



SPEChpc™ 2021 Small Result

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Supermicro

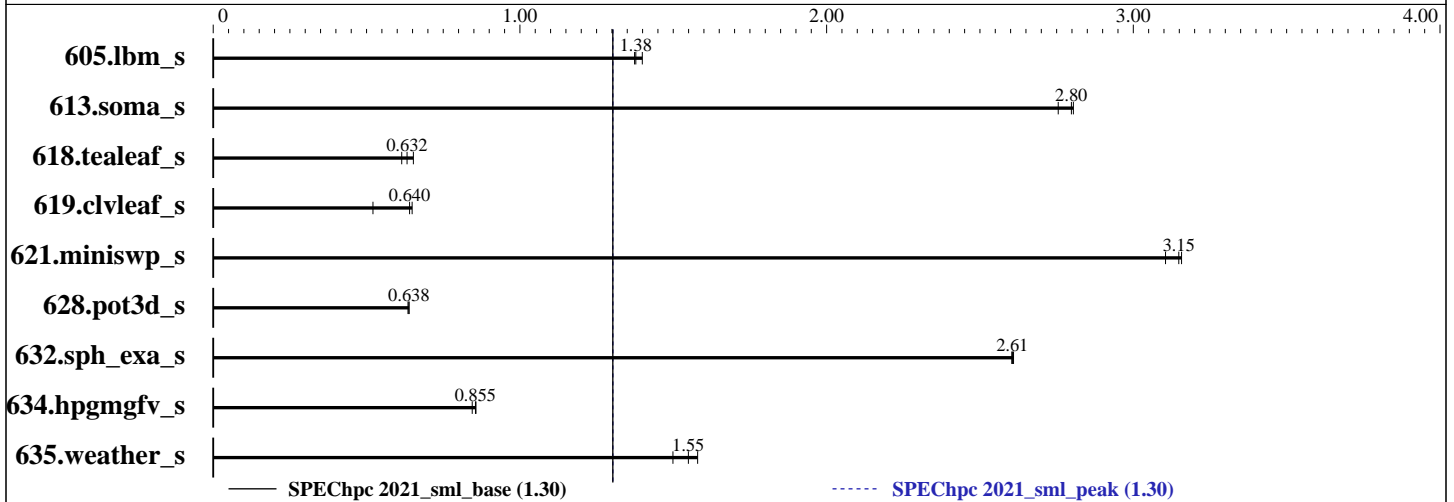
SPEChpc 2021_sml_base = 1.30

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

SPEChpc 2021_sml_peak = 1.30

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	24	16	1128	1.37	1108	1.40	1125	1.38	OMP	24	16	1128	1.37	1108	1.40	1125	1.38
613.soma_s	OMP	24	16	572	2.80	581	2.76	571	2.80	OMP	24	16	572	2.80	581	2.76	571	2.80
618.tealeaf_s	OMP	24	16	3243	0.632	3141	0.653	3335	0.615	OMP	24	16	3243	0.632	3141	0.653	3335	0.615
619.clvleaf_s	OMP	24	16	3168	0.521	2544	0.649	2577	0.640	OMP	24	16	3168	0.521	2544	0.649	2577	0.640
621.miniswp_s	OMP	24	16	348	3.16	354	3.11	349	3.15	OMP	24	16	348	3.16	354	3.11	349	3.15
628.pot3d_s	OMP	24	16	2625	0.638	2624	0.638	2638	0.635	OMP	24	16	2625	0.638	2624	0.638	2638	0.635
632.sph_exa_s	OMP	24	16	883	2.60	883	2.61	881	2.61	OMP	24	16	883	2.60	883	2.61	881	2.61
634.hpgmgfv_s	OMP	24	16	1140	0.855	1138	0.857	1155	0.845	OMP	24	16	1140	0.855	1138	0.857	1155	0.845
635.weather_s	OMP	24	16	1646	1.58	1678	1.55	1735	1.50	OMP	24	16	1646	1.58	1678	1.55	1735	1.50

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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: 192
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: 1
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: 1 x 960 GB 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: Ubuntu 22.04
Kernel 5.15.0-50-generic
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 605.lbm_s(base, peak) 613.soma_s(base, peak) 618.tealeaf_s(base, peak)
621.miniswp_s(base, peak) 634.hpgmgfv_s(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 632.sph_exa_s(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 619.clvleaf_s(base, peak) 628.pot3d_s(base, peak) 635.weather_s(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

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/



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Peak Compiler Invocation

C benchmarks:

mpicc

C++ benchmarks:

mpicxx

Fortran benchmarks:

mpif90

Peak Portability Flags

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

Peak Optimization Flags

C benchmarks:

605.lbm_s: basepeak = yes

613.soma_s: basepeak = yes

618.tealeaf_s: basepeak = yes

621.miniswp_s: basepeak = yes

634.hpgmgfv_s: basepeak = yes

C++ benchmarks:

632.sph_exa_s: basepeak = yes

Fortran benchmarks:

619.clvleaf_s: basepeak = yes

628.pot3d_s: basepeak = yes

635.weather_s: basepeak = yes



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Peak 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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