



SPEChpc™ 2021 Small Result

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Lenovo Global Technology

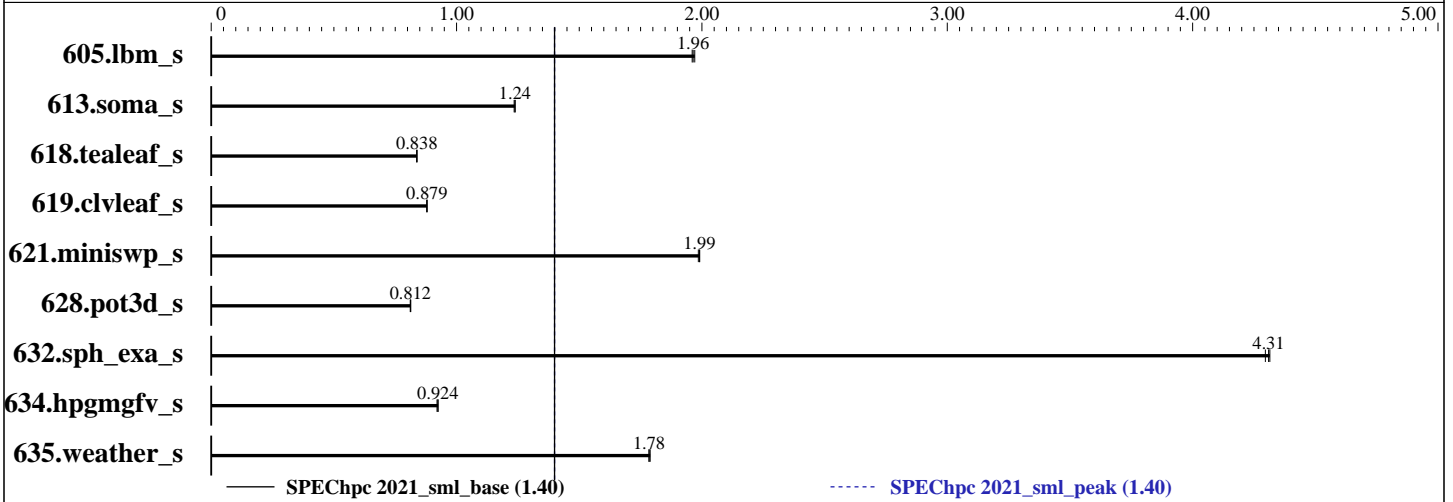
SPEChpc 2021_sml_base = 1.40

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

SPEChpc 2021_sml_peak = 1.40

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	Seconds	Ratio
605.lbm_s	MPI	480	1	789	1.96	786	1.97	791	1.96	MPI	480	1	789	1.96	786	1.97	791	1.96
613.soma_s	MPI	480	1	1292	1.24	1296	1.23	1292	1.24	MPI	480	1	1292	1.24	1296	1.23	1292	1.24
618.tealeaf_s	MPI	480	1	2445	0.839	2447	0.838	2446	0.838	MPI	480	1	2445	0.839	2447	0.838	2446	0.838
619.clvleaf_s	MPI	480	1	1877	0.879	1877	0.879	1876	0.880	MPI	480	1	1877	0.879	1877	0.879	1876	0.880
621.miniswp_s	MPI	480	1	553	1.99	553	1.99	554	1.99	MPI	480	1	553	1.99	553	1.99	554	1.99
628.pot3d_s	MPI	480	1	2063	0.812	2064	0.812	2059	0.813	MPI	480	1	2063	0.812	2064	0.812	2059	0.813
632.sph_exa_s	MPI	480	1	534	4.31	533	4.31	535	4.30	MPI	480	1	534	4.31	533	4.31	535	4.30
634.hpgmgfv_s	MPI	480	1	1059	0.920	1055	0.924	1055	0.925	MPI	480	1	1059	0.920	1055	0.924	1055	0.925
635.weather_s	MPI	480	1	1457	1.78	1453	1.79	1457	1.78	MPI	480	1	1457	1.78	1453	1.79	1457	1.78

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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
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: 480
Base Threads Run: 1
Peak Parallel Models: MPI
Minimum Peak Ranks: 480
Maximum Peak Ranks: 480
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 619.clvleaf_s(base) 628.pot3d_s(base) 635.weather_s(base)

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version
2022.2.0 Build 20220730
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
ifx: command line error: no files specified; for help type "ifx -help"

=====
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 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 632.sph_exa_s(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:
mpicc -cc=icx

C++ benchmarks:
mpiicpc -cxx=icx

Fortran benchmarks:
mpiifort -fc=ifx



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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++
635.weather_s: -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

Peak Optimization Flags

C benchmarks:

```
605.lbm_s: basepeak = yes
613.soma_s: basepeak = yes
618.tealeaf_s: basepeak = yes
621.miniswp_s: basepeak = yes
634.hpgmgfv_s: basepeak = yes
```

C++ benchmarks:

```
632.sph_exa_s: basepeak = yes
```

Fortran benchmarks:

(Continued on next page)



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Peak Optimization Flags (Continued)

619.clvleaf_s: basepeak = yes

628.pot3d_s: basepeak = yes

635.weather_s: 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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