SPEChpc™ 2021 Small Result

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Lenovo Global Technology

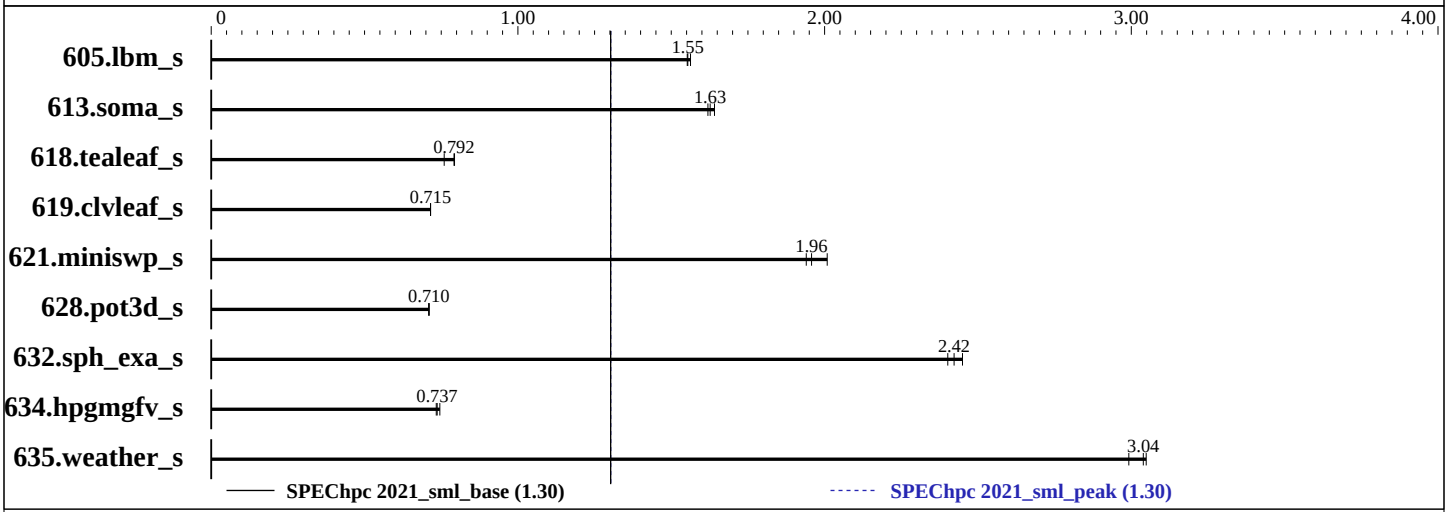
ThinkSystem SR665 V3 (AMD EPYC 9684X, 2.55 GHz)

SPEChpc 2021_sml_base = 1.30

SPEChpc 2021_sml_peak = 1.30

hpc2021 License: 28
Test Sponsor: Lenovo Global Technology
Tested by: Lenovo Global Technology

Test Date: Nov-2023
Hardware Availability: Dec-2023
Software Availability: Dec-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	192	1	992	1.56	**997**	**1.55**	999	1.55	MPI	192	1	992	1.56	**997**	**1.55**	999	1.55
613.soma_s	MPI	192	1	988	1.62	975	1.64	**983**	**1.63**	MPI	192	1	988	1.62	975	1.64	**983**	**1.63**
618.tealeaf_s	MPI	192	1	2699	0.760	**2590**	**0.792**	2584	0.793	MPI	192	1	2699	0.760	**2590**	**0.792**	2584	0.793
619.clvleaf_s	MPI	192	1	2308	0.715	**2307**	**0.715**	2307	0.715	MPI	192	1	2308	0.715	**2307**	**0.715**	2307	0.715
621.miniswp_s	MPI	192	1	548	2.01	567	1.94	**562**	**1.96**	MPI	192	1	548	2.01	567	1.94	**562**	**1.96**
628.pot3d_s	MPI	192	1	**2360**	**0.710**	2361	0.709	2358	0.710	MPI	192	1	**2360**	**0.710**	2361	0.709	2358	0.710
632.sph_exa_s	MPI	192	1	**950**	**2.42**	958	2.40	939	2.45	MPI	192	1	**950**	**2.42**	958	2.40	939	2.45
634.hpgmgfv_s	MPI	192	1	1308	0.745	1329	0.734	**1323**	**0.737**	MPI	192	1	1308	0.745	1329	0.734	**1323**	**0.737**
635.weather_s	MPI	192	1	853	3.05	869	2.99	**856**	**3.04**	MPI	192	1	853	3.05	869	2.99	**856**	**3.04**

SPEChpc 2021_sml_base = 1.30

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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: Dec-2023

Hardware Summary

Type of System:	SMP
Compute Node:	ThinkSystem SR665 V3
Compute Nodes Used:	1
Total Chips:	2
Total Cores:	96
Total Threads:	192
Total Memory:	768 GB
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:	192
Base Threads Run:	1
Peak Parallel Models:	MPI
Minimum Peak Ranks:	192
Maximum Peak Ranks:	192
Max. Peak Threads:	1
Min. Peak Threads:	1

Node Description: ThinkSystem SR665 V3

Hardware

Number of nodes:	1
Uses of the node:	Compute
Vendor:	Lenovo Global Technology
Model:	ThinkSystem SR665 V3
CPU Name:	AMD EPYC 9684X
CPU(s) orderable:	1,2 chips
Chips enabled:	2
Cores enabled:	96
Cores per chip:	96
Threads per core:	2
CPU Characteristics:	Max Boost Clock up to 3.7 GHz
CPU MHz:	2550
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	1 MB I+D on chip per core
L3 Cache:	384 MB I+D on chip per chip 32 MB shared / 8 cores
Other Cache:	None
Memory:	768 GB (32 x 32 GB 2Rx8 PC5-4800V)
Disk Subsystem:	1x ThinkSystem 2.5" 480 GB 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

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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

Node Description: ThinkSystem SR665 V3

Hardware (Continued)

Interconnect Type: None

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
  2022.1.0 Build 20220316
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 2022.1.0 Build 20220316
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
clang: 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 2022.1.0 Build 20220316
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
clang: warning: -Z-reserved-lib-stdc++: 'linker' input unused
  [-Wunused-command-line-argument]
------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:

```
mpiicc -cc=icx
```

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Base Compiler Invocation (Continued)

C++ benchmarks:
mpiicpc -cxx=icx

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++
635.weather_s: -lstdc++

Base Optimization Flags

C benchmarks:
-Ofast -march=core-avx2 -ipo -ansi-alias

C++ benchmarks:
-Ofast -march=core-avx2 -ipo -ansi-alias

Fortran benchmarks:
-Ofast -march=core-avx2 -ipo -nostandard-realloc-lhs
-align array64byte

Peak Optimization Flags

C benchmarks:

605.lbm_s: basepeak = yes

613.soma_s: basepeak = yes

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Peak Optimization Flags (Continued)

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.2023-12-13.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/hpc2021/flags/Intel_compiler_flags.2023-12-13.xml`

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For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.

Tested with SPEChpc2021 v1.1.8 on 2018-06-22 07:13:51-0400.
Report generated on 2023-12-13 20:40:16 by hpc2021 PS formatter v1.0.3.
Originally published on 2023-12-13.