SN2201 and SN2201_M 1G Management Switch Systems User Manual

Table of contents

Relevant for Models: SN2201 and SN2201_M

About this Manual

This manual describes the installation and basic use of NVIDIA Ethernet switches based on the NVIDIA Spectrum IC device.

Ordering Information

See Ordering Information.

Intended Audience

This manual is intended for IT managers and system administrators.

Related Documentation

- Cumulus Linux User Guide
- Hands-on workshops: Cumulus Linux Training Course

For onsite or remote services, contact nbu-services-sales@nvidia.com

Revision History

A list of the changes made to this document are provided in Document Revision History.

Ordering Information

The following table lists ordering information for the available systems. Please pay attention to the airflow direction when ordering your system. For more details, see Air Flow.

Ordering Part Numbers

SN2201 Ordering Part Numbers

NVIDIA SKU	Legacy OPN	Marketing Description	Lifecycle Phase
920-9N110-00F1-0C0	MSN2201-CB2FC	NVIDIA Spectrum based 1GBase-T/100GbE 1U Open Ethernet switch with Cumulus Linux, 48 RJ45 ports and 4 QSFP28 ports, Dual Power Supply (AC), x86 CPU, short depth, P2C airflow, 4-post Rail kit.	Mass Production
920-9N110-00R1-0C0	MSN2201-CB2RC	NVIDIA Spectrum based 1GBase-T/100GbE 1U Open Ethernet switch with Cumulus Linux, 48 RJ45 ports and 4 QSFP28 ports, Dual Power Supply (AC), x86 CPU, short depth, C2P airflow, 4-post Rail-kit.	Mass Production

SN2201_M Ordering Part Numbers

NVIDIA SKU	Legacy OPN	Marketing Description	Lifecycle Phase
920-9N110-00R1-NC0	MSN2201-CSMRC	NVIDIA Spectrum-based 1GbE/100GbE 1U Open Ethernet switch with Cumulus Linux, 48 RJ45 ports and 4 QSFP28 ports, x86 CPU, 48VDC Busbar, MGX Rack, Connector-to-Power airflow.	Mass Production

Introduction

NVIDIA Spectrum®-based 1U switch systems are an ideal Out-Of-Band management connectivity solution, allowing maximum flexibility, offering 1GbT to the management ports and 100Gb/s to the aggregation switches. Powered by the NVIDIA Spectrum ASIC, the systems carry best-in-class switching and processing capacities in a compact 1U form factor. The systems introduce hardware capabilities for multiple tunneling protocols that enable increased reachability and scalability for today's data centers. Implementing VLAN, NVGRE, and VXLAN tunneling encapsulations in the network layer of the data center allows for tunnel termination by the network, in addition to termination on the server endpoint. SN2201 and SN2201_M Spectrum switch systems include a powerful x86-based processor, which allows high-performing switch fabric elements. Both switch systems are delivered pre-loaded with Cumulus Linux, NVIDIA's leading Network Operating System for Ethernet Switch systems.

For a full list of all available ordering options, see Ordering Information.

Front View
SN2201  **SN2201_M** 
Rear View
SN2201  **SN2201_M** 

Speed and Switching Capabilities

The table below describes maximum throughput and interface speed per system model.

System Model	1GbT RJ45 Interfaces	40/50/100GbE QSFP28 Interfaces*	Max Throughput
SN2201	48 x1Gbase-T	4x 100GbE 4x 40GbE 8x 50GbE (using a breakout cable) 16x 25GbE (using a breakout cable)	448Gb/s
SN2201_M			

(*) Requiring a 1GBT SFP module

(**) Requiring a QSA adapter and a 1GBT SFP module

Management Interfaces, PSUs and Fans

The table below lists the various management interfaces, PSUs and fans per system model.

System Model	USB	MGT	Console	PSU	Fan
SN2201	Front	Front (1 port)	Front	Yes, 2	Yes, 4
SN2201_M	Front	Front (1 port)	Front	DC power busbar	Yes, 4

Features

For a full feature list, please refer to the system's product brief. Go to https://www.nvidia.com/en-us/networking/. In the main menu, click on Products > Ethernet Switch Systems, and select the desired product page.

Certifications

The list of certifications (such as EMC, Safety and others) per system for different regions of the world is located on the NVIDIA website at https://www.nvidia.com/en-us/networking/environmental-and-regulatory-compliance/.

Installation

System Installation and Initialization

Installation and initialization of the system require attention to the normal mechanical, power, and thermal precautions for rack-mounted equipment.

Note

The rack mounting holes conform to the EIA-310 standard for 19-inch racks. Take precautions to guarantee proper ventilation in order to maintain good airflow at ambient temperature.

Note

Unless otherwise specified, NVIDIA products are designed to work in an environmentally controlled data center with low levels of gaseous and dust (particulate) contamination.

The operation environment should meet severity level G1 as per ISA 71.04 for gaseous contamination and ISO 14644-1 class 8 for cleanliness level.

The installation procedure for the system involves the following phases:

Step	Procedure	See
1	Follow the safety warnings	Safety Warnings
2	Pay attention to the air flow consideration within the system and rack	Air Flow

Step	Procedure	See
3	Make sure that none of the package contents is missing or damaged	Package Contents
4	Mount the system into a rack enclosure	19" System Mounting Options
5	Power on the system	Initial Power On
6	Perform system bring-up	System Bring-Up
7	[Optional] FRU replacements	FRU Replacements

Safety Warnings

Prior to the installation, please review the Safety Warnings. Note that some warnings may not apply to all models.

Air Flow

> **Note**
>
> The drawings are provided for illustration purposes only. The panel and modules design may vary depending on the system.

The SN2201_M systems are offered with Connector (front) side inlet to power side outlet airflow pattern.

The SN2201 systems are offered with two air flow patterns:

- Power (rear) side inlet to connector side outlet - marked with blue power supplies/fans FRUs' handles or blue dots that are placed on the power inlet side.
- Connector (front) side inlet to power side outlet - marked with red power supplies/fans FRUs' handles or red dots that are placed on the power inlet side.

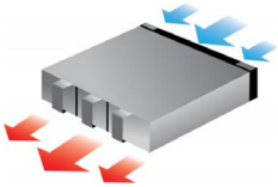
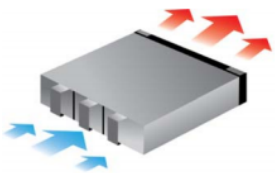
Air Flow Direction Marking - Power Side Inlet to Connector Side Outlet

Air Flow Direction Marking - Connector Side Inlet to Power Side Outlet

SN2201_M:

> **Warning**
>
> All servers and systems in the same rack should be planned with the same airflow direction.
>
> All FRU components need to have the same air flow direction. A mismatch in the air flow will affect the heat dissipation.

The table below provides an air flow color legend.

Direction	Description and OPN Designation
	Connector side inlet to power side outlet. The airflow direction is indicated by red latches or by red dots that are placed on the power inlet side.
	Power side inlet to connector side outlet. The airflow direction is indicated by blue latches or by blue dots that are placed on the power inlet side.

Package Contents

Before installing your new system, unpack it and check against the parts list below that all the parts have been sent. Check the parts for visible damage that may have occurred during shipping.

The SN2201 systems package content is as follows:

- 1 – System
- 1 – Rail kit
- 1 – Power cable for each power supply unit – Type C13-C14
- 1 – DB9 to RJ-45 2m harness
- 1 - RJ-45 to RJ-45 2m harness

The SN2201_M systems package content is as follows:

- 1 – System
- 1 – Rail kit
- 1 – DB9 to RJ-45 2m harness
- 1 - RJ-45 to RJ-45 2m harness

Note

If anything is damaged or missing, contact your sales representative at enterprisesupport@nvidia.com.

System Mounting Options

The systems are shipped with the rail-kits specified in the following table:

System Model	Rail Kit
SN2201	SN2201 Tool-Less Rail Kit

System Model	Rail Kit
SN2201_M	SN2201_M Tool-Less 4-Post Mounting Rail Kit

Tool-Less 4-Post Mounting Rail-Kit

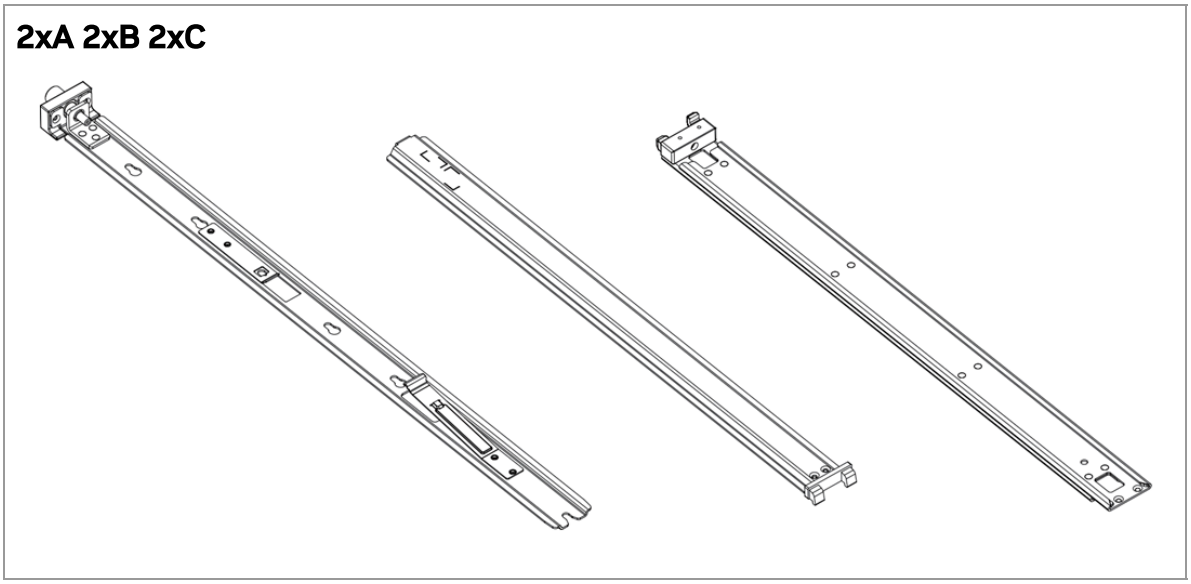
Kit Part Number	Kit Legacy Part Number	Rack Size and Rack Depth Range
930-9NRKT-00JS-000	MTEF-KIT-M-TL	NVIDIA Tool-less rack installation kit, 4-post rack, for SN2201 switch

The following parts are included in the tool-less rail kit (see figure below):

- 2x Rack mount rails (A)
- 2x Rack mount blades (B)
- 2x Inner rails (C)

Rail-Kit Parts

2xA 2xB 2xC



Prerequisites:

- At least two people are required to safely mount the system in the rack.

- All servers and systems in the rack should be planned with the same airflow direction.

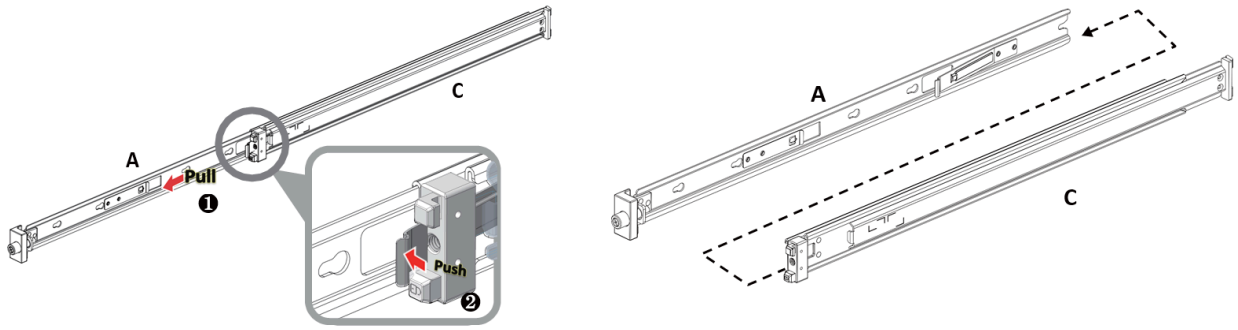
  All FRU components must have the same airflow direction. A mismatch in the airflow will affect the heat dissipation.

- The part of the system to which you choose to attach the rails will determine the system's adjustable side. The system's part to which the brackets are attached will be adjacent to the cabinet.

- The FRU side is extractable. Mounting the rack brackets inverted to the FRU side will allow you to slide the FRUs, in and out.

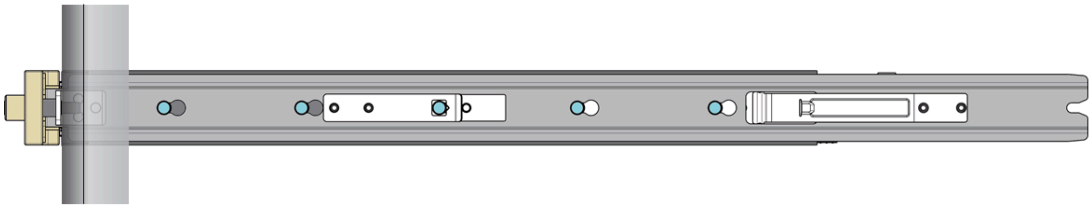
Installation

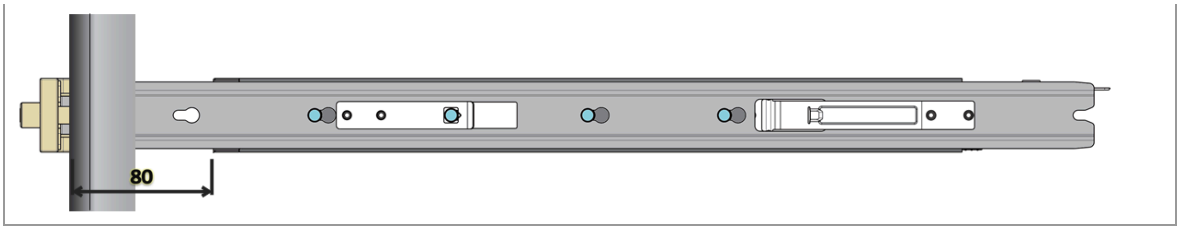
1. Extract the inner rails (A) from the other rails by pressing the spring latch and pulling it out, as shown in the following illustration:



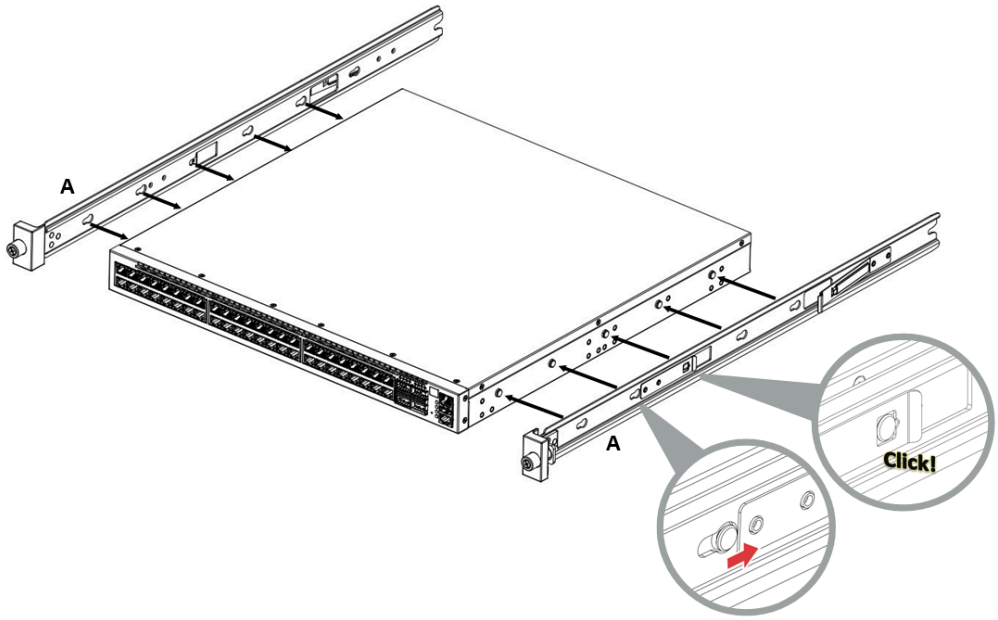
2. Mount the inner rails (A) onto the chassis:

    1. Attach the switch to the left and right inner rails according to your installation selection -

▪ Standard Installation: The inner rails should be assembled to the switch using the first five holes (from its front side). 
▪ Recessed Installation: The inner rails should be assembled to the switch skipping the first hole (from its front side).

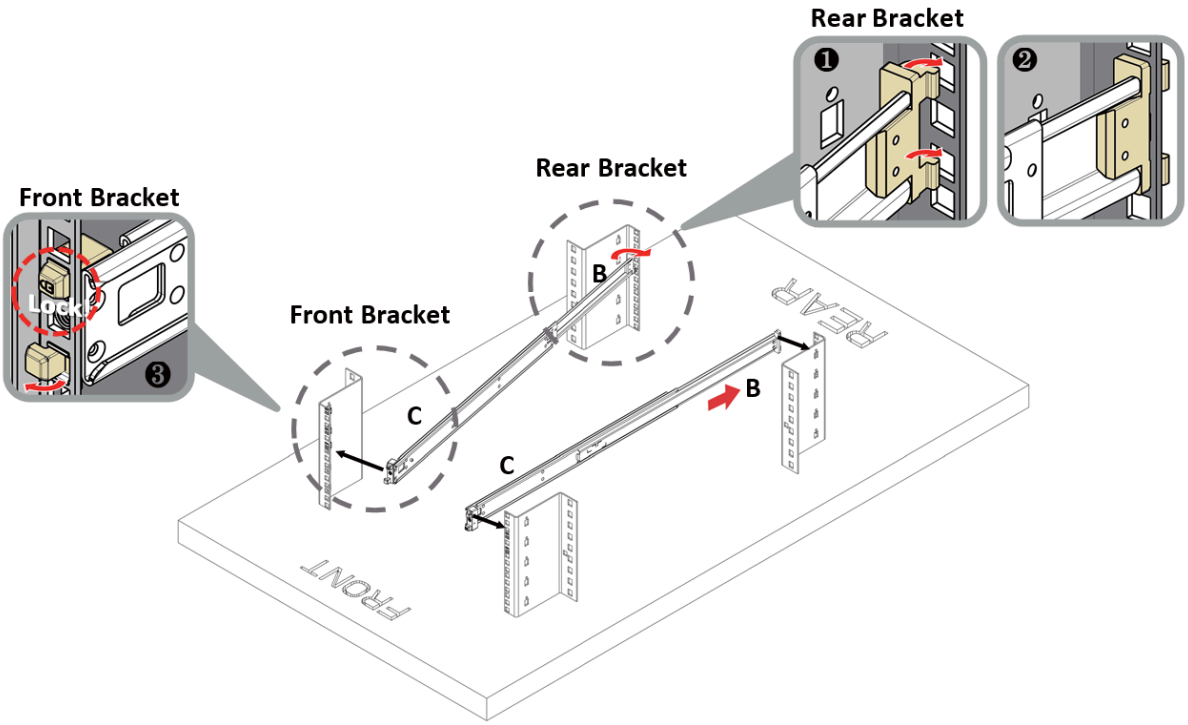


2. Secure the assembly by pushing the chassis' pins through the slider key holes, until a click is heard and locking occurs.



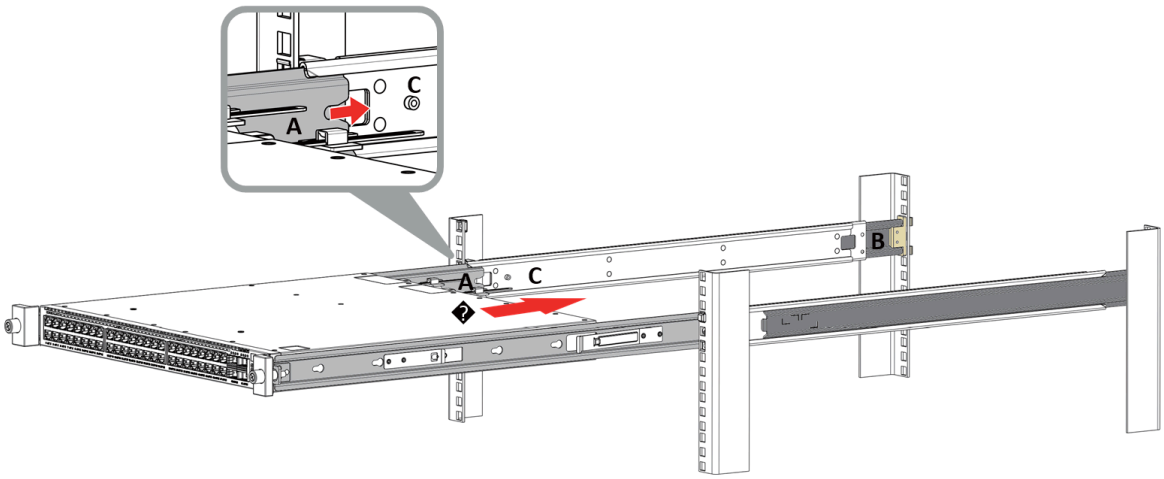
3.

4. Install the outer rails (B+C) in the rack, as shown in the following illustration:

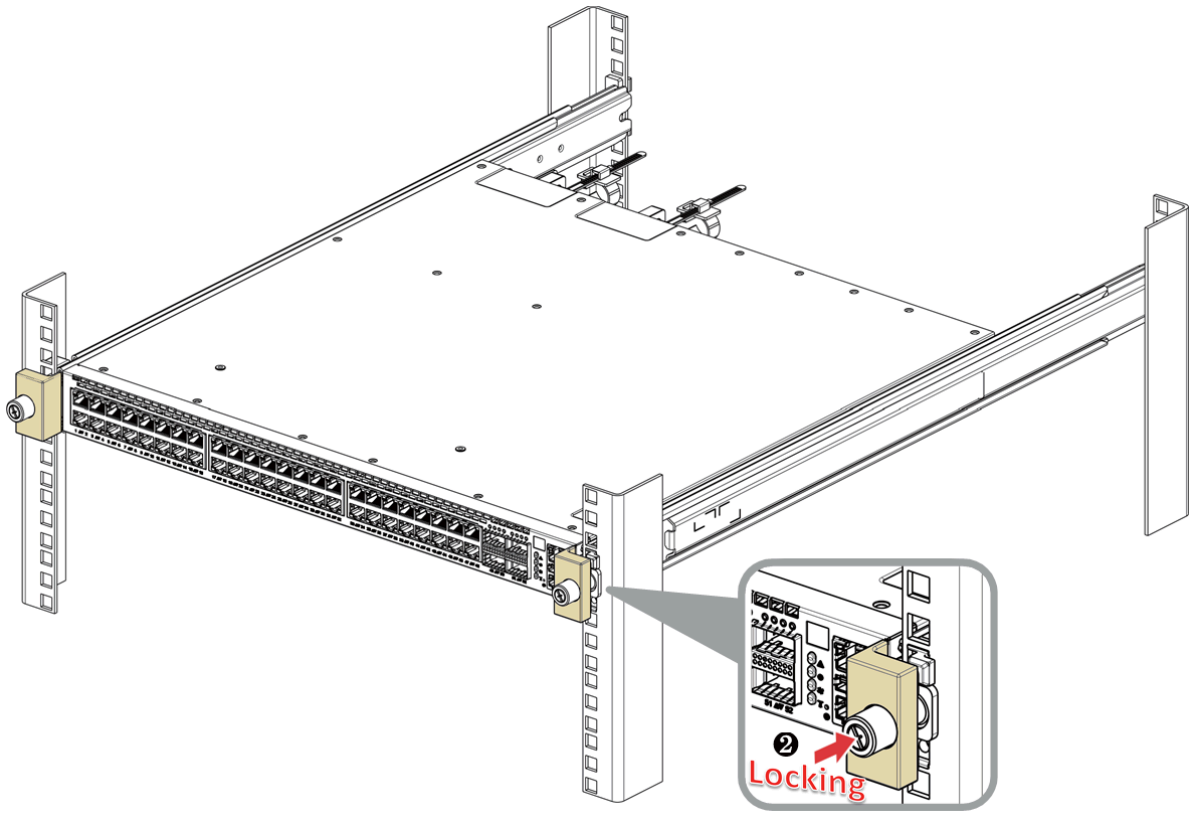


5. Mount the chassis onto the rack:

    1. Insert the chassis into the middle-outer rails installed in the rack (C).



    2. Secure the chassis in place by tightening the thumb-screws.



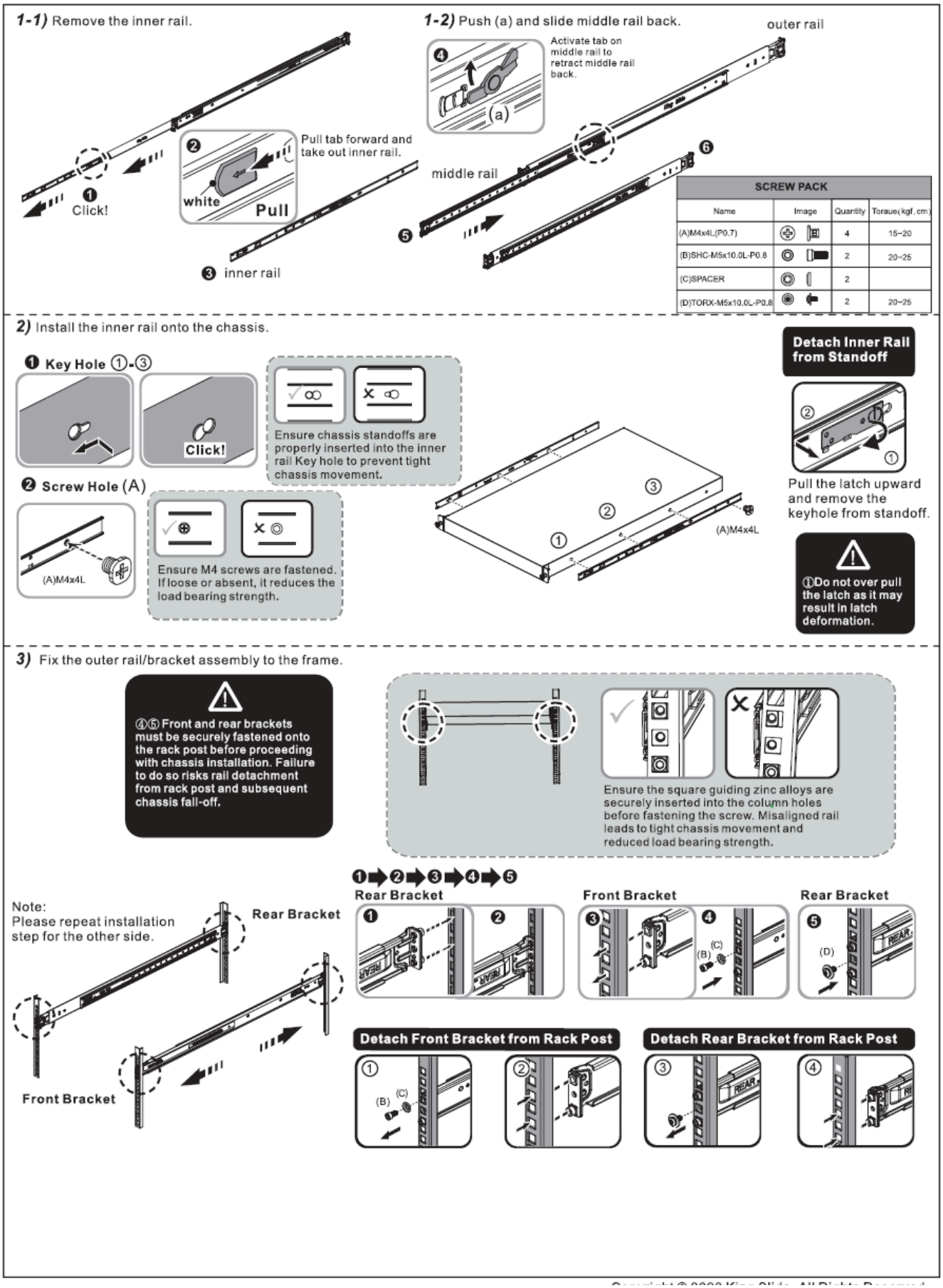
SN2201_M Tool-Less 4-Post Mounting Rail Kit

The SN2201_M includes a tool-less rail kit that is compatible with 19-inch MGX racks.

Kit Part Number	Kit Legacy Part Number	Rack Dimensions
930-9NRKT-00JS-001	MTEF-KIT-MX-TL	19” Rack mount 90” (H) x 23.6” (W) x 42” (D) 2285mm (H) x 600mm (W) x 1068mm (D)

Rail Kit Installation

The following instructions have been prepared and provided with express permission from King Slide.



4) Insert the chassis to complete the installation.

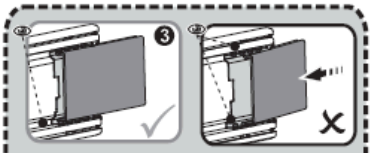
❶❷ Pull the middle rail fully extended in lock position, ensure ball bearing retainer is located at the front of the middle rail.

❸ Insert the chassis into middle-outer rails.

❹ When hit a stop, please pull/push the blue release tab on the inner rails.

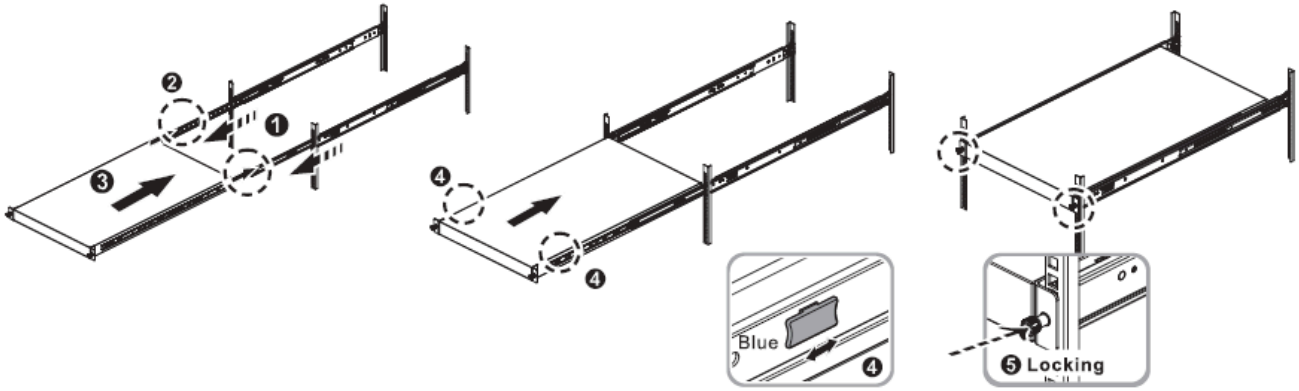
❺ Tighten chassis with shipping screws.

Caution②: Ball bearing retainer must be securely locked onto the retainer latch before proceeding with inner rail installation. Failure to do so may result in inner rail derailment upon insertion.



Caution③: Inner rail must be inserted into the guiding zinc alloy mounted on the middle rail. Improper insertion results in derailment and possible chassis falling off.

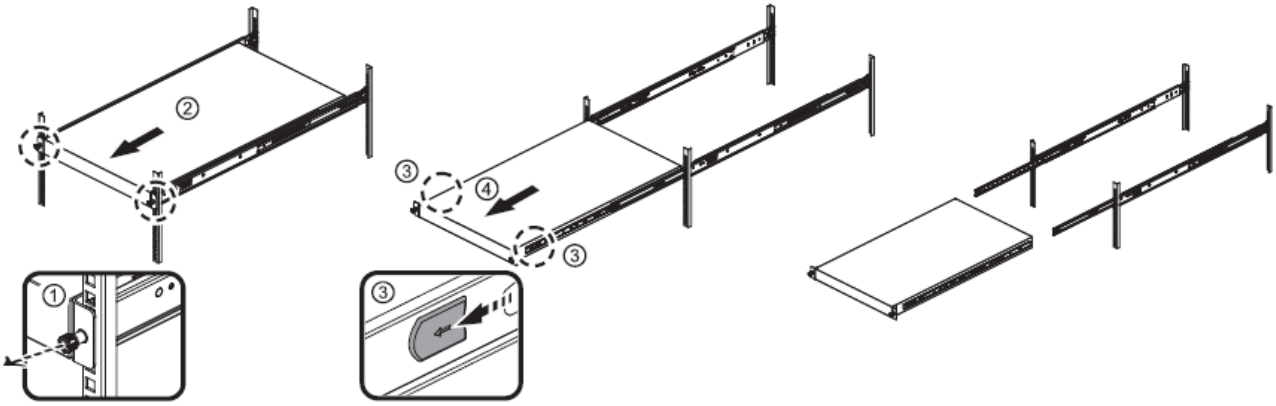
Caution③~④: Avoid pushing to the stop position with excessive force, as this can cause irreversible damage to the stopper.



Remove the chassis from rack

①② Loosen shipping screw to pull out chassis.

③④ Press the disconnect tab forward to remove chassis.



Cable Installation

Power Cable and Cable Retainer

In some switch models, the product's package includes cable retainers. It is highly recommended to use them in order to secure the power cables in place. Please adhere to the following instructions:

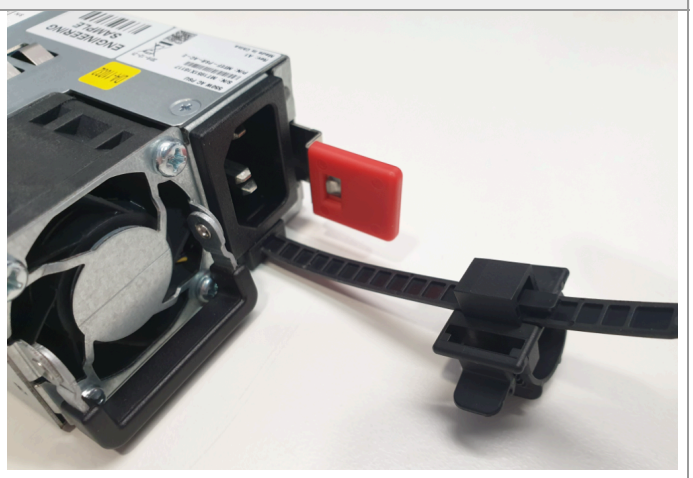
1. Verify the integrity of the retainer assembly, as demonstrated in the below table:- The snaps' push-pins must have visible edges with no broken or torn parts.

   - The shoulders' pins should be in-tact and must not be bent inwards.

2. It is advised to place the PSU on a flat, stable surface. While you secure the PSU in place, use two thumbs to insert the retainer's two snaps into the designated holes located near the AC inlet. Make sure that the retainer's plastic loop is facing upwards, as demonstrated in the below table.

> **Note**
>
> For demonstration purposes, the images in this document show C2P (Connector-to-Power) airflow PSUs with red latches, yet the instructions apply to P2C (Power-to-Connector) PSUs with blue latches as well.

Correct Insertion	Incorrect Insertion

Correct Insertion	Incorrect Insertion
	

3. Push the retainer until the shoulders' pins are open and aligned with the PSU front panel, as shown in the following table:

4. Make sure that the retainer is fully locked in place by gently attempting to pull it outwards.

5. Open the plastic loop and route the AC cord through it. Locate the loop over the AC cord, as shown in the following table, and fasten it tightly.

Proper Loop Placement	Improper Loop Placement
	

Note

Each cable retainer can be used once only. Once the retainer has been fully inserted and the shoulders' pins have been adjusted, the retainer cannot be used again, and should be discarded if pulled out.

Port Cables

All cables can be inserted or removed with the unit powered on.

To insert a cable, press the connector into the port receptacle until the connector is firmly seated. The LED indicator, corresponding to each data port, will light when the physical connection is established. When a logical connection is made, the relevant port LED will turn on.

To remove a cable, disengage the locks and slowly pull the connector away from the port receptacle. The LED indicator for that port will turn off when the cable is unseated.

For a list of Supported Cables and Transceivers, please refer to LinkX interconnect guides.

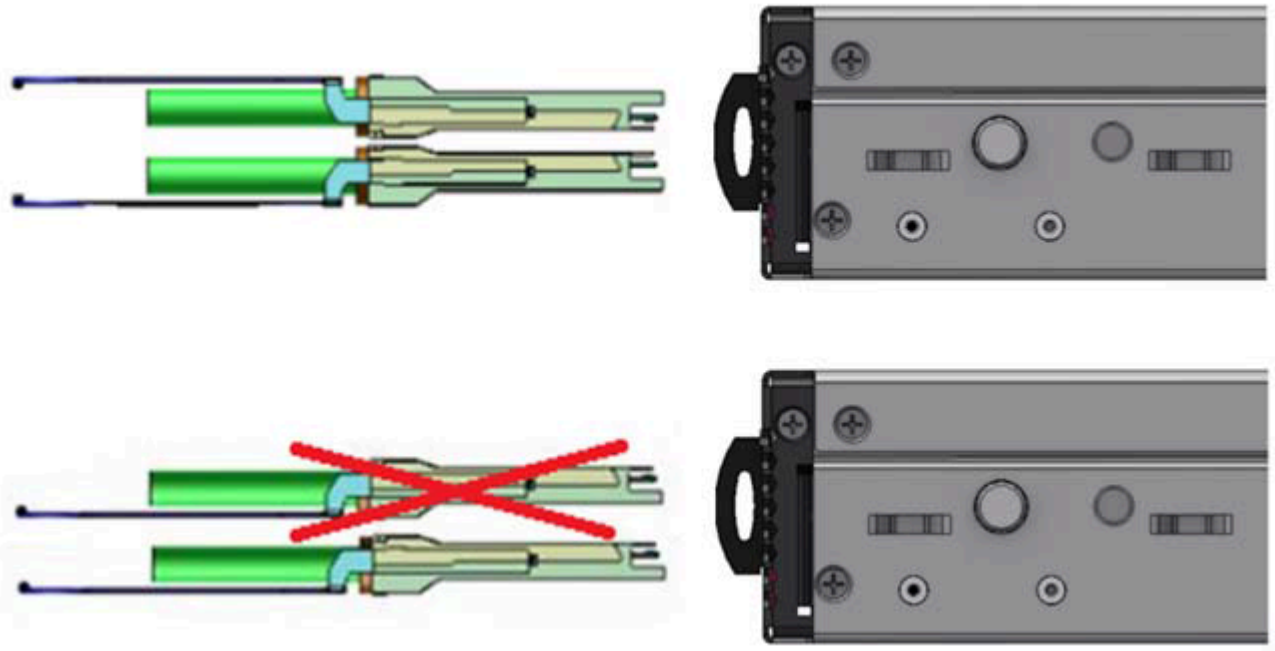
For full cabling guidelines, please refer to NVIDIA Cable Management Guidelines and FAQs Application Note.

For more information about port LEDs, refer to Port LEDs.

⚠ Warning

Do not force the cable into the cage with more than 40 newtons/9.0 pounds/4kg force. Greater insertion force may cause damage to the cable or to the cage.

QSFP Cable Orientation



Splitter (Breakout) Cables and Adapters

A 100GbE port can be split to two 50GbE ports, or to four (or less) 25GbE ports, using an NVIDIA splitter cable.

Splitting a 100GbE QSFP28 port to 4 separate 25GbE ports (using a splitter cable) may disable (unmap) the 100GbE port below it. See specific splitting options per system detailed below.

SN2201/SN2201_M Splitting Options

All QSFP28 ports are splittable. Each port can be split into 4xSFP28 (10/25G) or 2xQSFP28 (50G) ports. There are no blocking requirements.

Initial Power On

SN2201 Initial Power On

Each system's input voltage is specified in the Specifications chapter.

The power cords should be standard 3-wire AC power cords including a safety ground and rated for 15A or higher.

> ⚠ **Warning**
>
> The system platform will automatically power on when AC power is applied. There is no power system. Check all boards, power supplies, and fan tray modules for proper insertion before plugging in a power cable.

1. Plug in the first power cable.
2. Plug in the second power cable.
3. Wait for the System Status LED to turn green.

> ⚠ **Warning**
>
> It may take up to five minutes to turn on the system. If the System Status LED shows amber after five minutes, unplug the system and call your NVIDIA representative for assistance.

4. Check the System Status LEDs and confirm that all of the LEDs show status lights consistent with normal operation (initially flashing, and then moving to a steady color) as shown in the figures below. For more information, refer to LED Notifications.

System Status LEDs* 5 Minutes After Power On

*The icons order and style may vary depending on the system.

⚠ Warning

After inserting a power cable and confirming the green System Status LED light is on, make sure that the Fan Status LED shows green. If the Fan Status LED is not green, unplug the power connection and check that the fan module is inserted properly and that the mating connector of the fan unit is free of any dirt and/or obstacles. If no obstacles were found and the problem persists, call your NVIDIA representative for assistance.

Two Power Inlets - Electric Caution Notifications:

⚠ Warning

- Risk of electric shock and energy hazard. The two power supply units are independent. Disconnect all power supplies to ensure a powered down state inside of the switch platform.
- ACHTUNG Gafahr des elektrischen Schocks. Entferrnen des Netzsteckers elnes Netzteils spannungsfrei. Um alle Einhieten spannungsfrei zu machen sind die Netzstecker aller Netzteile zu entfernen.
- ATTENTION Risque de choc et de danger e’lectriques. Le de’branchment d’une seule alimentation stabilise’e ne de’branch uniquement qu’un module “Alimentation Stabilise’e”. Pour isoler

completement le module en cause, Il faut de'brancher toutes les alimentations stabilise'es.

SN2201_M Initial Power On

To power on the SN2201_M switch system, fully insert the DC power plug into the busbar rail located at the rear of the system. After insertion, secure the system to the rack using the provided rail kit.

System Bring-Up

For Cumulus Linux initial configuration instructions, see Configuring Cumulus Linux in the *Cumulus Linux Quick Start Guide*.

Remote Connection with Cumulus Linux

Cumulus Linux uses the OpenSSH package to provide SSH functionality. To securely access a Cumulus Linux switch remotely, please follow the instructions on the SSH for Remote Access page in the *Cumulus Linux User Guide*.

FRU Replacements

Power Supply

Note

This section applies to SN2201 systems only. The SN2201_M systems are powered by a DC busbar.

NVIDIA systems that are equipped with two replaceable power supply units work in a redundant configuration. Either unit may be extracted without bringing down the system.

> ⚠ **Warning**
>
> Make sure that the power supply unit that you are NOT replacing is showing green for the power supply unit LED.

> ⚠ **Warning**
>
> Power supply units have directional air flows similar to the fan module. The fan module airflow must coincide with the airflow of all of the power supply units. If the power supply unit airflow direction is different from the fan module airflow direction, the system's internal temperature will be affected. For power supply unit air flow direction, refer to Air Flow.

To extract a power supply unit:

1. Remove the power cord from the power supply unit.
2. Grasping the handle with your hand, push the latch release with your thumb while pulling the handle outward. As the power supply unit unseats, the power supply unit status LEDs will turn off.
3. Remove the power supply unit.

To insert a power supply unit:

1. Make sure the mating connector of the new unit is free of any dirt and/or obstacles.

> ⚠ **Warning**
>
> Do not attempt to insert a power supply unit with a power cord connected to it.

2. Insert the power supply unit by sliding it into the opening, until a slight resistance is felt.

3. Continue pressing the power supply unit until it seats completely. The latch will snap into place, confirming the proper installation.

4. Insert the power cord into the supply connector.

5. Insert the other end of the power cord into an outlet of the correct voltage.

> ⚠ **Warning**
>
> The green power supply unit indicator should light. If it does not, repeat the whole procedure to extract the power supply unit and re-insert it.

Fans

The system can fully operate if one fan FRU is dysfunctional. Failure of more than one fan is not supported.

> ⚠ **Warning**
>
> Make sure that the fans have the air flow that matches the model number. An air flow opposite to the system design will cause the system to operate at a higher (less than optimal) temperature. For power supply unit air flow direction, refer to Air Flow.

To remove a fan unit:

> ⓘ **Note**

When replacing a faulty fan unit in an operational switch system, do not leave the slot unpopulated for more than 60 seconds.

1. Grasping the handle with your right hand, push the latch release (if exists) with your thumb, while pulling the handle outward. As the fan unit unseats, the fan unit status LEDs will turn off.

2. Remove the fan unit.

To insert a fan unit:

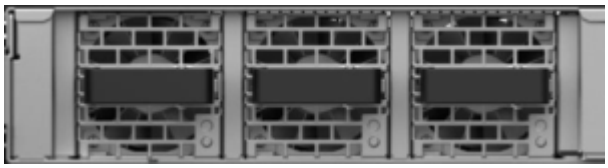
1. Make sure the mating connector of the new unit is free of any dirt and/or obstacles.

2. Insert the fan unit by sliding it into the opening until slight resistance is felt. Continue pressing the fan unit until it seats completely.

⚠ Warning

The green Fan Status LED should light. If not, extract the fan unit and reinsert it. After two unsuccessful attempts to install the fan unit, power off the system before attempting any system debug.

Fan Module Latches Illustration



Interfaces

The systems support the following interfaces:

- Data interfaces - 48x 1GBase-T and 4 x100GbE and
- USB port
- RS232 Console port
- Management interface(s) (Eth. RJ45) – 100MbE/1GbE
- Reset button
- Status and Port LEDs

In order to review the full configuration options matrix, refer to Management Interfaces, PSUs and Fans.

Speed

Ethernet port speeds are configured using NOS commands. Refer to the Cumulus Linux Switch Port Attributes section for link speeds settings information.

RS232 (Console)

The port labeled “Console” is an RS232 serial port on the front side of the system. It is used for initial configuration and debugging. Upon first installation of the system, connect a PC to this interface and configure network parameters for remote connections. To view the full procedure, refer to System Configuration in the *Cumulus Linux User Guide*.

Note

- This interface is not found in externally managed systems.

- Apart from the initial configuration, the console interface is made exclusively for debugging and troubleshooting. Only FAEs are authorized to connect through it.

Warning

Only original NVIDIA cables supplied with the switch package can be used to connect a switch system to the server.

Connecting any cable other than the NVIDIA supplied console cable may cause a hang. Using uncertified cables may damage the console interface.

Refer to the Replacement Parts Ordering Numbers appendix for harness details.

Management

Note

The RJ45 Ethernet “MGT” port is labeled images/download/thumbnails/4232636992/image-2025-10-29_11-23-1-version-1-modificationdate-1761729780753-api-v2.png .

The RJ45 Ethernet ports provide access for remote management. The management ports are configured with auto-negotiation capabilities by default (100MbE to 1GbE). The management ports’ network attributes (such as IP address) need to be pre-configured via the RS232 serial console port or by DHCP before use. Refer to System Configuration to view the full procedure.

Warning

Make sure you use only FCC compliant Ethernet cables.

USB

The USB interface is USB 2.0 compliant (USB 1.0 is not supported) and can be used by the software to connect to an external disk for software upgrade or file management. The connector comes in a standard USB shape.

To view the full matrix of the USB configuration options, refer to Management Interfaces, PSUs and Fans.

Note

Do not use excessive force when inserting or extracting the USB disk to and from the connector.

Reset Button

The reset button is located on the front side of the system. It requires a tool to be pressed.

Warning

Do not use a sharp pointed object such as a needle or a push pin for pressing the reset button. Use a flat object to push the reset button.

To reset the system and the CPU of its management board, push the reset button and keep it pressed for up to 15 seconds.

For Cumulus Linux password reset instructions, please refer to the Single User Mode - Password Recovery section in the *Cumulus Linux User Guide*.

Status and Port LEDs

See LED Notifications.

Data Interfaces

The full list of interfaces per system is provided in Speed and Switching Capabilities.

The data interfaces are supported by various QSFP28 and SFP28 adapter cables and optical transceivers. The following table specifies each system's ports max power capabilities:

High Power Transceivers Support

Model Family	Ports	Maximum High Power Support
SN2201, SN2201_M	52,53	3.5W
	49, 51	5W

LED Notifications

The system's LEDs are an important tool for hardware event notification and troubleshooting.

LED Symbols

Symbol	Name	Description	Normal Conditions
	System Status LED	Shows the health of the system.	Green or flashing green when booting
	Fan Status LED	Shows the health of the fans.	Green
	Power Supply Units LEDs	Shows the health of the power supply units/busbar power rails.	Green
	Unit Identifier LED	Lights up on command through the CLI.	Off or blue when identifying a port

System Status LEDs

Both of the System Status LEDs (front and back, if exist) supply identical information.

System Status LEDs - Front and Rear Sides

LED Type	Symbol	System	Front	Rear
System Status LEDs		SN2201_M	Yes	No
		SN2201	Yes	No

> **Warning**
>
> It may take up to five minutes to turn on the system. If the System Status LED shows red after five minutes, unplug the system and call your NVIDIA representative for assistance.

System Status LED Assignments

LED Behavior	Description	Action Required
Solid Green	The system is up and running normally.	N/A
Flashing Green	The system is booting up.	Wait up to five minutes for the end of the booting process.
Solid Red	Major error has occurred. For example, corrupted firmware, system is overheated etc.	If the System Status LED shows red five minutes after starting the system, unplug the system and call your NVIDIA representative for assistance.

Fan Status LEDs

LED Type	Symbol	System	Front	Rear
Fan Status LEDs		SN2201	Yes	Yes*, 4
		SN2201_M	Yes	Yes*, 4

*The fans status is reflected by the LEDs only once the Network Operating System boot is complete.

Fan Status Front LED Assignments

LED Behavior	Description	Action Required
Solid Green	All fans are up and running.	N/A
Solid Red	Error, one or more fans are not operating properly.	The faulty FRUs should be replaced.
Off	System boot	N/A

Fan Status Rear LED Assignments (One LED per Fan)

LED Behavior	Description	Action Required
Solid Green	A specific fan unit is operating.	N/A
Solid Red	A specific fan unit is missing or not operating properly.	The fan unit should be replaced.
Off	System boot	N/A

⚠ Warning

Risk of Electric Shock! With the fan module removed, power pins are accessible within the module cavity. Do not insert tools or body parts into the fan module cavity.

Power Supply/Power Distribution Board Status LEDs

Power Supply/Power Distribution Board Status LEDs

LED Type	Symbol	System	Front	Rear
Power Supply Status LED		SN2201	Yes	Yes
DC Power Distribution Board Status LED		SN2201_M	Yes	Yes

There are two power supply inlets in the SN2201 system (for redundancy). The system can operate with only one power supply connected. In case the power supply is an FRU, a second power supply unit can be added to support hot-swap ability. Each power supply unit has a single 2 color LED on the right side of the unit, that indicates the status of the unit.

Power Supply Rear LED/Power Distribution Board Status LED

LED Behavior	Description	Action Required
Solid Green	The PSU is running normally.	N/A
Flashing Green 1Hz	AC present / Only 12VSB on (PSU off) or PSU in Smart-on state.	Call your NVIDIA representative for assistance.
Amber	AC cord unplugged or AC power lost while the second power supply still has AC input power.	Plug in the AC cord of the faulty PSU.
	PS failure (including voltage out of range and power cord disconnected).	Check voltage. If OK, call your NVIDIA representative for assistance.
Flashing Amber	Power supply warning events where the power supply continues to operate; high temp, high power, high current, slow fan.	Call your NVIDIA representative for assistance.
Off	No AC power to all power supplies.	Call your NVIDIA representative for assistance.

Unit Identification LED

The UID LED is a debug feature, that the user can use to find a particular system within a cluster by turning on the UID blue LED.

To activate the UID LED, refer to Network Switch Port LED and Status LED Guidelines in the Cumulus Linux User Guide.

Bad Port LED

The Bad Port LED indicator is used to indicate symbol errors in one or more system ports.

Bad Port LED Assignments

LED Behavior	Description	Action Required
Off	No symbol errors have been received in last few seconds (normal condition).	N/A
Flashing Amber	Error, one or more ports have received symbol errors. Possible causes are: • Bad cable • Bad connection • Bad connector	Check symbol error counters on the system UI to identify the ports. Replace the cable on these ports.

Port LEDs

System	Port LEDs
SN2201/SN2201_M	RJ45:  QSFP28: 

SFP and QSFP Port LEDs in Ethernet System Mode

LED Behavior	Description	Action Required
Off	Link is down	Check the cable.
Solid Green	Link is up with no traffic	N/A
Flashing Green	Link is up with traffic	N/A
Flashing Amber	A problem with the link	Check the cable, and replace it if needed.

1GBase-T LEDs in Ethernet System Mode

LED Behavior	Description	Action Required
Off	Link is down	Check that the near-end and far-end connectors are properly plugged, check cable integrity.
Solid Yellow	Link is up	N/A
Solid Green	Link is up with no traffic	N/A
Flashing Green	Link is up with traffic	N/A

Inventory Information

The system's inventory parameters (such as Serial Number, Part Number, GUID and MAC address) can be extracted from the inventory pull-out tab on the lower right side of the front panel.

In some systems, there is no pull-out tab, and the information is provided on labels in several locations.

Pull-out Tab

Software Management

The system includes an embedded management CPU card that runs Cumulus® Linux® management software. This system includes a CLI, WebUI, SNMP, system management software, Ethernet protocols and IB management software (OpenSM). For Cumulus Linux software management instructions, refer to the *Cumulus Linux User Guide*.

Warning

The Ethernet ports for remote management connect to Ethernet systems. These systems must be configured to 100Mb/1Gb auto-negotiation.

Note

No more than two subnet managers are recommended for any single fabric.

Upgrading Software

Switch Firmware Update

Firmware updating is done through the NVIDIA Cumulus Linux NOS upgrade. See *Cumulus Linux User Guide*.

Cumulus Linux Software Upgrade

For Cumulus Linux software upgrade instructions, see Upgrading Cumulus Linux in the *Cumulus Linux User Guide*.

Troubleshooting

Problem Indicator	Symptoms	Cause and Solution
LEDs	System Status LED is blinking for more than 5 minutes	Cause: The management software did not boot properly and only firmware is running. Solution: Connect to the system via the console port, and check the software status. You might need to contact an FAE if the software did not load properly.
	System Status LED is red	Cause: • Critical system fault (CPU error, bad firmware) • Over temperature Solution: • Check environmental conditions (room temperature)
	Fan Status LED is red	Cause: Possible fan issue Solution: • Check that the fan is fully inserted and nothing blocks the airflow • Replace the fan FRU if needed
	PSU Status LED is red	Cause: Possible PSU issue Solution: • Check/replace the power cable • Replace the PSU if needed (possible in SN2201 only)
System boot failure while using Cumulus Linux	Software upgrade failed on x86 based systems	See Monitoring and Troubleshooting in the *Cumulus Linux User Guide*.

Problem Indicator	Symptoms	Cause and Solution
System date and time reset	The date and time settings were reset to the default configuration following an AC power loss	Cause: Date and time are reconfigured by the operating system. Solution: For full configuration instructions, please refer to Setting Date and Time in the *Cumulus Linux User Guide*.

Specifications

SN2201 Series

Feature	Parameter	Value
Mechanical	Size:	43.9mm (H) x 428mm (W) x 432mm (D) 1.72" (H) x 16.84" (W) x 17" (D)
	Mounting:	19” Rack mount
	Weight:	7.410kg
	Speed:	1/10/25/40/50/56/100GbE per QSFP28 port 10/100/1000Mbase-T per RJ45 port
	Connector cage:	48 RJ45 ports of 1GbE and 4 QSFP28 ports of 100GbE
Environmental	Temperature:	Operational: 0° to 40°C Non-Operational: -40° to 70°C
	Humidity:	Operational: 10% - 85% non-condensing Non-Operational: 10% - 90% non-condensing
	Altitude:	5000m
	Noise level:	60 dB(A)
Regulatory	Safety/ EMC:	CB, cTUVus, CE, CU, S_Mark, CE, FCC, VCCI, ICES, RCM, BSMI, KCC, CCC
	RoHS:	RoHS complaint
Power	Input Voltage:	100-127Vac, 50/60Hz 4A (x2), 200-240Vac, 50/60Hz 2A (x2)
	Global Power Consumption:	Typical power with passive cables (ATIS): 98W
Main Devices	CPU:	Intel x86 Dual Core
	PCIe:	4x Gen2.0
	Switch:	NVIDIA Spectrum
	Memory:	SDRAM: 8GB ECC DDR4 SO-DIMM

Feature	Parameter	Value
		Storage: 20GB SSD M.2 PCIe Gen 3
Throughput	-	448GB/s

SN2201_M Series

Feature	Parameter	Value
Mechanical	Dimensions	43.6mm (H) x 438mm (W) x 781mm (D) 1.71" (H) x 17.2" (W) x 30.7" (D)
	Mounting	Tool-less Rail-kit 19” MGX Rack (Busbar)
	Weight	11.39kg
	Speed	1/10/25/40/50/56/100GbE per QSFP28 port 10/100/1000Mbase-T per RJ45 port
	Connector cage	48 x1Gbase-T, RJ45 ports 4 x 100GbE, QSFP28 ports
Environmental	Temperature	Operational: 0° to 40°C Non-Operational: -40° to 70°C
	Humidity	Operational: 10%-85% non-condensing Non-Operational: 10%-90% non-condensing
	Altitude	3,000m
Regulatory	Safety/ EMC	CB, cTUVus, CE, CU, S_Mark, CE, FCC, VCCI, ICES, RCM, BSMI, KCC, CCC
	RoHS	RoHS complaint
Power	Input voltage	40V–60V DC
	Power consumption	Typical power with passive cables (ATIS): 100W
Main Devices	CPU	Intel x86 Dual Core
	PCIe	4x Gen2.0
	Switch	NVIDIA Spectrum
	Memory	SDRAM: 8GB ECC DDR4 SO-DIMM Storage: 20GB SSD M.2 PCIe Gen 3
Throughput	-	448GB/s

Appendixes

The document contains the following appendixes:

Accessory and Replacement Parts

Ordering Part Numbers for Replacement Parts

Part Number	Legacy Part Number	Part Description	Supported Systems
930-9NRKT-00JS-000	MTEF-KIT-M-TL	NVIDIA Tool-less rack installation kit, 4-post rack, For SN2201 switch	SN2201
930-9NRKT-00JS-001	MTEF-KIT-MX-TL	Nvidia Tool-less Rail-kit for SN2201_M Switch, MGX Racks	SN2201_M
930-9NPSU-00JQ-000	MTEF-PSR-AC-M	NVIDIA Power-Supply Unit, 250W AC, C2P Airflow, For SN2201 switch, Power cord included	SN2201
930-9NFAN-00IV-000	MTEF-FANF-K	NVIDIA fan module, P2C Airflow, For SN2201 switch	SN2201
930-9NFAN-00J9-000	MTEF-FANR-K	NVIDIA fan module, C2P Airflow, For SN2201 switch	SN2201, SN2201_M

Thermal Threshold Definitions

Three thermal threshold definitions are measured by the Spectrum ASICs, and impact the overall switch system operation state as follows:

- **Warning** – 105°C: On managed systems only: When the ASIC device crosses the 100°C threshold, a Warning Threshold message will be issued by the management software, indicating to system administration that the ASIC has crossed the Warning threshold. Note that this temperature threshold does not require nor lead to any action by hardware (such as switch shutdown).

- **Critical** – 120°C: When the ASIC device crosses this temperature, the switch firmware will automatically shut down the device.

- **Emergency** – 130°C: In case the firmware fails to shut down the ASIC device upon crossing its Critical threshold, the device will auto-shutdown upon crossing the Emergency (130°C) threshold.

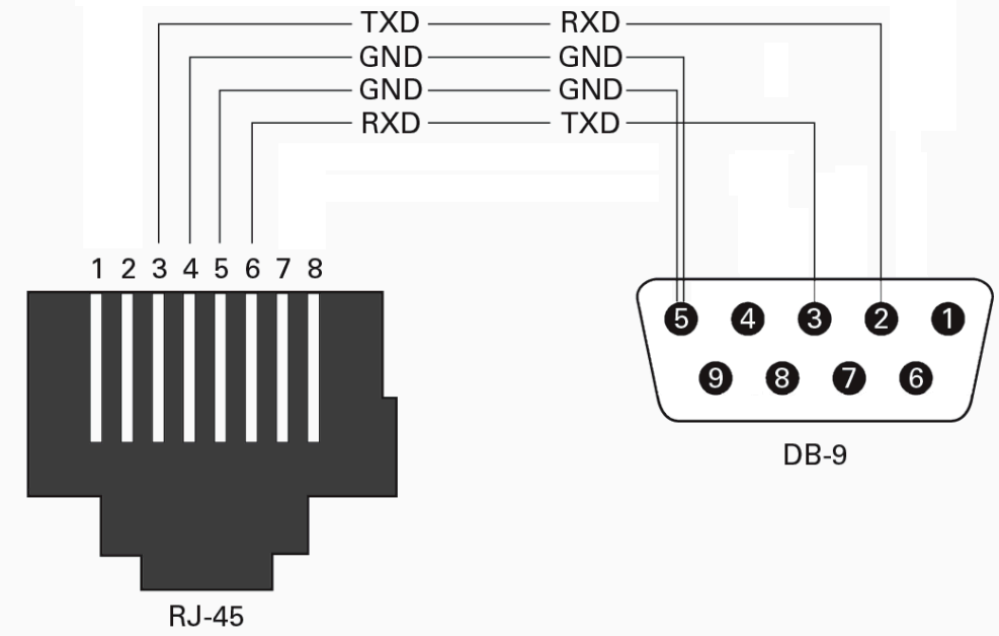
For thermal threshold definitions in Cumulus Linux, see Configuring SNMP Traps in the Cumulus User Guide.

Interface Specifications

RJ45 to DB9 Harness Pinout

The RS232 harness cable (DB9 to RJ45) is provided within the package to connect a host PC to the system's Console RJ45 port.

RJ45 to DB9 Harness Pinout



RJ45 to RJ45 Cable

A 2-meter RJ45-to-RJ45 serial port cable is included for connecting to the Ethernet Out-of-Band (OOB) management ports on the SN2201 and SN2201_M systems.

The cable must be used when connecting the switch serial port with the terminal server/console server.

> **Note**
>
> The harness can be extended by an ordinary flat 1-to-1 RJ45 cable.

Disassembly and Disposal

Disassembly Procedure

To disassemble the system from the rack:

1. Unplug and remove all connectors.
2. Unplug all power cords.
3. Remove the ground wire.
4. Unscrew the center bolts from the side of the system with the bracket.

> **Warning**
>
> Support the weight of the system when you remove the screws so that the system does not fall.

5. Slide the system from the rack.

6. Remove the rail slides from the rack.

7. Remove the caged nuts.

Disposal

According to the WEEE Directive 2002/96/EC, all waste electrical and electronic equipment (EEE) should be collected separately and not disposed of with regular household waste. Dispose of this product and all of its parts in a responsible and environmentally friendly way.

Follow the instructions found here for proper disassembly and disposal of the switch, according to the WEEE directive.

Lithium Battery

The SN2201 system's Real-time Clock includes a Lithium coin battery (CR2032) that contains perchlorate. When replacing the battery, use only a replacement battery that is recommended by the equipment manufacturer.

> ⚠ **Warning**
>
> The battery can explode if not properly used, replaced, or disposed of.
>
> Dispose of the battery according to your local regulations. Do not attempt to recharge the battery, disassemble, puncture, or otherwise damage it.

Document Revision History

Date	Revision	Description
October 2025	1.0	First revision of the unified SN2201 and SN2201_M User Manual

Notice

This document is provided for information purposes only and shall not be regarded as a warranty of a certain functionality, condition, or quality of a product. NVIDIA Corporation (“NVIDIA”) makes no representations or warranties, expressed or implied, as to the accuracy or completeness of the information contained in this document and assumes no responsibility for any errors contained herein. NVIDIA shall have no liability for the consequences or use of such information or for any infringement of patents or other rights of third parties that may result from its use. This document is not a commitment to develop, release, or deliver any Material (defined below), code, or functionality.

NVIDIA reserves the right to make corrections, modifications, enhancements, improvements, and any other changes to this document, at any time without notice.

Customer should obtain the latest relevant information before placing orders and should verify that such information is current and complete.

NVIDIA products are sold subject to the NVIDIA standard terms and conditions of sale supplied at the time of order acknowledgement, unless otherwise agreed in an individual sales agreement signed by authorized representatives of NVIDIA and customer (“Terms of Sale”). NVIDIA hereby expressly objects to applying any customer general terms and conditions with regards to the purchase of the NVIDIA product referenced in this document. No contractual obligations are formed either directly or indirectly by this document.

NVIDIA products are not designed, authorized, or warranted to be suitable for use in medical, military, aircraft, space, or life support equipment, nor in applications where failure or malfunction of the NVIDIA product can reasonably be expected to result in personal injury, death, or property or environmental damage. NVIDIA accepts no liability for inclusion and/or use of NVIDIA products in such equipment or applications and therefore such inclusion and/or use is at customer’s own risk.

NVIDIA makes no representation or warranty that products based on this document will be suitable for any specified use. Testing of all parameters of each product is not necessarily performed by NVIDIA. It is customer’s sole responsibility to evaluate and determine the applicability of any information contained in this document, ensure the product is suitable and fit for the application planned by customer, and perform the necessary testing for the application in order to avoid a default of the application or the product. Weaknesses in customer’s product designs may affect the quality and reliability of the NVIDIA product and may result in additional or different conditions and/or requirements beyond those contained in this document. NVIDIA accepts no liability related to any default, damage, costs, or problem which may be based on or attributable to: (i) the use of the NVIDIA product in any manner that is contrary to this document or (ii) customer product designs.

No license, either expressed or implied, is granted under any NVIDIA patent right, copyright, or other NVIDIA intellectual property right under this document. Information published by NVIDIA regarding third-party products or services does not constitute a license from NVIDIA to use such products or services or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property rights of the third party, or a license from NVIDIA under the patents or other intellectual property rights of NVIDIA.

Reproduction of information in this document is permissible only if approved in advance by NVIDIA in writing, reproduced without alteration and in full compliance with all applicable export laws and regulations, and accompanied by all associated conditions, limitations, and notices.

THIS DOCUMENT AND ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS, AND OTHER DOCUMENTS (TOGETHER AND SEPARATELY, “MATERIALS”) ARE BEING PROVIDED “AS IS.” NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY, OR OTHERWISE WITH RESPECT TO THE MATERIALS, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES OF NONINFRINGEMENT, MERCHANTABILITY, AND FITNESS FOR A PARTICULAR PURPOSE. TO THE EXTENT NOT PROHIBITED BY LAW, IN NO EVENT WILL NVIDIA BE LIABLE FOR ANY DAMAGES, INCLUDING WITHOUT LIMITATION ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL, PUNITIVE, OR CONSEQUENTIAL DAMAGES, HOWEVER CAUSED AND REGARDLESS OF THE THEORY OF LIABILITY, ARISING OUT OF

ANY USE OF THIS DOCUMENT, EVEN IF NVIDIA HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. Notwithstanding any damages that customer might incur for any reason whatsoever, NVIDIA's aggregate and cumulative liability towards customer for the products described herein shall be limited in accordance with the Terms of Sale for the product.

Trademarks

NVIDIA and the NVIDIA logo are trademarks and/or registered trademarks of NVIDIA Corporation in the U.S. and other countries. Other company and product names may be trademarks of the respective companies with which they are associated.