SPEChpc™ 2021 Tiny Result

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Lenovo Global Technology

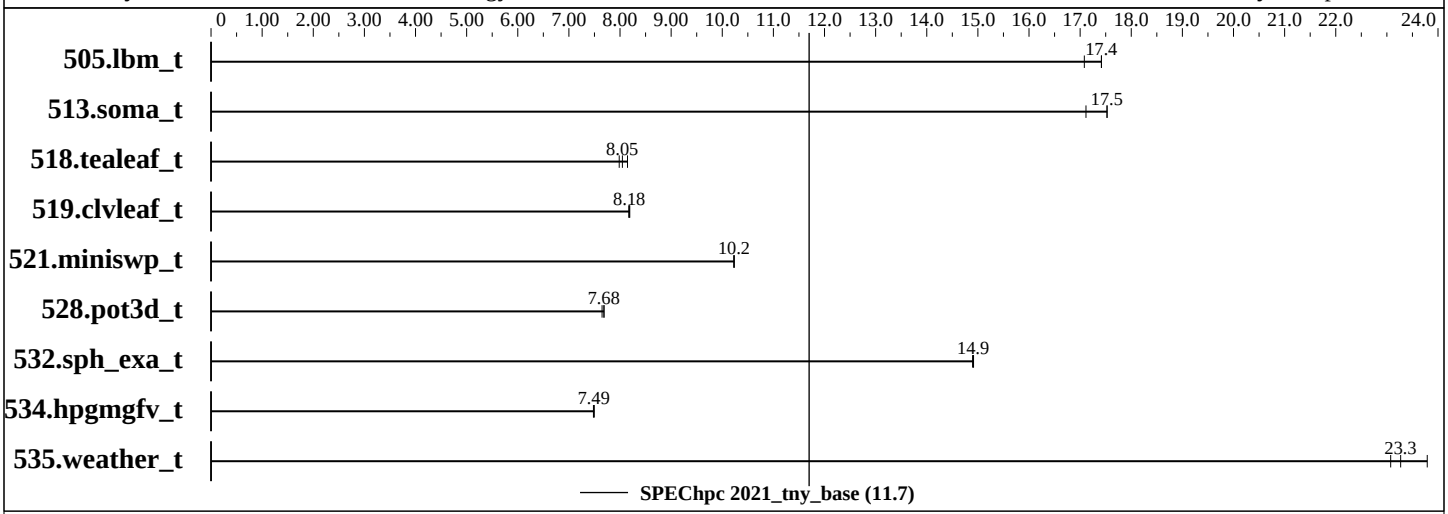
ThinkSystem SR950 (Intel Xeon Platinum 8280L)

SPEChpc 2021_tny_base = 11.7

SPEChpc 2021_tny_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
505.lbm_t	OMP	32	7	**129**	**17.4**	132	17.1	129	17.4									
513.soma_t	OMP	32	7	**211**	**17.5**	216	17.1	211	17.5									
518.tealeaf_t	OMP	32	7	**205**	**8.05**	207	7.98	203	8.15									
519.clvleaf_t	OMP	32	7	201	8.19	**202**	**8.18**	202	8.17									
521.miniswp_t	OMP	32	7	156	10.2	**156**	**10.2**	156	10.2									
528.pot3d_t	OMP	32	7	**277**	**7.68**	276	7.69	278	7.65									
532.sph_exa_t	OMP	32	7	131	14.9	131	14.9	**131**	**14.9**									
534.hpgmgfv_t	OMP	32	7	157	7.50	**157**	**7.49**	157	7.48									
535.weather_t	OMP	32	7	140	23.1	**139**	**23.3**	136	23.8									

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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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Software Availability: Sep-2020

Hardware Summary

Type of System:	Homogenous
Compute Node:	ThinkSystem SR950
Interconnect:	N/A
File Server Node:	ThinkSystem SR950
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

Node Description: ThinkSystem SR950

Hardware

Number of nodes:	1
Uses of the node:	Fileserver
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
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Accel Count:	--
Accel Model:	--
Accel Vendor:	--
Accel Type:	--
Accel Connection:	--
Accel ECC enabled:	--
Accel Description:	--
Adapter:	N/A
Number of Adapters:	0
Slot Type:	N/A
Data Rate:	N/A
Ports Used:	0
Interconnect Type:	N/A

Software

Accelerator Driver:	N/A
Adapter:	N/A
Adapter Driver:	N/A
Adapter Firmware:	N/A
Operating System:	Red Hat Enterprise Linux Server release 7.6
Local File System:	xfs
Shared File System:	N/A
System State:	Multi-User, run level 3
Other Software:	None

Interconnect Description: N/A

Hardware		Software
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	

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  505.lbm_t(base) 513.soma_t(base) 518.tealeaf_t(base) 521.miniswp_t(base)
     534.hpgmgfv_t(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 532.sph_exa_t(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.
------------------------------------------------------------------------------

==============================================================================
 FC  519.clvleaf_t(base) 528.pot3d_t(base) 535.weather_t(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.
```

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Compiler Version Notes (Continued)

```
------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
mpiicc

C++ benchmarks:
mpiicpc

Fortran benchmarks:
mpiifort

Base Portability Flags

513.soma_t: -DSPEC_NO_VAR_ARRAY_REDUCE
521.miniswp_t: -DUSE_KBA -DUSE_ACCELDIR
532.sph_exa_t: -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.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/hpc2021/flags/Intel_compiler_flags.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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