Software Device Qualification

User Guide

v1.02 | 2025-01-14

Document History

Version	Date	Authors	Description of Change
v1.00	2024-09-30	Neuchips	Initial release
v1.01	2024-12-05	Neuchips	Update for Windows support
V1.02	2025-01-14	Neuchips	Add check HDisk

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1 Overview

Neuchips Software Device Qualification (NEUSDQ) package comes with the command line interface (CLI) tool. It provides customers with the capability to run an Neuchips - provided test suite at the target system, the purpose is to enable customers to test whether their platform can properly install the specific Neuchips device.

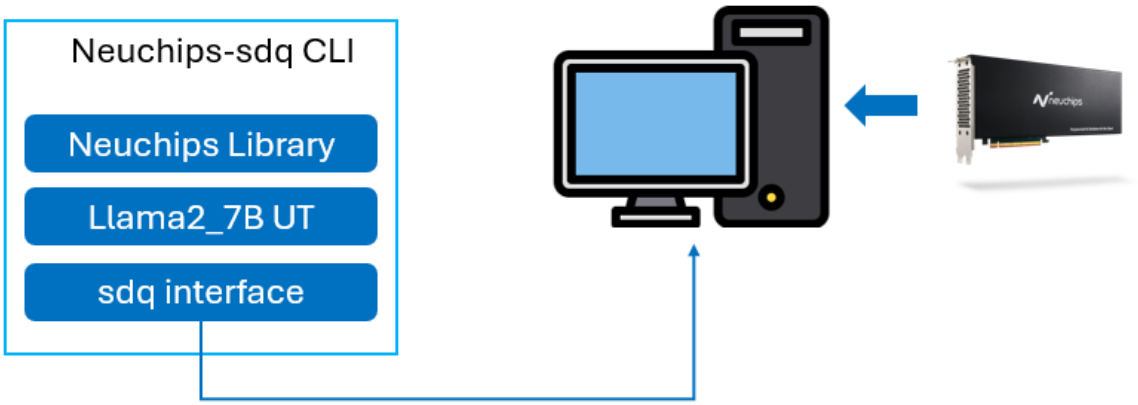

Figure 1 Neuchips-Software Device Qualification

1.1 Download and Install SDQ

Below steps introduce how to download a configuration that includes neuchips-sdq:

Application:
Please contact Neuchips support to get.

Llama2_7B :
Please contact Neuchips support to get.

First, download the neuchips-sdq and Llama2_7B, then extract the files. After that, place the Llama2_7B folder into the neuchips-sdq folder. Below is the illustration of the completed process.

```
user@neuchips:~/neuchips-sdq$ ls
include  libumd.so  Llama2_7B  neuchips-sdq
```

Figure 2 Install Linux version of neuchips-sdq

For the Windows version, please place neuchips-sdq.exe and Llama_7B in the same folder. The environment setup is shown in the figure below:

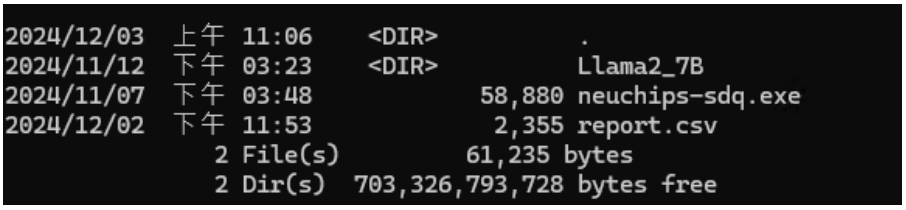

Figure 3 Install Windows version of neuchips-sdq

1.2 Target System Requirements

- At least 16 GB RAM
- At least 64 GB hard drive
- A stable Internet connection. (for Download Llama2_7B)
- Support one Neuchips device.
- Supported operating systems:
  - Ubuntu 22.04 LTS
  - Windows 11 Pro

2 Run the Application

Run the Self-Certification Application for Compute Systems:

2.1 Change the directory

Change the directory to the location of neuchips-sdq

```
user@neuchips:~$ cd ~/neuchips-sdq
```

Figure 4 into neuchips-sdq folder.

2.2 Run the Neuchips-sdq

Run the neuchips-sdq test execution. User just use `sudo ./neuchips-sdq run`. This command runs the test modules, which are listed in the package. The process will take approximately 15 minutes. Please do not interrupt during the operation.

Once everything is completed and executed successfully, the message [SUCCESS] Summary pass will be displayed. The test is considered successful and finished only when this line appears. The illustration is shown below.

```
user@neuchips:~/neuchips-sdq$ sudo ./neuchips-sdq run
run evaluation
[PASS] PCIe linkup check pass
[PASS] Module status check pass
Environment testing..
[================================================] 100.00%
[PASS] Environment testing completed
[SUCCESS] Summary Pass
```

Figure 5 Run the Linux version of neuchips-sdq

If any ERROR occurs during the test or if the test fails to complete, please provide us with the `report.csv` file.

2.3 Test Report: report.csv

After the test is completed, a `report.csv` test report will be automatically generated in the same folder:

```
user@neuchips:~/neuchips-sdq$ ls
include  libumd.so  Llama2 7B  neuchips-sdq  report.csv
```

Figure 6 Linux version of test report: report.csv

View the report in editor (e.g., Microsoft Excel).

System Information						
Linux version	Ubuntu 22.04.3 LTS					
Kernel version	5.18.17					
SDQ version	1.0.2					
Hardware Information						
Category	Name	Value	Status			
HDisk	Get SSD	---	PASS			
PCIe	Device Count (HW)	1	PASS			
PCIe	Device Count (Driver)	1	PASS			
PCIe	Location Info	0000:04:00.0	PASS			
PCIe	Speed	16 GT/s	PASS			
PCIe	Lanes	x4	PASS			
PCIe	Driver Version	2.6.5	PASS			
PCIe	Memory Bus Size 0	1M	PASS			
PCIe	Memory Bus Size 2	1M	PASS			
PCIe	Memory Bus Size 4	1G	PASS			
Module Information						
Category	Name	Version	Status			
SDK	Runtime Version	v5.0.2	PASS			
SDK	Chip ID	845483575552-4855-4851-4853	PASS			
Workload Information						
Category	Name	Temperature(C)	Status	Time		
Llama2_7B Star	Chip Temperature	39	Start init	Tue Dec 31 16:58:50 2024		
Llama2_7B init	Chip Temperature	39	PASS	Tue Dec 31 16:59:00 2024		
Llama2_7B	Chip Temperature	42	PASS	Tue Dec 31 16:59:31 2024		
Llama2_7B	Chip Temperature	43	PASS	Tue Dec 31 16:59:52 2024		
Llama2_7B	Chip Temperature	43	PASS	Tue Dec 31 17:00:13 2024		
Llama2_7B	Chip Temperature	43	PASS	Tue Dec 31 17:00:34 2024		
Llama2_7B	Chip Temperature	43	PASS	Tue Dec 31 17:00:55 2024		
Llama2_7B	Chip Temperature	44	PASS	Tue Dec 31 17:01:16 2024		
Llama2_7B	Chip Temperature	44	PASS	Tue Dec 31 17:01:37 2024		
Llama2_7B	Chip Temperature	44	PASS	Tue Dec 31 17:01:58 2024		

Figure 7 Linux version of test report.csv

System Information

The current Linux environment and version of the test environment.

Hardware Information

This test mainly checks the PCIe linkup status of the device in the system. The inspection items include the number of PCIe devices detected, Bus ID, speed, Driver version, and memory bus size. Every item must pass the PCIe linkup test for it to be

considered successful.

Module Information

This test is mainly to verify whether the SDK runtime version is correct and whether the chip ID can be read properly. Every item must pass the module test for it to be considered successful.

Workload Information

This test primarily assesses the stability of the testing environment, as well as monitors the IC temperature and execution time. The total test duration is approximately 15 minutes, and no errors must occur within these 15 minutes for the test to be considered passed.

2.4 Change the directory - Windows

Change the directory to the location of neuchips-sdq

```
D:\neuchips_sdq>neuchips-sdq.exe run
```

Figure 8 into neuchips-sdq folder

2.5 Run the Neuchips-sdq - Windows

However, in the Windows environment, to execute the neuchips-sdq test, the user only needs to enter the command: neuchips-sdq.exe. This command will run the test modules listed in the package. The entire process will take approximately 20–40 minutes (depending on the user's system specifications). Please do not interrupt during the operation.

Once everything is completed and executed successfully, the message [SUCCESS] Summary pass will be displayed. The test is considered successful and finished only when this line appears. The illustration is shown below.

```
D:\neuchips_sdq>neuchips-sdq.exe run
run evaluation
[WARNING] Host Disk: HDD
[PASS] PCIe linkup check pass
[PASS] Module status check pass
Environment testing..
[================================================] 100.00%
[PASS] Environment testing completed
[SUCCESS] Summary Pass
```

Figure 9 Run the Windows version of neuchips-sdq

If any ERROR occurs during the test or if the test fails to complete, please provide us with the report.csv file.

2.6 Test Report: report.csv - Windows

After the test is completed, a report.csv test report will be automatically generated in the same folder:

```
D:\neuchips_sdq>dir
 Volume in drive D is New Volume
 Volume Serial Number is 3258-D0A7

 Directory of D:\neuchips_sdq

2024/12/03  上午 11:06    <DIR>          .
2024/11/12  下午 03:23    <DIR>          Llama2_7B
2024/12/03  下午 05:27            59,904 neuchips-sdq.exe
2024/12/03  下午 05:40             2,383 report.csv
               2 File(s)         62,287 bytes
               2 Dir(s)  703,326,793,728 bytes free
```

Figure 10 Windows version of test report: report.csv

View the report in editor (e.g., Microsoft Excel).

System Information						
Windows version	Microsoft Windows 11 專業版					
Kernel version	2263					
SDQ version	1.0.2					
Hardware Information						
Category	Name	Value	Status			
HDisk	Get HDD	---	WARNING			
PCIe	Device Count (HW)	1	PASS			
PCIe	Device Count (Driver)	1	PASS			
PCIe	Location Info	01:00.0	PASS			
PCIe	Speed	8 GT/s	PASS			
PCIe	Lanes	x8	PASS			
PCIe	Driver Version	11/21/2024 2024.4.1.	PASS			
PCIe	Memory Bus Size 0	1048576 byte	PASS			
PCIe	Memory Bus Size 2	1048576 byte	PASS			
PCIe	Memory Bus Size 4	1073741824 byte	PASS			
Module Information						
Category	Name	Version	Status			
SDK	Runtime Version	v4.0.2	PASS			
SDK	Chip ID	845483575552-4856-4852-4857	PASS			
Workload Information						
Category	Name	Temperature(C)	Status	Time		
Llama2_7B Star	Chip Temperature	39	Start init	Tue Dec 3 17:28:32 2024		
Llama2_7B init	Chip Temperature	39	PASS	Tue Dec 3 17:28:53 2024		
Llama2_7B	Chip Temperature	40	PASS	Tue Dec 3 17:29:23 2024		
Llama2_7B	Chip Temperature	40	PASS	Tue Dec 3 17:29:53 2024		
Llama2_7B	Chip Temperature	40	PASS	Tue Dec 3 17:30:24 2024		
Llama2_7B	Chip Temperature	41	PASS	Tue Dec 3 17:30:54 2024		
Llama2_7B	Chip Temperature	41	PASS	Tue Dec 3 17:31:23 2024		
Llama2_7B	Chip Temperature	41	PASS	Tue Dec 3 17:31:53 2024		
Llama2_7B	Chip Temperature	41	PASS	Tue Dec 3 17:32:23 2024		
Llama2_7B	Chip Temperature	41	PASS	Tue Dec 3 17:32:54 2024		

Figure 11 Windows version of test report.csv

`System Information`

The current Windows environment and version of the test environment.

`Hardware Information`

This test mainly checks the PCIe linkup status of the device in the system. The inspection items include the number of PCIe devices detected, Bus ID, speed, Driver version, host hard disk, and memory bus size. Every item must pass the PCIe linkup test for it to be considered successful.

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Neuchips Inc.

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