### SPEC ACCEL™ ACC Result

**Supermicro**  
(Test Sponsor: NVIDIA Corporation)

**EPYC 7451**  
A+ Server 1023US-TR4

<table>
<thead>
<tr>
<th>Test Sponsor: NVIDIA Corporation</th>
<th>Test date: Aug-2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tested by: NVIDIA Corporation</td>
<td>Hardware Availability: Jul-2017</td>
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**SPECaccel_acc_base = 2.59**

**SPECaccel_acc_peak = 2.59**

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## Hardware

- **CPU Name:** AMD EPYC 7451
- **CPU Characteristics:**
  - **CPU MHz:** 2300
  - **CPU MHz Maximum:** 3200
  - **FPU:** Integrated
  - **CPU(s) enabled:** 48 cores, 2 chips, 24 cores/chip, 2 threads/core
  - **CPU(s) orderable:** 1,2 chips
  - **Primary Cache:** 64 KB I + 32 KB D on chip per core
  - **Secondary Cache:** 512 KB I+D on chip per core
  - **L3 Cache:** 64 MB I+D on chip per chip, 8 MB shared / 3 cores
  - **Other Cache:** None

## Accelerator

- **Accel Model Name:** EPYC 7451
- **Accel Vendor:** AMD
- **Accel Name:** EPYC 7451
- **Type of Accel:** CPU
- **Accel Connection:** Not Applicable
- **Does Accel Use ECC:** Yes
- **Accel Description:** AMD EPYC 48-core CPU
- **Accel Driver:** Not Applicable
SPEC ACCEL ACC Result

Supermicro
(Test Sponsor: NVIDIA Corporation)

EPYC 7451
A+ Server 1023US-TR4

SPECaccel_acc_peak = 2.59
SPECaccel_acc_base = 2.59

ACCEL license: 019
Test sponsor: NVIDIA Corporation
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Test date: Aug-2018
Hardware Availability: Jul-2017
Software Availability: Aug-2018

Hardware (Continued)
Memory: 256 GB (16 x 16GB 4DRx4 PC4-2666V-L, running at 2667)
Disk Subsystem: 1 x 480 GB Intel SATA SSD (SSDSC2BB48)
Other Hardware: None

Software
Operating System: CentOS Linux release 7.4.1708 (Core) 4.15.0-1.el7.elrepo.x86_64
Compiler: PGI Professional Edition, Release 18.7 LLVM
File System: xfs
System State: Run level 3 (multi-user)
Other Software: None

Results Table

<table>
<thead>
<tr>
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<th>Ratio</th>
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Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes
The config file option 'submit' was used.
Submit command: numactl --interleave all $command
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Platform Notes

Sysinfo program /local/home/colgrove/SPECACCEL/Docs/sysinfo
$Rev: 6965 $ $Date:: 2015-04-21 #$ c05a7f14b1b1765e3fe1df68447e8a35
running on epyc.pgi.net Mon Aug 13 13:19:35 2018

This section contains SUT (System Under Test) info as seen by
some common utilities. To remove or add to this section, see:
http://www.spec.org/accel/Docs/config.html#sysinfo

From /proc/cpuinfo
model name : AMD EPYC 7451 24-Core Processor
  2 "physical id"s (chips)
  96 "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 : 24
siblings : 48
physical 0: cores 0 1 2 4 5 6 8 9 10 12 13 14 16 17 18 20 21 22 24 25 26
  28 29 30
physical 1: cores 0 1 2 4 5 6 8 9 10 12 13 14 16 17 18 20 21 22 24 25 26
  28 29 30
cache size : 512 KB

From /proc/meminfo
MemTotal:       264029300 kB
HugePages_Total:      20
Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
CentOS Linux release 7.4.1708 (Core)

From /etc/*release* /etc/*version*
centos-release: CentOS Linux release 7.4.1708 (Core)
centos-release-upstream: Derived from Red Hat Enterprise Linux 7.4 (Source)
hpe-mpi-release: HPE MPI 1.1, Build 717r22.rhel74-1711292100
os-release:
  NAME="CentOS Linux"
  VERSION="7 (Core)"
  ID="centos"
  ID_LIKE="rhel fedora"
  VERSION_ID="7"
  PRETTY_NAME="CentOS Linux 7 (Core)"
  ANSI_COLOR="0;31"
  CPE_NAME=cpe:/o:centos:centos:7"
redhat-release: CentOS Linux release 7.4.1708 (Core)
sgi-release: SGI Performance Suite 1.15
system-release: CentOS Linux release 7.4.1708 (Core)
system-release-cpe: cpe:/o:centos:centos:7

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Platform Notes (Continued)

uname -a:
   Linux epyc.pgi.net 4.15.0-1.el7.elrepo.x86_64 #1 SMP Sun Jan 28 20:45:20 EST 2018 x86_64 x86_64 x86_64 GNU/Linux
run-level 3 Aug 1 13:00

SPEC is set to: /local/home/colgrove/SPECACCEL
Filesystem Type Size Used Avail Use% Mounted on
/dev/mapper/centos-root xfs 443G 161G 282G 37% /

Additional information from dmidecode:
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.

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:
ACC_NUM_CORES = "48"
HUGETLB_PATH = "mnt/hugetlb"
KMP_ALL_THREADS = "48"
OMP_PLACES = "{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}" 
OMP_PROC_BIND = "true"
OMP_THREAD_LIMIT = "48"

Yes: 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.

Base Compiler Invocation

C benchmarks:
pgcc

Fortran benchmarks:
pf_fortran

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Base Compiler Invocation (Continued)

Benchmarks using both Fortran and C:
pgcc pgfortran

Base Optimization Flags

C benchmarks:
- fast -Mnouniform -Mhugetlb -V18.7 -Mllvm -acc -ta=multicore

Fortran benchmarks:
- fast -Mnouniform -Mhugetlb -V18.7 -Mllvm -acc -ta=multicore

Benchmarks using both Fortran and C:
353.clvrleaf: -fast -Mnouniform -Mhugetlb -V18.7 -Mllvm -acc -ta=multicore
359.miniGhost: -fast -Mnouniform -Mhugetlb -V18.7 -Mllvm -acc -ta=multicore -Mnomain

Peak Optimization Flags

C benchmarks:
303.ostencil: basepeak = yes
304.olbm: basepeak = yes
314.omriq: basepeak = yes
352.ep: basepeak = yes
354.cg: basepeak = yes
357.csp: basepeak = yes
370.bt: basepeak = yes

Fortran benchmarks:
350.md: basepeak = yes
351.palm: basepeak = yes

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Peak Optimization Flags (Continued)

355.seismic: basepeak = yes
356.sp: basepeak = yes
360.ilbdc: basepeak = yes
363.swim: basepeak = yes

Benchmarks using both Fortran and C:
353.clvrleaf: basepeak = yes
359.miniGhost: basepeak = yes

The flags files that were used to format this result can be browsed at
https://www.spec.org/accel/flags/PGI-Platform-Multicore-OMP.html
https://www.spec.org/accel/flags/pgi2018_flags.html

You can also download the XML flags sources by saving the following links:
https://www.spec.org/accel/flags/PGI-Platform-Multicore-OMP.xml
https://www.spec.org/accel/flags/pgi2018_flags.xml

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

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