SPEChpc™ 2021 Tiny Result

Copyright 2021-2022 Standard Performance Evaluation Corporation

Lenovo Global Technology

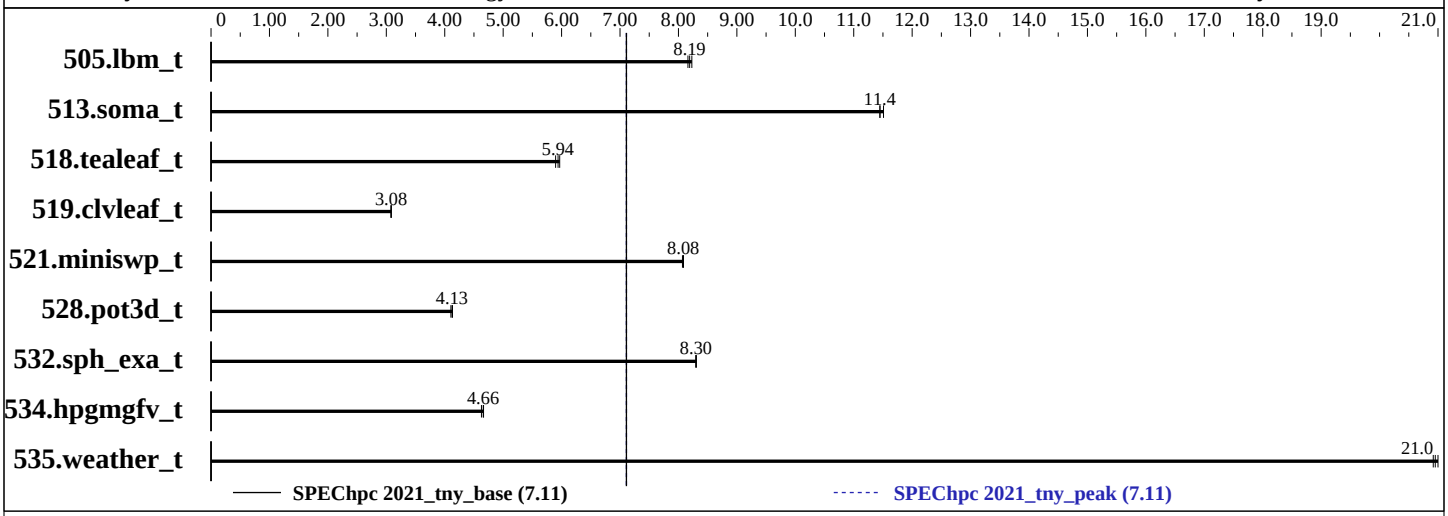
ThinkSystem SR665 (AMD EPYC 7773X)

SPEChpc 2021_tny_base = 7.11

SPEChpc 2021_tny_peak = 7.11

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

Test Date: Jul-2022
Hardware Availability: Jul-2022
Software Availability: Jul-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
505.lbm_t	OMP	16	8	276	8.16	273	8.23	**275**	**8.19**	OMP	16	8	276	8.16	273	8.23	**275**	**8.19**
513.soma_t	OMP	16	8	**323**	**11.4**	323	11.4	321	11.5	OMP	16	8	**323**	**11.4**	323	11.4	321	11.5
518.tealeaf_t	OMP	16	8	280	5.90	276	5.97	**278**	**5.94**	OMP	16	8	280	5.90	276	5.97	**278**	**5.94**
519.clvleaf_t	OMP	16	8	535	3.08	**535**	**3.08**	535	3.08	OMP	16	8	535	3.08	**535**	**3.08**	535	3.08
521.miniswp_t	OMP	16	8	**198**	**8.08**	198	8.09	198	8.07	OMP	16	8	**198**	**8.08**	198	8.09	198	8.07
528.pot3d_t	OMP	16	8	**515**	**4.13**	518	4.11	514	4.13	OMP	16	8	**515**	**4.13**	518	4.11	514	4.13
532.sph_exa_t	OMP	16	8	235	8.31	**235**	**8.30**	235	8.30	OMP	16	8	235	8.31	**235**	**8.30**	235	8.30
534.hpgmgfv_t	OMP	16	8	**252**	**4.66**	252	4.66	254	4.63	OMP	16	8	**252**	**4.66**	252	4.66	254	4.63
535.weather_t	OMP	16	8	154	20.9	154	21.0	**154**	**21.0**	OMP	16	8	154	20.9	154	21.0	**154**	**21.0**

SPEChpc 2021_tny_base = 7.11

SPEChpc 2021_tny_peak = 7.11

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

SPEChpc™ 2021 Tiny Result

Copyright 2021-2022 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR665 (AMD EPYC 7773X)

SPEChpc 2021_tny_base = 7.11

SPEChpc 2021_tny_peak = 7.11

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

Test Date: Jul-2022
Hardware Availability: Jul-2022
Software Availability: Jul-2022

Hardware Summary

Type of System:	Homogenous
Compute Node:	ThinkSystem SR665
Interconnect:	Nvidia Mellanox ConnectX-6 HDR
Compute Nodes Used:	1
Total Chips:	2
Total Cores:	128
Total Threads:	256
Total Memory:	1 TB
Max. Peak Threads:	8

Software Summary

Compiler:	Intel C/C++/Fortran Compiler 2021.5.0
MPI Library:	Open MPI 4.0.5
Other MPI Info:	--
Other Software:	--
Base Parallel Model:	OMP
Base Ranks Run:	16
Base Threads Run:	8
Peak Parallel Models:	OMP
Minimum Peak Ranks:	16
Maximum Peak Ranks:	16
Max. Peak Threads:	8
Min. Peak Threads:	8

Node Description: ThinkSystem SR665

Hardware

Number of nodes:	1
Uses of the node:	Compute
Vendor:	Lenovo Global Technology
Model:	ThinkSystem SR665
CPU Name:	AMD EPYC 7773X
CPU(s) orderable:	1,2 chips
Chips enabled:	2
Cores enabled:	128
Cores per chip:	64
Threads per core:	2
CPU Characteristics:	Max Boost Clock up to 3.5 GHz
CPU MHz:	2200
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	512 KB I+D on chip per core
L3 Cache:	768 MB I+D on chip per chip 96 MB shared / 8 cores
Other Cache:	None
Memory:	1 TB (16 x 64 GB 2Rx4 PC4-3200A-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:	Mellanox ConnectX-6 HDR
Number of Adapters:	1
Slot Type:	PCI-Express 4.0 x16
Data Rate:	200 Gbits/s
Ports Used:	1

(Continued on next page)

Software

Accelerator Driver:	--
Adapter:	Mellanox ConnectX-6 HDR
Adapter Driver:	5.2-1.0.4
Adapter Firmware:	20.28.1002
Operating System:	Red Hat Enterprise Linux Server release 8.5, Kernel 4.18.0-348.el8.x86_64
Local File System:	xfs
Shared File System:	NFS
System State:	Multi-user, run level 3
Other Software:	None

Node Description: ThinkSystem SR665

Hardware (Continued)

Interconnect Type: Nvidia Mellanox ConnectX-6 HDR

Interconnect Description: Nvidia Mellanox ConnectX-6 HDR

Hardware

Vendor:	Nvidia
Model:	Nvidia Mellanox ConnectX-6 HDR
Switch Model:	QM8700
Number of Switches:	1
Number of Ports:	40
Data Rate:	200 Gb/s
Firmware:	3.9.0606
Topology:	Mesh
Primary Use:	MPI Traffic, NFS Access

Software

: --

Submit Notes

```
The config file option 'submit' was used.
submit = mpirun --allow-run-as-root  --oversubscribe -genv coll_hcoll_enable 1
-x HCOLL_ENABLE_NBC=1 -x HCOLL_MAIN_IB=mlx5_0:1 -mca pml ucx
-hostfile /home/HPC2021F1.0.1/config/4nodes --map-by ppr:16:node:pe=8
```

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 Classic for applications running on Intel(R)
  64, Version 2021.5.0 Build 20211109_000000
Copyright (C) 1985-2021 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------

==============================================================================
 CXXC 532.sph_exa_t(base)
------------------------------------------------------------------------------
Intel(R) C++ Intel(R) 64 Compiler Classic for applications running on
  Intel(R) 64, Version 2021.5.0 Build 20211109_000000
Copyright (C) 1985-2021 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------

==============================================================================
```

(Continued on next page)

Compiler Version Notes (Continued)

```
 FC  519.clvleaf_t(base) 528.pot3d_t(base) 535.weather_t(base)
------------------------------------------------------------------------------
Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on
  Intel(R) 64, Version 2021.5.0 Build 20211109_000000
Copyright (C) 1985-2021 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
mpicc

C++ benchmarks:
mpicxx

Fortran benchmarks:
mpifort

Base Portability Flags

513.soma_t: -DSPEC_NO_VAR_ARRAY_REDUCE

Base Optimization Flags

C benchmarks:
-Ofast -no-prec-div -march=core-avx2 -ipo -qopenmp -ansi-alias

C++ benchmarks:
-Ofast -no-prec-div -march=core-avx2 -ipo -qopenmp -ansi-alias

Fortran benchmarks:
-Ofast -no-prec-div -march=core-avx2 -ipo -qopenmp

Peak Optimization Flags

C benchmarks:

505.lbm_t: basepeak = yes

(Continued on next page)

Peak Optimization Flags (Continued)

513.soma_t: `basepeak = yes`

518.tealeaf_t: `basepeak = yes`

521.miniswp_t: `basepeak = yes`

534.hpgmgfv_t: `basepeak = yes`

C++ benchmarks:

532.sph_exa_t: `basepeak = yes`

Fortran benchmarks:

519.clvleaf_t: `basepeak = yes`

528.pot3d_t: `basepeak = yes`

535.weather_t: `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.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`

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.

Tested with SPEChpc2021 v1.0.1 on 2022-07-08 07:29:58-0400.
Report generated on 2022-07-26 12:16:24 by hpc2021 PS formatter v1.0.3.
Originally published on 2022-07-26.