SPEChpc™ 2021 Small Result

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xFusion

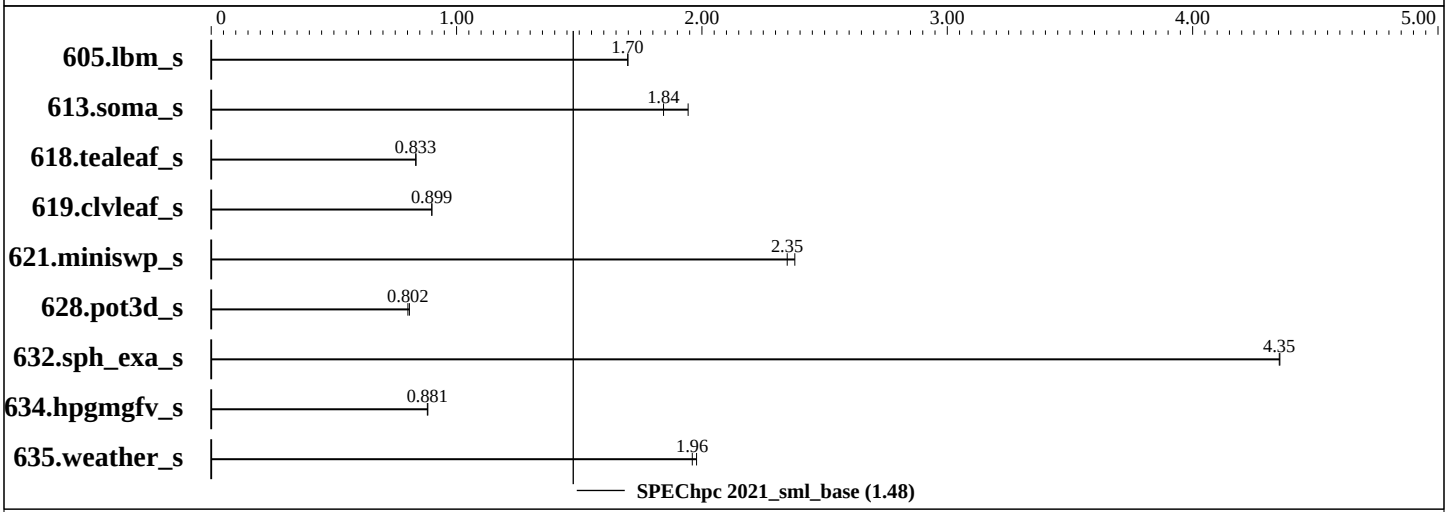
FusionServer 2288H V6 (Intel Xeon Platinum 8380)

SPEChpc 2021_sml_base = 1.48

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	240	1	**913**	**1.70**	913	1.70											
613.soma_s	MPI	240	1	**868**	**1.84**	823	1.94											
618.tealeaf_s	MPI	240	1	2456	0.835	**2460**	**0.833**											
619.clvleaf_s	MPI	240	1	1834	0.900	**1836**	**0.899**											
621.miniswp_s	MPI	240	1	**469**	**2.35**	462	2.38											
628.pot3d_s	MPI	240	1	**2089**	**0.802**	2073	0.808											
632.sph_exa_s	MPI	240	1	528	4.36	**528**	**4.35**											
634.hpgmgfv_s	MPI	240	1	**1107**	**0.881**	1104	0.883											
635.weather_s	MPI	240	1	1314	1.98	**1326**	**1.96**											

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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:	3
Total Chips:	6
Total Cores:	240
Total Threads:	240
Total Memory:	768 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:	240
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:	3
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

(Continued on next page)

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

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]/3node --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.hpgmgfv_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
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------------------------------------------------------------------------------
```

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`

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.

Tested with SPEChpc2021 v1.0.3 on 2022-07-19 06:28:57-0400.
Report generated on 2022-08-24 18:40:54 by hpc2021 PS formatter v1.0.3.
Originally published on 2022-08-24.