



# SPEChpc™ 2021 Tiny Result

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## Lenovo Global Technology

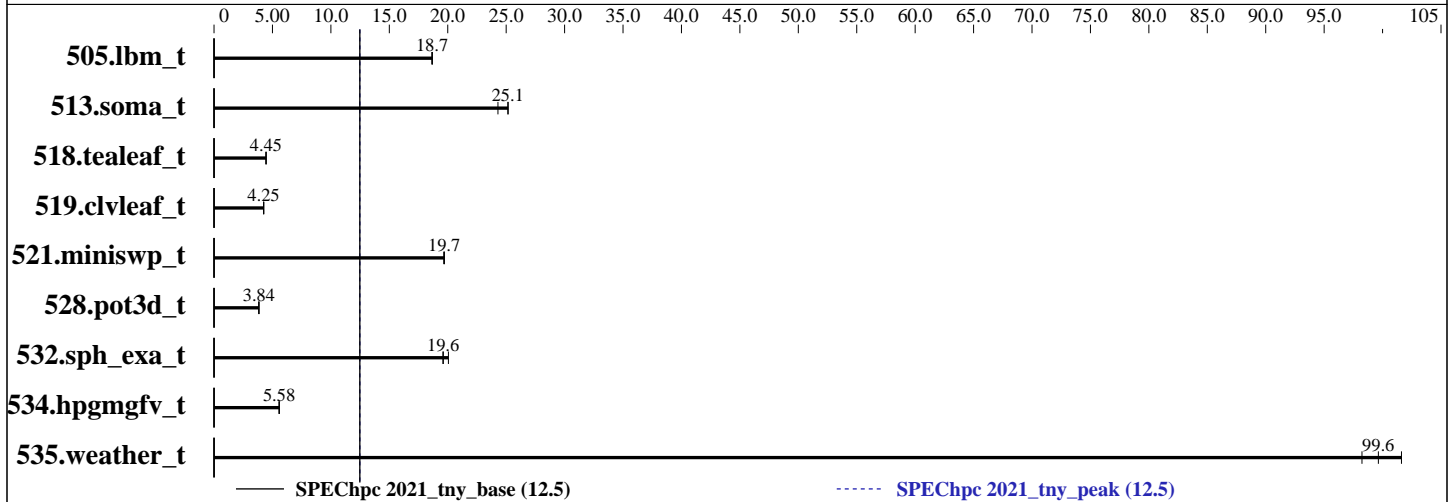
SPEChpc 2021\_tny\_base = 12.5

## ThinkSystem SD535 V3 (AMD EPYC 9965)

SPEChpc 2021\_tny\_peak = 12.5

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	OMP	12	32	120	18.7	121	18.6	<b>121</b>	<b>18.7</b>	OMP	12	32	120	18.7	121	18.6	<b>121</b>	<b>18.7</b>
513.soma_t	OMP	12	32	<b>147</b>	<b>25.1</b>	147	25.2	152	24.3	OMP	12	32	<b>147</b>	<b>25.1</b>	147	25.2	152	24.3
518.tealeaf_t	OMP	12	32	370	4.46	371	4.44	<b>370</b>	<b>4.45</b>	OMP	12	32	370	4.46	371	4.44	<b>370</b>	<b>4.45</b>
519.clvleaf_t	OMP	12	32	388	4.25	<b>388</b>	<b>4.25</b>	389	4.25	OMP	12	32	388	4.25	<b>388</b>	<b>4.25</b>	389	4.25
521.miniswp_t	OMP	12	32	<b>81.2</b>	<b>19.7</b>	81.4	19.7	81.2	19.7	OMP	12	32	<b>81.2</b>	<b>19.7</b>	81.4	19.7	81.2	19.7
528.pot3d_t	OMP	12	32	<b>553</b>	<b>3.84</b>	554	3.83	553	3.84	OMP	12	32	<b>553</b>	<b>3.84</b>	554	3.83	553	3.84
532.sph_exa_t	OMP	12	32	99.6	19.6	97.2	20.1	<b>99.4</b>	<b>19.6</b>	OMP	12	32	99.6	19.6	97.2	20.1	<b>99.4</b>	<b>19.6</b>
534.hpgmgfv_t	OMP	12	32	210	5.58	<b>211</b>	<b>5.58</b>	211	5.57	OMP	12	32	210	5.58	<b>211</b>	<b>5.58</b>	211	5.57
535.weather_t	OMP	12	32	<b>32.4</b>	<b>99.6</b>	32.8	98.2	31.7	102	OMP	12	32	<b>32.4</b>	<b>99.6</b>	32.8	98.2	31.7	102

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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 SD535 V3  
Interconnect: -  
Compute Nodes Used: 1  
Total Chips: 1  
Total Cores: 192  
Total Threads: 384  
Total Memory: 768 GB  
Max. Peak Threads: 32

### 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: OMP  
Base Ranks Run: 12  
Base Threads Run: 32  
Peak Parallel Models: OMP  
Minimum Peak Ranks: 12  
Maximum Peak Ranks: 12  
Max. Peak Threads: 32  
Min. Peak Threads: 32

## 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 9965  
CPU(s) orderable: 1 chips  
Chips enabled: 1  
Cores enabled: 192  
Cores per chip: 192  
Threads per core: 2  
CPU Characteristics: Max Boost Clock up to 3.7 GHz  
CPU MHz: 2250  
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

### 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

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### 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++ -DSPEC\_NO\_VAR\_ARRAY\_REDUCE  
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 -fiopenmp  
-ansi-alias  
  
C++ benchmarks:  
-Ofast -mprefer-vector-width=512 -march=x86-64-v4 -fiopenmp

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## Base Optimization Flags (Continued)

C++ benchmarks (continued):

-ansi-alias

Fortran benchmarks:

-Ofast -mprefer-vector-width=512 -march=x86-64-v4 -fiopenmp  
-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.civleaf\_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](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](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](mailto:info@spec.org).

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