SPEC ACCEL™ ACC Result

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Lenovo Global Technology

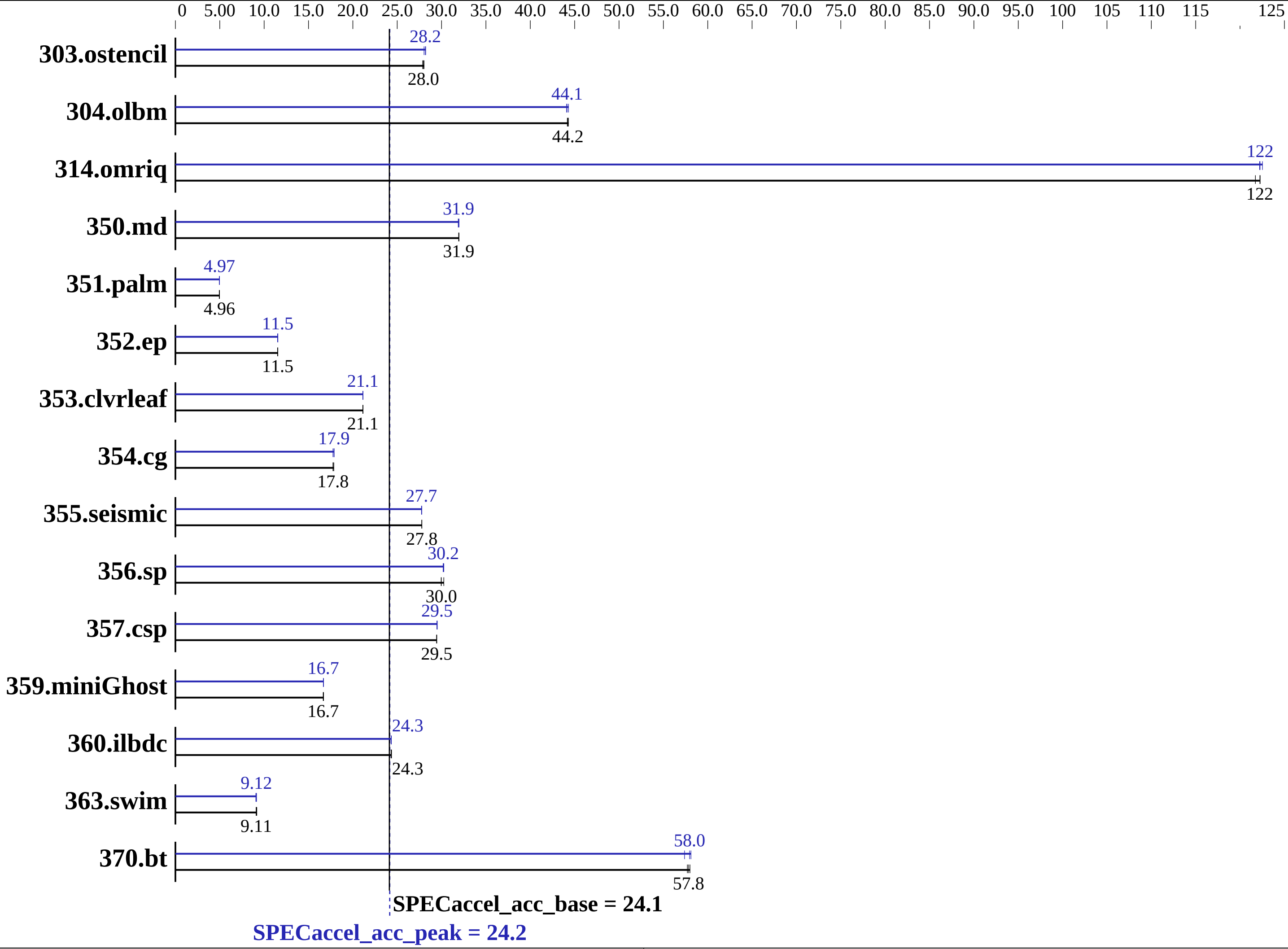
NVIDIA Tesla A100-PCIE-40GB

ThinkSystem SR655

SPECaccel_acc_peak = 24.2

SPECaccel_acc_base = 24.1

ACCEL license:	28	**Test date:**	Jan-2021
Test sponsor:	Lenovo Global Technology	**Hardware Availability:**	May-2021
Tested by:	Lenovo Global Technology	**Software Availability:**	May-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, 1 chip, 64 cores/chip
CPU(s) orderable:	1 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:	256 GB (8 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 21.3
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	**5.19**	**28.0**	5.17	28.0	5.20	27.9	5.14	28.2	**5.15**	**28.2**	5.17	28.0
304.olbm	10.3	44.3	10.3	44.2	**10.3**	**44.2**	**10.3**	**44.1**	10.3	44.3	10.3	44.1
314.omriq	7.85	122	7.82	122	**7.82**	**122**	7.82	122	**7.82**	**122**	7.80	123
350.md	7.89	31.9	7.88	32.0	**7.89**	**31.9**	7.88	32.0	7.91	31.9	**7.90**	**31.9**
351.palm	**74.7**	**4.96**	74.8	4.95	74.6	4.96	**74.4**	**4.97**	74.5	4.96	74.4	4.97
352.ep	**46.0**	**11.5**	45.9	11.5	46.0	11.5	45.9	11.6	46.0	11.5	**45.9**	**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	22.9	17.9	23.0	17.8	**23.0**	**17.8**	**22.8**	**17.9**	23.0	17.8	22.8	17.9
355.seismic	13.3	27.8	13.3	27.8	**13.3**	**27.8**	13.3	27.8	13.3	27.7	**13.3**	**27.7**
356.sp	9.12	30.3	**9.21**	**30.0**	9.21	30.0	9.12	30.3	**9.14**	**30.2**	9.14	30.2
357.csp	9.17	29.5	9.17	29.4	**9.17**	**29.5**	9.16	29.5	**9.15**	**29.5**	9.15	29.5
359.miniGhost	22.2	16.7	22.1	16.7	**22.1**	**16.7**	22.1	16.7	**22.1**	**16.7**	22.1	16.7
360.ilbdc	15.1	24.4	15.1	24.3	**15.1**	**24.3**	15.1	24.3	**15.1**	**24.3**	15.1	24.3
363.swim	25.1	9.17	**25.2**	**9.11**	25.3	9.10	25.2	9.14	25.4	9.07	**25.2**	**9.12**
370.bt	**3.86**	**57.8**	3.84	58.0	3.86	57.7	3.89	57.4	**3.85**	**58.0**	3.84	58.1

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.
```

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Platform Notes

```
Sysinfo program /home/ACCEL1.3/Docs/sysinfo
$Rev: 6965 $ $Date:: 2015-04-21 #$ c05a7f14b1b1765e3fe1df68447e8a35
running on amd2srh833 Tue May 11 20:26:42 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
      1 "physical id"s (chips)
      64 "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
   cache size : 512 KB

From /proc/meminfo
   MemTotal:       263708564 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 amd2srh833 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 Jan 13 11:28

SPEC is set to: /home/ACCEL1.3
   Filesystem     Type  Size  Used Avail Use% Mounted on
```

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Platform Notes (Continued)

```
     /dev/sda3      xfs   419G   76G  343G  19% /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.

   BIOS Lenovo             CFE125L 03/26/2021
   Memory:
    8x Samsung M393A4G43AB3-CWE 32 GB 2 rank 3200 MT/s
    8x Unknown Unknown

 (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 Compiler Invocation

C benchmarks:
    nvc

Fortran benchmarks:
    nvfortran

Benchmarks using both Fortran and C:
    nvc nvfortran

Base Optimization Flags

C benchmarks:
    -fast -Mstack_arrays -Mnouniform -Mfprelaxed -acc -gpu=fastmath

Fortran benchmarks:
    -fast -Mstack_arrays -Mnouniform -Mfprelaxed -acc -gpu=fastmath

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Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:

353.clvrleaf: `-fast -Mstack_arrays -Mnouniform -Mfprelaxed -acc -gpu=fastmath`

359.miniGhost: `-fast -Mstack_arrays -Mnouniform -Mfprelaxed -acc -gpu=fastmath -Mnomain`

Peak Compiler Invocation

C benchmarks:
`nvc`

Fortran benchmarks:
`nvfortran`

Benchmarks using both Fortran and C:
`nvc nvfortran`

Peak Optimization Flags

C benchmarks:
`-fast -Mstack_arrays -Mnouniform -Mfprelaxed -acc -gpu=fastmath`

Fortran benchmarks:
`-fast -Mstack_arrays -Mnouniform -Mfprelaxed -acc -gpu=fastmath`

Benchmarks using both Fortran and C:

353.clvrleaf: `-fast -Mstack_arrays -Mnouniform -Mfprelaxed -acc -gpu=fastmath`

359.miniGhost: `-fast -Mstack_arrays -Mnouniform -Mfprelaxed -acc -gpu=fastmath -Mnomain`

The flags file that was used to format this result can be browsed at
`https://www.spec.org/accel/flags/nvidia_flags.20210608.html`

You can also download the XML flags source by saving the following link:
`https://www.spec.org/accel/flags/nvidia_flags.20210608.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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