# SPEC CPU®2017 Integer Speed Result

## Supermicro
A+ Server 2023US-TR4
(H11DSU-iN, AMD EPYC 7452)

**CPU2017 License:** 001176  
**Test Sponsor:** Supermicro  
**Test Date:** Jan-2020  
**Tested by:** Supermicro  
**Hardware Availability:** Aug-2019  

### SPECspeed®2017 int_base = 8.79  
### SPECspeed®2017 int_peak = 9.04

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>SPECspeed®2017 int_base</th>
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<tr>
<td>perlbench</td>
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<tr>
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<td></td>
<td></td>
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<tr>
<td>mcf</td>
<td></td>
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</tr>
<tr>
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<tr>
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<tr>
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### SPECspeed®2017 int base = 8.79  
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</tr>
</tbody>
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### Hardware
- **CPU Name:** AMD EPYC 7452  
- **Max MHz:** 3350  
- **Nominal:** 2350  
- **Enabled:** 64 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:** 128 MB I+D on chip per chip, 16 MB shared / 4 cores  
- **Other:** None  
- **Memory:** 1 TB (16 x 64 GB 4DRx4 PC4-3200AA-L)  
- **Storage:** 1 x 200 GB SATA III SSD  
- **Other:** None

### Software
- **OS:** Ubuntu 19.04  
- **Compiler:** C/C++/Fortran: Version 2.0.0 of AOCC  
- **Parallel:** Yes  
- **Firmware:** Version 2.0b released Nov-2019  
- **File System:** ext4  
- **System State:** Run level 3 (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.
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CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

Specspeed®2017_int_base = 8.79
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Results Table

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<tr>
<th>Benchmark</th>
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<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>64</td>
<td>372</td>
<td>4.77</td>
<td>369</td>
<td>4.81</td>
<td>368</td>
<td>4.82</td>
<td>1</td>
<td>348</td>
<td>5.10</td>
<td></td>
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<tr>
<td>602.gcc_s</td>
<td>64</td>
<td>417</td>
<td>9.56</td>
<td>416</td>
<td>9.57</td>
<td>417</td>
<td>9.54</td>
<td>64</td>
<td>417</td>
<td>9.56</td>
<td>416</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>64</td>
<td>315</td>
<td>15.0</td>
<td>316</td>
<td>14.9</td>
<td>315</td>
<td>15.0</td>
<td>1</td>
<td>294</td>
<td>16.1</td>
<td>294</td>
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<tr>
<td>620.omnetpp_s</td>
<td>64</td>
<td>344</td>
<td>4.74</td>
<td>333</td>
<td>4.90</td>
<td>330</td>
<td>4.08</td>
<td>1</td>
<td>335</td>
<td>4.87</td>
<td>334</td>
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<tr>
<td>623.xalanchmk_s</td>
<td>64</td>
<td>152</td>
<td>9.33</td>
<td>150</td>
<td>9.42</td>
<td>152</td>
<td>9.34</td>
<td>1</td>
<td>142</td>
<td>10.0</td>
<td>141</td>
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<tr>
<td>625.x264_s</td>
<td>64</td>
<td>142</td>
<td>12.5</td>
<td>142</td>
<td>12.5</td>
<td>141</td>
<td>12.5</td>
<td>1</td>
<td>138</td>
<td>12.8</td>
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<tr>
<td>631.deepsjeng_s</td>
<td>64</td>
<td>302</td>
<td>4.75</td>
<td>297</td>
<td>4.82</td>
<td>297</td>
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<td>291</td>
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<td>648.exchange2_s</td>
<td>64</td>
<td>177</td>
<td>16.6</td>
<td>178</td>
<td>16.5</td>
<td>177</td>
<td>16.6</td>
<td>1</td>
<td>177</td>
<td>16.6</td>
<td>177</td>
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<tr>
<td>657.xz_s</td>
<td>64</td>
<td>288</td>
<td>21.4</td>
<td>289</td>
<td>21.4</td>
<td>289</td>
<td>21.4</td>
<td>64</td>
<td>288</td>
<td>21.5</td>
<td>290</td>
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Specspeed®2017_int_base = 8.79
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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 =
    "/home/cpu2017/amd_speed_aocc200_rome_C_lib/64;/home/cpu2017/amd_speed_a occ200_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 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"

Environment variables set by runcpu during the 657.xz_s peak run:
GOMP_CPU_AFFINITY = "0-63"

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: 001176 | Test Date: Jan-2020 |
| Test Sponsor: Supermicro | Hardware Availability: Aug-2019 |
| Tested by: Supermicro | Software Availability: Aug-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 = 180
Package Power Limit Control = Manual
Package Power Limit = 180
IOMMU = Enabled
APBDIS = 1
NUMA Nodes Per Socket = NPS4

Sysinfo program /home/cpu2017/bin/sysinfo  
Rev: r6365 of 2019-08-21 295195f888a3d7edbe6e46a485a0011  
running on h11dsu-01 Thu Jan 9 13:18:43 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 7452 32-Core Processor
   2 "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: 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
   physical 1: 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

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CPU(s): 128
On–line CPU(s) list: 0–127
Thread(s) per core: 2
Core(s) per socket: 32
Socket(s): 2
NUMA node(s): 8
Vendor ID: AuthenticAMD
CPU family: 23
Model: 49
Model name: AMD EPYC 7452 32-Core Processor
Stepping: 0
CPU MHz: 1723.721
CPU max MHz: 2350.0000
CPU min MHz: 1500.0000
BogoMIPS: 4700.04
Virtualization: AMD-V
L1d cache: 32K
L1i cache: 32K
L2 cache: 512K
L3 cache: 16384K
NUMA node0 CPU(s): 0–7,64–71
NUMA node1 CPU(s): 8–15,72–79
NUMA node2 CPU(s): 16–23,80–87
NUMA node3 CPU(s): 24–31,88–95
NUMA node4 CPU(s): 32–39,96–103
NUMA node5 CPU(s): 40–47,104–111
NUMA node6 CPU(s): 48–55,112–119
NUMA node7 CPU(s): 56–63,120–127
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 xtopology nonstop_tsc cpuid extd_apicid aperfmperf pni
pclmulqdq monitor ssse3 fma cx16 sse4_1 sse4_2 mcmov popcnt aes avx avx f16c
rdram lahf_lm cmp_legacy svm extapic cr8_legacy abm sse4a misalignsse 3dnowprefetch
osvw ibs skinit wdt tce topoext perfctr_core perfctr_nb bpx ext perfctr_l1l mwaitx cpb
cat_l3 cdp_l3 hw_pstate sme ssbd mba sev ibpb stibp vmmcall fsbgbase bmi1 avx2
smep bmi2 cmqm rdt_a rdseed advx smapl clflushopt clwb sha ni xsaveopt xsaves xepc
xbases cqm_l1l cqm_occuc_l1l cqm_mbb_total cqm_mbb_local clzero irperf xsaeverptr
wbinvd arat npt lbrv svm_lock nirp_save tsc_scale vmcb_clean flushbyasid
decodeassist pausefilter pfthreshold avic v_vmsave_vmload vgfl umip rdpid
overflow_recov succor smca

From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a physical chip.
available: 8 nodes (0–7)
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<td>9.04</td>
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### Platform Notes (Continued)

```
node 0  cpus: 0 1 2 3 4 5 6 7 64 65 66 67 68 69 70 71
node 0  size: 128891 MB
node 0  free: 128350 MB
node 1  cpus: 8 9 10 11 12 13 14 15 72 73 74 75 76 77 78 79
node 1  size: 129016 MB
node 1  free: 128561 MB
node 2  cpus: 16 17 18 19 20 21 22 23 80 81 82 83 84 85 86 87
node 2  size: 129016 MB
node 2  free: 128508 MB
node 3  cpus: 24 25 26 27 28 29 30 31 88 89 90 91 92 93 94 95
node 3  size: 129004 MB
node 3  free: 128179 MB
node 4  cpus: 32 33 34 35 36 37 38 39 96 97 98 99 100 101 102 103
node 4  size: 129016 MB
node 4  free: 128493 MB
node 5  cpus: 40 41 42 43 44 45 46 47 104 105 106 107 108 109 110 111
node 5  size: 128993 MB
node 5  free: 128533 MB
node 6  cpus: 48 49 50 51 52 53 54 55 112 113 114 115 116 117 118 119
node 6  size: 129016 MB
node 6  free: 128562 MB
node 7  cpus: 56 57 58 59 60 61 62 63 120 121 122 123 124 125 126 127
node 7  size: 129015 MB
node 7  free: 128557 MB
node distances:
  node   0   1   2   3   4   5   6   7
    0: 10 12 12 12 32 32 32 32
    1: 12 10 12 12 32 32 32 32
    2: 12 12 10 12 32 32 32 32
    3: 12 12 12 10 32 32 32 32
    4: 32 32 32 32 10 12 12 12
    5: 32 32 32 32 12 10 12 12
    6: 32 32 32 32 12 12 10 12
    7: 32 32 32 32 12 12 12 10

From /proc/meminfo
MemTotal: 1056739724 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
```

(Continued on next page)
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Test Date: Jan-2020
Hardware Availability: Aug-2019
Software Availability: Aug-2019

Platform Notes (Continued)

PRETTY_NAME="Ubuntu 19.04"
VERSION_ID="19.04"
HOME_URL="https://www.ubuntu.com/
SUPPORT_URL="https://help.ubuntu.com/

uname -a:
    Linux h11dsu-01 5.0.0-25-generic #26-Ubuntu SMP Thu Aug 1 12:04:58 UTC 2019 x86_64
    x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:

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: conditional, RSB
    filling

run-level 3 Jan 8 13:56

SPEC is set to: /home/cpu2017
    Filesystem     Type  Size  Used Avail Use% Mounted on
    /dev/sda2      ext4  183G   29G  145G  17% /

From /sys/devices/virtual/dmi/id
    BIOS: American Megatrends Inc. 2.0b 11/15/2019
    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:
    16x NO DIMM Unknown
    16x Samsung M386A8K40DM2-CWE 64 kB 4 rank 3200

(End of data from sysinfo program)
**Compiler Version Notes**

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

---

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

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**Compiler Version Notes (Continued)**

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

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
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<tbody>
<tr>
<td>SPECspeed®2017_int_peak</td>
<td>9.04</td>
</tr>
</tbody>
</table>

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

**Test Date:** Jan-2020  
**Hardware Availability:** Aug-2019  
**Software Availability:** Aug-2019

**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 -fasstruct-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 -DSPEC_OPENMP -fopenmp`
- `-fopenmp=libomp -lomp -lpthread -ldl -lmvec -lamdlibm -ljemalloc -lflang`

**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`
- `-mllvm -enable-partial-unswitch -z muldefs -DSPEC_OPENMP -fopenmp`
- `-fopenmp=libomp -lomp -lpthread -ldl -lmvec -lamdlibm -ljemalloc -lflang`

**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,-isr-in-nested-loop`
- `-Wl,-mllvm -Wl,-enable-iv-split -O3 -march=znver2 -funroll-loops`
- `-Mrecursive -mllvm -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 -DUSE_OPENMP`

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

**Fortran benchmarks:**
- `-DUSE_OPENMP -Wno-return-type`
SPEC CPU®2017 Integer Speed Result
Copyright 2017-2020 Standard Performance Evaluation Corporation

Supermicro
A+ Server 2023US-TR4
(H11DSU-iN , AMD EPYC 7452)

SPECspeed®2017_int_base = 8.79
SPECspeed®2017_int_peak = 9.04

CPU2017 License: 001176
Test Date: Jan-2020
Test Sponsor: Supermicro
Hardware Availability: Aug-2019
Tested by: Supermicro
Software Availability: Aug-2019

Peak Compiler Invocation

C benchmarks:
clang

C++ benchmarks:
clang++

Fortran benchmarks:
flang

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 -lamdlibm -fopenmp=libomp -lomp -lpthread -ldl
-ljemalloc -lflang

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

602.gcc_s: basepeak = yes

605.mcf_s: -flto -W1, -mlvm -W1, -function-specialize
-W1, -mlvm -W1, -region-vectorize
-W1, -mlvm -W1, -vector-library=LIBMVEC
-W1, -mlvm -W1, -reduce-array-computations=3: -Ofast
-march=x86-64 -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 -Lamdlibm -fopenmp=libomp -lomp -lpthread -ldl
-ljemalloc -llflang

625.x264_s: Same as 600.perlbench_s

657.xz_s: -flto -W1, -mlvm -W1, -function-specialize
-W1, -mlvm -W1, -region-vectorize
-W1, -mlvm -W1, -vector-library=LIBMVEC
-W1, -mlvm -W1, -reduce-array-computations=3: -Ofast
-march=x86-64 -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
-fopenmp=libomp -lomp -lpthread -ldl -lmvec -lamdlibm
-ljemalloc -llflang

C++ benchmarks:

620.omnetpp_s: -flto -W1, -mlvm -W1, -function-specialize
-W1, -mlvm -W1, -region-vectorize
-W1, -mlvm -W1, -vector-library=LIBMVEC
-W1, -mlvm -W1, -reduce-array-computations=3: -Ofast
-march=x86-64 -flv-function-specialization
-mlvm -unroll-threshold=100
-mlvm -enable-partial-unswitch
-mlvm -loop-unswitch-threshold=200000

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

620.omnetpp_s (continued):
-mlcvm -vector-library=LIBMVEC
-mlcvm -inline-threshold=1000 -DSPEC_OPENMP -fopenmp
-fopenmp=libomp -lomp -lpthread -ldl -lmvec -lamdlibm
-ljemalloc -lflang

623.xalancbmk_s: -m32 -flto -Wl,-mlcvm -Wl,-function-specialize
-Wl,-mlcvm -Wl,-region-vectorize
-Wl,-mlcvm -Wl,-vector-library=LIBMVEC
-Wl,-mlcvm -Wl,-reduce-array-computations=3 -O fastest
-march=znuver2 -flv-function-specialization
-mlcvm -unroll-threshold=100
-mlcvm -enable-partial-unswitch
-mlcvm -loop-unswitch-threshold=200000
-mlcvm -vector-library=LIBMVEC
-mlcvm -inline-threshold=1000 -DSPEC_OPENMP -fopenmp
-fopenmp=libomp -lomp -lpthread -ldl -ljemalloc

631.deepsjeng_s: Same as 620.omnetpp_s

641.leea_s: basepeak = yes

Fortran benchmarks:
-flto -Wl,-mlcvm -Wl,-function-specialize
-Wl,-mlcvm -Wl,-region-vectorize -Wl,-mlcvm -Wl,-vector-library=LIBMVEC
-Wl,-mlcvm -Wl,-reduce-array-computations=3 -ffast-math
-Wl,-mlcvm -Wl,-disable-array-computations=3 -Wl,-mlcvm -Wl,-lsr-in-nested-loop
-Wl,-mlcvm -Wl,-reduce-array-computations=3 -O3 -march=znver2 -funroll-loops
-M recursive -mlcvm -vector-library=LIBMVEC
-mlcvm -disable-indvar-simplify -mlcvm -unroll-aggressive
-mlcvm -unroll-threshold=150 -DSPEC_OPENMP -fopenmp -fopenmp=libomp
 -lomp -lpthread -ldl -lmvec -lamdlibm -ljemalloc -lflang

Peak Other Flags

C benchmarks:
-Wno-return-type -DUSE_OPENMP

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

623.xalancbmk_s: -Wno-return-type -DUSE_OPENMP
-L/spppo/dev/cpu2017/v110/amd_speed_aocc200_rome_C_lib/32

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

Fortran benchmarks:
-DUSE_OPENMP  -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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Tested with SPEC CPU®2017 v1.1.0 on 2020-01-09 08:18:42-0500.
Report generated on 2020-02-18 18:05:47 by CPU2017 PDF formatter v6255.
Originally published on 2020-02-18.