# SPEC ACCEL™ OMP Result

## Lenovo Global Technology
**EPYC 7742 CPU**
**ThinkSystem SR655**

<table>
<thead>
<tr>
<th>SPECaccel_omp_peak</th>
<th>Not Run</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECaccel_omp_base</td>
<td>6.12</td>
</tr>
</tbody>
</table>

ACCEL license: 16  
Test date: Jul-2019  
Test sponsor: Lenovo Global Technology  
Tested by: Lenovo Global Technology

### Hardware

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name</td>
<td>AMD EPYC 7742 CPU</td>
</tr>
<tr>
<td>CPU Characteristics</td>
<td>Turbo up to 3.4 GHz</td>
</tr>
<tr>
<td>CPU MHz</td>
<td>2250</td>
</tr>
<tr>
<td>CPU MHz Maximum</td>
<td>3400</td>
</tr>
<tr>
<td>FPU</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled</td>
<td>64 cores, 1 chip, 64 cores/chip, 2 threads/core</td>
</tr>
<tr>
<td>CPU(s) orderable</td>
<td>1 Chips</td>
</tr>
<tr>
<td>Primary Cache</td>
<td>32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>Secondary Cache</td>
<td>512 KB I+D on chip per core</td>
</tr>
<tr>
<td>L3 Cache</td>
<td>256 MB I+D on chip per chip</td>
</tr>
<tr>
<td></td>
<td>16 MB shared / 4 cores</td>
</tr>
</tbody>
</table>

### Accelerator

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accel Model Name</td>
<td>EPYC 7742 CPU</td>
</tr>
<tr>
<td>Accel Vendor</td>
<td>AMD</td>
</tr>
<tr>
<td>Accel Name</td>
<td>EPYC 7742 CPU</td>
</tr>
<tr>
<td>Type of Accel</td>
<td>CPU</td>
</tr>
<tr>
<td>Accel Connection</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Does Accel Use ECC</td>
<td>yes</td>
</tr>
<tr>
<td>Accel Description</td>
<td>1 x AMD EPYC 7742 CPU</td>
</tr>
<tr>
<td>Accel Driver</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

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Continued on next page
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SPECaccel_omp_base = 6.12

Test date: Jul-2019
Hardware Availability: Aug-2019
Software Availability: Aug-2019

Hardware (Continued)
- Other Cache: None
- Memory: 256 GB (8 x 32 GB 2Rx4 PC4-3200AA-R)
- Disk Subsystem: 1 x 480 GB SATA 2.5” SSD
- Other Hardware: None

Software
- Compiler: Intel C/C++/Fortran 19.0 Update 4 for Linux Version 19.0.4 Build 20190416
- File System: xfs
- System State: Run-level 3
- Other Software: None

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base</th>
<th></th>
<th></th>
<th>Peak</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Seconds</td>
<td>Ratio</td>
<td>Seconds</td>
<td>Ratio</td>
<td>Seconds</td>
</tr>
<tr>
<td>503.postencil</td>
<td>15.5</td>
<td>7.04</td>
<td>15.4</td>
<td>7.09</td>
<td>15.4</td>
</tr>
<tr>
<td>504.polbm</td>
<td><strong>25.9</strong></td>
<td><strong>4.71</strong></td>
<td>25.8</td>
<td>4.72</td>
<td>25.9</td>
</tr>
<tr>
<td>514.pomriq</td>
<td><strong>128</strong></td>
<td><strong>4.83</strong></td>
<td>129</td>
<td>4.82</td>
<td>128</td>
</tr>
<tr>
<td>550.pmd</td>
<td><strong>30.5</strong></td>
<td><strong>7.91</strong></td>
<td>30.5</td>
<td>7.90</td>
<td>30.5</td>
</tr>
<tr>
<td>551.ppalm</td>
<td>150</td>
<td>3.63</td>
<td>150</td>
<td>3.63</td>
<td><strong>150</strong></td>
</tr>
<tr>
<td>552.pep</td>
<td>56.3</td>
<td>4.10</td>
<td>56.5</td>
<td>4.09</td>
<td><strong>56.3</strong></td>
</tr>
<tr>
<td>553.pclvrleaf</td>
<td>202</td>
<td>5.66</td>
<td>203</td>
<td>5.65</td>
<td><strong>202</strong></td>
</tr>
<tr>
<td>554.pcg</td>
<td>61.1</td>
<td>5.45</td>
<td>60.7</td>
<td>5.48</td>
<td><strong>60.8</strong></td>
</tr>
<tr>
<td>555.pseismic</td>
<td>108</td>
<td>2.61</td>
<td><strong>108</strong></td>
<td><strong>2.61</strong></td>
<td>108</td>
</tr>
<tr>
<td>556.psp</td>
<td><strong>54.2</strong></td>
<td><strong>15.1</strong></td>
<td>54.3</td>
<td>15.1</td>
<td>54.2</td>
</tr>
<tr>
<td>557.pcs</td>
<td>54.9</td>
<td>15.6</td>
<td>54.6</td>
<td>15.7</td>
<td><strong>54.9</strong></td>
</tr>
<tr>
<td>559.pnniGhost</td>
<td>90.7</td>
<td>4.38</td>
<td><strong>90.6</strong></td>
<td><strong>4.38</strong></td>
<td>90.5</td>
</tr>
<tr>
<td>560.pilbd</td>
<td>165</td>
<td>3.95</td>
<td>166</td>
<td>3.94</td>
<td><strong>166</strong></td>
</tr>
<tr>
<td>563.pswim</td>
<td><strong>42.4</strong></td>
<td><strong>3.75</strong></td>
<td>42.2</td>
<td>3.76</td>
<td>42.5</td>
</tr>
<tr>
<td>570.pbt</td>
<td>28.6</td>
<td>27.3</td>
<td><strong>28.7</strong></td>
<td><strong>27.2</strong></td>
<td>28.8</td>
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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.
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| Test sponsor:  | Lenovo Global Technology |
| Tested by:     | Lenovo Global Technology |
| Test date:     | Jul-2019         |
| Hardware Availability: | Aug-2019 |
| Software Availability: | Aug-2019 |

**Platform Notes**

Sysinfo program /home/ACCEL1.2/Docs/sysinfo
$Rev: 6965 $ $Date:: 2015-04-21 #$ c05a7f14b1b1765e3fe1df68447e8a35
running on bannerrh75 Fri Jul 12 15:10:22 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: AMD EPYC 7742 64-Core Processor
- 1 "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: 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
  - cache size: 512 KB

From /proc/meminfo

- MemTotal: 264016932 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

From /usr/bin/lsb_release -d

- SUSE Linux Enterprise Server 12 SP4

From /etc/*release* /etc/*version*

- SuSE-release:
  - SUSE Linux Enterprise Server 12 (x86_64)
  - VERSION = 12
  - PATCHLEVEL = 4
  - # This file is deprecated and will be removed in a future service pack or release.
  - # Please check /etc/os-release for details about this release.

- os-release:
  - NAME="SLES"
  - VERSION="12-SP4"
  - VERSION_ID="12.4"
  - PRETTY_NAME="SUSE Linux Enterprise Server 12 SP4"
  - ID="sles"
  - ANSI_COLOR="0;32"
  - CPE_NAME="cpe:/o:suse:sles:12:sp4"

uname -a:

Linux bannerrh75 4.12.14-94.41-default #1 SMP Wed Oct 31 12:25:04 UTC 2018

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### Platform Notes (Continued)

- run-level 3 Jul 12 15:01

- SPEC is set to: /home/ACCEL1.2

- Filesystem | Type | Size | Used | Avail | Use% | Mounted on
- /dev/sda4 | xfs | 245G | 74G | 171G | 31% | /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 CFE101Y 06/22/2019
- Memory:
  - 8x Samsung M393A4K40DB2-CWE 32 GB 2 rank 3200 MHz
  - 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:
  - icc

- Fortran benchmarks:
  - ifort

- Benchmarks using both Fortran and C:
  - icc ifort
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Base Portability Flags

503.postencil: -DSPEC_USE_INNER_SIMD
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
552.pep: -DSPEC_USE_INNER_SIMD
553.pclvleaf: -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 -gopenmp -gopenmp-offload=host -no-prec-div
-no-prec-sqrt -ansi-alias -ipo -fp-model fast=2

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

The flags files that were used to format this result can be browsed at
https://www.spec.org/accel/flags/Intel-icc17.0-linux64.20190807.html
https://www.spec.org/accel/flags/Lenovo-SPECACCEL1.2_Platform_Flags.20190807.html

You can also download the XML flags sources by saving the following links:
https://www.spec.org/accel/flags/Intel-icc17.0-linux64.20190807.xml
https://www.spec.org/accel/flags/Lenovo-SPECACCEL1.2_Platform_Flags.20190807.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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