SPEChpc™ 2021 Small Result

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Supermicro

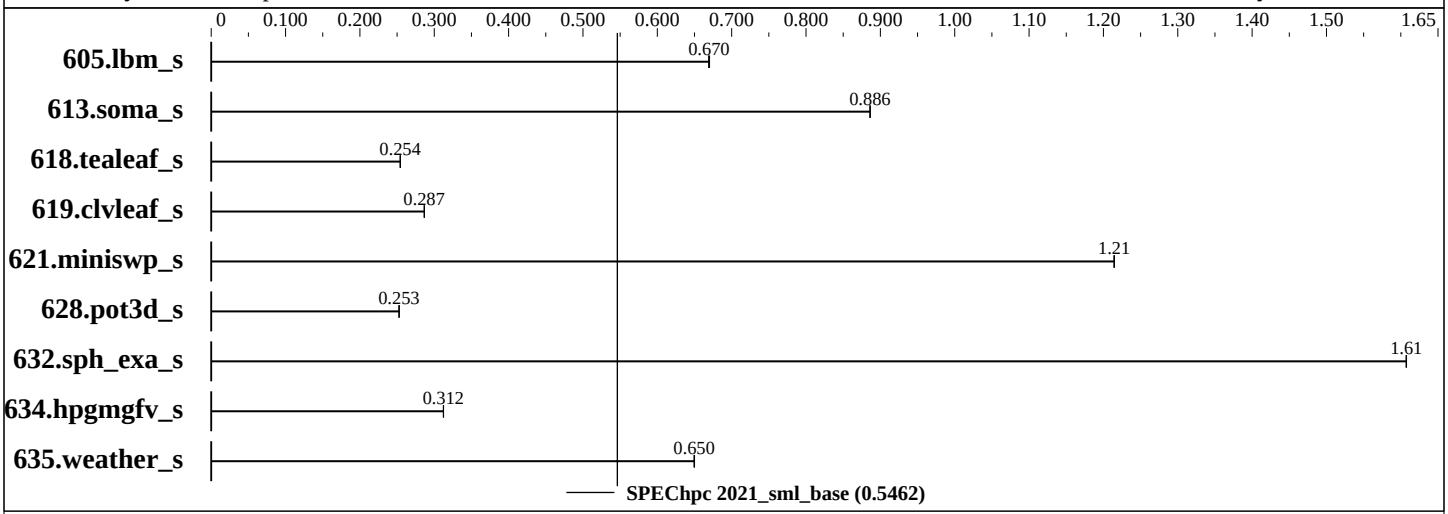
UP SuperServer SYS-521C-NR (Intel Xeon Platinum 8592+)

SPEChpc 2021_sml_base = 0.5462

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	MPI	128	1	2313	0.670	2317	0.669	**2315**	**0.670**									
613.soma_s	MPI	128	1	1805	0.886	1806	0.886	**1805**	**0.886**									
618.tealeaf_s	MPI	128	1	8059	0.254	**8062**	**0.254**	8065	0.254									
619.clvleaf_s	MPI	128	1	5757	0.287	**5757**	**0.287**	5758	0.287									
621.miniswp_s	MPI	128	1	**906**	**1.21**	906	1.21	906	1.21									
628.pot3d_s	MPI	128	1	**6629**	**0.253**	6624	0.253	6632	0.253									
632.sph_exa_s	MPI	128	1	**1431**	**1.61**	1431	1.61	1431	1.61									
634.hpgmgfv_s	MPI	128	1	3120	0.313	**3122**	**0.312**	3122	0.312									
635.weather_s	MPI	128	1	4000	0.650	**4002**	**0.650**	4003	0.650									

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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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Software Availability: Oct-2023

Hardware Summary

Type of System:	Homogenous
Compute Node:	UP SuperServer SYS-521C-NR
Interconnect:	None
Compute Nodes Used:	1
Total Chips:	1
Total Cores:	64
Total Threads:	128
Total Memory:	512 GB
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:	MPI
Base Ranks Run:	128
Base Threads Run:	1
Peak Parallel Models:	Not Run
Minimum Peak Ranks:	--
Maximum Peak Ranks:	--
Max. Peak Threads:	--
Min. Peak Threads:	--

Node Description: UP SuperServer SYS-521C-NR

Hardware

Number of nodes:	1
Uses of the node:	compute
Vendor:	Supermicro
Model:	UP SuperServer SYS-521C-NR
CPU Name:	Intel Xeon Platinum 8592+
CPU(s) orderable:	1 chip
Chips enabled:	1
Cores enabled:	64
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:	512 GB (8 x 64 GB 2Rx4 PC5-5600B-R)
Disk Subsystem:	1 x 240 GB SATA 2.5" 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

Node Description: UP SuperServer SYS-521C-NR

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 -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

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`

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`

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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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