SPEChpc™ 2021 Small Result

Bull

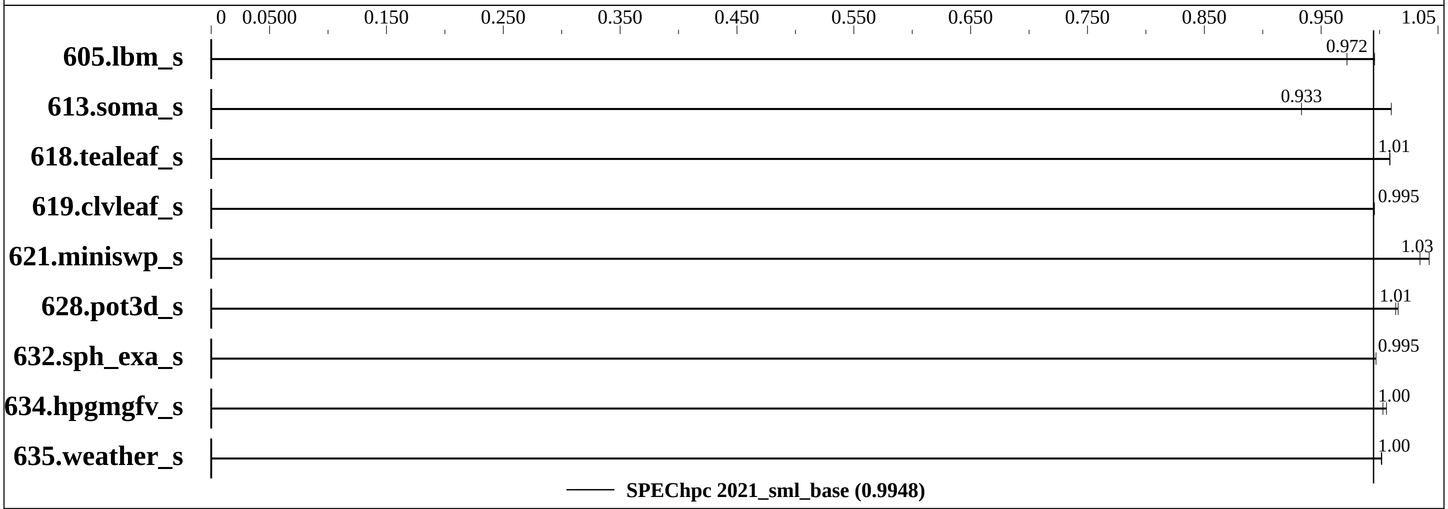
(Test Sponsor: Technische Universitaet Dresden)

Taurus: bullx DLC B720 (Intel Xeon E5-2680 v3)

SPEChpc 2021_sml_base = 0.9948

SPEChpc 2021_sml_peak = Not Run

hpc2021 License: 37A
Test Sponsor: Technische Universitaet Dresden
Tested by: Technische Universitaet Dresden
Test Date: Sep-2021
Hardware Availability: Jan-2015
Software Availability: Sep-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	240	1	1557	0.996	**1595**	**0.972**											
613.soma_s	MPI	240	1	1584	1.01	**1715**	**0.933**											
618.tealeaf_s	MPI	240	1	**2033**	**1.01**	2032	1.01											
619.clvleaf_s	MPI	240	1	1657	0.996	**1658**	**0.995**											
621.miniswp_s	MPI	240	1	1055	1.04	**1063**	**1.03**											
628.pot3d_s	MPI	240	1	1649	1.02	**1652**	**1.01**											
632.sph_exa_s	MPI	240	1	**2311**	**0.995**	2307	0.997											
634.hpgmgfv_s	MPI	240	1	**972**	**1.00**	969	1.01											
635.weather_s	MPI	240	1	**2596**	**1.00**	2595	1.00											

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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:	Taurus Compute Node (Haswell)
Interconnect:	InfiniBand
Compute Nodes Used:	10
Total Chips:	20
Total Cores:	240
Total Threads:	240
Total Memory:	640 GB
Max. Peak Threads:	--

Software Summary

Compiler:	C/C++/Fortran: Version 8.2.0 of GNU Compilers
MPI Library:	OpenMPI Version 3.1.3
Other MPI Info:	None
Other Software:	None
Base Parallel Model:	MPI
Base Ranks Run:	240
Base Threads Run:	1
Peak Parallel Models:	Not Run
Minimum Peak Ranks:	--
Maximum Peak Ranks:	--
Max. Peak Threads:	--
Min. Peak Threads:	--

Node Description: Taurus Compute Node (Haswell)

Hardware

Number of nodes:	10
Uses of the node:	compute
Vendor:	Bull
Model:	bullx DLC B720
CPU Name:	Intel Xeon E5-2680 v3
CPU(s) orderable:	1,2 chips
Chips enabled:	2
Cores enabled:	24
Cores per chip:	12
Threads per core:	1
CPU Characteristics:	Intel Turbo Boost Technology disabled
CPU MHz:	2500
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core
L3 Cache:	30 MB I+D on chip per chip
Other Cache:	None
Memory:	64 GB (8 x 8 GB 2Rx8 PC4-2133R-10)
Disk Subsystem:	Micron M510 128GB SSD SATA 6 Gb/s
Other Hardware:	None
Accel Count:	--
Accel Model:	--
Accel Vendor:	--
Accel Type:	--
Accel Connection:	--
Accel ECC enabled:	--
Accel Description:	--
Adapter:	Mellanox Technologies MT27600 (MCB193A-FCAT)
Number of Adapters:	1
Slot Type:	PCIe 3.0 x16
Data Rate:	56 Gb/s
Ports Used:	1

(Continued on next page)

Software

Accelerator Driver:	--
Adapter:	Mellanox Technologies MT27600 (MCB193A-FCAT)
Adapter Driver:	mlx5_core
Adapter Firmware:	10.16.1200
Operating System:	Red Hat Enterprise Linux Server 7.9 (Maipo) 3.10.0-1127.19.1.el7.x86_64
Local File System:	ext4
Shared File System:	4 PB Lustre over Infiniband FDR (56 Gb/s)
System State:	Multi-user, run level 3
Other Software:	None

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Node Description: Taurus Compute Node (Haswell)

Hardware (Continued)

Interconnect Type: InfiniBand

Interconnect Description: InfiniBand

Hardware

Vendor:	Mellanox Technologies
Model:	Mellanox InfiniBand FDR
Switch Model:	SX6025 (36), SX6512 (216)
Number of Switches:	17
Number of Ports:	36
Data Rate:	56 Gb/s
Firmware:	9.4.2000, 9.4.5070
Topology:	FatTree
Primary Use:	MPI Traffic and File System

Software

: --

Submit Notes

```
The config file option 'submit' was used.
    srun -n $ranks -c $threads $command
```

General Notes

```
This benchmark result is intended to provide perspective on
past performance using the historical hardware and/or
software described on this result page.

The system as described on this result page was formerly
generally available.  At the time of this publication, it may
not be shipping, and/or may not be supported, and/or may fail
to meet other tests of General Availability described in the
SPEC HPG Policy document, http://www.spec.org/hpg/policy.html

This measured result may not be representative of the result
that would be measured were this benchmark run with hardware
and software available as of the publication date.
```

Compiler Version Notes

```
==============================================================================
 FC  619.clvleaf_s(base) 628.pot3d_s(base) 635.weather_s(base)
------------------------------------------------------------------------------
GNU Fortran (GCC) 8.2.0
```

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Compiler Version Notes (Continued)

```
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This is free software; see the source for copying conditions.  There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
------------------------------------------------------------------------------

==============================================================================
 CXXC 632.sph_exa_s(base)
------------------------------------------------------------------------------
g++ (GCC) 8.2.0
Copyright (C) 2018 Free Software Foundation, Inc.
This is free software; see the source for copying conditions.  There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
------------------------------------------------------------------------------

==============================================================================
 CC  605.lbm_s(base) 613.soma_s(base) 618.tealeaf_s(base) 621.miniswp_s(base)
      634.hpgmgfv_s(base)
------------------------------------------------------------------------------
gcc (GCC) 8.2.0
Copyright (C) 2018 Free Software Foundation, Inc.
This is free software; see the source for copying conditions.  There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
mpicc

C++ benchmarks:
mpicxx

Fortran benchmarks:
mpif90

Base Portability Flags

619.clvleaf_s: -ffree-line-length-none
621.miniswp_s: -DUSE_KBA -DUSE_ACCELDIR
628.pot3d_s: -ffree-line-length-none
632.sph_exa_s: -DSPEC_USE_LT_IN_KERNELS
635.weather_s: -ffree-line-length-none

Base Optimization Flags

C benchmarks:
`-Ofast -march=native`

C++ benchmarks:
`-Ofast -march=native -std=c++14`

Fortran benchmarks:
`-Ofast -march=native -fno-stack-protector`

The flags file that was used to format this result can be browsed at
http://www.spec.org/hpc2021/flags/gcc.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/hpc2021/flags/gcc.xml

Tested with SPEChpc2021 v1.0.2 on 2021-09-10 03:27:11-0400.
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