



SPEChpc™ 2021 Small Result

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xFusion

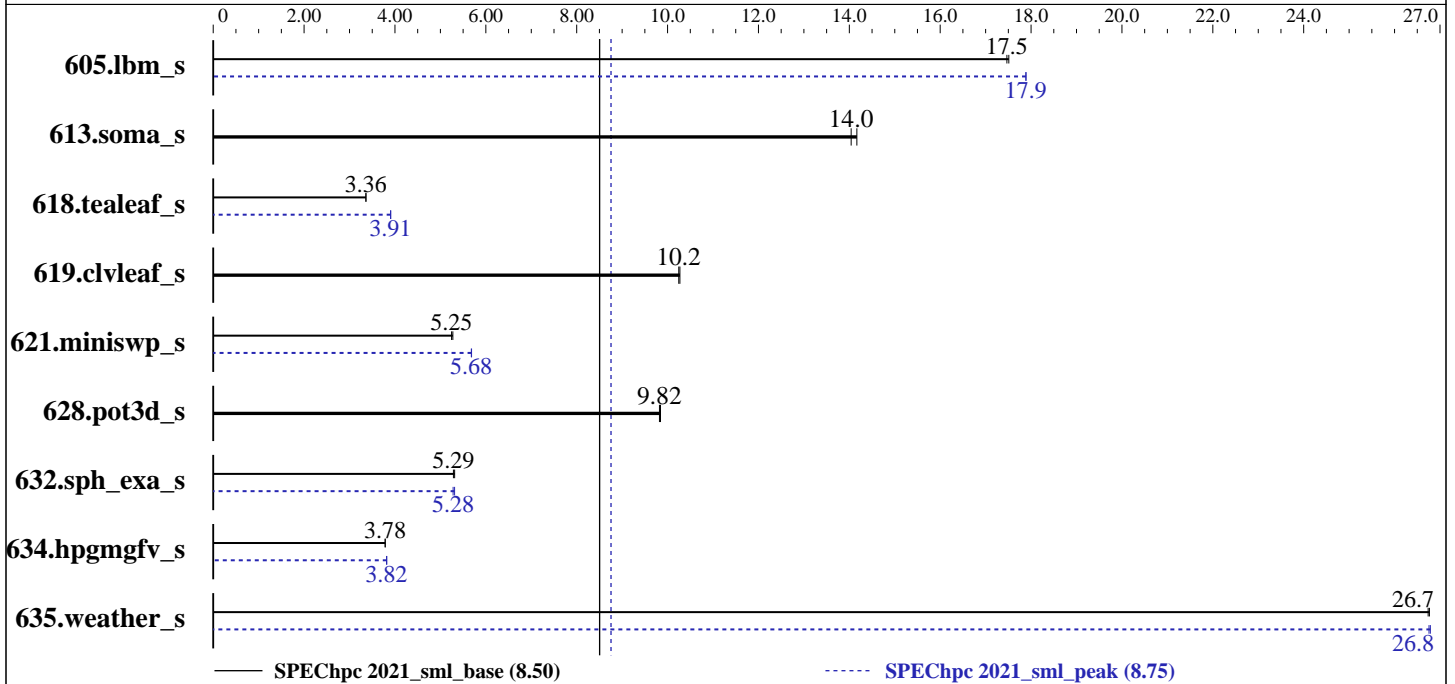
SPEChpc 2021_sml_base = 8.50

SPEChpc 2021_sml_peak = 8.75

FusionServer G5500 V6 (Intel Xeon Platinum 8380, Nvidia A100-PCIE-80G)

hpc2021 License: 6488
Test Sponsor: xFusion
Tested by: xFusion

Test Date: Jul-2022
Hardware Availability: Apr-2021
Software Availability: May-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	ACC	8	1	88.5	17.5	88.7	17.5			ACC	8	1	86.7	17.9	86.6	17.9		
613.soma_s	ACC	8	1	114	14.0	113	14.2			ACC	8	1	114	14.0	113	14.2		
618.tealeaf_s	ACC	8	1	610	3.36	610	3.36			ACC	8	1	525	3.91	525	3.91		
619.clvleaf_s	ACC	8	1	161	10.3	161	10.2			ACC	8	1	161	10.3	161	10.2		
621.miniswp_s	ACC	8	1	209	5.27	210	5.25			ACC	8	1	194	5.68	193	5.69		
628.pot3d_s	ACC	8	1	171	9.82	170	9.84			ACC	8	1	171	9.82	170	9.84		
632.sph_exa_s	ACC	8	1	433	5.31	435	5.29			ACC	8	1	436	5.28	433	5.31		
634.hpgmgfv_s	ACC	8	1	258	3.79	258	3.78			ACC	8	1	256	3.82	255	3.82		
635.weather_s	ACC	8	1	97.2	26.7	97.1	26.8			ACC	8	1	97.1	26.8	97.2	26.8		

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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: SMP
Compute Node: FusionServer G5500 V6
Interconnect: None
Compute Nodes Used: 1
Total Chips: 2
Total Cores: 80
Total Threads: 80
Total Memory: 1 TB
Max. Peak Threads: 1

Software Summary

Compiler: Nvidia HPC SDK 22.5
MPI Library: OpenMPI Version 4.0.5, included with NVHPC SDK
Other MPI Info: --
Other Software: --
Base Parallel Model: ACC
Base Ranks Run: 8
Base Threads Run: 1
Peak Parallel Models: ACC
Minimum Peak Ranks: 8
Maximum Peak Ranks: 8
Max. Peak Threads: 1
Min. Peak Threads: 1

Node Description: FusionServer G5500 V6

Hardware

Number of nodes: 1
Uses of the node: compute
Vendor: xFusion
Model: FusionServer G5500 V6
CPU Name: Intel Xeon Platinum 8380
CPU(s) orderable: 1, 2 chips
Chips enabled: 2
Cores enabled: 80
Cores per chip: 40
Threads per core: 1
CPU Characteristics: Intel Turbo Boost Technology up to 3.4 GHz
CPU MHz: 2300
Primary Cache: 32 KB I + 48 KB D on chip per core
Secondary Cache: 1.25 MB I+D on chip per core
L3 Cache: 60 MB I+D on chip per chip
Other Cache: None
Memory: 1 TB (16 x 64 GB 2Rx4 PC4-3200A-R)
Disk Subsystem: 1 x 3.2 TB NVMe SSD
Other Hardware: None
Accel Count: 8
Accel Model: Tesla A100 PCIe 80GB
Accel Vendor: Nvidia Corporation
Accel Type: GPU
Accel Connection: PCIe Gen4 x16
Accel ECC enabled: Yes
Accel Description: Nvidia Tesla A100 PCIe 80GB
Adapter: None
Number of Adapters: 0
Slot Type: None
Data Rate: None
Ports Used: 0
Interconnect Type: None

Software

Accelerator Driver: NVIDIA UNIX x86_64 Kernel Module 515.43.04
Adapter: None
Adapter Driver: None
Adapter Firmware: None
Operating System: CentOS Linux release 8.2.2004
4.18.0-193.el8.x86_64
Local File System: xfs
Shared File System: None
System State: Multi-user, run level 3
Other Software: None



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Interconnect Description: None

Hardware

Software

Vendor: None
Model: None
Switch Model: None
Number of Switches: 0
Number of Ports: 0
Data Rate: None
Firmware: None
Topology: None
Primary Use: None

: --

Submit Notes

The config file option 'submit' was used.
MPIRUN_OPTS = --allow-run-as-root --bind-to none
submit = mpirun --allow-run-as-root -x UCX_MEMTYPE_CACHE=n -np \$ranks perl \$[top]/bind.pl \$command

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)

nvc 22.5-0 64-bit target on x86-64 Linux -tp skylake-avx512
NVIDIA Compilers and Tools
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=====
CXXC 632.sph_exa_s(base, peak)

nvc++ 22.5-0 64-bit target on x86-64 Linux -tp skylake-avx512
NVIDIA Compilers and Tools
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=====
FC 619.clvleaf_s(base, peak) 628.pot3d_s(base, peak) 635.weather_s(base, peak)

nvfortran 22.5-0 64-bit target on x86-64 Linux -tp skylake-avx512
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Base Compiler Invocation

C benchmarks:

`mpicc`

C++ benchmarks:

`mpicxx`

Fortran benchmarks:

`mpif90`

Base Portability Flags

`632.sph_exa_s: --c++17`

Base Optimization Flags

C benchmarks:

`-fast -acc=gpu -Mfprelaxed -Mnouniform -Mstack_arrays
-DSPEC_ACCEL_AWARE_MPI`

C++ benchmarks:

`-fast -acc=gpu -Mfprelaxed -Mnouniform -Mstack_arrays
-DSPEC_ACCEL_AWARE_MPI`

Fortran benchmarks:

`-DSPEC_ACCEL_AWARE_MPI -fast -acc=gpu -Mfprelaxed -Mnouniform
-Mstack_arrays`

Base Other Flags

C benchmarks:

`-w`

C++ benchmarks:

`-w`

Fortran benchmarks:

`-w`



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Peak Compiler Invocation

C benchmarks:

mpicc

C++ benchmarks:

mpicxx

Fortran benchmarks:

mpif90

Peak Optimization Flags

C benchmarks:

605.lbm_s: -fast -acc=gpu -O3 -Mfprelaxed -Mnouniform
-DSPEC_ACCEL_AWARE_MPI

613.soma_s: basepeak = yes

618.tealeaf_s: -fast -acc=gpu -Msafeptr -DSPEC_ACCEL_AWARE_MPI

621.miniswp_s: -fast -acc=gpu -gpu=pinned

634.hpgmgfv_s: -fast -acc=gpu -static-nvidia -DSPEC_ACCEL_AWARE_MPI

C++ benchmarks:

-fast -acc=gpu -O3 -Mfprelaxed -Mnouniform -Mstack_arrays
-static-nvidia -DSPEC_ACCEL_AWARE_MPI

Fortran benchmarks:

619.clvleaf_s: basepeak = yes

628.pot3d_s: basepeak = yes

635.weather_s: -DSPEC_ACCEL_AWARE_MPI -fast -acc=gpu -O3 -Mfprelaxed
-Mnouniform -Mstack_arrays -static-nvidia

Peak Other Flags

C benchmarks:

-w

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Peak Other Flags (Continued)

C++ benchmarks:

-w

Fortran benchmarks:

-w

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

http://www.spec.org/hpc2021/flags/nv2021_flags_v1.0.3.html

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

http://www.spec.org/hpc2021/flags/nv2021_flags_v1.0.3.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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