# SPEChpc™ 2021 Tiny Result

Copyright 2021-2023 Standard Performance Evaluation Corporation

## xFusion

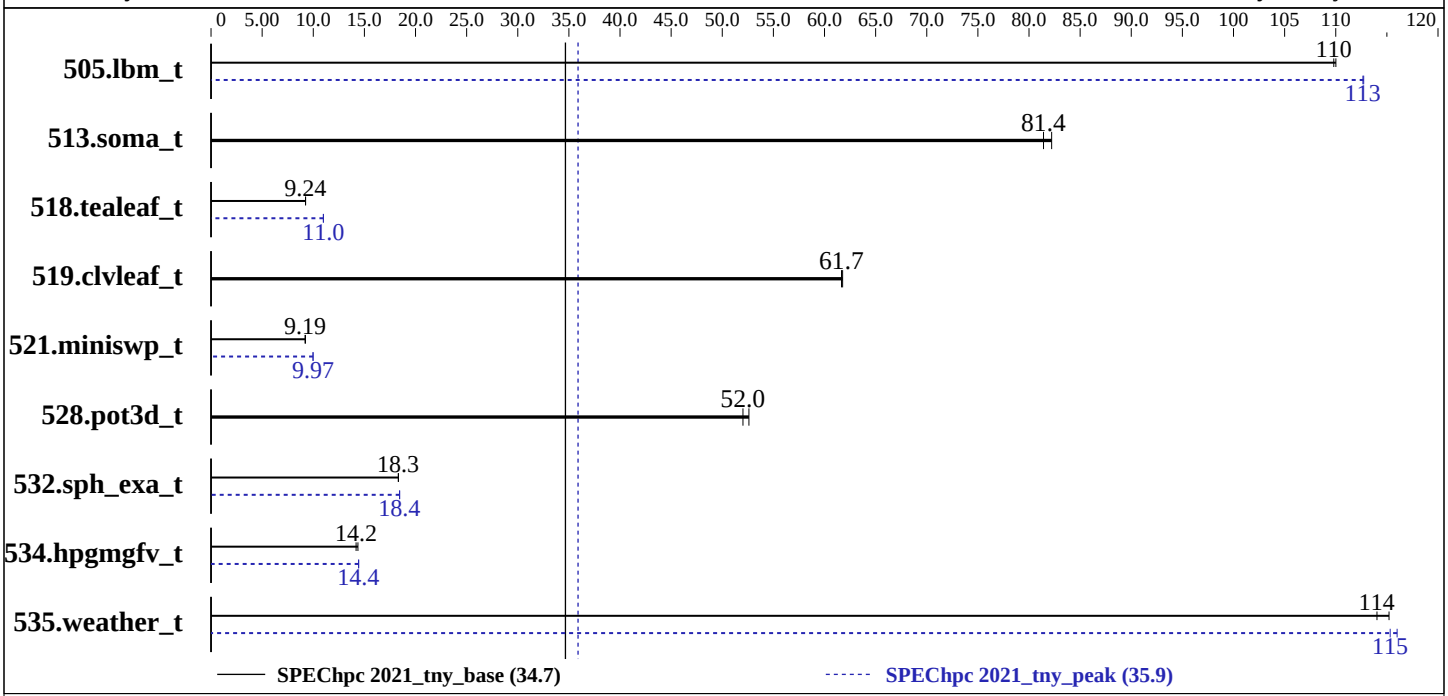
FusionServer G5500 V6 (Intel Xeon Platinum 8380, Nvidia A100-PCIE-80G)

SPEChpc 2021_tny_base = 34.7

SPEChpc 2021_tny_peak = 35.9

**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 |
| 505.lbm_t | ACC | 5 | 1 | **20.5** | **110** | 20.5 | 110 | | | ACC | 5 | 1 | 20.0 | 113 | **20.0** | **113** | | |
| 513.soma_t | ACC | 5 | 1 | 45.0 | 82.2 | **45.4** | **81.4** | | | ACC | 5 | 1 | 45.0 | 82.2 | **45.4** | **81.4** | | |
| 518.tealeaf_t | ACC | 5 | 1 | 178 | 9.25 | **178** | **9.24** | | | ACC | 5 | 1 | **150** | **11.0** | 150 | 11.0 | | |
| 519.clvleaf_t | ACC | 5 | 1 | **26.8** | **61.7** | 26.7 | 61.8 | | | ACC | 5 | 1 | **26.8** | **61.7** | 26.7 | 61.8 | | |
| 521.miniswp_t | ACC | 5 | 1 | **174** | **9.19** | 173 | 9.24 | | | ACC | 5 | 1 | **160** | **9.97** | 160 | 9.98 | | |
| 528.pot3d_t | ACC | 5 | 1 | **40.8** | **52.0** | 40.4 | 52.6 | | | ACC | 5 | 1 | **40.8** | **52.0** | 40.4 | 52.6 | | |
| 532.sph_exa_t | ACC | 5 | 1 | **106** | **18.3** | 106 | 18.3 | | | ACC | 5 | 1 | 106 | 18.5 | **106** | **18.4** | | |
| 534.hpgmgfv_t | ACC | 5 | 1 | 81.8 | 14.4 | **82.8** | **14.2** | | | ACC | 5 | 1 | **81.4** | **14.4** | 81.4 | 14.4 | | |
| 535.weather_t | ACC | 5 | 1 | **28.3** | **114** | 28.0 | 115 | | | ACC | 5 | 1 | 27.8 | 116 | **28.0** | **115** | | |

SPEChpc 2021_tny_base = **34.7**

SPEChpc 2021_tny_peak = **35.9**

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

# SPEChpc™ 2021 Tiny Result

Copyright 2021-2023 Standard Performance Evaluation Corporation

## xFusion

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

SPEChpc 2021_tny_base = 34.7

SPEChpc 2021_tny_peak = 35.9

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

**Test Date:** Jul-2022
**Hardware Availability:** Apr-2021
**Software Availability:** May-2022

### 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: | 5 |
| Base Threads Run: | 1 |
| Peak Parallel Models: | ACC |
| Minimum Peak Ranks: | 5 |
| Maximum Peak Ranks: | 5 |
| 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<br>4.18.0-193.el8.x86_644 |
| Local File System: | xfs |
| Shared File System: | None |
| System State: | Multi-user, run level 3 |
| Other Software: | None |

# 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  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)
------------------------------------------------------------------------------
nvc 22.5-0 64-bit target on x86-64 Linux -tp skylake-avx512
NVIDIA Compilers and Tools
Copyright (c) 2022, NVIDIA CORPORATION & AFFILIATES.  All rights reserved.
------------------------------------------------------------------------------

==============================================================================
 CXXC 532.sph_exa_t(base, peak)
------------------------------------------------------------------------------
nvc++ 22.5-0 64-bit target on x86-64 Linux -tp skylake-avx512
NVIDIA Compilers and Tools
Copyright (c) 2022, NVIDIA CORPORATION & AFFILIATES.  All rights reserved.
------------------------------------------------------------------------------

==============================================================================
 FC  519.clvleaf_t(base, peak) 528.pot3d_t(base, peak) 535.weather_t(base,
     peak)
------------------------------------------------------------------------------
nvfortran 22.5-0 64-bit target on x86-64 Linux -tp skylake-avx512
NVIDIA Compilers and Tools
Copyright (c) 2022, NVIDIA CORPORATION & AFFILIATES.  All rights reserved.
------------------------------------------------------------------------------
```

## Base Compiler Invocation

C benchmarks:
`mpicc`

C++ benchmarks:
`mpicxx`

Fortran benchmarks:
`mpif90`

## Base Portability Flags

532.sph_exa_t: `--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`

## Peak Compiler Invocation

C benchmarks:
`mpicc`

C++ benchmarks:
`mpicxx`

Fortran benchmarks:
`mpif90`

## Peak Optimization Flags

C benchmarks:

505.lbm_t: `-fast -acc=gpu -O3 -Mfprelaxed -Mnouniform -DSPEC_ACCEL_AWARE_MPI`

513.soma_t: `basepeak = yes`

518.tealeaf_t: `-fast -acc=gpu -Msafeptr -DSPEC_ACCEL_AWARE_MPI`

521.miniswp_t: `-fast -acc=gpu -gpu=pinned`

534.hpgmgfv_t: `-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:

519.clvleaf_t: `basepeak = yes`

528.pot3d_t: `basepeak = yes`

535.weather_t: `-DSPEC_ACCEL_AWARE_MPI -fast -acc=gpu -O3 -Mfprelaxed -Mnouniform -Mstack_arrays -static-nvidia`

## Peak Other Flags

C benchmarks:
`-w`

**(Continued on next page)**

## 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`


SPEChpc is a trademark of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.


For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.

Tested with SPEChpc2021 v1.0.3 on 2022-07-29 12:25:26-0400.
Report generated on 2023-03-27 12:20:50 by hpc2021 PS formatter v1.0.3.
Originally published on 2022-08-24.