



# SPEChpc™ 2021 Tiny Result

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## Cisco Systems

SPEChpc 2021\_tny\_base = 9.00

Cisco UCS X210c M7 (Intel Xeon Platinum 8490H)

SPEChpc 2021\_tny\_peak = Not Run

hpc2021 License: 9019

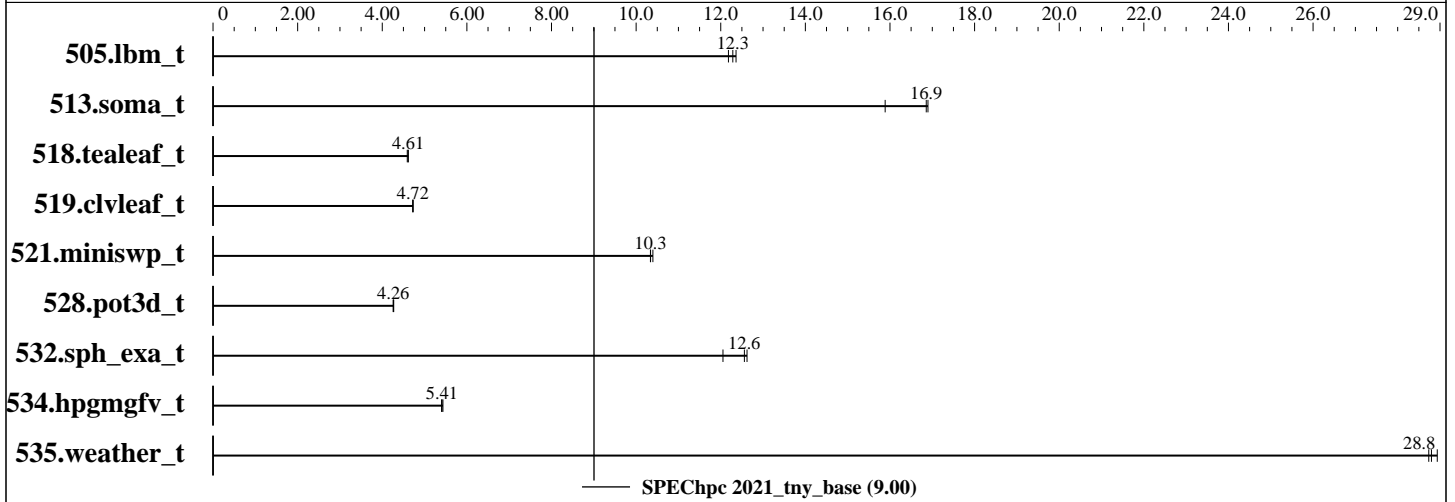
Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Dec-2022

Hardware Availability: Mar-2023

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	OMP	16	15	182	12.4	185	12.2	<b>183</b>	<b>12.3</b>									
513.soma_t	OMP	16	15	<b>219</b>	<b>16.9</b>	233	15.9	219	16.9									
518.tealeaf_t	OMP	16	15	359	4.59	<b>358</b>	<b>4.61</b>	358	4.61									
519.clvleaf_t	OMP	16	15	349	4.73	349	4.72	<b>349</b>	<b>4.72</b>									
521.miniswp_t	OMP	16	15	155	10.3	<b>155</b>	<b>10.3</b>	154	10.4									
528.pot3d_t	OMP	16	15	499	4.26	<b>499</b>	<b>4.26</b>	498	4.27									
532.sph_exa_t	OMP	16	15	162	12.1	154	12.6	<b>155</b>	<b>12.6</b>									
534.hpgmgfv_t	OMP	16	15	216	5.43	<b>217</b>	<b>5.41</b>	218	5.40									
535.weather_t	OMP	16	15	<b>112</b>	<b>28.8</b>	112	28.7	111	28.9									

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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 X210c M7  
 Interconnect: N/A  
 Compute Nodes Used: 1  
 Total Chips: 2  
 Total Cores: 120  
 Total Threads: 240  
 Total Memory: 1 TB  
 Max. Peak Threads: --

### Software Summary

Compiler: Intel oneAPI Compiler 2022.2.1  
 MPI Library: Intel MPI Library for Linux\* OS, Version 2022.2.1 Build 20221020  
 Other MPI Info: --  
 Other Software: --  
 Base Parallel Model: OMP  
 Base Ranks Run: 16  
 Base Threads Run: 15  
 Peak Parallel Models: Not Run  
 Minimum Peak Ranks: --  
 Maximum Peak Ranks: --  
 Max. Peak Threads: --  
 Min. Peak Threads: --

## Node Description: Cisco UCS X210c M7

### Hardware

Number of nodes: 1  
 Uses of the node: Compute  
 Vendor: Cisco Systems  
 Model: Cisco UCS X210c M7  
 CPU Name: Intel Xeon Platinum 8490H  
 CPU(s) orderable: 1, 2 chips  
 Chips enabled: 2  
 Cores enabled: 120  
 Cores per chip: 60  
 Threads per core: 2  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.5 GHz  
 CPU MHz: 1900  
 Primary Cache: 32 KB I + 48 KB D on chip per core  
 Secondary Cache: 2 MB I+D on chip per core  
 L3 Cache: 112.5 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 1 TB (16 x 64 GB 2Rx4 PC5-4800B-R)  
 Disk Subsystem: 1 x 960 GB M.2 SSD SATA  
 Other Hardware: None  
 Accel Count: --  
 Accel Model: --  
 Accel Vendor: --  
 Accel Type: --  
 Accel Connection: --  
 Accel ECC enabled: --  
 Accel Description: --  
 Adapter: None  
 Number of Adapters: 0  
 Slot Type: None  
 Data Rate: None  
 Ports Used: 0

### Software

Accelerator Driver: --  
 Adapter: None  
 Adapter Driver: None  
 Adapter Firmware: None  
 Operating System: SUSE Linux Enterprise Server 15 SP4 , 5.14.21-150400.22-default  
 Local File System: xfs  
 Shared File System: None  
 System State: Multi-user, run level 3  
 Other Software: None

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**Software Availability:** Nov-2022

## Node Description: Cisco UCS X210c M7

### Hardware (Continued)

Interconnect Type: None

## Interconnect Description: N/A

### Hardware

Vendor: N/A  
Model: N/A  
Switch Model: None  
Number of Switches: 0  
Number of Ports: 0  
Data Rate: N/A  
Firmware: N/A  
Topology: N/A  
Primary Use: N/A

### Software

: --

## Submit Notes

The config file option 'submit' was used.

```
export LD_PRELOAD="/usr/lib64/libhugetlbfs.so $LD_PRELOAD"
```

```
export OMP_PROC_BIND=true
```

```
mpiexec.hydra -bootstrap ssh -hostfile /home/hpc2021/1node --bind-to core -np $ranks -ppn $ppn -genv OMP_NUM_THREADS=$threads $command
```

## Compiler Version Notes

```
=====
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 2022.2.1 (2022.2.1.20221020)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /home/tools-intel/compiler/compiler/2022.2.1/linux/bin-llvm
Configuration file:
/home/tools-intel/compiler/compiler/2022.2.1/linux/bin/icx.cfg
=====
```

```
=====
CXXC 532.sph_exa_t(base)
=====
```

```
Intel(R) oneAPI DPC++/C++ Compiler 2022.2.1 (2022.2.1.20221020)
Target: x86_64-unknown-linux-gnu
Thread model: posix
```

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### Compiler Version Notes (Continued)

InstalledDir: /home/tools-intel/compiler/compiler/2022.2.1/linux/bin-llvm  
Configuration file:  
/home/tools-intel/compiler/compiler/2022.2.1/linux/bin/icx.cfg

FC 519.clvleaf\_t(base) 528.pot3d\_t(base) 535.weather\_t(base)

ifx (IFORT) 2022.2.1 20221020  
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### Base Compiler Invocation

C benchmarks:

mpiicc -cc=icx -lstdc++(\*)

C++ benchmarks:

mpicpc -cxx=icx -lstdc++(\*)

Fortran benchmarks:

mpiifort -fc=ifx -lstdc++(\*)

(\*) Indicates a compiler flag that was found in a non-compiler variable.

### Base Portability Flags

513.soma\_t: -DSPEC\_NO\_VAR\_ARRAY\_REDUCE

### Base Optimization Flags

C benchmarks:

-Ofast -ipo -xCORE-AVX512 -mprefer-vector-width=512 -fiopenmp  
-ansi-alias

C++ benchmarks:

-Ofast -ipo -xCORE-AVX512 -mprefer-vector-width=512 -fiopenmp  
-ansi-alias

Fortran benchmarks:

-Ofast -ipo -xCORE-AVX512 -mprefer-vector-width=512 -fiopenmp

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## Base Optimization Flags (Continued)

Fortran benchmarks (continued):  
-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

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

<http://www.spec.org/hpc2021/flags/Intel-oneAPI-icx2021-official-linux64.html>

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

<http://www.spec.org/hpc2021/flags/Intel-oneAPI-icx2021-official-linux64.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 2022-12-12 17:50:02-0500.  
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