform Notes (Continued)

node 1 size: 128991 MB
node 1 free: 128561 MB
node 2 cpus: 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 96 97 98 99 100 101 102
103 104 105 106 107 108 109 110 111
node 2 size: 129015 MB
node 2 free: 128172 MB
node 3 cpus: 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 112 113 114 115 116 117
118 119 120 121 122 123 124 125 126 127
node 3 size: 129003 MB
node 3 free: 128635 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: 528287860 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

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

- **pointersanitization**
  - CVE-2017-5715 (Spectre variant 2):
    - Mitigation: Full AMD retpoline, IBPB: conditional, IBRS_FW, STIBP: conditional, RSB filling
  - tsx_async_abort:
    - Not affected

- run-level 5 Jul 11 09:33

- **SPEC is set to**: /root
  - **Filesystem**
    - **Type** | **Size** | **Used** | **Avail** | **Use%** | **Mounted on**
    - 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 SMBIOS" standard.
  - **Memory**:
    - 8x NO DIMM Unknown
    - 8x SK Hynix HMAA8GR7AJR4N-XN 64 kB 2 rank 3200

- (End of data from sysinfo program)

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

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### Compiler Version Notes (Continued)

**Target:** i386-unknown-linux-gnu  
**Thread model:** posix  
**InstalledDir:** /sppo/dev/compilers/aocc-compiler-2.0.0/bin

---

#### C++

<table>
<thead>
<tr>
<th>620.omnetpp_s(base, peak) 623.xalancbmk_s(base) 631.deepsjeng_s(base, peak) 641.leela_s(base, peak)</th>
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**Target:** x86_64-unknown-linux-gnu  
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#### C++

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**Target:** x86_64-unknown-linux-gnu  
**Thread model:** posix  
**InstalledDir:** /sppo/dev/compilers/aocc-compiler-2.0.0/bin

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#### Fortran

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Test Sponsor: Supermicro
Test Date: Jul-2020
Tested by: Supermicro
Hardware Availability: Jul-2020
Software Availability: Nov-2019

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:
-ffast-math
-march=znver2
-fstruct-layout=3
-mllvm -unroll-threshold=50
-fremap-arrays

C++ benchmarks:
-ffast-math
-march=znver2
-fstruct-layout=3

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

Supermicro
A+ Server 1114S-WN10RT (H12SSW-NTR, AMD EPYC 7662)

- SPECspeed®2017_int_base = 8.60
- SPECspeed®2017_int_peak = 8.95

CPU2017 License: 001176
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Base Optimization Flags (Continued)

C++ benchmarks (continued):
-mlllvm -unroll-threshold=100 -flv-function-specialization
-mlllvm -enable-partial-unswitch -z muldefs -DSPEC_OPENMP -fopenmp
-fopenmp=libomp -lomp -lpthread -ldl -lmvec -lamdlibm -ljemalloc
-llflang

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

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

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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
-mllvm -vectorize-memory-aggressively
-mllvm -function-specialize -mllvm -enable-gvn-hoist
-mllvm -unroll-threshold=50 -fremap-arrays
-mllvm -vector-library=LIBMVEC
-mllvm -reduce-array-computations=3
-mllvm -global-vectorize-slp -mllvm -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 -mllvm -fstruct-layout=5
-mllvm -vectorize-memory-aggressively
-mllvm -function-specialize -mllvm -enable-gvn-hoist
-mllvm -unroll-threshold=50 -fremap-arrays
-mllvm -vector-library=LIBMVEC
-mllvm -reduce-array-computations=3
-mllvm -global-vectorize-slp -mllvm -inline-threshold=1000
-flv-function-specialization -DSPEC_OPENMP
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## Supermicro

**A+ Server 1114S-WN10RT (H12SSW-NTR, AMD EPYC 7662)**

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### Peak Optimization Flags (Continued)

#### 602.gcc_s (continued):
- `-fopenmp -fgnu89-inline -fopenmp=libomp -lomp -lpthread`  
- `-ldl -ljemalloc`

#### 605.mcf_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`  
- `-mllvm -vectorize-memory-aggressively`  
- `-mllvm -function-specialize -mllvm -enable-gvn-hoist`  
- `-mllvm -unroll-threshold=50 -fremap-arrays`  
- `-mllvm -vector-library=LIBMVEC`  
- `-mllvm -reduce-array-computations=3`  
- `-mllvm -global-vectorize-slp -mllvm -inline-threshold=1000`  
- `-flv-function-specialization -DSPEC_OPENMP -fopenmp`  
- `-lmvec -lamdlibm -fopenmp=libomp -lomp -lpthread -ldl -ljemalloc -lflang`

#### 625.x264_s:
- Same as 600.perlbench_s

#### 657.xz_s:
- `basepeak = yes`

### C++ benchmarks:

#### 620.omnetpp_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 -flv-function-specialization`  
- `-mllvm -unroll-threshold=100`  
- `-mllvm -enable-partial-unswitch`  
- `-mllvm -loop-unswitch-threshold=200000`  
- `-mllvm -vector-library=LIBMVEC`  
- `-mllvm -inline-threshold=1000 -DSPEC_OPENMP -fopenmp`  
- `-fopenmp=libomp -lomp -lpthread -ldl -lmvec -lamdlibm -ljemalloc -lflang`

#### 623.xalancbmk_s:
- `-m32 -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 -flv-function-specialization`  
- `-mllvm -unroll-threshold=100`  
- `-mllvm -enable-partial-unswitch`  
- `-mllvm -loop-unswitch-threshold=200000`

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Peak Optimization Flags (Continued)

623.xalancbmk_s (continued):
-mlir -vector-library=LIBMVEC
-mlir -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:
-fito -Wl,-mlir -Wl,-function-specialize
-Wl,-mlir -Wl,-region-vectorize -Wl,-mlir -Wl,-vector-library=LIBMVEC
-Wl,-mlir -Wl,-reduce-array-computations=3 -ffast-math
-Wl,-mlir -Wl,-inline-recursion=4 -Wl,-mlir -Wl,-lsr-in-nested-loop
-Wl,-mlir -Wl,-enable-lv-split -O3 -march=znver2 -funroll-loops
-Mrecursive -mlir -vector-library=LIBMVEC
-mlir -disable-indvar-simplify -mlir -unroll-aggressive
-mlir -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

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:
http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-Rome-revB.xml
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