



# SPEChpc™ 2021 Tiny Result

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## Cisco Systems

SPEChpc 2021\_tny\_base = 6.39

## Cisco UCS C245 M8 (AMD EPYC 9754)

SPEChpc 2021\_tny\_peak = Not Run

hpc2021 License: 9019

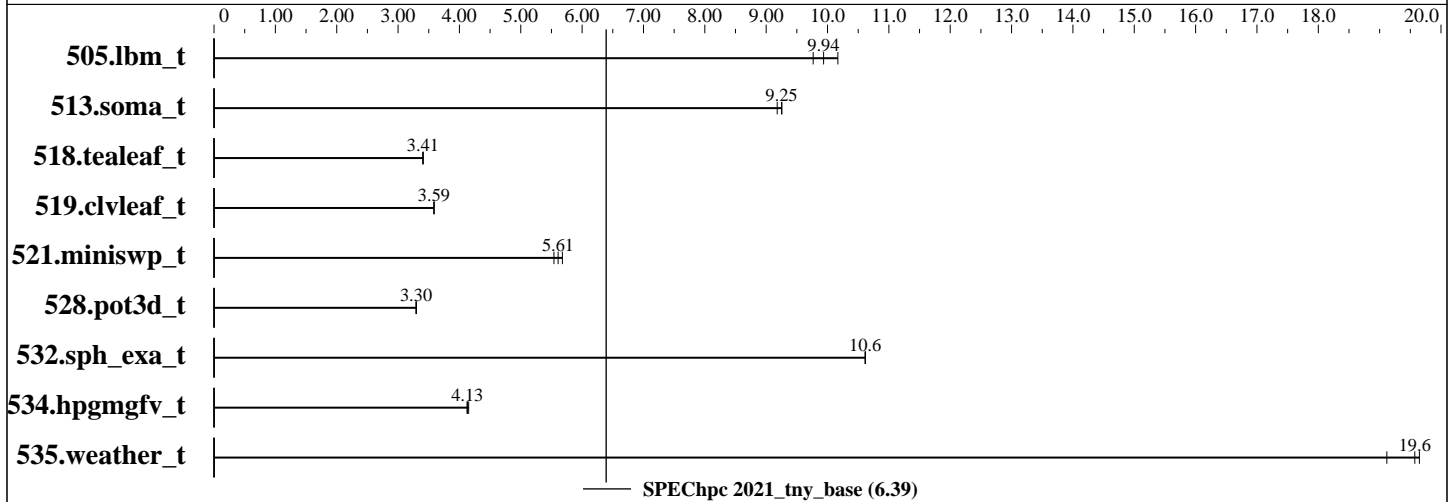
Test Date: May-2024

Test Sponsor: Cisco Systems

Hardware Availability: Jun-2024

Tested by: Cisco Systems

Software Availability: Feb-2024



## 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	128	1	221	10.2	<u>226</u>	<u>9.94</u>	230	9.77										
513.soma_t	MPI	128	1	<b>400</b>	<b>9.25</b>	400	9.26	403	9.18										
518.tealeaf_t	MPI	128	1	<b>484</b>	<b>3.41</b>	485	3.40	484	3.41										
519.clvleaf_t	MPI	128	1	<b>460</b>	<b>3.59</b>	460	3.59	460	3.59										
521.miniswp_t	MPI	128	1	282	5.68	<b>285</b>	<b>5.61</b>	289	5.54										
528.pot3d_t	MPI	128	1	<b>645</b>	<b>3.30</b>	645	3.29	645	3.30										
532.sph_exa_t	MPI	128	1	<b>184</b>	<b>10.6</b>	184	10.6	184	10.6										
534.hpgmgfv_t	MPI	128	1	<b>284</b>	<b>4.13</b>	283	4.15	285	4.12										
535.weather_t	MPI	128	1	164	19.6	169	19.1	<b>165</b>	<b>19.6</b>										

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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: Cisco UCS C245 M8  
Compute Nodes Used: 1  
Total Chips: 1  
Total Cores: 128  
Total Threads: 256  
Total Memory: 768 GB  
Max. Peak Threads: --

### Software Summary

Compiler: Intel oneAPI DPC++/C++ Compiler 2024.0.2  
MPI Library: Intel MPI Library for Linux OS, Build 20231005  
Other MPI Info: None  
Other Software: None  
Base Parallel Model: MPI  
Base Ranks Run: 128  
Base Threads Run: 1  
Peak Parallel Models: Not Run  
Minimum Peak Ranks: --  
Maximum Peak Ranks: --  
Max. Peak Threads: --  
Min. Peak Threads: --

## Node Description: Cisco UCS C245 M8

### Hardware

Number of nodes: 1  
Uses of the node: compute  
Vendor: Cisco Systems  
Model: Cisco UCS C245 M8  
CPU Name: AMD EPYC 9754  
CPU(s) orderable: 1,2 chips  
Chips enabled: 1  
Cores enabled: 128  
Cores per chip: 128  
Threads per core: 2  
CPU Characteristics: Max. Boost Clock upto 3.1GHz  
CPU MHz: 2250  
Primary Cache: 32 KB I + 32 KB D on chip per core  
Secondary Cache: 1 MB I+D on chip per core  
L3 Cache: 256 MB I+D on chip per chip  
16 MB shared / 8 cores  
Other Cache: None  
Memory: 768 GB (12 x 64 GB 2Rx4 PC5-5600B-R, running at 4800 MHz)  
Disk Subsystem: 1 x 960 GB NVMe SSD  
Other Hardware: None  
Accel Count: 0  
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

### Software

Accelerator Driver: --  
Adapter: None  
Adapter Driver: None  
Adapter Firmware: None  
Operating System: SUSE Linux Enterprise Server 15 SP5  
Kernel 5.14.21-150500.53-default  
Local File System: xfs  
Shared File System: None  
System State: Multi-user, run level 3  
Other Software: None

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### Node Description: Cisco UCS C245 M8

#### Hardware (Continued)

Ports Used: 0  
Interconnect Type: None

### Submit Notes

The config file option 'submit' was used.  
mpirun --bind-to core:overload-allowed --oversubscribe --mca topo basic -np \$ranks \$command

### General Notes

MPI startup command:  
mpirun command was used to start MPI jobs.

### Compiler Version Notes

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

Intel(R) oneAPI DPC++/C++ Compiler 2024.0.2 (2024.0.2.20231213)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /home/intel\_tools/compiler/compiler/2024.0/bin/compiler  
Configuration file:  
/home/intel\_tools/compiler/compiler/2024.0/bin/compiler/./icpx.cfg  
=====

=====  
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 2024.0.2 (2024.0.2.20231213)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /home/intel\_tools/compiler/compiler/2024.0/bin/compiler  
Configuration file:  
/home/intel\_tools/compiler/compiler/2024.0/bin/compiler/./icx.cfg  
=====

=====  
FC 519.clvleaf\_t(base) 535.weather\_t(base)  
=====

ifx (IFX) 2024.0.2 20231213  
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## Compiler Version Notes (Continued)

FC 528.pot3d\_t(base)

ifx: command line warning #10157: ignoring option '-W'; argument is of wrong type

ifx (IFX) 2024.0.2 20231213

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## Base Compiler Invocation

C benchmarks:

mpiicc -cc=icx

C++ benchmarks:

mpicpc -cxx=icpx

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.cvlleaf\_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 -ipo -mprefer-vector-width=512 -march=common-avx512

-ansi-alias

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## Base Optimization Flags (Continued)

C++ benchmarks:

-Ofast -ipo -mprefer-vector-width=512 -march=common-avx512  
-ansi-alias

Fortran benchmarks:

-Ofast -ipo -mprefer-vector-width=512 -march=common-avx512  
-nostandard-realloc-lhs -align array64byte

## Base Other Flags

Fortran benchmarks:

528.pot3d\_t: -Wno-incompatible-function-pointer-types

The flags file that was used to format this result can be browsed at

[http://www.spec.org/hpc2021/flags/Intel\\_compiler\\_flags\\_hpc.2024.html](http://www.spec.org/hpc2021/flags/Intel_compiler_flags_hpc.2024.html)

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

[http://www.spec.org/hpc2021/flags/Intel\\_compiler\\_flags\\_hpc.2024.xml](http://www.spec.org/hpc2021/flags/Intel_compiler_flags_hpc.2024.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 v1.1.8 on 2024-05-09 17:22:20-0400.

Report generated on 2024-05-29 12:43:17 by hpc2021 PDF formatter v1.0.3.

Originally published on 2024-05-29.