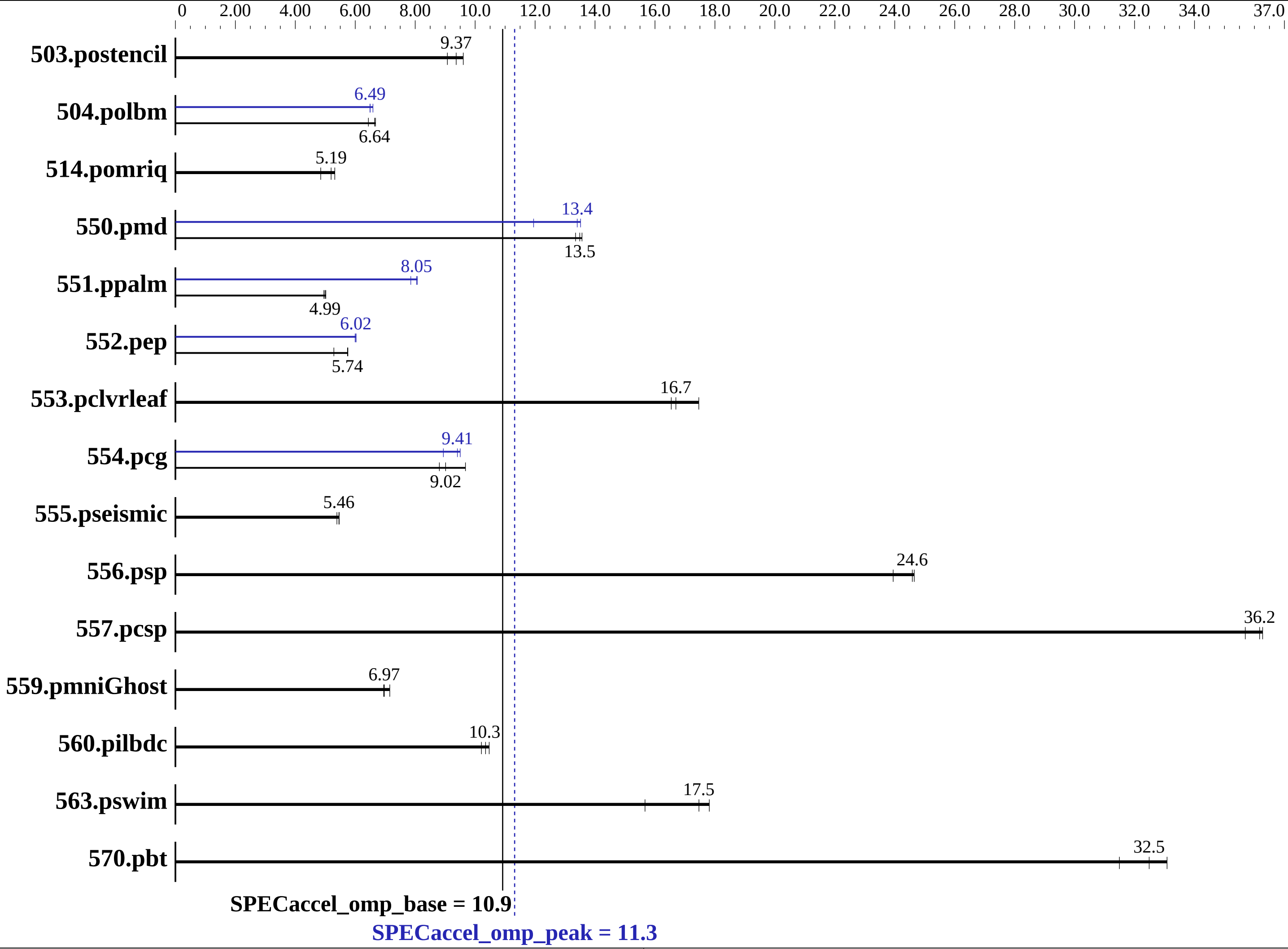
SPEC ACCEL™ OMP Result

Lenovo Global Technology
EPYC 7763 CPU
ThinkSystem SR665

SPECaccel_omp_peak = 11.3

SPECaccel_omp_base = 10.9

ACCEL license:	28	**Test date:**	Mar-2021
Test sponsor:	Lenovo Global Technology	**Hardware Availability:**	Mar-2021
Tested by:	Lenovo Global Technology	**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:	128 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:	EPYC 7763 CPU
Accel Vendor:	AMD
Accel Name:	EPYC 7763 CPU
Type of Accel:	CPU
Accel Connection:	Not applicable
Does Accel Use ECC:	yes
Accel Description:	1 x AMD EPYC 7763 CPU
Accel Driver:	Not applicable

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Hardware (Continued)

Other Cache: None
Memory: 1 TB (32 x 32 GB 2Rx8 PC4-3200AA-R)
Disk Subsystem: 1 x 480 GB 2.5" SSD
Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 8.3 kernel 4.18.0-240.el8.x86_64
Compiler: Intel C/C++/Fortran 20.2 for Linux Version 19.1.2.254 Build 20200623
File System: xfs
System State: Run-level 3
Other Software: None

Results Table

	Base						Peak					
Benchmark	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**
503.postencil	11.4	9.60	**11.6**	**9.37**	12.0	9.07	11.4	9.60	**11.6**	**9.37**	12.0	9.07
504.polbm	18.9	6.44	18.3	6.68	**18.4**	**6.64**	18.8	6.49	**18.8**	**6.49**	18.5	6.59
514.pomriq	**120**	**5.19**	117	5.32	128	4.85	**120**	**5.19**	117	5.32	128	4.85
550.pmd	18.1	13.4	**17.9**	**13.5**	17.8	13.6	20.2	12.0	17.8	13.5	**18.0**	**13.4**
551.ppalm	108	5.02	**109**	**4.99**	110	4.95	67.4	8.07	**67.6**	**8.05**	69.3	7.85
552.pep	43.7	5.29	**40.2**	**5.74**	40.1	5.75	**38.4**	**6.02**	38.5	6.00	38.3	6.03
553.pclvrleaf	69.2	16.5	**68.6**	**16.7**	65.6	17.5	69.2	16.5	**68.6**	**16.7**	65.6	17.5
554.pcg	34.4	9.68	**36.9**	**9.02**	37.8	8.81	**35.4**	**9.41**	37.2	8.94	35.0	9.50
555.pseismic	51.6	5.46	**51.7**	**5.46**	52.3	5.39	51.6	5.46	**51.7**	**5.46**	52.3	5.39
556.psp	33.2	24.7	**33.3**	**24.6**	34.2	23.9	33.2	24.7	**33.3**	**24.6**	34.2	23.9
557.pcsp	23.7	36.3	24.1	35.7	**23.7**	**36.2**	23.7	36.3	24.1	35.7	**23.7**	**36.2**
559.pmniGhost	**57.0**	**6.97**	57.1	6.95	55.5	7.15	**57.0**	**6.97**	57.1	6.95	55.5	7.15
560.pilbdc	62.4	10.5	64.0	10.2	**63.1**	**10.3**	62.4	10.5	64.0	10.2	**63.1**	**10.3**
563.pswim	**9.10**	**17.5**	8.93	17.8	10.1	15.7	**9.10**	**17.5**	8.93	17.8	10.1	15.7
570.pbt	**24.0**	**32.5**	23.6	33.1	24.8	31.5	**24.0**	**32.5**	23.6	33.1	24.8	31.5

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.
```

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Test sponsor:	Lenovo Global Technology	**Hardware Availability:**	Mar-2021
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Platform Notes

```
Sysinfo program /home/ACCEL1.3/Docs/sysinfo
$Rev: 6965 $ $Date:: 2015-04-21 #$ c05a7f14b1b1765e3fe1df68447e8a35
running on amd2srh836 Fri Jan 22 19:45:18 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
      2 "physical id"s (chips)
      256 "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  : 128
      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:       527908832 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 Jan 22 19:12
```

Continued on next page

Platform Notes (Continued)

```
SPEC is set to: /home/ACCEL1.3
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/sda3      xfs   419G  225G  195G  54% /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 D8E113Y-2.00 01/20/2021
  Memory:
   16x Samsung M393A4G43AB3-CWE 32 GB 2 rank 3200 MT/s
   16x 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:
    icc

Fortran benchmarks:
    ifort

Benchmarks using both Fortran and C:
    icc ifort

Base Portability Flags

503.postencil: -DSPEC_USE_INNER_SIMD
504.polbm: -DSPEC_USE_INNER_SIMD
514.pomriq: -DSPEC_USE_INNER_SIMD

Continued on next page

Base Portability Flags (Continued)

550.pmd: `-DSPEC_USE_INNER_SIMD -80`
551.ppalm: `-DSPEC_USE_INNER_SIMD`
552.pep: `-DSPEC_USE_INNER_SIMD`
553.pclvrleaf: `-DSPEC_USE_INNER_SIMD`
554.pcg: `-DSPEC_USE_INNER_SIMD`
555.pseismic: `-DSPEC_USE_INNER_SIMD`
556.psp: `-DSPEC_USE_INNER_SIMD`
557.pcsp: `-DSPEC_USE_INNER_SIMD`
559.pmniGhost: `-DSPEC_USE_INNER_SIMD -nofor-main`
560.pilbdc: `-DSPEC_USE_INNER_SIMD`
563.pswim: `-DSPEC_USE_INNER_SIMD`
570.pbt: `-DSPEC_USE_INNER_SIMD`

Base Optimization Flags

C benchmarks:
`-O3 -march=core-avx2 -qopenmp -qopenmp-offload=host -no-prec-div -no-prec-sqrt -ansi-alias -ipo -fp-model fast=2`

Fortran benchmarks:
`-O3 -march=core-avx2 -qopenmp -qopenmp-offload=host -no-prec-div -no-prec-sqrt -ansi-alias -ipo -fp-model fast=2`

Benchmarks using both Fortran and C:
`-O3 -march=core-avx2 -qopenmp -qopenmp-offload=host -no-prec-div -no-prec-sqrt -ansi-alias -ipo -fp-model fast=2`

Peak Compiler Invocation

C benchmarks:
`icc`

Fortran benchmarks:
`ifort`

Benchmarks using both Fortran and C:
`icc ifort`

Peak Portability Flags

503.postencil: `-DSPEC_USE_INNER_SIMD`

Continued on next page

Peak Portability Flags (Continued)

504.polbm: -DSPEC_USE_INNER_SIMD
514.pomriq: -DSPEC_USE_INNER_SIMD
550.pmd: -DSPEC_USE_INNER_SIMD -80
551.ppalm: -DSPEC_USE_INNER_SIMD -DSPEC_HOST_FFTW3
552.pep: -DSPEC_USE_INNER_SIMD
553.pclvrleaf: -DSPEC_USE_INNER_SIMD
554.pcg: -DSPEC_USE_INNER_SIMD
555.pseismic: -DSPEC_USE_INNER_SIMD
556.psp: -DSPEC_USE_INNER_SIMD
557.pcsp: -DSPEC_USE_INNER_SIMD
559.pmniGhost: -DSPEC_USE_INNER_SIMD -nofor-main
560.pilbdc: -DSPEC_USE_INNER_SIMD
563.pswim: -DSPEC_USE_INNER_SIMD
570.pbt: -DSPEC_USE_INNER_SIMD

Peak Optimization Flags

C benchmarks:

503.postencil: basepeak = yes

504.polbm: -O3 -march=core-avx2 -qopenmp -qopenmp-offload=host
-no-prec-div -no-prec-sqrt -ansi-alias -ipo
-fp-model fast=2

514.pomriq: basepeak = yes

552.pep: -O3 -march=core-avx2 -qopenmp -qopenmp-offload=host
-no-prec-div -no-prec-sqrt -ansi-alias -ipo
-fp-model fast=2 -qopt-streaming-stores always

554.pcg: -O3 -march=core-avx2 -qopenmp -qopenmp-offload=host
-no-prec-div -no-prec-sqrt -ansi-alias -ipo
-fp-model fast=2 -qopt-prefetch=5

557.pcsp: basepeak = yes

570.pbt: basepeak = yes

Fortran benchmarks:

550.pmd: -O3 -march=core-avx2 -qopenmp -qopenmp-offload=host
-no-prec-div -no-prec-sqrt -ansi-alias -ipo
-fp-model fast=2 -qopt-prefetch=2

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Peak Optimization Flags (Continued)

551.ppalm: `-O3 -march=core-avx2 -qopenmp -qopenmp-offload=host -no-prec-div -no-prec-sqrt -ansi-alias -ipo -fp-model fast=2 -I/usr/local/include -L/usr/local/lib`

555.pseismic: `basepeak = yes`

556.psp: `basepeak = yes`

560.pilbdc: `basepeak = yes`

563.pswim: `basepeak = yes`

Benchmarks using both Fortran and C:

553.pclvrleaf: `basepeak = yes`

559.pmniGhost: `basepeak = yes`

Peak Other Flags

Fortran benchmarks:

551.ppalm: `-lfftw3`

The flags file that was used to format this result can be browsed at
https://www.spec.org/accel/flags/Intel-ICC-linux64.html

You can also download the XML flags source by saving the following link:
https://www.spec.org/accel/flags/Intel-ICC-linux64.xml

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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