SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

Supermicro

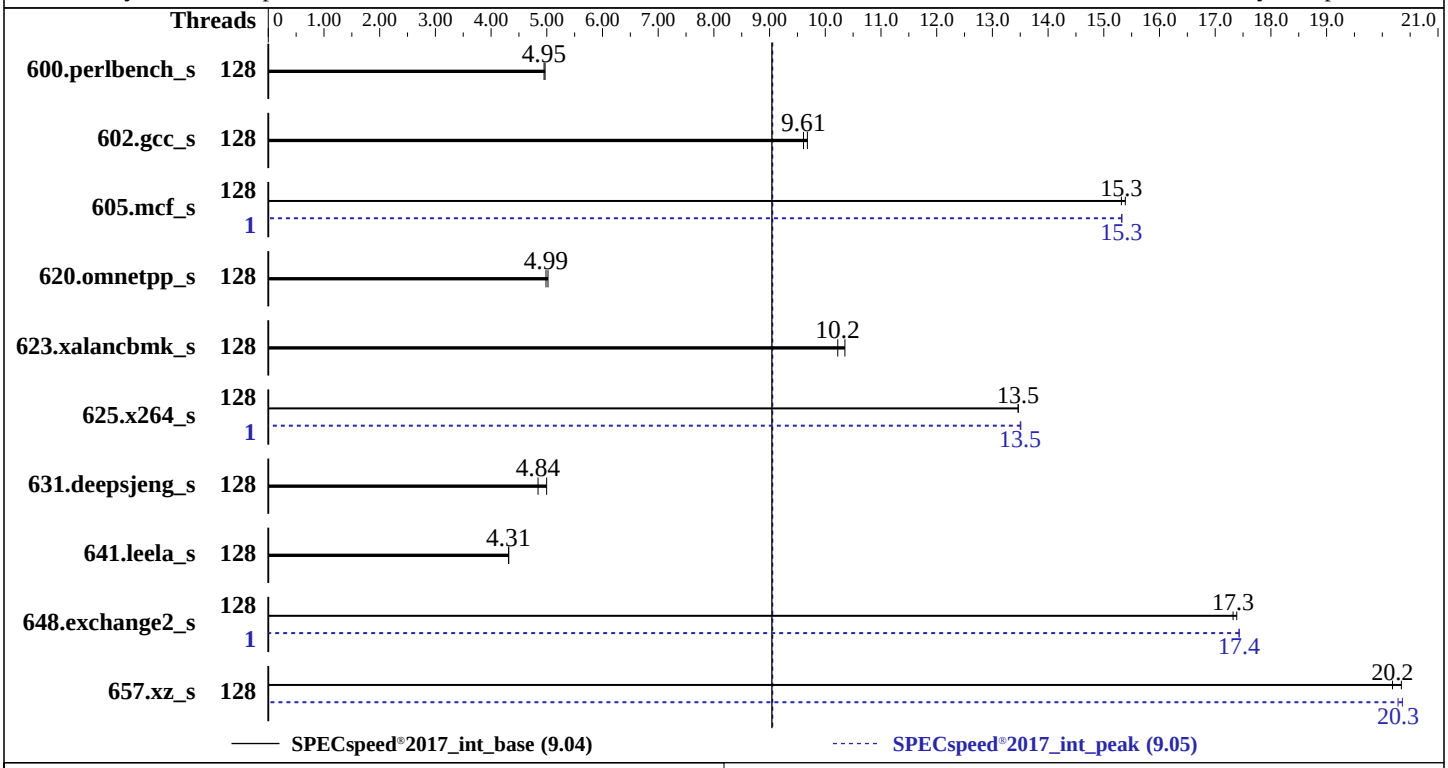
A+ Server 2124BT-HNTR
(H12DST-B , AMD EPYC 7702)

SPECspeed®2017_int_base = 9.04

SPECspeed®2017_int_peak = 9.05

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

Test Date: Oct-2021
Hardware Availability: Aug-2019
Software Availability: Sep-2021



Hardware

CPU Name:	AMD EPYC 7702
Max MHz:	3350
Nominal:	2000
Enabled:	128 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:	256 MB I+D on chip per chip, 16 MB shared / 4 cores
Other:	None
Memory:	1 TB (16 x 64 GB 2Rx4 PC4-3200AA-R)
Storage:	1 x 200 GB SATA III SSD
Other:	None

Software

OS:	Ubuntu 20.04.3 LTS Kernel 5.4.0-88-generic
Compiler:	C/C++/Fortran: Version 3.0.0 of AOCC
Parallel:	Yes
Firmware:	Version 2.2 released Aug-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.

SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

Supermicro

A+ Server 2124BT-HNTR
(H12DST-B , AMD EPYC 7702)

SPECspeed®2017_int_base = 9.04

SPECspeed®2017_int_peak = 9.05

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

Test Date: Oct-2021
Hardware Availability: Aug-2019
Software Availability: Sep-2021

Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	128	357	4.97	**359**	**4.95**			128	357	4.97	**359**	**4.95**		
602.gcc_s	128	411	9.68	**414**	**9.61**			128	411	9.68	**414**	**9.61**		
605.mcf_s	128	307	15.4	**308**	**15.3**			1	308	15.3	**308**	**15.3**		
620.omnetpp_s	128	**327**	**4.99**	325	5.02			128	**327**	**4.99**	325	5.02		
623.xalancbmk_s	128	137	10.4	**139**	**10.2**			128	137	10.4	**139**	**10.2**		
625.x264_s	128	131	13.5	**131**	**13.5**			1	131	13.5	**131**	**13.5**		
631.deepsjeng_s	128	287	5.00	**296**	**4.84**			128	287	5.00	**296**	**4.84**		
641.leela_s	128	**396**	**4.31**	395	4.32			128	**396**	**4.31**	395	4.32		
648.exchange2_s	128	**170**	**17.3**	169	17.4			1	**169**	**17.4**	169	17.4		
657.xz_s	128	304	20.3	**306**	**20.2**			128	**305**	**20.3**	304	20.4		

SPECspeed®2017_int_base = 9.04

SPECspeed®2017_int_peak = 9.05

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)

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 = "0-255"
LD_LIBRARY_PATH =
     "/home/cpu2017/amd_speed_aocc300_milan_B_lib/lib;/home/cpu2017/amd_speed
     _aocc300_milan_B_lib/lib32:"
MALLOC_CONF = "retain:true"
OMP_DYNAMIC = "false"
OMP_SCHEDULE = "static"
OMP_STACKSIZE = "128M"
OMP_THREAD_LIMIT = "256"

Environment variables set by runcpu during the 605.mcf_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 648.exchange2_s peak run:
GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 657.xz_s peak run:
GOMP_CPU_AFFINITY = "0-127"
```

General Notes

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

NA: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown)
is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5753 (Spectre variant 1)
is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5715 (Spectre variant 2)
is mitigated in the system as tested and documented.

jemalloc: configured and built with GCC v4.8.2 in RHEL 7.4 (No options specified)
jemalloc 5.1.0 is available here:
https://github.com/jemalloc/jemalloc/releases/download/5.1.0/jemalloc-5.1.0.tar.bz2
```

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 /home/cpu2017/bin/sysinfo
 Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acafc64d
 running on h12dst-7702 Sat Oct  2 10:04:05 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 7702 64-Core Processor
       2  "physical id"s (chips)
       256 "processors"
    cores, siblings (Caution: counting these is hw and system dependent. The following
    excerpts from /proc/cpuinfo might not be reliable.  Use with caution.)
       cpu cores : 64
       siblings  : 128
       physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
       25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52
       53 54 55 56 57 58 59 60 61 62 63
       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 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52
       53 54 55 56 57 58 59 60 61 62 63

 From lscpu from util-linux 2.34:
      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):                          256
      On-line CPU(s) list:             0-255
      Thread(s) per core:              2
      Core(s) per socket:              64
      Socket(s):                       2
      NUMA node(s):                    32
      Vendor ID:                       AuthenticAMD
      CPU family:                      23
      Model:                           49
```

(Continued on next page)

Platform Notes (Continued)

```
Model name:                      AMD EPYC 7702 64-Core Processor
Stepping:                        0
Frequency boost:                 enabled
CPU MHz:                         3182.853
CPU max MHz:                     2000.0000
CPU min MHz:                     1500.0000
BogoMIPS:                        4000.19
Virtualization:                  AMD-V
L1d cache:                       4 MiB
L1i cache:                       4 MiB
L2 cache:                        64 MiB
L3 cache:                        512 MiB
NUMA node0 CPU(s):               0-3,128-131
NUMA node1 CPU(s):               4-7,132-135
NUMA node2 CPU(s):               8-11,136-139
NUMA node3 CPU(s):               12-15,140-143
NUMA node4 CPU(s):               16-19,144-147
NUMA node5 CPU(s):               20-23,148-151
NUMA node6 CPU(s):               24-27,152-155
NUMA node7 CPU(s):               28-31,156-159
NUMA node8 CPU(s):               32-35,160-163
NUMA node9 CPU(s):               36-39,164-167
NUMA node10 CPU(s):              40-43,168-171
NUMA node11 CPU(s):              44-47,172-175
NUMA node12 CPU(s):              48-51,176-179
NUMA node13 CPU(s):              52-55,180-183
NUMA node14 CPU(s):              56-59,184-187
NUMA node15 CPU(s):              60-63,188-191
NUMA node16 CPU(s):              64-67,192-195
NUMA node17 CPU(s):              68-71,196-199
NUMA node18 CPU(s):              72-75,200-203
NUMA node19 CPU(s):              76-79,204-207
NUMA node20 CPU(s):              80-83,208-211
NUMA node21 CPU(s):              84-87,212-215
NUMA node22 CPU(s):              88-91,216-219
NUMA node23 CPU(s):              92-95,220-223
NUMA node24 CPU(s):              96-99,224-227
NUMA node25 CPU(s):              100-103,228-231
NUMA node26 CPU(s):              104-107,232-235
NUMA node27 CPU(s):              108-111,236-239
NUMA node28 CPU(s):              112-115,240-243
NUMA node29 CPU(s):              116-119,244-247
NUMA node30 CPU(s):              120-123,248-251
NUMA node31 CPU(s):              124-127,252-255
Vulnerability Itlb multihit:     Not affected
Vulnerability L1tf:              Not affected
Vulnerability Mds:               Not affected
```

(Continued on next page)

Platform Notes (Continued)

```
      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 sanitization
      Vulnerability Spectre v2:        Mitigation; Full AMD retpoline, IBPB conditional,
      IBRS_FW, STIBP conditional, 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 ht syscall nx mmxext fxsr_opt
      pdpe1gb rdtscp lm constant_tsc rep_good nopl nonstop_tsc cpuid extd_apicid
      aperfmperf pni pclmulqdq monitor ssse3 fma cx16 sse4_1 sse4_2 x2apic movbe popcnt
      aes xsave avx f16c rdrand lahf_lm cmp_legacy svm extapic cr8_legacy abm sse4a
      misalignsse 3dnowprefetch osvw ibs skinit wdt tce topoext perfctr_core perfctr_nb
      bpext perfctr_llc mwaitx cpb cat_l3 cdp_l3 hw_pstate sme ssbd mba sev ibrs ibpb
      stibp vmmcall fsgsbase bmi1 avx2 smep bmi2 cqm rdt_a rdseed adx smap clflushopt clwb
      sha_ni xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total
      cqm_mbm_local clzero irperf xsaveerptr wbnoinvd arat npt lbrv svm_lock nrip_save
      tsc_scale vmcb_clean flushbyasid decodeassists pausefilter pfthreshold avic
      v_vmsave_vmload vgif umip rdpid overflow_recov succor smca

  From lscpu --cache:
      NAME ONE-SIZE ALL-SIZE WAYS TYPE        LEVEL
      L1d       32K       4M    8 Data            1
      L1i       32K       4M    8 Instruction     1
      L2       512K      64M    8 Unified         2
      L3        16M     512M   16 Unified         3

  /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: 32 nodes (0-31)
    node 0 cpus: 0 1 2 3 128 129 130 131
    node 0 size: 32127 MB
    node 0 free: 31756 MB
    node 1 cpus: 4 5 6 7 132 133 134 135
    node 1 size: 32254 MB
    node 1 free: 31860 MB
    node 2 cpus: 8 9 10 11 136 137 138 139
    node 2 size: 32254 MB
    node 2 free: 31922 MB
    node 3 cpus: 12 13 14 15 140 141 142 143
    node 3 size: 32253 MB
    node 3 free: 31911 MB
```

(Continued on next page)

Platform Notes (Continued)

```
node 4 cpus: 16 17 18 19 144 145 146 147
node 4 size: 32254 MB
node 4 free: 31925 MB
node 5 cpus: 20 21 22 23 148 149 150 151
node 5 size: 32229 MB
node 5 free: 31885 MB
node 6 cpus: 24 25 26 27 152 153 154 155
node 6 size: 32254 MB
node 6 free: 31912 MB
node 7 cpus: 28 29 30 31 156 157 158 159
node 7 size: 32253 MB
node 7 free: 31920 MB
node 8 cpus: 32 33 34 35 160 161 162 163
node 8 size: 32254 MB
node 8 free: 31928 MB
node 9 cpus: 36 37 38 39 164 165 166 167
node 9 size: 32254 MB
node 9 free: 31933 MB
node 10 cpus: 40 41 42 43 168 169 170 171
node 10 size: 32254 MB
node 10 free: 31934 MB
node 11 cpus: 44 45 46 47 172 173 174 175
node 11 size: 32253 MB
node 11 free: 31931 MB
node 12 cpus: 48 49 50 51 176 177 178 179
node 12 size: 32254 MB
node 12 free: 31915 MB
node 13 cpus: 52 53 54 55 180 181 182 183
node 13 size: 32254 MB
node 13 free: 31926 MB
node 14 cpus: 56 57 58 59 184 185 186 187
node 14 size: 32254 MB
node 14 free: 31910 MB
node 15 cpus: 60 61 62 63 188 189 190 191
node 15 size: 32241 MB
node 15 free: 31919 MB
node 16 cpus: 64 65 66 67 192 193 194 195
node 16 size: 32254 MB
node 16 free: 31764 MB
node 17 cpus: 68 69 70 71 196 197 198 199
node 17 size: 32254 MB
node 17 free: 31917 MB
node 18 cpus: 72 73 74 75 200 201 202 203
node 18 size: 32254 MB
node 18 free: 31829 MB
node 19 cpus: 76 77 78 79 204 205 206 207
node 19 size: 32253 MB
```


(Continued on next page)

Platform Notes (Continued)

```
node 19 free: 31902 MB
node 20 cpus: 80 81 82 83 208 209 210 211
node 20 size: 32254 MB
node 20 free: 31930 MB
node 21 cpus: 84 85 86 87 212 213 214 215
node 21 size: 32254 MB
node 21 free: 31909 MB
node 22 cpus: 88 89 90 91 216 217 218 219
node 22 size: 32254 MB
node 22 free: 31930 MB
node 23 cpus: 92 93 94 95 220 221 222 223
node 23 size: 32253 MB
node 23 free: 31932 MB
node 24 cpus: 96 97 98 99 224 225 226 227
node 24 size: 32254 MB
node 24 free: 31925 MB
node 25 cpus: 100 101 102 103 228 229 230 231
node 25 size: 32254 MB
node 25 free: 31940 MB
node 26 cpus: 104 105 106 107 232 233 234 235
node 26 size: 32254 MB
node 26 free: 31924 MB
node 27 cpus: 108 109 110 111 236 237 238 239
node 27 size: 32253 MB
node 27 free: 31931 MB
node 28 cpus: 112 113 114 115 240 241 242 243
node 28 size: 32254 MB
node 28 free: 31922 MB
node 29 cpus: 116 117 118 119 244 245 246 247
node 29 size: 32254 MB
node 29 free: 31931 MB
node 30 cpus: 120 121 122 123 248 249 250 251
node 30 size: 32254 MB
node 30 free: 31930 MB
node 31 cpus: 124 125 126 127 252 253 254 255
node 31 size: 32250 MB
node 31 free: 31927 MB
node distances:
node   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
  0:  10  11  11  11  12  12  12  12  12  12  12  12  12  12  12  12  32  32  32  32
  32  32  32  32  32  32  32  32  32  32  32  32
  1:  11  10  11  11  12  12  12  12  12  12  12  12  12  12  12  12  32  32  32  32
  32  32  32  32  32  32  32  32  32  32  32  32
  2:  11  11  10  11  12  12  12  12  12  12  12  12  12  12  12  12  32  32  32  32
  32  32  32  32  32  32  32  32  32  32  32  32
  3:  11  11  11  10  12  12  12  12  12  12  12  12  12  12  12  12  32  32  32  32
```

(Continued on next page)

Platform Notes (Continued)

```
  32  32  32  32  32  32  32  32  32  32  32  32
  4:  12  12  12  12  10  11  11  11  12  12  12  12  12  12  12  12  32  32  32  32
  32  32  32  32  32  32  32  32  32  32  32  32
  5:  12  12  12  12  11  10  11  11  12  12  12  12  12  12  12  12  32  32  32  32
  32  32  32  32  32  32  32  32  32  32  32  32
  6:  12  12  12  12  11  11  10  11  12  12  12  12  12  12  12  12  32  32  32  32
  32  32  32  32  32  32  32  32  32  32  32  32
  7:  12  12  12  12  11  11  11  10  12  12  12  12  12  12  12  12  32  32  32  32
  32  32  32  32  32  32  32  32  32  32  32  32
  8:  12  12  12  12  12  12  12  12  10  11  11  11  12  12  12  12  32  32  32  32
  32  32  32  32  32  32  32  32  32  32  32  32
  9:  12  12  12  12  12  12  12  12  11  10  11  11  12  12  12  12  32  32  32  32
  32  32  32  32  32  32  32  32  32  32  32  32
 10:  12  12  12  12  12  12  12  12  12  11  11  10  11  12  12  12  12  32  32  32  32
32  32  32  32  32  32  32  32  32  32  32  32
 11:  12  12  12  12  12  12  12  12  12  11  11  11  10  12  12  12  12  32  32  32  32
32  32  32  32  32  32  32  32  32  32  32  32
 12:  12  12  12  12  12  12  12  12  12  12  12  12  12  10  11  11  11  32  32  32  32
32  32  32  32  32  32  32  32  32  32  32  32
 13:  12  12  12  12  12  12  12  12  12  12  12  12  12  11  10  11  11  32  32  32  32
32  32  32  32  32  32  32  32  32  32  32  32
 14:  12  12  12  12  12  12  12  12  12  12  12  12  12  11  11  10  11  32  32  32  32
32  32  32  32  32  32  32  32  32  32  32  32
 15:  12  12  12  12  12  12  12  12  12  12  12  12  12  11  11  11  10  32  32  32  32
32  32  32  32  32  32  32  32  32  32  32  32
 16:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  10  11  11  11
12  12  12  12  12  12  12  12  12  12  12  12
 17:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  11  10  11  11
12  12  12  12  12  12  12  12  12  12  12  12
 18:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  11  11  10  11
12  12  12  12  12  12  12  12  12  12  12  12
 19:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  11  11  11  10
12  12  12  12  12  12  12  12  12  12  12  12
 20:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12
10  11  11  11  12  12  12  12  12  12  12  12
 21:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12
11  10  11  11  12  12  12  12  12  12  12  12
 22:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12
11  11  10  11  12  12  12  12  12  12  12  12
 23:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12
11  11  11  10  12  12  12  12  12  12  12  12
 24:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12
12  12  12  12  10  11  11  11  12  12  12  12
 25:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12
12  12  12  12  11  10  11  11  12  12  12  12
 26:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12
12  12  12  12  11  11  10  11  12  12  12  12
```


(Continued on next page)

Platform Notes (Continued)

```
    27:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12
    12  12  12  12  11  11  11  10  12  12  12  12
    28:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12
    12  12  12  12  12  12  12  12  10  11  11  11
    29:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12
    12  12  12  12  12  12  12  12  11  10  11  11
    30:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12
    12  12  12  12  12  12  12  12  11  11  10  11
    31:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12
    12  12  12  12  12  12  12  12  11  11  11  10

  From /proc/meminfo
     MemTotal:       1056724908 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 20.04.3 LTS

  From /etc/*release* /etc/*version*
     debian_version: bullseye/sid
     os-release:
        NAME="Ubuntu"
        VERSION="20.04.3 LTS (Focal Fossa)"
        ID=ubuntu
        ID_LIKE=debian
        PRETTY_NAME="Ubuntu 20.04.3 LTS"
        VERSION_ID="20.04"
        HOME_URL="https://www.ubuntu.com/"
        SUPPORT_URL="https://help.ubuntu.com/"

  uname -a:
     Linux h12dst-7702 5.4.0-88-generic #99-Ubuntu SMP Thu Sep 23 17:29:00 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
```

(Continued on next page)

Platform Notes (Continued)

```
 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
 CVE-2020-0543 (Special Register Buffer Data Sampling): Not affected
 CVE-2019-11135 (TSX Asynchronous Abort):              Not affected

 run-level 3 Oct 1 17:30

 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:        Super Server
     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 SK Hynix HMAA8GR7AJR4N-XN 64 GB 2 rank 3200

 BIOS:
    BIOS Vendor:       American Megatrends Inc.
    BIOS Version:      2.2
    BIOS Date:         08/31/2021
    BIOS Revision:     5.14

 (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)
```

(Continued on next page)

Compiler Version Notes (Continued)

```
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)
        | 631.deepsjeng_s(base, peak) 641.leela_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
------------------------------------------------------------------------------

==============================================================================
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

(Continued on next page)

Base Portability Flags (Continued)

623.xalancbmk_s: -DSPEC_LINUX -DSPEC_LP64
625.x264_s: -DSPEC_LP64
631.deepsjeng_s: -DSPEC_LP64
641.leela_s: -DSPEC_LP64
648.exchange2_s: -DSPEC_LP64
657.xz_s: -DSPEC_LP64

Base Optimization Flags

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

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

Fortran benchmarks:
-m64 -mno-adx -mno-sse4a -Wl,-mllvm -Wl,-inline-recursion=4
-Wl,-mllvm -Wl,-lsr-in-nested-loop -Wl,-mllvm -Wl,-enable-iv-split
-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-function-specialize

(Continued on next page)

Base Optimization Flags (Continued)

Fortran benchmarks (continued):
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver3
-fveclib=AMDLIBM -ffast-math -flto -z muldefs
-mllvm -unroll-aggressive -mllvm -unroll-threshold=150 -DSPEC_OPENMP
-fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang
-lflangrti

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`

602.gcc_s: `basepeak = yes`

605.mcf_s: `-m64 -mno-adx -mno-sse4a -Wl,-allow-multiple-definition -Wl,-mllvm -Wl,-enable-licm-vrp -Wl,-mllvm -Wl,-function-specialize -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6 -Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast -march=znver3 -fveclib=AMDLIBM -ffast-math -flto -fstruct-layout=5 -mllvm -unroll-threshold=50 -fremap-arrays -flv-function-specialization -mllvm -inline-threshold=1000 -mllvm -enable-gvn-hoist -mllvm -global-vectorize-slp=true -mllvm -function-specialize -mllvm -enable-licm-vrp -mllvm -reduce-array-computations=3 -DSPEC_OPENMP -fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang`

625.x264_s: `Same as 605.mcf_s`

657.xz_s: `Same as 605.mcf_s`

C++ benchmarks:

620.omnetpp_s: `basepeak = yes`

623.xalancbmk_s: `basepeak = yes`

631.deepsjeng_s: `basepeak = yes`

641.leela_s: `basepeak = yes`

Fortran benchmarks:
`-m64 -mno-adx -mno-sse4a -Wl,-mllvm -Wl,-inline-recursion=4 -Wl,-mllvm -Wl,-lsr-in-nested-loop -Wl,-mllvm -Wl,-enable-iv-split -Wl,-mllvm -Wl,-function-specialize -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6 -Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver3 -fveclib=AMDLIBM -ffast-math -flto -mllvm -unroll-aggressive -mllvm -unroll-threshold=150 -DSPEC_OPENMP -fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang`

Peak 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`

The flags files that were used to format this result can be browsed at
`http://www.spec.org/cpu2017/flags/aocc300-flags-B2.html`
`http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-Rome-revC.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2017/flags/aocc300-flags-B2.xml`
`http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-Rome-revC.xml`

SPEC CPU and SPECspeed are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.

Tested with SPEC CPU®2017 v1.1.8 on 2021-10-02 06:04:05-0400.
Report generated on 2021-10-28 11:35:50 by CPU2017 PS formatter v6442.
Originally published on 2021-10-26.