SPEChpc™ 2021 Small Result

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Lenovo Global Technology

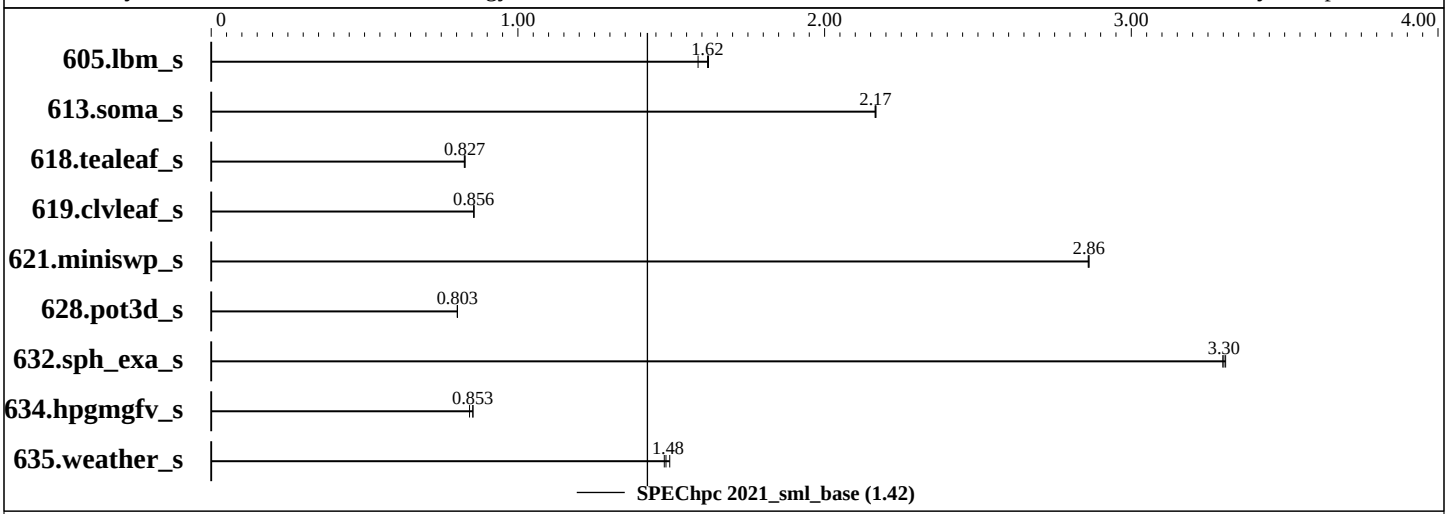
ThinkSystem SR950 (Intel Xeon Platinum 8280L)

SPEChpc 2021_sml_base = 1.42

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

(Continued on next page)

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

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.
------------------------------------------------------------------------------
```

(Continued on next page)

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

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

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

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

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