



SPEChpc™ 2021 Tiny Result

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Supermicro

SuperServer SYS-F511E2-RT (Intel Xeon Gold 5433N)

SPEChpc 2021_tny_base = 8.07

SPEChpc 2021_tny_peak = Not Run

hpc2021 License: 6569

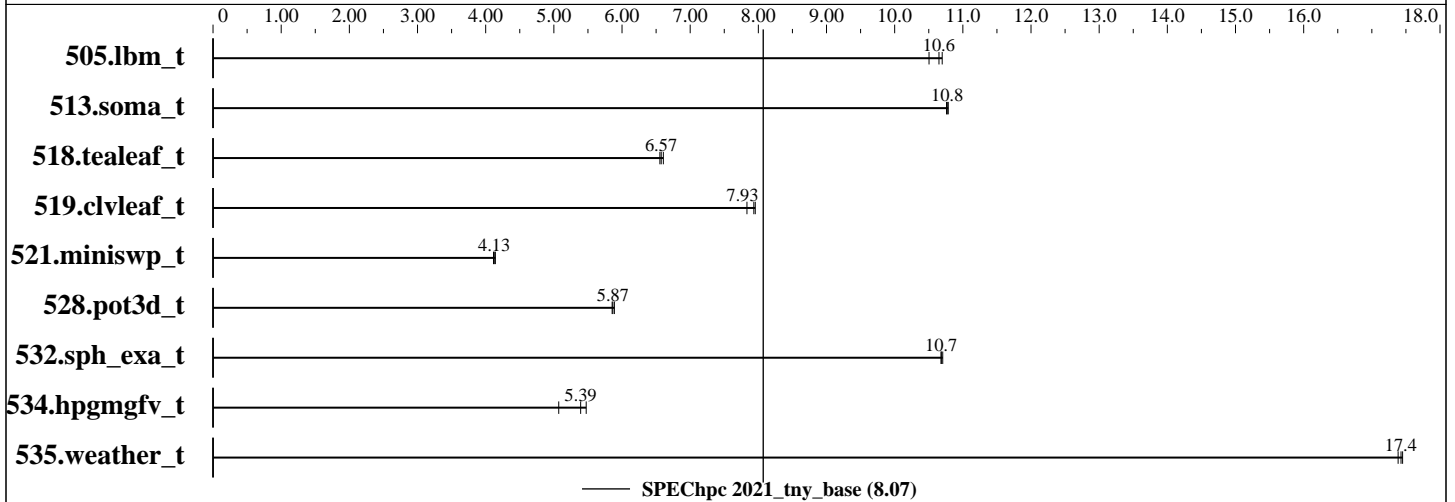
Test Sponsor: Supermicro

Tested by: Supermicro

Test Date: Apr-2023

Hardware Availability: Jan-2023

Software Availability: Jan-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
505.lbm_t	MPI	160	1	214	10.5	210	10.7	<u>211</u>	<u>10.6</u>									
513.soma_t	MPI	160	1	<u>343</u>	<u>10.8</u>	344	10.8	343	10.8									
518.tealeaf_t	MPI	160	1	<u>251</u>	<u>6.57</u>	250	6.61	252	6.56									
519.clvleaf_t	MPI	160	1	211	7.83	<u>208</u>	<u>7.93</u>	207	7.95									
521.miniswp_t	MPI	160	1	389	4.11	386	4.14	<u>388</u>	<u>4.13</u>									
528.pot3d_t	MPI	160	1	<u>362</u>	<u>5.87</u>	361	5.89	363	5.86									
532.sph_exa_t	MPI	160	1	182	10.7	183	10.7	<u>183</u>	<u>10.7</u>									
534.hpgmgfv_t	MPI	160	1	232	5.07	<u>218</u>	<u>5.39</u>	215	5.47									
535.weather_t	MPI	160	1	185	17.5	<u>185</u>	<u>17.4</u>	185	17.4									

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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-F511E2-RT
Interconnect: Supermicro AOC-ATG-i2TM
Compute Nodes Used: 4
Total Chips: 4
Total Cores: 80
Total Threads: 160
Total Memory: 2 TB
Max. Peak Threads: --

Software Summary

Compiler: C/C++/Fortran: Version 2023.0.0 of Intel oneAPI Compiler
MPI Library: Version 2021.8.0 Build 20221129
Other MPI Info: None
Other Software: None
Base Parallel Model: MPI
Base Ranks Run: 160
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-F511E2-RT

Hardware

Number of nodes: 4
Uses of the node: compute
Vendor: Supermicro
Model: SuperServer SYS-F511E2-RT
CPU Name: Intel Xeon Gold 5433N
CPU(s) orderable: 1 chip
Chips enabled: 1
Cores enabled: 20
Cores per chip: 20
Threads per core: 2
CPU Characteristics: Intel Turbo Boost Technology up to 4.1 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: 37.5 MB I+D on chip per chip
Other Cache: None
Memory: 512 GB (8 x 64 GB 2Rx4 PC5-4800B-R)
Disk Subsystem: 1 x 480 GB Micron 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: Supermicro AOC-ATG-i2TM
Number of Adapters: 1
Slot Type: Advanced I/O Module (AIOM) Form Factor
Data Rate: 10 Gb/s
Ports Used: 1

Software

Accelerator Driver: --
Adapter: Supermicro AOC-ATG-i2TM
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-F511E2-RT

Hardware (Continued)

Interconnect Type: AOC-ATG-i2TM

Interconnect Description: Supermicro AOC-ATG-i2TM

Hardware

Vendor: None
Model: Supermicro AOC-ATG-i2TM
Switch Model: None
Number of Switches: 1
Number of Ports: 0
Data Rate: 10 Gb/s
Firmware: None
Topology: None
Primary Use: MPI Traffic, NFS Access

Software

: --

Submit Notes

The config file option 'submit' was used.

```
mpiexec.hydra -bootstrap ssh -hostfile ${top}/hostfile -genv OMP_NUM_THREADS $threads -np $ranks -ppn $ppn $command
```

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: -DSPEC_NO_REORDER -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:

519.clvleaf_t: -Ofast -ipo -xCORE-AVX512 -mprefer-vector-width=512
-nostandard-realloc-lhs -align array64byte

528.pot3d_t: -Ofast -ipo -xCORE-AVX512 -mprefer-vector-width=512
-nostandard-realloc-lhs -align array64byte
-heap-arrays 32768

535.weather_t: Same as 519.clvleaf_t

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

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Base Other Flags (Continued)

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.2023-06-05.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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