

# SPEChpc™ 2021 Tiny Result

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**Cray**

(Test Sponsor: University of Bristol)

SPEChpc 2021\_tny\_base = 7.50

**Isambard 2: XC50 (ThunderX2)**

SPEChpc 2021\_tny\_peak = Not Run

**hpc2021 License:** ?

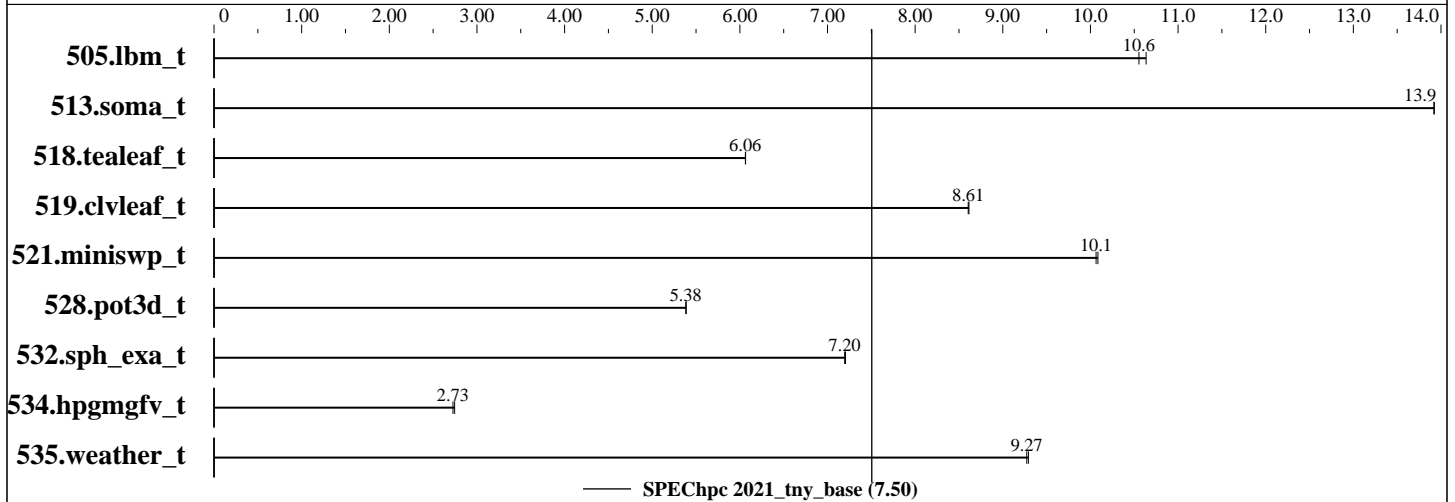
**Test Sponsor:** University of Bristol

**Tested by:** University of Bristol

**Test Date:** Jul-2022

**Hardware Availability:** May-2018

**Software Availability:** Mar-2020



## Results Table

Benchmark	Base								Peak							
	Model	Ranks	Thrds/Rnk	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Model	Ranks	Thrds/Rnk	Seconds	Ratio	Seconds	Ratio
505.lbm_t	OMP	8	64	212	10.6	<b>213</b>	<b>10.6</b>									
513.soma_t	OMP	8	64	<b>266</b>	<b>13.9</b>	266	13.9									
518.tealeaf_t	OMP	8	64	<b>272</b>	<b>6.06</b>	272	6.07									
519.clvleaf_t	OMP	8	64	<b>192</b>	<b>8.61</b>	192	8.61									
521.miniswp_t	OMP	8	64	159	10.1	<b>159</b>	<b>10.1</b>									
528.pot3d_t	OMP	8	64	394	5.39	<b>395</b>	<b>5.38</b>									
532.sph_exa_t	OMP	8	64	271	7.21	<b>271</b>	<b>7.20</b>									
534.hpgmgfv_t	OMP	8	64	428	2.75	<b>431</b>	<b>2.73</b>									
535.weather_t	OMP	8	64	347	9.29	<b>348</b>	<b>9.27</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 Cluster  
Compute Node: ThunderX2  
Interconnect: Cray Aries  
Compute Nodes Used: 8  
Total Chips: 16  
Total Cores: 512  
Total Threads: 2048  
Total Memory: 2 TB  
Max. Peak Threads: --

## Software Summary

Compiler: HPE Cray Programming Environment (CPE),  
C/C++/Fortran: GCC Version 9.3.0  
MPI Library: HPE Cray Programming Environment (CPE),  
Cray-mvapich2 Version 2.3.6  
Other MPI Info: --  
Other Software: --  
Base Parallel Model: OMP  
Base Ranks Run: 8  
Base Threads Run: 64  
Peak Parallel Models: Not Run  
Minimum Peak Ranks: --  
Maximum Peak Ranks: --  
Max. Peak Threads: --  
Min. Peak Threads: --

## Node Description: ThunderX2

### Hardware

Number of nodes: 8  
Uses of the node: Compute  
Vendor: N/A  
Model: N/A  
CPU Name: Marvell ThunderX2 CN9980  
CPU(s) orderable: N/A  
Chips enabled: 2  
Cores enabled: 64  
Cores per chip: 32  
Threads per core: 4  
CPU Characteristics: Permanent turbo to 2.5 GHz  
CPU MHz: 2100  
Primary Cache: 32 KB I + 32 KB D on chip per core  
Secondary Cache: 256 KB I+D on chip per core  
L3 Cache: 32 MB I+D on chip per chip  
0.5 MB shared / 64 cores  
Other Cache: None  
Memory: 256 GB (8 x 32 GB)  
Disk Subsystem: --  
Other Hardware: None  
Accel Count: N/A  
Accel Model: N/A  
Accel Vendor: N/A  
Accel Type: N/A  
Accel Connection: N/A  
Accel ECC enabled: N/A  
Accel Description: N/A  
Adapter: None  
Number of Adapters: 0  
Slot Type: None

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### Software

Accelerator Driver: --  
Adapter: None  
Adapter Driver: None  
Adapter Firmware: None  
Operating System: SUSE Linux Enterprise Server 15 SP1  
Linux 4.12.14-197.7\_5.0.99-cray\_ari\_s  
Local File System: xfs  
Shared File System: None  
System State: Multi-user, run level 3  
Other Software: None

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## Node Description: ThunderX2

### Hardware (Continued)

Data Rate: None  
Ports Used: 0  
Interconnect Type: None

## Interconnect Description: Cray Aries

### Hardware

Vendor: Cray  
Model: N/A  
Switch Model: N/A  
Number of Switches: N/A  
Number of Ports: N/A  
Data Rate: 14 Gb/s  
Firmware: N/A  
Topology: Dragonfly  
Primary Use: MPI Traffic

### Software

: --

## 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)
=====
```

```
GNU Fortran (GCC) 9.3.0 20200312 (Cray Inc.)
Copyright (C) 2019 Free Software Foundation, Inc.
This is free software; see the source for copying conditions. There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
=====
```

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

```
g++ (GCC) 9.3.0 20200312 (Cray Inc.)
Copyright (C) 2019 Free Software Foundation, Inc.
This is free software; see the source for copying conditions. There is NO
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=====
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## Compiler Version Notes (Continued)

```
=====
CC 505.lbm_t(base) 513.soma_t(base) 518.tealeaf_t(base) 521.miniswp_t(base)
   534.hpgmgfv_t(base)
=====
```

```
gcc (GCC) 9.3.0 20200312 (Cray Inc.)
Copyright (C) 2019 Free Software Foundation, Inc.
This is free software; see the source for copying conditions. There is NO
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=====
```

## Base Compiler Invocation

C benchmarks:

cc

C++ benchmarks:

CC

Fortran benchmarks:

ftn

## Base Optimization Flags

C benchmarks:

-Ofast -fopenmp

C++ benchmarks:

-Ofast -fopenmp

Fortran benchmarks:

-Ofast -fopenmp

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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 v1.0.3 on 2022-07-04 12:56:56+0000.

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