SPEChpc™ 2021 Tiny Result

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Supermicro

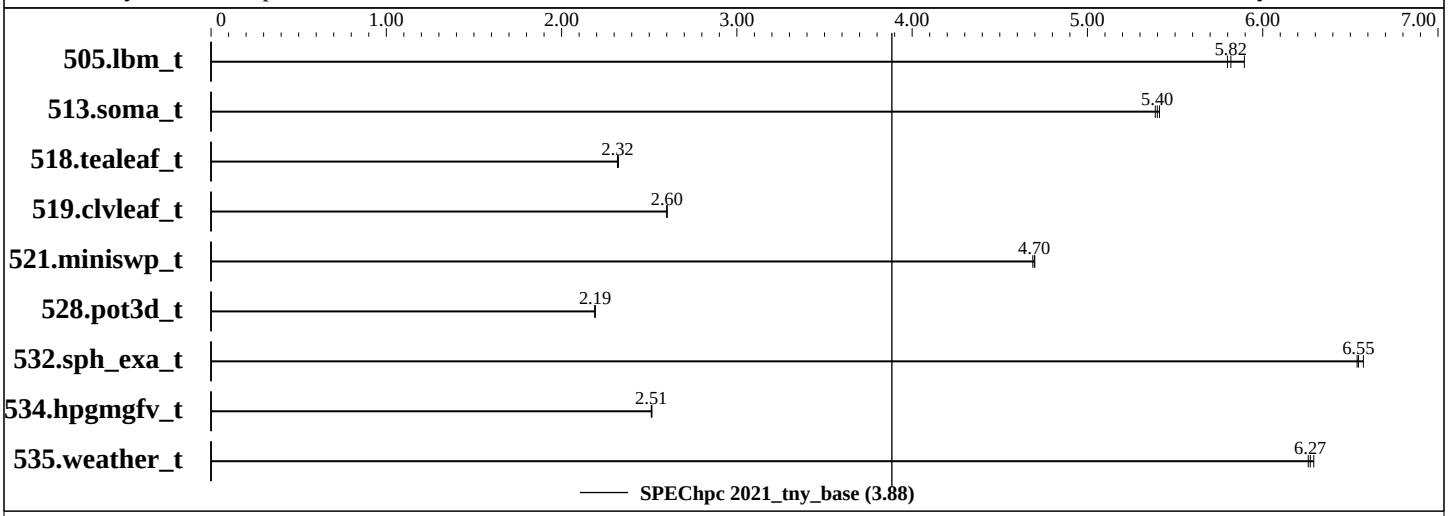
SuperServer SYS-521E-WR (Intel Xeon Platinum 8490H)

SPEChpc 2021_tny_base = 3.88

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	**387**	**5.82**	388	5.80	382	5.90									
513.soma_t	MPI	60	1	684	5.41	**685**	**5.40**	687	5.39									
518.tealeaf_t	MPI	60	1	710	2.32	712	2.32	**711**	**2.32**									
519.clvleaf_t	MPI	60	1	634	2.60	**634**	**2.60**	635	2.60									
521.miniswp_t	MPI	60	1	**341**	**4.70**	340	4.70	341	4.69									
528.pot3d_t	MPI	60	1	970	2.19	**970**	**2.19**	971	2.19									
532.sph_exa_t	MPI	60	1	**298**	**6.55**	297	6.57	298	6.54									
534.hpgmgfv_t	MPI	60	1	467	2.52	**468**	**2.51**	468	2.51									
535.weather_t	MPI	60	1	515	6.26	513	6.29	**514**	**6.27**									

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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

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:
`mpiicpc -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`

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`

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For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.

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