SPEChpc™ 2021 Tiny Result

Copyright 2021-2023 Standard Performance Evaluation Corporation

NEC

(Test Sponsor: Helmholtz-Zentrum Dresden - Rossendorf)

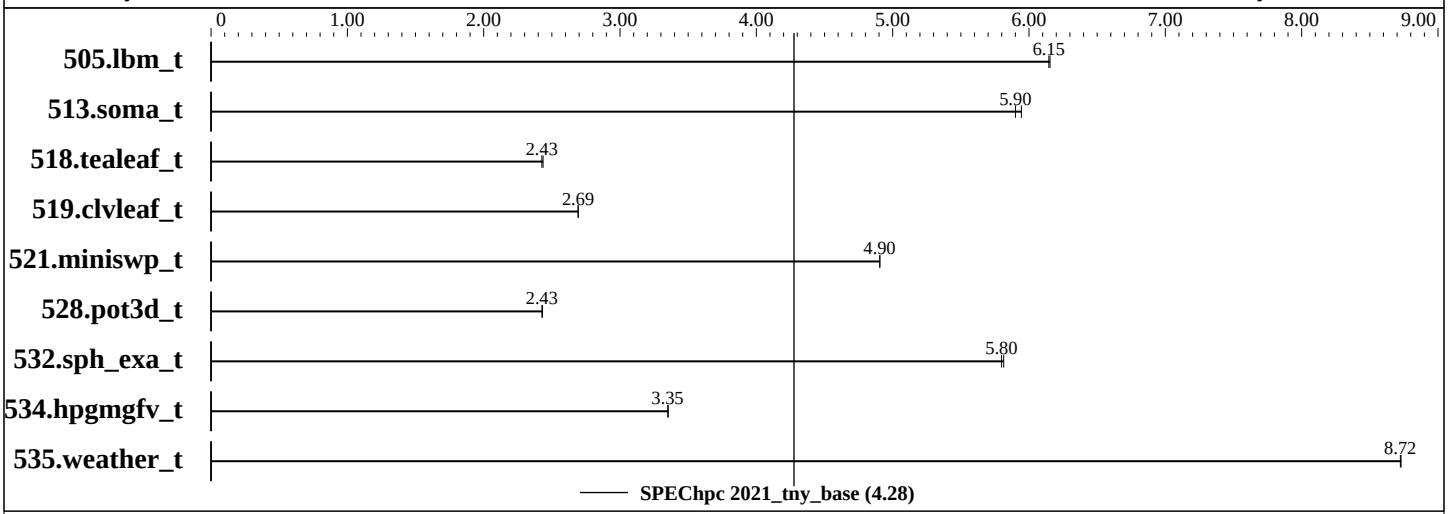
Hemera: GIGABYTE H262-Z61 (AMD EPYC 7702)

SPEChpc 2021_tny_base = 4.28

SPEChpc 2021_tny_peak = Not Run

hpc2021 License: 065A
Test Sponsor: Helmholtz-Zentrum Dresden - Rossendorf
Tested by: Helmholtz-Zentrum Dresden - Rossendorf

Test Date: Sep-2021
Hardware Availability: Aug-2019
Software Availability: Jul-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
505.lbm_t	OMP	32	4	**366**	**6.15**	366	6.15											
513.soma_t	OMP	32	4	622	5.94	**627**	**5.90**											
518.tealeaf_t	OMP	32	4	677	2.44	**680**	**2.43**											
519.clvleaf_t	OMP	32	4	613	2.69	**613**	**2.69**											
521.miniswp_t	OMP	32	4	**326**	**4.90**	326	4.91											
528.pot3d_t	OMP	32	4	**875**	**2.43**	874	2.43											
532.sph_exa_t	OMP	32	4	**336**	**5.80**	335	5.81											
534.hpgmgfv_t	OMP	32	4	350	3.35	**351**	**3.35**											
535.weather_t	OMP	32	4	**370**	**8.72**	369	8.73											

SPEChpc 2021_tny_base = 4.28

SPEChpc 2021_tny_peak = Not Run

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

NEC
(Test Sponsor: Helmholtz-Zentrum Dresden - Rossendorf)

Hemera: GIGABYTE H262-Z61 (AMD EPYC 7702)

SPEChpc 2021_tny_base = 4.28

SPEChpc 2021_tny_peak = Not Run

hpc2021 License: 065A
Test Sponsor: Helmholtz-Zentrum Dresden - Rossendorf
Tested by: Helmholtz-Zentrum Dresden - Rossendorf

Test Date: Sep-2021
Hardware Availability: Aug-2019
Software Availability: Jul-2021

Hardware Summary

Type of System:	Homogenous Cluster
Compute Node:	Compute Node
Interconnect:	Infiniband (EDR)
Compute Nodes Used:	1
Total Chips:	2
Total Cores:	64
Total Threads:	64
Total Memory:	512 GB
Max. Peak Threads:	--

Software Summary

Compiler:	C/C++/Fortran: Version 11.2 of GNU Compilers
MPI Library:	OpenMPI Version 4.0.4
Other MPI Info:	None
Other Software:	None
Base Parallel Model:	OMP
Base Ranks Run:	32
Base Threads Run:	4
Peak Parallel Models:	Not Run
Minimum Peak Ranks:	--
Maximum Peak Ranks:	--
Max. Peak Threads:	--
Min. Peak Threads:	--

Node Description: Compute Node

Hardware

Number of nodes:	1
Uses of the node:	compute
Vendor:	Gigabyte
Model:	H262-Z61
CPU Name:	AMD EPYC 7702
CPU(s) orderable:	1 or 2 chips per node
Chips enabled:	2
Cores enabled:	64
Cores per chip:	64
Threads per core:	1
CPU Characteristics:	Max Boost Clock up to 3.35 GHz
CPU MHz:	2000
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	512 KB I+D on chip per core
L3 Cache:	256 MB I+D on chip per chip 16 MB shared / 4 cores
Other Cache:	None
Memory:	512 GB (16 x 32GB 2Rx4 PC4-3200AA-RB2-12-RB0)
Disk Subsystem:	1 x 500 GB SSD
Other Hardware:	None
Accel Count:	0
Accel Model:	--
Accel Vendor:	--
Accel Type:	--
Accel Connection:	--
Accel ECC enabled:	--
Accel Description:	--
Adapter:	Mellanox MT4119
Number of Adapters:	2
Slot Type:	PCIe 4.0 16x
Data Rate:	100 Gb/s

(Continued on next page)

Software

Accelerator Driver:	--
Adapter:	Mellanox MT4119
Adapter Driver:	--
Adapter Firmware:	16.26.1040
Operating System:	CentOS Linux release 7.9.2009 (Core) 3.10.0-1160.6.1.el7.x86_64
Local File System:	xfs
Shared File System:	GPFS Version 5.0.5.0 6 NSD (vendor: NEC) 5 building blocks (vendor: NetApp): 2x (240 x 8 TB HDD) 1x (180 x 12 TB HDD) 1x (240 x 16 TB HDD) 1x (120 x 16 TB HDD)
System State:	Multi-user, run level 3
Other Software:	None

Node Description: Compute Node

Hardware (Continued)

Ports Used: 2
Interconnect Type: EDR Infiniband

Interconnect Description: Infiniband (EDR)

Hardware

Vendor:	Mellanox Technologies
Model:	Mellanox SB7790
Switch Model:	36 x EDR 100 Gb/s
Number of Switches:	2
Number of Ports:	36
Data Rate:	100 Gb/s
Firmware:	--
Topology:	Mesh (blocking factor: 8:1)
Primary Use:	MPI Traffic, GPFS

Software

: --

Submit Notes

```
The config file option 'submit' was used.
  MPI startup command:
    mpirun --bind-to socket -np $ranks $command
```

General Notes

```
Environment variables set by runhpc before the start of the run:
OMP_PLACES = "{0}:128:1"
OMP_PROC_BIND = "true"
```

Compiler Version Notes

```
==============================================================================
 FC  519.clvleaf_t(base) 528.pot3d_t(base) 535.weather_t(base)
------------------------------------------------------------------------------
GNU Fortran (GCC) 11.2.0
Copyright (C) 2021 Free Software Foundation, Inc.
This is free software; see the source for copying conditions.  There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
------------------------------------------------------------------------------

==============================================================================
 CXXC 532.sph_exa_t(base)
------------------------------------------------------------------------------
```

(Continued on next page)

Compiler Version Notes (Continued)

```
g++ (GCC) 11.2.0
Copyright (C) 2021 Free Software Foundation, Inc.
This is free software; see the source for copying conditions.  There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
------------------------------------------------------------------------------

==============================================================================
 CC  505.lbm_t(base) 513.soma_t(base) 518.tealeaf_t(base) 521.miniswp_t(base)
      534.hpgmgfv_t(base)
------------------------------------------------------------------------------
gcc (GCC) 11.2.0
Copyright (C) 2021 Free Software Foundation, Inc.
This is free software; see the source for copying conditions.  There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
`mpicc`

C++ benchmarks:
`mpicxx`

Fortran benchmarks:
`mpif90`

Base Portability Flags

521.miniswp_t: `-DUSE_KBA -DUSE_ACCELDIR`
532.sph_exa_t: `-DSPEC_USE_LT_IN_KERNELS`

Base Optimization Flags

C benchmarks:
`-fopenmp -Ofast -march=native`

C++ benchmarks:
`-fopenmp -Ofast -march=native -std=c++14`

(Continued on next page)

Base Optimization Flags (Continued)

Fortran benchmarks:
`-fopenmp -Ofast -march=native -ffree-line-length-none -fno-stack-protector`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/hpc2021/flags/gcc.2021-10-28.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/hpc2021/flags/gcc.2021-10-28.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 v1.0.2 on 2021-09-16 03:47:02-0400.
Report generated on 2023-08-25 19:02:57 by hpc2021 PS formatter v1.0.3.
Originally published on 2021-10-27.