SPEC ACCEL™ ACC Result

Copyright 2015-2021 Standard Performance Evaluation Corporation

Lenovo Global Technology

NVIDIA Tesla A100-PCIE-40GB

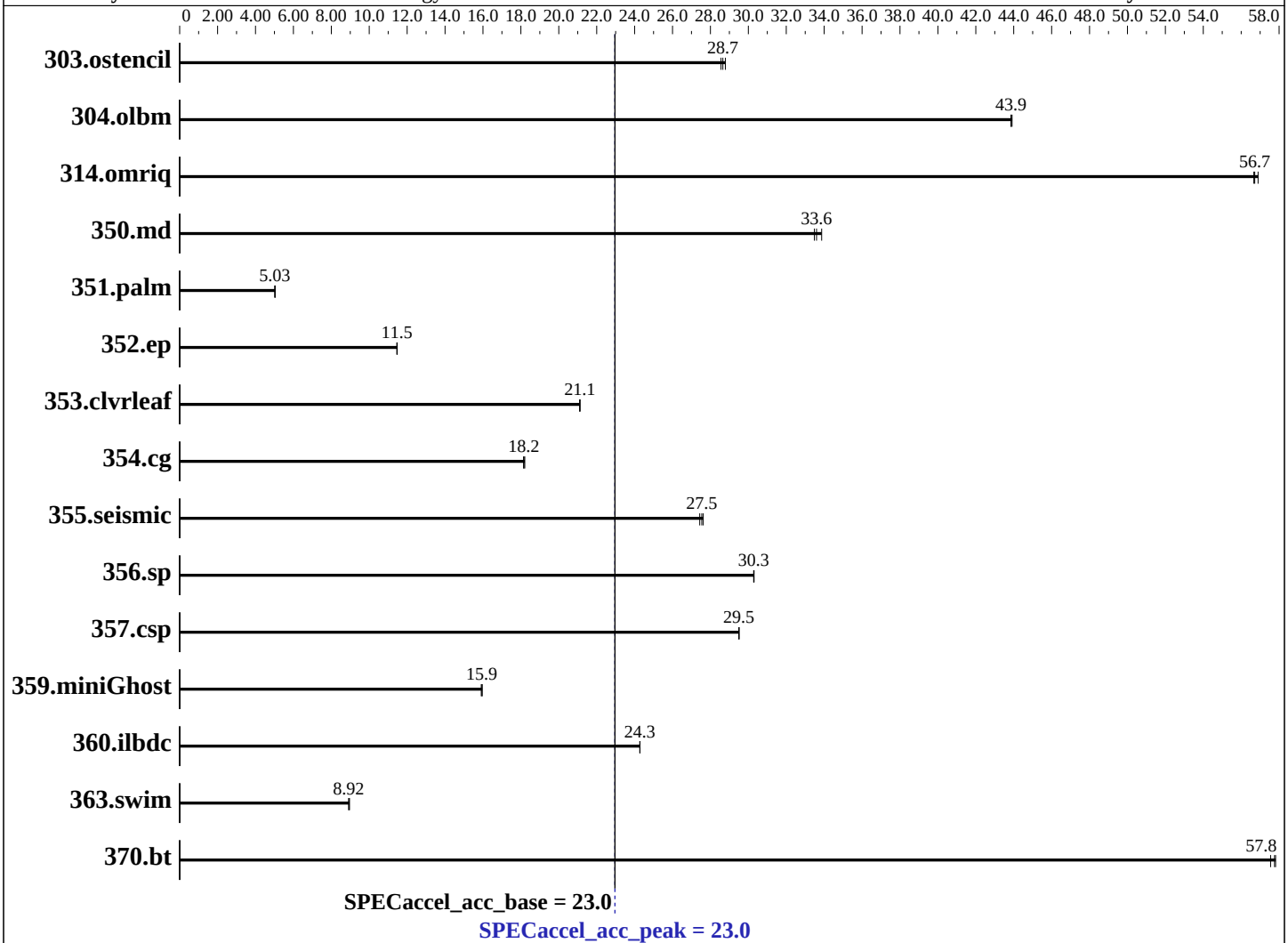
ThinkSystem SR665

SPECaccel_acc_peak = 23.0

SPECaccel_acc_base = 23.0

ACCEL license: 28
Test sponsor: Lenovo Global Technology
Tested by: Lenovo Global Technology

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



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
CPU(s) orderable:	1, 2 chips
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 32 MB shared / 8 cores

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Accelerator

Accel Model Name:	NVIDIA Tesla A100-PCIE-40GB
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

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Hardware (Continued)

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

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: None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
303.ostencil	5.04	28.8	5.08	28.6	**5.06**	**28.7**	5.04	28.8	5.08	28.6	**5.06**	**28.7**
304.olbm	**10.4**	**43.9**	10.4	43.9	10.4	43.9	**10.4**	**43.9**	10.4	43.9	10.4	43.9
314.omriq	16.8	56.9	16.9	56.7	**16.9**	**56.7**	16.8	56.9	16.9	56.7	**16.9**	**56.7**
350.md	7.44	33.9	**7.50**	**33.6**	7.53	33.5	7.44	33.9	**7.50**	**33.6**	7.53	33.5
351.palm	73.5	5.04	73.7	5.02	**73.6**	**5.03**	73.5	5.04	73.7	5.02	**73.6**	**5.03**
352.ep	46.2	11.5	**46.2**	**11.5**	46.3	11.5	46.2	11.5	**46.2**	**11.5**	46.3	11.5
353.clvrleaf	21.1	21.1	**21.1**	**21.1**	21.1	21.1	21.1	21.1	**21.1**	**21.1**	21.1	21.1
354.cg	22.4	18.2	**22.5**	**18.2**	22.5	18.1	22.4	18.2	**22.5**	**18.2**	22.5	18.1
355.seismic	13.4	27.6	**13.4**	**27.5**	13.5	27.4	13.4	27.6	**13.4**	**27.5**	13.5	27.4
356.sp	**9.11**	**30.3**	9.11	30.3	9.11	30.3	**9.11**	**30.3**	9.11	30.3	9.11	30.3
357.csp	9.15	29.5	**9.15**	**29.5**	9.15	29.5	9.15	29.5	**9.15**	**29.5**	9.15	29.5
359.miniGhost	23.1	16.0	**23.1**	**15.9**	23.2	15.9	23.1	16.0	**23.1**	**15.9**	23.2	15.9
360.ilbdc	**15.1**	**24.3**	15.1	24.3	15.1	24.3	**15.1**	**24.3**	15.1	24.3	15.1	24.3
363.swim	**25.8**	**8.92**	25.8	8.92	25.7	8.96	**25.8**	**8.92**	25.8	8.92	25.7	8.96
370.bt	3.86	57.8	**3.86**	**57.8**	3.87	57.6	3.86	57.8	**3.86**	**57.8**	3.87	57.6

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Platform Notes

```
Sysinfo program /home/ACCEL1.3/Docs/sysinfo
$Rev: 6965 $ $Date:: 2015-04-21 #$ c05a7f14b1b1765e3fe1df68447e8a35
running on amd2srh836 Tue Jan 19 14:33:31 2021

This section contains SUT (System Under Test) info as seen by
some common utilities.  To remove or add to this section, see:
```

Continued on next page

Platform Notes (Continued)

```
  http://www.spec.org/accel/Docs/config.html#sysinfo

From /proc/cpuinfo
   model name : AMD EPYC 7763 64-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 : 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  136G  284G  33% /home
Additional information from dmidecode:
```

Continued on next page

Platform Notes (Continued)

```
      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.

    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)
```

Base Compiler Invocation

C benchmarks:
pgcc

Fortran benchmarks:
pgfortran

Benchmarks using both Fortran and C:
pgcc pgfortran

Base Optimization Flags

C benchmarks:
-fast -Mfprelaxed -acc -ta=tesla:cc80 -ta=tesla:cuda11.0

Fortran benchmarks:
-fast -Mfprelaxed -acc -ta=tesla:cc80 -ta=tesla:cuda11.0

Benchmarks using both Fortran and C:

353.clvrleaf: -fast -Mfprelaxed -acc -ta=tesla:cc80 -ta=tesla:cuda11.0

359.miniGhost: -fast -Mfprelaxed -acc -ta=tesla:cc80 -ta=tesla:cuda11.0 -Mnomain

Peak Optimization Flags

C benchmarks:

303.ostencil: basepeak = yes

Continued on next page

Peak Optimization Flags (Continued)

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

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 file that was used to format this result can be browsed at
https://www.spec.org/accel/flags/nvidia_flags.html

You can also download the XML flags source by saving the following link:
https://www.spec.org/accel/flags/nvidia_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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