



# SPEChpc™ 2021 Tiny Result

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## Transtec

(Test Sponsor: Helmholtz-Zentrum Dresden - Rossendorf)

SPEChpc 2021\_tny\_base = 2.25

SPEChpc 2021\_tny\_peak = Not Run

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

hpc2021 License: 065A

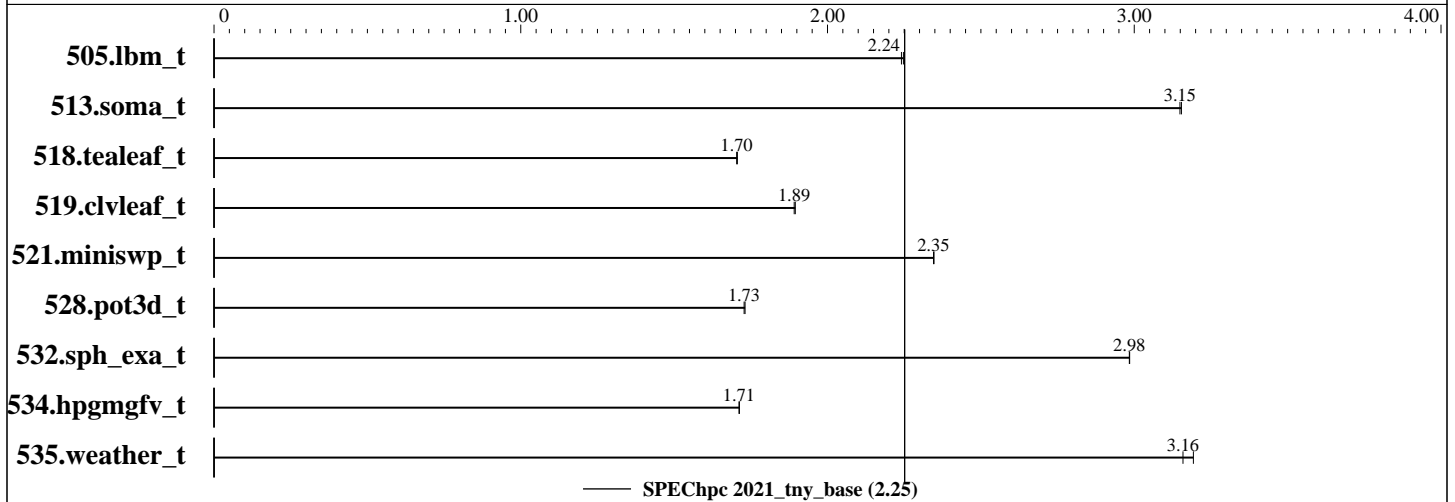
Test Sponsor: Helmholtz-Zentrum Dresden - Rossendorf

Tested by: Helmholtz-Zentrum Dresden - Rossendorf

Test Date: Sep-2021

Hardware Availability: Jul-2017

Software Availability: Oct-2020



## 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	40	2	1001	2.25	<b><u>1004</u></b>	<b><u>2.24</u></b>												
513.soma_t	MPI	40	2	<b><u>1175</u></b>	<b><u>3.15</u></b>	1173	3.15												
518.tealeaf_t	MPI	40	2	967	1.71	<b><u>968</u></b>	<b><u>1.70</u></b>												
519.clvleaf_t	MPI	40	2	871	1.90	<b><u>872</u></b>	<b><u>1.89</u></b>												
521.miniswp_t	MPI	40	2	682	2.35	<b><u>682</u></b>	<b><u>2.35</u></b>												
528.pot3d_t	MPI	40	2	<b><u>1230</u></b>	<b><u>1.73</u></b>	1227	1.73												
532.sph_exa_t	MPI	40	2	653	2.98	<b><u>653</u></b>	<b><u>2.98</u></b>												
534.hpgmgfv_t	MPI	40	2	<b><u>687</u></b>	<b><u>1.71</u></b>	686	1.71												
535.weather_t	MPI	40	2	<b><u>1021</u></b>	<b><u>3.16</u></b>	1010	3.19												

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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: Intel Parallel Studio XE 2020  
MPI Library: --  
Other MPI Info: --  
Other Software: None  
Base Parallel Model: MPI  
Base Ranks Run: 40  
Base Threads Run: 2  
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  
Interconnect Type: EDR Infiniband

### 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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## Interconnect Description: Infiniband (EDR)

### Hardware

### Software

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

: --

## Submit Notes

The config file option 'submit' was used.

MPI startup command:

```
mpiexec.hydra --bind-to core -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

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

icc (ICC) 19.1.3.304 20200925

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## Compiler Version Notes (Continued)

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

icpc (ICC) 19.1.3.304 20200925  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.  
-----

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

ifort (IFORT) 19.1.3.304 20200925  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.  
-----

## Base Compiler Invocation

C benchmarks:

mpiicc

C++ benchmarks:

mpiicpc

Fortran benchmarks:

mpiifort

## Base Portability Flags

505.lbm\_t: -DSPEC\_LP64  
513.soma\_t: -DSPEC\_LP64 -DSPEC\_NO\_VAR\_ARRAY\_REDUCE  
518.tealeaf\_t: -DSPEC\_LP64  
519.clvleaf\_t: -DSPEC\_LP64  
521.miniswp\_t: -DUSE\_KBA -DUSE\_ACCELDIR -DSPEC\_LP64  
528.pot3d\_t: -DSPEC\_LP64  
532.sph\_exa\_t: -DSPEC\_USE\_LT\_IN\_KERNELS -DSPEC\_LP64  
534.hpgmgfv\_t: -DSPEC\_LP64  
535.weather\_t: -DSPEC\_LP64

## Base Optimization Flags

C benchmarks:

-Ofast -xCORE-AVX512 -ansi-alias

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## Base Optimization Flags (Continued)

C++ benchmarks:

-Ofast -xCORE-AVX512 -ansi-alias

Fortran benchmarks:

-Ofast -xCORE-AVX512

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

[http://www.spec.org/hpc2021/flags/EM64T\\_Intel\\_flags.html](http://www.spec.org/hpc2021/flags/EM64T_Intel_flags.html)

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

[http://www.spec.org/hpc2021/flags/EM64T\\_Intel\\_flags.xml](http://www.spec.org/hpc2021/flags/EM64T_Intel_flags.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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