SPEChpc™ 2021 Small Result

Copyright 2021-2023 Standard Performance Evaluation Corporation

Supermicro

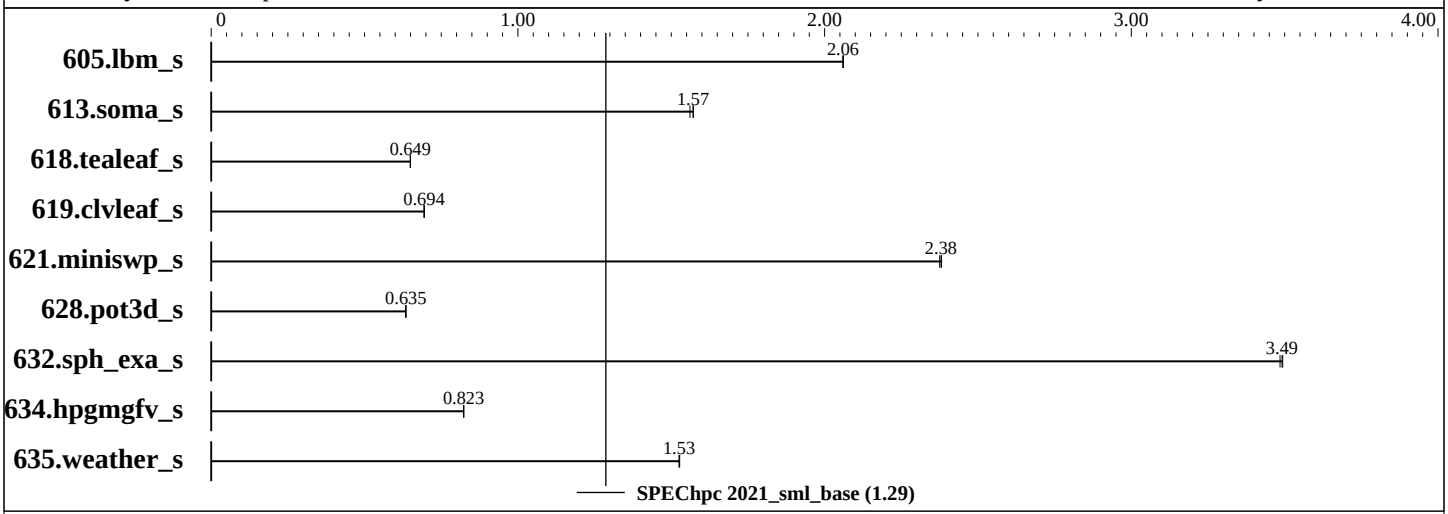
A+ Server 2025HS-TNR (AMD EPYC 9754)

SPEChpc 2021_sml_base = 1.29

SPEChpc 2021_sml_peak = Not Run

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

Test Date: May-2023
Hardware Availability: Jun-2023
Software Availability: Feb-2023



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	256	1	752	2.06	**752**	**2.06**	753	2.06									
613.soma_s	MPI	256	1	1018	1.57	**1018**	**1.57**	1025	1.56									
618.tealeaf_s	MPI	256	1	3155	0.650	**3157**	**0.649**	3157	0.649									
619.clvleaf_s	MPI	256	1	**2376**	**0.694**	2376	0.695	2376	0.694									
621.miniswp_s	MPI	256	1	463	2.38	462	2.38	**462**	**2.38**									
628.pot3d_s	MPI	256	1	2637	0.635	**2639**	**0.635**	2642	0.634									
632.sph_exa_s	MPI	256	1	658	3.49	**659**	**3.49**	660	3.48									
634.hpgmgfv_s	MPI	256	1	**1184**	**0.823**	1184	0.824	1185	0.823									
635.weather_s	MPI	256	1	1702	1.53	1704	1.53	**1704**	**1.53**									

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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
Compute Node:	A+ Server 2025HS-TNR
Compute Nodes Used:	1
Total Chips:	2
Total Cores:	256
Total Threads:	512
Total Memory:	1536 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 4.1.4
Other MPI Info:	None
Other Software:	None
Base Parallel Model:	MPI
Base Ranks Run:	256
Base Threads Run:	1
Peak Parallel Models:	Not Run
Minimum Peak Ranks:	--
Maximum Peak Ranks:	--
Max. Peak Threads:	--
Min. Peak Threads:	--

Node Description: A+ Server 2025HS-TNR

Hardware

Number of nodes:	1
Uses of the node:	compute
Vendor:	Supermicro
Model:	A+ Server 2025HS-TNR
CPU Name:	AMD EPYC 9754
CPU(s) orderable:	2 chips
Chips enabled:	2
Cores enabled:	256
Cores per chip:	128
Threads per core:	2
CPU Characteristics:	Max. Boost Clock upto 3.1GHz
CPU MHz:	2250
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	1 MB I+D on chip per core
L3 Cache:	256 MB I+D on chip per chip 16 MB shared / 8 cores
Other Cache:	None
Memory:	1536 GB (24 x 64 GB 2Rx4 PC5-4800B-R)
Disk Subsystem:	1 x 800 GB Samsung U.2 NVMe SSD
Other Hardware:	None
Accel Count:	0
Accel Model:	None
Accel Vendor:	None
Accel Type:	None
Accel Connection:	None
Accel ECC enabled:	None
Accel Description:	None
Adapter:	None
Number of Adapters:	0
Slot Type:	None
Data Rate:	None
Ports Used:	0

Software

Accelerator Driver:	--
Adapter:	None
Adapter Driver:	None
Adapter Firmware:	None
Operating System:	Ubuntu 22.04.2 LTS Kernel 5.15.0-71-generic
Local File System:	ext4
Shared File System:	None
System State:	Multi-user, run level 5
Other Software:	None

(Continued on next page)

Node Description: A+ Server 2025HS-TNR

Hardware (Continued)

Interconnect Type: None

Submit Notes

```
The config file option 'submit' was used.
mpirun --bind-to core:overload-allowed --oversubscribe --mca topo basic -np $ranks $command
```

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#434 2022_10_28) (based on
  LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc-compiler-4.0.0/bin
------------------------------------------------------------------------------

==============================================================================
 CXXC 632.sph_exa_s(base)
------------------------------------------------------------------------------
AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#434 2022_10_28) (based on
  LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc-compiler-4.0.0/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#434 2022_10_28) (based on
  LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc-compiler-4.0.0/bin
```

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Compiler Version Notes (Continued)

```
------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
`mpicc`

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`

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

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

Base Other Flags

C benchmarks:
`-Ispecmpitime -I/include`

C++ benchmarks:
`-Ispecmpitime  -I/include`

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Base Other Flags (Continued)

Fortran benchmarks (except as noted below):
`-I/include -I/include/`

619.clvleaf_s: `-Ispecmpitime -I/include -I/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.

Tested with SPEChpc2021 v1.1.7 on 2023-05-29 17:38:48-0400.
Report generated on 2023-06-14 12:12:55 by hpc2021 PS formatter v1.0.3.
Originally published on 2023-06-14.