



SPEChpc™ 2021 Tiny Result

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Supermicro

SPEChpc 2021_tny_base = 12.9

A+ Server 2125HS-TNR (AMD EPYC 9654)

SPEChpc 2021_tny_peak = 12.9

hpc2021 License: 6569

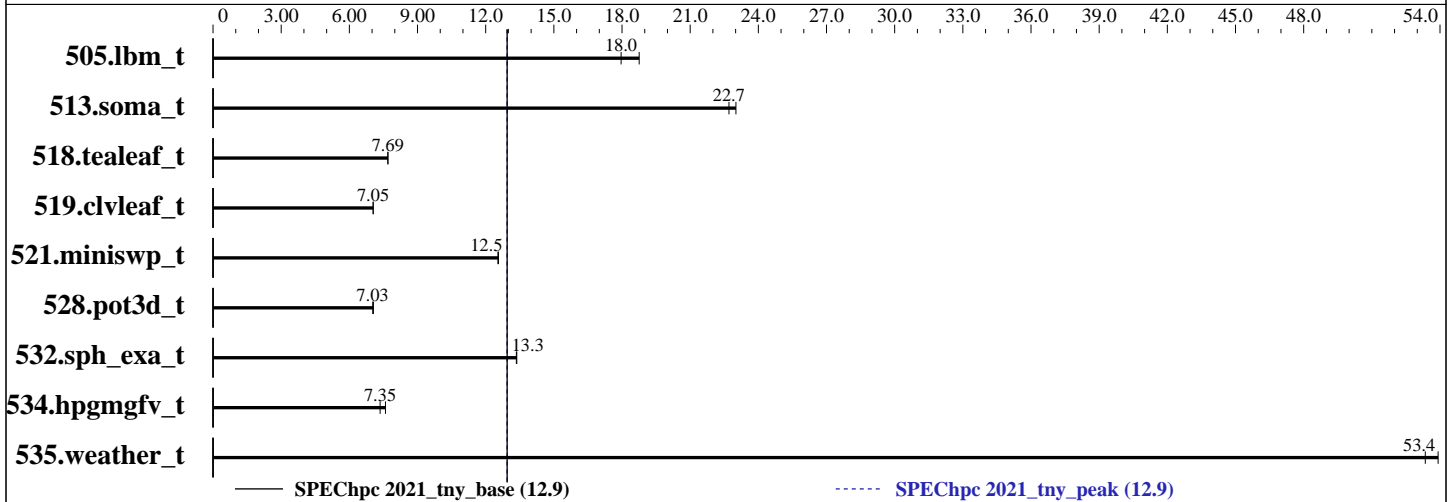
Test Sponsor: Supermicro

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
505.lbm_t	OMP	24	16	125	18.0	120	18.8			OMP	24	16	125	18.0	120	18.8		
513.soma_t	OMP	24	16	163	22.7	161	23.0			OMP	24	16	163	22.7	161	23.0		
518.tealeaf_t	OMP	24	16	214	7.70	214	7.69			OMP	24	16	214	7.70	214	7.69		
519.clvleaf_t	OMP	24	16	234	7.05	234	7.05			OMP	24	16	234	7.05	234	7.05		
521.miniswp_t	OMP	24	16	128	12.5	127	12.6			OMP	24	16	128	12.5	127	12.6		
528.pot3d_t	OMP	24	16	302	7.03	301	7.06			OMP	24	16	302	7.03	301	7.06		
532.sph_exa_t	OMP	24	16	146	13.4	146	13.3			OMP	24	16	146	13.4	146	13.3		
534.hpgmgfv_t	OMP	24	16	160	7.35	155	7.59			OMP	24	16	160	7.35	155	7.59		
535.weather_t	OMP	24	16	59.8	53.9	60.4	53.4			OMP	24	16	59.8	53.9	60.4	53.4		

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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 2125HS-TNR
Compute Nodes Used: 1
Total Chips: 2
Total Cores: 192
Total Threads: 384
Total Memory: 1536 GB
Max. Peak Threads: 16

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: 24
Base Threads Run: 16
Peak Parallel Models: OMP
Minimum Peak Ranks: 24
Maximum Peak Ranks: 24
Max. Peak Threads: 16
Min. Peak Threads: 16

Node Description: A+ Server 2125HS-TNR

Hardware

Number of nodes: 1
Uses of the node: compute
Vendor: Supermicro
Model: A+ Server 2125HS-TNR
CPU Name: AMD EPYC 9654
CPU(s) orderable: 1-2 chips
Chips enabled: 2
Cores enabled: 192
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: 1536 GB (24 x 64 GB 2Rx4 PC5-4800B-R)
Disk Subsystem: 4 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



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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 505.lbm_t(base, peak) 513.soma_t(base, peak) 518.tealeaf_t(base, peak)
521.miniswp_t(base, peak) 534.hpgmgfv_t(base, peak)
=====

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 532.sph_exa_t(base, peak)
=====

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 519.clvleaf_t(base, peak) 528.pot3d_t(base, peak) 535.weather_t(base,
peak)
=====

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

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Base Compiler Invocation (Continued)

C++ benchmarks:

mpicxx

Fortran benchmarks:

mpif90

Base Portability Flags

519.clvleaf_t: -DSPEC_USE_MPIFH
528.pot3d_t: -DSPEC_USE_MPIFH
535.weather_t: -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 (except as noted below):

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

521.miniswp_t: -Ispecmpitime/
-I/root/aocc/aocc-compiler-rel-4.0-3206-389/include

534.hpgmgfv_t: -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

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Base Other Flags (Continued)

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/
```

519.clvleaf_t: -Ispecmpitime

```
-I/root/aocc/aocc-compiler-rel-4.0-3206-389/include  
-I/root/aocc/compilers/openmpi-4.1.1/include/
```

Peak Compiler Invocation

C benchmarks:

mpicc

C++ benchmarks:

mpicxx

Fortran benchmarks:

mpif90

Peak Portability Flags

```
519.clvleaf_t: -DSPEC_USE_MPIFH  
528.pot3d_t: -DSPEC_USE_MPIFH  
535.weather_t: -DSPEC_USE_MPIFH
```

Peak Optimization Flags

C benchmarks:

505.lbm_t: basepeak = yes

513.soma_t: basepeak = yes

518.tealeaf_t: basepeak = yes

521.miniswp_t: basepeak = yes

534.hpgmgfv_t: basepeak = yes

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Peak Optimization Flags (Continued)

C++ benchmarks:

532.sph_exa_t: basepeak = yes

Fortran benchmarks:

519.clvleaf_t: basepeak = yes

528.pot3d_t: basepeak = yes

535.weather_t: basepeak = yes

Peak Other Flags

C benchmarks (except as noted below):

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

521.miniswp_t: -Ispecmpitime/

-I/root/aocc/aocc-compiler-rel-4.0-3206-389/include

534.hpgmgfv_t: -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/

519.clvleaf_t: -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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