



SPEChpc™ 2021 Small Result

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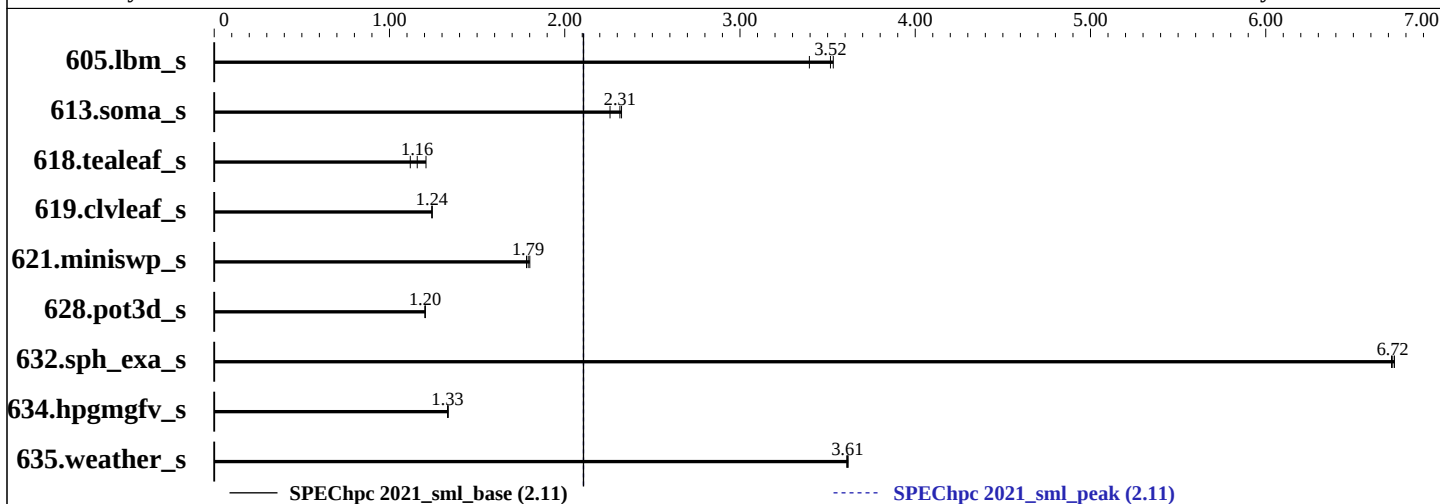
Lenovo
SR860 V4(Intel Xeon 6788P)

SPEChpc 2021_sml_base = 2.11

SPEChpc 2021_sml_peak = 2.11

hpc2021 License: 9017
Test Sponsor: Lenovo
Tested by: Lenovo

Test Date: Sep-2025
Hardware Availability: Sep-2025
Software Availability: Jun-2025



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	344	1	456	3.40	441	3.52	439	3.53	MPI	344	1	456	3.40	441	3.52	439	3.53
613.soma_s	MPI	344	1	691	2.31	708	2.26	688	2.32	MPI	344	1	691	2.31	708	2.26	688	2.32
618.tealeaf_s	MPI	344	1	1832	1.12	1770	1.16	1696	1.21	MPI	344	1	1832	1.12	1770	1.16	1696	1.21
619.clvleaf_s	MPI	344	1	1328	1.24	1328	1.24	1327	1.24	MPI	344	1	1328	1.24	1328	1.24	1327	1.24
621.miniswp_s	MPI	344	1	617	1.78	614	1.79	611	1.80	MPI	344	1	617	1.78	614	1.79	611	1.80
628.pot3d_s	MPI	344	1	1391	1.20	1391	1.20	1392	1.20	MPI	344	1	1391	1.20	1391	1.20	1392	1.20
632.sph_exa_s	MPI	344	1	342	6.72	342	6.72	342	6.73	MPI	344	1	342	6.72	342	6.72	342	6.73
634.hpgmgfv_s	MPI	344	1	730	1.34	732	1.33	732	1.33	MPI	344	1	730	1.34	732	1.33	732	1.33
635.weather_s	MPI	344	1	720	3.61	719	3.62	719	3.61	MPI	344	1	720	3.61	719	3.62	719	3.61

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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 Cluster
Compute Node: SR860 V4(Intel Xeon 6788P)
Interconnect: None
Compute Nodes Used: 1
Total Chips: 4
Total Cores: 344
Total Threads: 688
Total Memory: 1 TB
Total Accelerators: 0
Max. Peak Threads: 1

Software Summary

Compiler: Intel oneAPI Compiler 2025.2.1
MPI Library: Intel MPI Library 2021.16 for Linux OS
Other MPI Info: None
Other Software: None
Base Parallel Model: MPI
Base Ranks Run: 344
Base Threads Run: 1
Peak Parallel Models: MPI
Minimum Peak Ranks: 344
Maximum Peak Ranks: 344
Max. Peak Threads: 1
Min. Peak Threads: 1

Node Description: SR860 V4(Intel Xeon 6788P)

Hardware

Number of nodes: 1
Uses of the node: Compute
Vendor: Intel
Model: SR860 V4(Intel Xeon 6788P)
CPU Name: Intel Xeon 6788P
CPU(s) orderable: 4 chips
Chips enabled: 4
Cores enabled: 344
Cores per chip: 86
Threads per core: 2
CPU Characteristics: Turbo Boost Technology up to 3.8 GHz
CPU MHz: 2000
Primary Cache: 64 KB I + 48 KB D on chip per core
Secondary Cache: 2 MB I+D on chip per core
L3 Cache: 336 MB I+D on chip per chip
Other Cache: None
Memory: 1 TB (16 x 64 GB 2Rx4 PC5-6400B-R)
Disk Subsystem: 1 x 1.92 TB NVMe 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: Ubuntu 24.02.2 LTS
6.8.0-79-generic
Local File System: ext4
Shared File System: None
System State: Run level 5
Other Software: None



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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.

Compiler Version Notes

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CXXC 632.sph_exa_s(base)

Intel(R) oneAPI DPC++/C++ Compiler 2025.2.1 (2025.2.0.20250806)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/intel/oneapi/compiler/2025.2/bin/compiler
Configuration file: /opt/intel/oneapi/compiler/2025.2/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 2025.2.1 (2025.2.0.20250806)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/intel/oneapi/compiler/2025.2/bin/compiler
Configuration file: /opt/intel/oneapi/compiler/2025.2/bin/compiler/./icx.cfg

=====

FC 619.clvleaf_s(base) 628.pot3d_s(base) 635.weather_s(base)

ifx (IFX) 2025.2.1 20250806
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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++ -std=c++14
613.soma_s: -lstdc++ -std=c++14
618.tealeaf_s: -lstdc++ -std=c++14
621.miniswp_s: -lstdc++ -std=c++14
634.hpgmgfv_s: -lstdc++ -std=c++14

Base Optimization Flags

C benchmarks:

-O3 -Ofast -xCORE-AVX512 -mprefer-vector-width=512
-qopt-multiple-gather-scatter-by-shuffles -fiopenmp -ffast-math -flto
-funroll-loops

C++ benchmarks:

-O3 -Ofast -xCORE-AVX512 -mprefer-vector-width=512
-qopt-multiple-gather-scatter-by-shuffles -fiopenmp -ffast-math -flto
-funroll-loops

Fortran benchmarks:

-O3 -Ofast -xCORE-AVX512 -mprefer-vector-width=512
-qopt-multiple-gather-scatter-by-shuffles -fiopenmp -ffast-math -flto
-funroll-loops -nostandard-realloc-lhs -align array64byte

Base Other Flags

C benchmarks:

-Ispecmpitime -Wno-incompatible-function-pointer-types

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Base Other Flags (Continued)

C++ benchmarks:
-Ispecmpitime

Fortran benchmarks:

619.clvleaf_s: -Ispecmpitime

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:

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.2024-12-11.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/hpc2021/flags/Intel_compiler_flags.2024-12-11.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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