SPEChpc™ 2021 Tiny Result

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Lenovo Global Technology

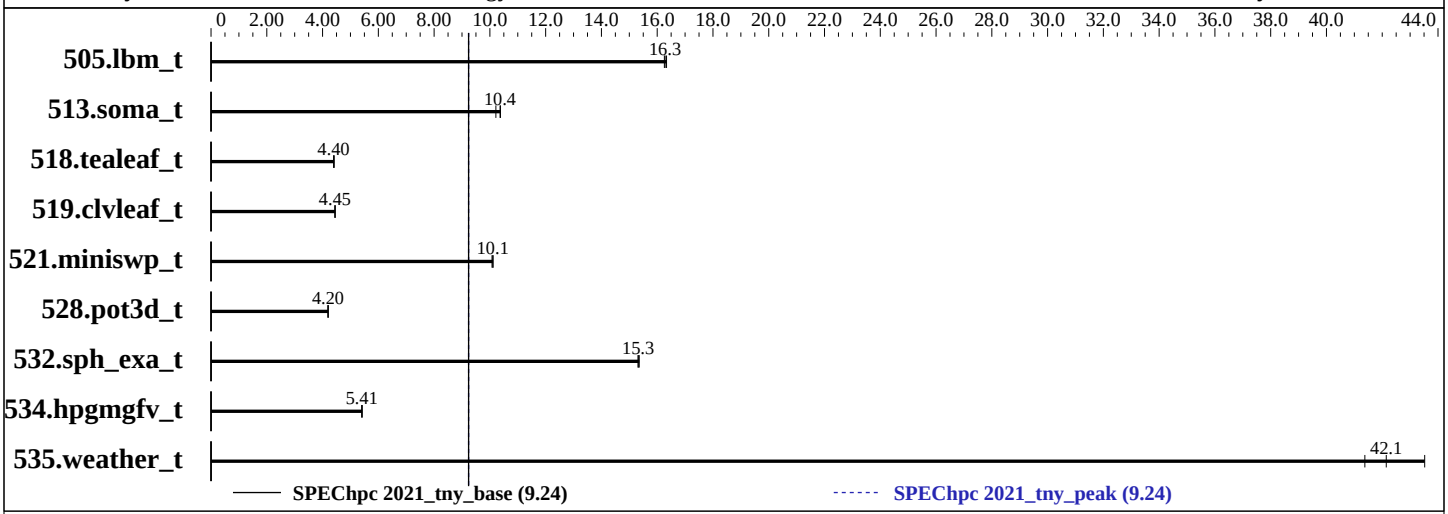
ThinkSystem SD535 V3 (AMD EPYC 9755)

SPEChpc 2021_tny_base = 9.24

SPEChpc 2021_tny_peak = 9.24

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

Test Date: Nov-2024
Hardware Availability: Feb-2025
Software Availability: Feb-2025



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	MPI	256	1	**138**	**16.3**	138	16.3	138	16.3	MPI	256	1	**138**	**16.3**	138	16.3	138	16.3
513.soma_t	MPI	256	1	362	10.2	356	10.4	**357**	**10.4**	MPI	256	1	362	10.2	356	10.4	**357**	**10.4**
518.tealeaf_t	MPI	256	1	374	4.41	375	4.40	**375**	**4.40**	MPI	256	1	374	4.41	375	4.40	**375**	**4.40**
519.clvleaf_t	MPI	256	1	371	4.45	**371**	**4.45**	371	4.45	MPI	256	1	371	4.45	**371**	**4.45**	371	4.45
521.miniswp_t	MPI	256	1	158	10.1	159	10.1	**158**	**10.1**	MPI	256	1	158	10.1	159	10.1	**158**	**10.1**
528.pot3d_t	MPI	256	1	506	4.20	**506**	**4.20**	506	4.20	MPI	256	1	506	4.20	**506**	**4.20**	506	4.20
532.sph_exa_t	MPI	256	1	127	15.4	**127**	**15.3**	127	15.3	MPI	256	1	127	15.4	**127**	**15.3**	127	15.3
534.hpgmgfv_t	MPI	256	1	217	5.42	**217**	**5.41**	217	5.41	MPI	256	1	217	5.42	**217**	**5.41**	217	5.41
535.weather_t	MPI	256	1	**76.5**	**42.1**	74.1	43.5	77.9	41.4	MPI	256	1	**76.5**	**42.1**	74.1	43.5	77.9	41.4

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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: Feb-2025

Hardware Summary

Type of System:	Homogenous
Compute Node:	ThinkSystem SD535 V3
Interconnect:	-
Compute Nodes Used:	1
Total Chips:	1
Total Cores:	128
Total Threads:	256
Total Memory:	768 GB
Max. Peak Threads:	1

Software Summary

Compiler:	Intel C/C++/Fortran Compiler 2024.2.1
MPI Library:	Intel MPI Library for Linux OS, Build 20240701
Other MPI Info:	--
Other Software:	--
Base Parallel Model:	MPI
Base Ranks Run:	256
Base Threads Run:	1
Peak Parallel Models:	MPI
Minimum Peak Ranks:	256
Maximum Peak Ranks:	256
Max. Peak Threads:	1
Min. Peak Threads:	1

Node Description: ThinkSystem SD535 V3

Hardware

Number of nodes:	1
Uses of the node:	Compute
Vendor:	Lenovo Global Technology
Model:	ThinkSystem SD535 V3
CPU Name:	AMD EPYC 9755
CPU(s) orderable:	1 chips
Chips enabled:	1
Cores enabled:	128
Cores per chip:	128
Threads per core:	2
CPU Characteristics:	Max Boost Clock up to 4.1 GHz
CPU MHz:	2700
Primary Cache:	32 KB I + 48 KB D on chip per core
Secondary Cache:	1 MB I+D on chip per core
L3 Cache:	384 MB I+D on chip per chip 32 MB shared / 16 cores
Other Cache:	None
Memory:	768 GB (12 x 64 GB 2Rx4 PC5-6400B-R), running at 6000
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:	-
Number of Adapters:	0
Slot Type:	-
Data Rate:	None

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Software

Accelerator Driver:	--
Adapter:	-
Adapter Driver:	-
Adapter Firmware:	-
Operating System:	Ubuntu 24.04 LTS Kernel 6.8.0-39-generic
Local File System:	xfs
Shared File System:	None
System State:	Multi-user, run level 3
Other Software:	None

Node Description: ThinkSystem SD535 V3

Hardware (Continued)

Ports Used: 0
Interconnect Type: -

Interconnect Description: -

Hardware

Vendor: None
Model: -
Switch Model: None
Number of Switches: 0
Number of Ports: 0
Data Rate: None
Firmware: N/A
Topology: N/A
Primary Use: -

Software

: --

Submit Notes

```
The config file option 'submit' was used.
```

Compiler Version Notes

```
==============================================================================
 FC  519.clvleaf_t(base) 528.pot3d_t(base) 535.weather_t(base)
------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version
  2024.2.1 Build 20240711
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.
ifx: command line error: no files specified; for help type "ifx -help"
------------------------------------------------------------------------------

==============================================================================
 CC  505.lbm_t(base) 513.soma_t(base) 518.tealeaf_t(base) 521.miniswp_t(base)
      534.hpgmgfv_t(base)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
  Version 2024.2.1 Build 20240711
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.
icx: warning: -Z-reserved-lib-stdc++: 'linker' input unused
  [-Wunused-command-line-argument]
------------------------------------------------------------------------------
```

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Compiler Version Notes (Continued)

```
==============================================================================
 CXXC 532.sph_exa_t(base)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
  Version 2024.2.1 Build 20240711
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.
icx: warning: -Z-reserved-lib-stdc++: 'linker' input unused
  [-Wunused-command-line-argument]
------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
`mpiicc -cc=icx`

C++ benchmarks:
`mpiicpc -cxx=icx`

Fortran benchmarks:
`mpiifort -fc=ifx`

Base Portability Flags

505.lbm_t: `-lstdc++`
513.soma_t: `-lstdc++`
518.tealeaf_t: `-lstdc++`
519.clvleaf_t: `-lstdc++`
521.miniswp_t: `-lstdc++`
528.pot3d_t: `-lstdc++`
532.sph_exa_t: `-lstdc++`
534.hpgmgfv_t: `-lstdc++`
535.weather_t: `-lstdc++`

Base Optimization Flags

C benchmarks:
`-Ofast -mprefer-vector-width=512 -march=x86-64-v4 -ansi-alias`

C++ benchmarks:
`-Ofast -mprefer-vector-width=512 -march=x86-64-v4 -ansi-alias`

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Base Optimization Flags (Continued)

Fortran benchmarks:
-Ofast -mprefer-vector-width=512 -march=x86-64-v4
-nostandard-realloc-lhs -align array64byte

Peak Optimization Flags

C benchmarks:

505.lbm_t: basepeak = yes

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.2024-12-31.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/hpc2021/flags/Intel_compiler_flags.2024-12-31.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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