



SPEChpc™ 2021 Tiny Result

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Lenovo Global Technology

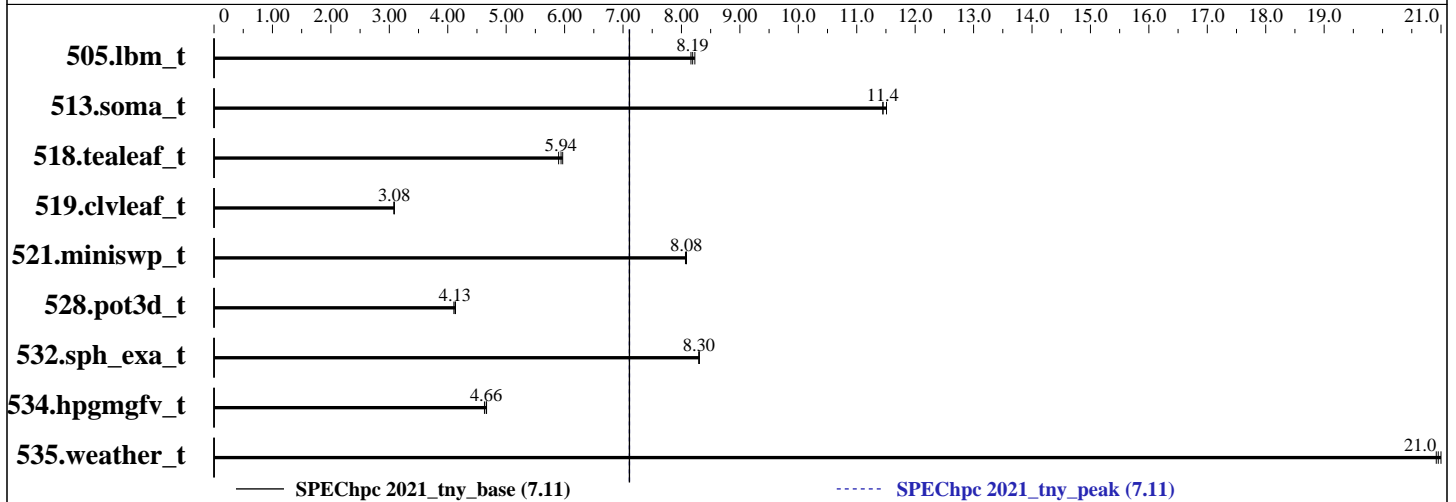
SPEChpc 2021_tny_base = 7.11

ThinkSystem SR665 (AMD EPYC 7773X)

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

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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 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

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

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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
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=====

=====
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
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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
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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

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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

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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.
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