



SPEChpc™ 2021 Small Result

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Supermicro

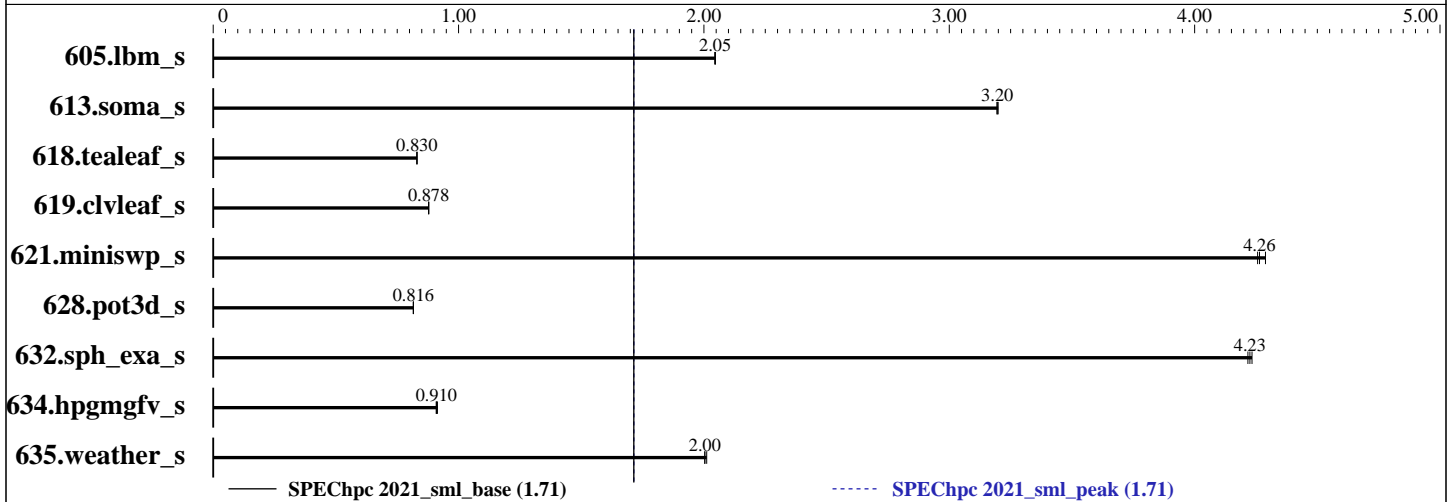
SPEChpc 2021_sml_base = 1.71

Hyper A+ Server AS -2126HS-TN (AMD EPYC 9555)

SPEChpc 2021_sml_peak = 1.71

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

Test Date: Sep-2024
Hardware Availability: Oct-2024
Software Availability: Apr-2024



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	16	16	758	2.04	757	2.05	758	2.05	OMP	16	16	758	2.04	757	2.05	758	2.05
613.soma_s	OMP	16	16	501	3.20	500	3.20	501	3.19	OMP	16	16	501	3.20	500	3.20	501	3.19
618.tealeaf_s	OMP	16	16	2468	0.831	2469	0.830	2469	0.830	OMP	16	16	2468	0.831	2469	0.830	2469	0.830
619.clvleaf_s	OMP	16	16	1879	0.878	1879	0.878	1879	0.878	OMP	16	16	1879	0.878	1879	0.878	1879	0.878
621.miniswp_s	OMP	16	16	258	4.26	256	4.29	258	4.26	OMP	16	16	258	4.26	256	4.29	258	4.26
628.pot3d_s	OMP	16	16	2054	0.815	2053	0.816	2053	0.816	OMP	16	16	2054	0.815	2053	0.816	2053	0.816
632.sph_exa_s	OMP	16	16	543	4.23	545	4.22	544	4.23	OMP	16	16	543	4.23	545	4.22	544	4.23
634.hpgmgfv_s	OMP	16	16	1067	0.914	1072	0.910	1073	0.909	OMP	16	16	1067	0.914	1072	0.910	1073	0.909
635.weather_s	OMP	16	16	1293	2.01	1297	2.00	1298	2.00	OMP	16	16	1293	2.01	1297	2.00	1298	2.00

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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: Hyper A+ Server AS -2126HS-TN
Compute Nodes Used: 1
Total Chips: 2
Total Cores: 128
Total Threads: 256
Total Memory: 1536 GB
Max. Peak Threads: 16

Software Summary

Compiler: Intel oneAPI DPC++/C++ Compiler 2024.2.1
MPI Library: OpenMPI Version 5.0.5
Other MPI Info: None
Other Software: None
Base Parallel Model: OMP
Base Ranks Run: 16
Base Threads Run: 16
Peak Parallel Models: OMP
Minimum Peak Ranks: 16
Maximum Peak Ranks: 16
Max. Peak Threads: 16
Min. Peak Threads: 16

Node Description: Hyper A+ Server AS -2126HS-TN

Hardware

Number of nodes: 1
Uses of the node: compute
Vendor: Supermicro
Model: Hyper A+ Server AS -2126HS-TN
CPU Name: AMD EPYC 9555
CPU(s) orderable: 1,2 chips
Chips enabled: 2
Cores enabled: 128
Cores per chip: 64
Threads per core: 2
CPU Characteristics: Max. Boost Clock upto 4.4GHz
CPU MHz: 3200
Primary Cache: 32 KB I + 48 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,
32 MB shared / 8 cores
Other Cache: None
Memory: 1536 GB (24 x 64 GB 2Rx4 PC5-6400B-R,
running at 6000)
Disk Subsystem: 1 x 3.5 TB NVMe SSD
Other Hardware: None
Accel Count: None
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

Software

Accelerator Driver: --
Adapter: None
Adapter Driver: None
Adapter Firmware: None
Operating System: Ubuntu 24.04 LTS
Kernel 6.8.0-44-generic
Local File System: ext4
Shared File System: None
System State: Multi-user, run level 3
Other Software: None

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Node Description: Hyper A+ Server AS -2126HS-TN

Hardware (Continued)

Ports Used: 0
Interconnect Type: None

Submit Notes

The config file option 'submit' was used.
mpirun -np \$ranks --bind-to core:overload-allowed --map-by ppr:1:numa:pe=16 --mca topo basic \$command

General Notes

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

Compiler Version Notes

=====
CXXC 632.sph_exa_s(base, peak)

Intel(R) oneAPI DPC++/C++ Compiler 2024.2.1 (2024.2.1.20240711)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir:
/home/amd/spack/opt/spack/linux-ubuntu24.04-zen4/gcc-13.2.0/intel-oneapi-compilers-2024.2.1-njykuawredfxjir45iz3erssyetxux3c/compiler/2024.2/bin/compiler
Configuration file:
/home/amd/spack/opt/spack/linux-ubuntu24.04-zen4/gcc-13.2.0/intel-oneapi-compilers-2024.2.1-njykuawredfxjir45iz3erssyetxux3c/compiler/2024.2/bin/compiler/./icpx.cfg

=====
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)

Intel(R) oneAPI DPC++/C++ Compiler 2024.2.1 (2024.2.1.20240711)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir:
/home/amd/spack/opt/spack/linux-ubuntu24.04-zen4/gcc-13.2.0/intel-oneapi-compilers-2024.2.1-njykuawredfxjir45iz3erssyetxux3c/compiler/2024.2/bin/compiler
Configuration file:
/home/amd/spack/opt/spack/linux-ubuntu24.04-zen4/gcc-13.2.0/intel-oneapi-compilers-2024.2.1-njykuawredfxjir45iz3erssyetxux3c/compiler/2024.2/bin/compiler/./icx.cfg

=====
FC 619.clvleaf_s(base, peak) 628.pot3d_s(base, peak) 635.weather_s(base, peak)

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Compiler Version Notes (Continued)

ifx (IFX) 2024.2.1 20240711
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Base Compiler Invocation

C benchmarks:
mpicc

C++ benchmarks:
mpicxx

Fortran benchmarks:
mpifort

Base Portability Flags

605.lbm_s: -DSPEC_LP64
613.soma_s: -DSPEC_LP64
618.tealeaf_s: -DSPEC_LP64
621.miniswp_s: -DSPEC_LP64
632.sph_exa_s: -DSPEC_LP64
634.hpgmgfv_s: -DSPEC_LP64

Base Optimization Flags

C benchmarks:
-Ofast -ipo -mprefer-vector-width=512 -march=skylake-avx512
-mtune=skylake-avx512 -qopenmp -ansi-alias

C++ benchmarks:
-Ofast -ipo -mprefer-vector-width=512 -march=skylake-avx512
-mtune=skylake-avx512 -qopenmp -ansi-alias

Fortran benchmarks:
-Ofast -ipo -mprefer-vector-width=512 -march=skylake-avx512
-mtune=skylake-avx512 -qopenmp -ansi-alias -nostandard-realloc-lhs
-align array64byte



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Base Other Flags

C benchmarks:

-limf

C++ benchmarks:

-limf

Fortran benchmarks:

-limf

Peak Compiler Invocation

C benchmarks:

mpicc

C++ benchmarks:

mpicxx

Fortran benchmarks:

mpifort

Peak Portability Flags

605.lbm_s: -DSPEC_LP64
613.soma_s: -DSPEC_LP64
618.tealeaf_s: -DSPEC_LP64
621.miniswp_s: -DSPEC_LP64
632.sph_exa_s: -DSPEC_LP64
634.hpgmgfv_s: -DSPEC_LP64

Peak Optimization Flags

C benchmarks:

605.lbm_s: basepeak = yes

613.soma_s: basepeak = yes

618.tealeaf_s: basepeak = yes

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Peak Optimization Flags (Continued)

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

Peak Other Flags

C benchmarks:

-limf

C++ benchmarks:

-limf

Fortran benchmarks:

-limf

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

http://www.spec.org/hpc2021/flags/Intel_compiler_flags_hpc.2024.2024-10-10.html

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

http://www.spec.org/hpc2021/flags/Intel_compiler_flags_hpc.2024.2024-10-10.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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