



# SPEChpc™ 2021 Small Result

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## Lenovo Global Technology

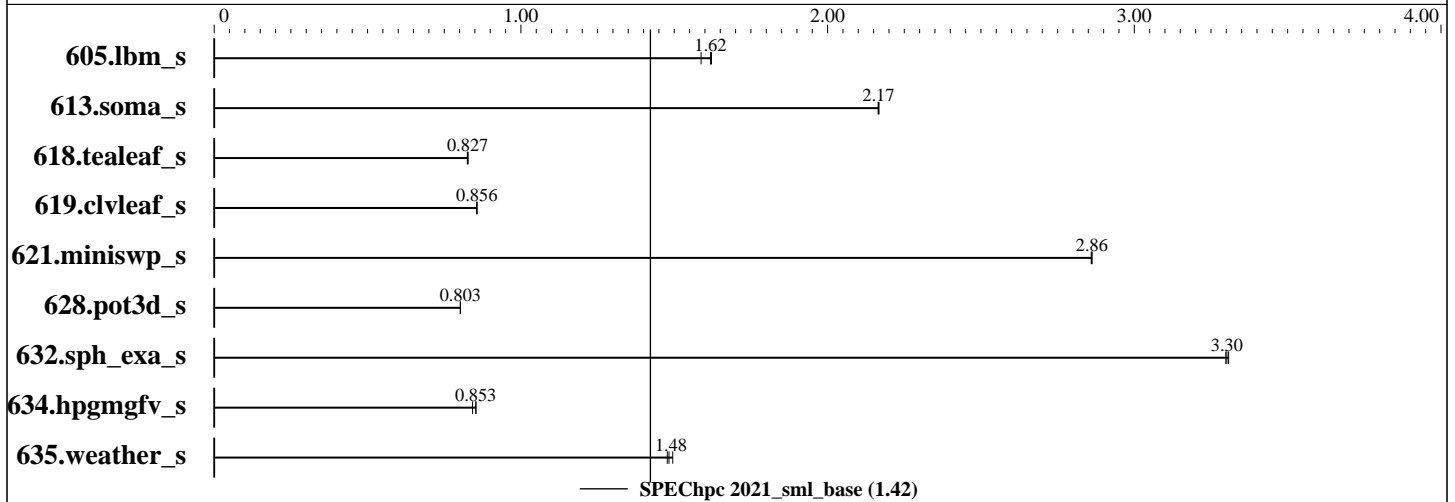
SPEChpc 2021\_sml\_base = 1.42

### ThinkSystem SR950 (Intel Xeon Platinum 8280L)

SPEChpc 2021\_sml\_peak = Not Run

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

**Test Date:** Aug-2021  
**Hardware Availability:** Apr-2019  
**Software Availability:** Sep-2020



## 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	32	7	<b>958</b>	<b>1.62</b>	976	1.59	956	1.62									
613.soma_s	OMP	32	7	738	2.17	739	2.16	<b>739</b>	<b>2.17</b>									
618.tealeaf_s	OMP	32	7	2484	0.825	<b>2480</b>	<b>0.827</b>	2476	0.828									
619.clvleaf_s	OMP	32	7	1927	0.856	<b>1927</b>	<b>0.856</b>	1926	0.857									
621.miniswp_s	OMP	32	7	384	2.86	385	2.86	<b>384</b>	<b>2.86</b>									
628.pot3d_s	OMP	32	7	2088	0.802	<b>2087</b>	<b>0.803</b>	2086	0.803									
632.sph_exa_s	OMP	32	7	695	3.31	697	3.30	<b>697</b>	<b>3.30</b>									
634.hpgmgfv_s	OMP	32	7	<b>1143</b>	<b>0.853</b>	1142	0.853	1158	0.842									
635.weather_s	OMP	32	7	<b>1754</b>	<b>1.48</b>	1739	1.50	1760	1.48									

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



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#### Hardware Summary

Type of System: Homogenous  
 Compute Node: ThinkSystem SR950  
 Interconnect: N/A  
 Compute Nodes Used: 1  
 Total Chips: 8  
 Total Cores: 224  
 Total Threads: 224  
 Total Memory: 1536 GB  
 Max. Peak Threads: --

#### Software Summary

Compiler: Intel Parallel Studio 2020 Update 4  
 Version 19.1.3.304 Build 20200925  
 MPI Library: Intel MPI Library for Linux\* OS  
 Version 2020 Update 9 Build 20200923  
 Other MPI Info: --  
 Other Software: --  
 Base Parallel Model: OMP  
 Base Ranks Run: 32  
 Base Threads Run: 7  
 Peak Parallel Models: Not Run  
 Minimum Peak Ranks: --  
 Maximum Peak Ranks: --  
 Max. Peak Threads: --  
 Min. Peak Threads: --

### Node Description: ThinkSystem SR950

#### Hardware

Number of nodes: 1  
 Uses of the node: compute  
 Vendor: Lenovo Global Technology  
 Model: ThinkSystem SR950  
 CPU Name: Intel Xeon Platinum 8280L  
 CPU(s) orderable: 2,3,4,6,8 chips  
 Chips enabled: 8  
 Cores enabled: 224  
 Cores per chip: 28  
 Threads per core: 1  
 CPU Characteristics: Intel Turbo Boost Technology up to 4.0 GHz  
 CPU MHz: 2700  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 1 MB I+D on chip per core  
 L3 Cache: 39424 KB I+D on chip per chip  
 Other Cache: None  
 Memory: 1536 GB (96 x 16 GB 2Rx8 PC4-2933Y-R)  
 Disk Subsystem: 1 x 960 GB NVME 2.5" SSD  
 Other Hardware: None  
 Accel Count: 0  
 Accel Model: None  
 Accel Vendor: None  
 Accel Type: None  
 Accel Connection: None  
 Accel ECC enabled: None  
 Accel Description: None  
 Adapter: None  
 Number of Adapters: 0  
 Slot Type: None  
 Data Rate: None

#### Software

Accelerator Driver: --  
 Adapter: None  
 Adapter Driver: None  
 Adapter Firmware: None  
 Operating System: Red Hat Enterprise Linux Server release 7.6,  
 Kernel 3.10.0-957.el7.x86\_64  
 Local File System: xfs  
 Shared File System: None  
 System State: Multi-user, run level 3  
 Other Software: None

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## Node Description: ThinkSystem SR950

### Hardware (Continued)

Ports Used: 0  
Interconnect Type: None

## Interconnect Description: N/A

### Hardware

Vendor: N/A  
Model: N/A  
Switch Model: N/A  
Number of Switches: 0  
Number of Ports: 0  
Data Rate: N/A  
Firmware: N/A  
Topology: N/A  
Primary Use: N/A

### Software

: --

## Submit Notes

The config file option 'submit' was used.  
submit = mpirun -host localhost -genv coll\_hcoll\_enable 1 -genv HCOLL\_MAIN\_IB=mlx5\_0:1  
-genv UCX\_TLS=sm -genv pml ucx --map-by numa -np \$ranks \$command

## Compiler Version Notes

=====  
CC 605.lbm\_s(base) 613.soma\_s(base) 618.tealeaf\_s(base) 621.miniswp\_s(base)  
634.hpgmgfv\_s(base)  
=====

Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,  
Version 19.1.3.304 Build 20200925\_000000  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.  
icc: NOTE: The evaluation period for this product ends on 11-may-2021 UTC.  
=====

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

Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64,  
Version 19.1.3.304 Build 20200925\_000000  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.  
icpc: NOTE: The evaluation period for this product ends on 11-may-2021 UTC.  
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## Compiler Version Notes (Continued)

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

```
Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)
64, Version 19.1.3.304 Build 20200925_000000
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
ifort: NOTE: The evaluation period for this product ends on 11-may-2021 UTC.
=====
```

## Base Compiler Invocation

C benchmarks:  
mpiicc

C++ benchmarks:  
mpiicpc

Fortran benchmarks:  
mpiifort

## Base Portability Flags

```
613.soma_s: -DSPEC_NO_VAR_ARRAY_REDUCE
621.miniswp_s: -DUSE_KBA -DUSE_ACCELDIR
632.sph_exa_s: -DSPEC_USE_LT_IN_KERNELS
```

## Base Optimization Flags

C benchmarks:  
-Ofast -no-prec-div -xCORE-AVX512 -ipo -qopenmp -ansi-alias

C++ benchmarks:  
-Ofast -no-prec-div -xCORE-AVX512 -ipo -qopenmp -ansi-alias

Fortran benchmarks:  
-Ofast -no-prec-div -xCORE-AVX512 -ipo -qopenmp



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The flags file that was used to format this result can be browsed at  
[http://www.spec.org/hpc2021/flags/Intel\\_compiler\\_flags.2021-10-20.html](http://www.spec.org/hpc2021/flags/Intel_compiler_flags.2021-10-20.html)

You can also download the XML flags source by saving the following link:  
[http://www.spec.org/hpc2021/flags/Intel\\_compiler\\_flags.2021-10-20.xml](http://www.spec.org/hpc2021/flags/Intel_compiler_flags.2021-10-20.xml)

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

Tested with SPEChpc2021 v1.0.1 on 2020-08-27 06:59:50-0400.  
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