SPEChpc™ 2021 Tiny Result

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Cray
(Test Sponsor: University of Bristol)

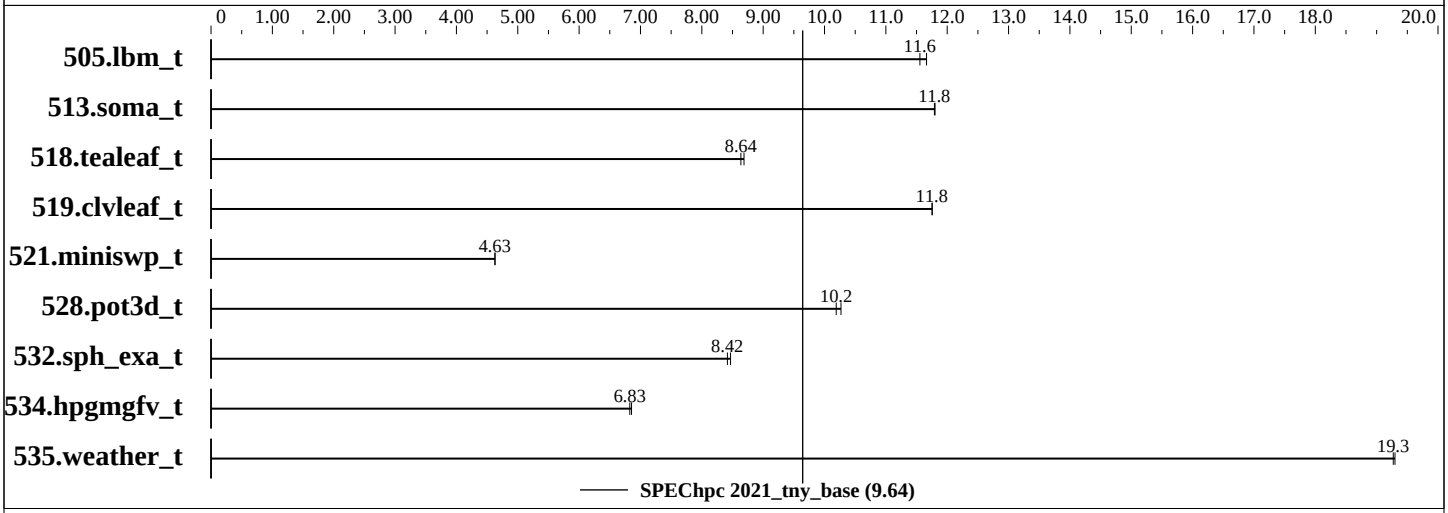
Isambard 2: XC50 (ThunderX2)

SPEChpc 2021_tny_base = 9.64

SPEChpc 2021_tny_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
505.lbm_t	MPI	512	1	193	11.7	**195**	**11.6**											
513.soma_t	MPI	512	1	314	11.8	**314**	**11.8**											
518.tealeaf_t	MPI	512	1	**191**	**8.64**	190	8.69											
519.clvleaf_t	MPI	512	1	140	11.8	**140**	**11.8**											
521.miniswp_t	MPI	512	1	**346**	**4.63**	346	4.63											
528.pot3d_t	MPI	512	1	**209**	**10.2**	207	10.3											
532.sph_exa_t	MPI	512	1	230	8.47	**232**	**8.42**											
534.hpgmgfv_t	MPI	512	1	**172**	**6.83**	171	6.85											
535.weather_t	MPI	512	1	**167**	**19.3**	167	19.3											

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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: Mar-2020

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

(Continued on next page)

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

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
	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  505.lbm_t(base) 513.soma_t(base) 518.tealeaf_t(base) 521.miniswp_t(base)
     534.hpgmgfv_t(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 532.sph_exa_t(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  519.clvleaf_t(base) 528.pot3d_t(base) 535.weather_t(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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