SPEChpc™ 2021 Tiny Result

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Lenovo Global Technology

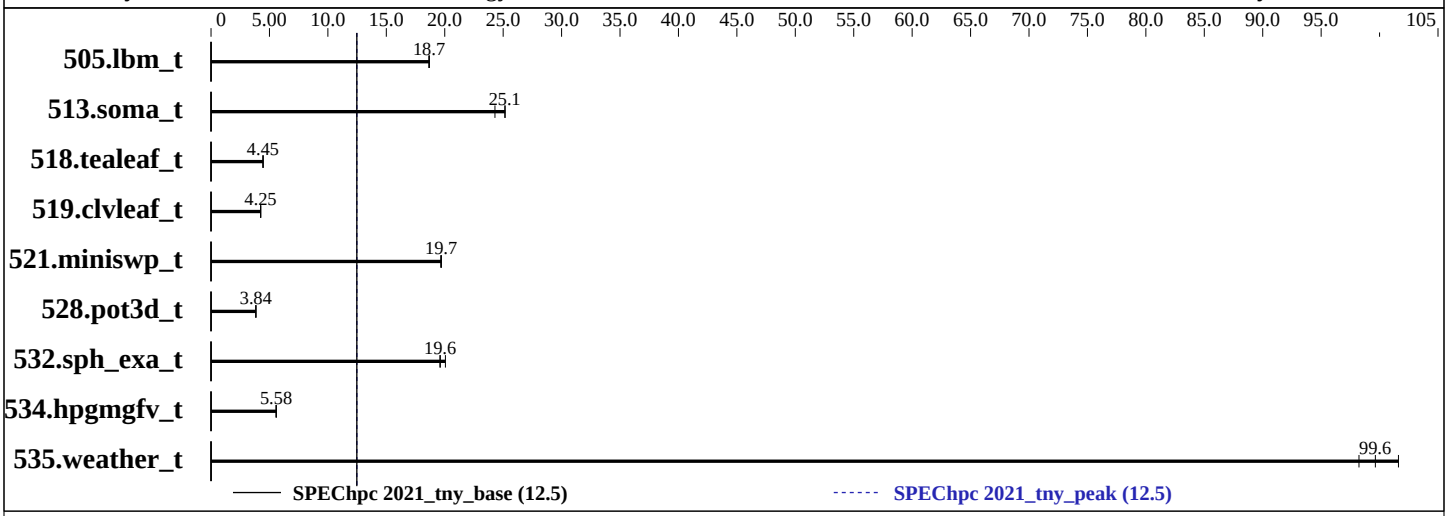
ThinkSystem SD535 V3 (AMD EPYC 9965)

SPEChpc 2021_tny_base = 12.5

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	**121**	**18.7**	OMP	12	32	120	18.7	121	18.6	**121**	**18.7**
513.soma_t	OMP	12	32	**147**	**25.1**	147	25.2	152	24.3	OMP	12	32	**147**	**25.1**	147	25.2	152	24.3
518.tealeaf_t	OMP	12	32	370	4.46	371	4.44	**370**	**4.45**	OMP	12	32	370	4.46	371	4.44	**370**	**4.45**
519.clvleaf_t	OMP	12	32	388	4.25	**388**	**4.25**	389	4.25	OMP	12	32	388	4.25	**388**	**4.25**	389	4.25
521.miniswp_t	OMP	12	32	**81.2**	**19.7**	81.4	19.7	81.2	19.7	OMP	12	32	**81.2**	**19.7**	81.4	19.7	81.2	19.7
528.pot3d_t	OMP	12	32	**553**	**3.84**	554	3.83	553	3.84	OMP	12	32	**553**	**3.84**	554	3.83	553	3.84
532.sph_exa_t	OMP	12	32	99.6	19.6	97.2	20.1	**99.4**	**19.6**	OMP	12	32	99.6	19.6	97.2	20.1	**99.4**	**19.6**
534.hpgmgfv_t	OMP	12	32	210	5.58	**211**	**5.58**	211	5.57	OMP	12	32	210	5.58	**211**	**5.58**	211	5.57
535.weather_t	OMP	12	32	**32.4**	**99.6**	32.8	98.2	31.7	102	OMP	12	32	**32.4**	**99.6**	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 Availability: Feb-2025
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:	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

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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++ -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.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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