



SPEChpc™ 2021 Tiny Result

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Lenovo Global Technology

SPEChpc 2021_tny_base = 13.7

SPEChpc 2021_tny_peak = 13.7

ThinkSystem SR860 V3 (Intel Xeon Platinum 8490H, 1.90 GHz)

hpc2021 License: 28

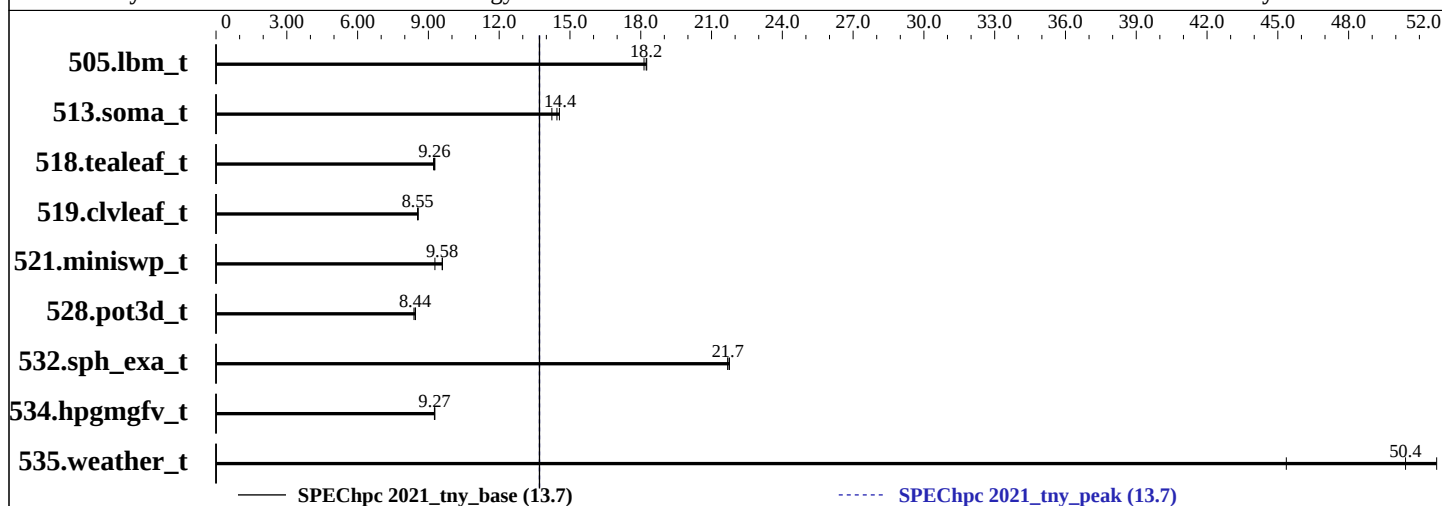
Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Aug-2023

Hardware Availability: Aug-2023

Software Availability: Jun-2023



Results Table

Benchmark	Base								Peak							
	Model	Ranks	Thrds/Rnk	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Model	Ranks	Thrds/Rnk	Seconds	Ratio	Seconds	Ratio
505.lbm_t	MPI	240	1	124	18.1	123	18.3	123	18.2	MPI	240	1	124	18.1	123	18.3
513.soma_t	MPI	240	1	260	14.2	254	14.6	256	14.4	MPI	240	1	260	14.2	254	14.6
518.tealeaf_t	MPI	240	1	178	9.27	179	9.22	178	9.26	MPI	240	1	178	9.27	179	9.22
519.clvleaf_t	MPI	240	1	193	8.57	193	8.55	193	8.55	MPI	240	1	193	8.57	193	8.55
521.miniswp_t	MPI	240	1	167	9.58	172	9.28	167	9.60	MPI	240	1	167	9.58	172	9.28
528.pot3d_t	MPI	240	1	253	8.39	252	8.44	251	8.45	MPI	240	1	253	8.39	252	8.44
532.sph_exa_t	MPI	240	1	89.6	21.8	89.9	21.7	89.9	21.7	MPI	240	1	89.6	21.8	89.9	21.7
534.hpgmgfv_t	MPI	240	1	127	9.27	127	9.26	127	9.27	MPI	240	1	127	9.27	127	9.26
535.weather_t	MPI	240	1	62.3	51.7	71.1	45.4	64.0	50.4	MPI	240	1	62.3	51.7	71.1	45.4

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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: SMP
Compute Node: ThinkSystem SR860 V3
Compute Nodes Used: 1
Total Chips: 4
Total Cores: 240
Total Threads: 480
Total Memory: 2 TB
Total Accelerators: 0
Max. Peak Threads: 1

Software Summary

Compiler: Intel oneAPI Compiler 2022.1.0
MPI Library: Intel MPI Library for Linux OS, Build 20220227
Other MPI Info: None
Other Software: None
Base Parallel Model: MPI
Base Ranks Run: 240
Base Threads Run: 1
Peak Parallel Models: MPI
Minimum Peak Ranks: 240
Maximum Peak Ranks: 240
Max. Peak Threads: 1
Min. Peak Threads: 1

Node Description: ThinkSystem SR860 V3

Hardware

Number of nodes: 1
Uses of the node: Compute
Vendor: Lenovo Global Technology
Model: ThinkSystem SR860 V3
CPU Name: Intel Xeon Platinum 8490H
CPU(s) orderable: 4 chips
Chips enabled: 4
Cores enabled: 240
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 + 32 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: 2 TB (32 x 64 GB 2Rx4 PC5-4800V)
Disk Subsystem: 1x ThinkSystem 2.5" 5300 480GB SSD
Other Hardware: None
Accel Count: None
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
Ports Used: 0
Interconnect Type: None

Software

Accelerator Driver: None
Adapter: None
Adapter Driver: None
Adapter Firmware: None
Operating System: Red Hat Enterprise Linux Server release 8.6,
Kernel 4.18.0-372.9.1.el8.x86_64
Local File System: xfs
Shared File System: None
System State: Multi-user, run level 3
Other Software: None



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Submit Notes

The config file option 'submit' was used.

Compiler Version Notes

```
=====
FC  519.clvleaf_t(base) 528.pot3d_t(base) 535.weather_t(base)
-----
```

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version
2022.2.0 Build 20220730

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ifx: command line error: no files specified; for help type "ifx -help"

```
=====
CC  505.lbm_t(base) 513.soma_t(base) 518.tealeaf_t(base) 521.miniswp_t(base)
    534.hpgmgfv_t(base)
-----
```

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
Version 2022.2.0 Build 20220730

Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

icx: warning: -Z-reserved-lib-stdc++: 'linker' input unused
[-Wunused-command-line-argument]

```
=====
CXXC 532.sph_exa_t(base)
-----
```

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
Version 2022.2.0 Build 20220730

Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

icx: warning: -Z-reserved-lib-stdc++: 'linker' input unused
[-Wunused-command-line-argument]

Base Compiler Invocation

C benchmarks:

mpiicc -cc=icx

C++ benchmarks:

mpiicpc -cxx=icx

Fortran benchmarks:

mpiifort -fc=ifx



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Base Portability Flags

505.lbm_t: -lstdc++
513.soma_t: -lstdc++
518.tealeaf_t: -lstdc++
519.clvleaf_t: -lstdc++
521.miniswp_t: -lstdc++
528.pot3d_t: -lstdc++
532.sph_exa_t: -lstdc++
534.hpgmgfv_t: -lstdc++
535.weather_t: -lstdc++

Base Optimization Flags

C benchmarks:

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

C++ benchmarks:

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

Fortran benchmarks:

-Ofast -mprefer-vector-width=512 -xCORE-AVX512 -ipo
-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



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Peak Optimization Flags

C benchmarks:

505.lbm_t: basepeak = yes

513.soma_t: basepeak = yes

518.tealeaf_t: basepeak = yes

521.miniswp_t: basepeak = yes

534.hpgmgfv_t: basepeak = yes

C++ benchmarks:

532.sph_exa_t: basepeak = yes

Fortran benchmarks:

519.clvleaf_t: basepeak = yes

528.pot3d_t: basepeak = yes

535.weather_t: basepeak = yes

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

http://www.spec.org/hpc2021/flags/Intel_compiler_flags.2022-11-10.html

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

http://www.spec.org/hpc2021/flags/Intel_compiler_flags.2022-11-10.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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