SPEChpc™ 2021 Tiny Result

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Lenovo Global Technology

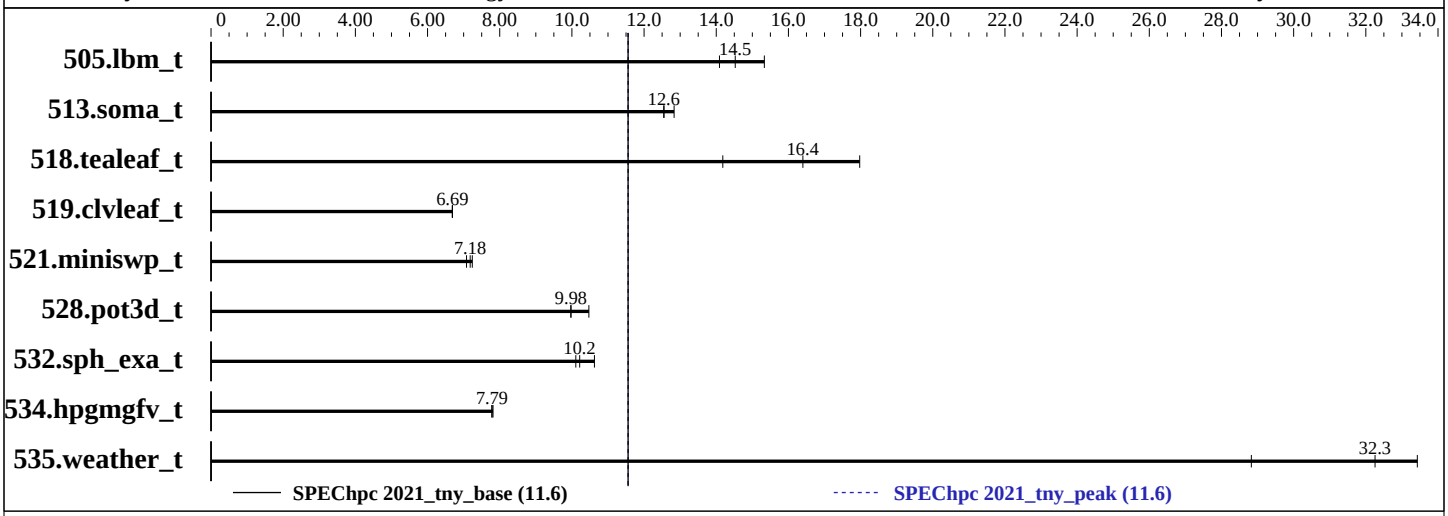
ThinkSystem SR665 V3 (AMD EPYC 9684X, 2.55 GHz)

SPEChpc 2021_tny_base = 11.6

SPEChpc 2021_tny_peak = 11.6

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	MPI	192	1	160	14.1	**155**	**14.5**	147	15.3	MPI	192	1	160	14.1	**155**	**14.5**	147	15.3
513.soma_t	MPI	192	1	**295**	**12.6**	295	12.5	288	12.8	MPI	192	1	**295**	**12.6**	295	12.5	288	12.8
518.tealeaf_t	MPI	192	1	116	14.2	91.8	18.0	**101**	**16.4**	MPI	192	1	116	14.2	91.8	18.0	**101**	**16.4**
519.clvleaf_t	MPI	192	1	247	6.69	**247**	**6.69**	247	6.69	MPI	192	1	247	6.69	**247**	**6.69**	247	6.69
521.miniswp_t	MPI	192	1	226	7.08	221	7.24	**223**	**7.18**	MPI	192	1	226	7.08	221	7.24	**223**	**7.18**
528.pot3d_t	MPI	192	1	213	9.97	203	10.5	**213**	**9.98**	MPI	192	1	213	9.97	203	10.5	**213**	**9.98**
532.sph_exa_t	MPI	192	1	193	10.1	**191**	**10.2**	184	10.6	MPI	192	1	193	10.1	**191**	**10.2**	184	10.6
534.hpgmgfv_t	MPI	192	1	151	7.78	**151**	**7.79**	150	7.81	MPI	192	1	151	7.78	**151**	**7.79**	150	7.81
535.weather_t	MPI	192	1	112	28.8	**100**	**32.3**	96.5	33.4	MPI	192	1	112	28.8	**100**	**32.3**	96.5	33.4

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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: Dec-2023

Hardware Summary

Type of System:	SMP
Compute Node:	ThinkSystem SR665 V3
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 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:	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 9684X
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:	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

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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

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
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
```

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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++
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 -ansi-alias

C++ benchmarks:
-Ofast -march=core-avx2 -ipo -ansi-alias

Fortran benchmarks:
-Ofast -march=core-avx2 -ipo -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`

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`

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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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