



# SPEChpc™ 2021 Tiny Result

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## Lenovo Global Technology

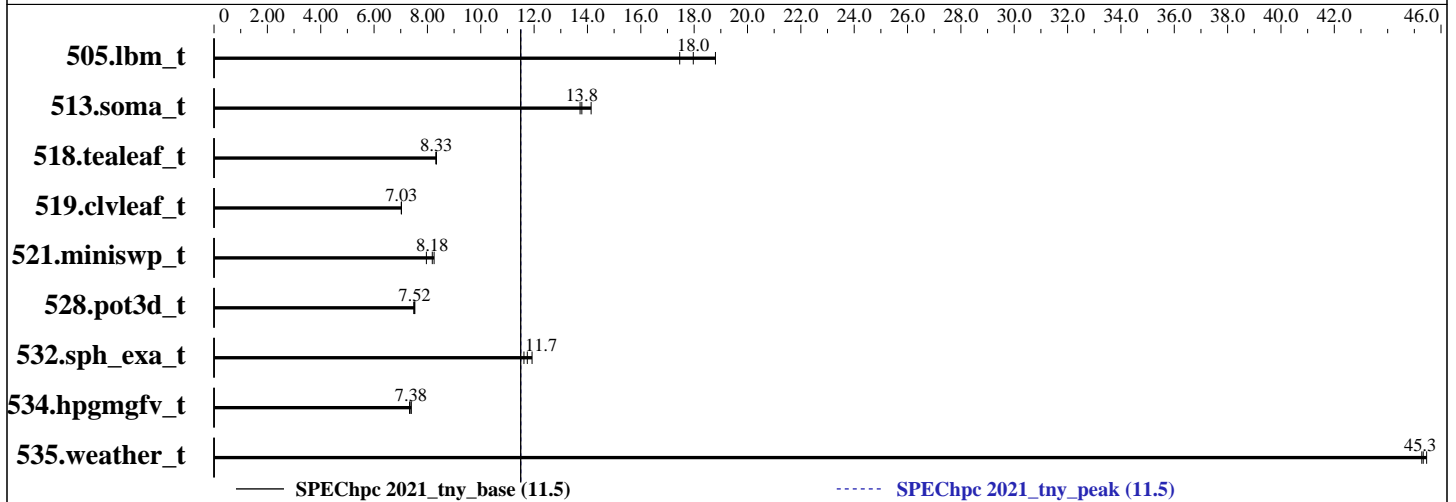
SPEChpc 2021\_tny\_base = 11.5

## ThinkSystem SR665 V3 (AMD EPYC 9654)

SPEChpc 2021\_tny\_peak = 11.5

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

**Test Date:** Oct-2022  
**Hardware Availability:** Nov-2022  
**Software Availability:** Nov-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	MPI	192	1	<b>125</b>	<b>18.0</b>	120	18.8	129	17.5	MPI	192	1	<b>125</b>	<b>18.0</b>	120	18.8	129	17.5
513.soma_t	MPI	192	1	262	14.1	270	13.7	<b>268</b>	<b>13.8</b>	MPI	192	1	262	14.1	270	13.7	<b>268</b>	<b>13.8</b>
518.tealeaf_t	MPI	192	1	198	8.32	198	8.34	<b>198</b>	<b>8.33</b>	MPI	192	1	198	8.32	198	8.34	<b>198</b>	<b>8.33</b>
519.clvleaf_t	MPI	192	1	<b>235</b>	<b>7.03</b>	235	7.02	235	7.03	MPI	192	1	<b>235</b>	<b>7.03</b>	235	7.02	235	7.03
521.miniswp_t	MPI	192	1	201	7.96	194	8.25	<b>196</b>	<b>8.18</b>	MPI	192	1	201	7.96	194	8.25	<b>196</b>	<b>8.18</b>
528.pot3d_t	MPI	192	1	<b>283</b>	<b>7.52</b>	282	7.52	284	7.49	MPI	192	1	<b>283</b>	<b>7.52</b>	282	7.52	284	7.49
532.sph_exa_t	MPI	192	1	168	11.6	<b>166</b>	<b>11.7</b>	164	11.9	MPI	192	1	168	11.6	<b>166</b>	<b>11.7</b>	164	11.9
534.hpgmgfv_t	MPI	192	1	<b>159</b>	<b>7.38</b>	159	7.39	160	7.33	MPI	192	1	<b>159</b>	<b>7.38</b>	159	7.39	160	7.33
535.weather_t	MPI	192	1	<b>71.1</b>	<b>45.3</b>	70.9	45.5	71.2	45.3	MPI	192	1	<b>71.1</b>	<b>45.3</b>	70.9	45.5	71.2	45.3

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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 V3  
Interconnect: -  
Compute Nodes Used: 1  
Total Chips: 2  
Total Cores: 192  
Total Threads: 384  
Total Memory: 768 GB  
Max. Peak Threads: 1

### Software Summary

Compiler: Intel C/C++/Fortran Compiler 2021.6.0  
MPI Library: Intel MPI Library for Linux OS, Build 20220227  
Other MPI Info: --  
Other Software: --  
Base Parallel Model: MPI  
Base Ranks Run: 192  
Base Threads Run: 1  
Peak Parallel Models: MPI  
Minimum Peak Ranks: 192  
Maximum Peak Ranks: 192  
Max. Peak Threads: 1  
Min. Peak Threads: 1

## Node Description: ThinkSystem SR665 V3

### Hardware

Number of nodes: 1  
Uses of the node: Compute  
Vendor: Lenovo Global Technology  
Model: ThinkSystem SR665 V3  
CPU Name: AMD EPYC 9654  
CPU(s) orderable: 1,2 chips  
Chips enabled: 2  
Cores enabled: 192  
Cores per chip: 96  
Threads per core: 2  
CPU Characteristics: Max Boost Clock up to 3.7 GHz  
CPU MHz: 2400  
Primary Cache: 32 KB I + 32 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 / 8 cores  
Other Cache: None  
Memory: 768 GB (24 x 32 GB 2Rx8 PC5-4800B-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: -  
Number of Adapters: 0  
Slot Type: -  
Data Rate: None  
Ports Used: 0

### Software

Accelerator Driver: --  
Adapter: -  
Adapter Driver: -  
Adapter Firmware: -  
Operating System: Red Hat Enterprise Linux Server release 8.6,  
Kernel 4.18.0-372.9.1.el8.x86\_64  
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 SR665 V3

### Hardware (Continued)

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.

```
submit = mpiexec -hosts 192.168.99.16 -np ranks -genv OMP_NUM_THREADS=$threads -ppn % {NRNK} $command
```

## General Notes

Submitted\_by: Jimmy Cheng12 <jcheng12@lenovo.com>

Submitted: Thu Oct 27 13:16:45 EDT 2022

Submission: hpc2021-20221016-00134.sub

## 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 2022.1.0 Build 20220316

Copyright (C) 1985-2022 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)
-----
```

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## Compiler Version Notes (Continued)

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,  
Version 2022.1.0 Build 20220316  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.  
clang: warning: -Z-reserved-lib-stdc++: 'linker' input unused  
[-Wunused-command-line-argument]

-----  
CXXC 532.sph\_exa\_t(base)  
-----

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,  
Version 2022.1.0 Build 20220316  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.  
clang: 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.cvlleaf\_t: -lstdc++  
521.miniswp\_t: -lstdc++  
528.pot3d\_t: -lstdc++  
532.sph\_exa\_t: -lstdc++  
534.hpgmgfv\_t: -lstdc++  
535.weather\_t: -lstdc++



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## Base Optimization Flags

C benchmarks:

-Ofast -mprefer-vector-width=512 -march=core-avx2 -ipo -ansi-alias

C++ benchmarks:

-Ofast -mprefer-vector-width=512 -march=core-avx2 -ipo -ansi-alias

Fortran benchmarks:

-Ofast -mprefer-vector-width=512 -march=core-avx2 -ipo  
-nostandard-realloc-lhs -align array64byte

## Base Other Flags

C benchmarks (except as noted below):

-Ispecmpitime

521.miniswp\_t: -Ispecmpitime/

534.hpgmgfv\_t: -Ispecmpitime

C++ benchmarks:

-Ispecmpitime

Fortran benchmarks:

519.clvleaf\_t: -Ispecmpitime

## 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:

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## Peak Optimization Flags (Continued)

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.2022-11-10.html](http://www.spec.org/hpc2021/flags/Intel_compiler_flags.2022-11-10.html)

You can also download the XML flags source by saving the following link:

[http://www.spec.org/hpc2021/flags/Intel\\_compiler\\_flags.2022-11-10.xml](http://www.spec.org/hpc2021/flags/Intel_compiler_flags.2022-11-10.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).

Tested with SPEChpc2021 v1.1.7 on 2018-06-25 13:30:46-0400.  
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