



SPEChpc™ 2021 Small Result

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Lenovo Global Technology

SPEChpc 2021_sml_base = 1.55

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

SPEChpc 2021_sml_peak = 1.55

hpc2021 License: 28

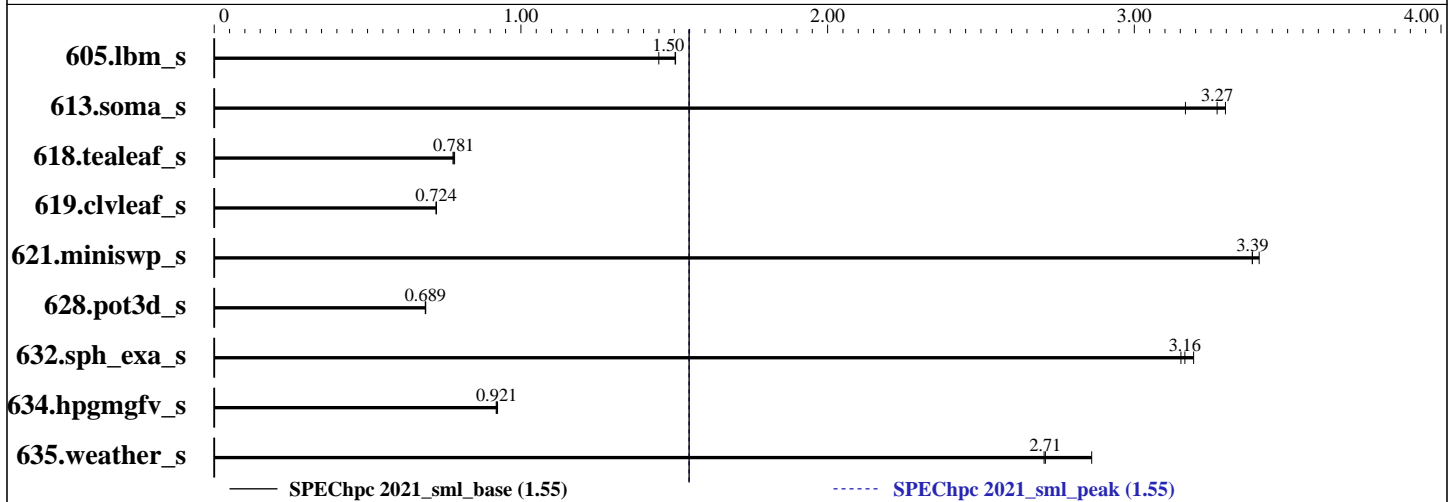
Test Date: Nov-2023

Test Sponsor: Lenovo Global Technology

Hardware Availability: Dec-2023

Tested by: Lenovo Global Technology

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	OMP	24	16	1030	1.50	1069	1.45	1031	1.50	OMP	24	16	1030	1.50	1069	1.45	1031	1.50
613.soma_s	OMP	24	16	489	3.27	485	3.30	505	3.17	OMP	24	16	489	3.27	485	3.30	505	3.17
618.tealeaf_s	OMP	24	16	2615	0.784	2625	0.781	2633	0.779	OMP	24	16	2615	0.784	2625	0.781	2633	0.779
619.clvleaf_s	OMP	24	16	2279	0.724	2279	0.724	2279	0.724	OMP	24	16	2279	0.724	2279	0.724	2279	0.724
621.miniswp_s	OMP	24	16	323	3.41	325	3.39	325	3.38	OMP	24	16	323	3.41	325	3.39	325	3.38
628.pot3d_s	OMP	24	16	2433	0.688	2429	0.690	2433	0.689	OMP	24	16	2433	0.688	2429	0.690	2433	0.689
632.sph_exa_s	OMP	24	16	720	3.19	730	3.15	727	3.16	OMP	24	16	720	3.19	730	3.15	727	3.16
634.hpgmgfv_s	OMP	24	16	1055	0.924	1058	0.921	1060	0.920	OMP	24	16	1055	0.924	1058	0.921	1060	0.920
635.weather_s	OMP	24	16	959	2.71	909	2.86	961	2.71	OMP	24	16	959	2.71	909	2.86	961	2.71

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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 SR665 V3
Compute Nodes Used: 1
Total Chips: 2
Total Cores: 96
Total Threads: 192
Total Memory: 768 GB
Max. Peak Threads: 16

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: OMP
Base Ranks Run: 24
Base Threads Run: 16
Peak Parallel Models: OMP
Minimum Peak Ranks: 24
Maximum Peak Ranks: 24
Max. Peak Threads: 16
Min. Peak Threads: 16

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

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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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++ -DSPEC_NO_VAR_ARRAY_REDUCE  
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 -fiopenmp -ansi-alias
```

C++ benchmarks:

```
-Ofast -march=core-avx2 -ipo -fiopenmp -ansi-alias
```

Fortran benchmarks:

```
-Ofast -march=core-avx2 -ipo -fiopenmp -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.

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