



# SPEChpc™ 2021 Small Result

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## Supermicro

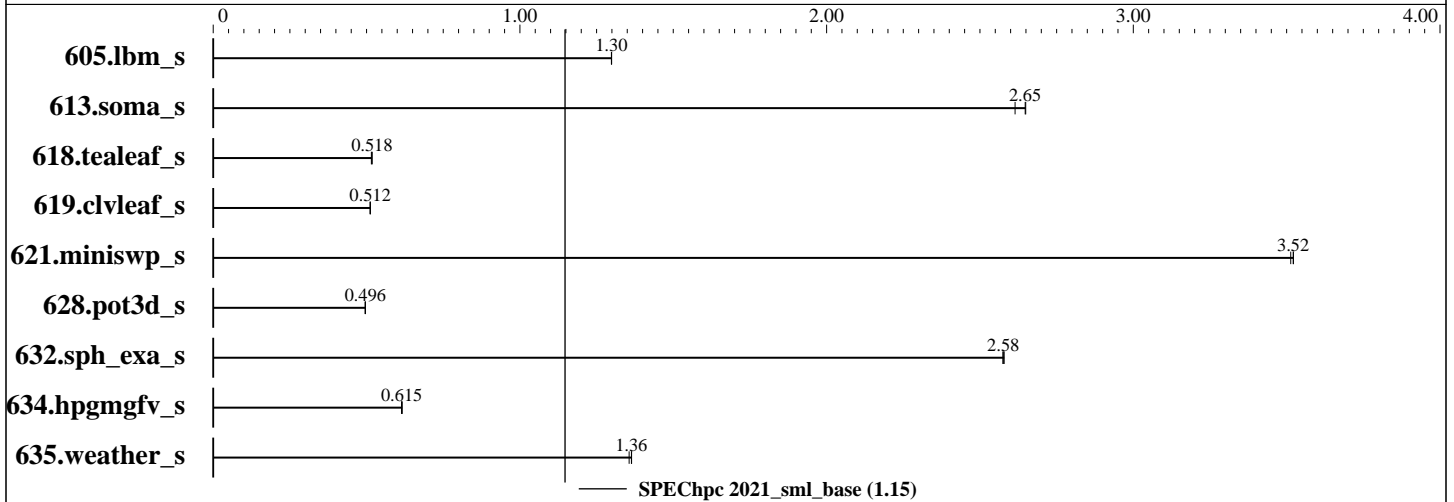
GPU SuperServer SYS-741GE-TNRT (Intel Xeon Platinum 8592+)

SPEChpc 2021\_sml\_base = 1.15

SPEChpc 2021\_sml\_peak = Not Run

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

Test Date: Dec-2023  
Hardware Availability: Dec-2023  
Software Availability: Oct-2023



## 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
605.lbm_s	OMP	4	64	1194	1.30	1193	1.30	<b>1194</b>	<b>1.30</b>									
613.soma_s	OMP	4	64	<b>604</b>	<b>2.65</b>	612	2.61	604	2.65									
618.tealeaf_s	OMP	4	64	3975	0.516	3959	0.518	<b>3959</b>	<b>0.518</b>									
619.clvleaf_s	OMP	4	64	3224	0.512	<b>3222</b>	<b>0.512</b>	3221	0.512									
621.miniswp_s	OMP	4	64	313	3.51	312	3.52	<b>312</b>	<b>3.52</b>									
628.pot3d_s	OMP	4	64	3381	0.495	<b>3375</b>	<b>0.496</b>	3375	0.496									
632.sph_exa_s	OMP	4	64	<b>893</b>	<b>2.58</b>	892	2.58	893	2.57									
634.hpgmgfv_s	OMP	4	64	1588	0.614	<b>1586</b>	<b>0.615</b>	1583	0.616									
635.weather_s	OMP	4	64	1917	1.36	1906	1.36	<b>1907</b>	<b>1.36</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: GPU SuperServer SYS-741GE-TNRT  
Interconnect: None  
Compute Nodes Used: 1  
Total Chips: 2  
Total Cores: 128  
Total Threads: 256  
Total Memory: 1 TB  
Max. Peak Threads: --

### Software Summary

Compiler: C/C++/Fortran: Version 2024.0.0 of Intel oneAPI Compiler  
MPI Library: Intel MPI Library for Linux\* OS, Version 2021.11 Build 20231005  
Other MPI Info: None  
Other Software: None  
Base Parallel Model: OMP  
Base Ranks Run: 4  
Base Threads Run: 64  
Peak Parallel Models: Not Run  
Minimum Peak Ranks: --  
Maximum Peak Ranks: --  
Max. Peak Threads: --  
Min. Peak Threads: --

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

#### Hardware

Number of nodes: 1  
Uses of the node: compute  
Vendor: Supermicro  
Model: GPU SuperServer SYS-741GE-TNRT  
CPU Name: Intel Xeon Platinum 8592+  
CPU(s) orderable: 2 chips  
Chips enabled: 2  
Cores enabled: 128  
Cores per chip: 64  
Threads per core: 2  
CPU Characteristics: Intel Turbo Boost Technology up to 3.9 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: 320 MB I+D on chip per chip  
Other Cache: None  
Memory: 1 TB (16 x 64 GB 2Rx4 PC5-5600B-R)  
Disk Subsystem: 1 x 512 GB M.2 NVMe SSD  
Other Hardware: None  
Accel Count: 0  
Accel Model: None  
Accel Vendor: None  
Accel Type: None  
Accel Connection: None  
Accel ECC enabled: None  
Accel Description: None  
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 SP5 Kernel 5.14.21-150500.53-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: GPU SuperServer SYS-741GE-TNRT

#### Hardware (Continued)

Ports Used: 0  
Interconnect Type: None

### Interconnect Description: None

#### Hardware

Vendor: None  
Model: None  
Switch Model: None  
Number of Switches: 0  
Number of Ports: 0  
Data Rate: None  
Firmware: None  
Topology: None  
Primary Use: None

#### 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 632.sph\_exa\_s(base)  
-----

Intel(R) oneAPI DPC++/C++ Compiler 2024.0.0 (2024.0.0.20231017)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/intel/oneapi/compiler/2024.0/bin/compiler  
Configuration file: /opt/intel/oneapi/compiler/2024.0/bin/compiler/./icpx.cfg  
-----

=====  
CC 605.lbm\_s(base) 613.soma\_s(base) 618.tealeaf\_s(base) 621.miniswp\_s(base)  
634.hpgmgfv\_s(base)  
-----

Intel(R) oneAPI DPC++/C++ Compiler 2024.0.0 (2024.0.0.20231017)

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### Compiler Version Notes (Continued)

Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/intel/oneapi/compiler/2024.0/bin/compiler  
Configuration file: /opt/intel/oneapi/compiler/2024.0/bin/compiler/./icx.cfg

=====  
FC 619.clvleaf\_s(base) 635.weather\_s(base)  
=====

ifx (IFX) 2024.0.0 20231017  
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.

=====  
FC 628.pot3d\_s(base)  
=====

ifx: command line warning #10157: ignoring option '-W'; argument is of wrong type  
ifx (IFX) 2024.0.0 20231017  
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.

### Base Compiler Invocation

C benchmarks:  
mpiicc -cc=icx  
  
C++ benchmarks:  
mpiicpc -cxx=icpx  
  
Fortran benchmarks:  
mpiifort -fc=ifx

### Base Portability Flags

605.lbm\_s: -lstdc++  
613.soma\_s: -lstdc++  
618.tealeaf\_s: -lstdc++  
619.clvleaf\_s: -lstdc++  
621.miniswp\_s: -lstdc++  
628.pot3d\_s: -lstdc++  
632.sph\_exa\_s: -lstdc++  
634.hpgmgfv\_s: -lstdc++

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## Base Portability Flags (Continued)

635.weather\_s: -lstdc++

## Base Optimization Flags

C benchmarks:

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

C++ benchmarks:

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

Fortran benchmarks:

-Ofast -ipo -xCORE-AVX512 -mprefer-vector-width=512 -fiopenmp  
-nonstandard-realloc-lhs -align array64byte

## Base Other Flags

Fortran benchmarks:

628.pot3d\_s: -Wno-incompatible-function-pointer-types

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

[http://www.spec.org/hpc2021/flags/Intel\\_compiler\\_flags.2023-06-05.html](http://www.spec.org/hpc2021/flags/Intel_compiler_flags.2023-06-05.html)

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

[http://www.spec.org/hpc2021/flags/Intel\\_compiler\\_flags.2023-06-05.xml](http://www.spec.org/hpc2021/flags/Intel_compiler_flags.2023-06-05.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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