# SPEChpc™ 2021 Tiny Result

**Lenovo Global Technology**  
ThinkSystem SR665 V3 (AMD EPYC 9654)

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base</th>
<th>Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>505.lbm_t</td>
<td>125 18.0</td>
<td>125 18.0</td>
</tr>
<tr>
<td>513.soma_t</td>
<td>262 14.1</td>
<td>262 14.1</td>
</tr>
<tr>
<td>518.tealeaf_t</td>
<td>198 8.32</td>
<td>198 8.32</td>
</tr>
<tr>
<td>519.clvleaf_t</td>
<td>235 7.03</td>
<td>235 7.03</td>
</tr>
<tr>
<td>521.miniswp_t</td>
<td>201 7.96</td>
<td>201 7.96</td>
</tr>
<tr>
<td>528.pot3d_t</td>
<td>283 7.52</td>
<td>283 7.52</td>
</tr>
<tr>
<td>532.sph_exa_t</td>
<td>168 11.6</td>
<td>168 11.6</td>
</tr>
<tr>
<td>534.hpgmgfv_t</td>
<td>159 7.38</td>
<td>159 7.38</td>
</tr>
<tr>
<td>535.weather_t</td>
<td>71.1 45.3</td>
<td>71.1 45.3</td>
</tr>
</tbody>
</table>

**SPEChpc 2021_tny_base = 11.5**  
**SPEChpc 2021_tny_peak = 11.5**

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.
## Hardware Summary

<table>
<thead>
<tr>
<th>Type of System:</th>
<th>Homogenous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compute Node:</td>
<td>ThinkSystem SR665 V3</td>
</tr>
<tr>
<td>Interconnect:</td>
<td></td>
</tr>
<tr>
<td>Compute Nodes Used:</td>
<td>1</td>
</tr>
<tr>
<td>Total Chips:</td>
<td>2</td>
</tr>
<tr>
<td>Total Cores:</td>
<td>192</td>
</tr>
<tr>
<td>Total Threads:</td>
<td>384</td>
</tr>
<tr>
<td>Total Memory:</td>
<td>768 GB</td>
</tr>
<tr>
<td>Max. Peak Threads:</td>
<td>1</td>
</tr>
</tbody>
</table>

## 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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SPEChpc 2021_tny_base = 11.5
SPEChpc 2021_tny_peak = 11.5

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

Node Description: ThinkSystem SR665 V3

Hardware (Continued)
Interconnect Type: -

Interconnect Description: -

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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$\textbf{SPEChpc}^{\text{TM}} \, 2021 \, \text{Tiny Result}$

\begin{center}

\textbf{Lenovo Global Technology}

\textbf{ThinkSystem SR665 V3 (AMD EPYC 9654)}

\textbf{SPEChpc 2021\textunderscore tny\_base} = 11.5

\textbf{SPEChpc 2021\textunderscore tny\_peak} = 11.5

\begin{tabular}{|l|l|}
\hline
\textbf{hpc2021 License:} & 28 \\
\textbf{Test Sponsor:} & Lenovo Global Technology \\
\textbf{Tested by:} & Lenovo Global Technology \\
\hline
\end{tabular}

\textbf{Test Date:} Oct-2022

\textbf{Hardware Availability:} Nov-2022

\textbf{Software Availability:} Nov-2022

\textbf{Compiler Version Notes (Continued)}

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]

--------------------------------------------------------------------------------

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]

--------------------------------------------------------------------------------

\textbf{Base Compiler Invocation}

\begin{itemize}
    \item C benchmarks: mpiicc -cc=icx
    \item C++ benchmarks: mpiicpc -cxx=icx
    \item Fortran benchmarks: mpiifort -fc=ifx
\end{itemize}

\textbf{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.hpgmfgv\_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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SPEChpc 2021 tny_base = 11.5
SPEChpc 2021 tny_peak = 11.5

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

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

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For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.