

Problem determination and troubleshooting

How to perform problem determination actions on the SN5600

Lenovo





Problem determination and troubleshooting overview

Before starting any troubleshooting steps on the SN5600, work through the following procedure:

- Check the switch event log and hardware status in Cumulus Linux
- Check the port LEDs and status LEDs on the switch
- Check the network interfaces and statistics in Cumulus Linux
- Check the SFP/OSFP module and cable status
- If necessary, collect the `cl-support` log for further escalation

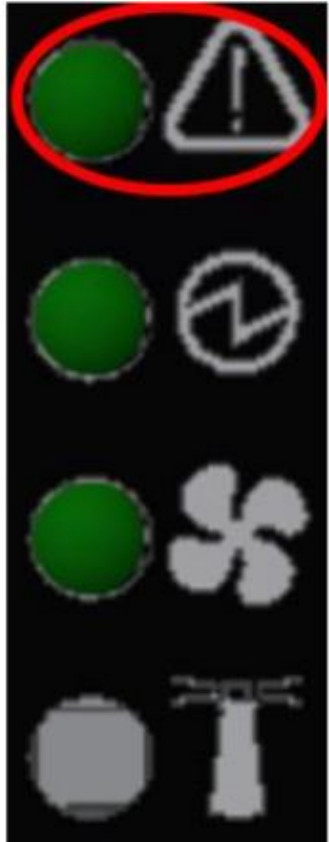
System LED notifications

System LEDs show hardware event notifications, which is important for troubleshooting.

Symbol	Name	Description	Normal conditions
	System status LED	Shows the health of the system	Solid or blinking green when booting
	Fan status LED	Shows the health of the fans	Green
	PSU LED	Shows the health of the PSUs	Green
	Unit Identifier (UID) LED	Lights up on command through the CLI	Off or blue when identifying a port

System status LED indications

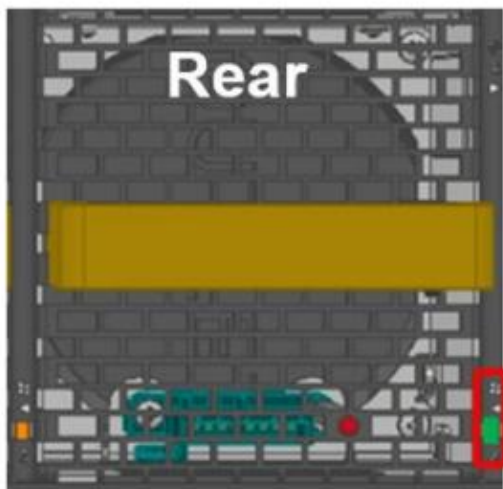
Port LEDs can be used to indicate link status for troubleshooting.



LED behavior	Description	Action required
Off	The system has no power	Check the power source and cable
Solid green	The system is up and running normally	No action required
Blinking green	The system is booting	Wait up to five minutes for the end of the booting process
Solid amber	An error has occurred – for example, corrupted firmware or an overheated system	If the System Status LED is still amber five minutes after starting the system, unplug the system and call your service representative for assistance

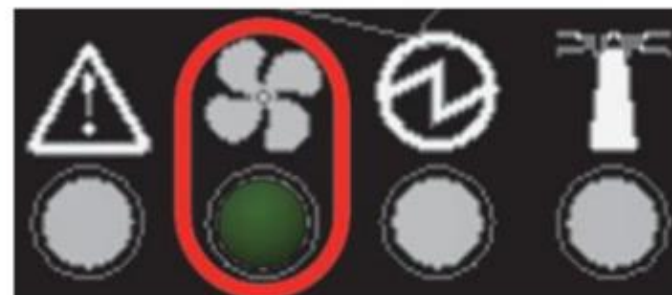
Fan status LEDs

The SN5600 has a front fan status LED and rear individual fan status LEDs next to each system fan. Before replacing a fan, check that its individual fan status LED is amber.



The LEDs outlined here in red show fan status.

Front



LED behavior	Description	Action required
Solid green	All fans are up and running	N/A
Solid amber	Front side: <ul style="list-style-type: none">Error – one or more fans is not operating properly Rear side: <ul style="list-style-type: none">The associated fan unit is missing or not operating properly	The faulty FRU should be replaced

Power supply status LEDs

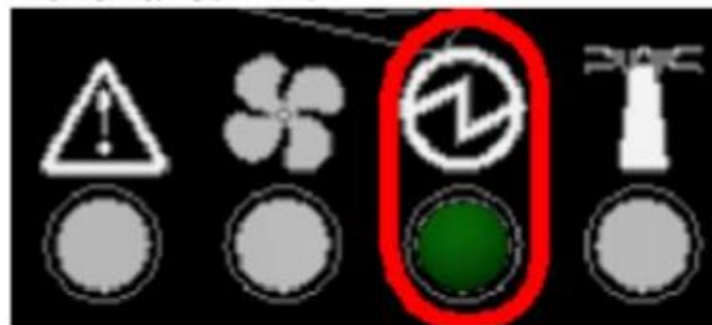
The SN5600 has two power supply inlets, and the system can operate with only one power supply connected. On the right of each power supply unit are two single-color LEDs that indicate the status of the unit.

The first power supply unit is located on the left side of the system, and the second unit is located on the right.



The LEDs outlined here in red show power supply status.

Front

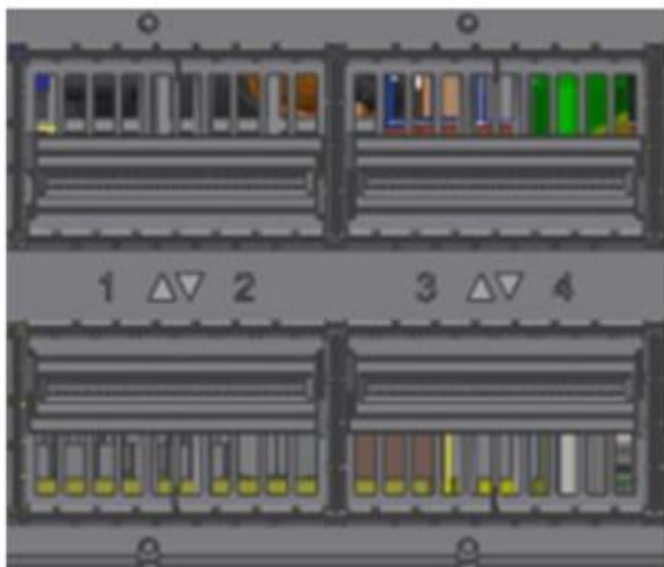


Power supply LED description

LED behavior	Description	Action required
Solid green	The PSU is running normally	N/A
Blinking green (1 Hz)	AC Present / 5 VSB on (PSU is off).	For further assistance, call a system representative
Blinking red/amber (1 Hz)	PSU warning – the PSU is still operational	
Solid red/amber	PSU failure (voltage, current, temperature, or fan-related issue)	
	AC cord unplugged or AC power loss in only one PSU	Plug in the AC cord for the faulty PSU
Off	No AC power to either power supply	Plug in the AC cords

Port LED indications

Port LEDs can be used to indicate link status for troubleshooting.



LED behavior	Description	Action required
Off	Link is down	Check the cable
Solid green	Link is up with no traffic	N/A
Blinking green	Link is up with traffic	N/A
Blinking amber	A problem with the link – possible causes are: <ul style="list-style-type: none">• Bad cable• Bad connection• Bad connector	Check the cable and the connector, and replace if needed

Note: For more information about port LED behavior, refer to the SN5600 NVIDIA [user manual](#).

Unit identification LED

The unit identification (UID) LED is a debug feature that can be used to find a particular system within a cluster.

- To activate the UID LED on a switch system, use the following command:

```
switch (config) # led MGMT uid on
```

- To verify the LED status, use the following command:

```
switch (config) # show leds
```

```
Module LED Status
```

```
-----
```

```
MGMT UID Blues
```

- To deactivate the UID LED on a switch system, use the following command:

```
switch (config) # led MGMT uid off
```

Checking system information

Cumulus Linux provides commands to obtain system information and to show the version of Cumulus Linux you are running. Use these commands when performing system diagnostics, troubleshooting performance, or submitting a support request. Click each command to see an output example.

- To show information about the version of Cumulus Linux running on the switch, run the [nv show system](#) command. To show system memory information in bytes, run the `nv show system memory` command.
- To show system CPU information, run the `nv show system cpu` command.
- To show general information about the switch, run the [nv show platform hardware](#) command.
- To retrieve information about the switch EEPROM, run the [decode-syseeprom](#) command.
- To retrieve hardware configuration information populated in the BIOS, run the `dmidecode` command.
- To display sensor information for the various system units, run the [sudo smonctl](#) command.
- To monitor the health of your switch hardware, such as power, temperature, and fan speeds, run the `sensors` command.

Checking system information

Cumulus Linux provides commands to obtain system information and to show the version of Cumulus Linux you are running. Use these commands when performing system diagnostics, troubleshooting



- To show system information
- To show system commands
- To show system memory
- To show system and
- To show system command
- To show system in the
- To show system sense

```
root@cumulus:mgmt:/home/cumulus# nv show system
operational          applied
-----
hostname             cumulus             cumulus
build                 Cumulus Linux 5.8.0
uptime               16:05:54
timezone             Etc/UTC
maintenance
  mode                disabled
  ports                enabled
root@cumulus:mgmt:/home/cumulus#
```


Checking system information

```
root@cumulus:mgmt:/home/cumulus# nv show platform hardware
operational
-----
system-mac      9c:05:91:9e:9b:ff
base-mac        9C:05:91:9E:9A:00
manufacturer    Nvidia
model           SN5600
cpu             x86_64 Intel Xeon E E-2276ME 2.80GHz
memory          30.93 GB
disk-size       149.1G
port-layout      64 x 800G-OSFP
product-name     SN5600
part-number      920-9N42F-00RI-5N0
serial-number    MT2402XZ029G
platform-name    x86_64-nvidia_sn5600-r0
onie-version     2022.08-5.3.0010-115200
asic-vendor      Nvidia
asic-model       Spectrum-4
root@cumulus:mgmt:/home/cumulus#
```

Activate

Checking system information

```
root@cumulus:mgmt:/home/cumulus# decode-syseeprom
```

```
TlvInfo Header:
```

```
Id String:      TlvInfo
```

```
Version:        1
```

```
Total Length:  609
```

TLV Name	Code	Len	Value
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Product Name	0x21	64	SN5600
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Part Number	0x22	20	920-9N42F-00RI-5N0
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Serial Number	0x23	24	MT2402XZ029G
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Base MAC Address	0x24	6	9C:05:91:9E:9A:00
------------------	------	---	-------------------

Manufacture Date	0x25	19	01/10/2024 14:43:21
------------------	------	----	---------------------

Device Version	0x26	1	0
----------------	------	---	---

MAC Addresses	0x2A	2	512
---------------	------	---	-----

Manufacturer	0x2B	8	Nvidia
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Vendor Name	0x2D	10	Nvidia
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Vendor Extension	0xFD	20	0x00 0x00 0x81 0x19 0x00 0x0E 0x00 0x02 0x07 0x79 0x00
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0x00 0x00 0x00			
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Platform Name	0x28	64	x86_64-nvidia_sn5600-r0
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ONIE Version	0x29	23	2022.08-5.3.0010-115200
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CRC-32	0xFE	4	0x22A4DF35
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```
(checksum valid)
```

```
root@cumulus:mgmt:/home/cumulus#
```

Activate Windows

Checking system information

```

root@cumulus:mgmt:/home/cumulus# sudo smonctl
Fan1      (Fan Tray 1 Front)      ): OK
Fan2      (Fan Tray 1 Rear)      ): OK
Fan3      (Fan Tray 2 Front)      ): OK
Fan4      (Fan Tray 2 Rear)      ): OK
Fan5      (Fan Tray 3 Front)      ): OK
Fan6      (Fan Tray 3 Rear)      ): OK
Fan7      (Fan Tray 4 Front)      ): OK
Fan8      (Fan Tray 4 Rear)      ): OK
PSU1      (Power Supply Unit 1)  ): OK
PSU2      (Power Supply Unit 2)  ): OK
PSU1Fan1  (PSU1 Fan)             ): OK
PSU1Temp1 (PSU1 Temp Sensor)         ): OK
PSU2Fan1  (PSU2 Fan)             ): OK
PSU2Temp1 (PSU2 Temp Sensor)         ): OK
Temp1     (CPU Package Sensor)   ): OK
Temp2     (CPU Core Sensor 0)    ): OK
Temp3     (CPU Core Sensor 1)    ): OK
Temp4     (CPU Core Sensor 2)    ): OK
Temp5     (CPU Core Sensor 3)    ): OK
Temp6     (CPU Core Sensor 4)    ): OK
Temp7     (CPU Core Sensor 5)    ): OK
Temp8     (Port Ambient Sensor)  ): OK
Temp9     (Main Board Ambient Sensor): OK
Temp10    (Asic Temp Sensor)     ): OK
root@cumulus:mgmt:/home/cumulus# █

```

Activate



Diagnostics using `cl-support`

The `cl-support` script will automatically generate a compressed archive file when there is a core file dump (log location: `/var/support/core`) and also following the first failure during monitored service. Servicers can also manually generate a compressed archive log file with the `cl-support` command. The compressed file will contain various details, including:

- Core files
- Configurations from `/etc`
- Log files from `/var/log`
- Runtime information from `/proc` and `/sys`
- System information (`ps-aux`, `netstat-i`)
- What caused `cl-support` to be run

Generating the `cl-support` file

To generate the `cl-support` archive file manually, run the `cl-support` command. The command must be run as root or with `sudo`:

```
cumulus@Mellanox1:mgmt:~$ cl-support
cl-support: must be run as root (or with sudo)
cumulus@Mellanox1:mgmt:~$ sudo cl-support
[sudo] password for cumulus:
cl-support.system: /var/log is large: 64MB
Please send /var/support/cl_support_Mellanox1_20220705_224607.txz to Cumulus
support.
cumulus@Mellanox1:mgmt:~$ ls -avhl
/var/support/cl_support_Mellanox1_20220705_224607.txz
-rw-r--r-- 1 root root 28M Jul  5 22:48
/var/support/cl_support_Mellanox1_20220705_224607.txz
```

After generating the `cl-support` file, use SFTP to copy the file to the user's own storage.

Note: By default, log files do not include security-sensitive information such as the `sudoers` file. When this information is requested, use the `-s` option with `cl-support` to include it.

Summary

This course enabled you to:

- Describe the SN5600 and its components
- Describe the features and specifications of the SN5600
- Describe Cumulus Linux concepts and management commands
- Describe the initial power-on procedures and configuration of the SN5600
- Describe the problem determination and troubleshooting procedures for the SN5600