Lenovo Global Technology
NVIDIA Tesla A100-PCIE-40GB
ThinkSystem SR665

**SPECaccel_ocl_peak = 18.2**

**SPECaccel_ocl_base = 15.8**

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- 101.tpacf
- 103.stencil
- 104.lbm
- 110.fft
- 112.spmv
- 114.mriq
- 116.hist
- 117.bfs
- 118.cutcp
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## Lenovo Global Technology

### NVIDIA Tesla A100-PCIE-40GB

**ThinkSystem SR665**

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</tbody>
</table>

### Hardware

- **CPU Name:** AMD EPYC 7763
- **CPU Characteristics:** Turbo up to 3.5 GHz
- **CPU MHz:** 2450
- **CPU MHz Maximum:** 3500
- **FPU:** Integrated
- **CPU(s) enabled:** 64 cores, 2 chips, 64 cores/chip, 2 threads/core
- **Primary Cache:** 32 KB I + 32 KB D on chip per core
- **Secondary Cache:** 512 KB I+D on chip per core
- **L3 Cache:** 256 MB I+D on chip per chip
- **Other Cache:** None
- **Memory:** 1 TB (32 x 32 GB 2Rx4 PC4-3200AA-R)
- **Disk Subsystem:** 1 x 480 GB 2.5" SSD
- **Other Hardware:** None

### Accelerator

- **Accel Model Name:** Tesla A100
- **Accel Vendor:** NVIDIA Corporation
- **Accel Name:** NVIDIA Tesla A100-PCIE-40GB
- **Type of Accel:** GPU
- **Accel Connection:** PCIe 4.0 16x
- **Does Accel Use ECC:** Yes
- **Accel Description:** NVIDIA Tesla A100-PCIE-40GB
- **Accel Driver:** NVIDIA UNIX x86_64 Kernel Module 450.51.05

### Software

- **Operating System:** Red Hat Enterprise Linux release 8.3 (Ootpa) 4.18.0-240.el8.x86_64
- **Compiler:** Nvidia HPC SDK Release 20.11
- **File System:** xfs
- **System State:** Run level 3
- **Other Software:** CUDA 11.0 SDK
Lenovo Global Technology  
NVIDIA Tesla A100-PCIE-40GB  
ThinkSystem SR665

**SPEC accel ocl peak = 18.2**  
**SPEC accel ocl base = 15.8**

### Results Table

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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.

### Platform Notes

Sysinfo program /home/ACCEL1.3/Docs/sysinfo  
$Rev: 6965 $ $Date:: 2015-04-21 #$ c05a7f14b1b1765e3fe1df6847e8a35  
running on amd2srh836 Tue Jan 19 10:46:18 2021

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 7763 64-Core Processor  
Continued on next page
Lenovo Global Technology
NVIDIA Tesla A100-PCIE-40GB
ThinkSystem SR665

SPECCaccel_ocl_peak = 18.2
SPECCaccel_ocl_base = 15.8

ACCEL license: 28
Test sponsor: Lenovo Global Technology
Test date: Jan-2021
Tested by: Lenovo Global Technology
Hardware Availability: Mar-2021
Software Availability: Mar-2021

Platform Notes (Continued)

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 : 64
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 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

cache size : 512 KB

From /proc/meminfo
MemTotal: 1056412560 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
os-release:
  NAME="Red Hat Enterprise Linux"
  VERSION="8.3 (Ootpa)"
  ID="rhel"
  ID_LIKE="fedora"
  VERSION_ID="8.3"
  PLATFORM_ID="platform:el8"
  PRETTY_NAME="Red Hat Enterprise Linux 8.3 (Ootpa)"
  ANSI_COLOR="0;31"
redhat-release: Red Hat Enterprise Linux release 8.3 (Ootpa)
system-release: Red Hat Enterprise Linux release 8.3 (Ootpa)
system-release-cpe: cpe:/o:redhat:enterprise_linux:8.3:ga

uname -a:
Linux amd2srh836 4.18.0-240.el8.x86_64 #1 SMP Wed Sep 23 05:13:10 EDT 2020
x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jun 22 19:12

SPEC is set to: /home/ACCEL1.3
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda3 xfs 419G 131G 288G 32% /home

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.

Continued on next page
**SPEC ACCEL OCL Result**

**Lenovo Global Technology**

**NVIDIA Tesla A100-PCIE-40GB**

**ThinkSystem SR665**

| SPECaccel_ocl_peak | 18.2 |
| SPECaccel_ocl_base | 15.8 |

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| Hardware Availability: | Mar-2021 |
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**Platform Notes (Continued)**

- BIOS Lenovo D8E113S-2.00 12/18/2020
- Memory:
  - 32x Samsung M393A4G43AB3-CWE 32 GB 2 rank 3200 MT/s

(End of data from sysinfo program)

**General Notes**

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 Runtime Environment**

- **C benchmarks**:
  - OpenCL Platform: NVIDIA CUDA, OpenCL 1.2 CUDA 11.0.197
  - OpenCL Device #0: A100-PCIE-40GB, v 450.51.05

- **C++ benchmarks**:
  - OpenCL Platform: NVIDIA CUDA, OpenCL 1.2 CUDA 11.0.197
  - OpenCL Device #0: A100-PCIE-40GB, v 450.51.05

**Base Compiler Invocation**

- **C benchmarks**:
  - pgcc

- **C++ benchmarks**:
  - pgc++

**Base Portability Flags**

116.histo: -DSPEC_LOCAL_MEMORY_HEADROOM=1

---

Standard Performance Evaluation Corporation
info@spec.org
http://www.spec.org/
**SPEC ACCEL OCL Result**

Lenovo Global Technology  
NVIDIA Tesla A100-PCIE-40GB  
ThinkSystem SR665  

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**Test date:** Jan-2021  
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**Hardware Availability:** Mar-2021  
**Software Availability:** Mar-2021

### Base Optimization Flags

- **C benchmarks:**  
  -fast -Mfprelaxed

- **C++ benchmarks:**  
  -fast -Mfprelaxed

### Base Other Flags

- **C benchmarks:**  
  -I/usr/local/cuda-11.0/targets/x86_64-linux/include  
  -L/usr/local/cuda-11.0/lib64 -lOpenCL

- **C++ benchmarks:**  
  -I/usr/local/cuda-11.0/targets/x86_64-linux/include  
  -L/usr/local/cuda-11.0/lib64 -lOpenCL

### Peak Runtime Environment

- **C benchmarks:**  
  OpenCL Platform: NVIDIA CUDA, OpenCL 1.2 CUDA 11.0.197  
  OpenCL Device #0: A100-PCIE-40GB, v 450.51.05

- **C++ benchmarks:**  
  OpenCL Platform: NVIDIA CUDA, OpenCL 1.2 CUDA 11.0.197  
  OpenCL Device #0: A100-PCIE-40GB, v 450.51.05

### Peak Compiler Invocation

- **C benchmarks:**  
  pgcc

- **C++ benchmarks:**  
  pgc++

### Peak Portability Flags

116.histo: -DSPEC_LOCAL_MEMORY_HEADROOM=1
Lenovo Global Technology
NVIDIA Tesla A100-PCIE-40GB
ThinkSystem SR665

SPECaccel_ocl_peak = 18.2
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ACCEL license: 28
Test sponsor: Lenovo Global Technology
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Hardware Availability: Mar-2021
Software Availability: Mar-2021

Peak Optimization Flags

C benchmarks:

110.fft: basepeak = yes
114.mriq: basepeak = yes
116.histo: basepeak = yes
117.bfs: -fast -Mfprelaxed -DSPEC_ACCEL_WR_SIZE_0_0=64 -DSPEC_ACCEL_WR_SIZE_1_0=64
118.cutcp: basepeak = yes
121.lavamd: basepeak = yes
124.hotspot: basepeak = yes
127.srad: basepeak = yes
128.heartwall: basepeak = yes
140.bplustree: basepeak = yes

C++ benchmarks:

101.tpacf: -fast -Mfprelaxed -DSPEC_ACCEL_WR_SIZE_0_0=1024
103.stencil: basepeak = yes
104.lbm: -fast -Mfprelaxed -DSPEC_ACCEL_WR_SIZE_0_0=32 -DSPEC_ACCEL_WR_SIZE_0_1=1 -DSPEC_ACCEL_WR_SIZE_0_2=1
112.spmv: -fast -Mfprelaxed -DSPEC_ACCEL_WR_SIZE_0_0=96
120.kmeans: -fast -Mfprelaxed -DSPEC_ACCEL_WR_SIZE_0_0=288
122.cfd: -fast -Mfprelaxed -DSPEC_ACCEL_WR_SIZE_3_0=288
123.nw: basepeak = yes
125.lud: -fast -Mfprelaxed -DSPEC_ACCEL_WR_SIZE_0_0=32
126.ge: -fast -Mfprelaxed -DSPEC_ACCEL_WR_SIZE_0_0=512 -DSPEC_ACCEL_WR_SIZE_1_0=1 -DSPEC_ACCEL_WR_SIZE_1_1=512
### Lenovo Global Technology

**NVIDIA Tesla A100-PCIE-40GB**

**ThinkSystem SR665**

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- **Test date:** Jan-2021
- **Hardware Availability:** Mar-2021
- **Software Availability:** Mar-2021

#### Hardware Availability:

Lenovo Global Technology

#### Software Availability:

Lenovo Global Technology

#### Peak Other Flags

**C benchmarks:**

```
-I/usr/local/cuda-11.0/targets/x86_64-linux/include
-L/usr/local/cuda-11.0/lib64 -lOpenCL
```

**C++ benchmarks:**

```
-I/usr/local/cuda-11.0/targets/x86_64-linux/include
-L/usr/local/cuda-11.0/lib64 -lOpenCL
```

The flags file that was used to format this result can be browsed at

https://www.spec.org/accel/flags/nv2020_flags.20210315.html

You can also download the XML flags source by saving the following link:

https://www.spec.org/accel/flags/nv2020_flags.20210315.xml

---

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For questions about this result, please contact the tester.

For other inquiries, please contact webmaster@spec.org.

Tested with SPEC ACCEL v1.3.


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