

SPEChpc™ 2021 Small Result

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Cray

(Test Sponsor: University of Bristol)

Isambard 2: XC50 (ThunderX2)

SPEChpc 2021_sml_base = 1.29

SPEChpc 2021_sml_peak = Not Run

hpc2021 License: ?

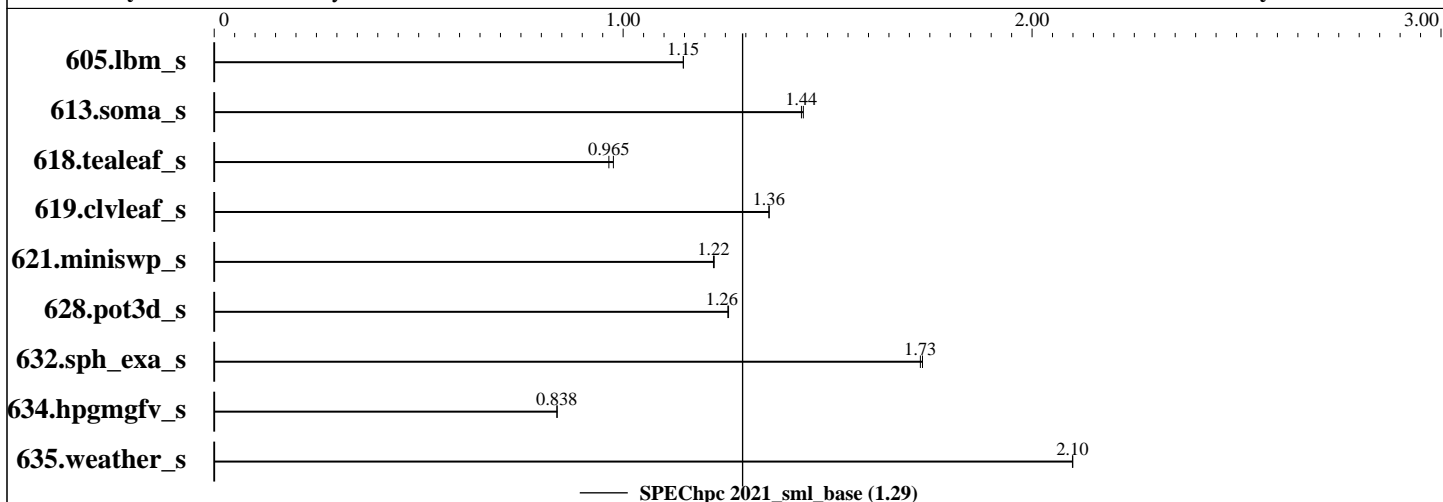
Test Sponsor: University of Bristol

Tested by: University of Bristol

Test Date: Jul-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>1351</u>	<u>1.15</u>	1351	1.15											
613.soma_s	MPI	512	1	1111	1.44	<u>1114</u>	<u>1.44</u>											
618.tealeaf_s	MPI	512	1	<u>2124</u>	<u>0.965</u>	2100	0.976											
619.clvleaf_s	MPI	512	1	<u>1216</u>	<u>1.36</u>	1216	1.36											
621.miniswp_s	MPI	512	1	900	1.22	<u>901</u>	<u>1.22</u>											
628.pot3d_s	MPI	512	1	<u>1334</u>	<u>1.26</u>	1332	1.26											
632.sph_exa_s	MPI	512	1	1328	1.73	<u>1332</u>	<u>1.73</u>											
634.hpgmgfv_s	MPI	512	1	<u>1164</u>	<u>0.838</u>	1162	0.839											
635.weather_s	MPI	512	1	<u>1239</u>	<u>2.10</u>	1238	2.10											

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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: Arm version 20.0 (based on LLVM 9.0.1)
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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Hardware Availability: May-2018

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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

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

```
Arm C/C++/Fortran Compiler version 20.0 (build number 51) (based on LLVM
9.0.1)
```

Target: aarch64-unknown-linux-gnu

Thread model: posix

InstalledDir:

/opt/allinea/20.0.0.0/arm-linux-compiler-20.0_Generic-AArch64_SUSE-12_aarch64-linux/bin

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

```
Arm C/C++/Fortran Compiler version 20.0 (build number 51) (based on LLVM
9.0.1)
```

Target: aarch64-unknown-linux-gnu

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Compiler Version Notes (Continued)

Thread model: posix

InstalledDir:

/opt/allinea/20.0.0.0/arm-linux-compiler-20.0_Generic-AArch64_SUSE-12_aarch64-linux/bin

=====

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

Arm C/C++/Fortran Compiler version 20.0 (build number 51) (based on LLVM 9.0.1)

Target: aarch64-unknown-linux-gnu

Thread model: posix

InstalledDir:

/opt/allinea/20.0.0.0/arm-linux-compiler-20.0_Generic-AArch64_SUSE-12_aarch64-linux/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.

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