



# SPEChpc™ 2021 Small Result

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## xFusion

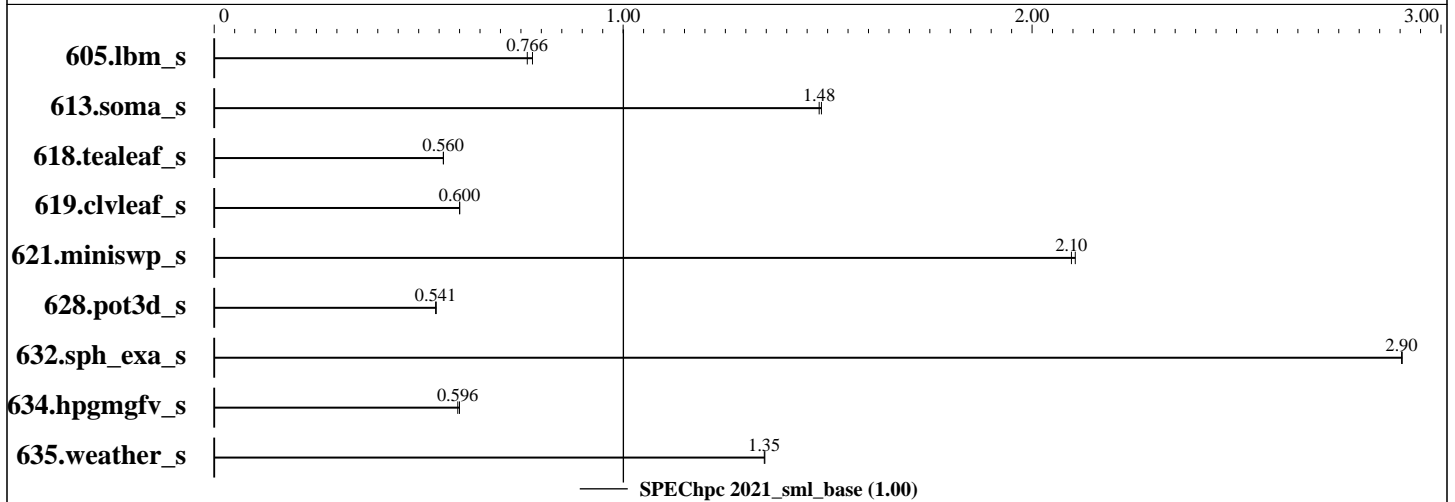
SPEChpc 2021\_sml\_base = 1.00

FusionServer 2288H V6 (Intel Xeon Platinum 8380)

SPEChpc 2021\_sml\_peak = Not Run

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

Test Date: Jul-2022  
Hardware Availability: Apr-2021  
Software Availability: Oct-2021



## 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	MPI	160	1	1991	0.778	<b>2025</b>	<b>0.766</b>												
613.soma_s	MPI	160	1	<b>1082</b>	<b>1.48</b>	1077	1.48												
618.tealeaf_s	MPI	160	1	<b>3659</b>	<b>0.560</b>	3657	0.561												
619.cvlleaf_s	MPI	160	1	<b>2750</b>	<b>0.600</b>	2748	0.600												
621.miniswp_s	MPI	160	1	<b>525</b>	<b>2.10</b>	522	2.11												
628.pot3d_s	MPI	160	1	<b>3094</b>	<b>0.541</b>	3085	0.543												
632.sph_exa_s	MPI	160	1	792	2.91	<b>792</b>	<b>2.90</b>												
634.hpgmgfv_s	MPI	160	1	1626	0.600	<b>1637</b>	<b>0.596</b>												
635.weather_s	MPI	160	1	1931	1.35	<b>1933</b>	<b>1.35</b>												

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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: Homogeneous Cluster  
Compute Node: Fusionserver 2288H V6  
Interconnect: Mellanox HDR  
Compute Nodes Used: 2  
Total Chips: 4  
Total Cores: 160  
Total Threads: 160  
Total Memory: 512 GB  
Max. Peak Threads: --

### Software Summary

Compiler: Intel oneAPI Compiler 2021.4.0  
MPI Library: Intel MPI Library for Linux\* OS, Version 2021.4.0 Build 20210831  
Other MPI Info: --  
Other Software: --  
Base Parallel Model: MPI  
Base Ranks Run: 160  
Base Threads Run: 1  
Peak Parallel Models: Not Run  
Minimum Peak Ranks: --  
Maximum Peak Ranks: --  
Max. Peak Threads: --  
Min. Peak Threads: --

## Node Description: Fusionserver 2288H V6

### Hardware

Number of nodes: 2  
Uses of the node: Compute  
Vendor: xFusion  
Model: FusionServer 2288H 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: 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: 256 GB (16 x 16 GB 2Rx8 PC4-3200R)  
Disk Subsystem: 2 x 480 GB SATA 2.5" SSD (RAID 1)  
Other Hardware: None  
Accel Count: None  
Accel Model: --  
Accel Vendor: None  
Accel Type: None  
Accel Connection: None  
Accel ECC enabled: None  
Accel Description: None  
Adapter: MCX653105A-EFAT  
Number of Adapters: 1  
Slot Type: PCI-Express 4.0 x16  
Data Rate: 100 Gb/s  
Ports Used: 1

### Software

Accelerator Driver: --  
Adapter: MCX653105A-EFAT  
Adapter Driver: 5.4-3.1.0  
Adapter Firmware: 20.32.1010  
Operating System: CentOS Linux release 8.2.2004  
4.18.0-193.el8.x86\_644  
Local File System: xfs  
Shared File System: NFS  
System State: Multi-user, run level 3  
Other Software: None

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### Node Description: Fusionserver 2288H V6

#### Hardware (Continued)

Interconnect Type: Mellanox HDR

### Interconnect Description: Mellanox HDR

#### Hardware

Vendor: Mellanox  
Model: Mellanox HDR  
Switch Model: Mellanox MQM8790-HS2F  
InfiniBand Switch  
Number of Switches: 1  
Number of Ports: 40  
Data Rate: 200 Gbit/s  
Firmware: --  
Topology: Mesh  
Primary Use: MPI Traffic

#### Software

: --

### Submit Notes

The config file option 'submit' was used.  
export LD\_PRELOAD="/usr/lib64/libhugetlbfs.so \$LD\_PRELOAD"  
MPI startup command:  
mpiexec.hydra -bootstrap ssh -hostfile \$[top]/2node --bind-to core -np \$ranks -ppn \$ppn \$command

### Compiler Version Notes

=====  
CC 605.lbm\_s(base) 613.soma\_s(base) 618.tealeaf\_s(base) 621.miniswp\_s(base)  
634.hpvmgfv\_s(base)  
-----

Intel(R) oneAPI DPC++/C++ Compiler 2021.4.0 (2021.4.0.20210924)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /home/opt/compiler/oneapi/2021.4.0/compiler/2021.4.0/linux/bin  
-----

=====  
CXXC 632.sph\_exa\_s(base)  
-----

Intel(R) oneAPI DPC++/C++ Compiler 2021.4.0 (2021.4.0.20210924)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /home/opt/compiler/oneapi/2021.4.0/compiler/2021.4.0/linux/bin

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### Compiler Version Notes (Continued)

```

=====
FC 619.clvleaf_s(base) 628.pot3d_s(base) 635.weather_s(base)
=====
ifx (IFORT) 2021.4.0 Beta 20210924
Copyright (C) 1985-2021 Intel Corporation. All rights reserved.
=====

```

### Base Compiler Invocation

C benchmarks:  
`mpiicc -cc=icx -lstdc++(*)`

C++ benchmarks:  
`mpiicpc -cxx=icx -lstdc++(*)`

Fortran benchmarks:  
`mpiifort -fc=ifx -lstdc++(*)`

(\*) Indicates a compiler flag that was found in a non-compiler variable.

### Base Portability Flags

613.soma\_s: -DSPEC\_NO\_VAR\_ARRAY\_REDUCE

### Base Optimization Flags

C benchmarks:  
`-Ofast -ipo -xCORE-AVX512 -mprefer-vector-width=512 -fiopenmp -ansi-alias`

C++ benchmarks:  
`-Ofast -ipo -xCORE-AVX512 -mprefer-vector-width=512 -fiopenmp -ansi-alias`

Fortran benchmarks:  
`-Ofast -ipo -xCORE-AVX512 -mprefer-vector-width=512 -fiopenmp -nostandard-realloc-lhs -align array64byte`



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The flags file that was used to format this result can be browsed at  
<http://www.spec.org/hpc2021/flags/Intel-oneAPI-icx2021-official-linux64.html>

You can also download the XML flags source by saving the following link:  
<http://www.spec.org/hpc2021/flags/Intel-oneAPI-icx2021-official-linux64.xml>

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For questions about this result, please contact the tester. For other inquiries, please contact [info@spec.org](mailto:info@spec.org).

Tested with SPEChpc2021 v1.0.3 on 2022-07-20 07:07:06-0400.  
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