SPEC ACCEL™ ACC Result

Lenovo Global Technology

NVIDIA Tesla V100-PCIE-16GB

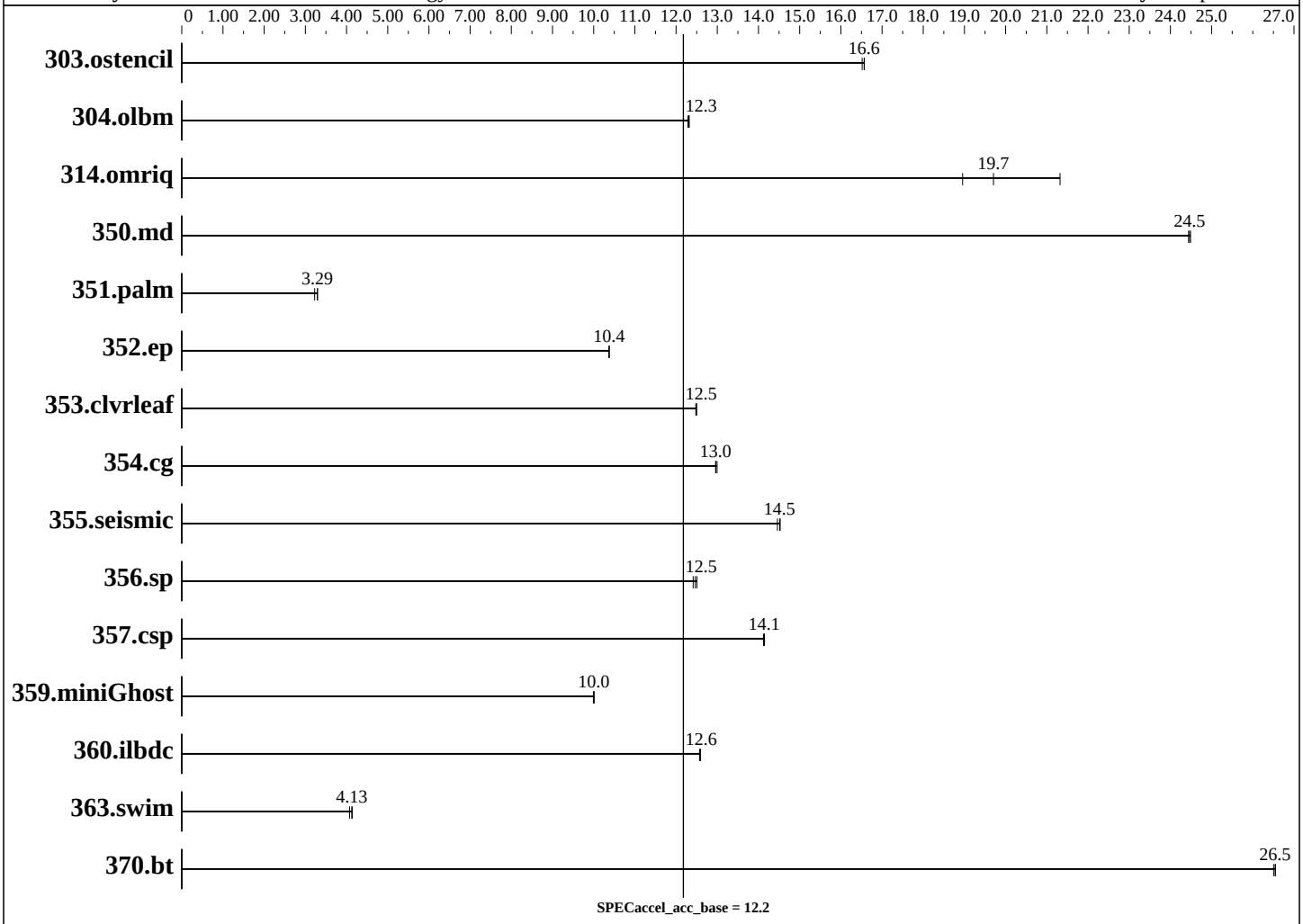
ThinkSystem SR650

SPECaccel_acc_peak = Not Run

SPECaccel_acc_base = 12.2

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

Test date: Mar-2019
Hardware Availability: Apr-2019
Software Availability: Apr-2019



Hardware

CPU Name:	Intel Xeon Gold 6240
CPU Characteristics:	
CPU MHz:	2600
CPU MHz Maximum:	3900
FPU:	Integrated
CPU(s) enabled:	36 cores, 2 chips, 18 cores/chip
CPU(s) orderable:	1,2 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	1 MB I+D on chip per core
L3 Cache:	22 MB I+D on chip per chip
Other Cache:	None

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Accelerator

Accel Model Name:	Tesla V100
Accel Vendor:	NVIDIA Corporation
Accel Name:	NVIDIA Tesla V100-PCIE-16GB
Type of Accel:	GPU
Accel Connection:	PCIe 3.0 x16
Does Accel Use ECC:	Yes
Accel Description:	NVIDIA V100-PCIE-16GB
Accel Driver:	NVIDIA UNIX x86_64 Kernel Module 396.26

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Hardware (Continued)

Memory: 768 GB (24 x 32 GB 2Rx4 PC4-2933Y-R)
Disk Subsystem: 1 X Lenovo 1 TB SAS 2.5" HDD (JBOD)
Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 7.6 (Maipo)
3.10.0-957.el7.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

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
303.ostencil	**8.75**	**16.6**	8.78	16.5	8.75	16.6						
304.olbm	37.0	12.3	**37.0**	**12.3**	36.9	12.3						
314.omriq	44.8	21.3	50.4	19.0	**48.5**	**19.7**						
350.md	10.3	24.5	**10.3**	**24.5**	10.3	24.4						
351.palm	**112**	**3.29**	112	3.29	115	3.23						
352.ep	**51.1**	**10.4**	51.1	10.4	51.1	10.4						
353.clvrleaf	**35.6**	**12.5**	35.6	12.5	35.7	12.5						
354.cg	31.5	13.0	31.4	13.0	**31.5**	**13.0**						
355.seismic	25.5	14.5	25.6	14.5	**25.5**	**14.5**						
356.sp	**22.1**	**12.5**	22.1	12.5	22.2	12.4						
357.csp	19.1	14.1	19.1	14.1	**19.1**	**14.1**						
359.miniGhost	**36.9**	**10.0**	36.9	9.99	36.9	10.0						
360.ilbdc	**29.2**	**12.6**	29.2	12.6	29.2	12.6						
363.swim	**55.8**	**4.13**	56.5	4.07	55.5	4.14						
370.bt	8.41	26.5	**8.40**	**26.5**	8.40	26.5						

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/ACCEL1.2/Docs/sysinfo
$Rev: 6965 $ $Date:: 2015-04-21 #$ c05a7f14b1b1765e3fe1df68447e8a35
running on cy01rh76 Wed Mar 09 02:46:29 2019

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 : Intel(R) Xeon(R) Gold 6240 CPU @ 2.60GHz
      2 "physical id"s (chips)
      36 "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 : 18
      siblings  : 18
      physical 0: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 1: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
   cache size : 25344 KB

From /proc/meminfo
   MemTotal:       792031344 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
   Red Hat Enterprise Linux Server release 7.6 (Maipo)

From /etc/*release* /etc/*version*
   os-release:
      NAME="Red Hat Enterprise Linux Server"
      VERSION="7.6 (Maipo)"
      ID="rhel"
      ID_LIKE="fedora"
      VARIANT="Server"
      VARIANT_ID="server"
      VERSION_ID="7.6"
      PRETTY_NAME="Red Hat Enterprise Linux Server 7.6 (Maipo)"
   redhat-release: Red Hat Enterprise Linux Server release 7.6 (Maipo)
   system-release: Red Hat Enterprise Linux Server release 7.6 (Maipo)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:7.6:ga:server

uname -a:
   Linux cy01rh76 3.10.0-957.el7.x86_64 #1 SMP Thu Oct 4 20:48:51 UTC 2018
   x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Mar 09 02:45
```

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Platform Notes (Continued)

```
SPEC is set to: /home/ACCEL1.2
   Filesystem            Type  Size  Used Avail Use% Mounted on
   /dev/mapper/rhel-home xfs   477G   81G  396G  17% /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 -[IVE135S-2.10]- 03/08/2019
  Memory:
   24x Samsung M393A4K40CB2-CVF 32 GB 2 rank 2933 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.
Run nvidia-smi -pm 1 to enable persistence mode.
```

Base Compiler Invocation

C benchmarks:
```
pgcc-llvm
```

Fortran benchmarks:
```
pgfortran-llvm
```

Benchmarks using both Fortran and C:
```
pgcc-llvm pgfortran-llvm
```

Base Optimization Flags

C benchmarks:
```
-fast -Mfprelaxed -acc -ta=tesla:cc70
```

Fortran benchmarks:
```
-fast -Mfprelaxed -acc -ta=tesla:cc70
```

Continued on next page

Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:

353.clvrleaf: `-fast -Mfprelaxed -acc -ta=tesla:cc70`

359.miniGhost: `-fast -Mfprelaxed -acc -ta=tesla:cc70 -Mnomain`

The flags files that were used to format this result can be browsed at
`https://www.spec.org/accel/flags/Lenovo-SPECACCEL1.2_Platform_Flags.20190327.html`
`https://www.spec.org/accel/flags/pgi2017_flags.20190321.html`

You can also download the XML flags sources by saving the following links:
`https://www.spec.org/accel/flags/Lenovo-SPECACCEL1.2_Platform_Flags.20190327.xml`
`https://www.spec.org/accel/flags/pgi2017_flags.20190321.xml`

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

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