



# SPEChpc™ 2021 Tiny Result

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## Supermicro

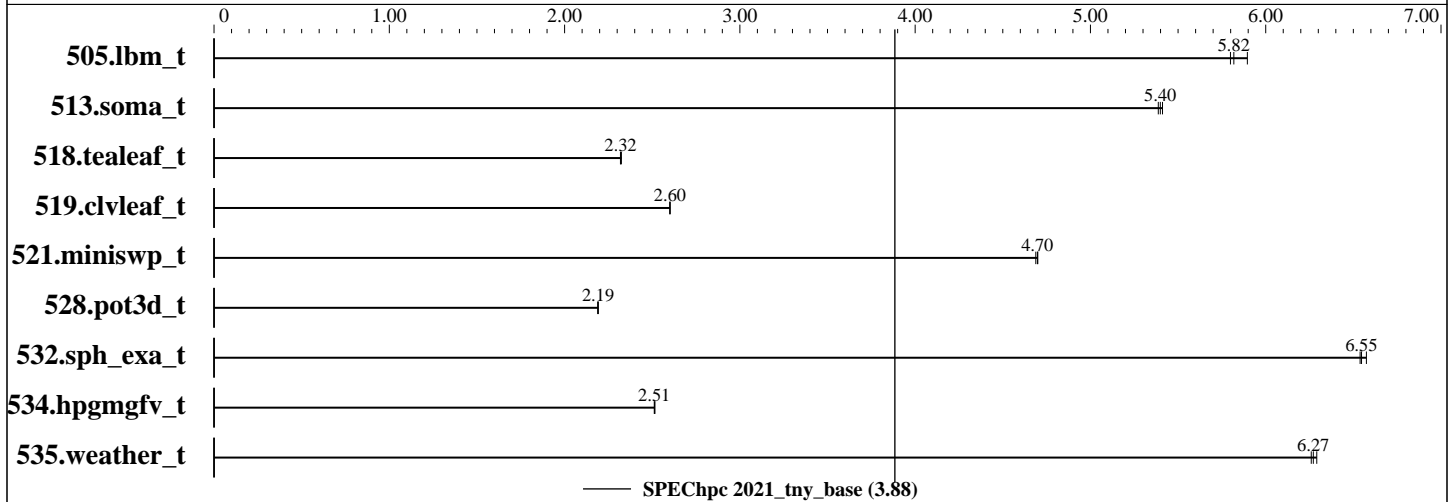
SPEChpc 2021\_tny\_base = 3.88

SuperServer SYS-521E-WR (Intel Xeon Platinum 8490H)

SPEChpc 2021\_tny\_peak = Not Run

hpc2021 License: 6569  
Test Sponsor: Supermicro  
Tested by: Supermicro

Test Date: Jan-2023  
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	60	1	<b>387</b>	<b>5.82</b>	388	5.80	382	5.90									
513.soma_t	MPI	60	1	684	5.41	<b>685</b>	<b>5.40</b>	687	5.39									
518.tealeaf_t	MPI	60	1	710	2.32	712	2.32	<b>711</b>	<b>2.32</b>									
519.clvleaf_t	MPI	60	1	634	2.60	<b>634</b>	<b>2.60</b>	635	2.60									
521.miniswp_t	MPI	60	1	<b>341</b>	<b>4.70</b>	340	4.70	341	4.69									
528.pot3d_t	MPI	60	1	970	2.19	<b>970</b>	<b>2.19</b>	971	2.19									
532.sph_exa_t	MPI	60	1	<b>298</b>	<b>6.55</b>	297	6.57	298	6.54									
534.hpgmgfv_t	MPI	60	1	467	2.52	<b>468</b>	<b>2.51</b>	468	2.51									
535.weather_t	MPI	60	1	515	6.26	513	6.29	<b>514</b>	<b>6.27</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  
Compute Node: SuperServer SYS-521E-WR  
Interconnect: N/A  
Compute Nodes Used: 1  
Total Chips: 1  
Total Cores: 60  
Total Threads: 120  
Total Memory: 256 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: 60  
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-521E-WR

### Hardware

Number of nodes: 1  
Uses of the node: Compute  
Vendor: Supermicro  
Model: SuperServer SYS-521E-WR  
CPU Name: Intel Xeon Platinum 8490H  
CPU(s) orderable: 1 chip  
Chips enabled: 1  
Cores enabled: 60  
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: 256 GB (8 x 32 GB 2Rx8 PC5-4800B-R)  
Disk Subsystem: 1 x 240 GB Micron SATA III 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-521E-WR

#### 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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