



SPEChpc™ 2021 Tiny Result

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xFusion

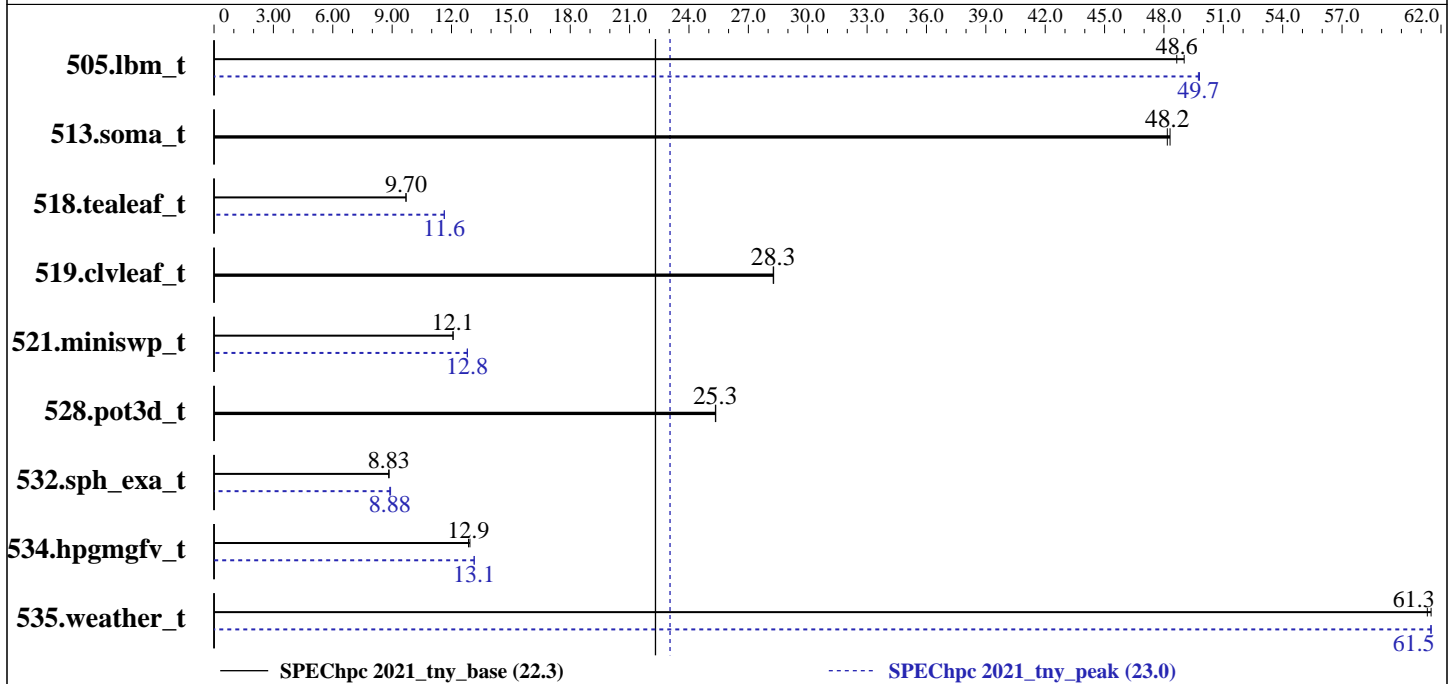
SPEChpc 2021_tny_base = 22.3

SPEChpc 2021_tny_peak = 23.0

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 |
| 505.lbm_t | ACC | 2 | 1 | 45.9 | 49.0 | 46.3 | 48.6 | | | ACC | 2 | 1 | 45.2 | 49.7 | 45.2 | 49.8 | | |
| 513.soma_t | ACC | 2 | 1 | 76.6 | 48.3 | 76.8 | 48.2 | | | ACC | 2 | 1 | 76.6 | 48.3 | 76.8 | 48.2 | | |
| 518.tealeaf_t | ACC | 2 | 1 | 170 | 9.70 | 170 | 9.70 | | | ACC | 2 | 1 | 142 | 11.6 | 142 | 11.6 | | |
| 519.clvleaf_t | ACC | 2 | 1 | 58.4 | 28.3 | 58.3 | 28.3 | | | ACC | 2 | 1 | 58.4 | 28.3 | 58.3 | 28.3 | | |
| 521.miniswp_t | ACC | 2 | 1 | 132 | 12.1 | 133 | 12.1 | | | ACC | 2 | 1 | 125 | 12.8 | 125 | 12.8 | | |
| 528.pot3d_t | ACC | 2 | 1 | 83.8 | 25.4 | 83.9 | 25.3 | | | ACC | 2 | 1 | 83.8 | 25.4 | 83.9 | 25.3 | | |
| 532.sph_exa_t | ACC | 2 | 1 | 220 | 8.85 | 221 | 8.83 | | | ACC | 2 | 1 | 219 | 8.92 | 220 | 8.88 | | |
| 534.hpgmgfv_t | ACC | 2 | 1 | 90.9 | 12.9 | 91.4 | 12.9 | | | ACC | 2 | 1 | 89.4 | 13.1 | 89.4 | 13.1 | | |
| 535.weather_t | ACC | 2 | 1 | 52.4 | 61.5 | 52.6 | 61.3 | | | ACC | 2 | 1 | 52.5 | 61.5 | 52.4 | 61.5 | | |

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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: 2
Base Threads Run: 1
Peak Parallel Models: ACC
Minimum Peak Ranks: 2
Maximum Peak Ranks: 2
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

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

Software

: --

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

nvc++ 22.5-0 64-bit target on x86-64 Linux -tp skylake-avx512
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=====
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
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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`



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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.hpmgfv_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

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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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