SPEChpc™ 2021 Small Result

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Supermicro

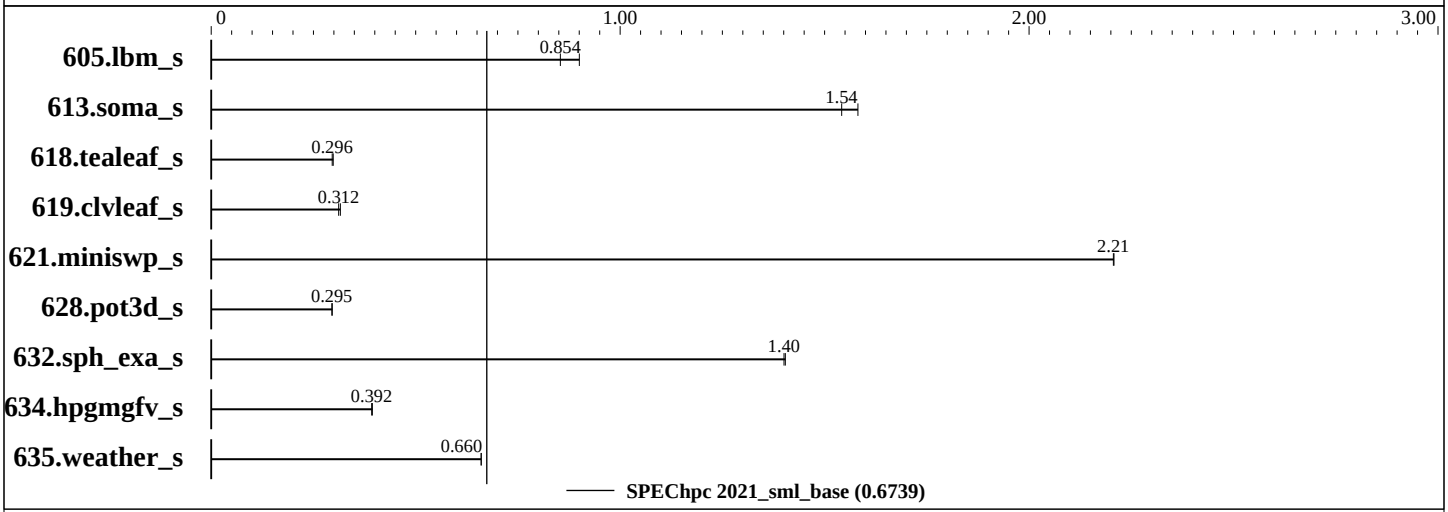
A+ Server 1115CS-TNR (AMD EPYC 9654)

SPEChpc 2021_sml_base = 0.6739

SPEChpc 2021_sml_peak = Not Run

hpc2021 License: 6569
Test Sponsor: Supermicro
Tested by: Supermicro

Test Date: Oct-2022
Hardware Availability: Nov-2022
Software Availability: Nov-2022



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	12	16	1722	0.900	**1815**	**0.854**											
613.soma_s	OMP	12	16	1012	1.58	**1038**	**1.54**											
618.tealeaf_s	OMP	12	16	**6929**	**0.296**	6871	0.298											
619.clvleaf_s	OMP	12	16	**5294**	**0.312**	5224	0.316											
621.miniswp_s	OMP	12	16	**499**	**2.21**	498	2.21											
628.pot3d_s	OMP	12	16	**5678**	**0.295**	5658	0.296											
632.sph_exa_s	OMP	12	16	**1642**	**1.40**	1638	1.40											
634.hpgmgfv_s	OMP	12	16	2474	0.394	**2485**	**0.392**											
635.weather_s	OMP	12	16	**3938**	**0.660**	3938	0.660											

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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: Nov-2022

Hardware Summary

Type of System:	Homogenous
Compute Node:	A+ Server 1115CS-TNR
Compute Nodes Used:	1
Total Chips:	1
Total Cores:	96
Total Threads:	192
Total Memory:	768 GB
Max. Peak Threads:	--

Software Summary

Compiler:	AMD Optimizing C/C++ and Fortran Compilers (AOCC) Version 4.0.0 Build 389 for Linux
MPI Library:	OpenMPI Version 4.1.1
Other MPI Info:	None
Other Software:	None
Base Parallel Model:	OMP
Base Ranks Run:	12
Base Threads Run:	16
Peak Parallel Models:	Not Run
Minimum Peak Ranks:	--
Maximum Peak Ranks:	--
Max. Peak Threads:	--
Min. Peak Threads:	--

Node Description: A+ Server 1115CS-TNR

Hardware

Number of nodes:	1
Uses of the node:	compute
Vendor:	Supermicro
Model:	A+ Server 1115CS-TNR
CPU Name:	AMD EPYC 9654
CPU(s) orderable:	1 chip
Chips enabled:	1
Cores enabled:	96
Cores per chip:	96
Threads per core:	2
CPU Characteristics:	Max. Boost Clock upto 3.7GHz
CPU MHz:	2400
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	1 MB I+D on chip per core
L3 Cache:	384 MB I+D on chip per chip
Other Cache:	None
Memory:	768 GB (12 x 64 GB 2Rx4 PC5-4800B-R)
Disk Subsystem:	10 x 1.92 TB NVMe PCIe Gen4.0
Other Hardware:	None
Accel Count:	--
Accel Model:	--
Accel Vendor:	--
Accel Type:	--
Accel Connection:	--
Accel ECC enabled:	--
Accel Description:	--
Adapter:	Mellanox ConnectX-5 Ex
Number of Adapters:	1
Slot Type:	PCI-Express 4.0 x16
Data Rate:	100 Gbits/s
Ports Used:	1
Interconnect Type:	Nvidia Mellanox ConnectX-5 Ex

Software

Accelerator Driver:	--
Adapter:	Mellanox ConnectX-5 Ex
Adapter Driver:	None
Adapter Firmware:	None
Operating System:	SUSE Linux Enterprise Server 15 SP4 Kernel 5.14.21-150400.24.21-default
Local File System:	ext4
Shared File System:	NFS share
System State:	Multi-user, run level 3
Other Software:	None

Submit Notes

```
The config file option 'submit' was used.
```

General Notes

```
 MPI startup command:
   mpirun command was used to start MPI jobs.
```

Compiler Version Notes

```
==============================================================================
 CC  605.lbm_s(base) 613.soma_s(base) 618.tealeaf_s(base) 621.miniswp_s(base)
      634.hpgmgfv_s(base)
------------------------------------------------------------------------------
AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on
  LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /root/aocc/aocc-compiler-rel-4.0-3206-389/bin
------------------------------------------------------------------------------

==============================================================================
 CXXC 632.sph_exa_s(base)
------------------------------------------------------------------------------
AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on
  LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /root/aocc/aocc-compiler-rel-4.0-3206-389/bin
------------------------------------------------------------------------------

==============================================================================
 FC  619.clvleaf_s(base) 628.pot3d_s(base) 635.weather_s(base)
------------------------------------------------------------------------------
AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on
  LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /root/aocc/aocc-compiler-rel-4.0-3206-389/bin
------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
mpicc

(Continued on next page)

Base Compiler Invocation (Continued)

C++ benchmarks:
mpicxx

Fortran benchmarks:
mpif90

Base Portability Flags

619.clvleaf_s: -DSPEC_USE_MPIFH
628.pot3d_s: -DSPEC_USE_MPIFH
635.weather_s: -DSPEC_USE_MPIFH

Base Optimization Flags

C benchmarks:
-O3 -ffast-math -flto -march=znver4 -fopenmp

C++ benchmarks:
-O3 -ffast-math -flto -march=znver4 -fopenmp

Fortran benchmarks:
-O3 -ffast-math -flto -march=znver4 -fopenmp

Base Other Flags

C benchmarks:
-Ispecmpitime -I/root/aocc/aocc-compiler-rel-4.0-3206-389/include

C++ benchmarks:
-Ispecmpitime -I/root/aocc/aocc-compiler-rel-4.0-3206-389/include

Fortran benchmarks (except as noted below):
-I/root/aocc/aocc-compiler-rel-4.0-3206-389/include
-I/root/aocc/compilers/openmpi-4.1.1/include/

619.clvleaf_s: -Ispecmpitime
-I/root/aocc/aocc-compiler-rel-4.0-3206-389/include
-I/root/aocc/compilers/openmpi-4.1.1/include/

The flags file that was used to format this result can be browsed at
http://www.spec.org/hpc2021/flags/amd2021_flags.2022-11-10.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/hpc2021/flags/amd2021_flags.2022-11-10.xml

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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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