



# SPEChpc™ 2021 Tiny Result

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## Supermicro

SPEChpc 2021\_tny\_base = 8.20

SPEChpc 2021\_tny\_peak = Not Run

SuperServer SYS-741GE-TNRT (Intel Xeon Platinum 8490H)

hpc2021 License: 6569

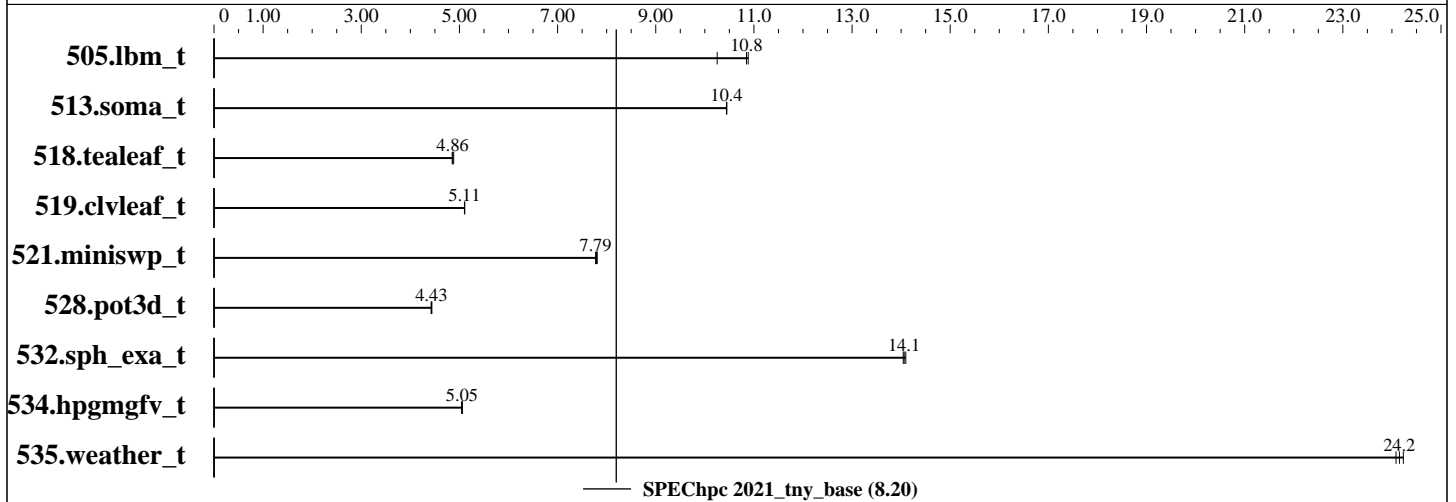
Test Sponsor: Supermicro

Tested by: Supermicro

Test Date: Dec-2022

Hardware Availability: Jan-2023

Software Availability: Dec-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	MPI	120	1	219	10.3	<b>207</b>	<b>10.8</b>	207	10.9									
513.soma_t	MPI	120	1	354	10.4	354	10.4	<b>354</b>	<b>10.4</b>									
518.tealeaf_t	MPI	120	1	340	4.85	338	4.88	<b>339</b>	<b>4.86</b>									
519.clvleaf_t	MPI	120	1	323	5.10	323	5.11	<b>323</b>	<b>5.11</b>									
521.miniswp_t	MPI	120	1	205	7.81	<b>205</b>	<b>7.79</b>	206	7.77									
528.pot3d_t	MPI	120	1	<b>480</b>	<b>4.43</b>	480	4.42	479	4.44									
532.sph_exa_t	MPI	120	1	138	14.1	<b>139</b>	<b>14.1</b>	139	14.0									
534.hpgmgfv_t	MPI	120	1	<b>232</b>	<b>5.05</b>	232	5.06	233	5.04									
535.weather_t	MPI	120	1	134	24.1	133	24.2	<b>134</b>	<b>24.2</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: SuperServer SYS-741GE-TNRT  
Interconnect: N/A  
Compute Nodes Used: 1  
Total Chips: 2  
Total Cores: 120  
Total Threads: 240  
Total Memory: 512 GB  
Max. Peak Threads: --

### Software Summary

Compiler: C/C++/Fortran: Version 2023.0.0 of Intel oneAPI Compiler  
MPI Library: Intel MPI Library for Linux\* OS, Version 2021.8.0 Build 20221129  
Other MPI Info: None  
Other Software: None  
Base Parallel Model: MPI  
Base Ranks Run: 120  
Base Threads Run: 1  
Peak Parallel Models: Not Run  
Minimum Peak Ranks: --  
Maximum Peak Ranks: --  
Max. Peak Threads: --  
Min. Peak Threads: --

### Node Description: SuperServer SYS-741GE-TNRT

#### Hardware

Number of nodes: 1  
Uses of the node: Compute  
Vendor: Supermicro  
Model: SuperServer SYS-741GE-TNRT  
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: 512 GB (16 x 32 GB 2Rx8 PC5-4800B-R)  
Disk Subsystem: 1 x 256 GB Apacer M.2 NVMe SSD  
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

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#### Software

Accelerator Driver: --  
Adapter: None  
Adapter Driver: None  
Adapter Firmware: None  
Operating System: SUSE Linux Enterprise Server 15 SP4 Kernel 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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### Node Description: SuperServer SYS-741GE-TNRT

#### Hardware (Continued)

Ports Used: 0  
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.

### General Notes

MPI startup command:  
mpirun command (mpiexec.hydra) was used to start MPI jobs.

### Compiler Version Notes

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

Intel(R) oneAPI DPC++/C++ Compiler 2023.0.0 (2023.0.0.20221201)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/intel/oneapi/compiler/2023.0.0/linux/bin-llvm  
Configuration file:  
/opt/intel/oneapi/compiler/2023.0.0/linux/bin-llvm/./bin/icpx.cfg  
-----

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

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### Compiler Version Notes (Continued)

```
Intel(R) oneAPI DPC++/C++ Compiler 2023.0.0 (2023.0.0.20221201)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/intel/oneapi/compiler/2023.0.0/linux/bin-llvm
Configuration file:
/opt/intel/oneapi/compiler/2023.0.0/linux/bin-llvm/./bin/icx.cfg
```

```
=====
FC 519.clvleaf_t(base) 535.weather_t(base)
-----
```

```
ifx (IFORT) 2023.0.0 20221201
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
-----
```

```
=====
FC 528.pot3d_t(base)
-----
```

```
ifx: command line warning #10157: ignoring option '-W'; argument is of wrong
type
ifx (IFORT) 2023.0.0 20221201
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
-----
```

### 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.clvleaf_t: -lstdc++
521.miniswp_t: -lstdc++
528.pot3d_t: -lstdc++
```

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## Base Portability Flags (Continued)

532.sph\_exa\_t: -lstdc++  
534.hpgmgfv\_t: -lstdc++  
535.weather\_t: -lstdc++

## Base Optimization Flags

C benchmarks:

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

C++ benchmarks:

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

Fortran benchmarks:

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

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

535.weather\_t: No flags used

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

[http://www.spec.org/hpc2021/flags/Intel\\_compiler\\_flags.2023-02-09.html](http://www.spec.org/hpc2021/flags/Intel_compiler_flags.2023-02-09.html)



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

[http://www.spec.org/hpc2021/flags/Intel\\_compiler\\_flags.2023-02-09.xml](http://www.spec.org/hpc2021/flags/Intel_compiler_flags.2023-02-09.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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