SPEChpc™ 2021 Small Result

Copyright 2021-2023 Standard Performance Evaluation Corporation

Lenovo Global Technology

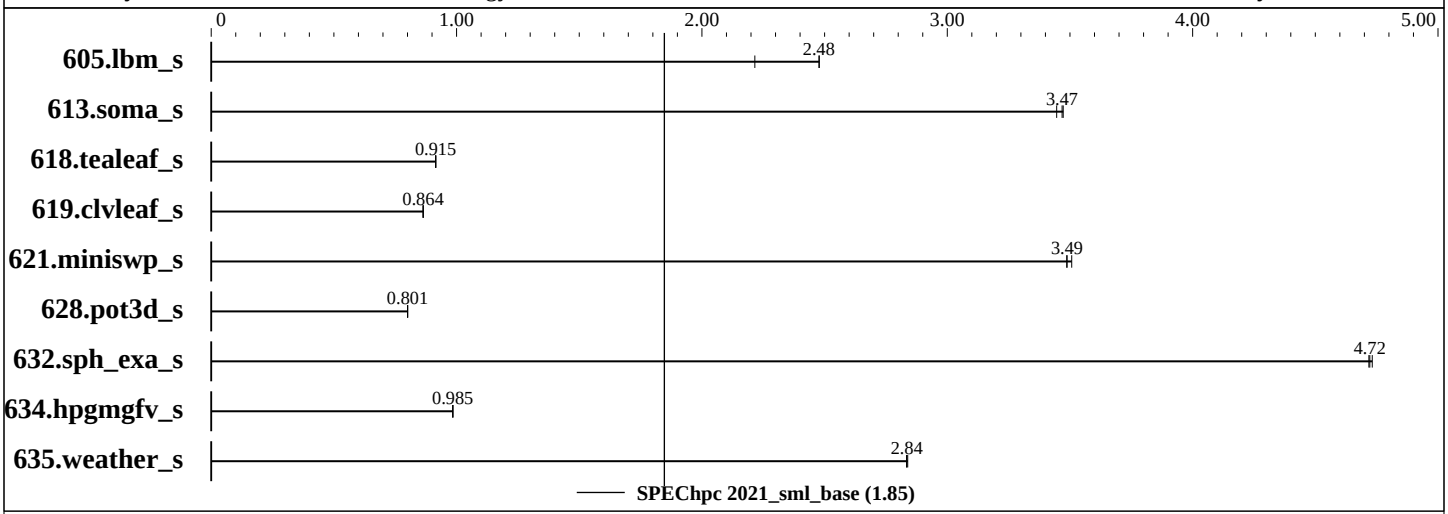
ThinkSystem SR665 (AMD EPYC 7763)

SPEChpc 2021_sml_base = 1.85

SPEChpc 2021_sml_peak = Not Run

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

Test Date: Aug-2021
Hardware Availability: Mar-2021
Software Availability: Oct-2020



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	48	8	625	2.48	700	2.22	**626**	**2.48**									
613.soma_s	OMP	48	8	461	3.47	464	3.45	**461**	**3.47**									
618.tealeaf_s	OMP	48	8	2242	0.915	**2241**	**0.915**	2239	0.916									
619.clvleaf_s	OMP	48	8	**1910**	**0.864**	1909	0.864	1911	0.864									
621.miniswp_s	OMP	48	8	315	3.49	**315**	**3.49**	314	3.51									
628.pot3d_s	OMP	48	8	**2092**	**0.801**	2092	0.801	2094	0.800									
632.sph_exa_s	OMP	48	8	487	4.72	486	4.73	**487**	**4.72**									
634.hpgmgfv_s	OMP	48	8	**990**	**0.985**	990	0.984	990	0.985									
635.weather_s	OMP	48	8	916	2.84	917	2.83	**917**	**2.84**									

SPEChpc 2021_sml_base = 1.85

SPEChpc 2021_sml_peak = Not Run

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

SPEChpc™ 2021 Small Result

Copyright 2021-2023 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR665 (AMD EPYC 7763)

SPEChpc 2021_sml_base = 1.85

SPEChpc 2021_sml_peak = Not Run

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

Test Date: Aug-2021
Hardware Availability: Mar-2021
Software Availability: Oct-2020

Hardware Summary

Type of System:	Homogenous
Compute Node:	ThinkSystem SR665
Interconnect:	Nvidia Mellanox ConnectX-6 HDR
File Server Node:	ThinkSystem SR665
Compute Nodes Used:	3
Total Chips:	6
Total Cores:	384
Total Threads:	384
Total Memory:	1536 GB
Max. Peak Threads:	--

Software Summary

Compiler:	Intel C/C++/Fortran Compiler 20.4
MPI Library:	Open MPI 4.0.5
Other MPI Info:	--
Other Software:	--
Base Parallel Model:	OMP
Base Ranks Run:	48
Base Threads Run:	8
Peak Parallel Models:	Not Run
Minimum Peak Ranks:	--
Maximum Peak Ranks:	--
Max. Peak Threads:	--
Min. Peak Threads:	--

Node Description: ThinkSystem SR665

Hardware

Number of nodes:	3
Uses of the node:	Compute
Vendor:	Lenovo Global Technology
Model:	ThinkSystem SR665
CPU Name:	AMD EPYC 7763
CPU(s) orderable:	1,2 chips
Chips enabled:	2
Cores enabled:	128
Cores per chip:	64
Threads per core:	1
CPU Characteristics:	Max Boost Clock up to 3.5 GHz
CPU MHz:	2450
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	512 KB I+D on chip per core
L3 Cache:	256 MB I+D on chip per chip 32 MB shared / 8 cores
Other Cache:	None
Memory:	512 GB (16 x 32 GB 2Rx8 PC4-3200A-R)
Disk Subsystem:	1 x 480 GB 2.5" SSD
Other Hardware:	None
Accel Count:	--
Accel Model:	--
Accel Vendor:	--
Accel Type:	--
Accel Connection:	--
Accel ECC enabled:	--
Accel Description:	--
Adapter:	Mellanox ConnectX-6 HDR
Number of Adapters:	1
Slot Type:	PCI-Express 4.0 x16
Data Rate:	200 Gb/s
Ports Used:	1

(Continued on next page)

Software

Accelerator Driver:	--
Adapter:	Mellanox ConnectX-6 HDR
Adapter Driver:	5.2-1.0.4
Adapter Firmware:	20.28.1002
Operating System:	Red Hat Enterprise Linux Server release 8.3, Kernel 4.18.0-193.el8.x86_64
Local File System:	xfs
Shared File System:	NFS
System State:	Multi-user, run level 3
Other Software:	None

Copyright 2021-2023 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR665 (AMD EPYC 7763)

SPEChpc 2021_sml_base = 1.85

SPEChpc 2021_sml_peak = Not Run

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

Test Date: Aug-2021
Hardware Availability: Mar-2021
Software Availability: Oct-2020

Node Description: ThinkSystem SR665

Hardware (Continued)

Interconnect Type: Nvidia Mellanox ConnectX-6 HDR

Node Description: ThinkSystem SR665

Hardware

Number of nodes:	1
Uses of the node:	Fileserver
Vendor:	Lenovo Global Technology
Model:	ThinkSystem SR665
CPU Name:	AMD EPYC 7763
CPU(s) orderable:	1,2 chips
Chips enabled:	2
Cores enabled:	128
Cores per chip:	64
Threads per core:	1
CPU Characteristics:	Max Boost Clock up to 3.5 GHz
CPU MHz:	2450
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	512 KB I+D on chip per core
L3 Cache:	256 MB I+D on chip per chip 32 MB shared / 8 cores
Other Cache:	None
Memory:	512 GB (16 x 32 GB 2Rx8 PC4-3200A-R)
Disk Subsystem:	1 x 480 GB 2.5" SSD
Other Hardware:	None
Accel Count:	--
Accel Model:	--
Accel Vendor:	--
Accel Type:	--
Accel Connection:	--
Accel ECC enabled:	--
Accel Description:	--
Adapter:	Mellanox ConnectX-6 HDR
Number of Adapters:	1
Slot Type:	PCI-Express 4.0 x16
Data Rate:	200 Gb/s
Ports Used:	1
Interconnect Type:	Nvidia Mellanox ConnectX-6 HDR

Software

Accelerator Driver:	--
Adapter:	Mellanox ConnectX-6 HDR
Adapter Driver:	5.2-1.0.4
Adapter Firmware:	20.28.1002
Operating System:	Red Hat Enterprise Linux Server release 8.3
Local File System:	xfs
Shared File System:	N/A
System State:	Multi-User, run level 3
Other Software:	None

Interconnect Description: Nvidia Mellanox ConnectX-6 HDR

Hardware

Vendor:	Nvidia
Model:	Nvidia Mellanox ConnectX-6 HDR
Switch Model:	QM8700 Series
Number of Switches:	1
Number of Ports:	40
Data Rate:	200 Gb/s
Firmware:	3.9.0606
Topology:	Mesh
Primary Use:	MPI Traffic, NFS Access

Software

: --

Submit Notes

```
 The config file option 'submit' was used.
 submit = mpirun ${MPIRUN_OPTS} --allow-run-as-root --oversubscribe
--bind-to numa -map-by numa
-mca coll_hcoll_enable 1 -x HCOLL_ENABLE_NBC=1
-x HCOLL_MAIN_IB=mlx5_0:1 -mca pml ucx
-hostfile /home/HPC2021K35/config/6nodes -npernode 128 -np $ranks $command
```

General Notes

```
Environment variables set by runhpc before the start of the run:
UCX_MEMTYPE_CACHE = "n"
UCX_TLS = "self,shm,cuda_copy"
```

Compiler Version Notes

```
==============================================================================
 CC  605.lbm_s(base) 613.soma_s(base) 618.tealeaf_s(base) 621.miniswp_s(base)
      634.hpgmgfv_s(base)
------------------------------------------------------------------------------
Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
  Version 19.1.3.304 Build 20200925_000000
Copyright (C) 1985-2020 Intel Corporation.  All rights reserved.
icc: NOTE: The evaluation period for this product ends on 11-may-2021 UTC.
------------------------------------------------------------------------------

==============================================================================
 CXXC 632.sph_exa_s(base)
------------------------------------------------------------------------------
Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64,
  Version 19.1.3.304 Build 20200925_000000
```

(Continued on next page)

Compiler Version Notes (Continued)

```
Copyright (C) 1985-2020 Intel Corporation.  All rights reserved.
icpc: NOTE: The evaluation period for this product ends on 11-may-2021 UTC.
------------------------------------------------------------------------------

==============================================================================
 FC  619.clvleaf_s(base) 628.pot3d_s(base) 635.weather_s(base)
------------------------------------------------------------------------------
Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)
  64, Version 19.1.3.304 Build 20200925_000000
Copyright (C) 1985-2020 Intel Corporation.  All rights reserved.
ifort: NOTE: The evaluation period for this product ends on 11-may-2021 UTC.
------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
mpicc

C++ benchmarks:
mpicxx

Fortran benchmarks:
mpifort

Base Portability Flags

613.soma_s: -DSPEC_NO_VAR_ARRAY_REDUCE
621.miniswp_s: -DUSE_KBA -DUSE_ACCELDIR
632.sph_exa_s: -DSPEC_USE_LT_IN_KERNELS

Base Optimization Flags

C benchmarks:
-Ofast -no-prec-div -march=core-avx2 -ipo -qopenmp -ansi-alias

C++ benchmarks:
-Ofast -no-prec-div -march=core-avx2 -ipo -qopenmp -ansi-alias

Fortran benchmarks:
-Ofast -no-prec-div -march=core-avx2 -ipo -qopenmp

The flags file that was used to format this result can be browsed at
http://www.spec.org/hpc2021/flags/Intel_compiler_flags.2021-10-20.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/hpc2021/flags/Intel_compiler_flags.2021-10-20.xml

SPEChpc is a trademark of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEChpc2021 v1.0.1 on 2018-07-14 06:21:21-0400.
Report generated on 2023-08-25 18:58:06 by hpc2021 PS formatter v1.0.3.
Originally published on 2021-10-20.