



# SPEChpc™ 2021 Small Result

Copyright 2021-2022 Standard Performance Evaluation Corporation

## Lenovo Global Technology

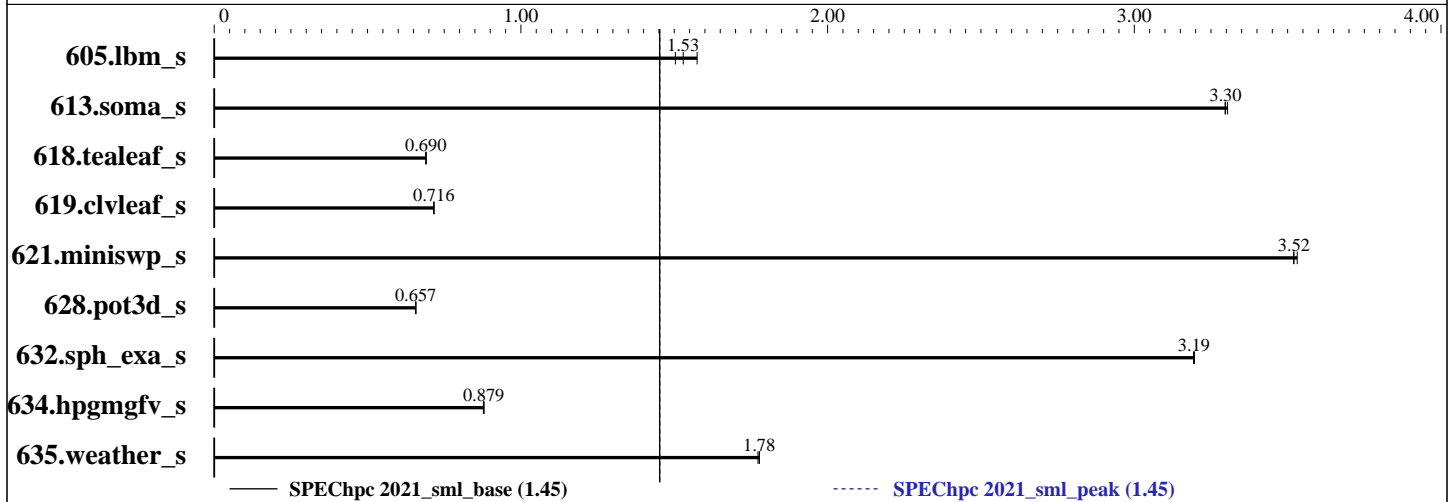
SPEChpc 2021\_sml\_base = 1.45

## ThinkSystem SR665 V3 (AMD EPYC 9654)

SPEChpc 2021\_sml\_peak = 1.45

hpc2021 License: 28  
Test Sponsor: Lenovo Global Technology  
Tested by: Lenovo Global Technology

Test Date: Oct-2022  
Hardware Availability: Nov-2022  
Software Availability: Nov-2022



## Results Table

Benchmark	Base								Peak									
	Model	Ranks	Thrds/Rnk	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Model	Ranks	Thrds/Rnk	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
605.lbm_s	OMP	24	16	1031	1.50	<b>1014</b>	<b>1.53</b>	984	1.57	OMP	24	16	1031	1.50	<b>1014</b>	<b>1.53</b>	984	1.57
613.soma_s	OMP	24	16	485	3.30	484	3.30	<b>485</b>	<b>3.30</b>	OMP	24	16	485	3.30	484	3.30	<b>485</b>	<b>3.30</b>
618.tealeaf_s	OMP	24	16	<b>2970</b>	<b>0.690</b>	2965	0.691	2972	0.690	OMP	24	16	<b>2970</b>	<b>0.690</b>	2965	0.691	2972	0.690
619.clvleaf_s	OMP	24	16	2304	0.716	<b>2304</b>	<b>0.716</b>	2303	0.716	OMP	24	16	2304	0.716	<b>2304</b>	<b>0.716</b>	2303	0.716
621.miniswp_s	OMP	24	16	<b>312</b>	<b>3.52</b>	313	3.52	312	3.53	OMP	24	16	<b>312</b>	<b>3.52</b>	313	3.52	312	3.53
628.pot3d_s	OMP	24	16	2546	0.658	2552	0.656	<b>2548</b>	<b>0.657</b>	OMP	24	16	2546	0.658	2552	0.656	<b>2548</b>	<b>0.657</b>
632.sph_exa_s	OMP	24	16	720	3.19	<b>720</b>	<b>3.19</b>	720	3.20	OMP	24	16	720	3.19	<b>720</b>	<b>3.19</b>	720	3.20
634.hpgmgfv_s	OMP	24	16	1111	0.878	<b>1109</b>	<b>0.879</b>	1108	0.880	OMP	24	16	1111	0.878	<b>1109</b>	<b>0.879</b>	1108	0.880
635.weather_s	OMP	24	16	1463	1.78	<b>1463</b>	<b>1.78</b>	1467	1.77	OMP	24	16	1463	1.78	<b>1463</b>	<b>1.78</b>	1467	1.77

SPEChpc 2021\_sml\_base = 1.45

SPEChpc 2021\_sml\_peak = 1.45

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



# SPEChpc™ 2021 Small Result

Copyright 2021-2022 Standard Performance Evaluation Corporation

## Lenovo Global Technology

SPEChpc 2021\_sml\_base = 1.45

## ThinkSystem SR665 V3 (AMD EPYC 9654)

SPEChpc 2021\_sml\_peak = 1.45

**hpc2021 License:** 28  
**Test Sponsor:** Lenovo Global Technology  
**Tested by:** Lenovo Global Technology

**Test Date:** Oct-2022  
**Hardware Availability:** Nov-2022  
**Software Availability:** Nov-2022

### Hardware Summary

Type of System: Homogenous  
Compute Node: ThinkSystem SR665 V3  
Interconnect: -  
Compute Nodes Used: 1  
Total Chips: 2  
Total Cores: 192  
Total Threads: 384  
Total Memory: 768 GB  
Max. Peak Threads: 16

### Software Summary

Compiler: Intel C/C++/Fortran Compiler 2021.6.0  
MPI Library: Intel MPI Library for Linux OS, Build 20220227  
Other MPI Info: --  
Other Software: --  
Base Parallel Model: OMP  
Base Ranks Run: 24  
Base Threads Run: 16  
Peak Parallel Models: OMP  
Minimum Peak Ranks: 24  
Maximum Peak Ranks: 24  
Max. Peak Threads: 16  
Min. Peak Threads: 16

## Node Description: ThinkSystem SR665 V3

### Hardware

Number of nodes: 1  
Uses of the node: Compute  
Vendor: Lenovo Global Technology  
Model: ThinkSystem SR665 V3  
CPU Name: AMD EPYC 9654  
CPU(s) orderable: 1,2 chips  
Chips enabled: 2  
Cores enabled: 192  
Cores per chip: 96  
Threads per core: 2  
CPU Characteristics: Max Boost Clock up to 3.7 GHz  
CPU MHz: 2400  
Primary Cache: 32 KB I + 32 KB D on chip per core  
Secondary Cache: 1 MB I+D on chip per core  
L3 Cache: 384 MB I+D on chip per chip  
32 MB shared / 8 cores  
Other Cache: None  
Memory: 768 GB (24 x 32 GB 2Rx8 PC5-4800B-R)  
Disk Subsystem: 1x ThinkSystem 2.5" 5300 480GB SSD  
Other Hardware: None  
Accel Count: --  
Accel Model: --  
Accel Vendor: --  
Accel Type: --  
Accel Connection: --  
Accel ECC enabled: --  
Accel Description: --  
Adapter: -  
Number of Adapters: 0  
Slot Type: -  
Data Rate: None  
Ports Used: 0

### Software

Accelerator Driver: --  
Adapter: -  
Adapter Driver: -  
Adapter Firmware: -  
Operating System: Red Hat Enterprise Linux Server release 8.6,  
Kernel 4.18.0-372.9.1.el8.x86\_64  
Local File System: xfs  
Shared File System: None  
System State: Multi-user, run level 3  
Other Software: None

(Continued on next page)



# SPEChpc™ 2021 Small Result

Copyright 2021-2022 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPEChpc 2021\_sml\_base = 1.45

ThinkSystem SR665 V3 (AMD EPYC 9654)

SPEChpc 2021\_sml\_peak = 1.45

**hpc2021 License:** 28  
**Test Sponsor:** Lenovo Global Technology  
**Tested by:** Lenovo Global Technology

**Test Date:** Oct-2022  
**Hardware Availability:** Nov-2022  
**Software Availability:** Nov-2022

## Node Description: ThinkSystem SR665 V3

### Hardware (Continued)

Interconnect Type: -

## Interconnect Description: -

### Hardware

Vendor: None  
Model: -  
Switch Model: None  
Number of Switches: 0  
Number of Ports: 0  
Data Rate: None  
Firmware: N/A  
Topology: N/A  
Primary Use: -

### Software

: --

## Submit Notes

The config file option 'submit' was used.

```
submit = mpiexec -hosts 192.168.99.16 -np ranks -genv OMP_NUM_THREADS=$threads -ppn %}{NRNK} $command
```

## General Notes

Submitted\_by: Jimmy Chengl2 <jchengl2@lenovo.com>

Submitted: Thu Oct 27 13:16:45 EDT 2022

Submission: hpc2021-20221010-00132.sub

## Compiler Version Notes

```
=====
FC 619.clvleaf_s(base) 628.pot3d_s(base) 635.weather_s(base)
-----
```

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2022.1.0 Build 20220316

Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

ifx: command line error: no files specified; for help type "ifx -help"

```
=====
CC 605.lbm_s(base) 613.soma_s(base) 618.tealeaf_s(base) 621.miniswp_s(base)
634.hpgmgfv_s(base)
-----
```

(Continued on next page)



# SPEChpc™ 2021 Small Result

Copyright 2021-2022 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPEChpc 2021\_sml\_base = 1.45

ThinkSystem SR665 V3 (AMD EPYC 9654)

SPEChpc 2021\_sml\_peak = 1.45

**hpc2021 License:** 28  
**Test Sponsor:** Lenovo Global Technology  
**Tested by:** Lenovo Global Technology

**Test Date:** Oct-2022  
**Hardware Availability:** Nov-2022  
**Software Availability:** Nov-2022

## Compiler Version Notes (Continued)

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,  
Version 2022.1.0 Build 20220316  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.  
clang: warning: -Z-reserved-lib-stdc++: 'linker' input unused  
[-Wunused-command-line-argument]

-----  
CXXC 632.sph\_exa\_s(base)  
-----

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,  
Version 2022.1.0 Build 20220316  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.  
clang: warning: -Z-reserved-lib-stdc++: 'linker' input unused  
[-Wunused-command-line-argument]  
-----

## Base Compiler Invocation

C benchmarks:  
mpiicc -cc=icx  
  
C++ benchmarks:  
mpiicpc -cxx=icx  
  
Fortran benchmarks:  
mpiifort -fc=ifx

## Base Portability Flags

605.lbm\_s: -lstdc++  
613.soma\_s: -lstdc++ -DSPEC\_NO\_VAR\_ARRAY\_REDUCE  
618.tealeaf\_s: -lstdc++  
619.cvlleaf\_s: -lstdc++  
621.miniswp\_s: -lstdc++  
628.pot3d\_s: -lstdc++  
632.sph\_exa\_s: -lstdc++  
634.hpgmgfv\_s: -lstdc++  
635.weather\_s: -lstdc++



# SPEChpc™ 2021 Small Result

Copyright 2021-2022 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPEChpc 2021\_sml\_base = 1.45

ThinkSystem SR665 V3 (AMD EPYC 9654)

SPEChpc 2021\_sml\_peak = 1.45

**hpc2021 License:** 28  
**Test Sponsor:** Lenovo Global Technology  
**Tested by:** Lenovo Global Technology

**Test Date:** Oct-2022  
**Hardware Availability:** Nov-2022  
**Software Availability:** Nov-2022

## Base Optimization Flags

C benchmarks:

-Ofast -mprefer-vector-width=512 -march=core-avx2 -ipo -fiopenmp  
-ansi-alias

C++ benchmarks:

-Ofast -mprefer-vector-width=512 -march=core-avx2 -ipo -fiopenmp  
-ansi-alias

Fortran benchmarks:

-Ofast -mprefer-vector-width=512 -march=core-avx2 -ipo -fiopenmp  
-nostandard-realloc-lhs -align array64byte

## Base Other Flags

C benchmarks:

-Ispecmpitime

C++ benchmarks:

-Ispecmpitime

Fortran benchmarks:

619.clvleaf\_s: -Ispecmpitime

## Peak Optimization Flags

C benchmarks:

605.lbm\_s: basepeak = yes

613.soma\_s: basepeak = yes

618.tealeaf\_s: basepeak = yes

621.miniswp\_s: basepeak = yes

634.hpgmgfv\_s: basepeak = yes

C++ benchmarks:

632.sph\_exa\_s: basepeak = yes

(Continued on next page)



# SPEChpc™ 2021 Small Result

Copyright 2021-2022 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPEChpc 2021\_sml\_base = 1.45

ThinkSystem SR665 V3 (AMD EPYC 9654)

SPEChpc 2021\_sml\_peak = 1.45

**hpc2021 License:** 28

**Test Sponsor:** Lenovo Global Technology

**Tested by:** Lenovo Global Technology

**Test Date:** Oct-2022

**Hardware Availability:** Nov-2022

**Software Availability:** Nov-2022

## Peak Optimization Flags (Continued)

Fortran benchmarks:

619.clvleaf\_s: basepeak = yes

628.pot3d\_s: basepeak = yes

635.weather\_s: basepeak = yes

The flags file that was used to format this result can be browsed at

[http://www.spec.org/hpc2021/flags/Intel\\_compiler\\_flags.2022-11-10.html](http://www.spec.org/hpc2021/flags/Intel_compiler_flags.2022-11-10.html)

You can also download the XML flags source by saving the following link:

[http://www.spec.org/hpc2021/flags/Intel\\_compiler\\_flags.2022-11-10.xml](http://www.spec.org/hpc2021/flags/Intel_compiler_flags.2022-11-10.xml)

SPEChpc is a trademark of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester. For other inquiries, please contact [info@spec.org](mailto:info@spec.org).

Tested with SPEChpc2021 v1.1.7 on 2018-06-24 14:38:39-0400.

Report generated on 2022-11-10 10:17:13 by hpc2021 PDF formatter v1.0.3.

Originally published on 2022-11-10.