



# SPEChpc™ 2021 Tiny Result

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## Transtec

(Test Sponsor: Helmholtz-Zentrum Dresden - Rossendorf)

SPEChpc 2021\_tny\_base = 2.03

SPEChpc 2021\_tny\_peak = Not Run

Hemera: Intel Server Board S2600BPB (Intel Xeon Gold 6148)

hpc2021 License: 065A

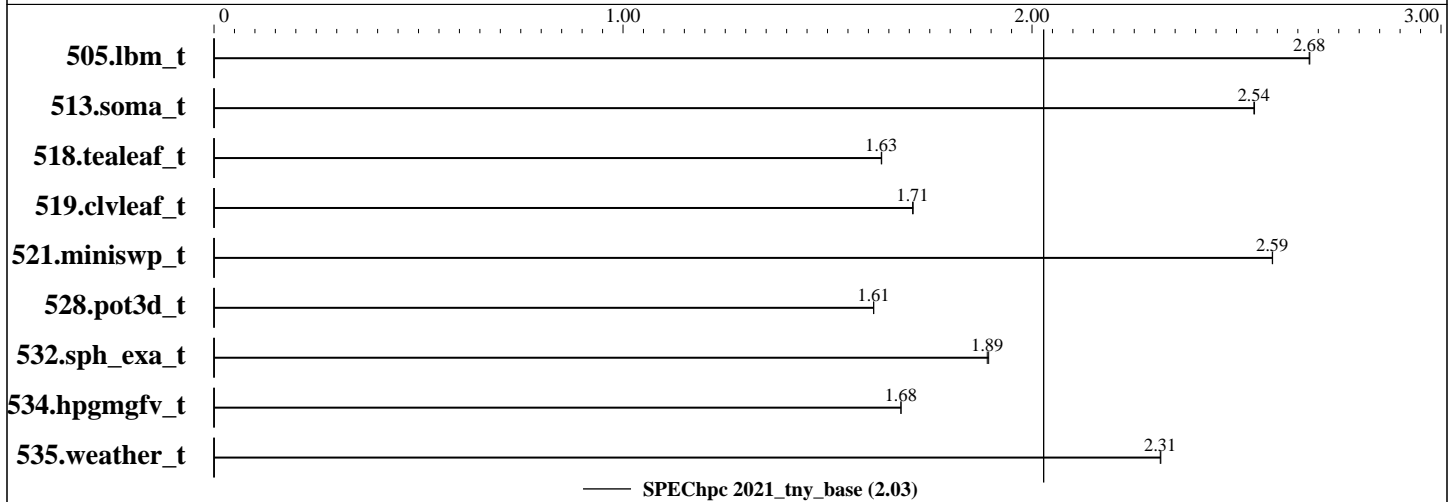
Test Sponsor: Helmholtz-Zentrum Dresden - Rossendorf

Tested by: Helmholtz-Zentrum Dresden - Rossendorf

Test Date: Sep-2021

Hardware Availability: Jul-2017

Software Availability: Jul-2021



## 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	2	40	840	2.68	<b>840</b>	<b>2.68</b>											
513.soma_t	OMP	2	40	<b>1455</b>	<b>2.54</b>	1454	2.54											
518.tealeaf_t	OMP	2	40	<b>1011</b>	<b>1.63</b>	1011	1.63											
519.clvleaf_t	OMP	2	40	965	1.71	<b>966</b>	<b>1.71</b>											
521.miniswp_t	OMP	2	40	<b>618</b>	<b>2.59</b>	618	2.59											
528.pot3d_t	OMP	2	40	1317	1.61	<b>1318</b>	<b>1.61</b>											
532.sph_exa_t	OMP	2	40	<b>1031</b>	<b>1.89</b>	1030	1.89											
534.hpgmgfv_t	OMP	2	40	699	1.68	<b>700</b>	<b>1.68</b>											
535.weather_t	OMP	2	40	<b>1394</b>	<b>2.31</b>	1393	2.31											

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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: Compute Node  
Interconnect: Infiniband (EDR)  
Compute Nodes Used: 1  
Total Chips: 2  
Total Cores: 40  
Total Threads: 80  
Total Memory: 384 GB  
Max. Peak Threads: --

## Software Summary

Compiler: C/C++/Fortran: Version 11.2 of GNU Compilers  
MPI Library: OpenMPI Version 4.0.4  
Other MPI Info: None  
Other Software: None  
Base Parallel Model: OMP  
Base Ranks Run: 2  
Base Threads Run: 40  
Peak Parallel Models: Not Run  
Minimum Peak Ranks: --  
Maximum Peak Ranks: --  
Max. Peak Threads: --  
Min. Peak Threads: --

## Node Description: Compute Node

### Hardware

Number of nodes: 1  
Uses of the node: compute  
Vendor: Intel  
Model: Intel Server Board S2600BPB  
CPU Name: Intel Xeon Gold 6148  
CPU(s) orderable: 1 or 2 per node  
Chips enabled: 2  
Cores enabled: 40  
Cores per chip: 20  
Threads per core: 2  
CPU Characteristics: Intel Turbo Boost Technology 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: 28160 KB I+D on chip per chip  
Other Cache: None  
Memory: 384 GB (12 x 32GB 2Rx4 PC4-2666V-RB2-12)  
Disk Subsystem: 1 x 500 GB SSD  
Other Hardware: None  
Accel Count: 0  
Accel Model: --  
Accel Vendor: --  
Accel Type: --  
Accel Connection: --  
Accel ECC enabled: --  
Accel Description: --  
Adapter: Mellanox MT4115  
Number of Adapters: 2  
Slot Type: PCI-Express 3.0 x16  
Data Rate: 100 Gb/s  
Ports Used: 2

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### Software

Accelerator Driver: --  
Adapter: Mellanox MT4115  
Adapter Driver: --  
Adapter Firmware: 12.28.2006  
Operating System: CentOS Linux release 7.9.2009 (Core)  
3.10.0-1160.6.1.el7.x86\_64  
Local File System: xfs  
Shared File System: GPFS Version 5.0.5.0  
6 NSD (vendor: NEC)  
5 building blocks (vendor: NetApp):  
2x (240 x 8 TB HDD)  
1x (180 x 12 TB HDD)  
1x (240 x 16 TB HDD)  
1x (120 x 16 TB HDD)  
System State: Multi-user, run level 3  
Other Software: None



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## Node Description: Compute Node

### Hardware (Continued)

Interconnect Type: EDR Infiniband

## Interconnect Description: Infiniband (EDR)

### Hardware

Vendor: Mellanox Technologies  
Model: Mellanox SB7790  
Switch Model: 36 x EDR 100 Gb/s  
Number of Switches: 2  
Number of Ports: 36  
Data Rate: 100 Gb/s  
Firmware: --  
Topology: Mesh (blocking factor: 8:1)  
Primary Use: MPI Traffic, GPFS

### Software

: --

## Submit Notes

The config file option 'submit' was used.

MPI startup command:

```
mpirun --bind-to socket -npsocket 1 -np $ranks $command
```

## General Notes

This benchmark result is intended to provide perspective on past performance using the historical hardware and/or software described on this result page.

The system as described on this result page was formerly generally available. At the time of this publication, it may not be shipping, and/or may not be supported, and/or may fail to meet other tests of General Availability described in the SPEC HPG Policy document, <http://www.spec.org/hpg/policy.html>

This measured result may not be representative of the result that would be measured were this benchmark run with hardware and software available as of the publication date.

## Compiler Version Notes

```
=====
FC 519.clvleaf_t(base) 528.pot3d_t(base) 535.weather_t(base)
```

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## Compiler Version Notes (Continued)

-----  
GNU Fortran (GCC) 11.2.0

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

-----  
g++ (GCC) 11.2.0

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=====  
CC 505.lbm\_t(base) 513.soma\_t(base) 518.tealeaf\_t(base) 521.miniswp\_t(base)  
534.hpgmgfv\_t(base)

-----  
gcc (GCC) 11.2.0

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## Base Compiler Invocation

C benchmarks:

mpicc

C++ benchmarks:

mpicxx

Fortran benchmarks:

mpif90

## Base Optimization Flags

C benchmarks:

-fopenmp -Ofast -march=native

C++ benchmarks:

-fopenmp -Ofast -march=native -std=c++14

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## Base Optimization Flags (Continued)

Fortran benchmarks:

```
-fopenmp -Ofast -march=native -ffree-line-length-none  
-fno-stack-protector
```

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

<http://www.spec.org/hpc2021/flags/gcc.2021-10-28.html>

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

<http://www.spec.org/hpc2021/flags/gcc.2021-10-28.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).

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