



# SPEChpc™ 2021 Tiny Result

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## Lenovo Global Technology

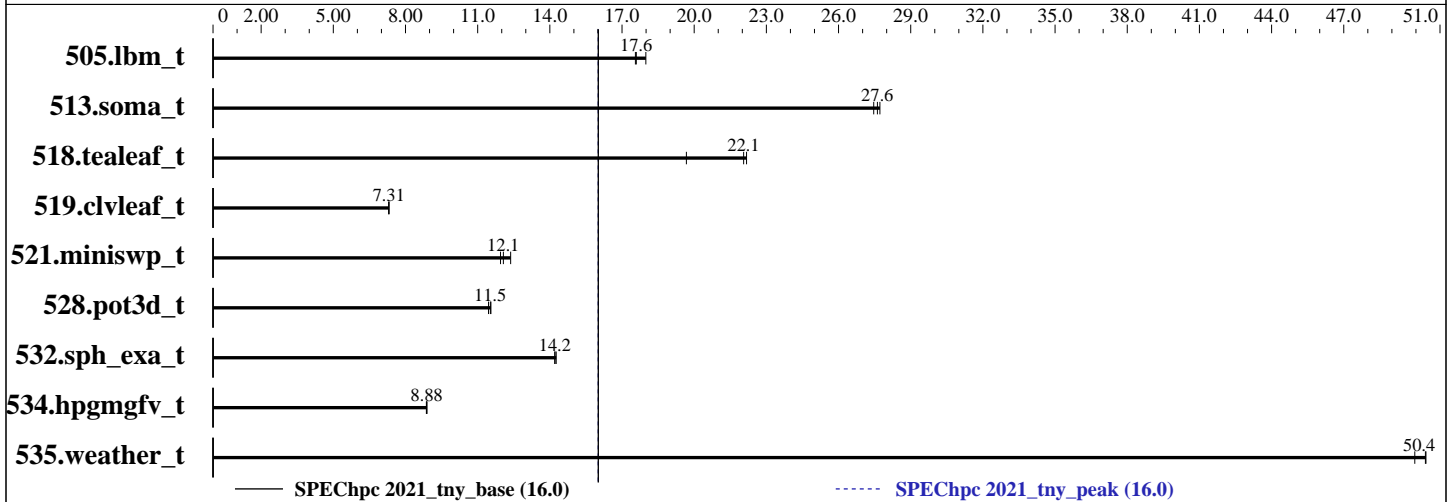
SPEChpc 2021\_tny\_base = 16.0

ThinkSystem SR665 V3 (AMD EPYC 9684X, 2.55 GHz)

SPEChpc 2021\_tny\_peak = 16.0

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

**Test Date:** Nov-2023  
**Hardware Availability:** Dec-2023  
**Software Availability:** Dec-2023



## 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	24	16	128	17.6	125	18.0	<b>128</b>	<b>17.6</b>	OMP	24	16	128	17.6	125	18.0	<b>128</b>	<b>17.6</b>
513.soma_t	OMP	24	16	135	27.5	133	27.7	<b>134</b>	<b>27.6</b>	OMP	24	16	135	27.5	133	27.7	<b>134</b>	<b>27.6</b>
518.tealeaf_t	OMP	24	16	74.4	22.2	<b>74.8</b>	<b>22.1</b>	83.9	19.7	OMP	24	16	74.4	22.2	<b>74.8</b>	<b>22.1</b>	83.9	19.7
519.clvleaf_t	OMP	24	16	226	7.31	<b>226</b>	<b>7.31</b>	226	7.31	OMP	24	16	226	7.31	<b>226</b>	<b>7.31</b>	226	7.31
521.miniswp_t	OMP	24	16	134	11.9	<b>133</b>	<b>12.1</b>	129	12.4	OMP	24	16	134	11.9	<b>133</b>	<b>12.1</b>	129	12.4
528.pot3d_t	OMP	24	16	186	11.5	184	11.6	<b>184</b>	<b>11.5</b>	OMP	24	16	186	11.5	184	11.6	<b>184</b>	<b>11.5</b>
532.sph_exa_t	OMP	24	16	137	14.3	<b>137</b>	<b>14.2</b>	137	14.2	OMP	24	16	137	14.3	<b>137</b>	<b>14.2</b>	137	14.2
534.hpgmgfv_t	OMP	24	16	<b>132</b>	<b>8.88</b>	132	8.87	132	8.89	OMP	24	16	<b>132</b>	<b>8.88</b>	132	8.87	132	8.89
535.weather_t	OMP	24	16	64.6	50.0	<b>64.0</b>	<b>50.4</b>	64.0	50.4	OMP	24	16	64.6	50.0	<b>64.0</b>	<b>50.4</b>	64.0	50.4

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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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### Hardware Summary

Type of System: SMP  
Compute Node: ThinkSystem SR665 V3  
Compute Nodes Used: 1  
Total Chips: 2  
Total Cores: 96  
Total Threads: 192  
Total Memory: 768 GB  
Max. Peak Threads: 16

### Software Summary

Compiler: Intel oneAPI Compiler 2022.1.0  
MPI Library: Intel MPI Library for Linux OS, Build 20220227  
Other MPI Info: None  
Other Software: None  
Base Parallel Model: OMP  
Base Ranks Run: 24  
Base Threads Run: 16  
Peak Parallel Models: OMP  
Minimum Peak Ranks: 24  
Maximum Peak Ranks: 24  
Max. Peak Threads: 16  
Min. Peak Threads: 16

## 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 9684X  
CPU(s) orderable: 1,2 chips  
Chips enabled: 2  
Cores enabled: 96  
Cores per chip: 96  
Threads per core: 2  
CPU Characteristics: Max Boost Clock up to 3.7 GHz  
CPU MHz: 2550  
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 (32 x 32 GB 2Rx8 PC5-4800V)  
Disk Subsystem: 1x ThinkSystem 2.5" 480 GB SSD  
Other Hardware: None  
Accel Count: None  
Accel Model: None  
Accel Vendor: None  
Accel Type: None  
Accel Connection: None  
Accel ECC enabled: None  
Accel Description: None  
Adapter: None  
Number of Adapters: 0  
Slot Type: None  
Data Rate: None  
Ports Used: 0

### Software

Accelerator Driver: None  
Adapter: None  
Adapter Driver: None  
Adapter Firmware: None  
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: None

### 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  
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)  
-----

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

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clang: warning: -Z-reserved-lib-stdc++: 'linker' input unused  
[-Wunused-command-line-argument]  
-----

### Base Compiler Invocation

C benchmarks:  
mpiicc -cc=icx

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## Base Compiler Invocation (Continued)

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 -march=core-avx2 -ipo -fiopenmp -ansi-alias
```

C++ benchmarks:

```
-Ofast -march=core-avx2 -ipo -fiopenmp -ansi-alias
```

Fortran benchmarks:

```
-Ofast -march=core-avx2 -ipo -fiopenmp -nostandard-realloc-lhs  
-align array64byte
```

## Peak Optimization Flags

C benchmarks:

```
505.lbm_t: basepeak = yes
```

```
513.soma_t: basepeak = yes
```

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## Peak Optimization Flags (Continued)

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.2023-12-13.html](http://www.spec.org/hpc2021/flags/Intel_compiler_flags.2023-12-13.html)

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

[http://www.spec.org/hpc2021/flags/Intel\\_compiler\\_flags.2023-12-13.xml](http://www.spec.org/hpc2021/flags/Intel_compiler_flags.2023-12-13.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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