

SPEChpc™ 2021 Small Result

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Cray

(Test Sponsor: University of Bristol)

SPEChpc 2021_sml_base = 1.31

Isambard 2: XC50 (ThunderX2)

SPEChpc 2021_sml_peak = Not Run

hpc2021 License: ?

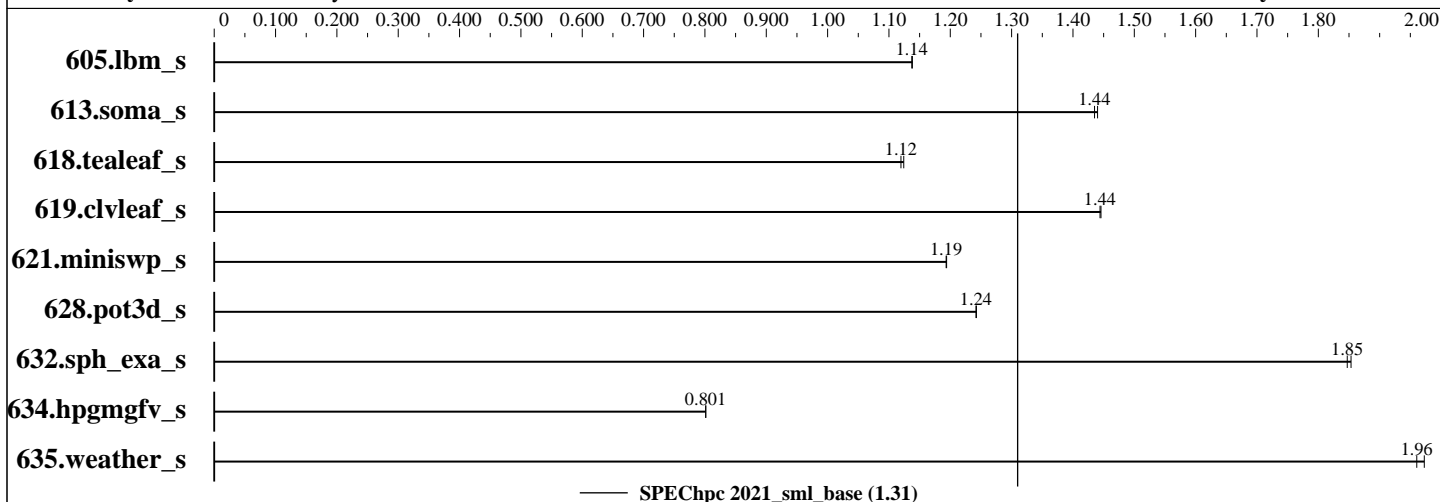
Test Sponsor: University of Bristol

Tested by: University of Bristol

Test Date: Jun-2022

Hardware Availability: May-2018

Software Availability: Mar-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	MPI	512	1	<u>1363</u>	<u>1.14</u>	1362	1.14											
613.soma_s	MPI	512	1	1111	1.44	<u>1115</u>	<u>1.44</u>											
618.tealeaf_s	MPI	512	1	1824	1.12	<u>1831</u>	<u>1.12</u>											
619.clvleaf_s	MPI	512	1	<u>1143</u>	<u>1.44</u>	1141	1.45											
621.miniswp_s	MPI	512	1	921	1.19	<u>922</u>	<u>1.19</u>											
628.pot3d_s	MPI	512	1	1348	1.24	<u>1349</u>	<u>1.24</u>											
632.sph_exa_s	MPI	512	1	1241	1.85	<u>1245</u>	<u>1.85</u>											
634.hpgmgfv_s	MPI	512	1	1216	0.802	<u>1217</u>	<u>0.801</u>											
635.weather_s	MPI	512	1	1318	1.97	<u>1326</u>	<u>1.96</u>											

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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: ThunderX2
Interconnect: Cray Aries
Compute Nodes Used: 8
Total Chips: 16
Total Cores: 512
Total Threads: 2048
Total Memory: 2 TB
Max. Peak Threads: --

Software Summary

Compiler: HPE Cray Programming Environment (CPE),
C/C++/Fortran: Cray clang version 11.0.4
MPI Library: HPE Cray Programming Environment (CPE),
Cray-mvapich2 Version 2.3.6
Other MPI Info: --
Other Software: --
Base Parallel Model: MPI
Base Ranks Run: 512
Base Threads Run: 1
Peak Parallel Models: Not Run
Minimum Peak Ranks: --
Maximum Peak Ranks: --
Max. Peak Threads: --
Min. Peak Threads: --

Node Description: ThunderX2

Hardware

Number of nodes: 8
Uses of the node: Compute
Vendor: N/A
Model: N/A
CPU Name: Marvell ThunderX2 CN9980
CPU(s) orderable: N/A
Chips enabled: 2
Cores enabled: 64
Cores per chip: 32
Threads per core: 4
CPU Characteristics: Permanent turbo to 2.5 GHz
CPU MHz: 2100
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 256 KB I+D on chip per core
L3 Cache: 32 MB I+D on chip per chip
0.5 MB shared / 64 cores
Other Cache: None
Memory: 256 GB (8 x 32 GB)
Disk Subsystem: --
Other Hardware: None
Accel Count: N/A
Accel Model: N/A
Accel Vendor: N/A
Accel Type: N/A
Accel Connection: N/A
Accel ECC enabled: N/A
Accel Description: N/A
Adapter: None
Number of Adapters: 0
Slot Type: None

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Software

Accelerator Driver: --
Adapter: None
Adapter Driver: None
Adapter Firmware: None
Operating System: SUSE Linux Enterprise Server 15 SP1
Linux 4.12.14-197.7_5.0.99-cray_ari_s
Local File System: xfs
Shared File System: None
System State: Multi-user, run level 3
Other Software: None

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Node Description: ThunderX2

Hardware (Continued)

Data Rate: None
Ports Used: 0
Interconnect Type: None

Interconnect Description: Cray Aries

Hardware

Vendor: Cray
Model: N/A
Switch Model: N/A
Number of Switches: N/A
Number of Ports: N/A
Data Rate: 14 Gb/s
Firmware: N/A
Topology: Dragonfly
Primary Use: MPI Traffic

Software

: --

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)

Cray Fortran : Version 11.0.4

=====
CC 605.lbm_s(base) 613.soma_s(base) 618.tealeaf_s(base) 621.miniswp_s(base)
634.hpgmgfv_s(base)

Cray clang version 11.0.4 (bc9473a12d1f2f43cde01f962a11240263bd8908)
Target: aarch64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/cray/pe/cce/11.0.4/cce-clang/aarch64/share/../bin

=====
CXXC 632.sph_exa_s(base)

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Thread model: posix
InstalledDir: /opt/cray/pe/cce/11.0.4/cce-clang/aarch64/share/../bin

Base Compiler Invocation

C benchmarks:

cc

C++ benchmarks:

CC

Fortran benchmarks:

ftn

Base Optimization Flags

C benchmarks:

-Ofast

C++ benchmarks:

-Ofast

Fortran benchmarks:

-Ofast

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

Tested with SPEChpc2021 v1.0.3 on 2022-06-30 16:17:32+0000.

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