Troubleshooting Aids

Certain troubleshooting aids of the Cisco NCS 520 enable you to perform these tasks that assist the troubleshooting process:

Verify Pinout

Pinouts provide input signal (to the device) and output signal (from the device) information. Time-of-Day Port (TOD) port, Alarm (ALARM) port, and Management Ethernet (MGMT) port pinout information is provided in the following sections.

Time-of-Day Port Pinouts

The following table summarizes the ToD/1-PPS port pinouts.

Table 1: RJ-45 1PPS/ToD Port Pinouts

Pin	Signal Name	Direction	Description
1	RESERVED	Output	Do Not Connect
2	RESERVED	Input	Do Not Connect
3	1PPS_N	Output or Input	1PPS RS422 signal
4	GND	—	—
5	GND	—	—
6	1PPS_P	Output or Input	1PPS RS422 signal
7	TOD_N	Output or Input	Time-of-Day character
8	TOD_P	Output or Input	Time-of-Day character

Alarm Port Pinouts

The following table summarizes the external alarm input pinouts.

Table 2: External Alarm Input Pinouts

Pin	Signal Name	Description
1	ALARM0_IN	Alarm input 0
2	ALARM1_IN	Alarm input 1
3	—	No connect
4	ALARM2_IN	Alarm input 2
5	ALARM3_IN	Alarm input 3
6	—	No connect
7	—	No connect
8	COMMON	Alarm common

Management Ethernet Port Pinouts

The following table summarizes the Management Ethernet port pinouts.

Table 3: Fan Alarm Port Pinout

Pin	Signal Name
1	TRP0+
2	TRP0-
3	TRP1+
4	TRP2+
5	TRP2-
6	TRP1-
7	TRP3+
8	TRP3-

Check Optical Fiber Specifications

Optical fiber transmission defines two types of fiber specification:

- Single mode with three transmission types: short reach, intermediate reach, and long reach.

- Multimode with only short reach.

Check Alarm Conditions

The following table summarizes the meaning of alarm conditions on the device.

Table 4: Alarm Conditions Summary

Alarm Type	Alarm Meaning
Critical	Port in down state.
	Environmental sensor threshold exceeded critical level (voltage, temperature).
Major	Environmental sensor threshold exceeded major level (voltage, temperature).
Info	Port is administratively shut down.

Check LED Indicators

This section describes the different types of front panel LEDs and their behavior.

Power LED

The PWR LED provides power on the board and the overall health status of the device. During the power-up state, the LED provides booting status and report errors.

Note The digital code signing functionality validates the integrity and authenticity of the ROMMON image before booting it.

Table 5: Power LED Indication

LED State	Indication
Green	Board that is powered up, IOS Booted and running
Blinking Green	Bootloader is up
Red	Failure to boot or CPU is in reset
Off	No power

CPU Management Port LEDs

A bicolor LED indicates the status of the management port. The following table gives definition of the MGMT LED indication.

Table 6: CPU Management Port LED Indication

LED	LED State	Indication
MGMT	Green	Link up in 1000 Mbps
	Blinking Green	Activity in 1000 Mbps
	Amber	Link up in 10/100 Mbps
	Blinking Amber	Activity in 10/100 Mbps

SFP+ LEDs

Each port in sets of GE SFP+ ports has an LED indicator.

Table 7: SFP+ Port LED Indication

LED	LED State	Indication
GE / GE SFP	Green	Link up in 10G/1G
	Blinking Green	Activity in 10G/1G
	Yellow	Fault/Error/Link down
	Off	Admin down

Copper GE Ports

The copper GE ports have two status LEDs each. The copper PHY drives these LEDs.

Table 8: Copper GE Port LED Indication

LED State	Indication (LED on the left)	Indication (LED on the right)
Green	Link up in 1G mode.	Link up in full-duplex mode.
Blinking Green	Activity in 1G mode	-
Yellow	Fault or Error	-

LED State	Indication (LED on the left)	Indication (LED on the right)
Off	Link administratively down	Link up in half-duplex.

Alarm LED

The Alarm port has 3 corresponding LEDs. These LEDs are based on the severity of the alarm condition: CRIT (critical), MAJ (major), and MIN (minor).

Table 9: Alarm LEDs

LED State	CRIT	MAJ	MIN
Off	No alarm		
Red	PSU redundancy failure (for redundant systems) One or more thermal sensors have crossed Critical alarm threshold	-	System in holdover or free-run mode (applicable only on premium devices)
	More than one fan failure	Single fan failure	-
	Optics temperature crossing thresholds		