



# SPEChpc™ 2021 Tiny Result

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## Advanced Micro Devices

SPEChpc 2021\_tny\_base = 13.9

Dallas Milan Cluster: Gigabyte H262-Z63 (AMD EPYC 7763)

SPEChpc 2021\_tny\_peak = Not Run

hpc2021 License: 0017

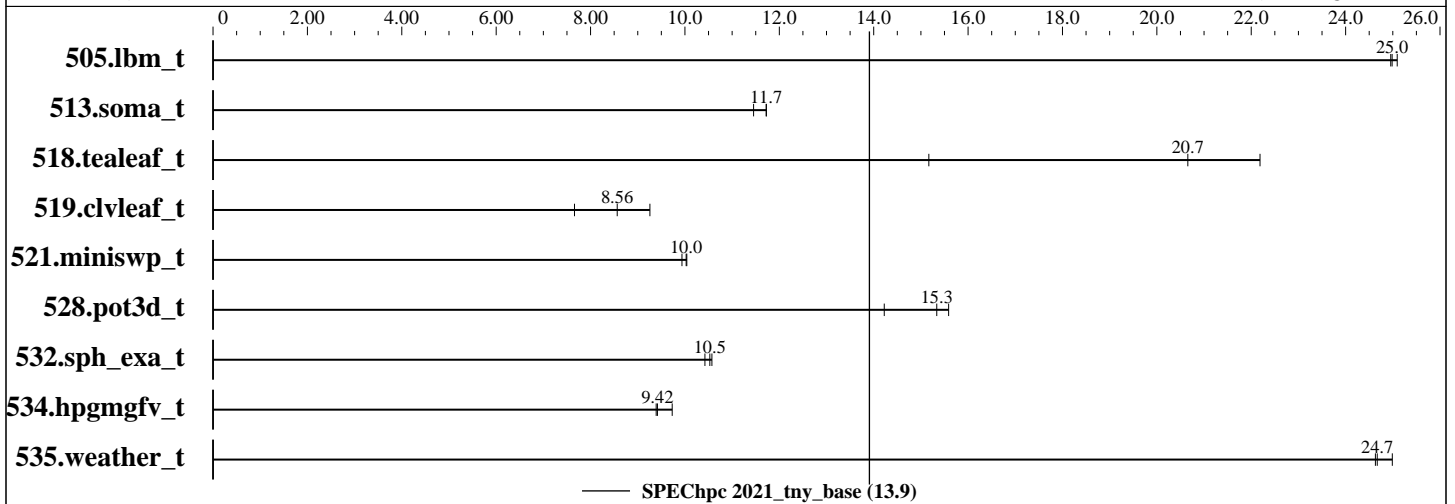
Test Date: Aug-2021

Test Sponsor: Advanced Micro Devices

Hardware Availability: Apr-2021

Tested by: Advanced Micro Devices

Software Availability: Aug-2021



## 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	89.7	25.1	<b>90.1</b>	<b>25.0</b>	90.2	25.0										
513.soma_t	MPI	512	1	323	11.5	316	11.7	<b>316</b>	<b>11.7</b>										
518.tealeaf_t	MPI	512	1	109	15.2	<b>79.9</b>	<b>20.7</b>	74.4	22.2										
519.clvleaf_t	MPI	512	1	<b>193</b>	<b>8.56</b>	178	9.26	215	7.66										
521.miniswp_t	MPI	512	1	161	9.94	159	10.0	<b>160</b>	<b>10.0</b>										
528.pot3d_t	MPI	512	1	<b>139</b>	<b>15.3</b>	149	14.2	136	15.6										
532.sph_exa_t	MPI	512	1	184	10.6	<b>185</b>	<b>10.5</b>	187	10.4										
534.hpgmgfv_t	MPI	512	1	<b>125</b>	<b>9.42</b>	125	9.39	121	9.73										
535.weather_t	MPI	512	1	131	24.6	129	25.0	<b>131</b>	<b>24.7</b>										

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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: Gigabyte H262-Z63  
Interconnect: Mellanox  
Compute Nodes Used: 4  
Total Chips: 8  
Total Cores: 512  
Total Threads: 512  
Total Memory: 2 TB  
Max. Peak Threads: --

### Software Summary

Compiler: LLVM/Clang 13.0  
C/C++/Fortran: Version 13.0-0  
MLSE ROCm 4.3.0 Compilers  
Compiler available by installing ROCm 4.3 or getting  
llvm-amdgpu\_13.0.0.21295.40300\_amd64.deb  
openmp-extras4.3.0\_12.43.0.40300-52\_amd64.deb  
MPI Library: OpenMPI Version 4.0.5  
Other MPI Info: None  
Other Software: None  
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: Gigabyte H262-Z63

### Hardware

Number of nodes: 4  
Uses of the node: compute  
Vendor: Gigabyte  
Model: Gigabyte H262-Z63  
CPU Name: AMD EPYC 7763  
CPU(s) orderable: 1,2 chips  
Chips enabled: 2  
Cores enabled: 128  
Cores per chip: 64  
Threads per core: 1  
CPU Characteristics: Max Boost Clock disabled  
CPU MHz: 2450  
Primary Cache: 32 KB I + 32 KB D on chip per core  
Secondary Cache: 512 KB I+D on chip per core  
L3 Cache: 256 MB I+D on chip per chip  
32 MB shared / 8 cores  
Other Cache: None  
Memory: 512 GB (16 x 32 GB 2Rx4 PC4-3200AA-R)  
Disk Subsystem: Intel SSD 520 Series 240GB, 2.5in SATA 6Gb/s  
Other Hardware: None  
Accel Count: --  
Accel Model: --  
Accel Vendor: --  
Accel Type: --  
Accel Connection: --  
Accel ECC enabled: --  
Accel Description: --

(Continued on next page)

### Software

Accelerator Driver: --  
Adapter: ConnectX-6 Dual port, model number: MCX653106A  
Adapter Driver: None  
Adapter Firmware: None  
Operating System: CentOS Linux release 8.3.2011  
Kernel 4.18.0-193 [native to CentOS 8.3]  
Local File System: xfs  
Shared File System: NFS share  
System State: Multi-user, run level 3  
Other Software: None



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### Node Description: Gigabyte H262-Z63

#### Hardware (Continued)

**Adapter:** ConnectX-6 Dual port, model number: MCX653106A  
**Number of Adapters:** 0  
**Slot Type:** None  
**Data Rate:** None  
**Ports Used:** 0  
**Interconnect Type:** None

### Interconnect Description: Mellanox

#### Hardware

**Vendor:** Mellanox  
**Model:** NVIDIA MCX653106A-EFAT ConnectX-6 VPI Adapter Card HDR100/EDR/100GbE  
**Switch Model:** MLNX\_OFED\_LINUX-5.2.1.0 (OFED-5.2.1.0) Switch: 27\_2008\_2202-MQM8790-HS2X\_Ax  
**Number of Switches:** 2  
**Number of Ports:** 40  
**Data Rate:** InfiniBand HDR 100 Gb/s  
**Firmware:** HCA: 20.29.1016  
**Topology:** non-blocking fat tree  
**Primary Use:** MPI Traffic

#### Software

: --

### Submit Notes

The config file option 'submit' was used.  
MPI startup command:  
mpirun command was used to start MPI jobs.

### Compiler Version Notes

```
=====
CXXC 532.sph_exa_t(base)
-----
/home/rlieberm/rocm/rocm-4.3.0-llvm/llvm/bin/clang++: /lib64/libtinfo.so.5:
no version information available (required by
/home/rlieberm/rocm/rocm-4.3.0-llvm/llvm/bin/clang++)
clang version 13.0.0 (https://github.com/RadeonOpenCompute/llvm-project
roc-4.3.0 21295 f2943f684437d2c1143a56e418d29fc6b3314072)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /home/rlieberm/rocm/rocm-4.3.0-llvm/llvm/bin
-----
```

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### Compiler Version Notes (Continued)

=====  
CC 505.lbm\_t(base) 513.soma\_t(base) 518.tealeaf\_t(base) 521.miniswp\_t(base)  
534.hpgmgfv\_t(base)  
=====

/home/rlieberm/rocm/rocm-4.3.0-llvm/llvm/bin/clang: /lib64/libtinfo.so.5: no  
version information available (required by  
/home/rlieberm/rocm/rocm-4.3.0-llvm/llvm/bin/clang)  
clang version 13.0.0 (<https://github.com/RadeonOpenCompute/llvm-project>  
roc-4.3.0 21295 f2943f684437d2c1143a56e418d29fc6b3314072)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /home/rlieberm/rocm/rocm-4.3.0-llvm/llvm/bin  
=====

=====  
FC 519.clvleaf\_t(base) 528.pot3d\_t(base) 535.weather\_t(base)  
=====

/home/rlieberm/rocm/rocm-4.3.0-llvm/llvm/bin/flang: /lib64/libtinfo.so.5: no  
version information available (required by  
/home/rlieberm/rocm/rocm-4.3.0-llvm/llvm/bin/flang)  
flang-new version 13.0.0 (<https://github.com/RadeonOpenCompute/llvm-project>  
roc-4.3.0 21295 f2943f684437d2c1143a56e418d29fc6b3314072)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /home/rlieberm/rocm/rocm-4.3.0-llvm/llvm/bin  
=====

### Base Compiler Invocation

C benchmarks:

mpicc

C++ benchmarks:

mpicxx

Fortran benchmarks:

mpif90

### Base Portability Flags

519.clvleaf\_t: -DSPEC\_USE\_MPIFH  
528.pot3d\_t: -DSPEC\_USE\_MPIFH

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## Base Portability Flags (Continued)

535.weather\_t: -DSPEC\_USE\_MPIFH

## Base Optimization Flags

C benchmarks:

-O3

C++ benchmarks:

-O3

Fortran benchmarks:

-O3

## Base Other Flags

C benchmarks:

-I/home/rlieberm/rocm/rocm-4.3.0-llvm/llvm/include

C++ benchmarks:

-I/home/rlieberm/rocm/rocm-4.3.0-llvm/llvm/include

Fortran benchmarks:

-I/home/rlieberm/rocm/rocm-4.3.0-llvm/llvm/include

-I/home/software/openmpi/aocc30/4.0.5/include/

The flags file that was used to format this result can be browsed at

[http://www.spec.org/hpc2021/flags/amd2021\\_flags.html](http://www.spec.org/hpc2021/flags/amd2021_flags.html)

You can also download the XML flags source by saving the following link:

[http://www.spec.org/hpc2021/flags/amd2021\\_flags.xml](http://www.spec.org/hpc2021/flags/amd2021_flags.xml)

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For questions about this result, please contact the tester. For other inquiries, please contact [info@spec.org](mailto:info@spec.org).

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