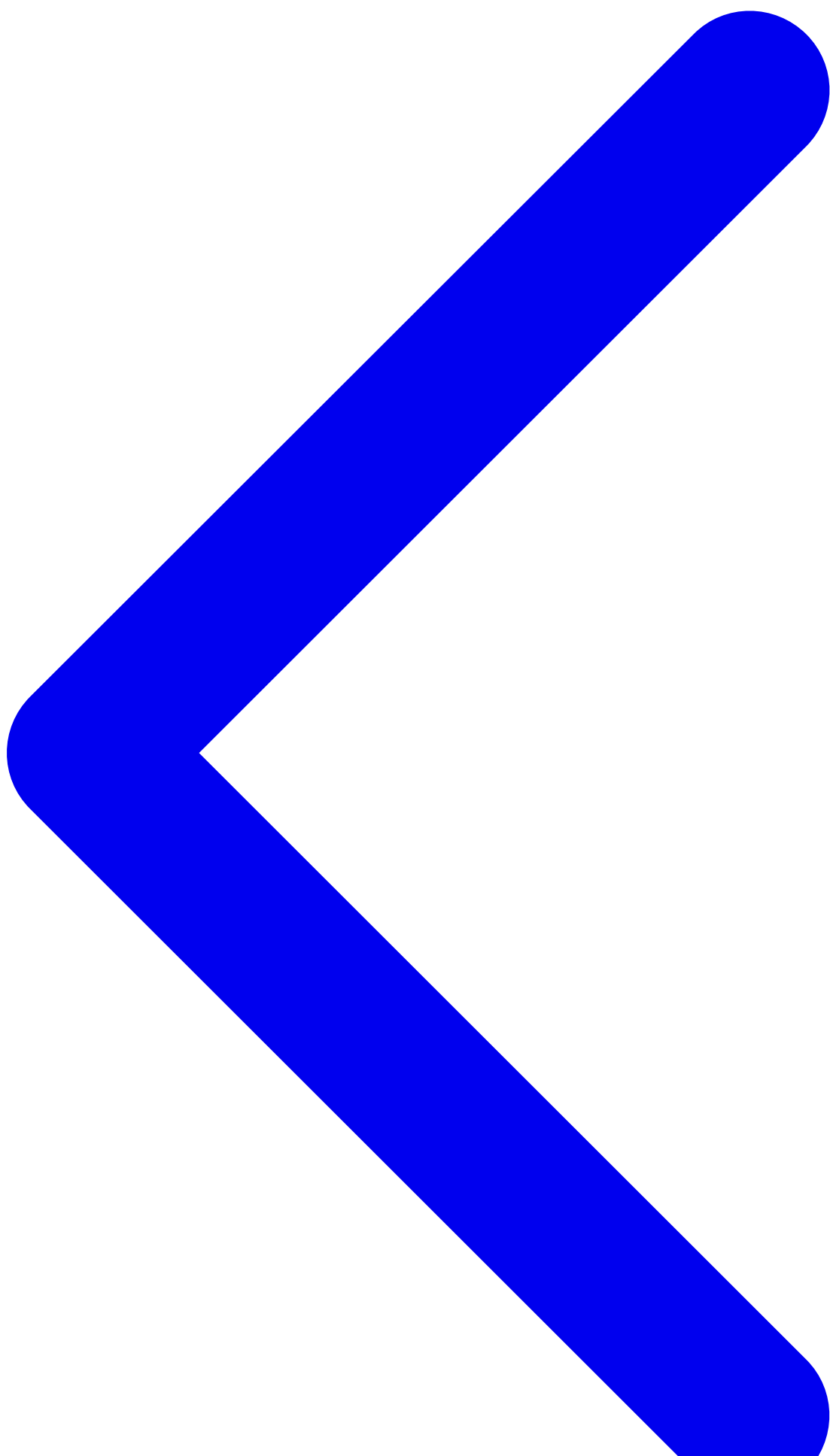


JetBox-Floyd System User Manual

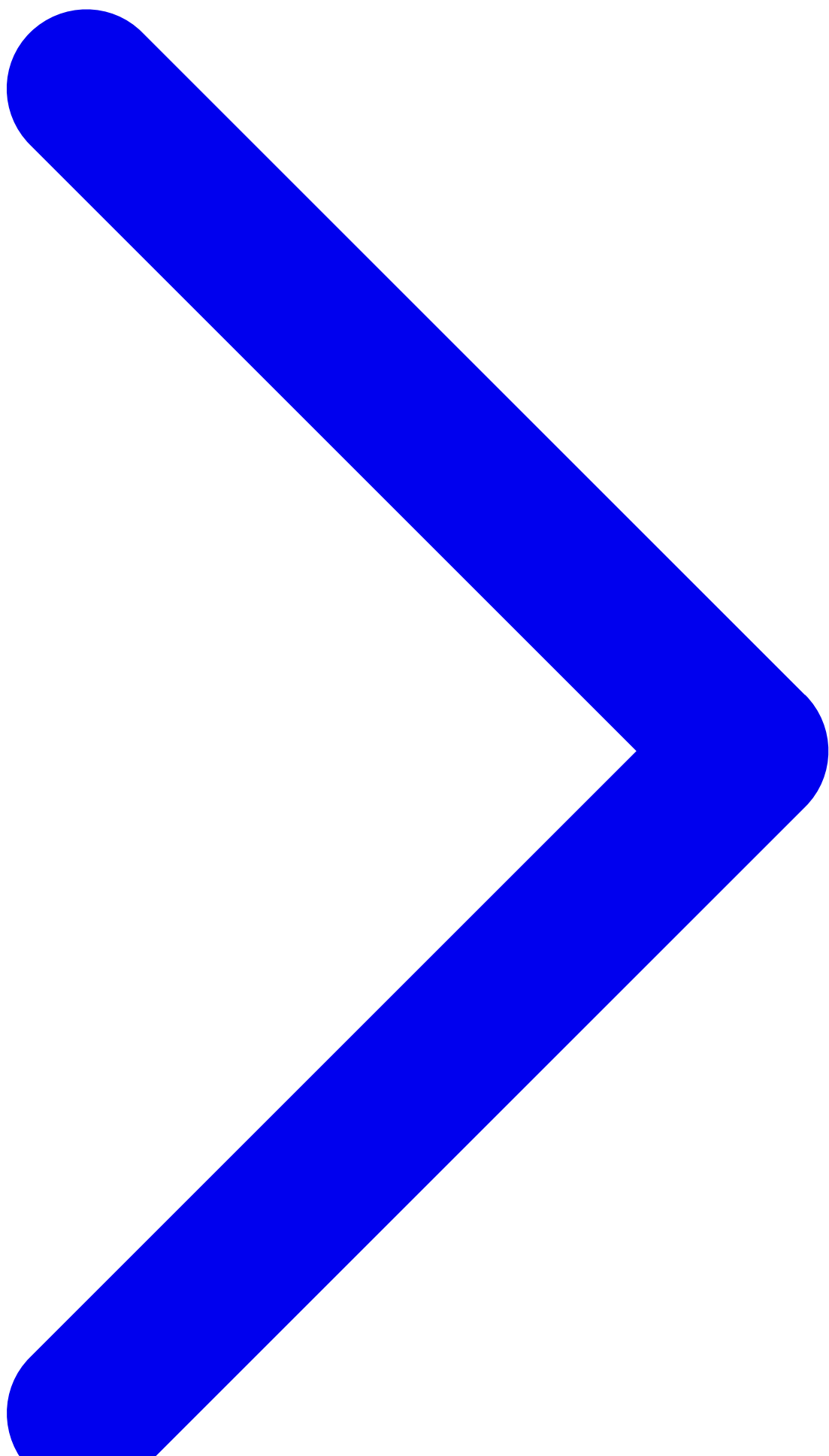
Diamond Systems. Source: <https://diamondsystems.gitbook.io/user-manuals/nvidia-solutions/jetbox-floyd/system-user-manual>

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[PreviousJetbox-Floyd](#)





[NextTABLE OF CONTENTS](#)

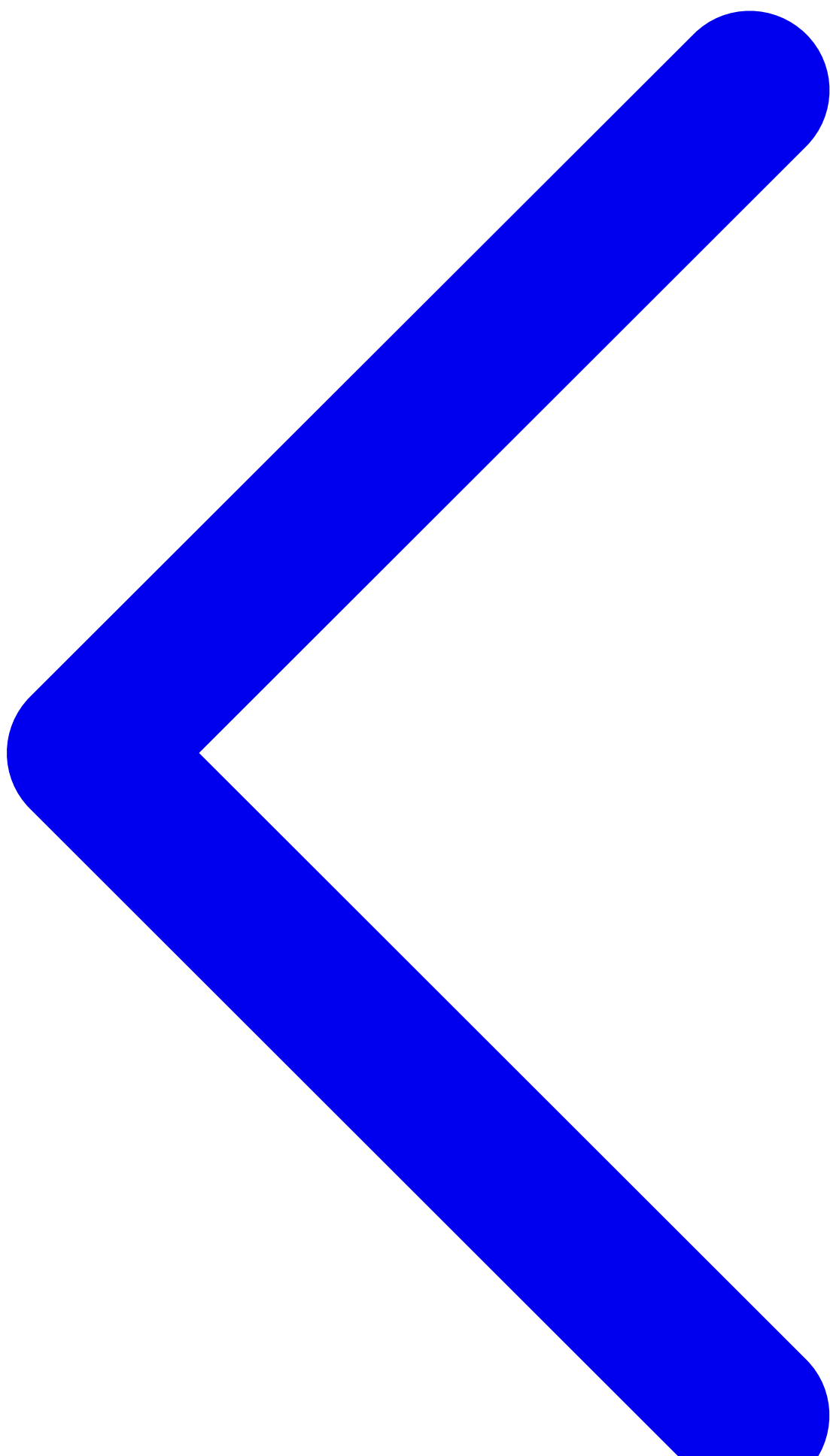
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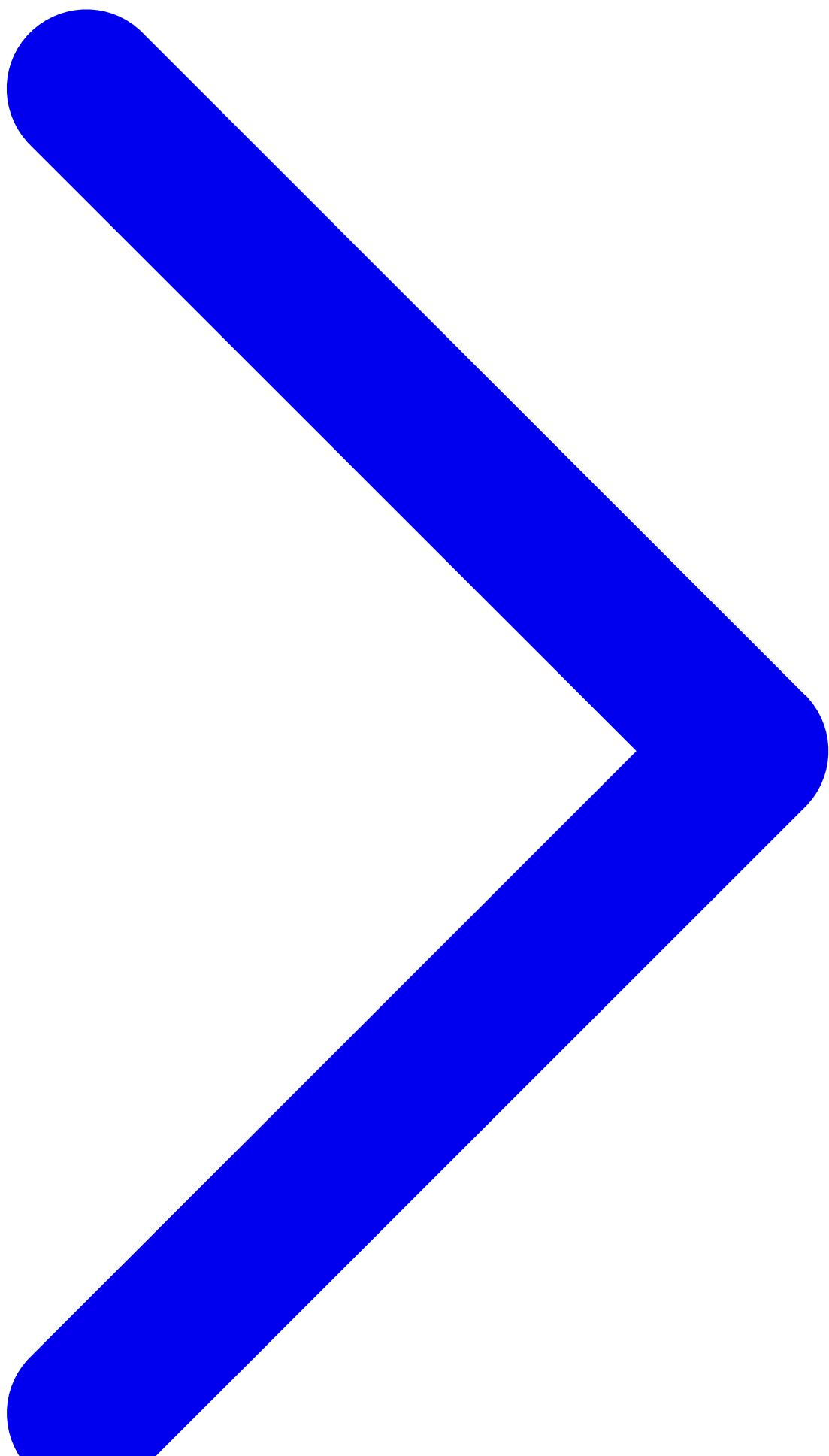
1. [IMPORTANT SAFE HANDLING INFO](#)
2. [INTRODUCTION & PRODUCT CONFIGURATIONS](#)
 - 2.1 [INTRODUCTION](#)
 - 2.2 [PRODUCT CONFIGURATIONS](#)
3. [FUNCTIONAL OVERVIEW](#)
 - 3.1 [POWER SUPPLY SPECIFICATIONS](#)
 - 3.2 [USB PORTS](#)
 - 3.3 [HDMI PORTS](#)
 - 3.4 [ETHERNET PORTS](#)
 - 3.4.1 [POWER OVER ETHERNET](#)
 - 3.5 [SERIAL PORTS OVERVIEW](#)
 - 3.6 [DIO OVERVIEW](#)
 - 3.7 [EXPANSION CONNECTORS](#)
 - 3.7.1 [EXP 1](#)
 - 3.7.2 [EXP 2](#)
4. [BLOCK DIAGRAM](#)
5. [MECHANICAL DRAWING](#)
 - 5.1 [3D STEP MODEL](#)
 - 5.2 [2D DRAWING](#)
6. [CONNECTORS LEDs AND JUMPER LOCATIONS](#)
 - 6.1 [FLOYD CARRIER BOARD CALLOUTS - TOP VIEW](#)
 - 6.2 [FLOYD CARRRIER BOARD CALLOUTS - BOT VIEW](#)
 - 6.3 [FLOYD CARRIER BAORD CALLOUTS - FRONT VIEW](#)
7. [JUMPER CONFIGURATION](#)
 - 7.1 [JP1: DIO PULL UP/DOWN ENABLE/DISABLE](#)
 - 7.2 [JP2:PROTOCOL MODE SEL & TERMINATION ENABLE](#)
 - 7.3 [JP3: USB2.0 - 1 MODE SEL](#)
8. [CONNECTOR PINOUTS](#)
 - 8.1 [INPUT POWER](#)
 - 8.2 [SERIAL PORTS](#)
 - 8.2.1 [SERIAL PORT 1 \(SER 1\)](#)
 - 8.2.2 [EXP 1 SERIAL PORT 2 \(SER 2\)](#)

- 8.3 [USB PORTS](#)
 - 8.3.1 [USB2.0 PORTS](#)
 - 8.3.2 [USB3.0 PORT](#)
- 8.4 [HDMI](#)
- 8.5 [ETHERNET](#)
- 8.6 [EXP 2: DIGITAL I/Os](#)
- 8.7 [EXP 1: OPTIONAL CAN](#)
- 8.8 [EXP 2 OPTIONAL PoE](#)
- 8.9 [J19: M.2 PCIe SSD](#)
- 8.10 [J17: MICRO SD](#)
- 8.11 [J15: RTC](#)
- 8.12 [J16: UTILITY](#)
- 8.13 [J20: FAN](#)
- 8.14 [J12,J13,J14: CSI CAMERA](#)
- 9. [I/O CONNECTOR LIST](#)
- 10. [EXPANSION SOCKETS](#)
- 11. [POWER OVER ETHERNET](#)
- 12. [GETTING STARTED](#)
- 13. [SYSTEM ASSEMBLY](#)
 - 13.1 [INSTALLING THE JETSON MODULE ON FLOYD](#)
 - 13.2 [INSTALLING FLOYD INSIDE THE JETBOX](#)
- 14. [REPROGRAMMING THE EMBEDDED LINUX IMAGE](#)
 - 14.1 [HARDWARE SET UP](#)
 - 14.2 [SOFTWARE SET UP](#)
 - 14.2.1 [FLASHING THE JETSON NANO MODULE](#)
 - 14.2.2 [FLASHING THE JETSON XAVIER NX MODULE](#)
- 15. [DIGITAL I/O](#)
- 16. [SERIAL PORTS](#)
- 17. [I/O EXPANSION](#)
- 18. [SPECIFICATIONS](#)
- 19. [LIMITED WARRANTY POLICY](#)





[PreviousSystem User Manual](#)





[Next1. IMPORTANT SAFE HANDLING INFORMATION](#)

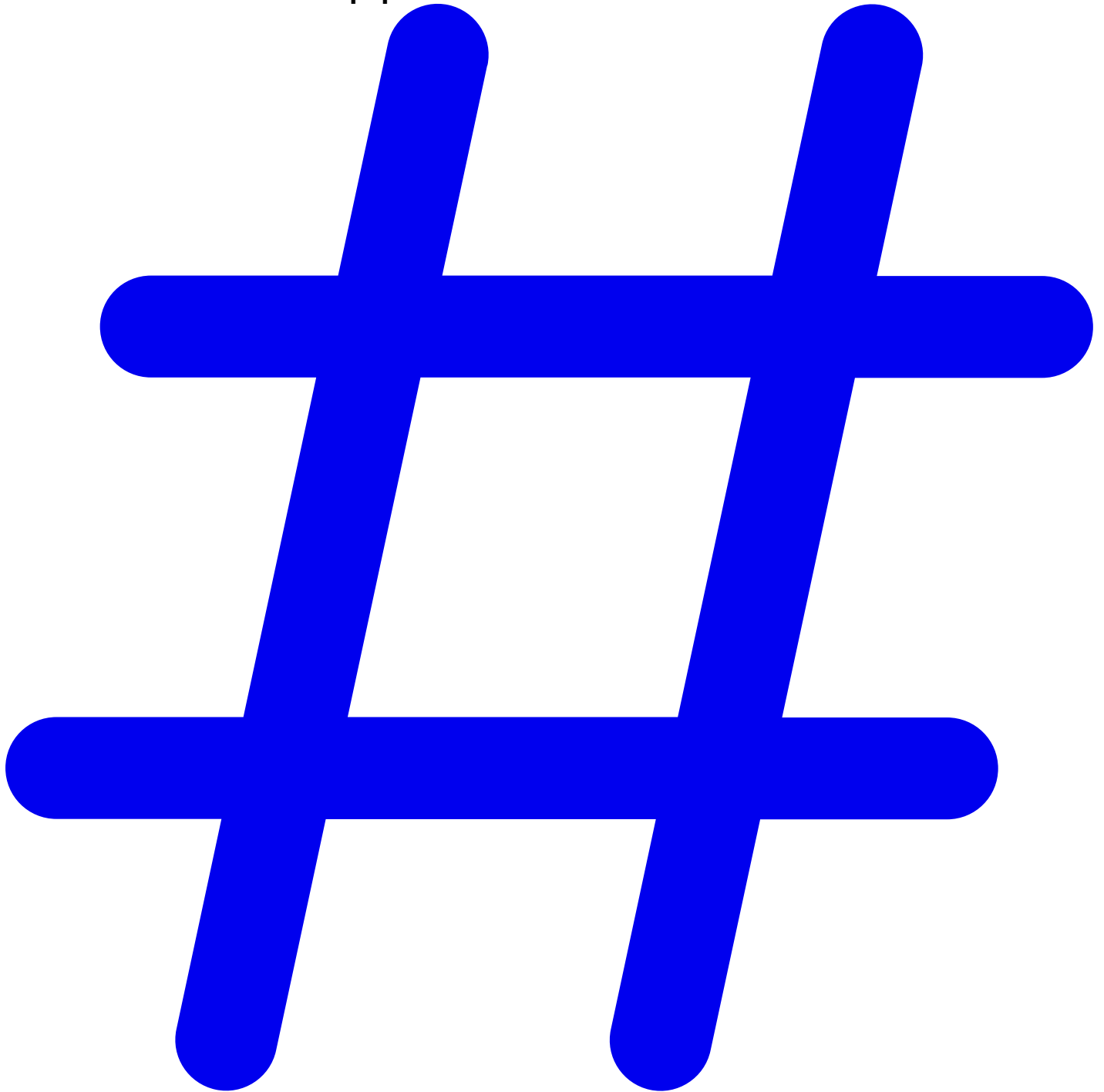
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WARNING!

ESD-Sensitive Electronic Equipment

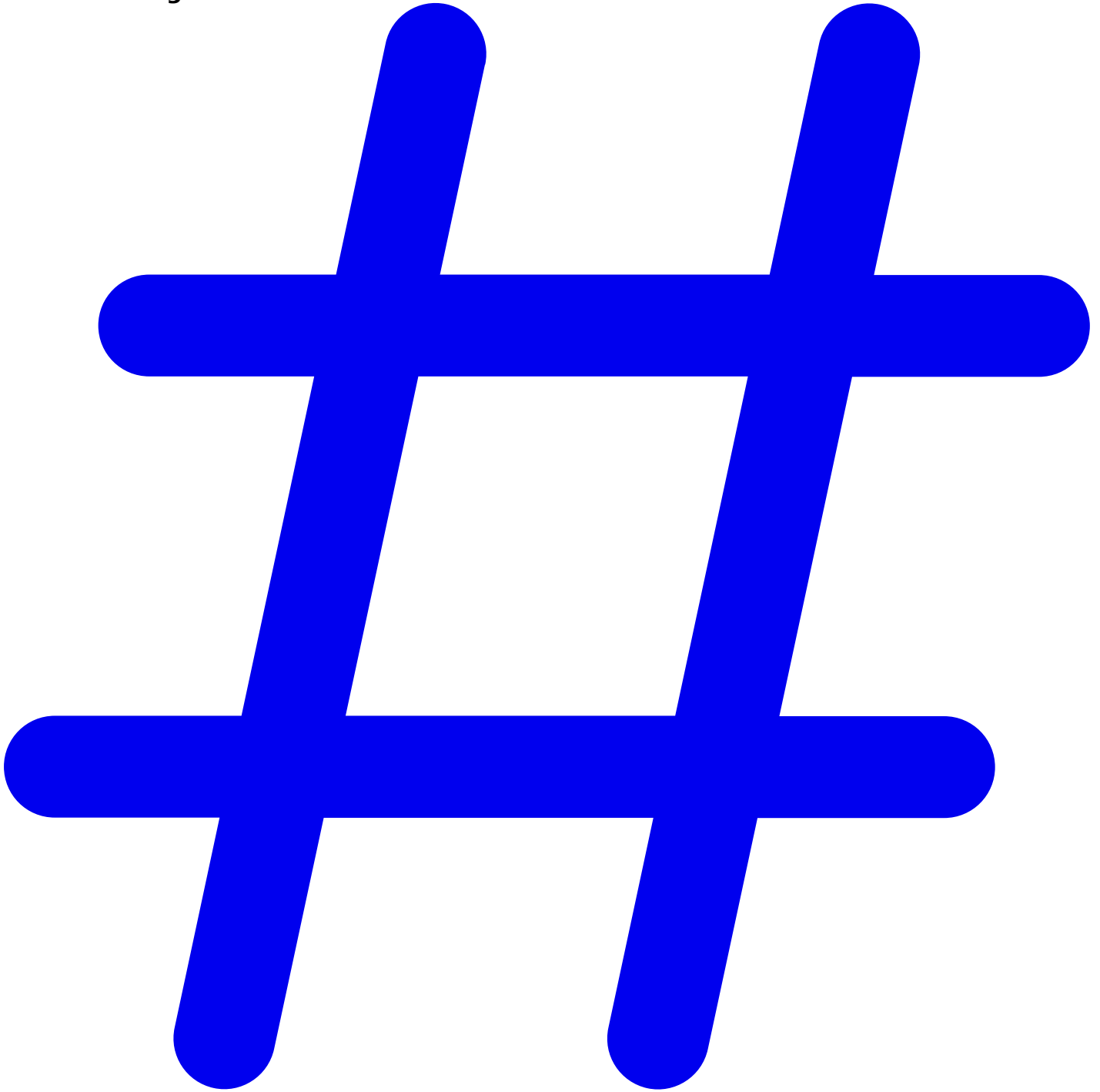


Observe ESD-safe handling procedures when working with this product.

Always use this product in a properly grounded work area and wear appropriate ESD-preventive clothing and/or accessories.

Always store this product in ESD-protective packaging when not in use.

Safe Handling Precautions



The Floyd base board contains a high number of I/O connectors with connection to sensitive electronic components. This creates many opportunities for accidental damage during handling, installation and connection to other equipment. The list here describes common causes of failure found on boards returned to Diamond Systems for repair. This information is provided as a source of advice to help you prevent damaging your Diamond (or any vendor's) embedded computer boards.

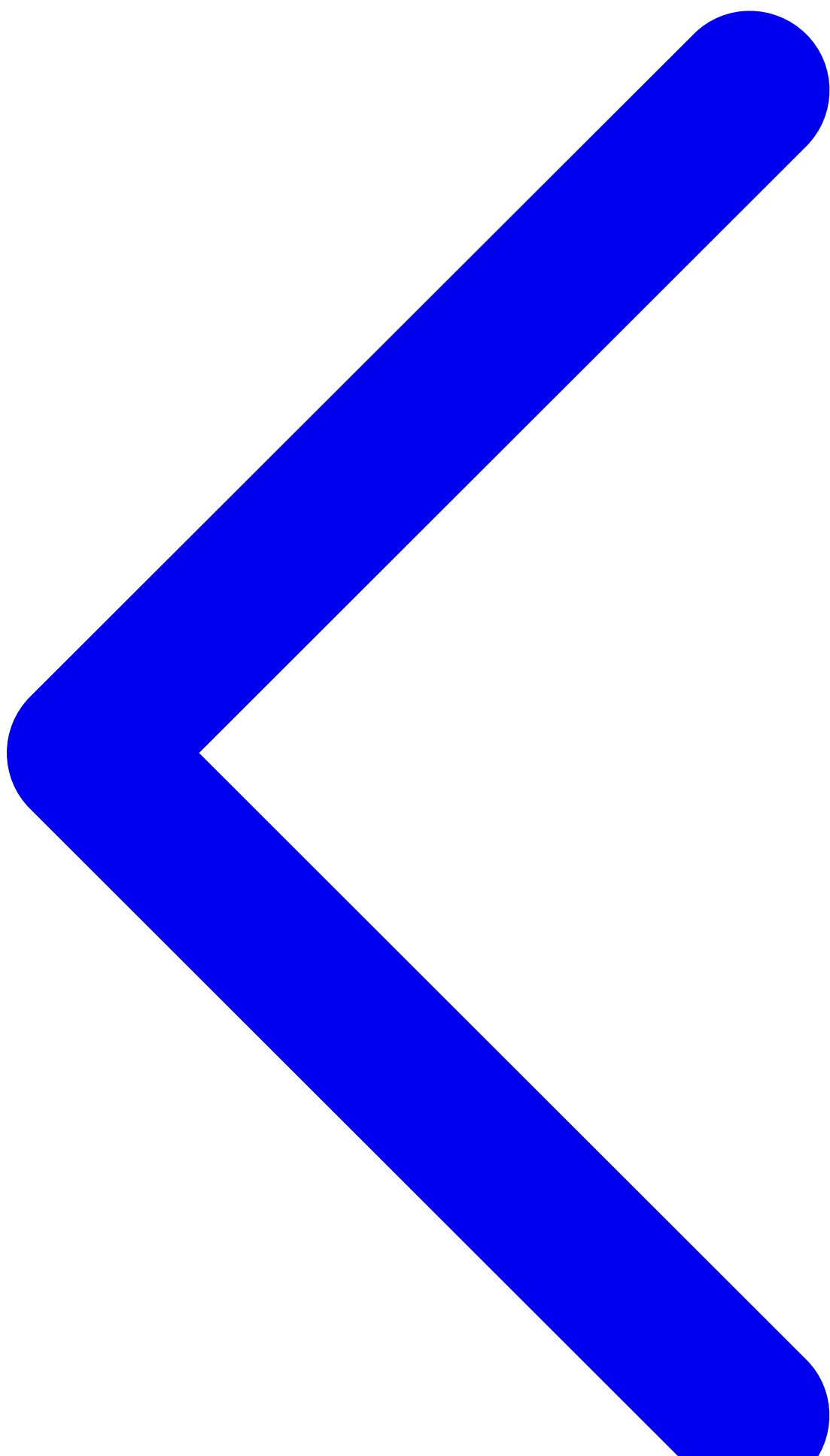
ESD damage - This type of damage is usually almost impossible to detect, because there is no visual sign of failure or damage. The symptom is that the board eventually simply stops working, because some component becomes defective. Usually the failure can be identified and the chip can be replaced. To prevent ESD damage, always follow proper ESD-prevention practices when handling computer boards.

Damage during handling or storage - On some boards we have noticed physical damage from mishandling. A common observation is that a screwdriver slipped while installing the board, causing a gouge in the PCB surface and cutting signal traces or damaging components.

Another common observation is damaged board corners, indicating the board was dropped. This may or may not cause damage to the circuitry, depending on what is near the corner. Most of our boards are designed with at least 25 mils clearance between the board edge and any component pad, and ground / power planes are at least 20 mils from the edge to avoid possible shorting from this type of damage. However these design rules are not sufficient to prevent damage in all situations. A third cause of failure is when a metal screwdriver tip slips, or a screw drops onto the board while it is powered on, causing a short between a power pin and a signal pin on a component. This can cause overvoltage / power supply problems described below. To avoid this type of failure, only perform assembly operations when the system is powered off.

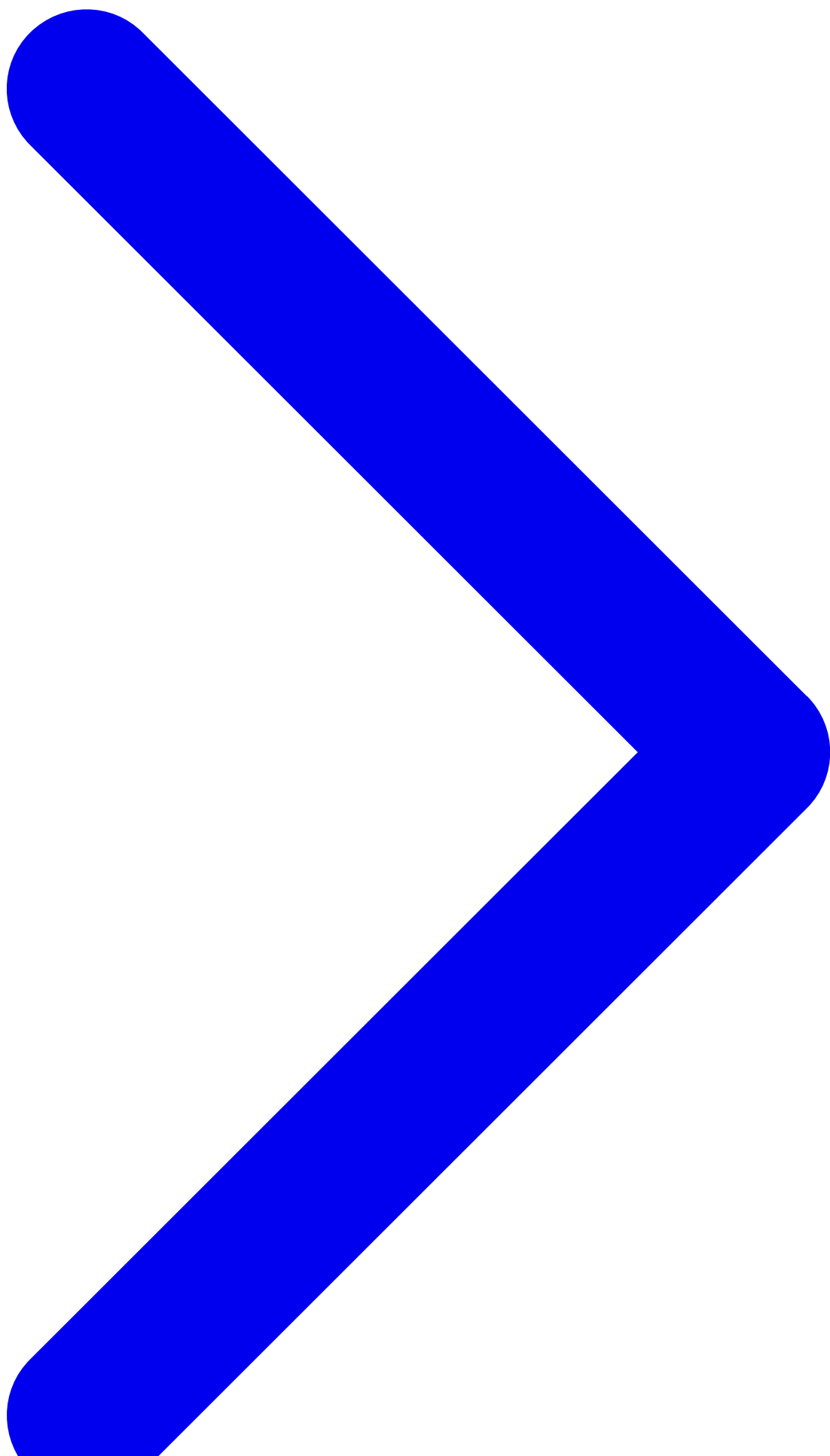
Sometimes boards are stored in racks with slots that grip the edge of the board. This is a common practice for board manufacturers. However our boards are generally very dense, and if the board has components very close to the board edge, they can be damaged or even knocked off the board when the board tilts back in the rack. Diamond recommends that all our boards be stored only in individual ESD-safe packaging. If multiple boards are stored together, they should be contained in bins with dividers between boards. Do not pile boards on top of each other or cram too many boards into a small location. This can cause damage to connector pins or fragile components.

Power supply wired backwards - Our power supplies and boards are not designed to withstand a reverse power supply connection. This will destroy each IC that is connected to the power supply (i.e. almost all ICs). In this case the board will most likely be unrepairable and must be replaced. A chip destroyed by reverse power or by excessive power will often have a visible hole on the top or show some deformation on the top surface due to vaporization inside the package. **Check twice before applying power!**





[Previous](#) [TABLE OF CONTENTS](#)





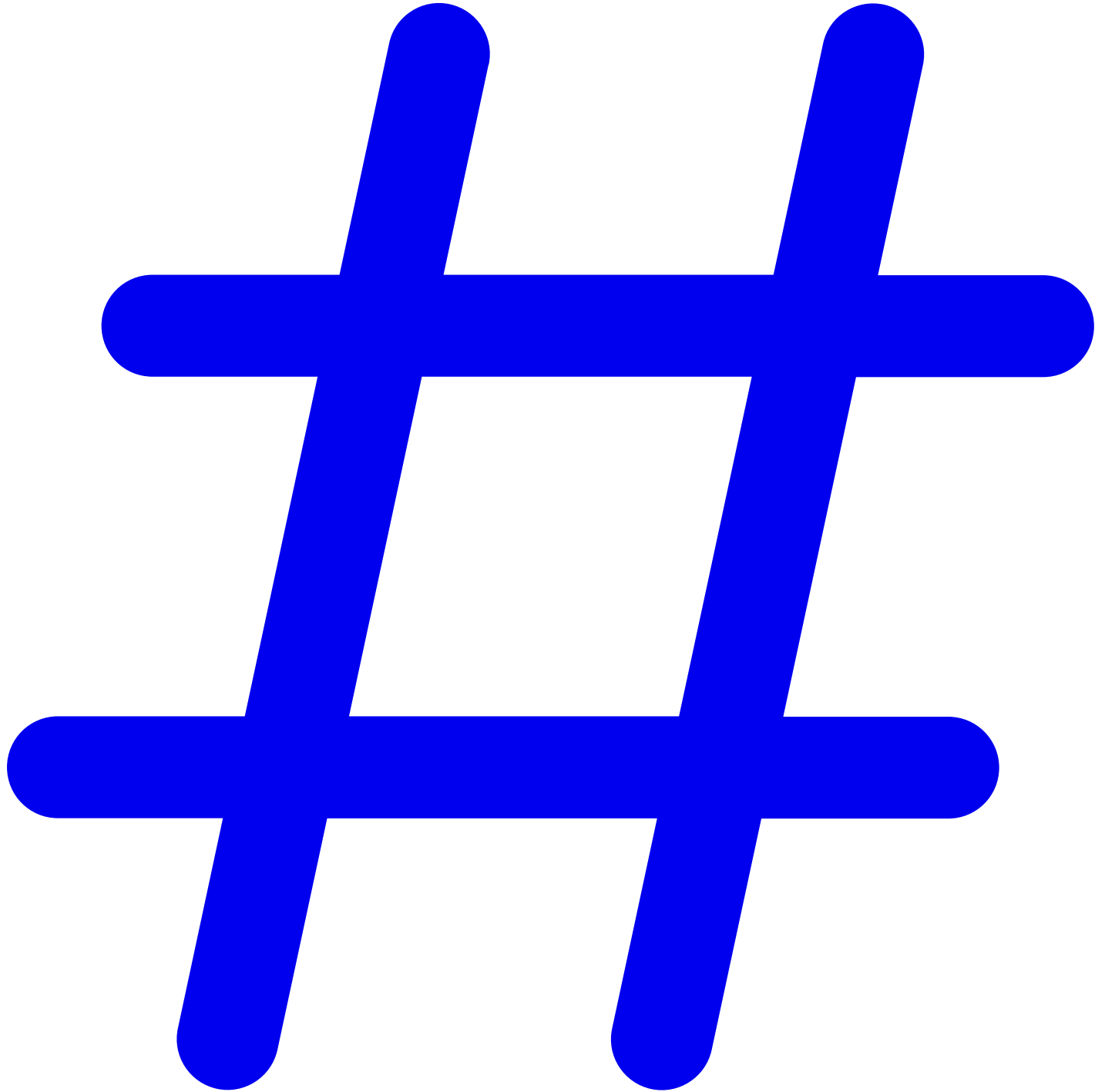
[Next2. INTRODUCTION & PRODUCT CONFIGURATIONS](#)

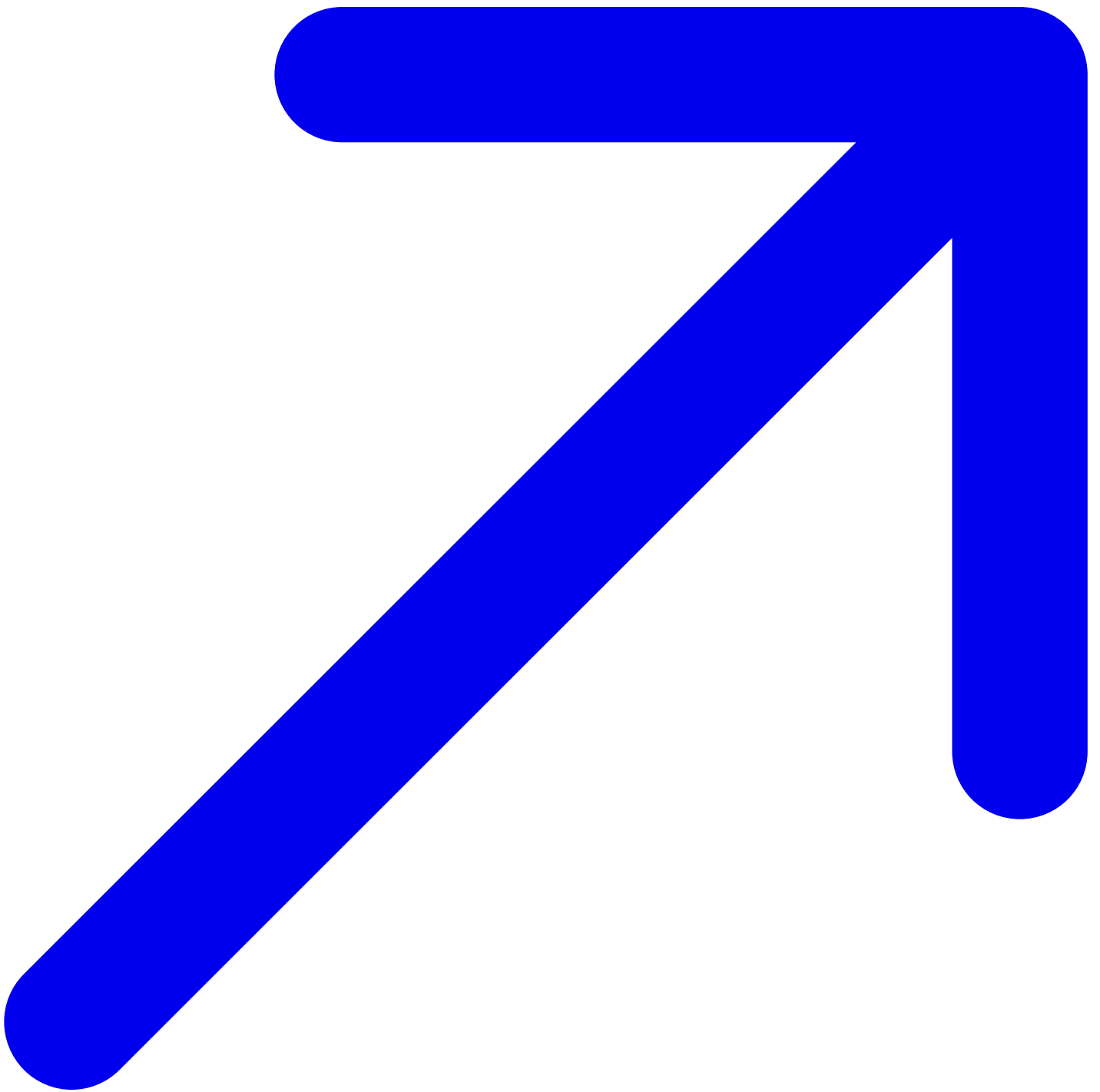
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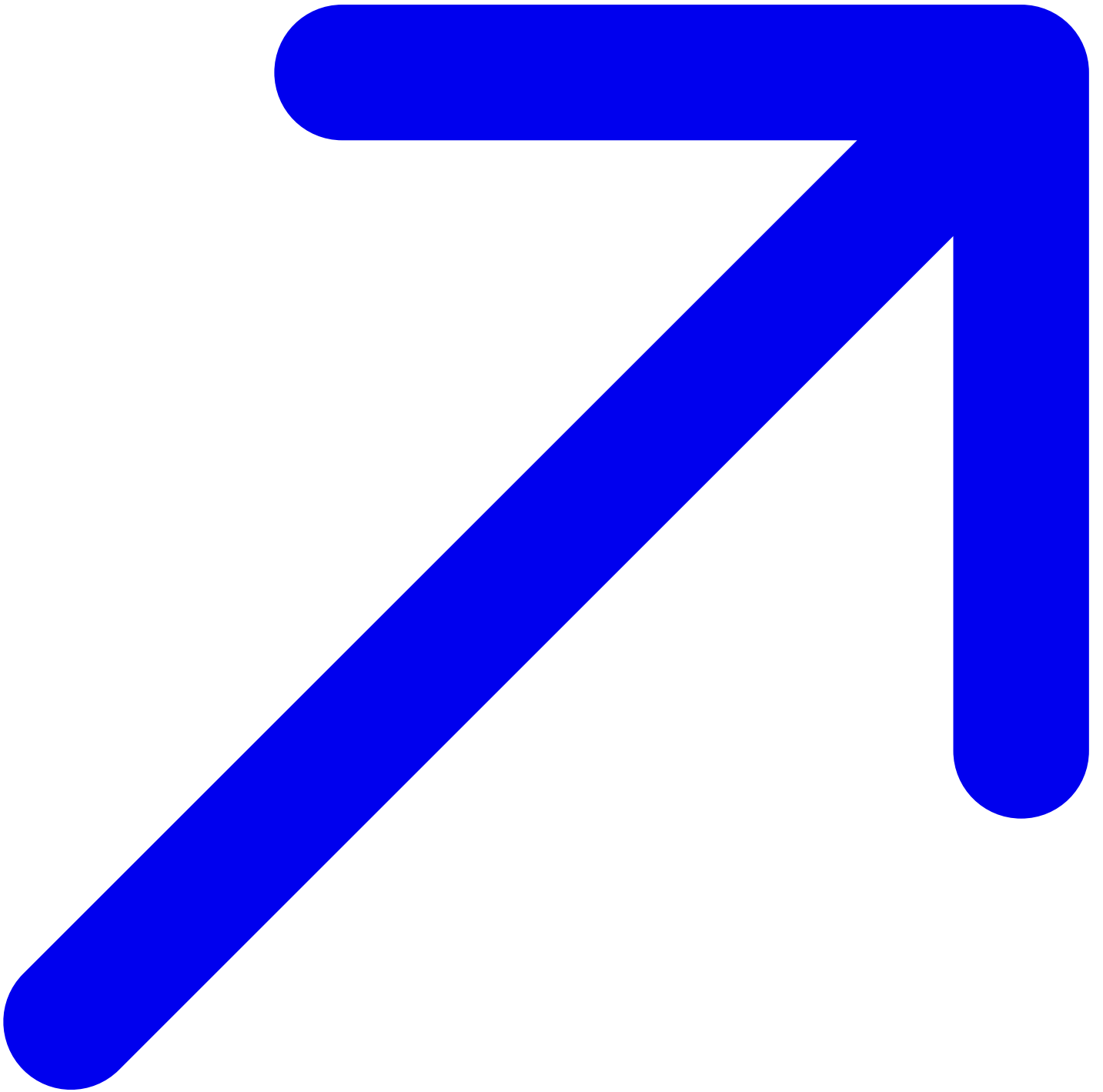
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2.1 Introduction





is a compact Nvidia Jetson AI computing platform ready to deploy. It includes the Jetson Nano or NX module installed on Diamond Systems [FLOYD](#)



carrier board with a Linux OS installed and preconfigured to support all the I/Os on Floyd.

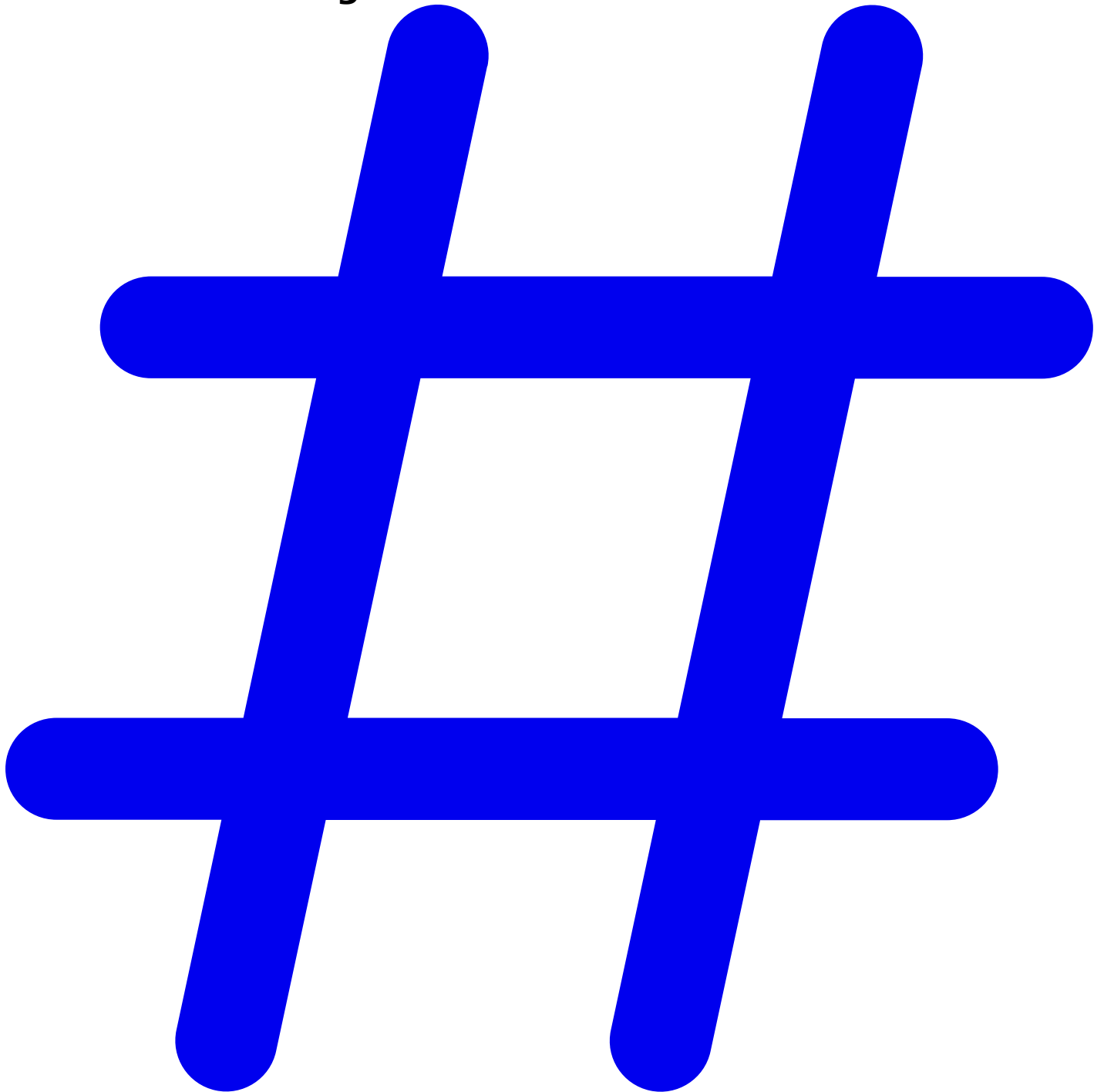
The system is available multiple standard configurations to meet a range of customer needs. The 01 full-feature models feature dual Ethernet ports with PoE support using an external power injector, two multi-protocol serial ports, dual HDMI displays, and a PCIe Minicard socket.

The 02 low-cost models have fewer baseline I/O features but offer a faster-performance PCIe x4 NVME M.2 socket. Only the 01 model support one channel of CAN 2.0B with the Xavier NX module installed.

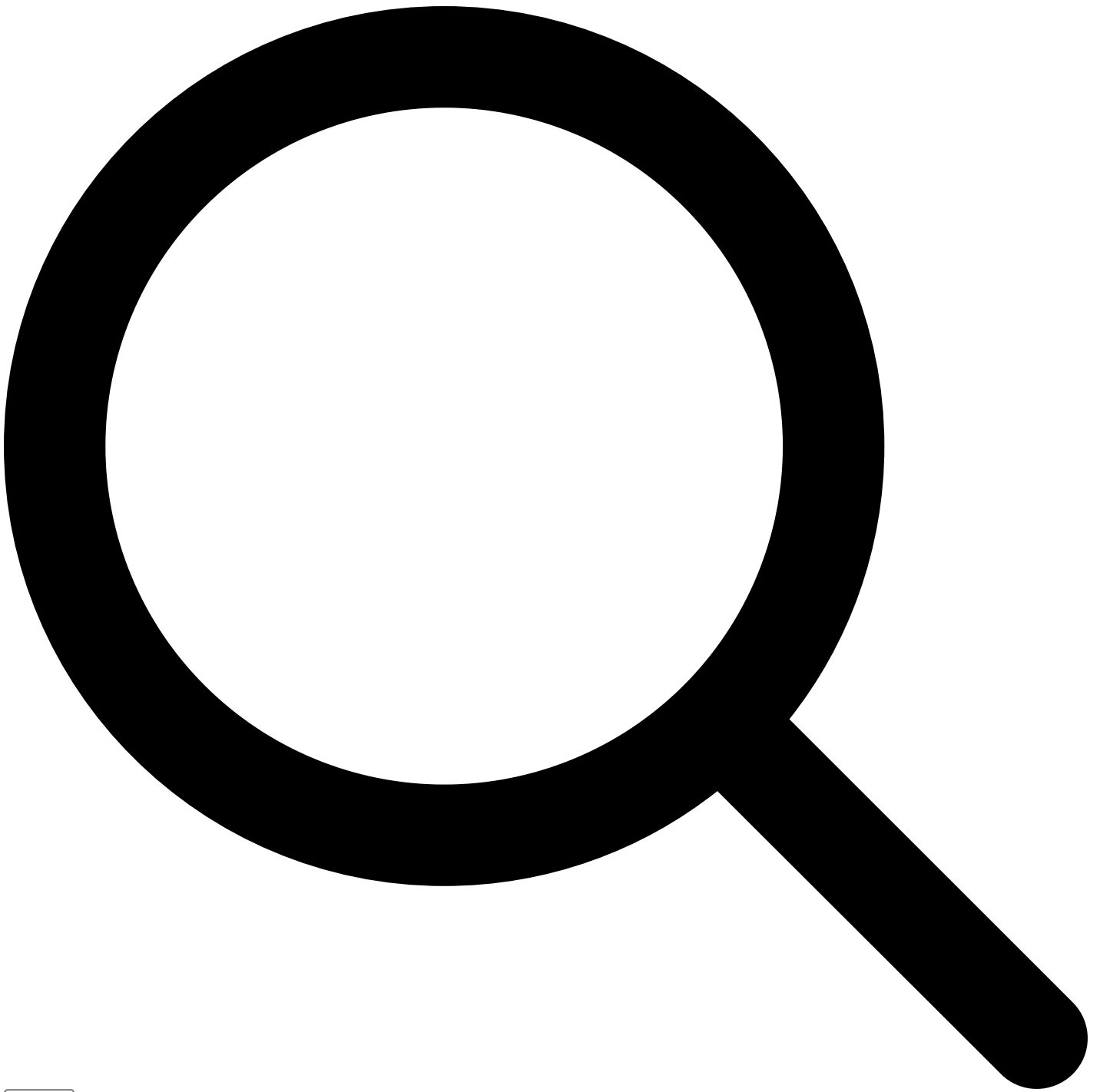
Jetbox-Floyd features multiple expansion sockets for additional I/O and storage capacity to meet a wide range of application needs. Dual SMA antenna cutouts support the installation of WiFi and cellular modem modules for network connectivity. The enclosure is DIN rail mountable or can be used in a "table top" scenario.

The system is compatible with both 12V and 24V DC power supplies. A 12VDC universal AC adapter is included with the system.

2.2 Product Configurations



Jetbox-Floyd is available in four standard baseline configurations of Jetson module and baseboard features:



Search

Feature

JB-FLD-NAO-01

JB-FLD-NAO-02

JB-FLD-XNX-01

JB-FLD-XNX-02

Jetson module

Nano

Nano

Xavier NX

Xavier NX

Gigabit Ethernet

2

1

2

1

PoE

Both ports

No

Both ports

No

HDMI

2

1

2

1

Camera CSI 4-lane

3

3

3

3

USB 3.0

1

1

1

1

USB 2.0

2

2

2

2

M.2 2280 socket

PCIe x1

PCIe x4

PCIe x1

PCIe x4

Minicard socket

Full size PCIe

No

Full size PCIe

No

SD card

Yes

Yes

Yes

Yes

GPIO 3.3V

8

8

8

8

Serial

2x RS-
232/422/485

1x RS-232 1x RS-
232/485

2x RS-
232/422/485

1x RS-232 1x RS-
232/485

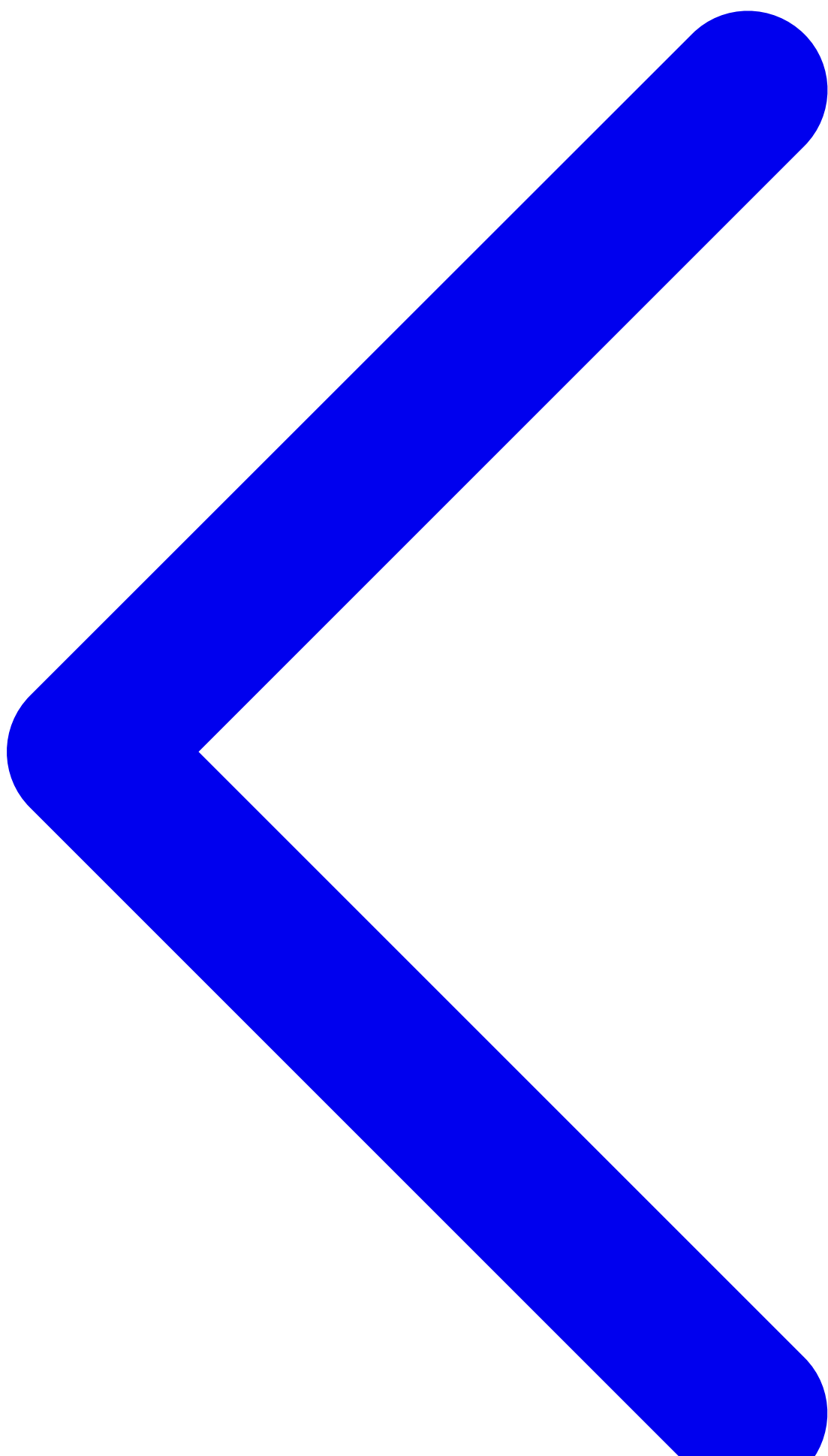
CAN 2.0

No

No

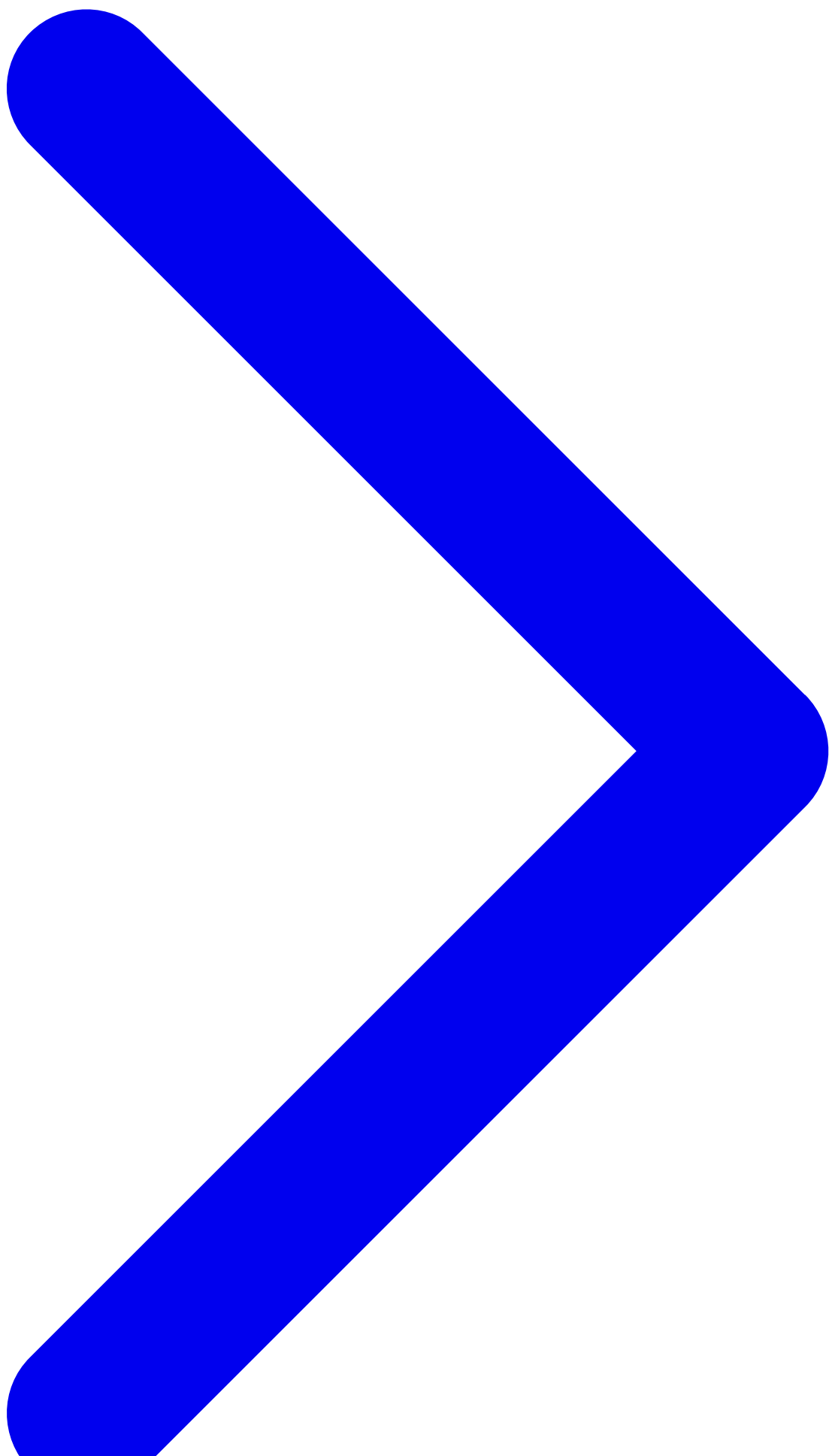
1

No





[Previous](#)1. IMPORTANT SAFE HANDLING INFORMATION





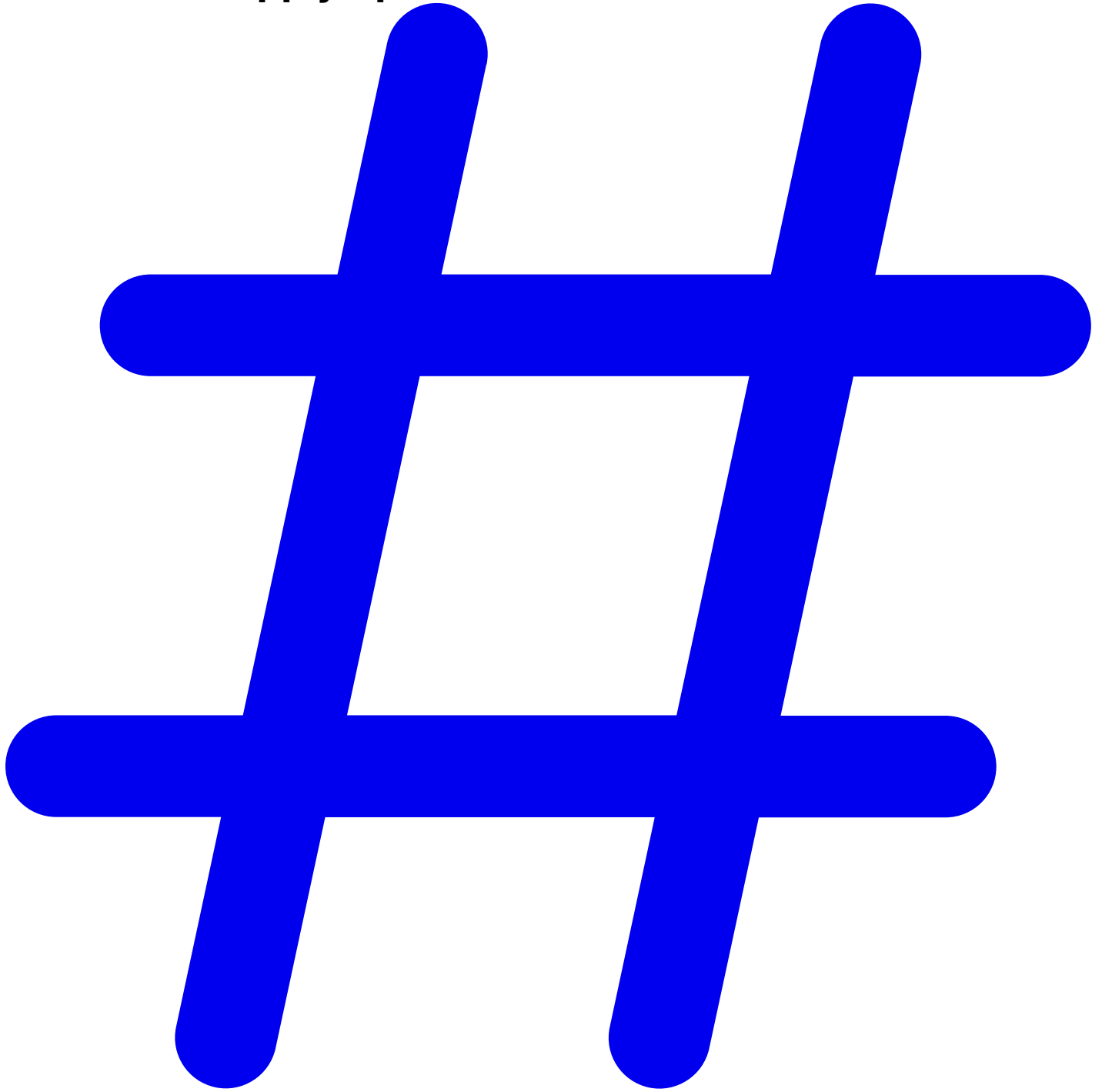
[Next3. FUNCTIONAL OVERVIEW](#)

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3.1 Power Supply Specifications

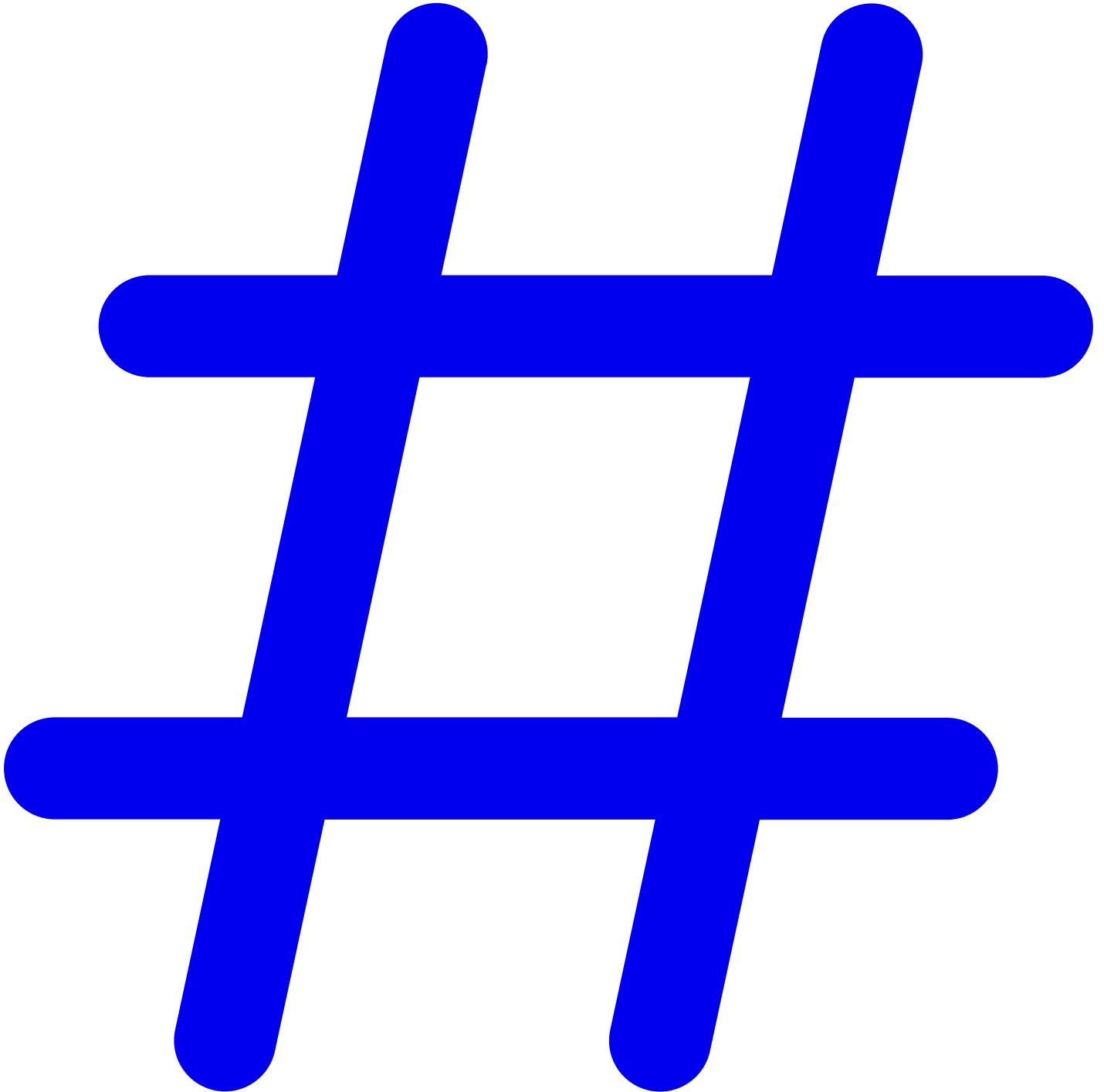


The Jetbox-Floyd accepts a wide input voltage range of +7V to +24V. Maximum power consumption with either Nano or NX module installed and all peripherals operating is 35W. The maximum allowable reflected ripple, measured at the voltage input connector is 50 mV p-p. The input power is provided via a barrel jack with 5.5mm OD / 2.5mm ID dimensions (tip positive).

NOTE: *The marking "5VDC IN" on the front panel needs to be read as below:*

7- 24V DC IN and not ~~5VDC IN~~

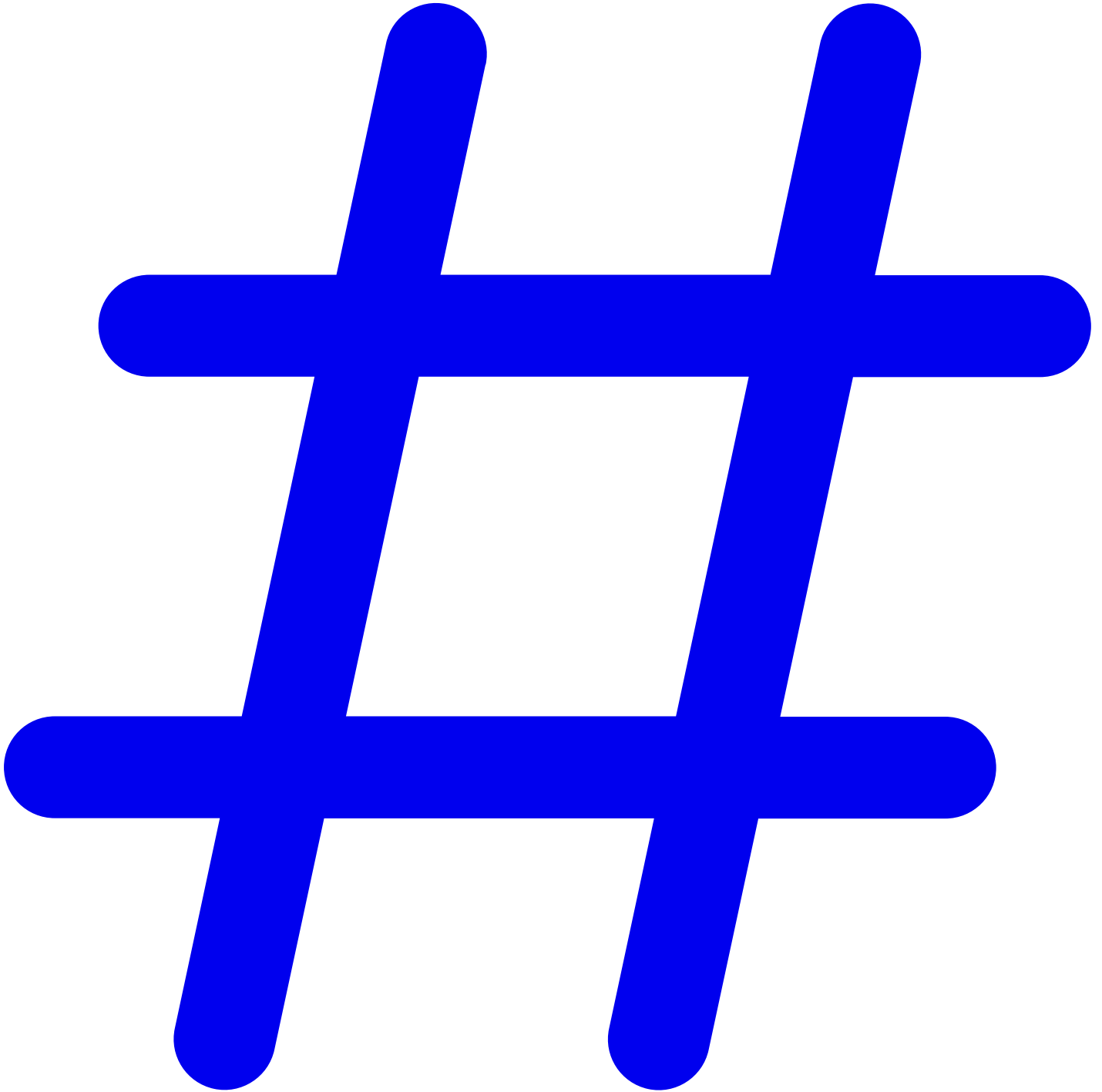
3.2 USB Ports



- 2x USB 2.0 ports are available on a vertically stacked dual-port USB 2.0 connector.
- The upper USB 2.0 port 1 can be used for programming during recovery mode. Jumper block JP3 is used to select host mode (normal operation) or device mode (programming operation)
- 1x USB 3.0 port terminates on an upright right-angle USB 3.0 connector. This connector also supports the USB 2.0 protocol.

The USB2.0 ports are terminated on a vertically stacked USB2.0 connector. The USB3.0 is terminated on an upright USB3.0 connector. Both these connectors are standard connectors & follow standard pinouts.

3.3 HDMI Ports



Jetbox-Floyd supports two HDMI 2.0 a/b video output options:

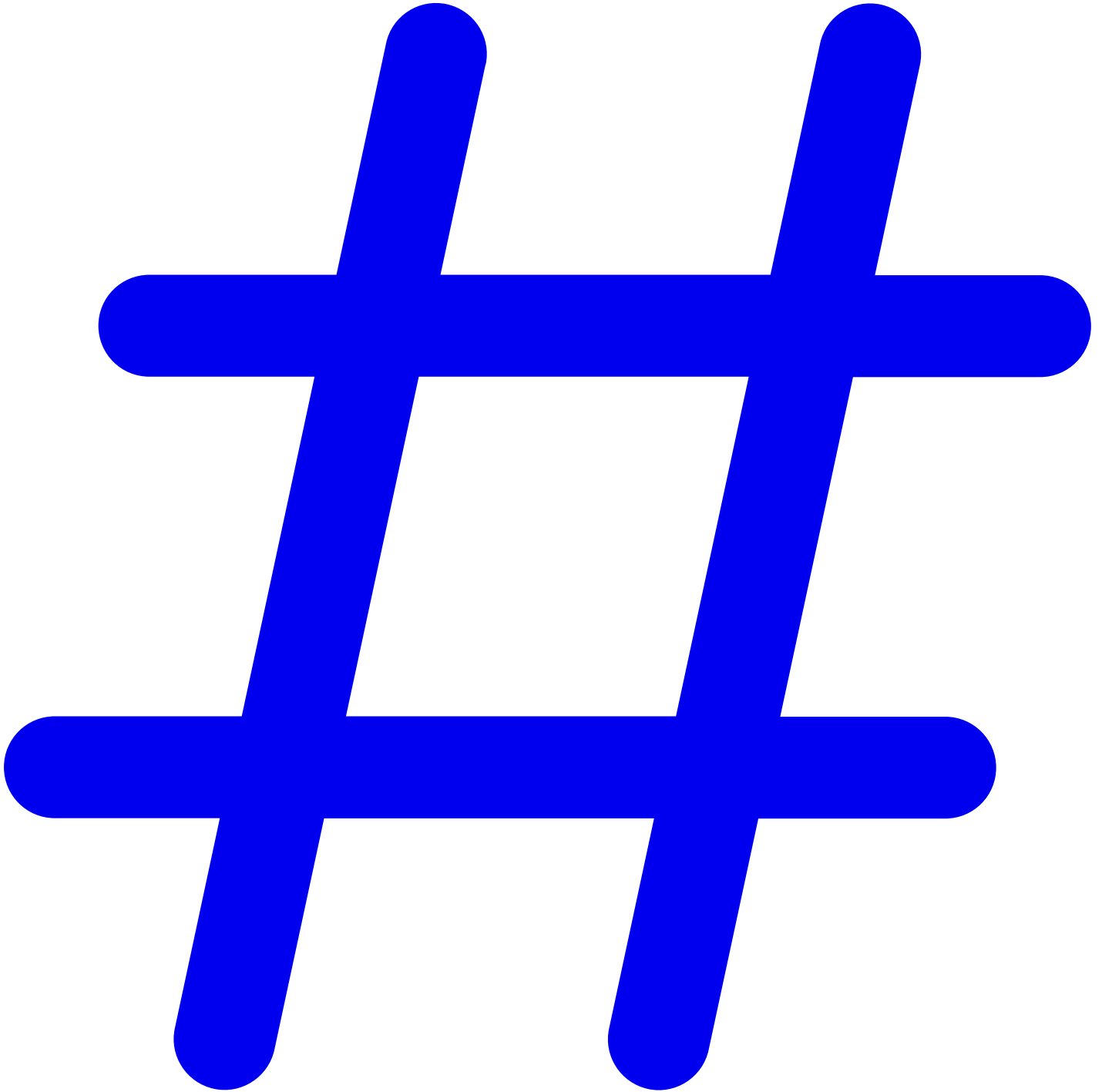
- 1x With Audio
- 1x Without Audio

The Nano module natively supports 1x HDMI and 1x DisplayPort. Jetbox-Floyd uses a bridge chip to convert the DP port to HDMI.

Both video outputs terminate on a dual-port vertically stacked HDMI connector. The connector follows standard HDMI pinouts.

The port HDMI - 1 is with audio & HDMI - 2 is without audio.

3.4 Ethernet Ports



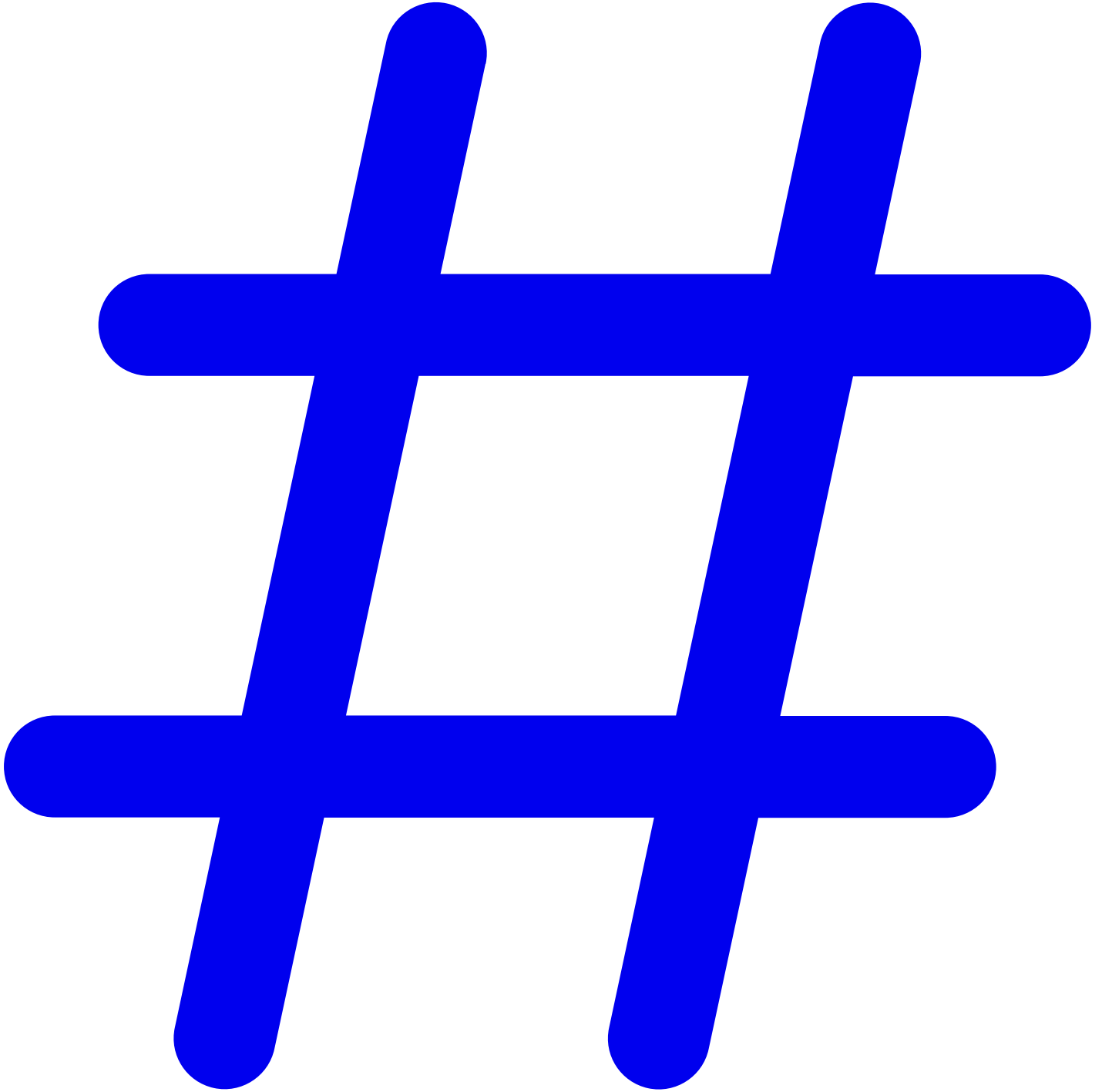
Jetbox Floyd is equipped with one or two Gigabit Ethernet ports:

1. (all models) A 10/100/1000 Ethernet port routed from the module.
2. (01 model only) A 10/100/1000 Ethernet port derived from the Intel WGI210IT/Intel I210 PCIe Ethernet controller which is accessed via x1 PCIe Lane routed from the module through a PCIe switch.

Both Ethernet ports are accessed with a dual-port vertically stacked RJ-45 jack with integrated magnetics. The jacks indicate Link, Activity, and Speed status associated with each port using integrated LEDs.

RJ45 - 2 is available in the JB-FLD-***-01 models only.

3.4.1 Power Over Ethernet (PoE)

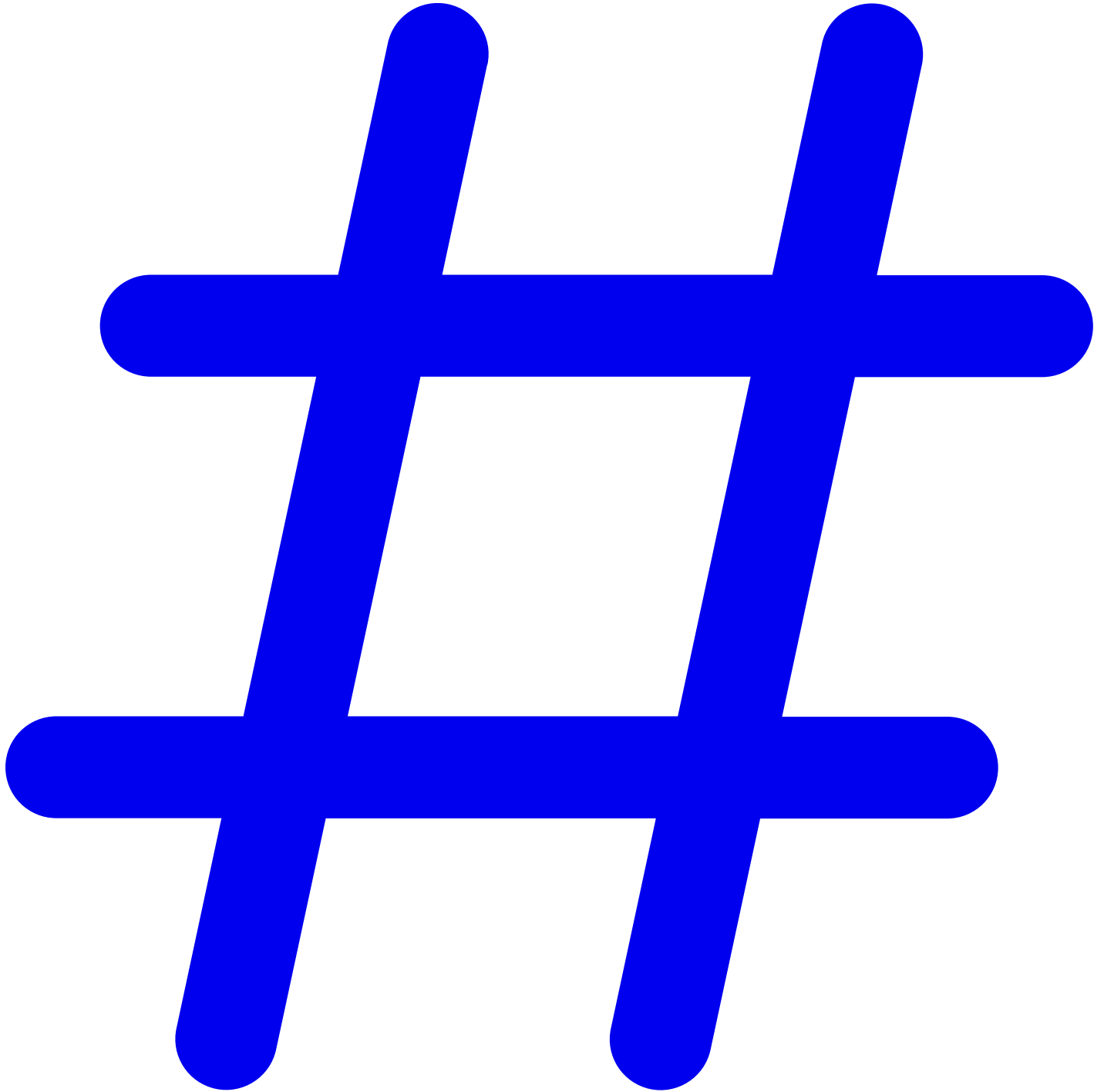


The PoE+ PSE (Power Sourcing Equipment) enabled Ethernet ports on the Jetbox-Floyd can be used to power peripherals such as PoE IP-based cameras. The two ports are compliant with 802.3at Type 2 PoE+ standards and support up to 25.5W on each port, depending on the capacity of the supplied power. Jetbox-Floyd administers power negotiation between PSE and PD controllers. The auxiliary power required for the PoE circuit is supplied by a separate input power connector. The PoE input requires a supplied voltage range of 50-57VDC.

The PoE power input is terminated on the optional EXP1. Refer to [Section 10 EXPANSION SOCKETS](#) for available options .

The PoE feature is available only on the 01 Model.

3.5 Serial Ports Overview



Jetbox-Floyd natively supports 2 serial ports. One of these serial ports is terminated on a dedicated DB9 male connector on the front panel. The other serial port is optionally exposed on the front panel on the connector EXP 1.

Depending upon the model, the serial ports support different serial protocol modes as provided below:

Serial Port

JB-FLD-NAO-01

JB-FLD-NAO-02

JB-FLD-XNX-01

JB-FLD-XNX-02

SER 1

RS-232/422/485

RS-232

RS-232/422/485

RS-232

SER 2

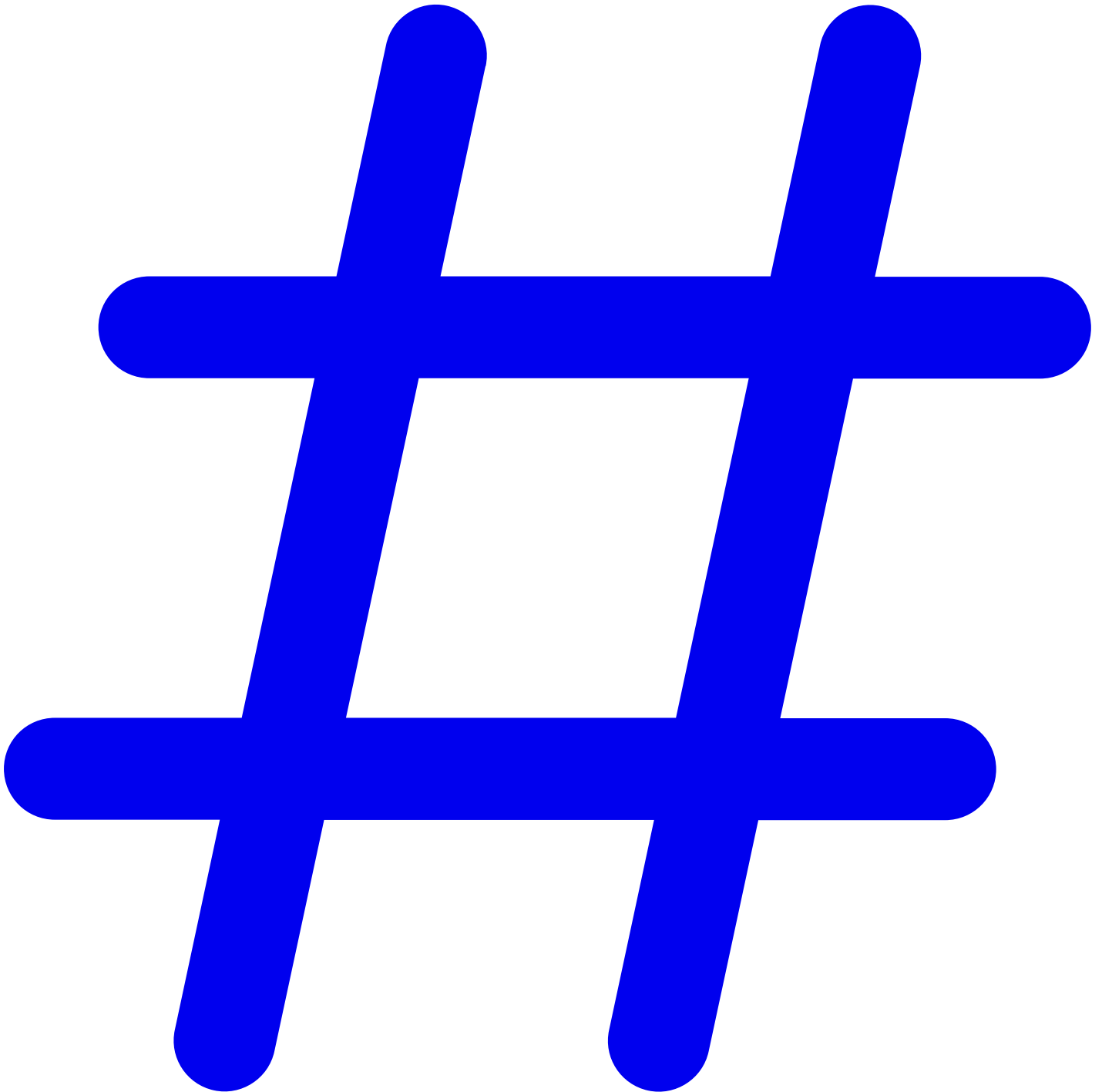
RS-232/422/485

RS-232/485

RS-232/422/485

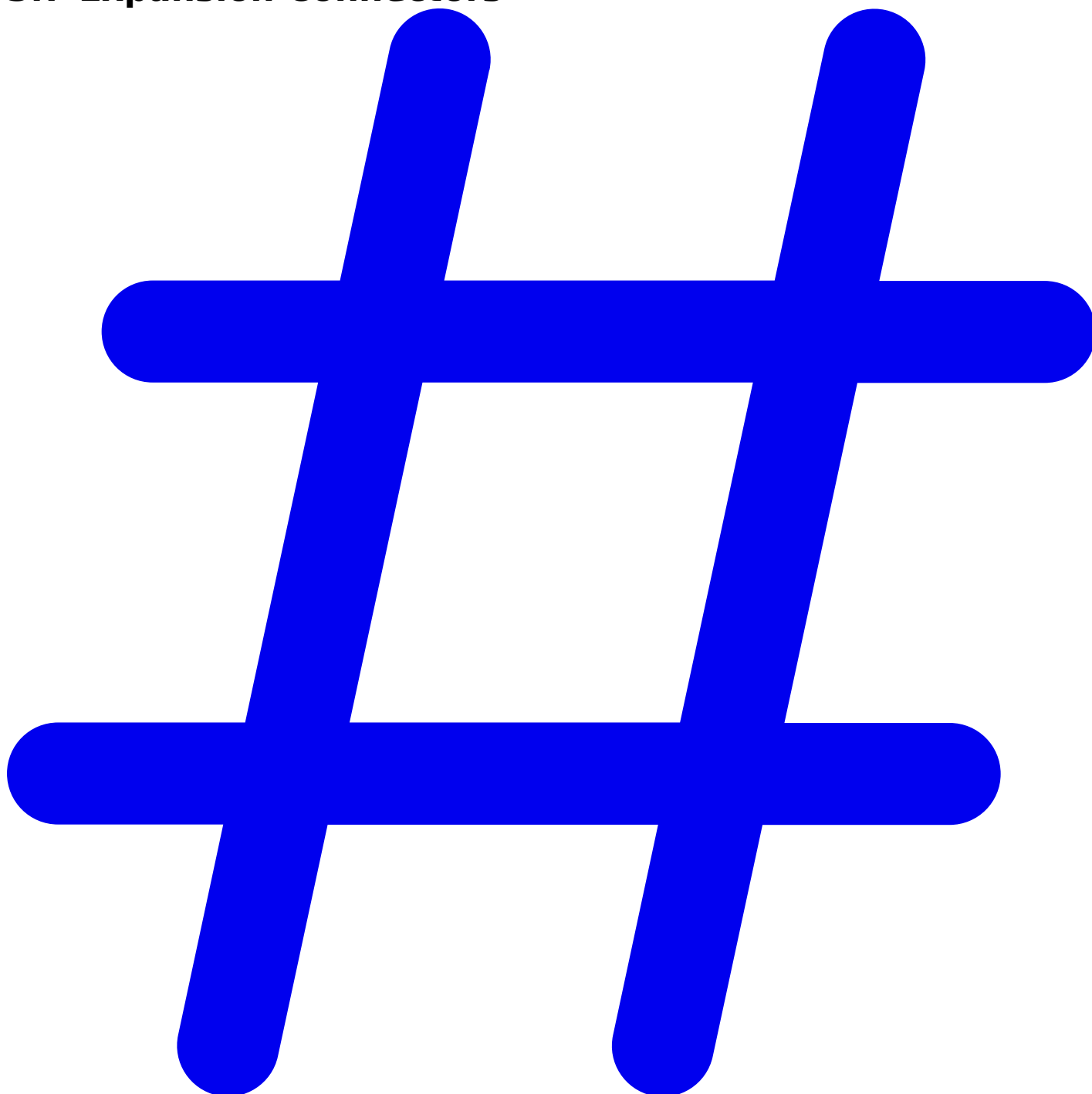
RS-232/485

3.6 DIO overview



Jetbox-Floyd provides 8 DIOs optionally exposed on the front panel. The DIOs are made available on the front panel on EXP 2 connector. Refer to [Section 3.7 Expansion Connectors](#) to know the interfaces exposed on EXP 1 & EXP 2 connectors for different product configurations.

3.7 Expansion Connectors



To enhance the usability of Jetbox-Floyd, the front panel is provided with two DB9 male expansion connectors:

1. EXP1
2. EXP2

The available options for EXP connectors are tabulated below:

Expansion Socket

JB-FLD-NAO-01

JB-FLD-NAO-02

JB-FLD-XNX-01

JB-FLD-XNX-02

EXP 1

PoE In

SER 2

PoE In

SER 2

EXP 2

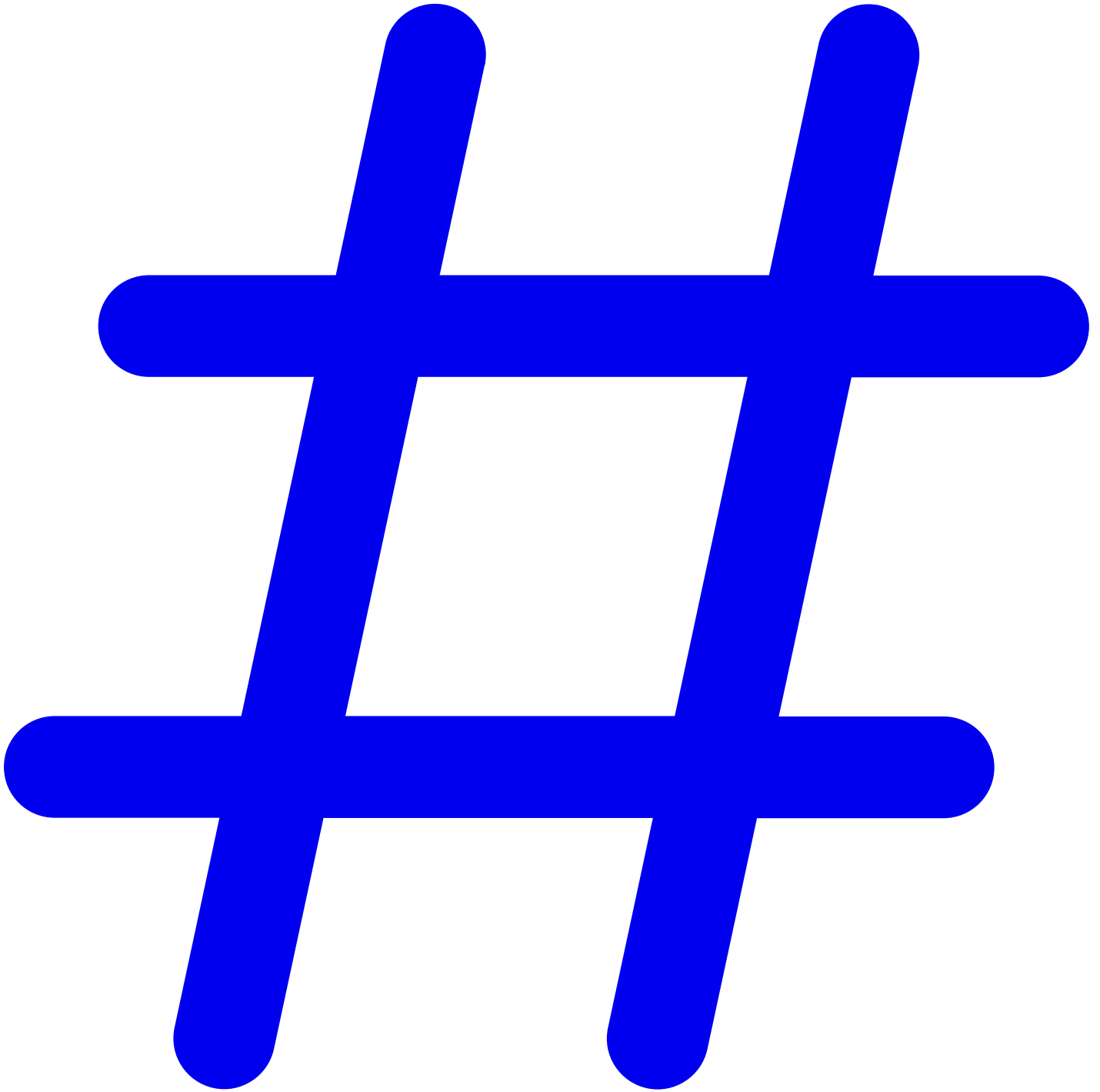
DIO

DIO

CAN

DIO

3.7.1 EXP1

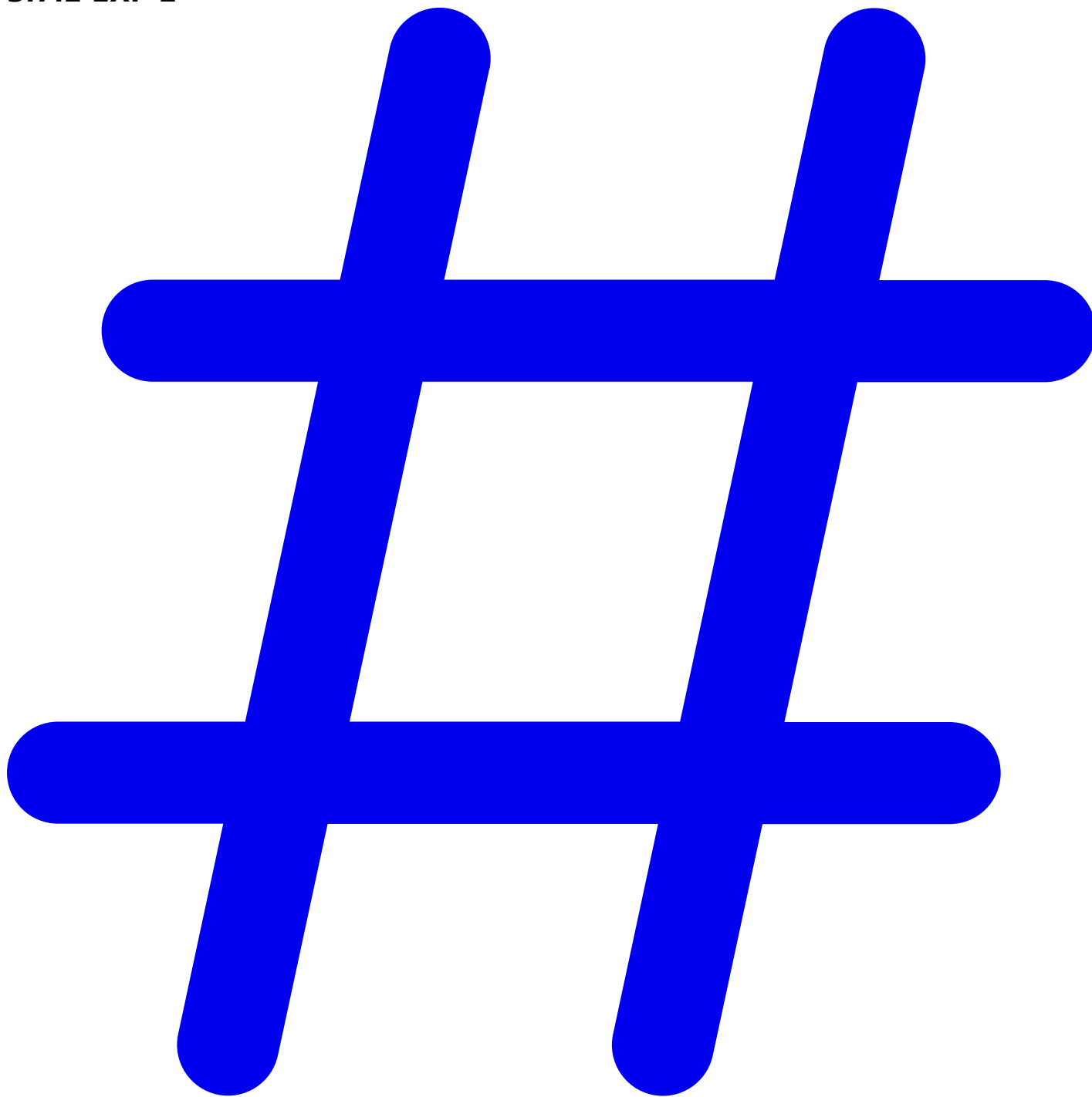


By default, this expansion connector provides access to SER 2 available on the Floyd baseboard.

NOTE: *The "RS-232" marking on the front panel needs to be read as below:*

SER 1 and not ~~RS-232~~.

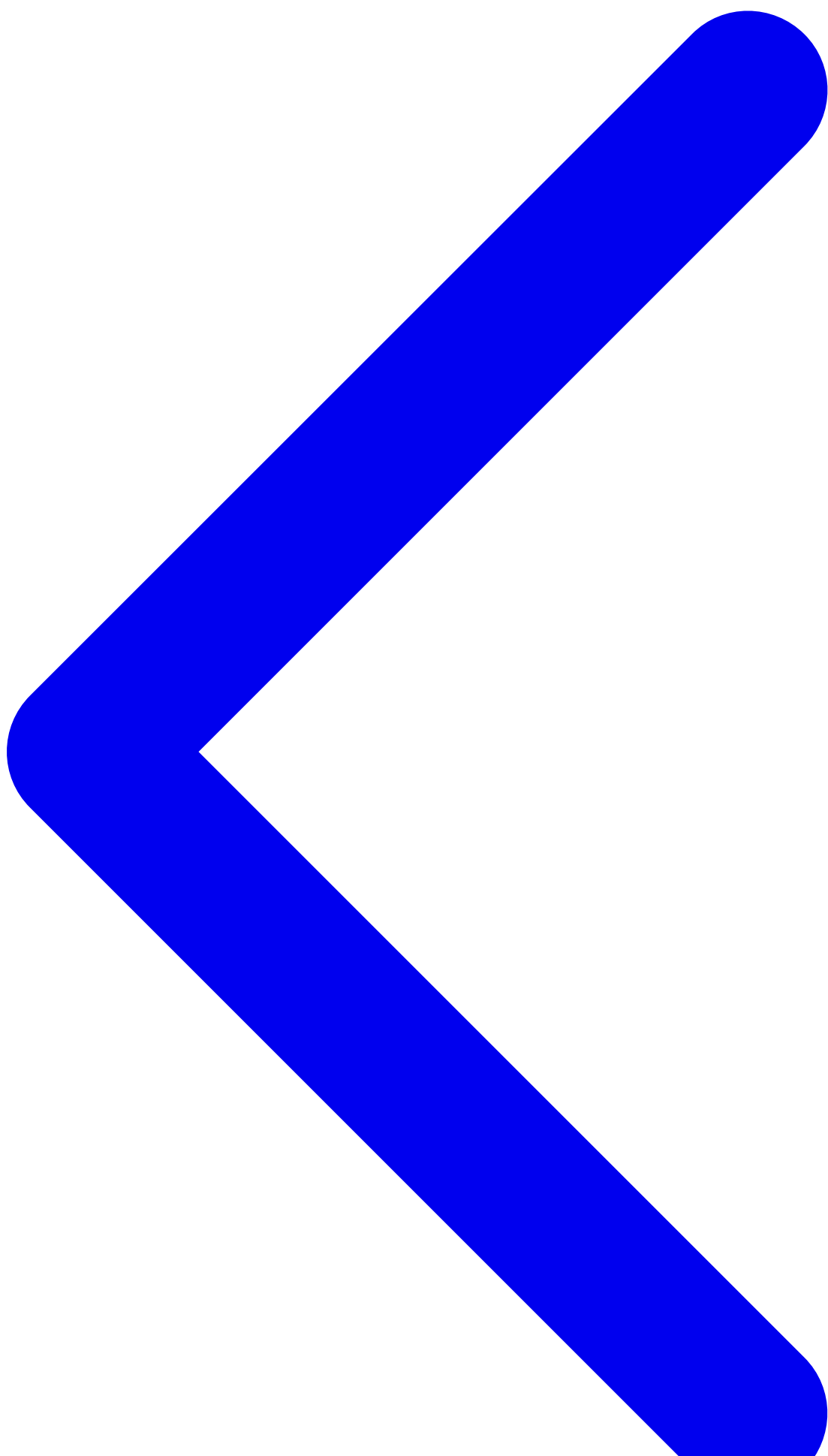
3.7.2 EXP 2



By default, this expansion connector provides access to DIO port provided by the Floyd baseboard except for JB-FLD-XNX-01.

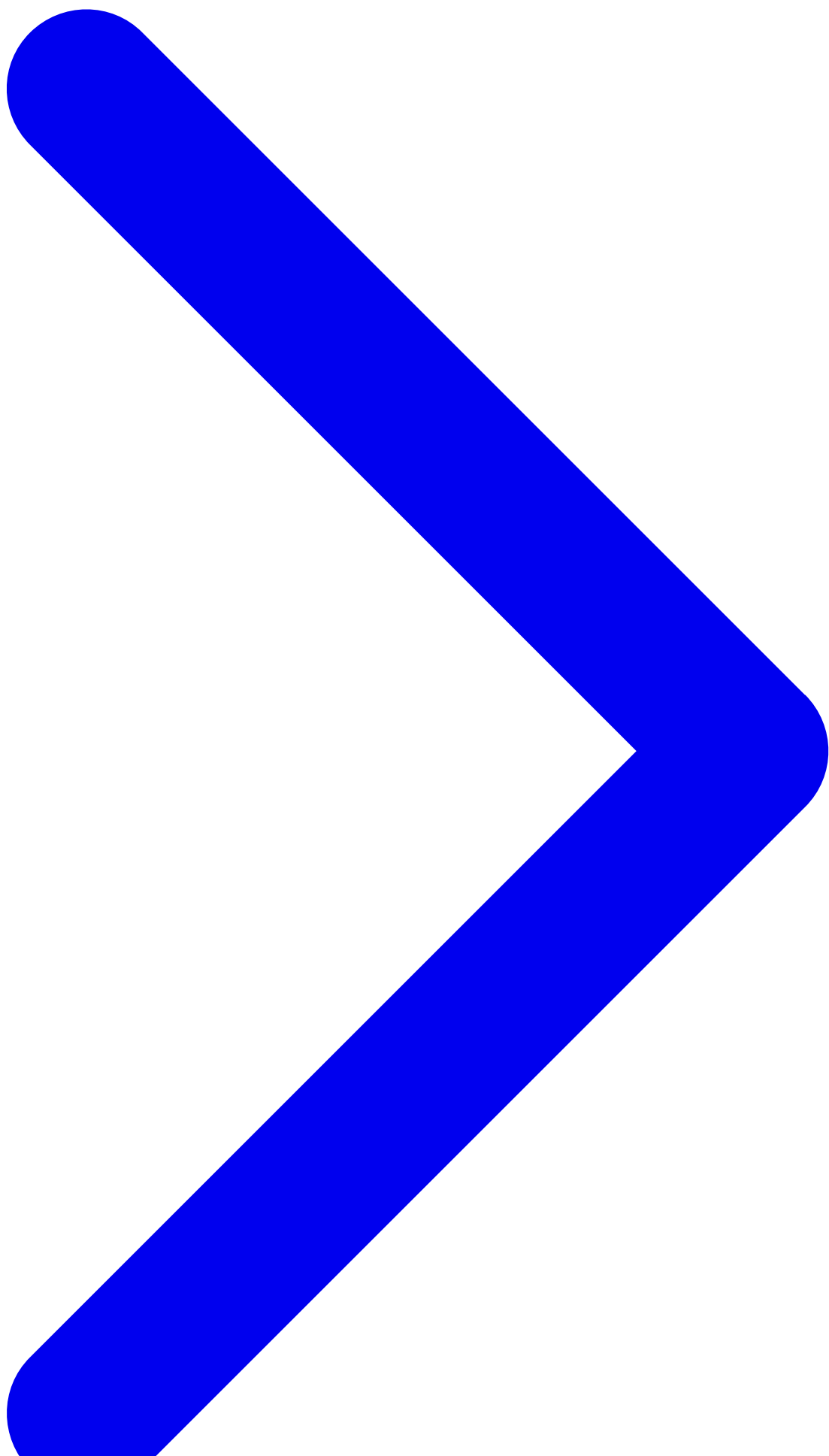
The Digital I/Os are 3.3V output compliant & are 5V I/P tolerant. These digital I/Os are realized with an I2C GPIO expander & can be used as Digital I/Os only.

In the JB-FLD-XNX-01, CAN interface is terminated on the EXP2 connector.





[Previous2. INTRODUCTION & PRODUCT CONFIGURATIONS](#)



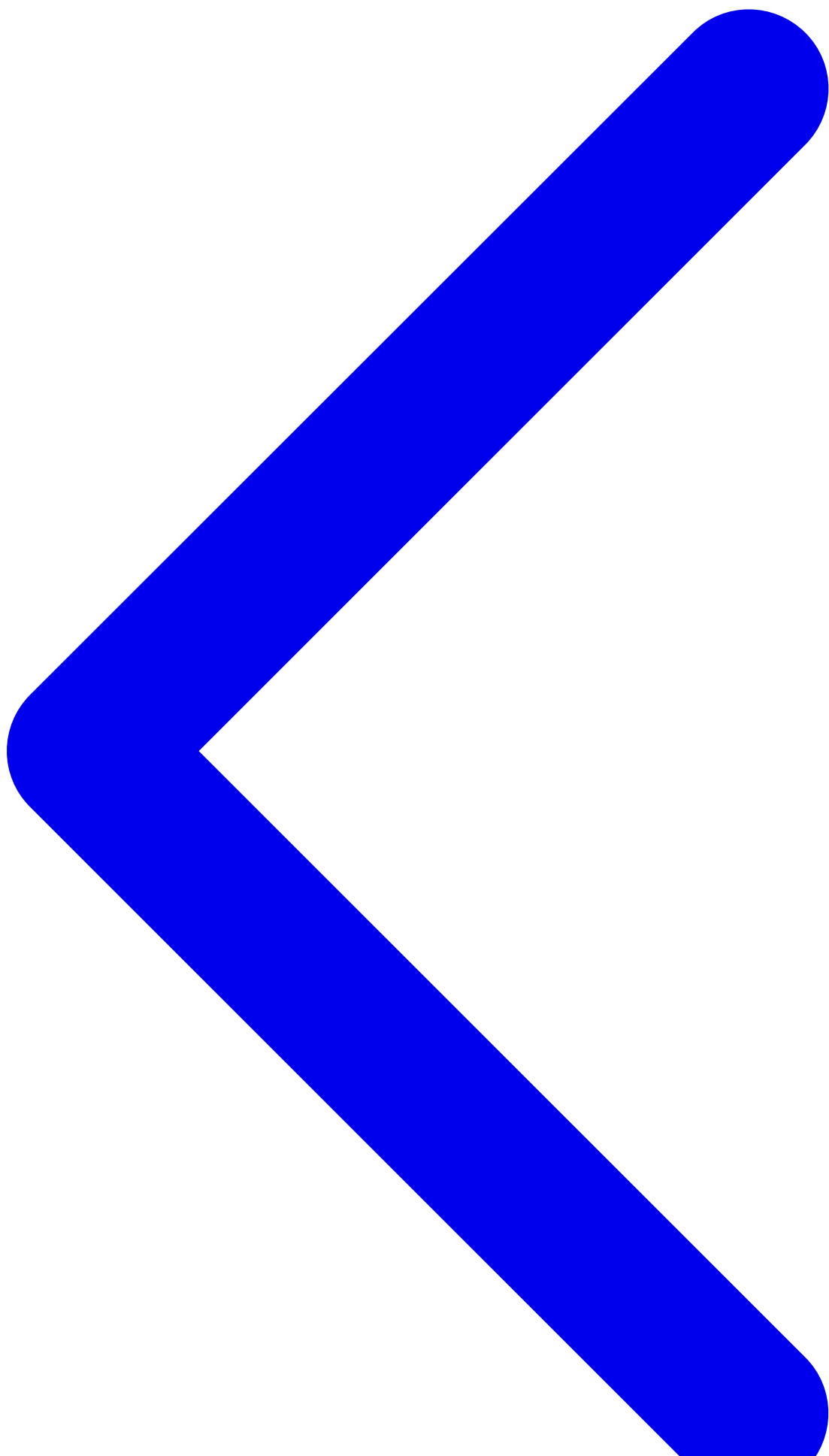


[Next4. BLOCK DIAGRAM](#)

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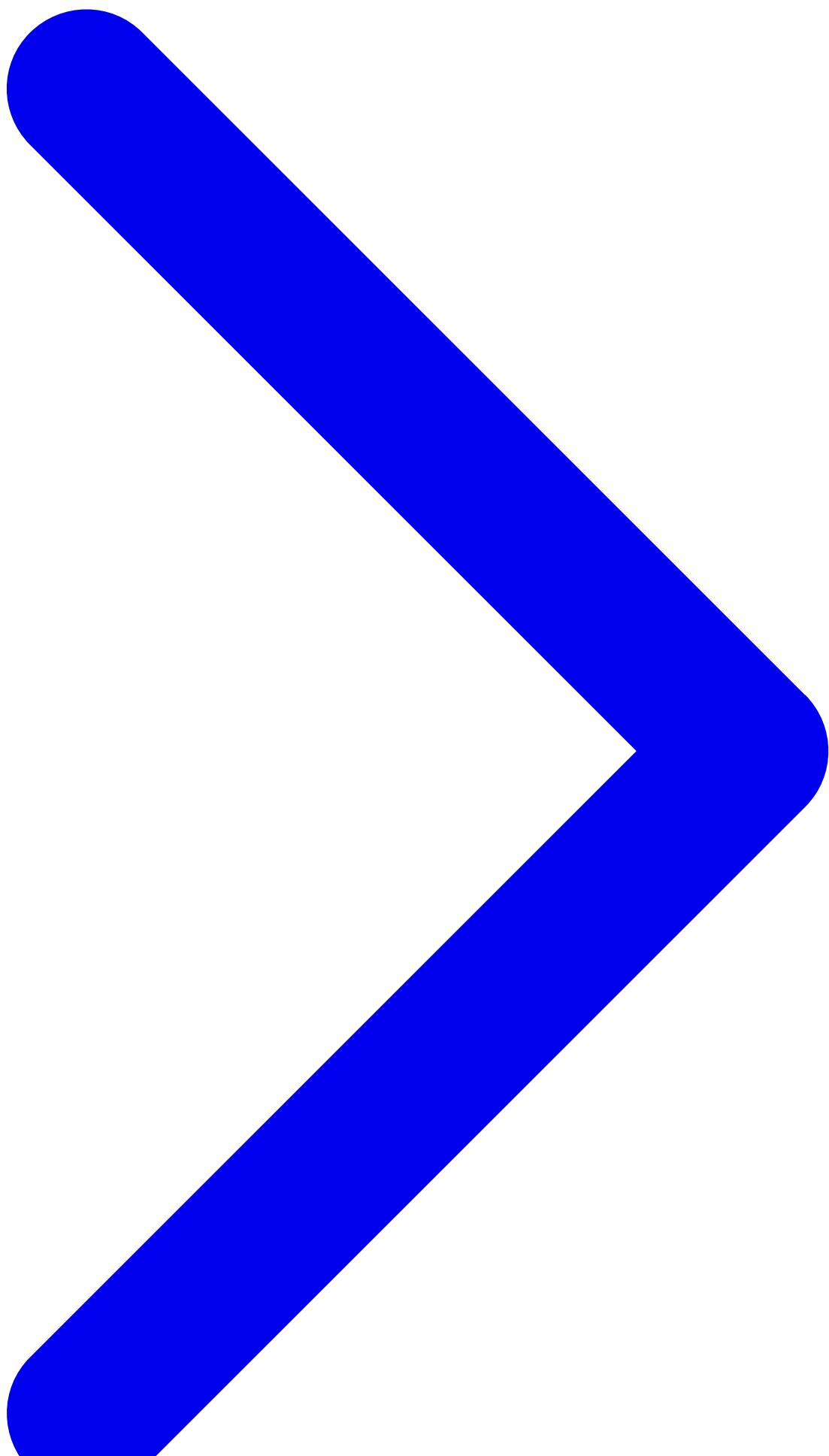
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[Previous](#)[3. FUNCTIONAL OVERVIEW](#)

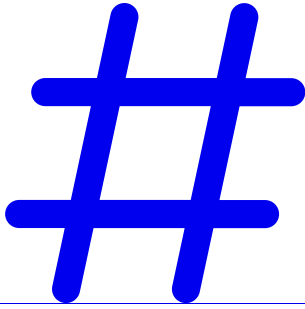




[Next5. MECHANICAL DRAWING](#)

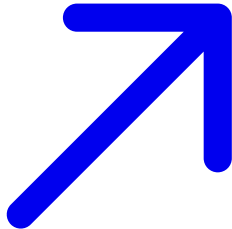
Last updated 5 years ago

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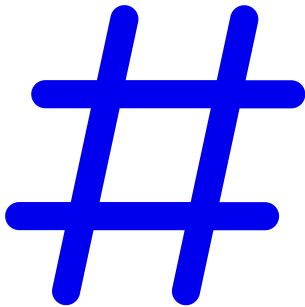


5.1 3D STEP Model

The complete product 3D STEP model is available to our customers in the product support page



[here](#)

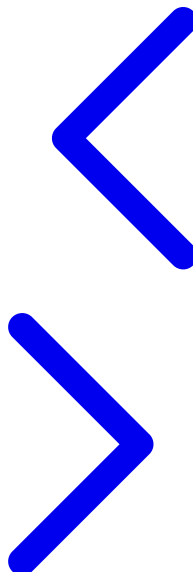


5.2 2D Drawing

All dimensions are in mm

[Previous4. BLOCK DIAGRAM](#)

[Next6. CONNECTORS, LEDs](#)



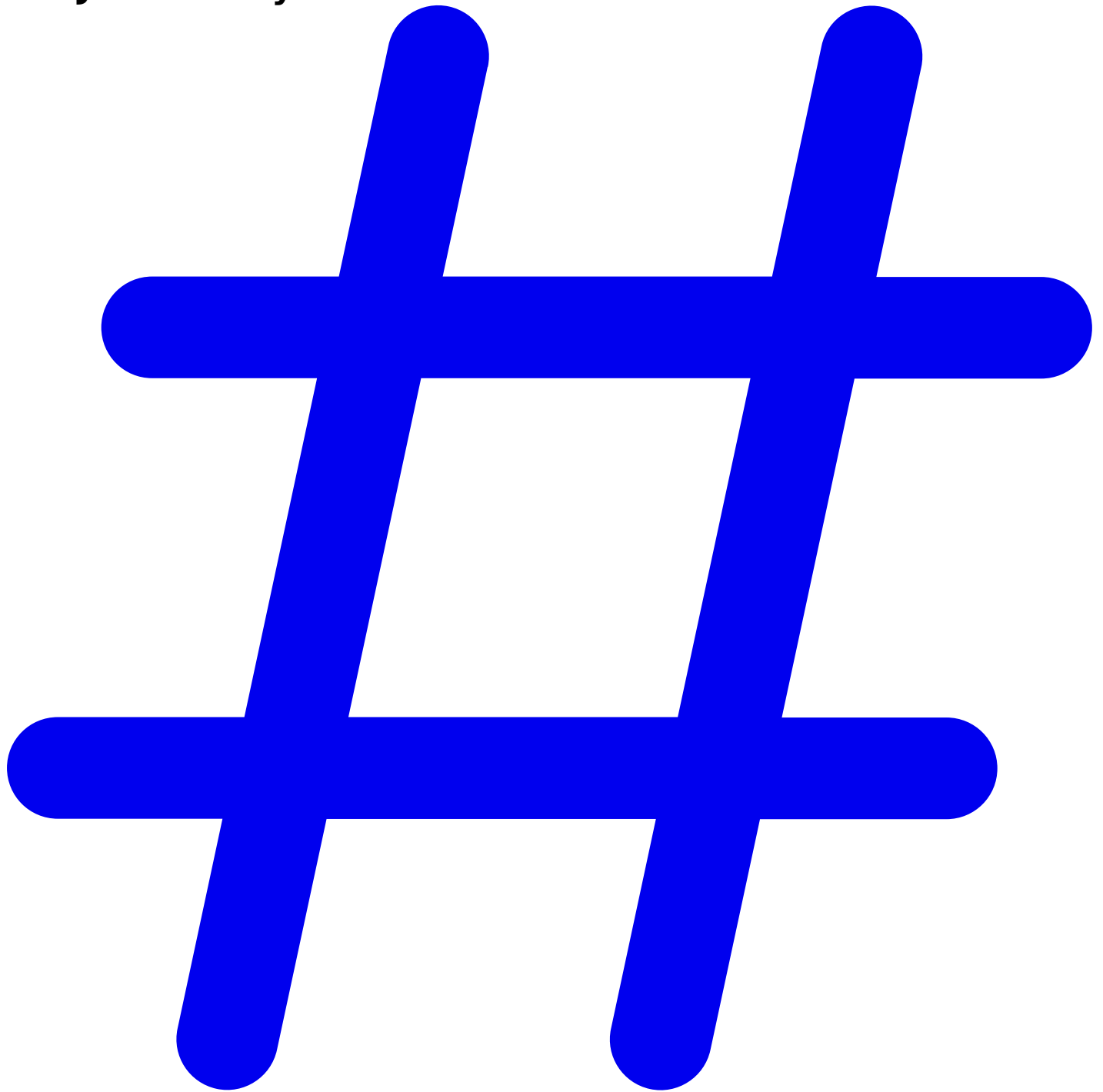
[& JUMPER LOCATIONS](#)

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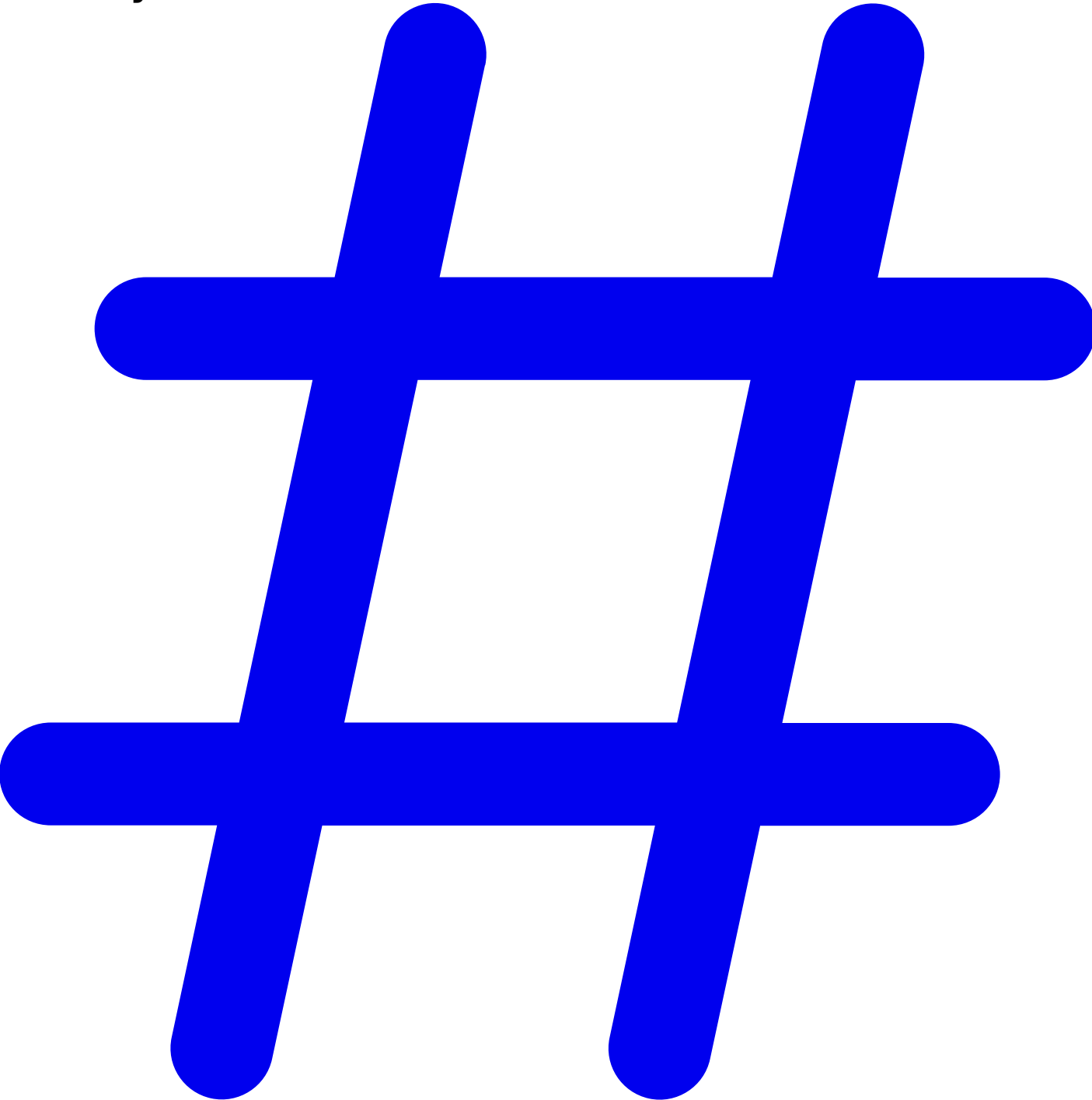
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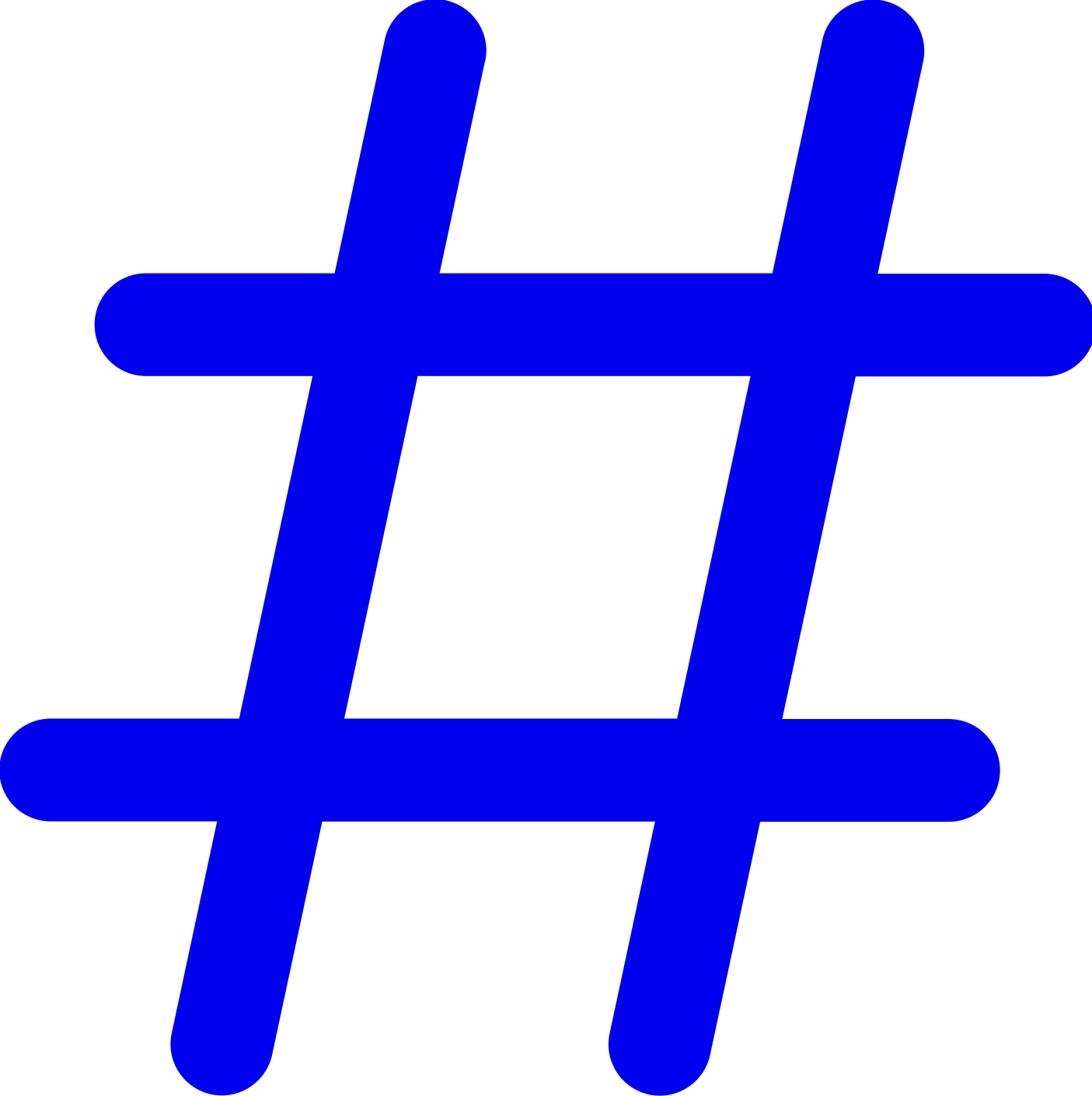
6.1 Jetbox-Floyd Front Panel Call Outs



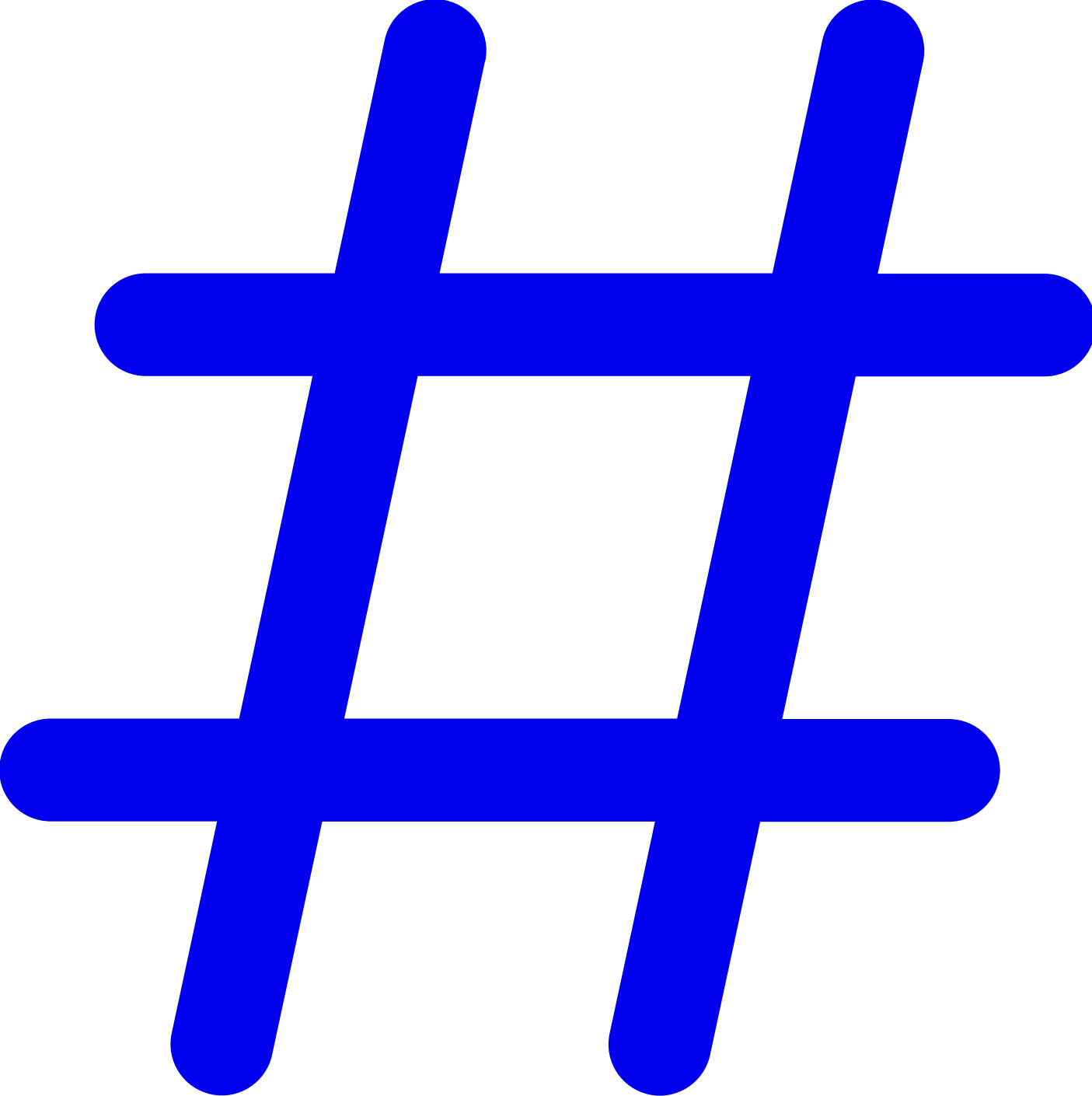
6.2 Floyd Carrier board Callouts - TOP

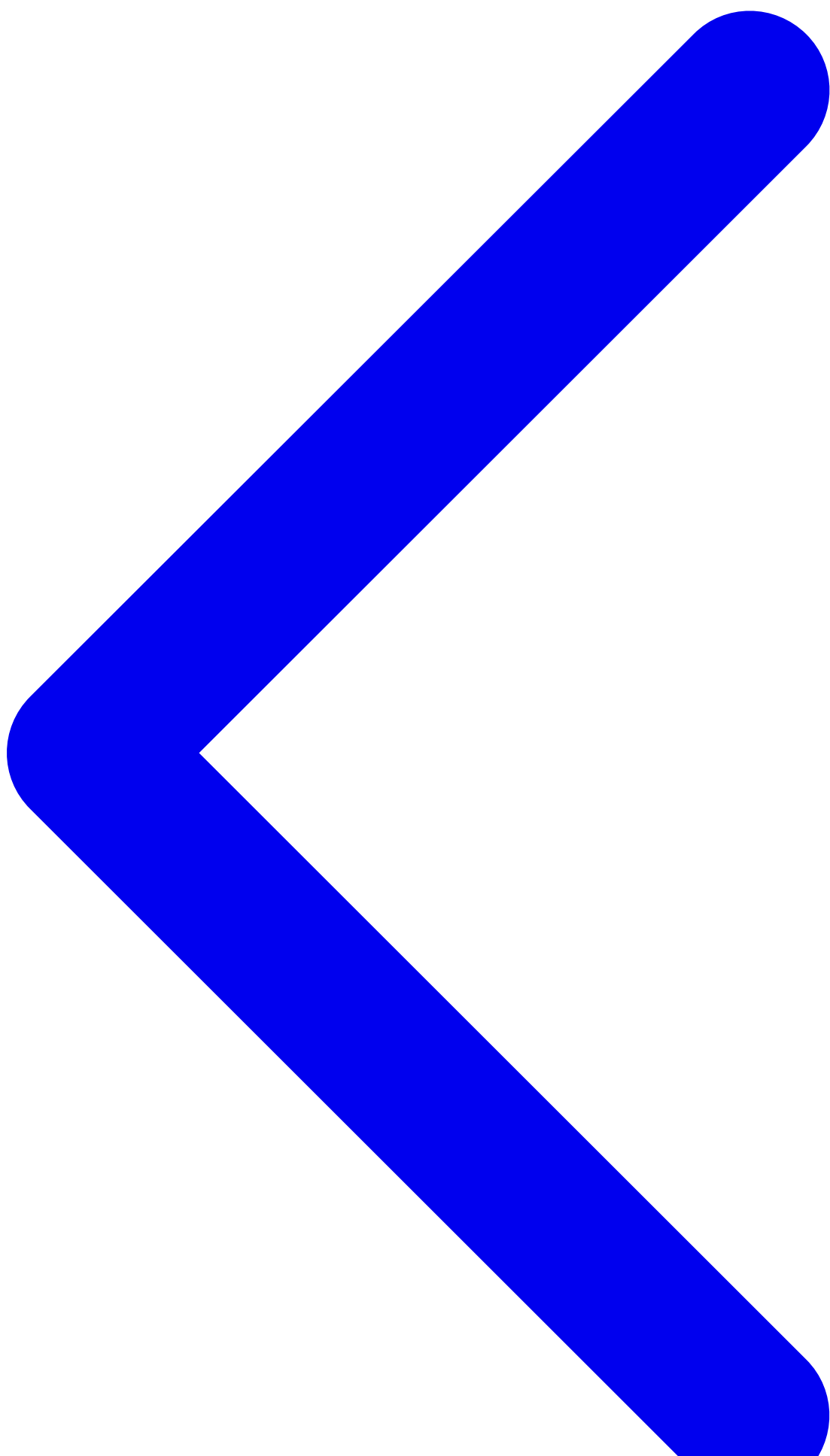


6.3 Floyd Carrier board Callouts - BOT View



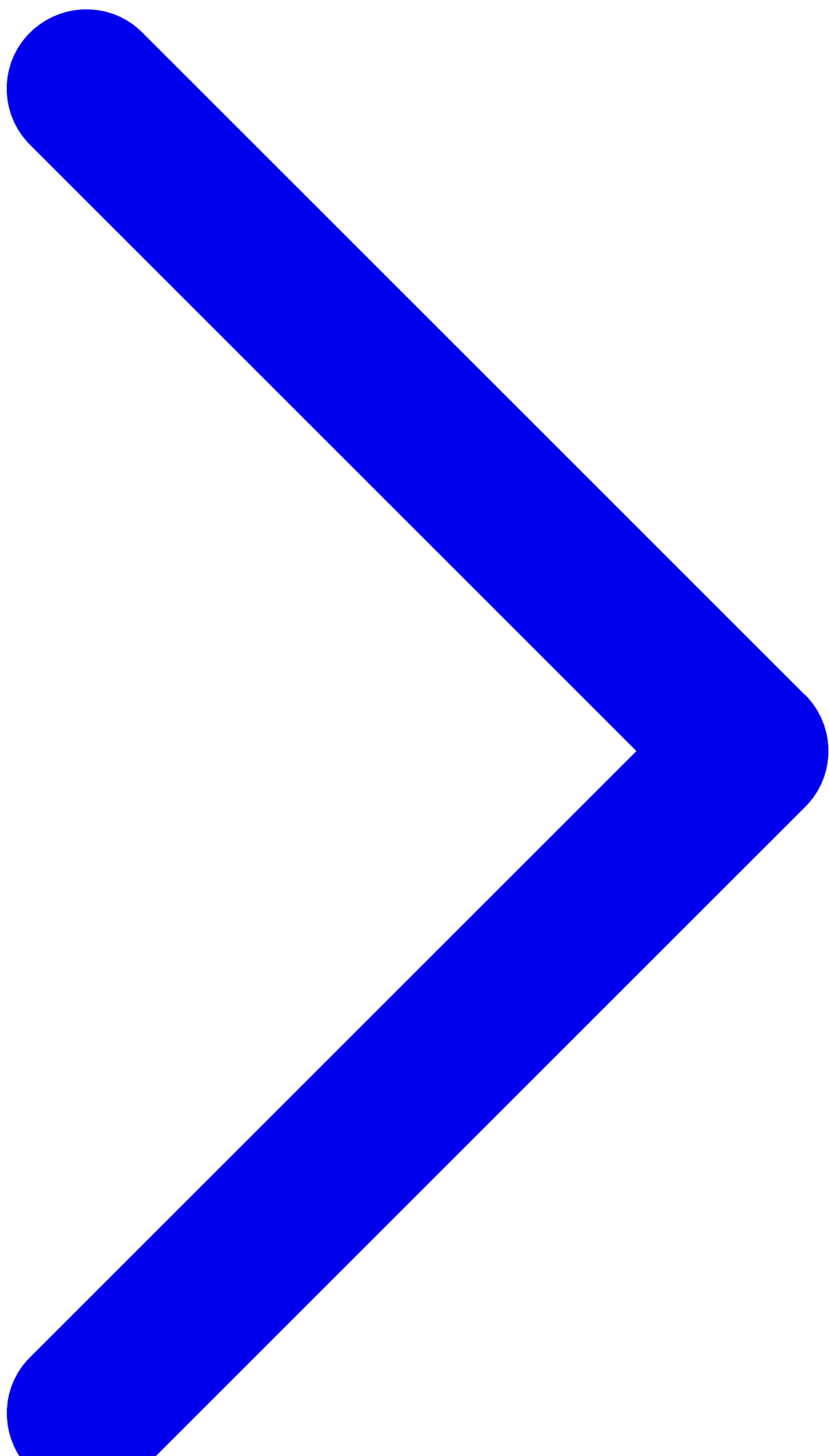
6.4 Floyd Carrier board Callouts - FRONT View







[Previous5. MECHANICAL DRAWING](#)





[Next7. JUMPER CONFIGURATION](#)

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Was this helpful?

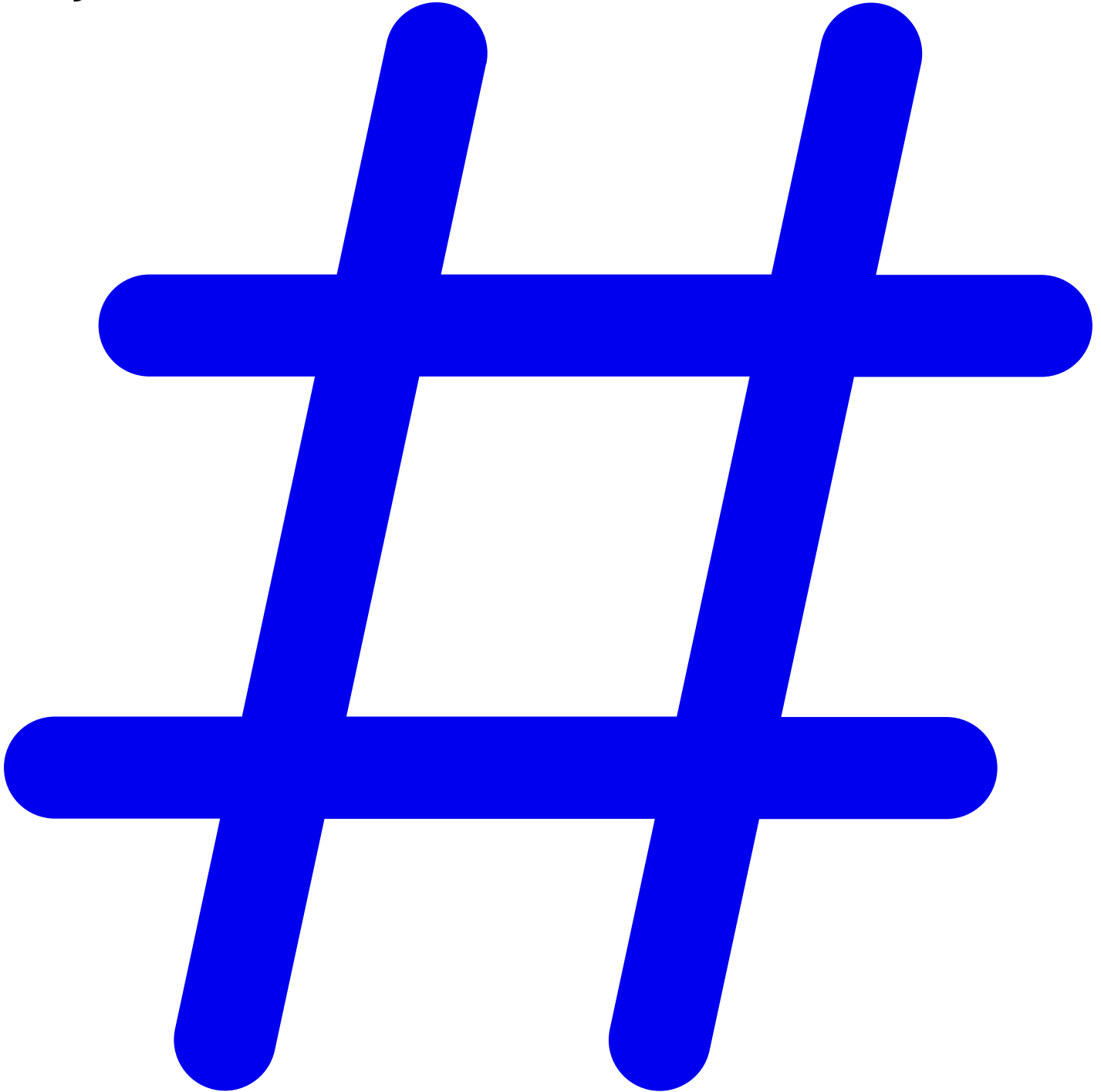
For the complete documentation index, see [llms.txt](#). This page is also available as [Markdown](#).

NOTE: *To access the jumpers on the Floyd baseboard, the TOP heat sink plate needs to be removed from the JETBOX-FLOYD system.*

The various jumpers for the Jetbox-Floyd provided by the Floyd baseboard are as provided below:

1. JP1: Enable/Disable DIO Pull/UP Down
2. JP2: Select Protocol Mode & Enable Termination
3. JP3: Select USB 2.0 - Port 1 Mode

7.1 JP1: Enable/Disable DIO Pull/UP Down

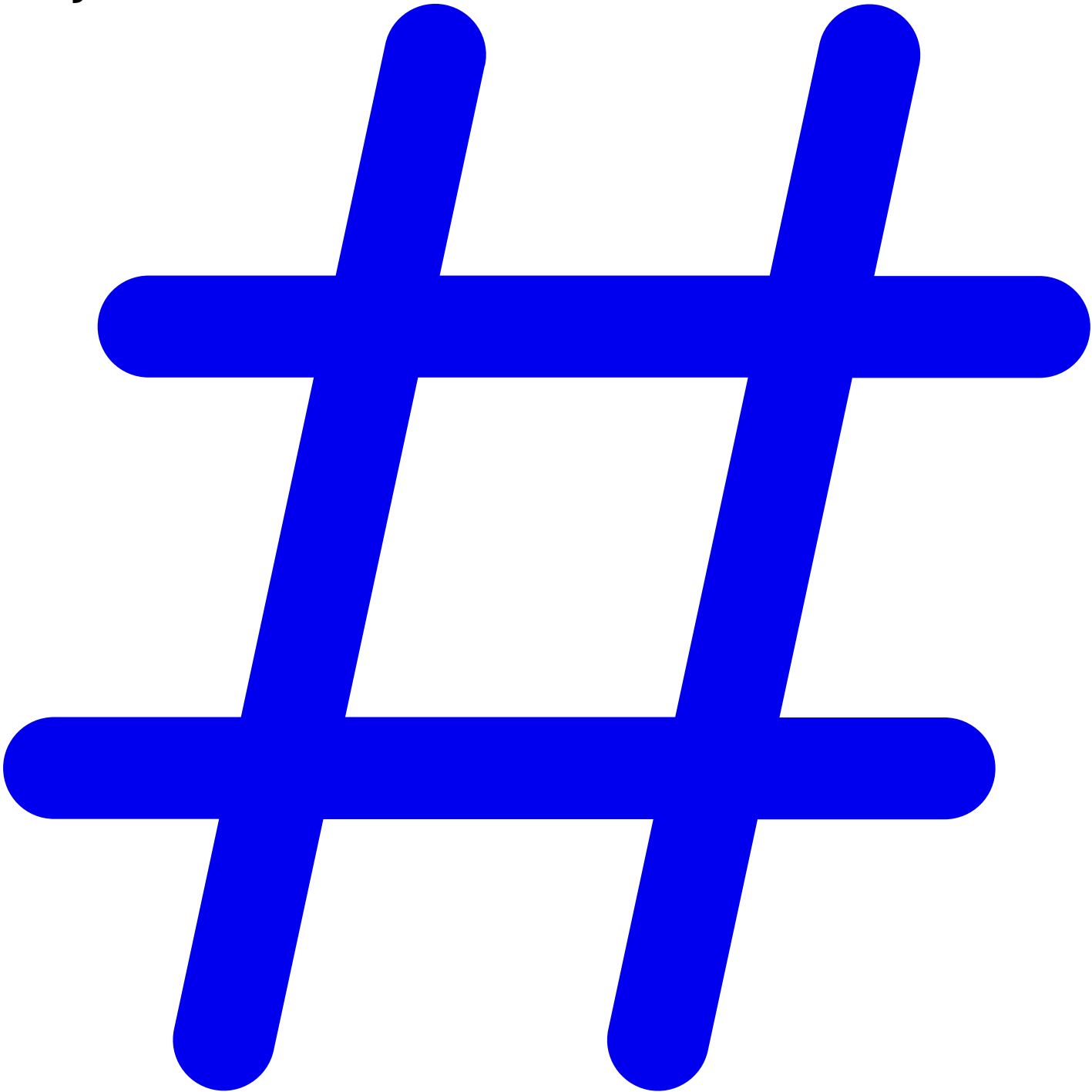


The Jumper blocks on the Floyd carrier board can be configured to enable/disable pull up/pull down settings on the GPIOs using Jumper shunts.

The Digital I/Os on the board can be configured to pull-up to 3.3V or pull-down to GND through Jumper Block JP1.

The jumper configurations are specified in the following table and illustrated below:

7.2 JP2: Select Protocol Mode & Enable Termination



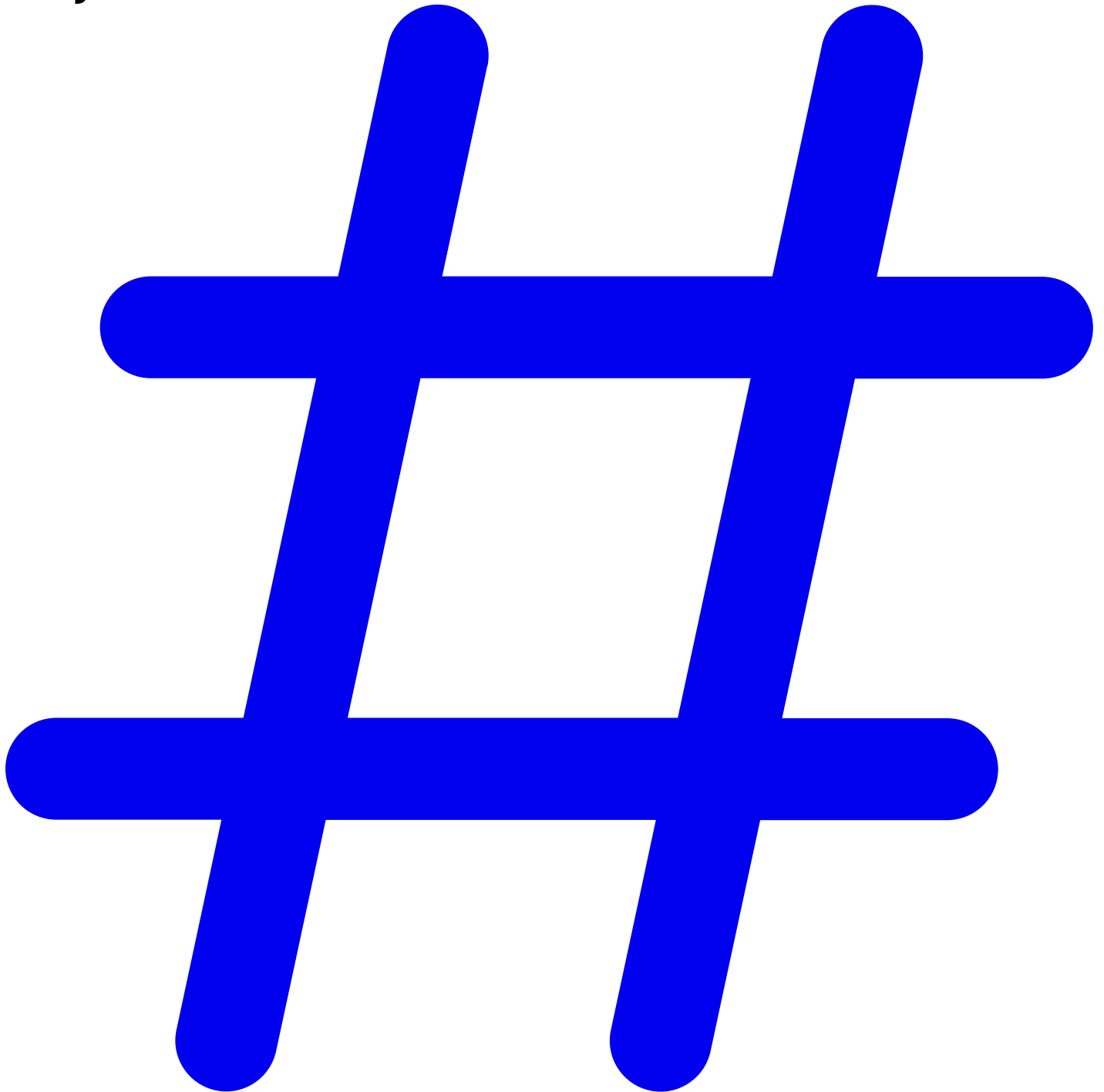
The Jumper Block JP2 provides the options to select RS232, RS422, and RS485 protocols on the serial ports. It also allows to enable 121E terminations required for the serial ports to operate in RS-422 & RS-485 protocol modes.

By default, jumper position 1 in the RS232 in full-duplex mode is selected. No 121E terminations are required for the serial ports in RS-232 mode.

The JP1 jumper configurations across the different product variations are as shown below:

The jumper settings to enable 121E termination for the serial ports to work in RS-422 & RS-485 are as tabulated below:

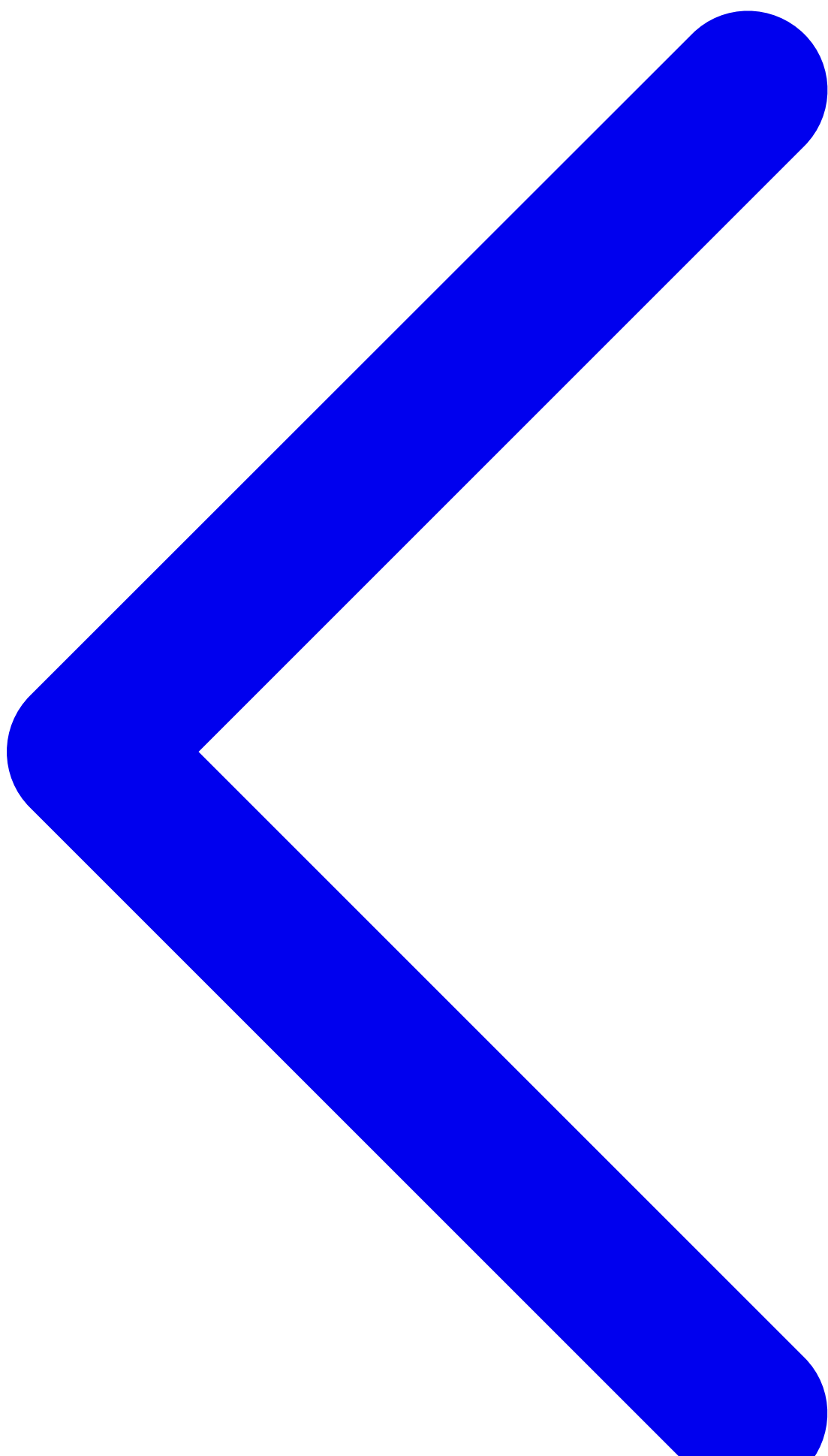
7.3 JP3: Select USB2.0 - 1 Mode



The USB2.0 Port 1 on the carrier board can be configured to function as a Host or a Device by selecting the Jumper positions on Jumper Block JP3.

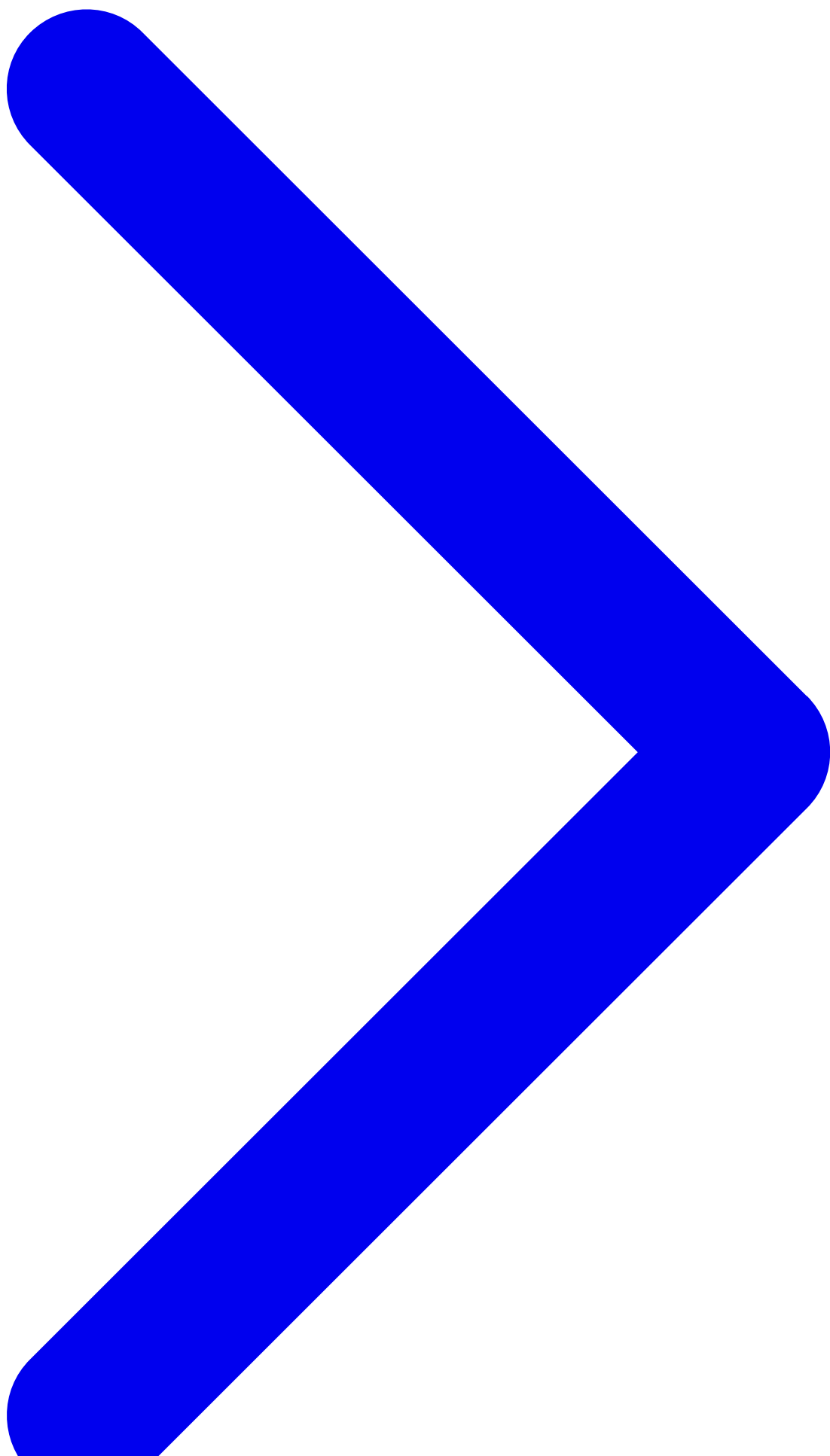
When configured as a **HOST** port, the USB port functions in the normal mode. When configured as a **DEVICE**, the USB port functions as an OTG (On-The-Go) device that implements RECOVERY mode to enable flashing the Jetson module(s).

By default, the USB2.0 Port 1 port is configured as Host. The jumper configurations are specified in the following table and illustrated below:





[Previous6. CONNECTORS, LEDs & JUMPER LOCATIONS](#)





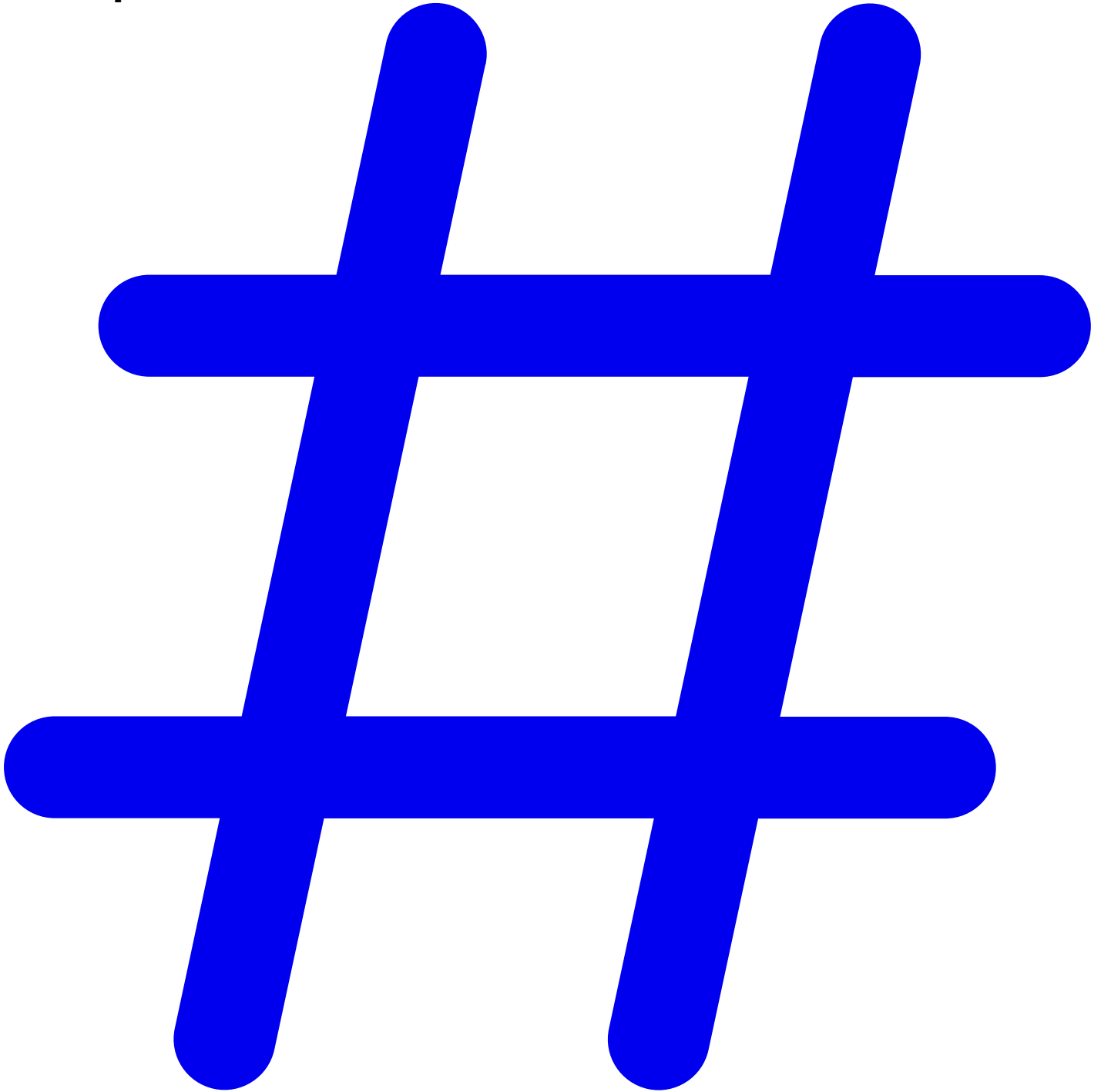
[Next8. CONNECTOR PINOUTS](#)

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For the complete documentation index, see [llms.txt](#). This page is also available as [Markdown](#).

8.1 Input Power Connector



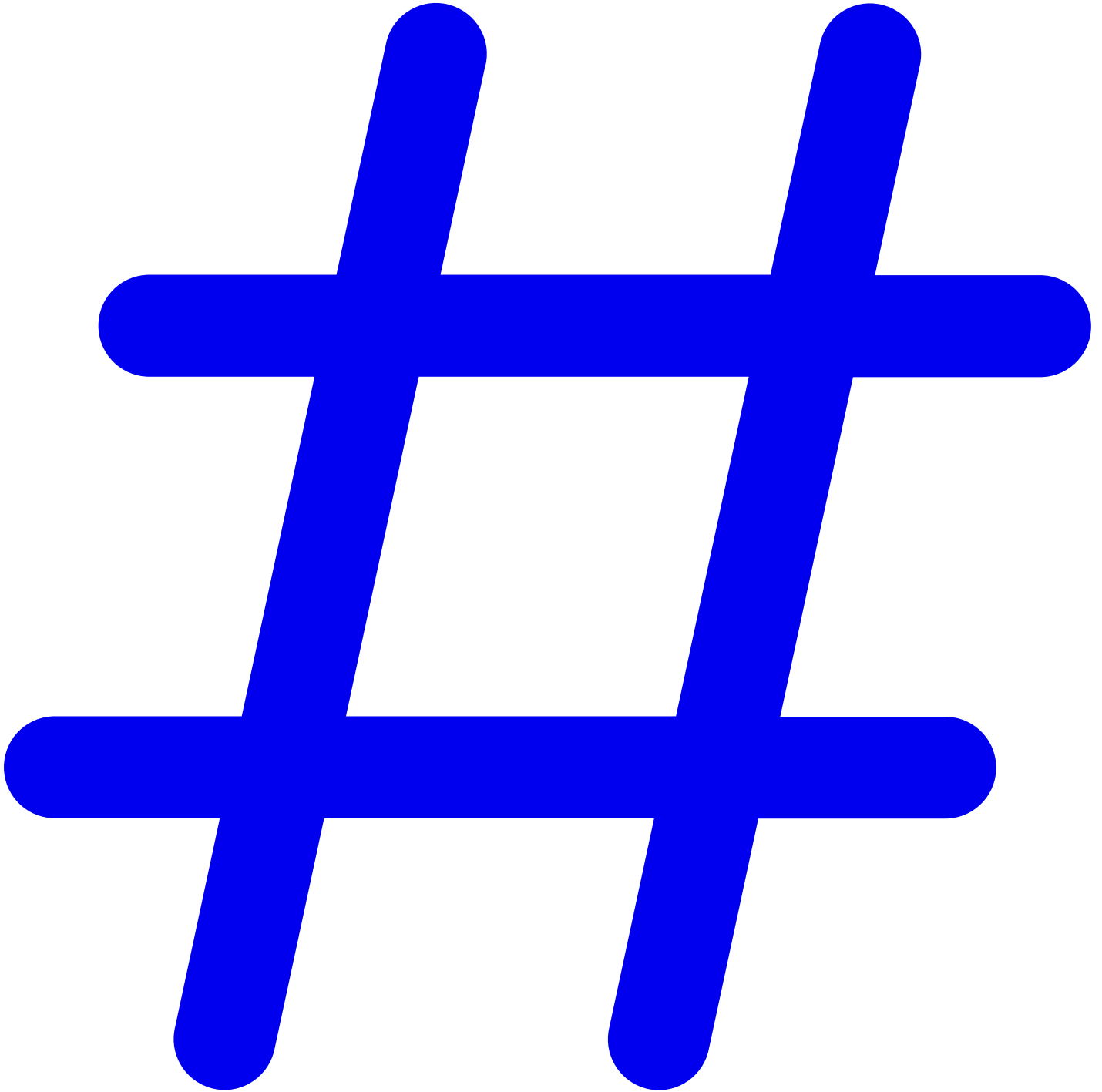
The system provides a barrel connector for main input power. The connector has a 2.5mm center pin and is intended for use with mating connectors with 2.5mm inner diameter and 5.5mm outer diameter. Input voltage = +7V to +24V.

The connections for the power input connector are Tip = +V and Ring = -V.

Connector Part Number: **PJ-202BH**

Front Panel Exposure: **YES**

8.2 Serial Port 1 (SER 1)



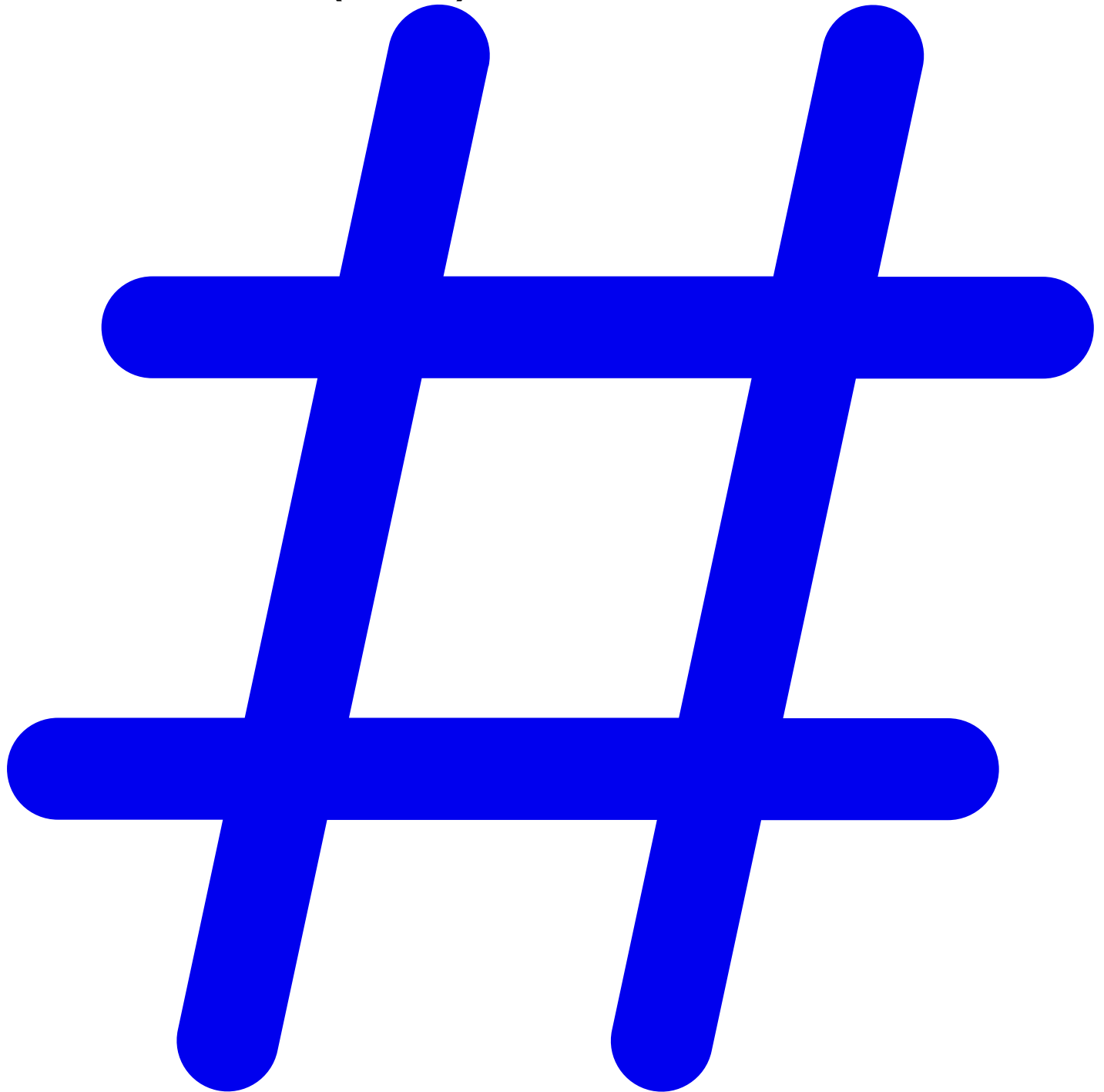
JETBOX-FLOYD has two Serial Ports of which one of the serial ports, SER 1 has a dedicated connector terminated on J1. The serial port SER 1 is directly accessible on the front panel. The second serial port SER 2 is not directly exposed on the front panel; rather it is accessible on the front panel at EXP 1.

The SER 1 is multiplexed with DIOs with assembly options. The DIOs from the connector J9 on the Floyd carrier card can be routed to SER 1 (J1) connector. The pinouts of SER 1 connector are as shown below:

Connector Part Number: **A-DS 09 A/KG-T2S**

Front Panel Exposure: **YES**

8.3 Serial Port 2 (EXP 2)

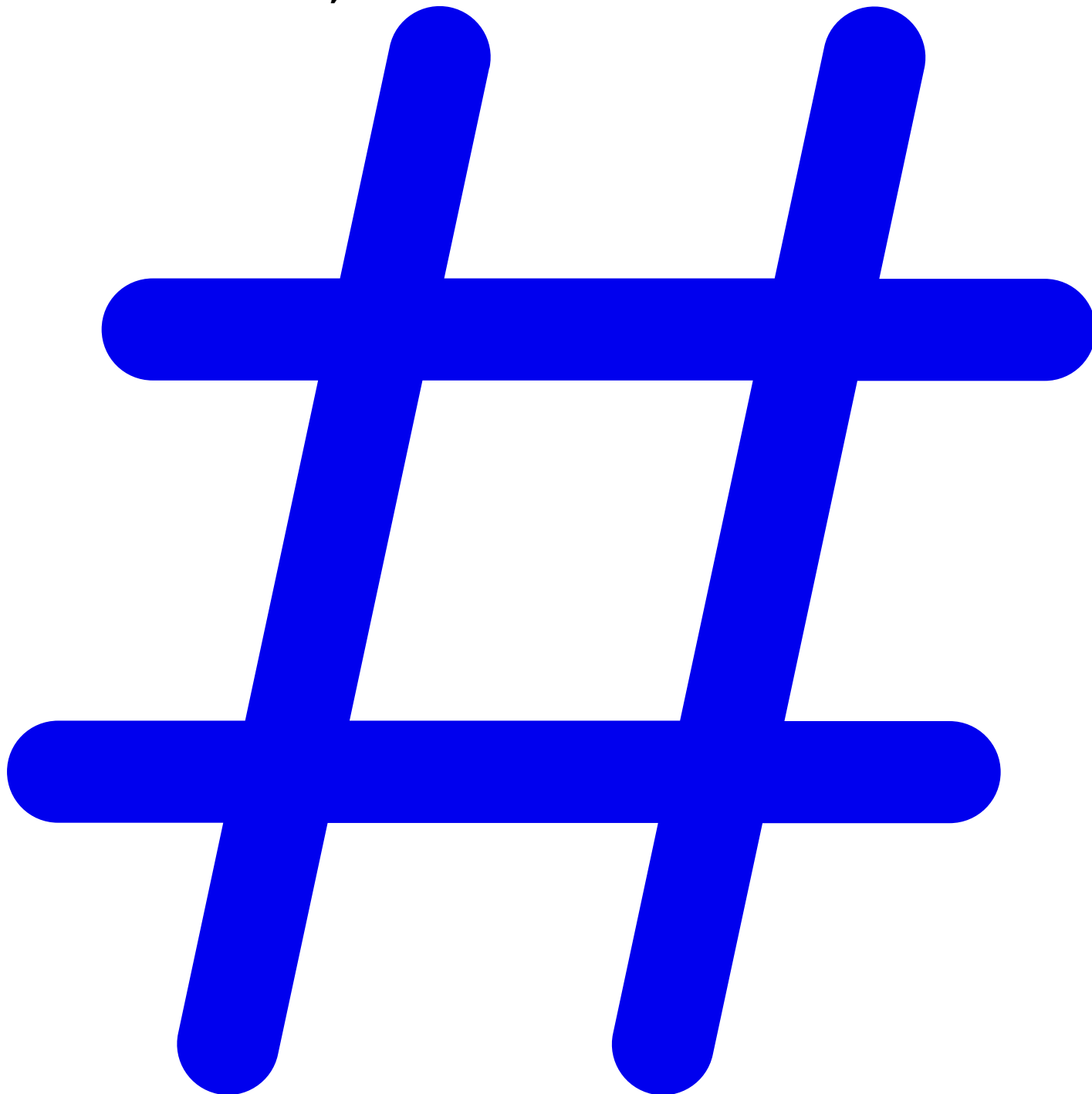


By default, the serial port 2 SER 2 is terminated at J9. To enhance the functionalities of the Jetbox-Floyd, the SER 2 is made available on the front panel at EXP 2. The pinouts of the SER 2 at EXP 2 are as shown below:

Connector Part Number: **010309-00002201**

Front Panel Exposure: **YES, on EXP 1**

8.4 USB2 Ports 1,2

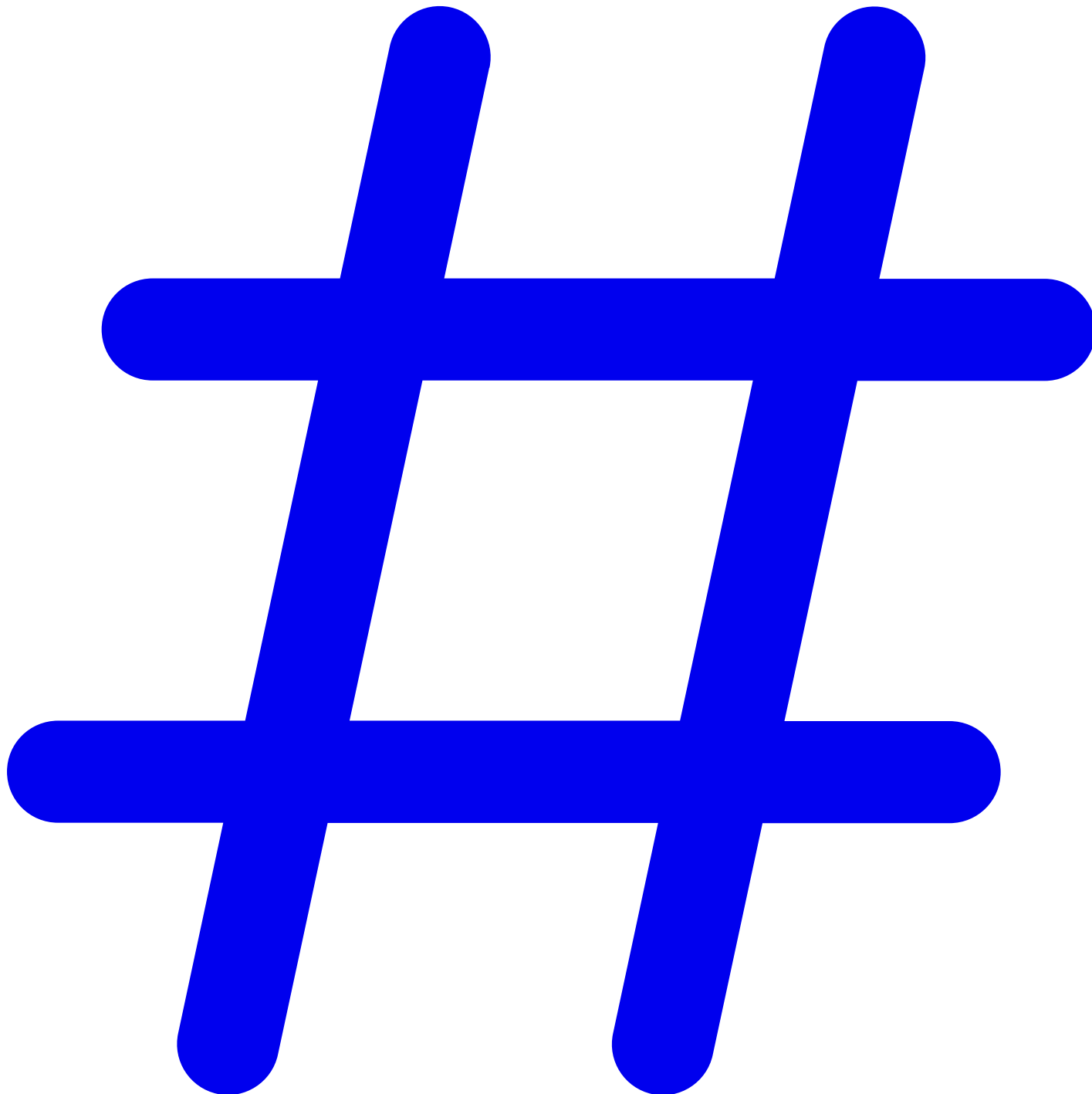


The Jetbox-Floyd hosts two USB 2.0 ports accessible on a vertically stacked standard USB 2.0 Type A socket that uses standard pinout. The pinouts are as shown below:

Connector Part Number: **UB1112C-8FDH-4F**

Front Panel Exposure: **YES**

8.5 USB3 Port

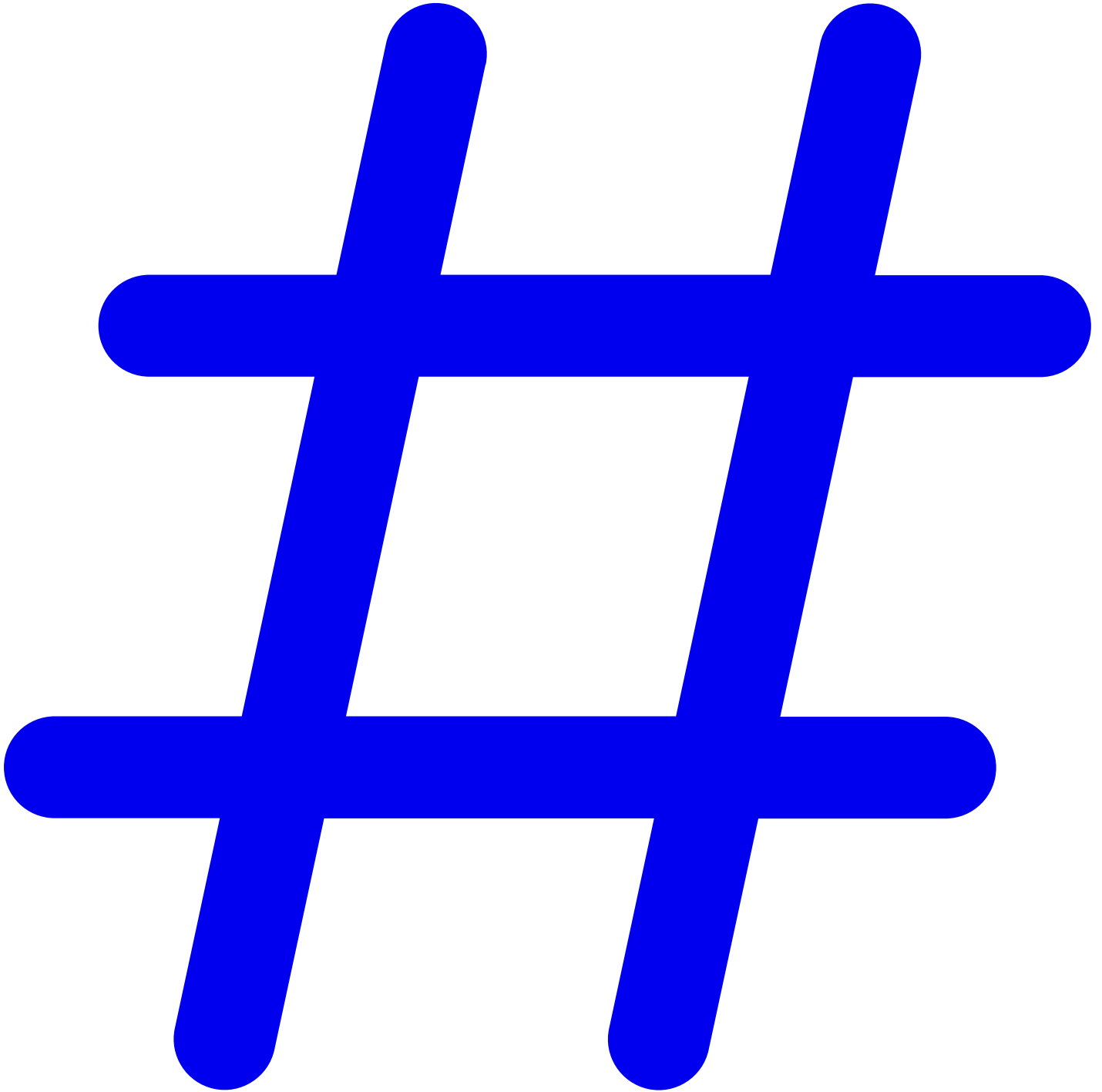


The Jetbox-Floyd hosts one USB 3.0 port accessed via an upright standard USB 3.0 receptacle. The pinouts of the connector are as shown below:

Connector Part Number: **UEA3119C-4EB1-4H**

Front Panel Exposure: **YES**

8.6 HDMI Ports 1 & 2



Two HDMI ports are available on a dual-port vertical stacked standard connector. The connector follows the standard HDMI pinout.

Audio output is supported only in the HDMI - 1 (upper port).

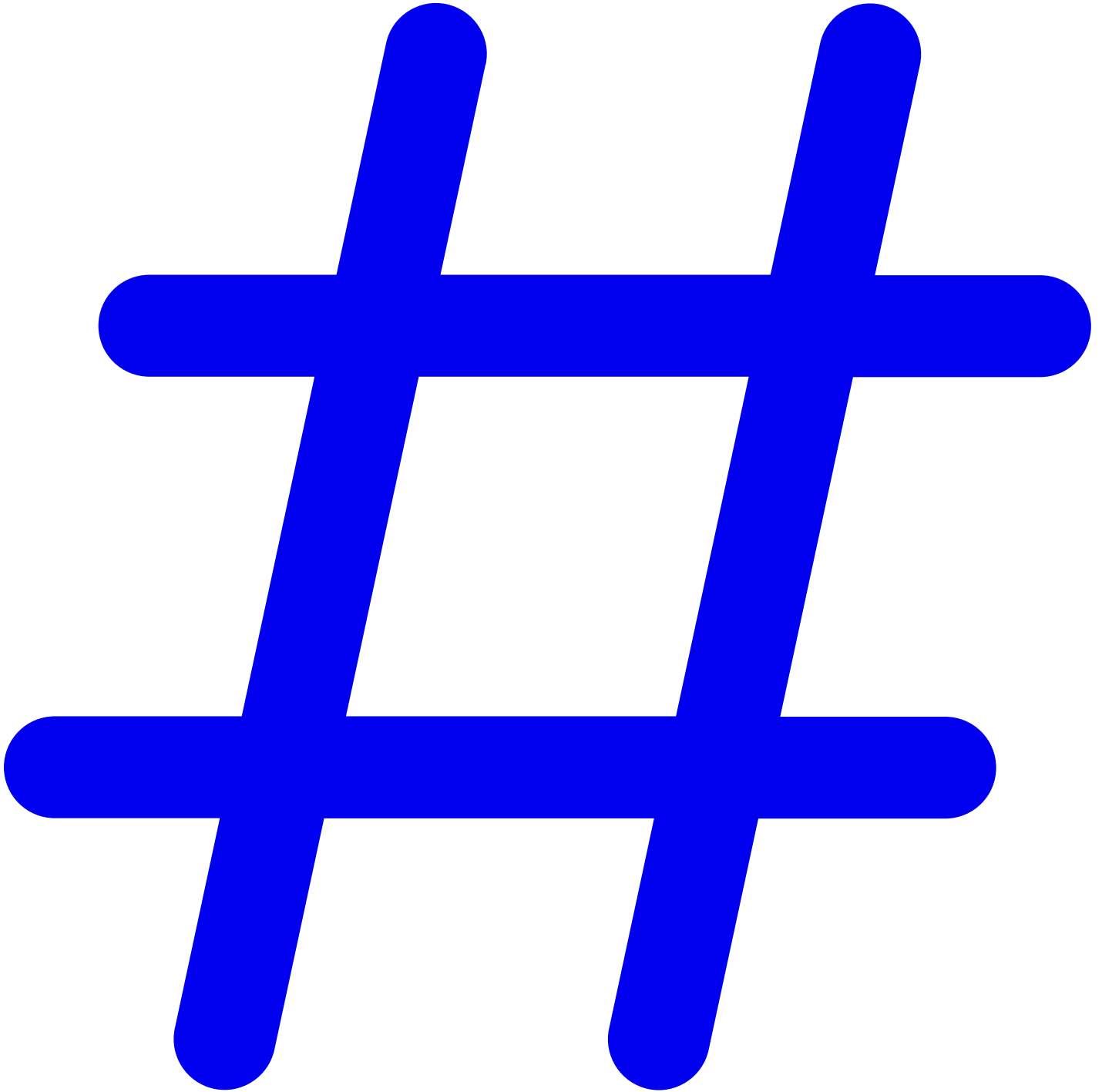
The HDMI - 2 (lower port) is available on the JB-FLD-***-01 models only.

The pinouts are as follows:

Connector Type/ Part Number: **QJ11191-DFB1-4F-AX3**

Front Panel Exposure: **YES**

8.7 Ethernet Ports 1 & 2



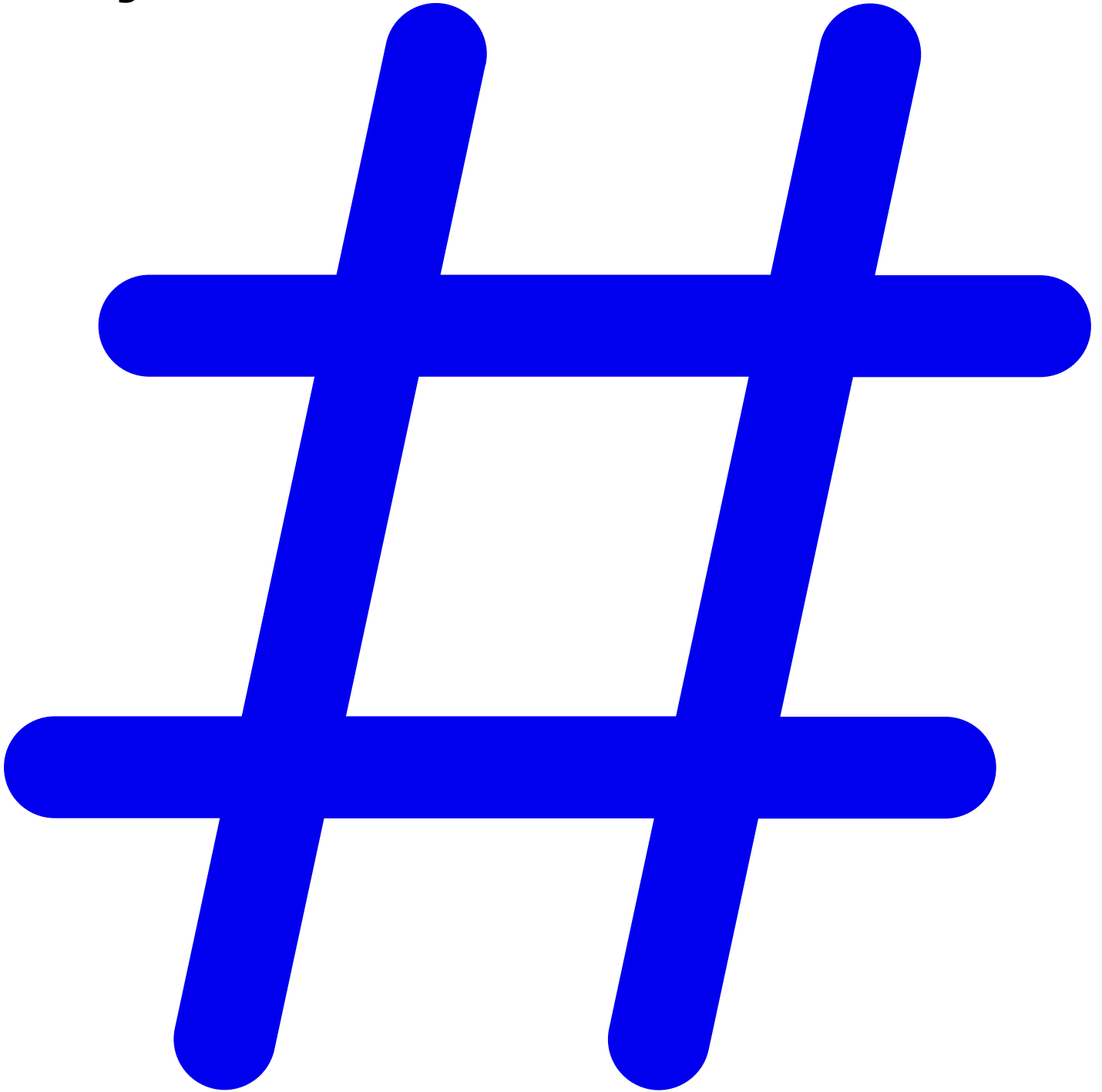
The Ethernet ports are terminated on a standard dual port PoE+ and RJ45 connector that has built-in magnetics and LEDs. The connector follows standard TIA/EIA 568B pinout. The ETHERNET - 2 (lower port) is available on the JB-FLD-***-01 models only.

The pinouts are as follows:

Connector Part Number/Type: **LPJG17098-8AENL**

Front Panel Exposure: **YES**

8.8 Digital I/Os (EXP 2)



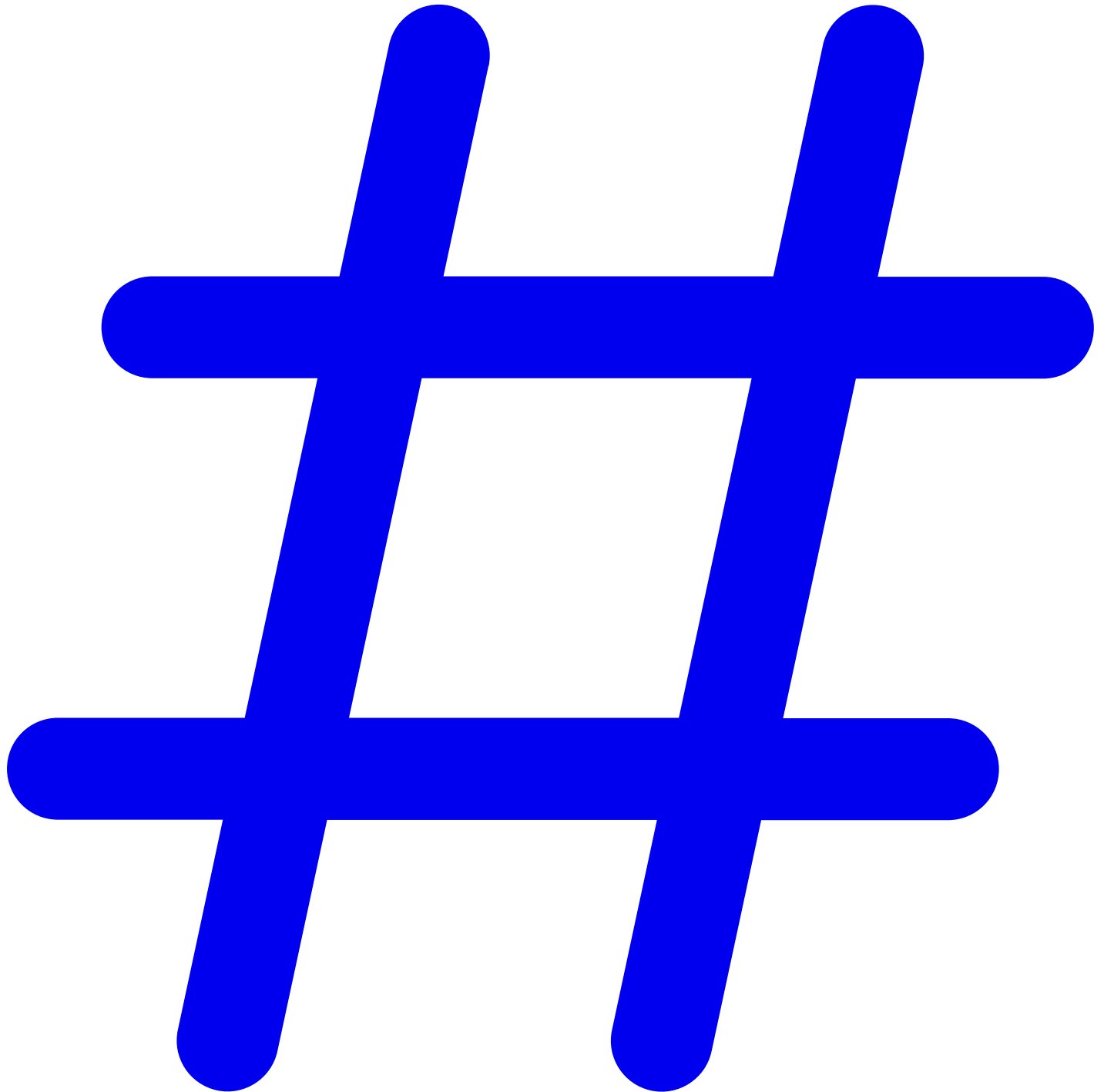
The DIOs & the SER 2 on the Floyd carrier board of the Jetbox-Floyd are terminated on the same connector J9. This connector is accessed with a cable and exposed on the front panel. The SER 2 from J9 is terminated at EXP 1 on the front panel & the DIOs from J9 are terminated at EXP 2.

The DIO pinouts terminated at EXP 2 are as shown below:

Connector Part Number/Type: **2x10, 2.54 mm Header**

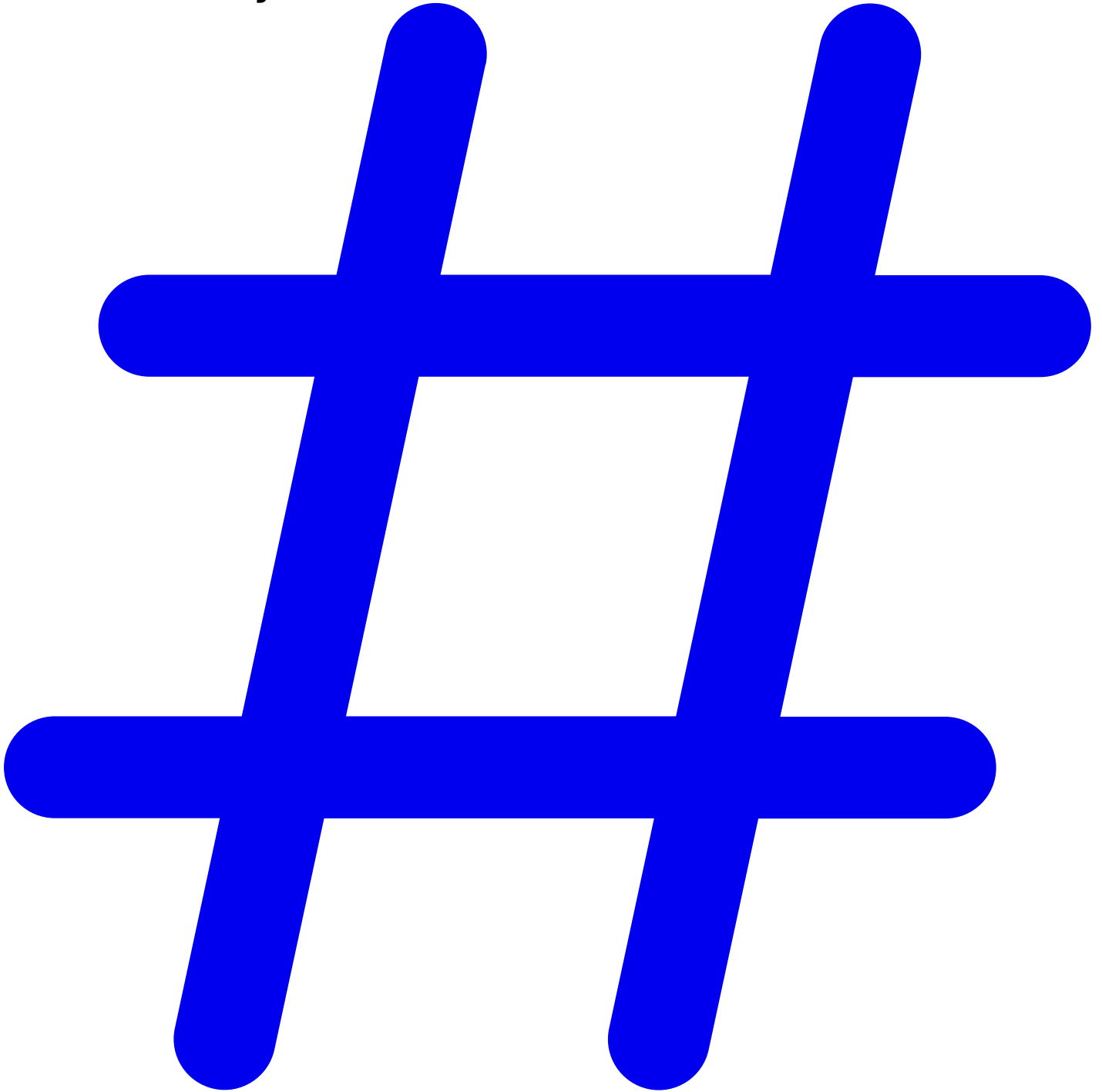
Front Panel Exposure: **YES, on EXP 2**

8.9 Reset Switch



The Reset switch is used to reset the Jetbox-Floyd system. When the Reset switch is pressed, the system goes into Reset mode until the switch is released. When the switch is released, the system comes out of Reset mode & system boots to the operating system.

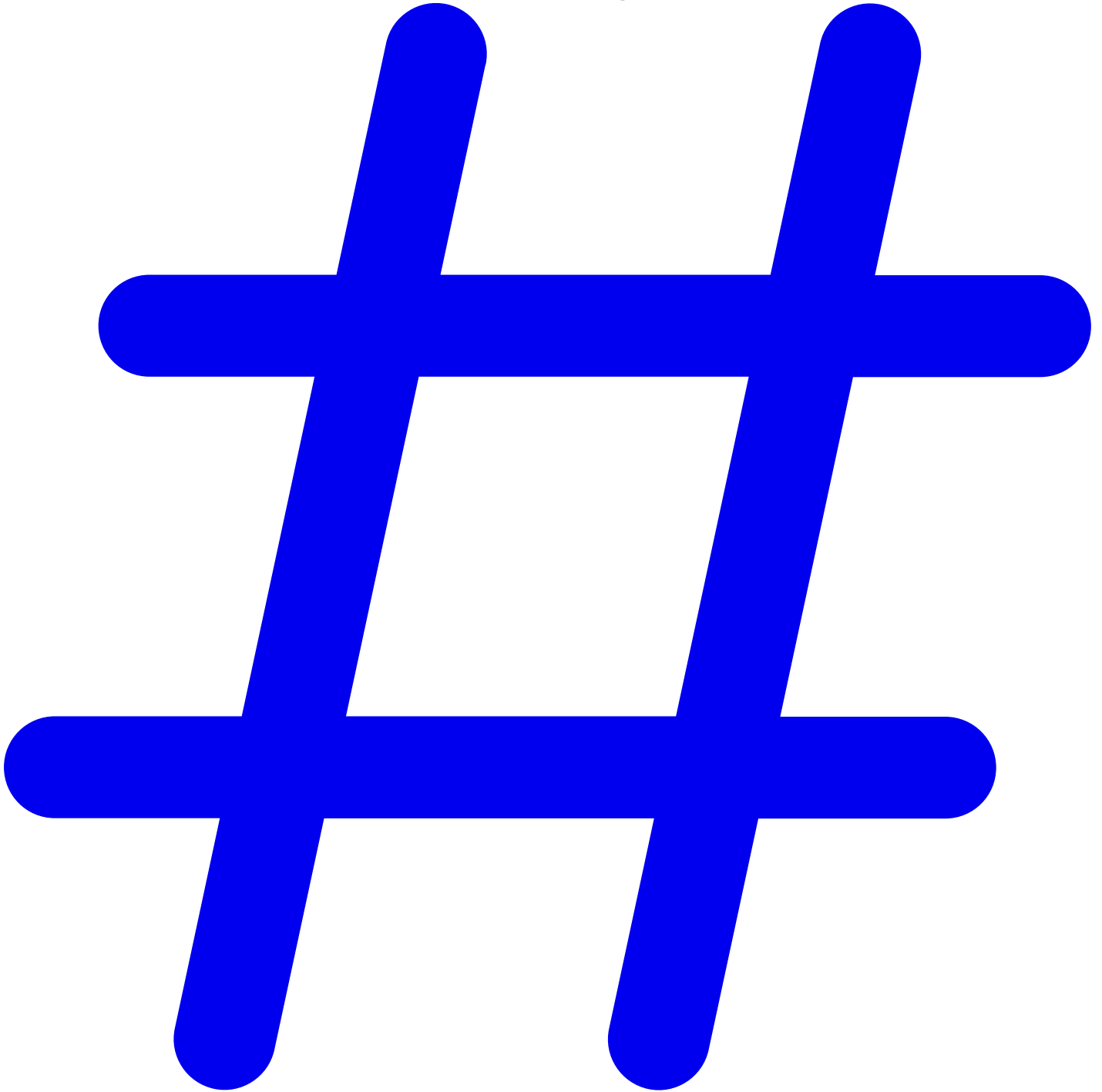
8.10 Recovery Switch



The Recovery switch is used to operate the system in Recovery mode. The recovery mode is used by the system to update its Board Support Package (BSP).

The usage of the Recovery switch has been detailed in [Section 14. REPORGRAMMING THE EMBEDDED LINUX IMAGE](#).

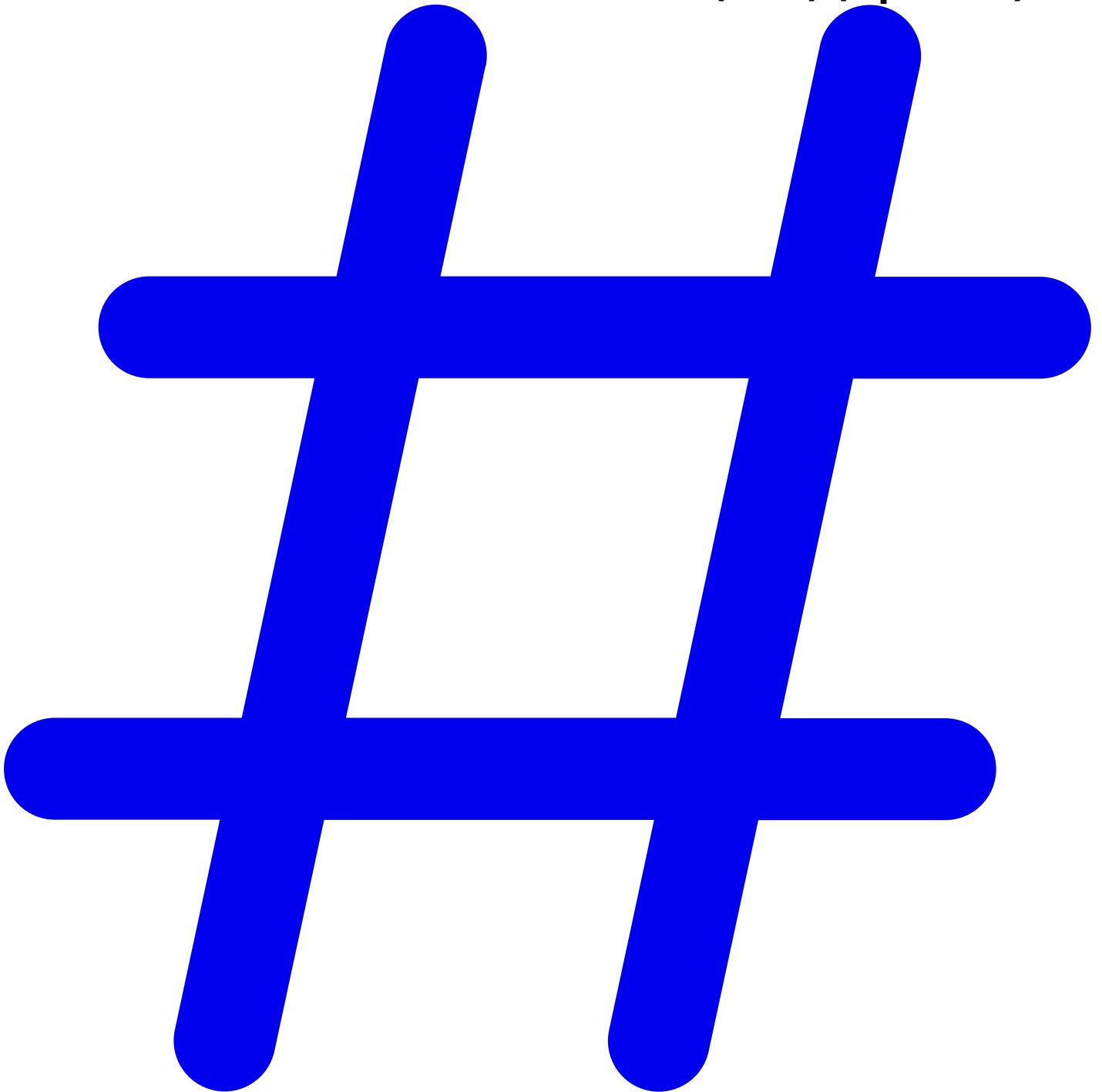
8.11 SMA Antenna Connectors 1, 2



Jetbox-Floyd system provides 2 SMA connectors to connect external antennas. These connectors can be used when a WiFi or LTE module is used to extend the connectivity on the M.2 or mPCIe expansion.

The WiFi/LTE modules can be wired to the SMA connector internally with U.F.L to SMA cables.

8.12 EXP 2: Controller Area Network (CAN) (Optional)

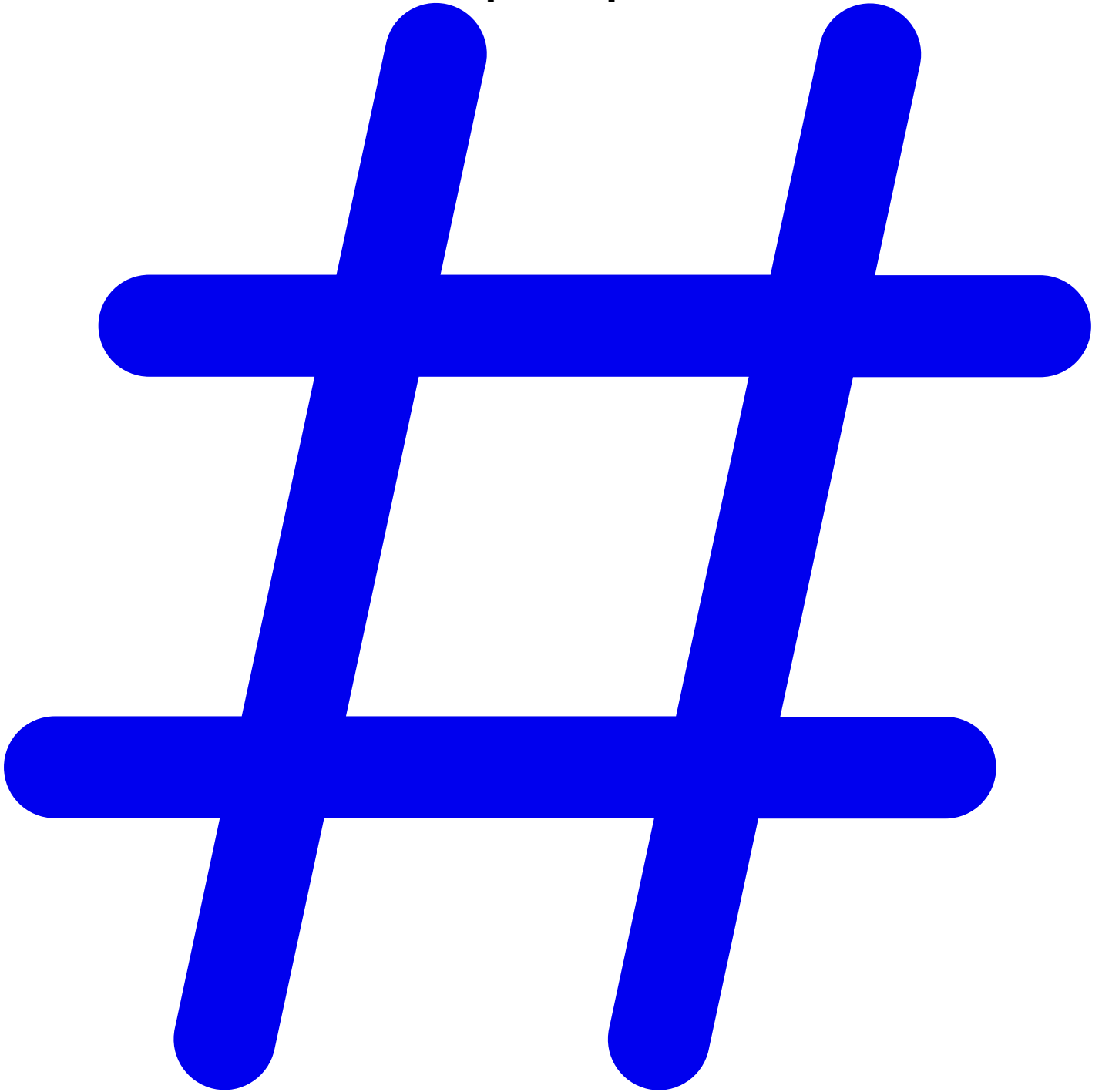


The CAN interface is optionally accessible from the front panel. The pinouts of the EXP 2 for CAN interface are as shown below:

Connector Part Number/Type: **010309-00002201**

Front Panel Exposure: **NO, optionally available on EXP 2**

8.13 EXP 1: PoE Power Input (Optional)



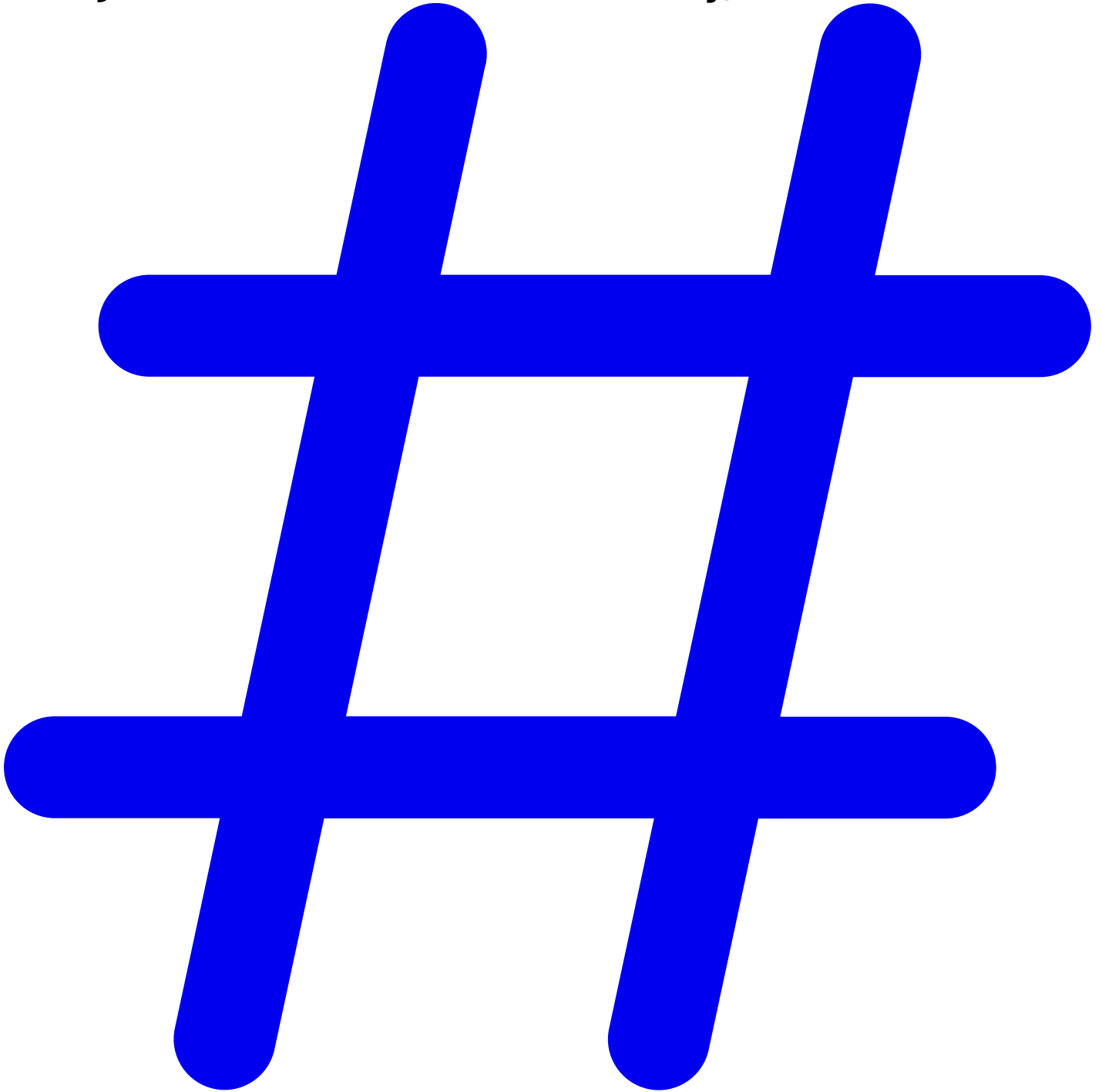
The PoE Power Input connector is optionally accessible from the front panel. The pinouts of the EXP 2 for PoE Power Input are as shown below:

Connector Part Number/Type: **010309-00002201**

Front Panel Exposure: **NO, optionally available on EXP 2**

NOTE: *The subsequent connectors have been referenced with the reference designators on the Floyd base board. Refer Floyd User Manual for more details.*

8.14 J19: PCIe M.2 SSD Socket (M-Key, 2280 Size)



The Floyd carrier board is equipped with an M.2 PCIe SSD M-keyed connector for 2280 sized modules for storage applications.

The PCIe link routing from the Jetson module to the M.2 socket varies according to the Jetbox-Floyd model.

JB-FLD-NAO/XNX-01: The PCIe x4 link from the Jetson module is routed to a switch which provides 3 PCIe x1 links for the M.2 socket, PCIe minicard socket, and 2nd Ethernet port.

JB-FLD-NAO/XNX-02 The x4 PCIe link is directly connected to the M.2 socket for maximum bandwidth. The minicard and 2nd Ethernet port are not present. With the Jetson Xavier NX module installed, an additional PCIe x1 lane interface can be mapped from the NX to the second Ethernet.

NOTE: *Contact Diamond Systems Corp for custom build options.*

The M.2 socket follows standard pinouts & the pinouts of the connector J19 are as shown below:



Search

Ground

1

2

3.3V

Ground

3

4

3.3V

PETn3

5

6

N/C

PETp3

7

8

N/C

Ground

9

10

LED1#

PERn3

11

12

3.3V

PERp3

13

14

3.3V

Ground

15

16

3.3V

PETn2

17

18

3.3V

PETp2

19

20

N/C

Ground

21

22

N/C

PERn2

23

24

N/C

PERp2

25

26

N/C

Ground

27

28

N/C

PETn1

29

30

N/C

PETp1

31

32

N/C

Ground

33

34

N/C

PERn1

35

36

N/C

PERp1

37

38

N/C

Ground

39

40

N/C

PETn0

41

42

N/C

PETp0

43

44

N/C

Ground

45

46

N/C

PERn0

47

48

N/C

PERp0

49

50

PERST#

Ground

51

52

CLKREQ#

REFCLKN

53

54

PEWake#

REFCLKP

55

56

N/C

Ground

57

58

N/C

KEY

N/C

67

68

SUSCLK

PEDET

69

70

3.3V

Ground

71

72

3.3V

Ground

73

74

3.3V

Ground

75

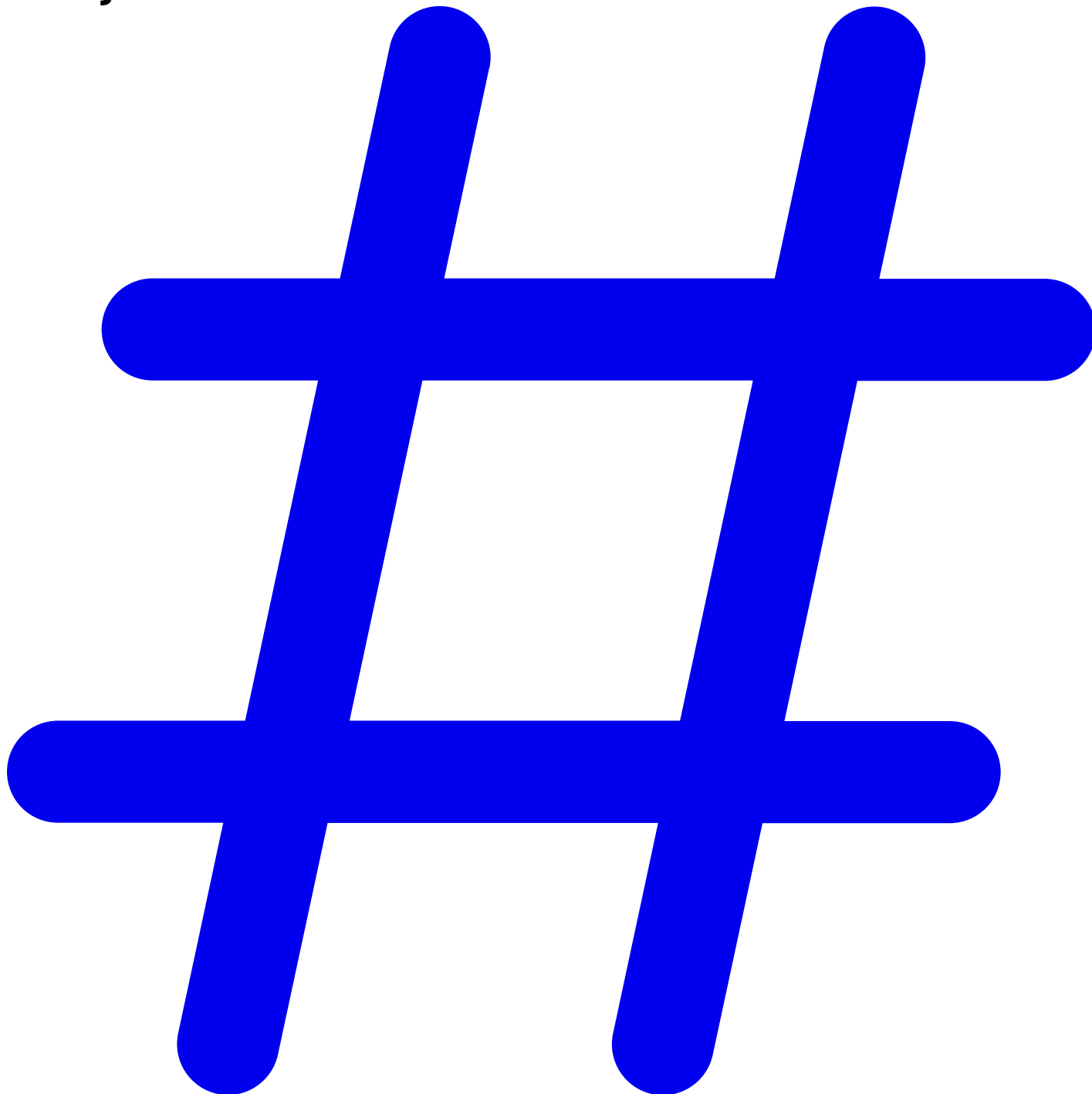
Connector Part Number/Type: **10128798-001RLF**

Connector Key: **M-Key**

Add-on Module: **M.2 2280** SSD (W 22 mm x L 80 mm)

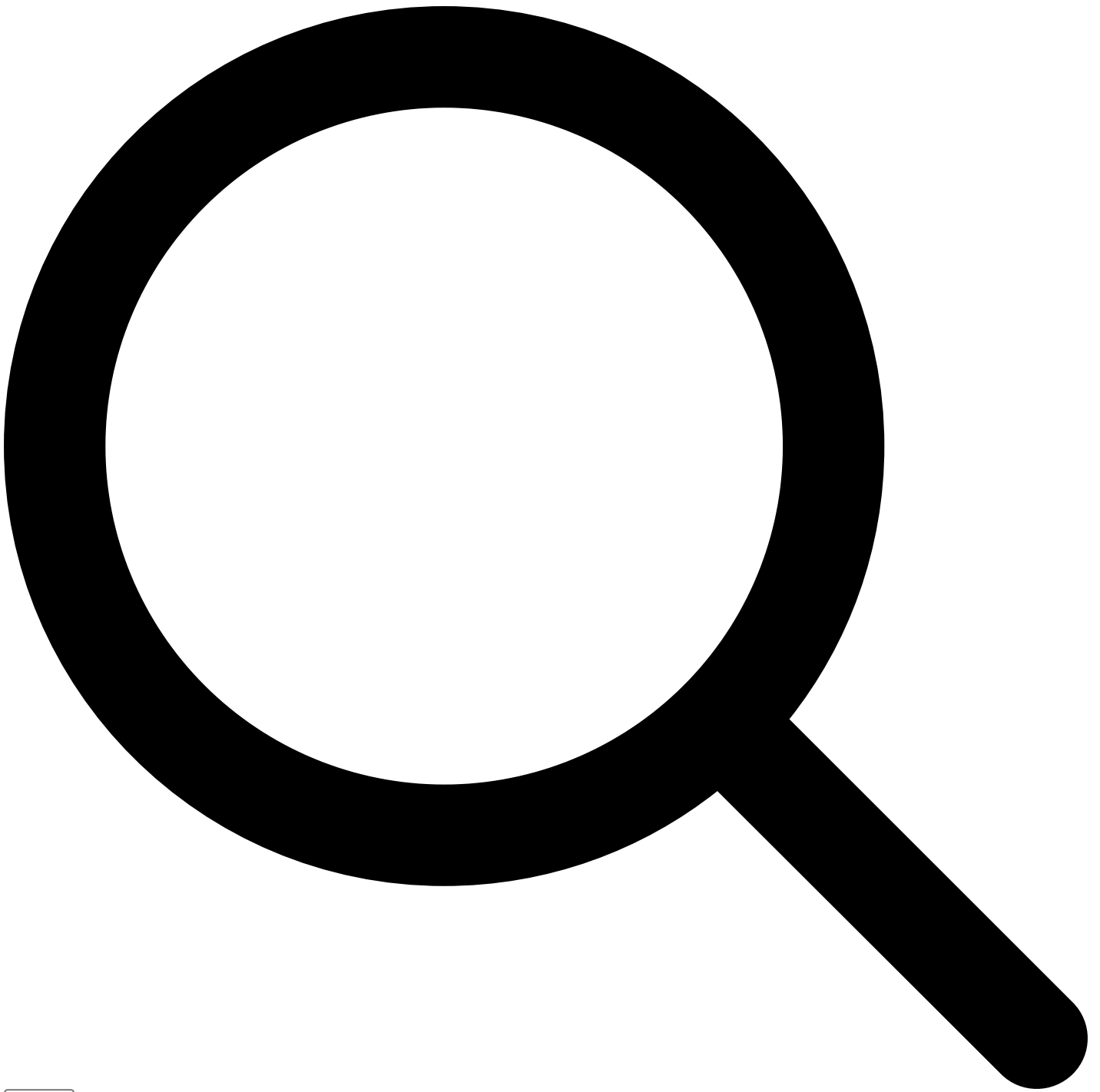
Front Panel Exposure: **NO, accessed by opening the TOP heat spreader plate**

8.15 J17: Minicard Socket



The TX (Transmit) and RX (Receive) signals are transmitted by the host. The RX signal on the socket is driven by the TX signal on the installed module and vice versa. The two mounting standoffs at the far end of the Minicard Module installation site are not connected to Ground.

The pinouts for the PCIe Mini Card connector are as shown below:



Search

1

2

+3.3V

3

4

Ground

5

6

+1.5V

Clockreq-

7

8

Ground

9

10

PCIe 1 Clk-

11

12

PCIe 1 Clk+

13

14

Ground

15

16

KEY

KEY

17

18

Ground

19

20

Disable-

Ground

21

22

PCIe Reset-

PCIe 1 RX-

23

24

+3.3V

PCIe 1 RX+

25

26

Ground

Ground

27

28

+1.5V

Ground

29

30

SMB Clock

PCIe 1 TX-

31

32

SMB Data

PCIe 1 TX+

33

34

Ground

Ground

35

36

Ground

37

38

+3.3V

39

40

Ground

+3.3V

41

42

WWAN LED-

Ground

43

44

WLAN LED-

45

46

WPAN LED-

47

48

+1.5V

Pull-up to +3.3V

49

50

Ground

51

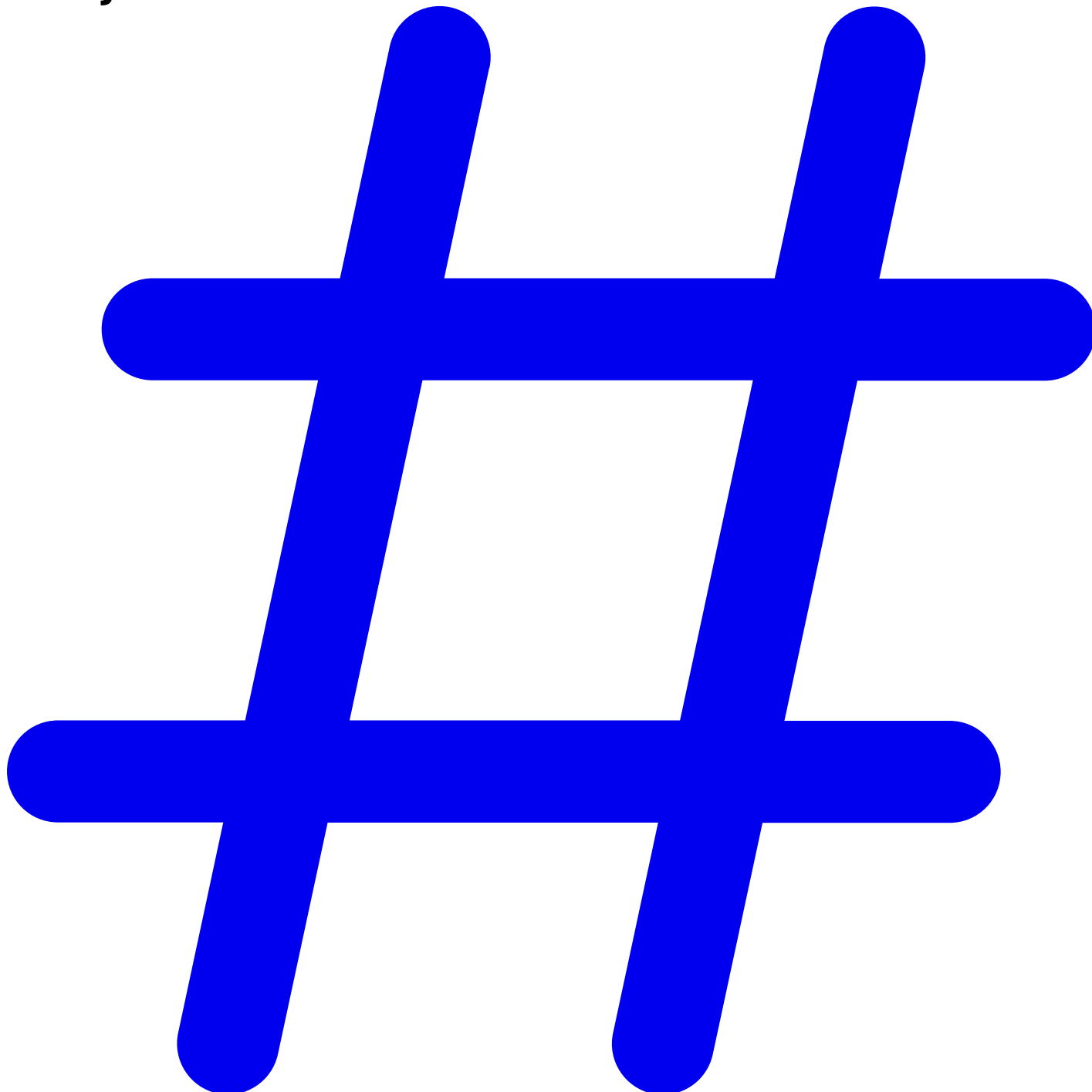
52

+3.3V

Connector Part Number/Type: **MM60-52B1-E1-R650**

Front Panel Exposure: **NO, accessed by opening the TOP heat sink plate**

8.16 J18:Micro SD Connector



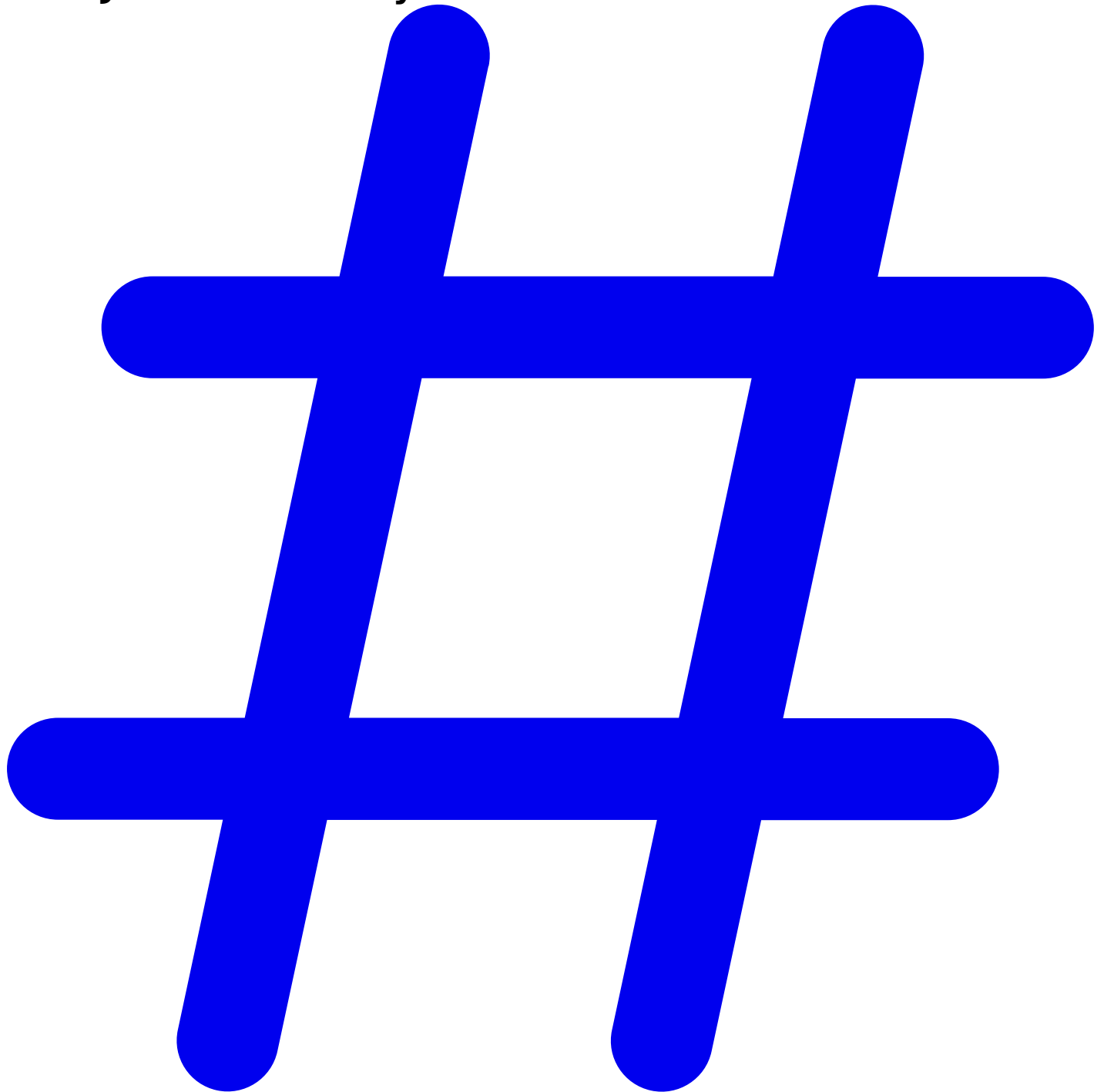
The Floyd carrier board provides a standard Micro SD connector as an additional storage option.

The pinouts of the connector are as shown below:

Connector Part Number: **114-00841-68**

Front Panel Exposure: **NO, accessed by opening the TOP heat spreader plate**

8.17 J15: RTC Battery Connector



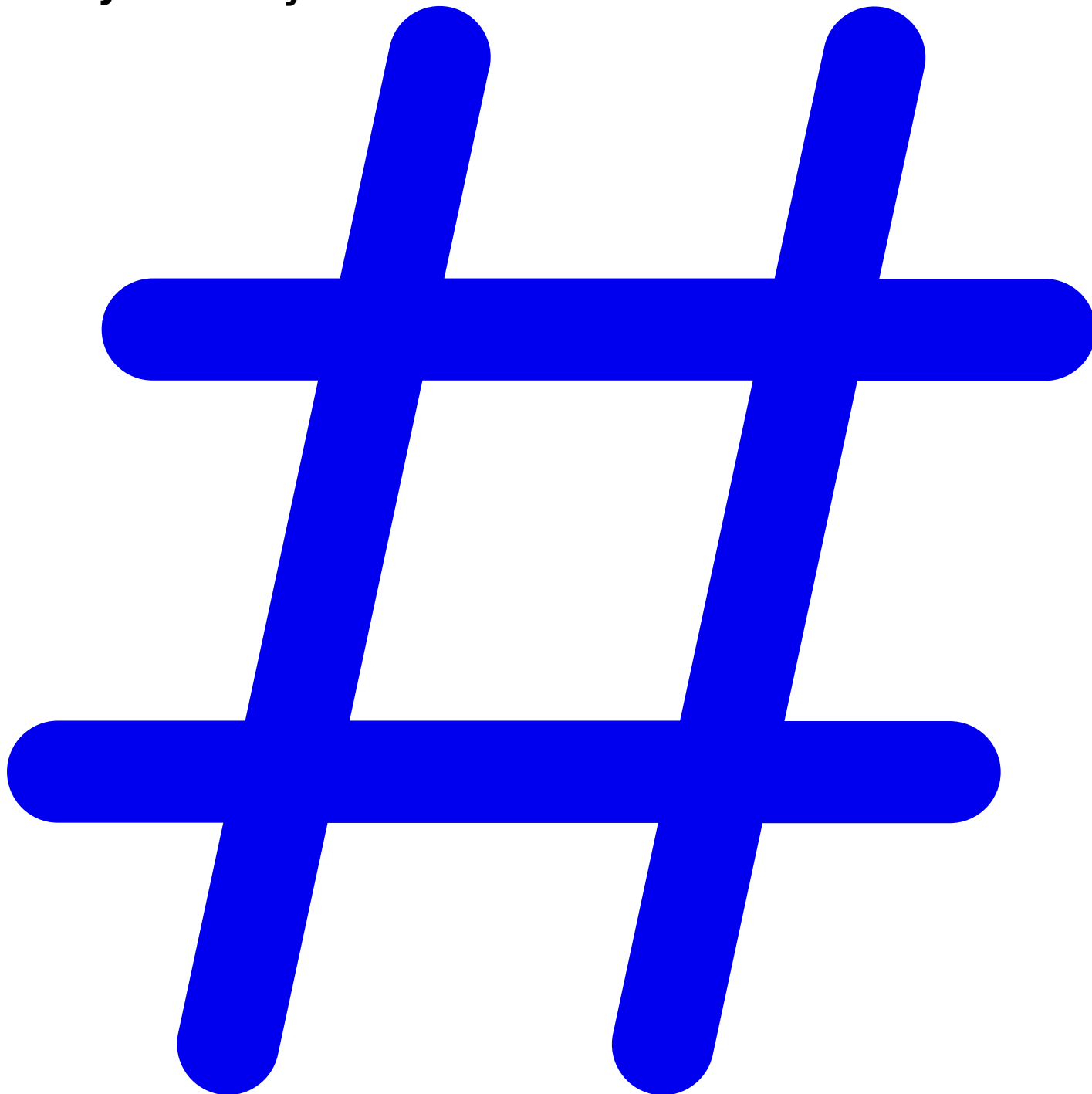
The RTC battery connector is used to supply voltage for RTC.

The pinouts for the RTC Battery connector are as shown below:

Connector Part Number: **0022035025**

Front Panel Exposure: **NO, accessed by opening the TOP heat spreader plate**

8.18 J16: Utility Connector



The carrier board provides access to utility signals on a 2x10 header.

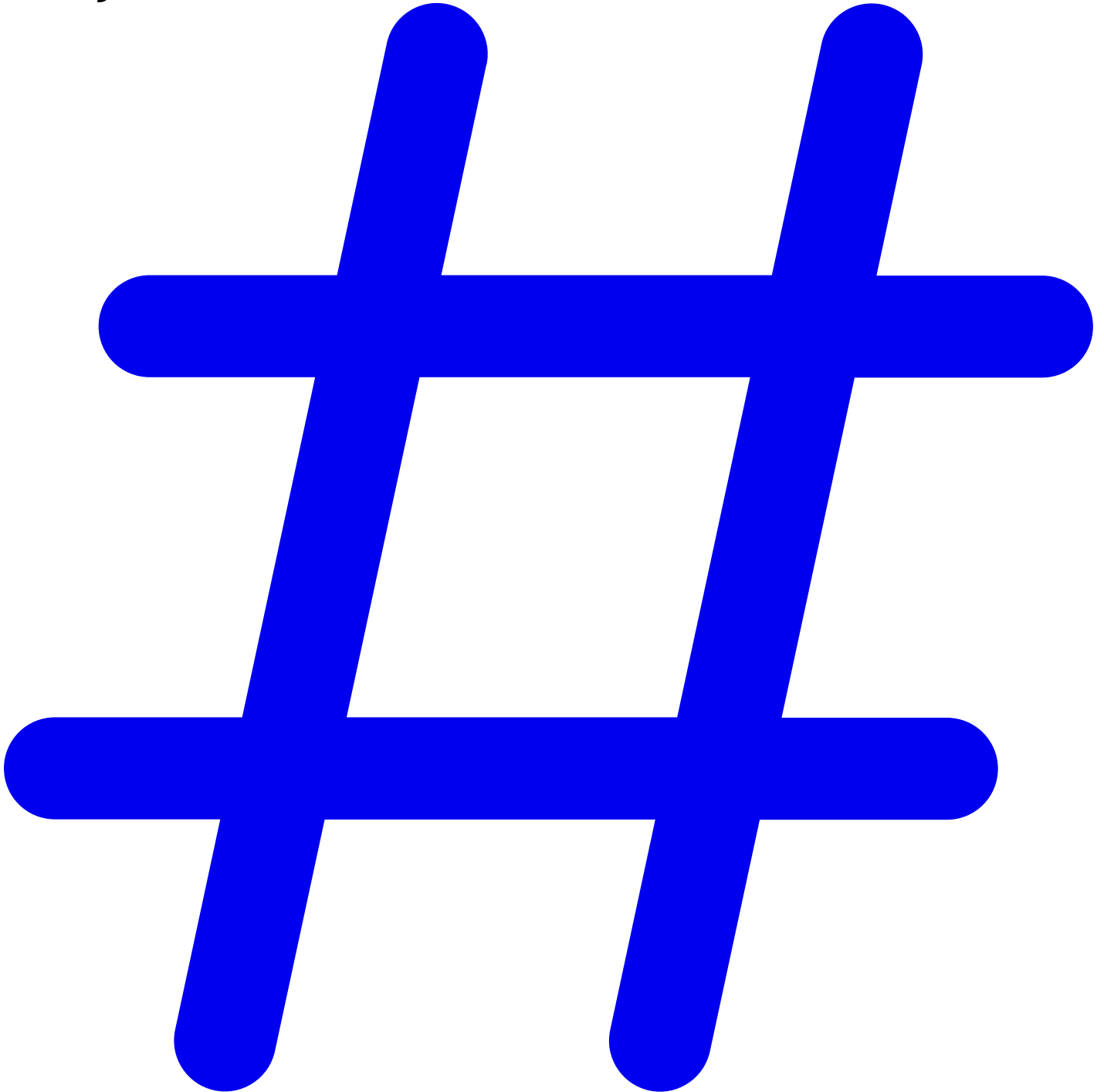
The pinouts for the utility connector are as shown below:

Connector Part Number: **220-97-36GB01**

Connector Type: Connector: **2x10, 2 mm Header**

Front Panel Exposure: **NO, accessed by opening the TOP heat spreader plate**

8.19 J20: Fan Connector



Fan is not used with Jetbox-Floyd but with Floyd carrier board only when used as a standalone unit. The thermal solution for Jetbox-Floyd is integrated into the system.

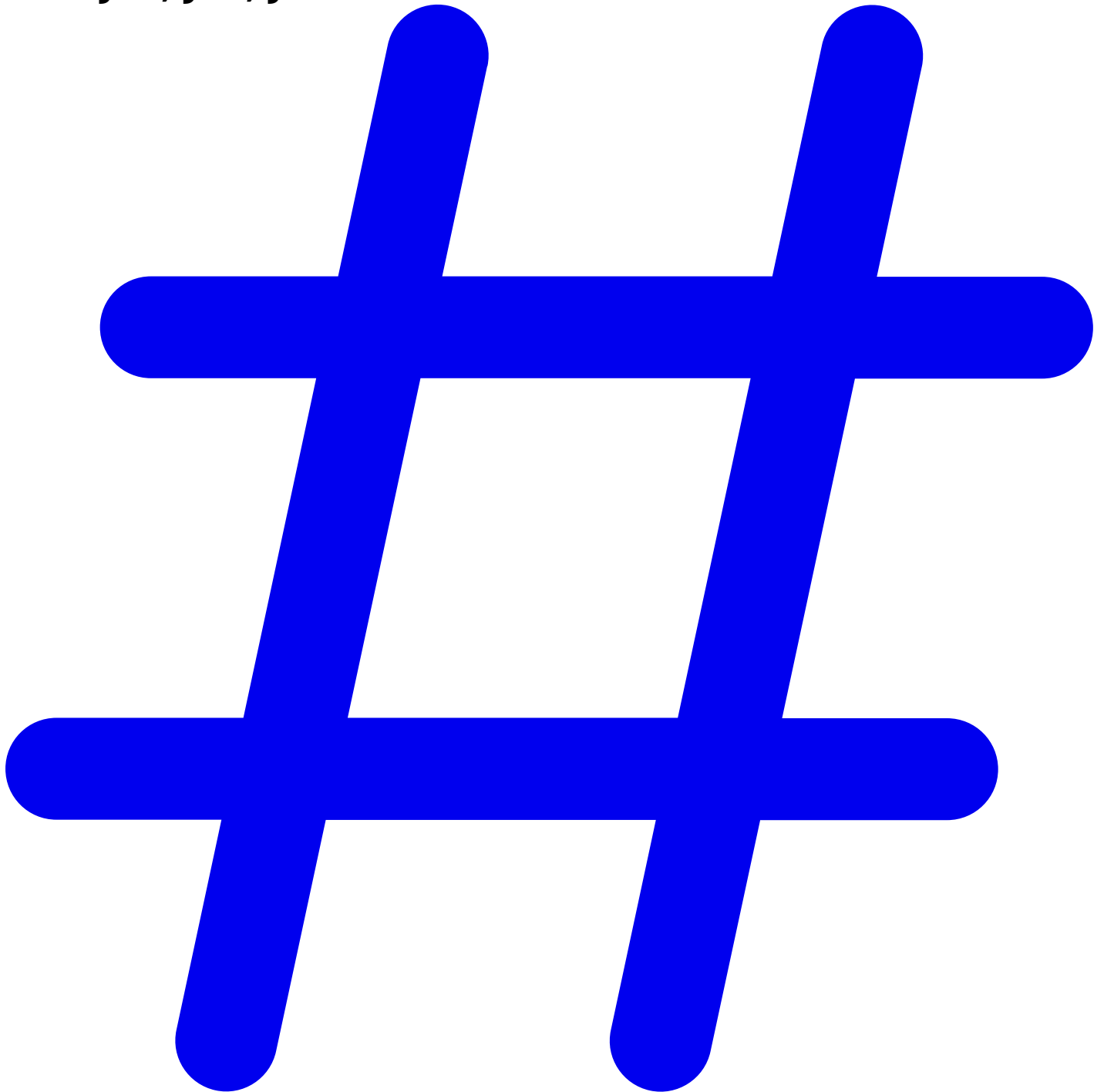
The pinouts for the fan connector are specified below:

Connector Part Number: **0533980471-2**

Supported Fan Model: **Delta ASB0305HP-00CP4**

Front Panel Exposure: **NO, accessed by opening the TOP heat spreader plate**

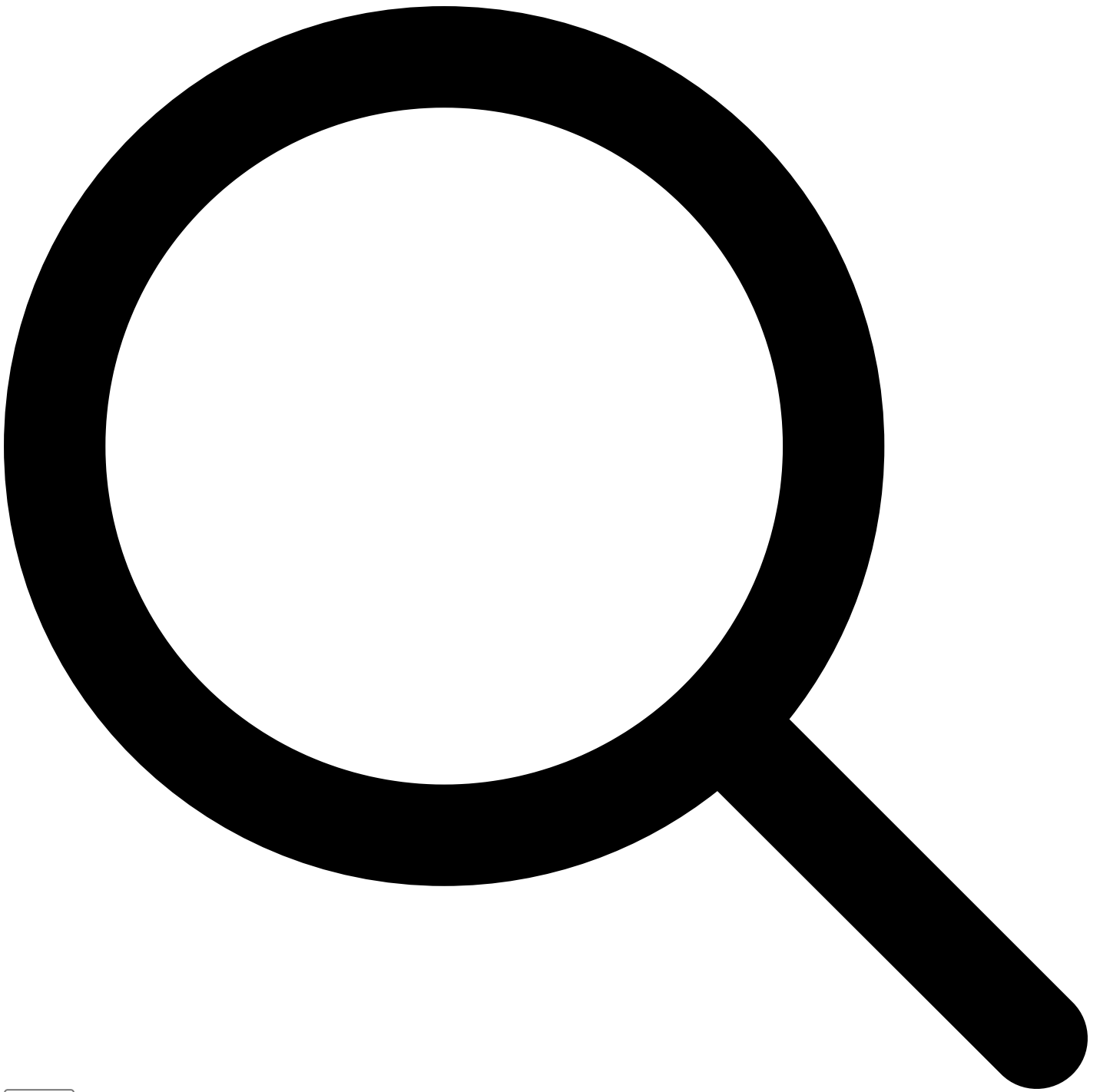
8.20 J12, J13, J14: Camera Connectors



The camera interface is accessible when the Floyd carrier board is used as a standalone unit & not with Jetbox-Floyd system.

The carrier board embeds three identical 30-pin connectors for multiple CSI Camera connectivity. The 30-pin Micro Coaxial connectors are used to connect camera modules on the carrier board.

The pinouts for the CSI connectors are as shown below:



Search

J12

J13

J14

1

V_3P3

1

V_3P3

1

V_3P3

2

V_3P3

2

V_3P3

2

V_3P3

3

V_1P8_CAM

3

V_1P8_CAM

3

V_1P8_CAM

4

Ground

4

Ground

4

Ground

5

Ground

5

Ground

5

Ground

6

CAM2_PWDN_1P8_E

6

CAM1_PWDN_1P8_E

6

CAM0_PWDN_1P8_E

7

CAM2_I2C_SCL_1P8_E

7

CAM1_I2C_SCL_1P8_E

7

CAM0_I2C_SCL_1P8_E

8

CAM2_I2C_SDA_1P8_E

8

CAM1_I2C_SDA_1P8_E

8

CAM0_I2C_SDA_1P8_E

9

Ground

9

Ground

9

Ground

10

CSI2_D2_N

10

CSI1_D2_N

10

CSI0_D2_N

11

CSI2_D2_P

11

CSI1_D2_P

11

CSI0_D2_P

12

TRIG_CSI_CAM_2_R_E

12

TRIG_CSI_CAM_1_R_E

12

TRIG_CSI_CAM_0_E

13

SPI1_CLK_E

13

SPI1_CLK_E

13

SPI1_CLK_E

14

Ground

14

Ground

14

Ground

15

CSI2_D1_N

15

CSI1_D1_N

15

CSI0_D1_N

16

CSI2_D1_P

16

CSI1_D1_P

16

CSI0_D1_P

17

Ground

17

Ground

17

Ground

18

Ground

18

Ground

18

Ground

19

CSI2_D0_N

19

CSI1_D0_N

19

CSI0_D0_N

20

CSI2_D0_P

20

CSI1_D0_P

20

CSI0_D0_P

21

NRST_CSI_CAM_2_E

21

NRST_CSI_CAM_1_E

21

NRST_CSI_CAM_0_E

22

Ground

22

Ground

22

Ground

23

SPI1_SS2_E#

23

SPI1_SS1_E#

23

SPI1_SS0_E#

24

CSI2_CLK_N

24

CSI1_CLK_N

24

CSI0_CLK_N

25

CSI2_CLK_P

25

CSI1_CLK_P

25

CSI0_CLK_P

26

Ground

26

Ground

26

Ground

27

CSI2_D3_N

27

CSI1_D3_N

27

CSI0_D3_N

28

CSI2_D3_P

28

CSI1_D3_P

28

CSI0_D3_P

29

FLASH_CAM_2_E

29

FLASH_CAM_1_E

29

FLASH_CAM_0_E

30

SPI1_MOSI_E

30

SPI1_MOSI_E

30

SPI1_MOSI_E

Connector Part Number: **20682-030E-02**

Mating Cable Part Number: **Compatible cables are generally included with the camera kit**

Compatible Cameras:

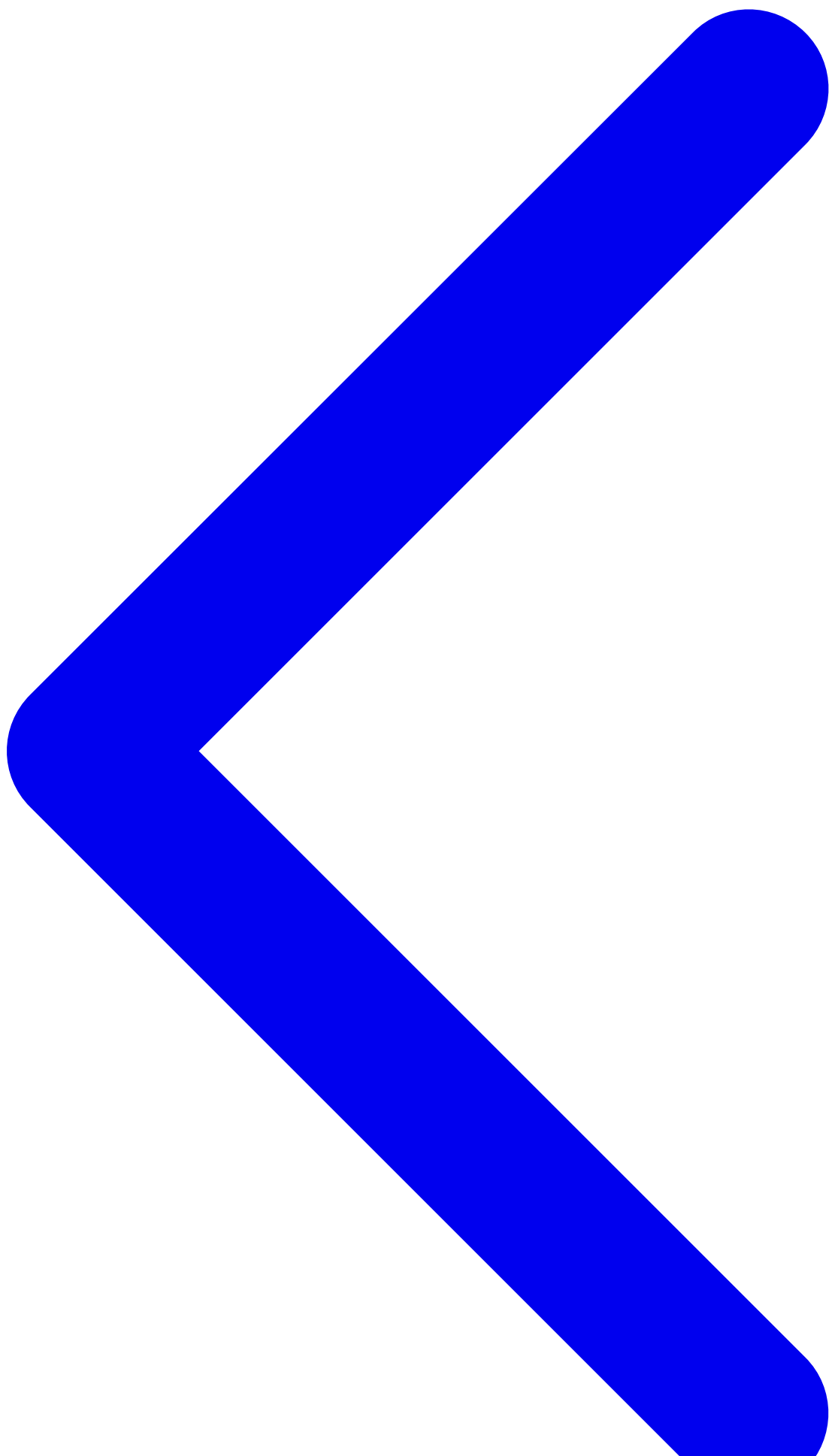
Vendor Model number Description

Econ e-CAM55_CUMI0521_MOD 5MP normal light fixed focus

Econ e-CAM21_CUMI290_MOD 2MP ultra-low-light fixed focus

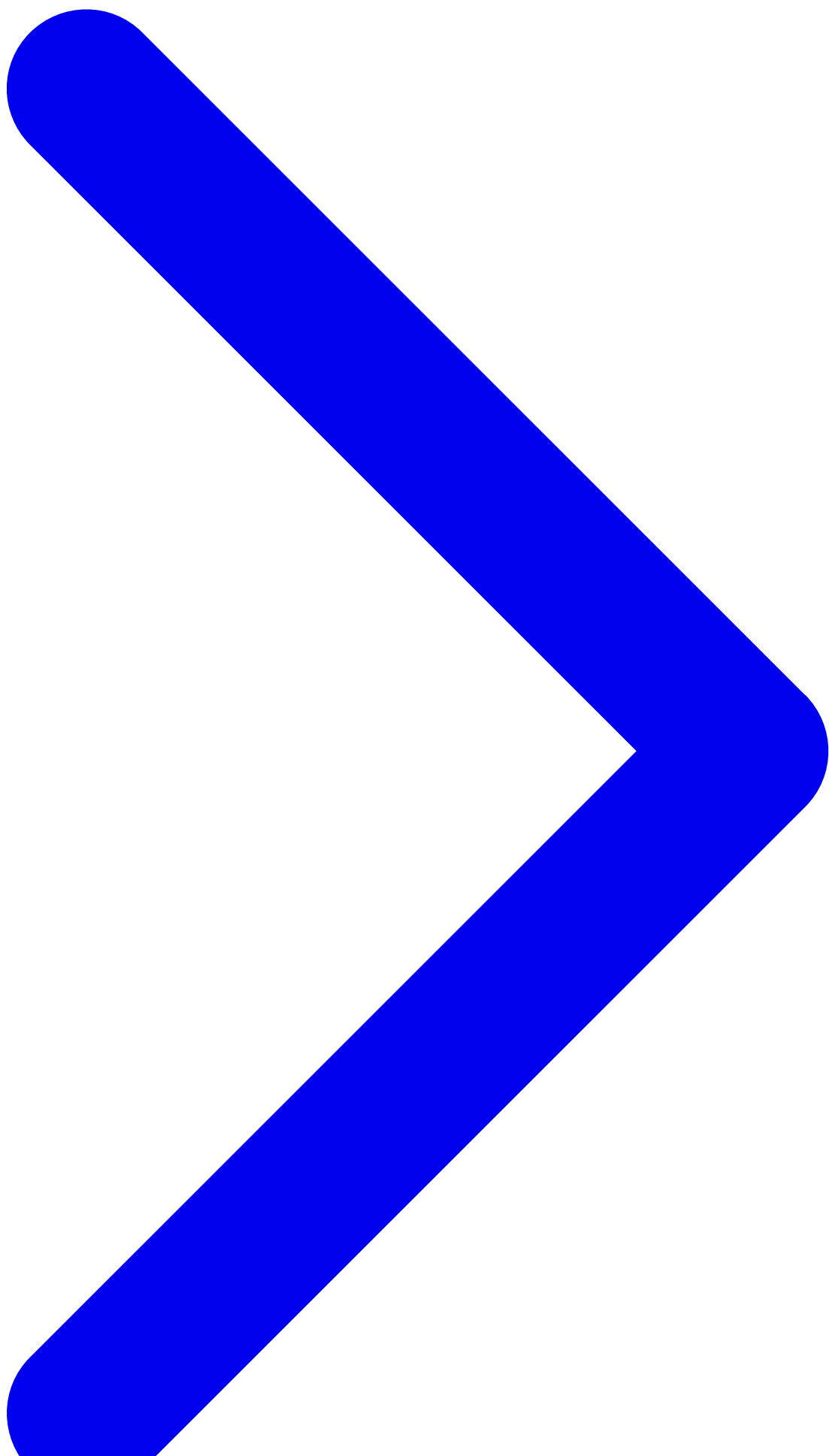
Econ e-CAM137A_CUMI1335_MOD 13MP normal light fixed focus

Front Panel Exposure: **NO, accessed by opening the TOP heat spreader plate**





[Previous](#) 7. JUMPER CONFIGURATION



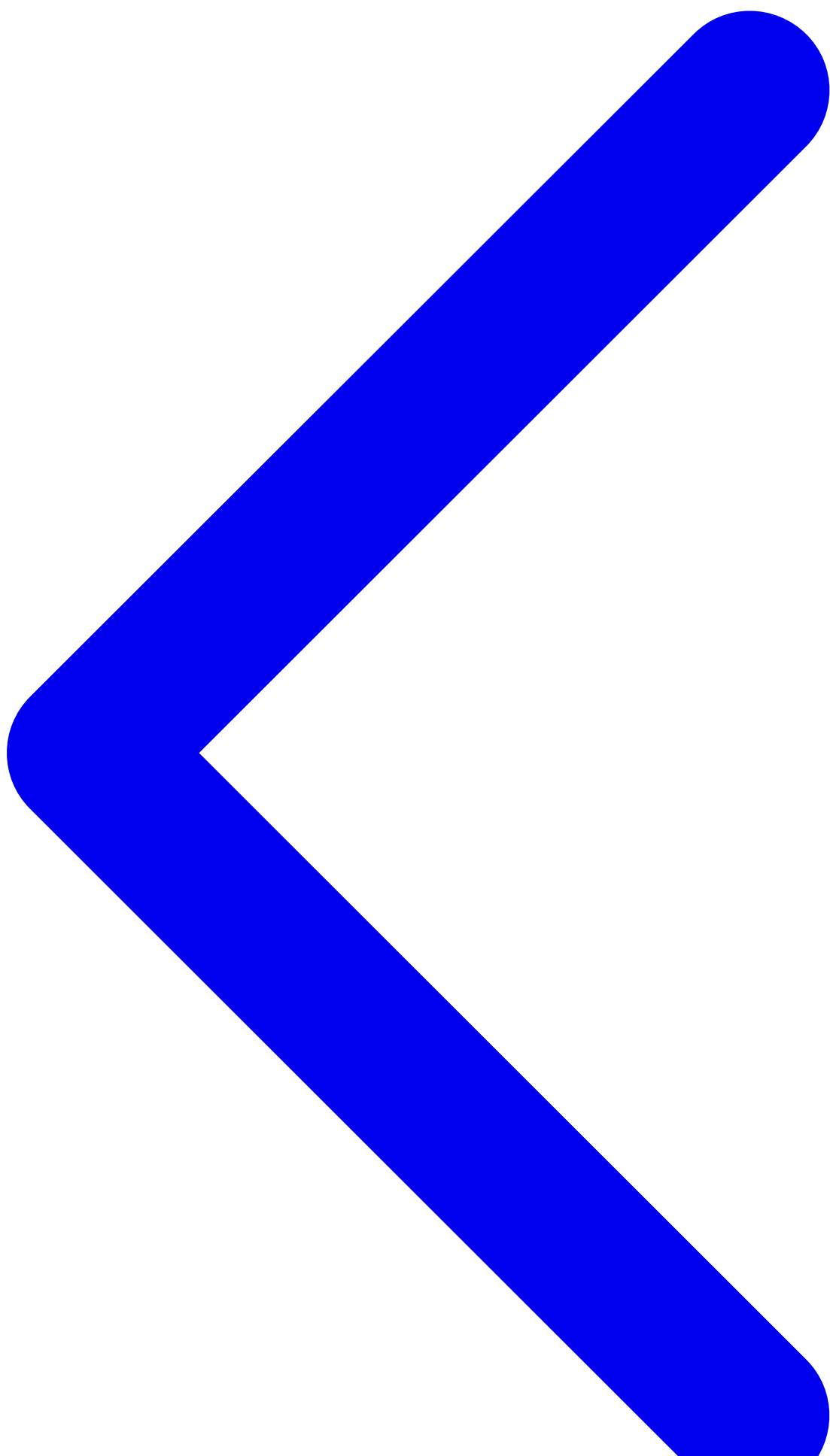


[Next9. I/O CONNECTOR LIST](#)

Last updated 5 years ago

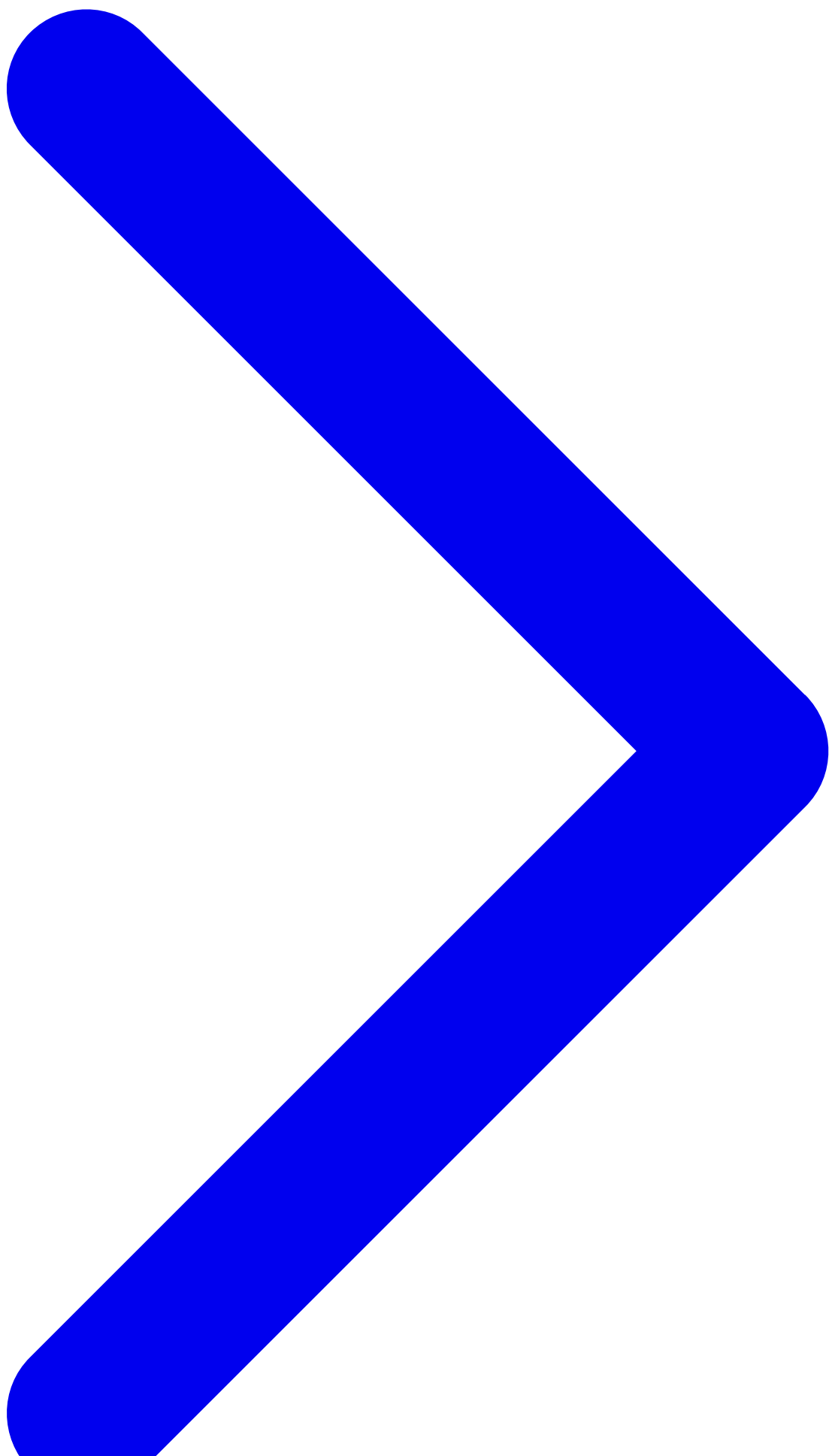
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[Previous8. CONNECTOR PINOUTS](#)





[Next10. EXPANSION CONNECTORS](#)

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The Jetbox-Floyd provides two additional DB9M sized cut outs on the front panel. These are named EXP 1 & EXP 2 respectively. The interfaces available on the Floyd carrier board can be conveniently wired & routed to one of these expansion sockets.

The default interfaces supported by the expansion sockets on different Jetbox-Floyd variants are as shown below:

Expansion Socket

JB-FLD-NAO-01

JB-FLD-NAO-02

JB-FLD-XNX-01

JB-FLD-XNX-02

EXP 1

PoE In

SER 2

PoE In

SER 2

EXP 2

DIO

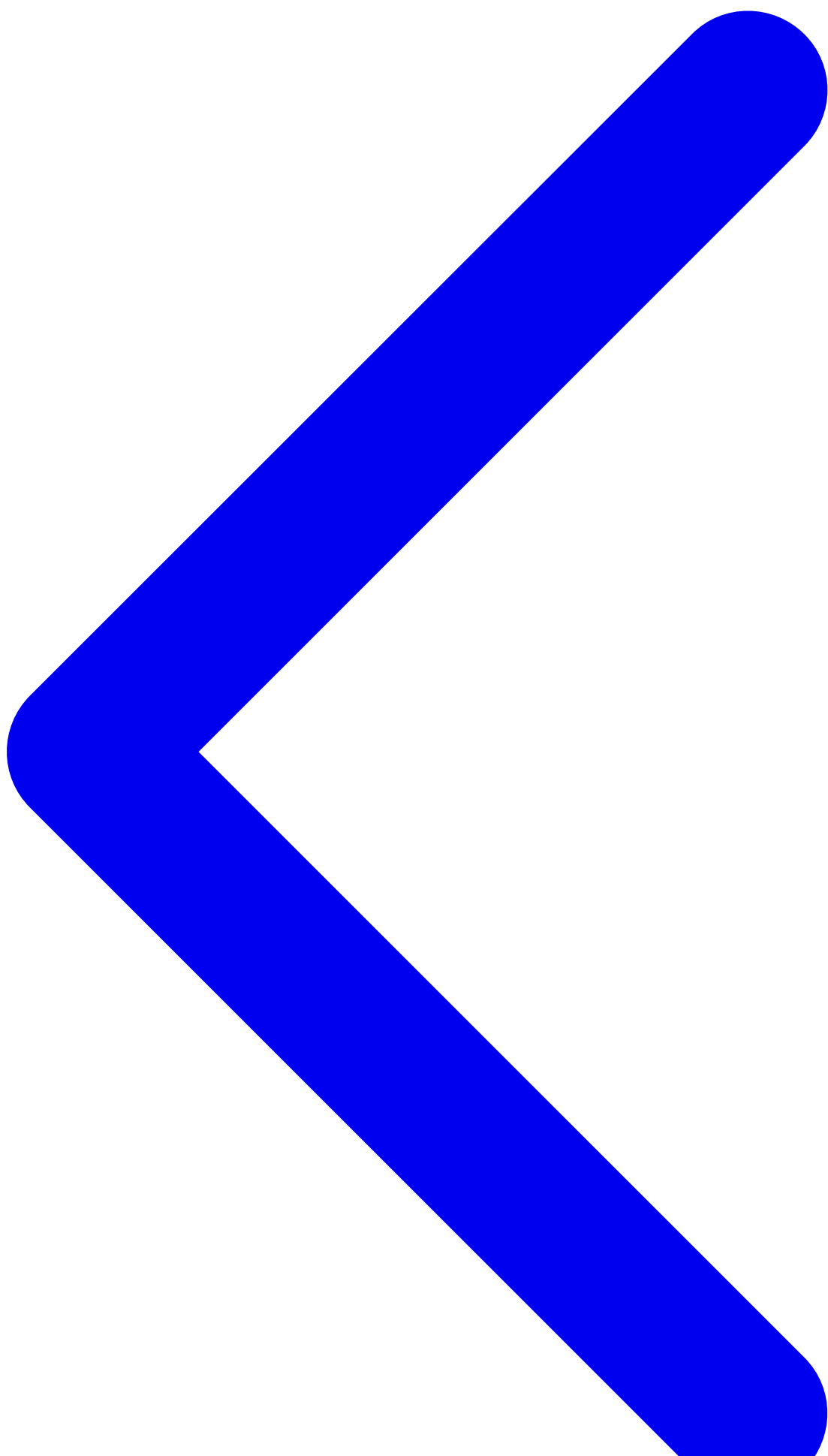
DIO

CAN

DIO

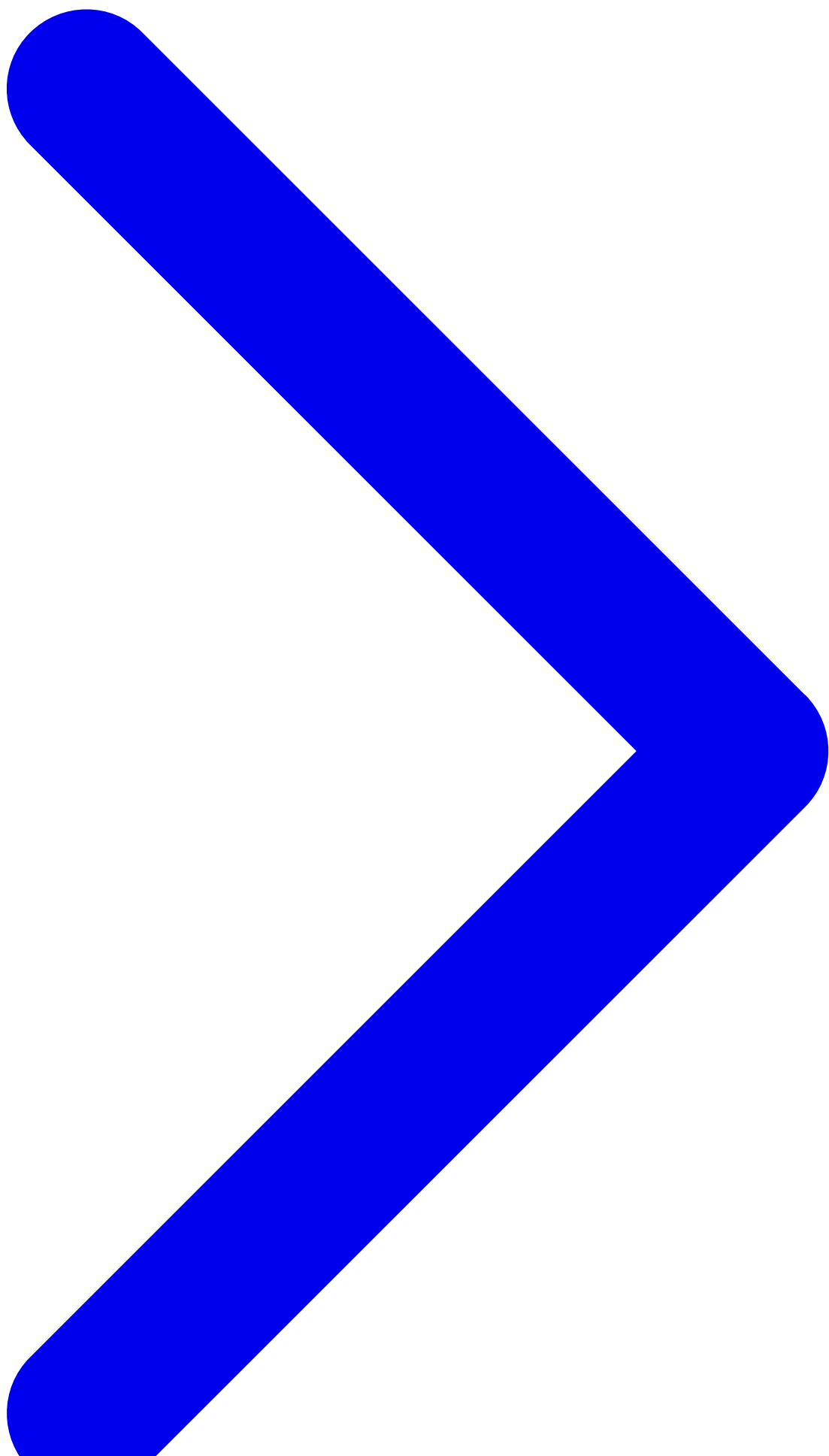
Various combinations of EXP 1 & EXP 2 terminations are possible. Contact Diamond Systems Corp Sales for more details.

The EXP 1 & EXP 2 sockets follow the pinouts as described in [Section 8](#).





[Previous9. I/O CONNECTOR LIST](#)





[Next11. POWER OVER ETHERNET](#)

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Jetbox-Floyd offers two PoE enabled ports. The Ethernet ports on Jetbox-Floyd are Power Sourcing Equipment (PSE) ports. The PSE enabled ports supply power to Powered Device (PD). The PSE supply required is supplied to the carrier board through a separate power connector.

When Jetbox-Floyd is connected to a PD and PoE power supplied, the PSE controller on Floyd carrier board negotiates the power required for the PD and enables the power. The power is overlaid over the data lines of the ethernet ports.

Jetbox-Floyd can independently negotiate with two separate PDs simultaneously. Jetbox-Floyd can power PoE devices to a maximum of up to 51W, 25.5W per port, provided the PoE input power supply can meet this power requirement.

Jetbox-Floyd PSE enabled ports are compliant to **802.3at Type 2 "PoE+"**. The characteristics of 802.3at Type 2 "PoE+" are provided below:



Property

802.3at Type 2 "PoE+"

Power available at PD

25.50 W

Maximum power delivered by PSE

30.0 W

Voltage range (at PSE)

50.0–57.0 V

Voltage range (at PD)

42.5–57.0 V

Maximum current I_{max}

600 mA

Maximum cable resistance per pairset

12.5 Ω

Power management

Four power class levels (1-4) negotiated by signature or 0.1 W steps negotiated by LLDP

Derating of maximum cable ambient operating temperature

5 °C (9 °F) with one mode (two pairs) active

Supported cabling

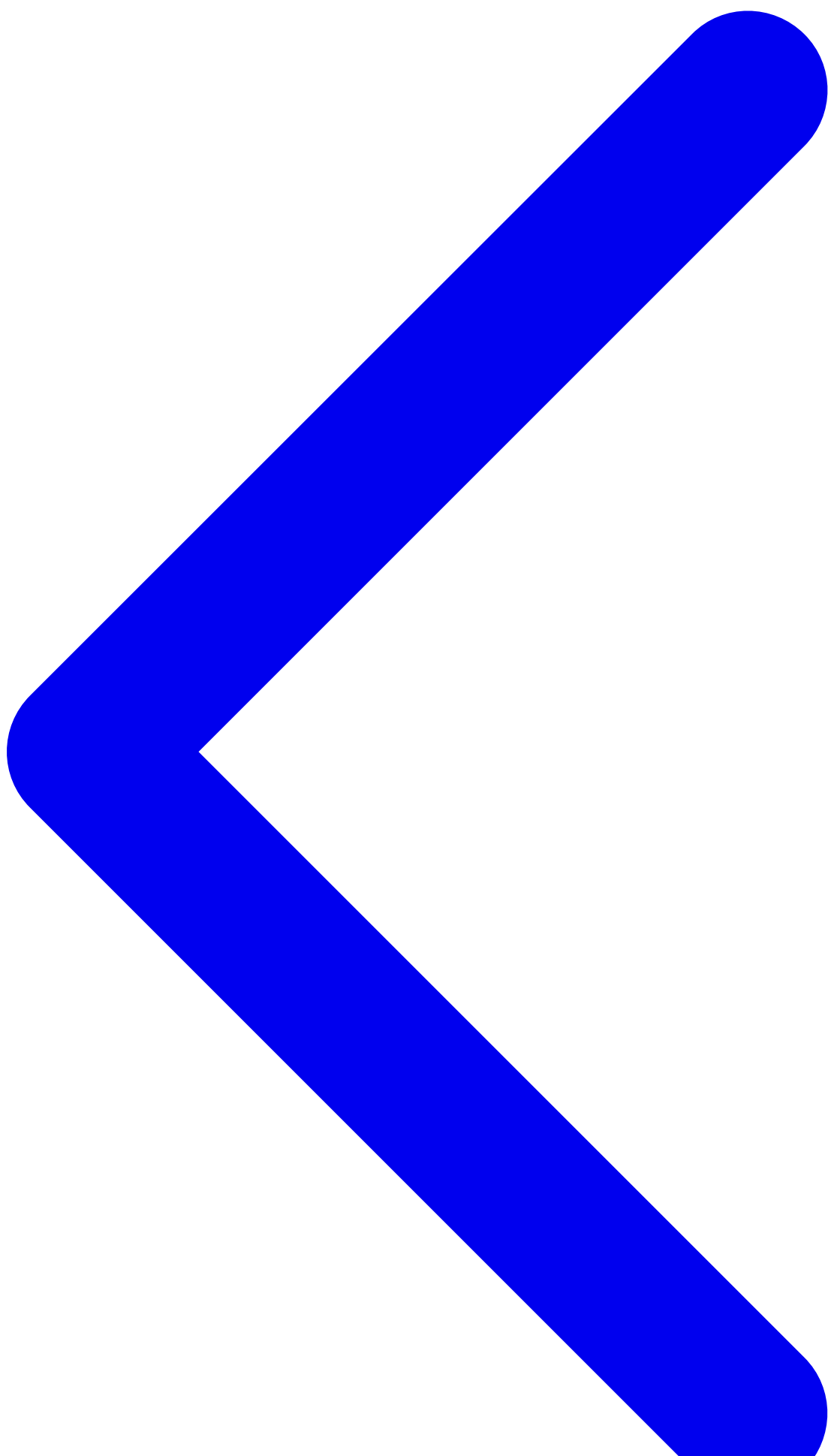
Category 5

Supported modes

Mode A, Mode B

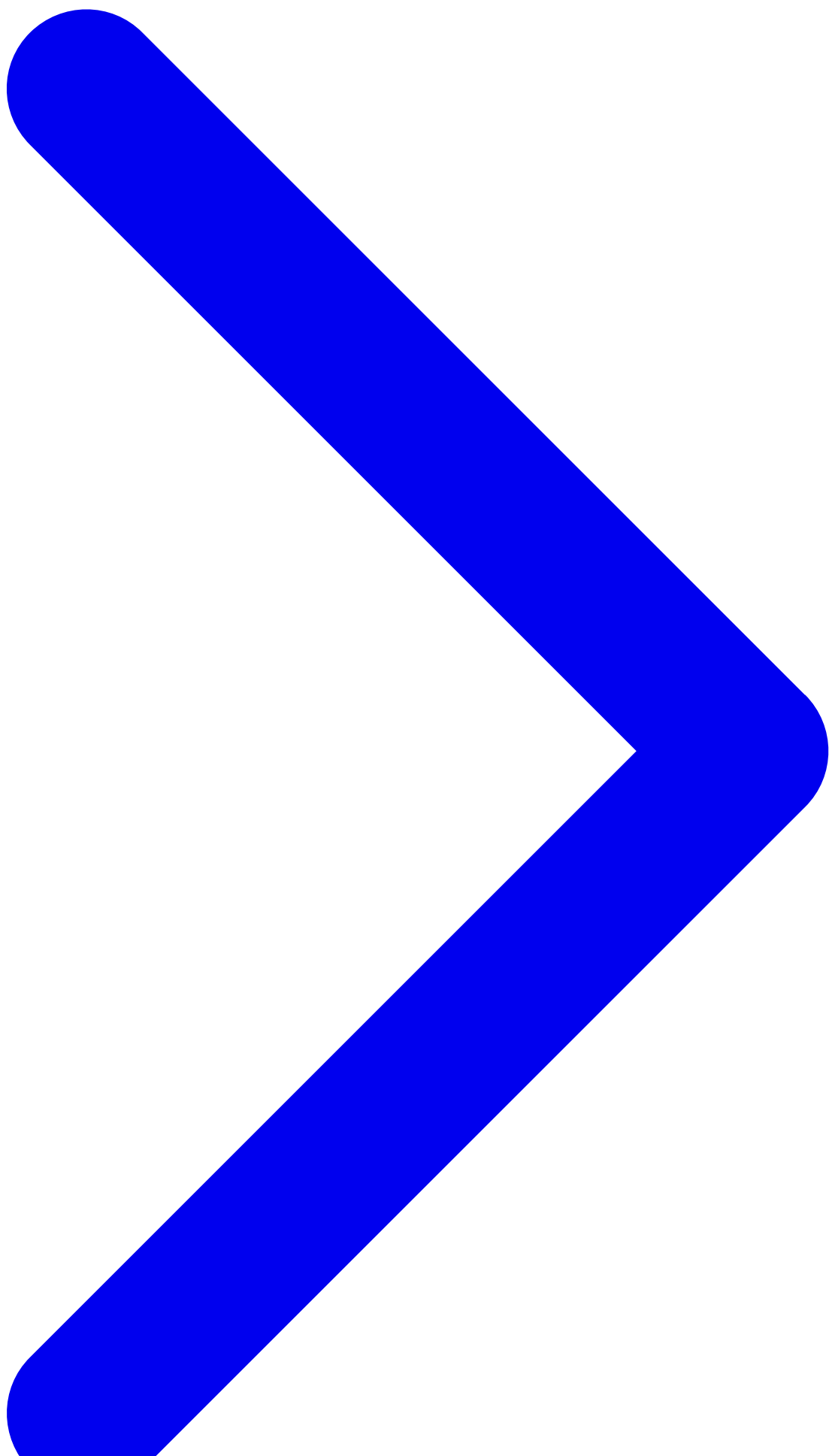
Jetbox-Floyd injects power in Mode A i.e. pins 1 & 2 are DC+ and pins 3 & 6 are DC- on the RJ45 jacks.

The PoE functionality is present in the 01 models only . The PoE input power connector is exposed optionally on the front panel.





[Previous](#) [10. EXPANSION CONNECTORS](#)





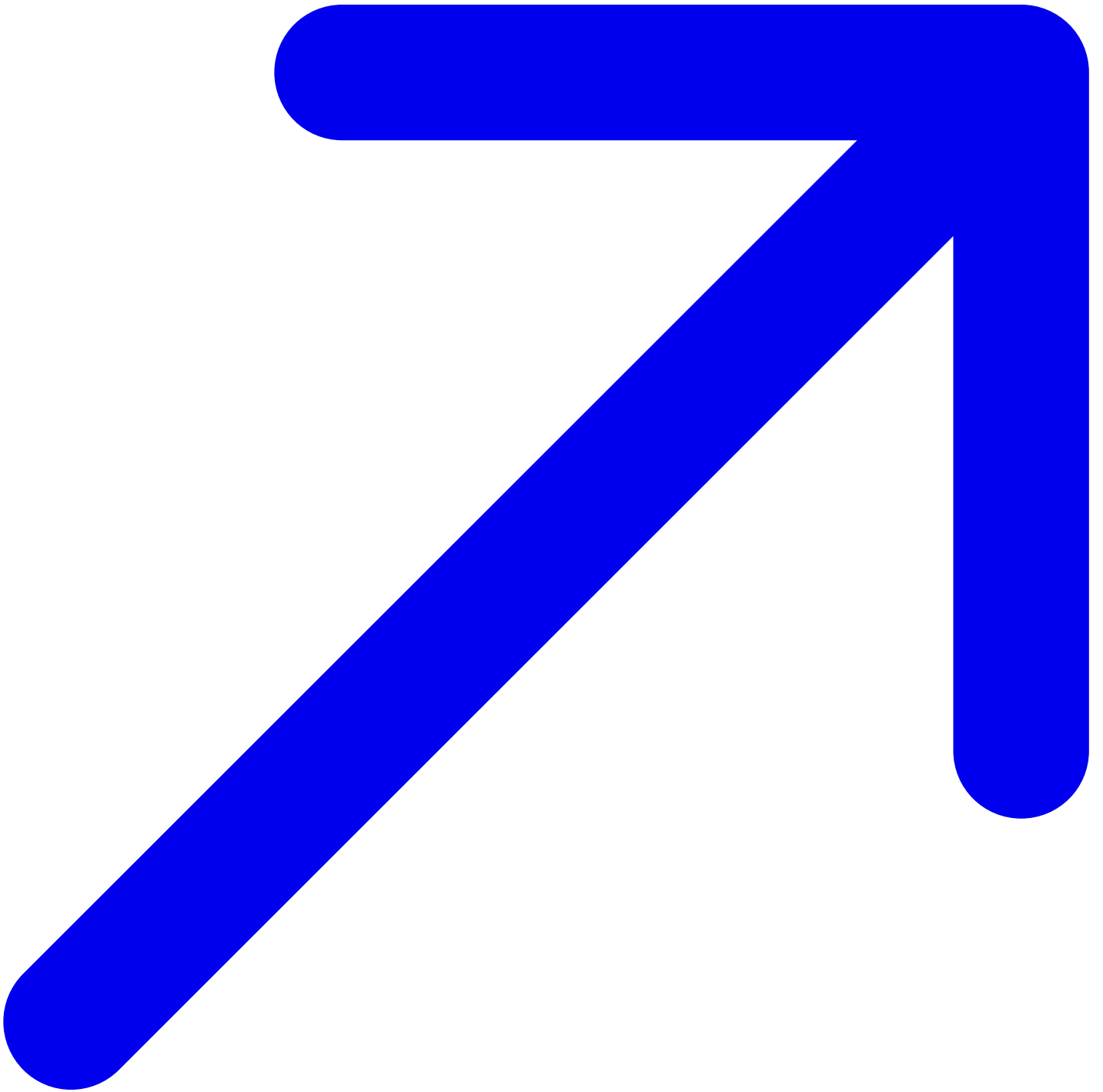
[Next12. GETTING STARTED](#)

Last updated 5 years ago

Was this helpful?

For the complete documentation index, see [llms.txt](#). This page is also available as [Markdown](#).

Jetbox-Floyd is shipped to our customers ready to work out of the box. A 12V DC adapter is included with the Jetbox-Floyd. The Jetson module, included with the Jetbox-Floyd is flashed with the latest BSP. However, it is highly recommended to check the Diamond System Corp website for any updated BSPs at <http://www.diamondsystems.com/products/floyd>

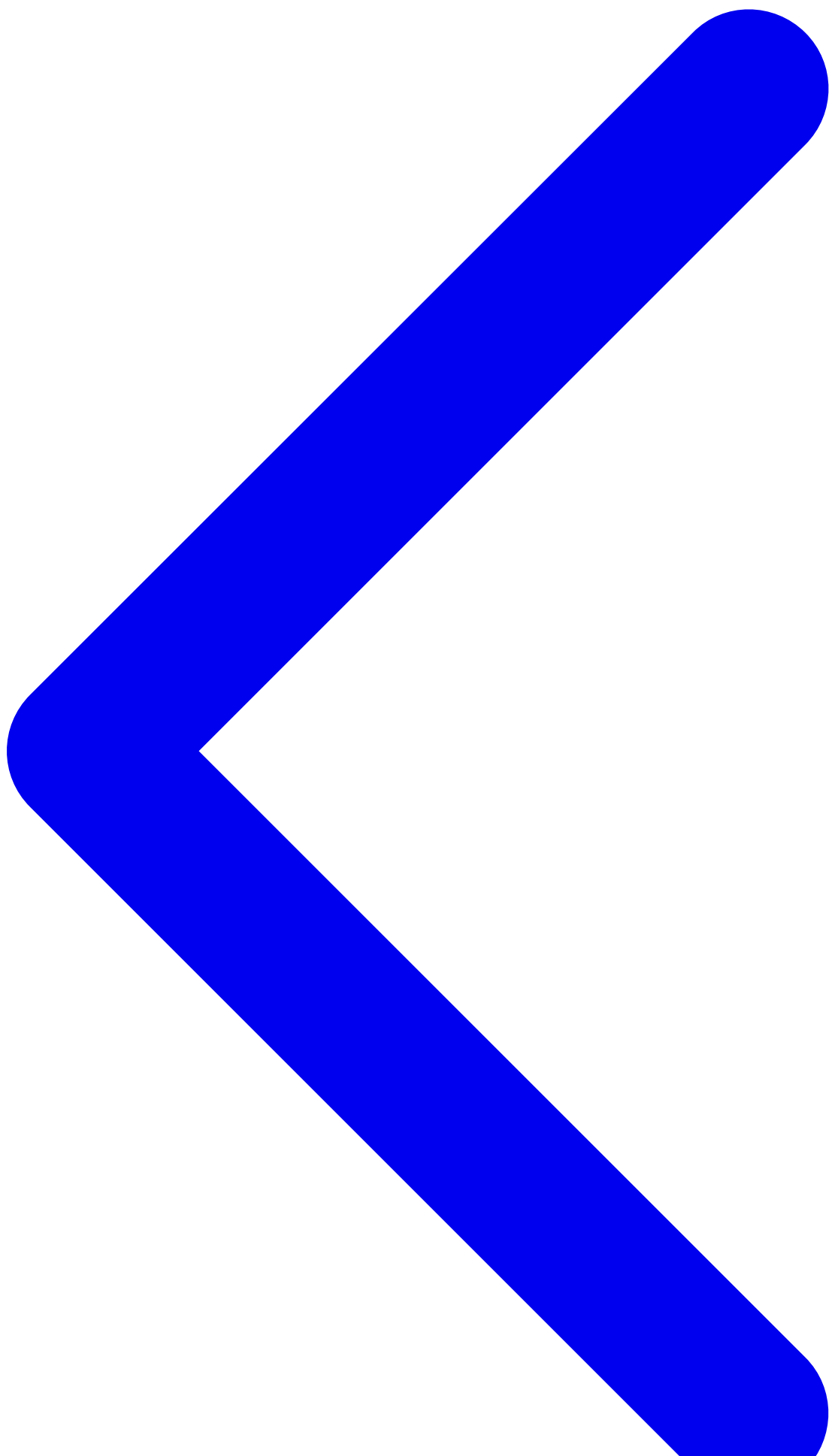


.

To get started with Jetbox-Floyd, a minimum of USB keyboard, USB mouse & an HDMI monitor are required.

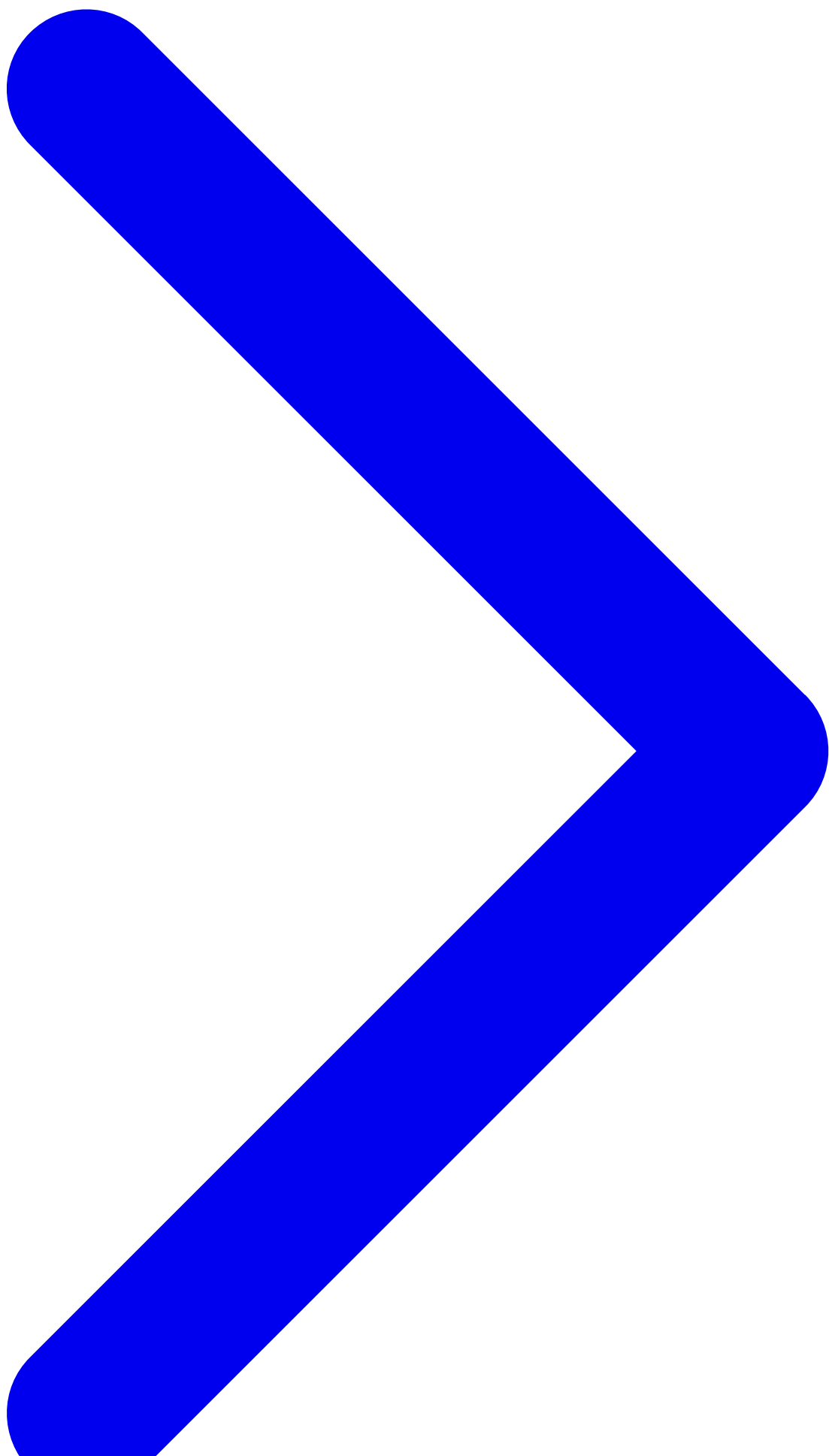
Follow the steps provided below for Jetbox-Floyd connections and booting to OS:

1. Connect the included 12V to V DC IN on front panel
2. Connect the USB keyboard & mouse to USB2.0 ports on the front panel
3. Connect the HDMI monitor to HDMI 1 on the front panel
4. Ensure that all the connections are in tact
5. Power ON the adapter and the module should now boot to OS
6. On the Linux Welcome screen, fill in the basic details like Username, password, date & time
7. The system boots to Ubuntu Desktop. Now, the system is set up & ready for further development





[Previous](#) [11. POWER OVER ETHERNET](#)





[Next13. SYSTEM ASSEMBLY](#)

Last updated 5 years ago

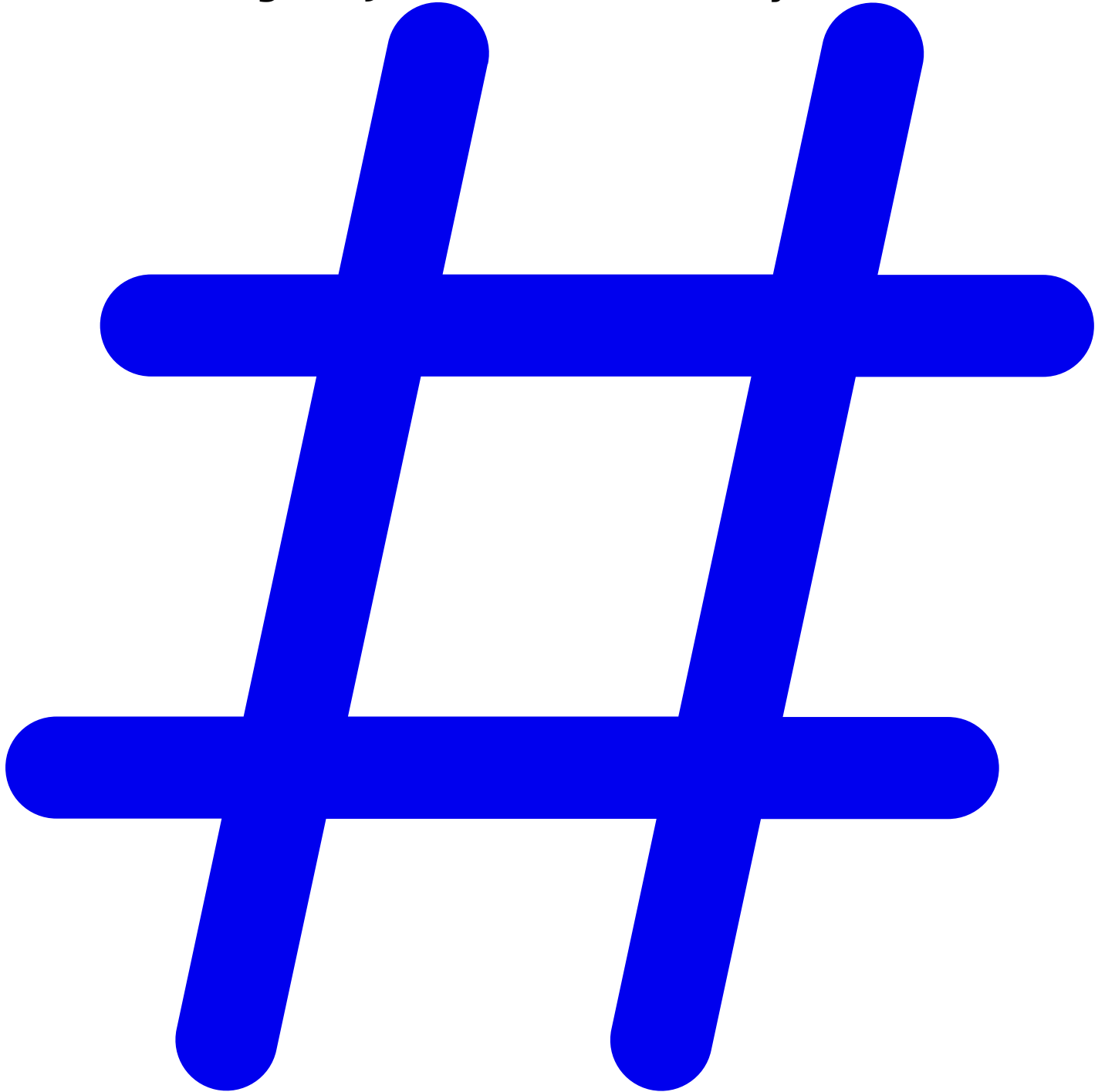
Was this helpful?

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Jetbox-Floyd assembly is basically split into two parts:

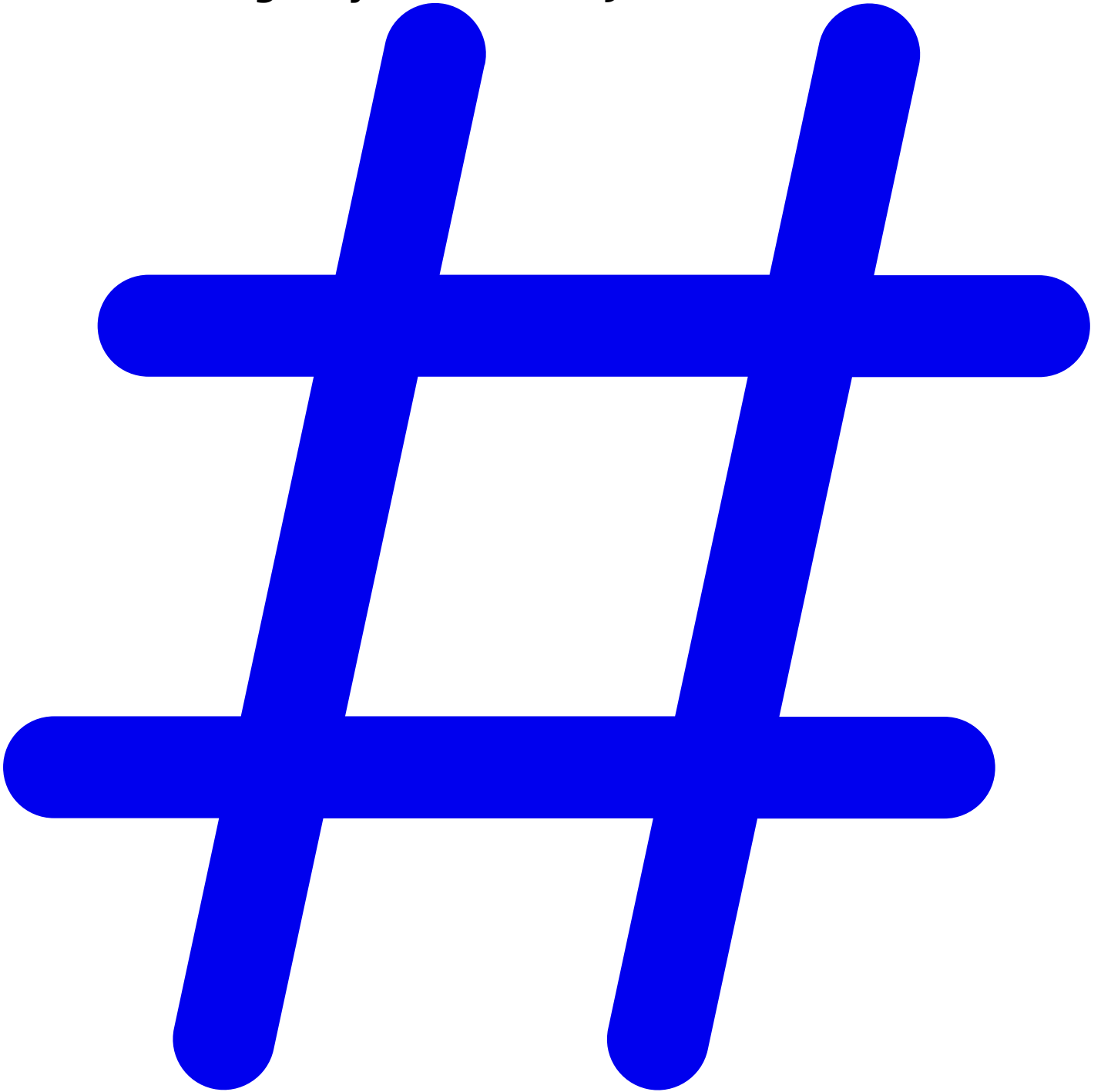
1. Installing the Jetson Module on Floyd
2. Installing Floyd inside the Jetbox

13.1 Installing the Jetson Module on Floyd



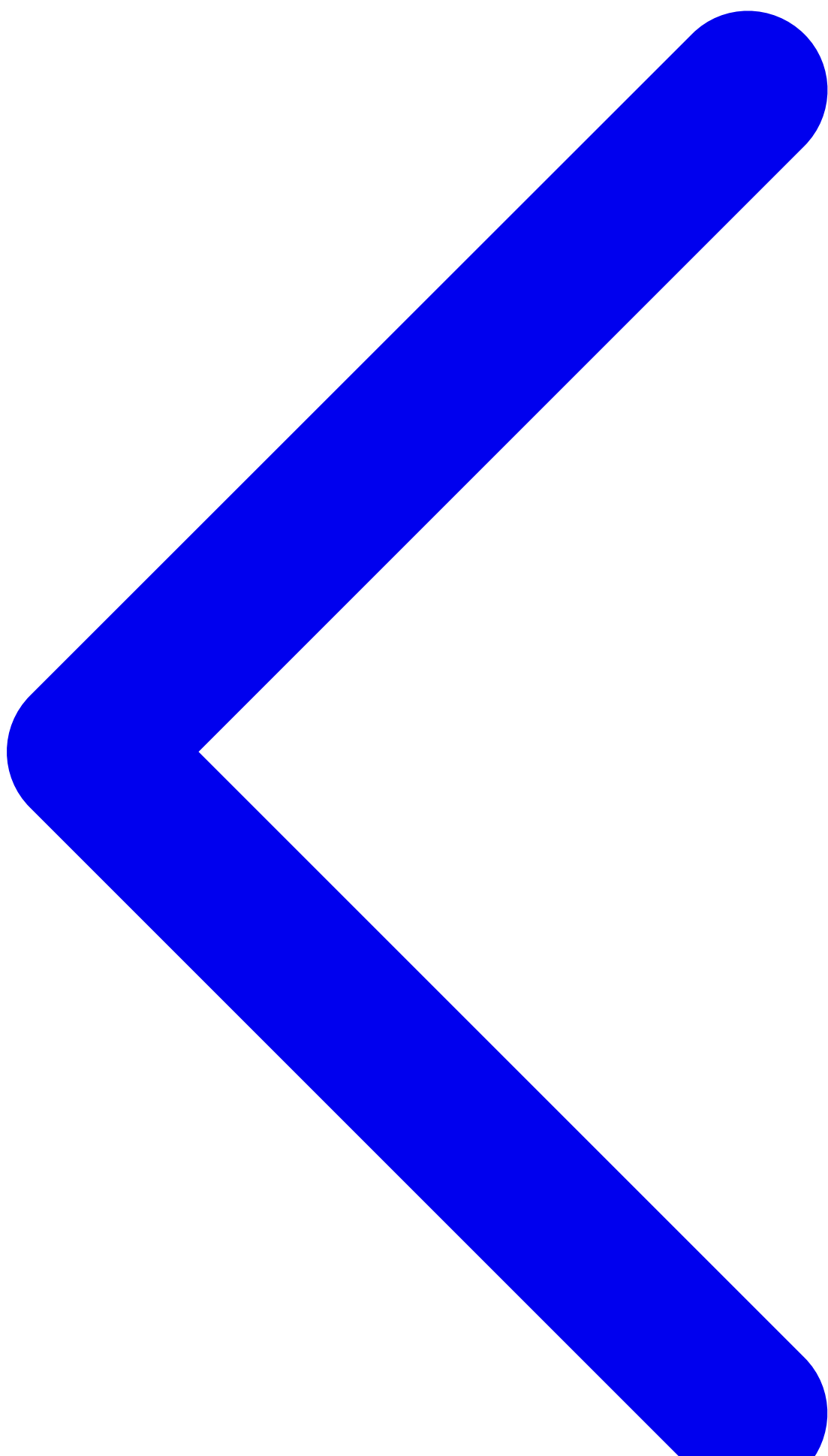
1. If not present on board, install 2 M2.5 x 6.5mm long spacers along board edge. See illustration below
 2. Insert module into socket at 45 degree angle. See illustration.
 3. Push down module so that both side latches click fully into position. The module PCB may have to be pushed down and module "clicks" into the connector.
- NOTE:** *The appearance of the module may differ depending upon the Jetson module installed.*

13.2 Installing Floyd inside the Jetbox



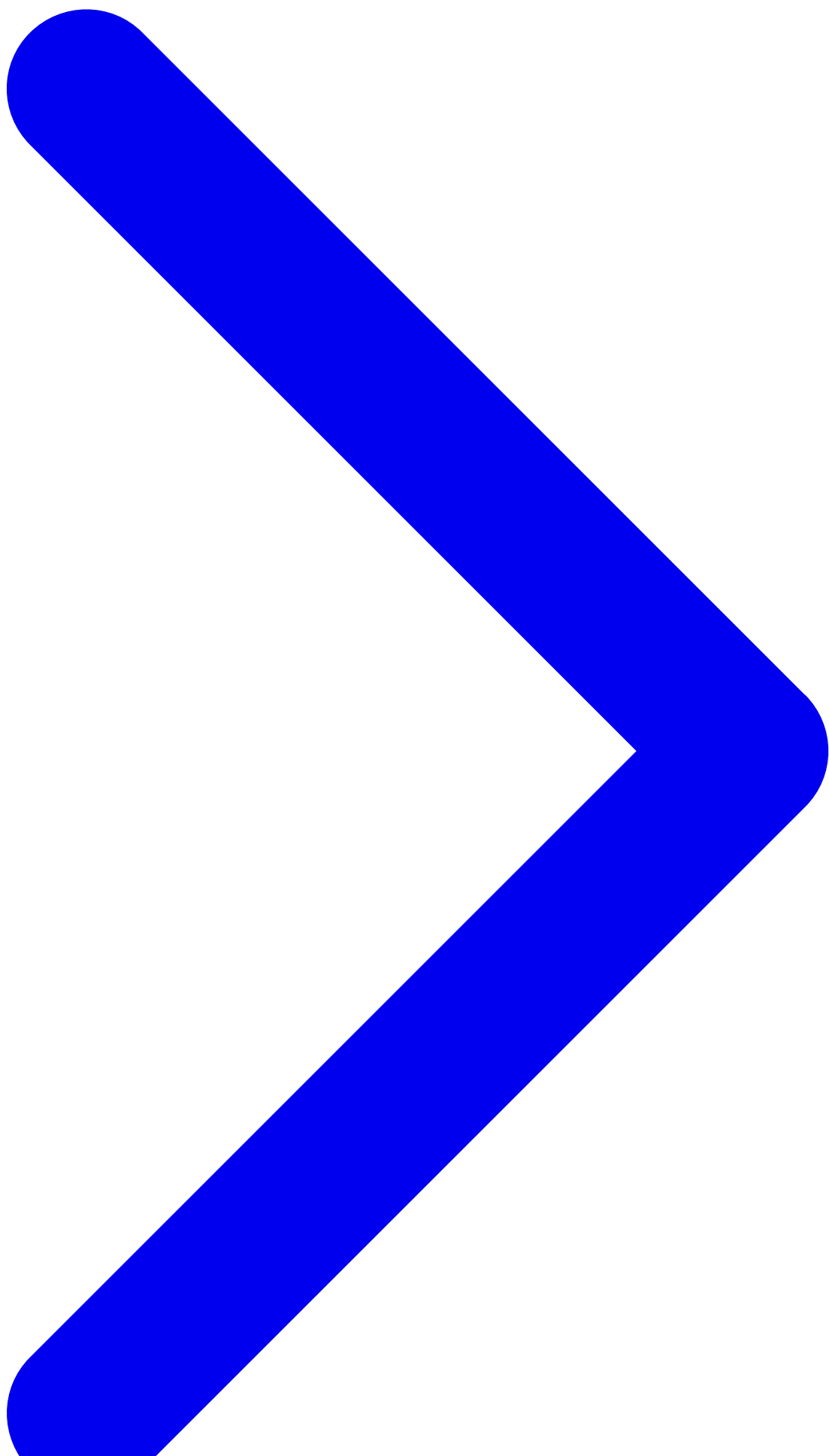
1. Place appropriate thermal pad for the Jetson module being used into appropriate location onto bottom of heat spreader. See illustration. The NX module uses the larger pad, while the Nano module uses the smaller one. Only one or the other pad is needed; discard unused pad. Remove one liner to place the pad onto the heat sink. Then remove the second liner before installing the heat spreader onto the module. If the thermal pad liner is not removed, the thermal performance of the heat sink will be greatly reduced. This is a common oversight.
2. Mount the heat spreader on top of the assembled Floyd board. Use 4x M2.5x10 pan head screws to fix the heat spreader on the assembled Floyd.
3. Insert the assembled Floyd board with the heat spreader mounted on top into the enclosure. Check the connector alignment on the front panel of the enclosure.
4. Install the Floyd assembly to the enclosure bottom with 4x M3X6 pan head screws.

5. Place heat spreader over module, aligning mounting holes with the 4 spacers on Floyd. Press down gently.
6. Place the 44 x 34mm sized thermal pad on top of the heat spreader.
7. If a front panel unused cable needs to be replaced, follow steps as below or skip to step 8
 1. Remove the unused existing cable from the front panel
 2. Connect the new required cable on the front panel
 3. Connect the cable to appropriate cable on the board
8. Align the heat sink plate onto the enclosure holes & screw down the heat sink plate to the enclosure with 4x M3x6 pan head screws.





[Previous](#)[12. GETTING STARTED](#)





[Next14. REPROGRAMMING THE EMBEDDED LINUX IMAGE](#)

Last updated 5 years ago

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Jetson modules run a customized Linux operating system enhanced to work with the multi-core ARM processors and the GPU features unique to the module. The Linux operating system, referred to here as a board support package (BSP), is programmed into the built-in eMMC flash memory on the module. The stock module coming from distribution does not have any software programmed into it and must be programmed prior to use.

Diamond offers a separate BSP for both Nano and NX modules running on Floyd. These BSPs are based on the NVIDIA stock BSP R32.3.1 & R32.4.3 for Jetson Nano & Xavier NX respectively released by NVIDIA.

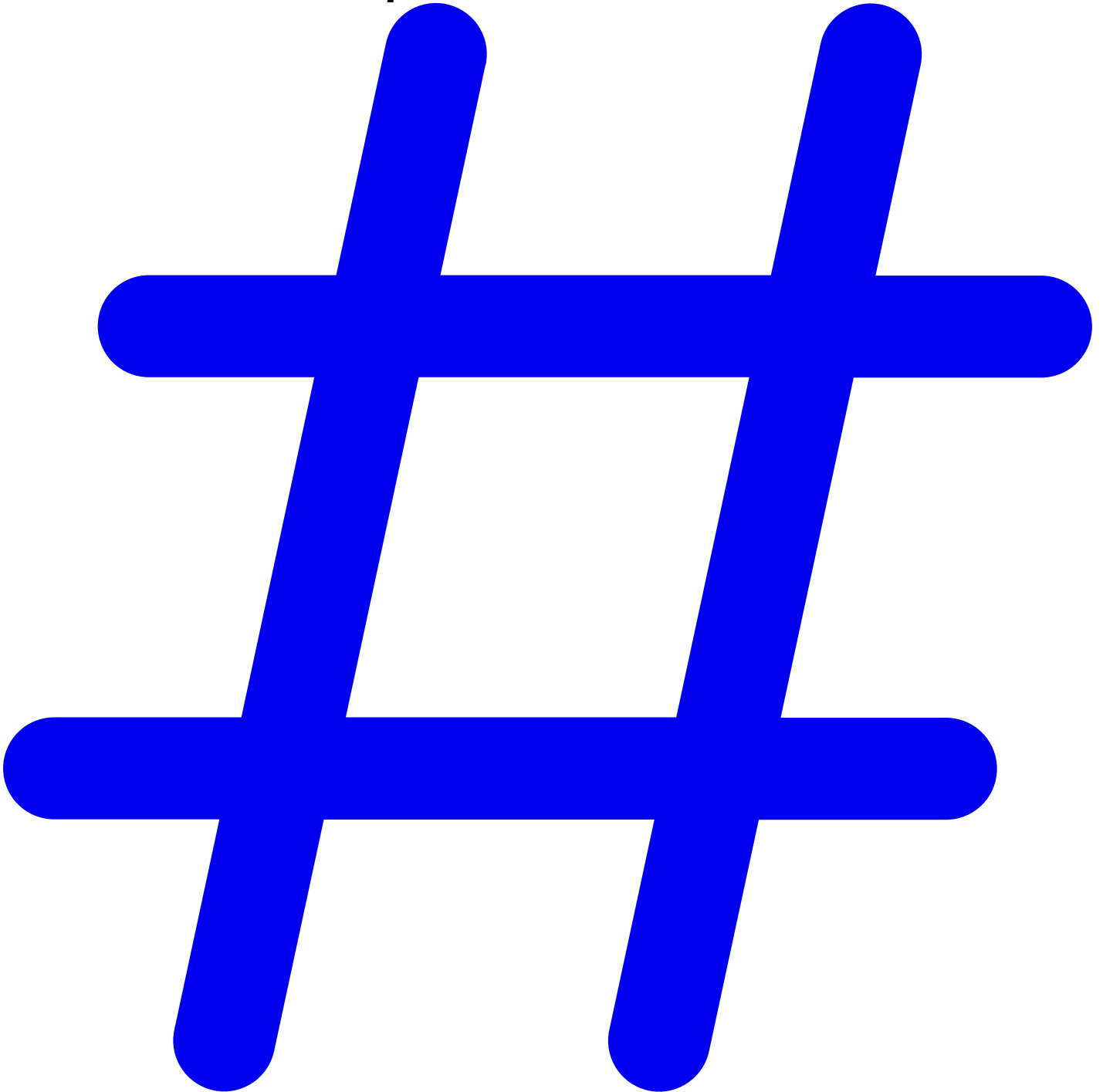
The following table shows the latest Diamonds BSP installed into the corresponding modules along with other details:

The following is a list of interface feature enhancements added to the stock BSP:

1. Added support and utilities for RS-232/422/485 serial port interfaces
2. Added driver support for E-Con cameras
3. Added utilities for camera connector interfaces, J12, J13, and J14
4. Added USB2.0 port 1 Host mode support
5. Added utility for I2C GPIO expander
6. Added support for MicroSD Card socket
7. Added User LED control

The Diamond Systems BSP is released as a compressed tar.gz file, that can be unzipped on a Linux Host Machine and flashed onto the Jetson Nano and Xavier Modules.

14.1 Hardware Setup



To update the image on the module, the Floyd carrier board must be set to Recovery Mode.

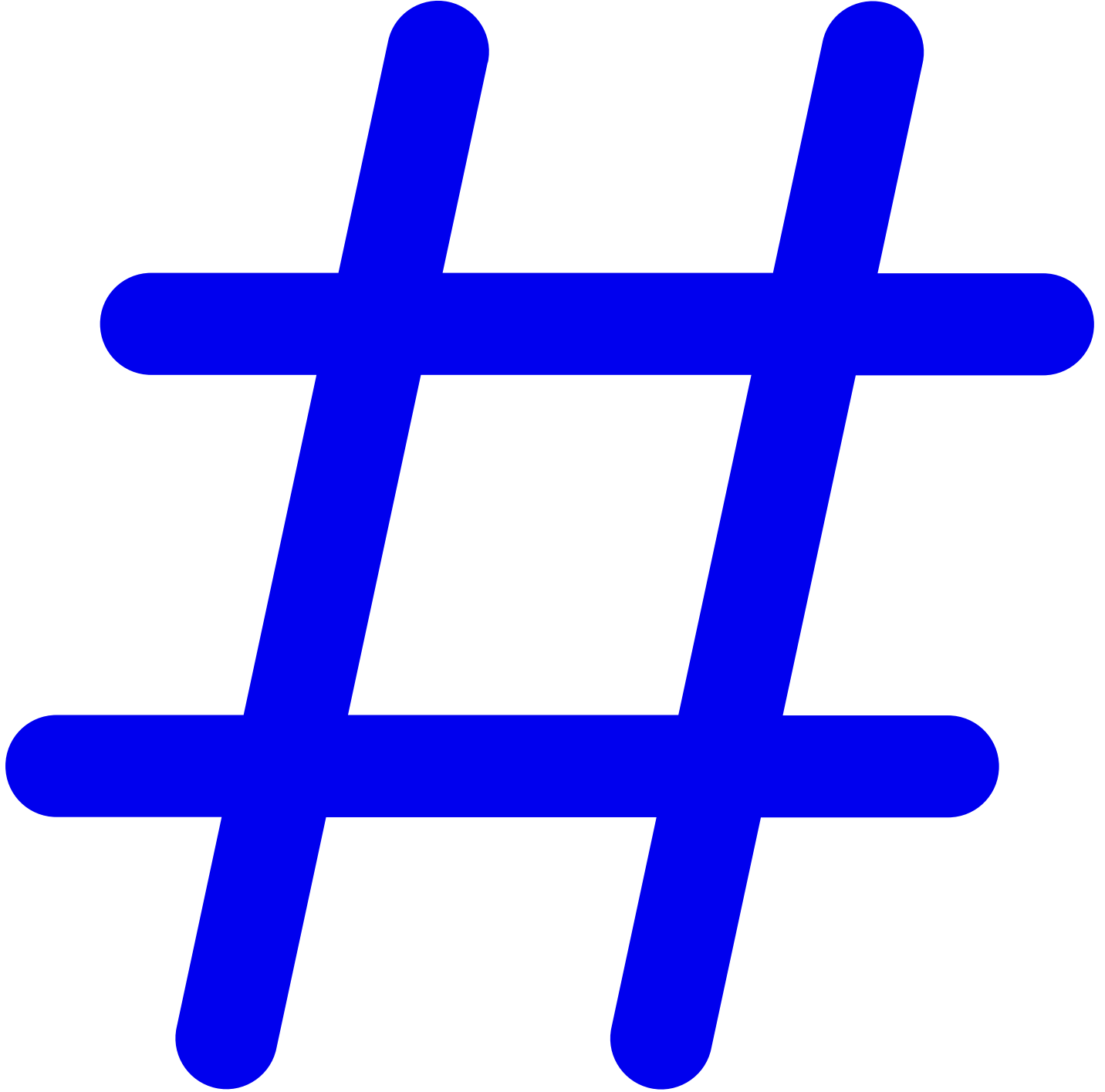
1. Remove the TOP heat spreader plate to access the jumpers on the Floyd carrier board
2. Remove the jumper on H from JP3 & mount it on D on JP3 as shown in [Section 7.3 JP3: Select USB2.0 - 1 Mode](#) to operate the USB2.0 port 1 as a device
3. Connect the USB 2.0 Top Port 1 J4 to the Host Linux PC using an USB A2A cable.
4. Start the system by pressing the RECOVERY (SW1) button while powering up the board.
5. To verify that board is in recovery mode: In the Host PC running Ubuntu version 16.04 terminal application. Issue the following command:

lsusb.

If the module successfully enters into RECOVERY MODE, the terminal in the Linux host machine should list Nvidia Corp device. See illustration below:

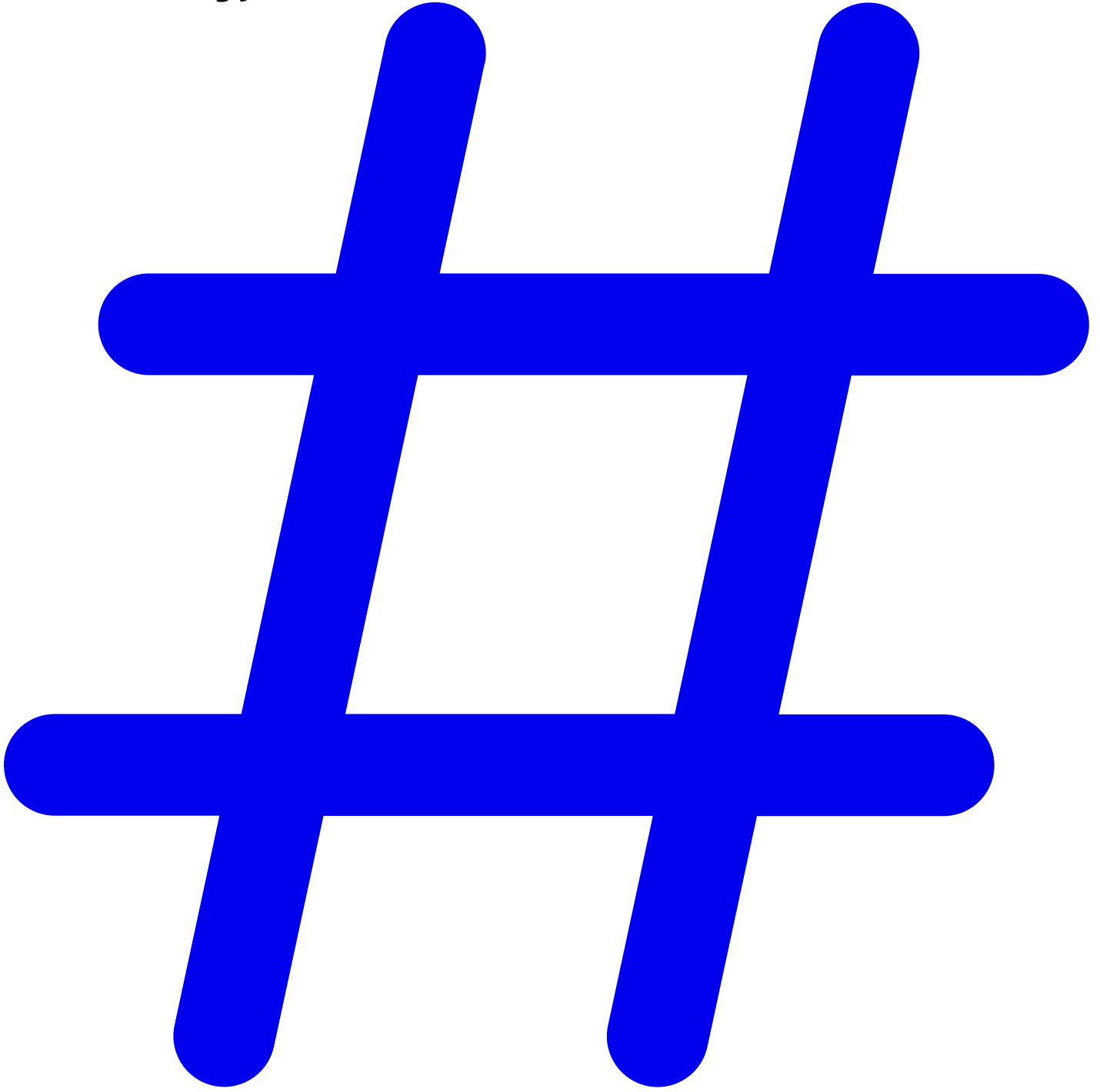
The Terminal application will display the NVIDIA device listed under USB devices as depicted in the screen above that confirms that the system is in Recovery Mode and the module is ready to be flashed with the BSP Image.

14.2 Software Setup



Follow the steps provided below corresponding to the installed module.

14.2.1 Flashing Jetson Nano Module



1. Download the BSP Image file DSC-Floyd-Nano-release-2.0-20201016.tar.gz, from the FTP site and copy it to a directory on the Linux Host Machine.

Alternatively, the file may be copied to a different source such as the Desktop.

2. Issue the following command to navigate to the directory containing the downloaded file:

```
cd ~/Desktop
```

To unzip the copied Image file:

3. Issue the following command depicted below.

```
sudo tar -pxvzf DSC-Floyd-Nano-release-2.0-20201016.tar.gzx
```

It may take a few minutes for the file to unzip.

NOTE: *The tar.gz file name is liable to change according to the version and release date.*

To switch to the directory where the file has been extracted:

4. Issue the following command as depicted below:

```
cd Linux_for_Tegra
```

To flash the Jetson Nano Module:

5. Issue the following command as depicted below:

```
sudo ./flash.sh jetson-nano-emmc mmcblk0p1
```



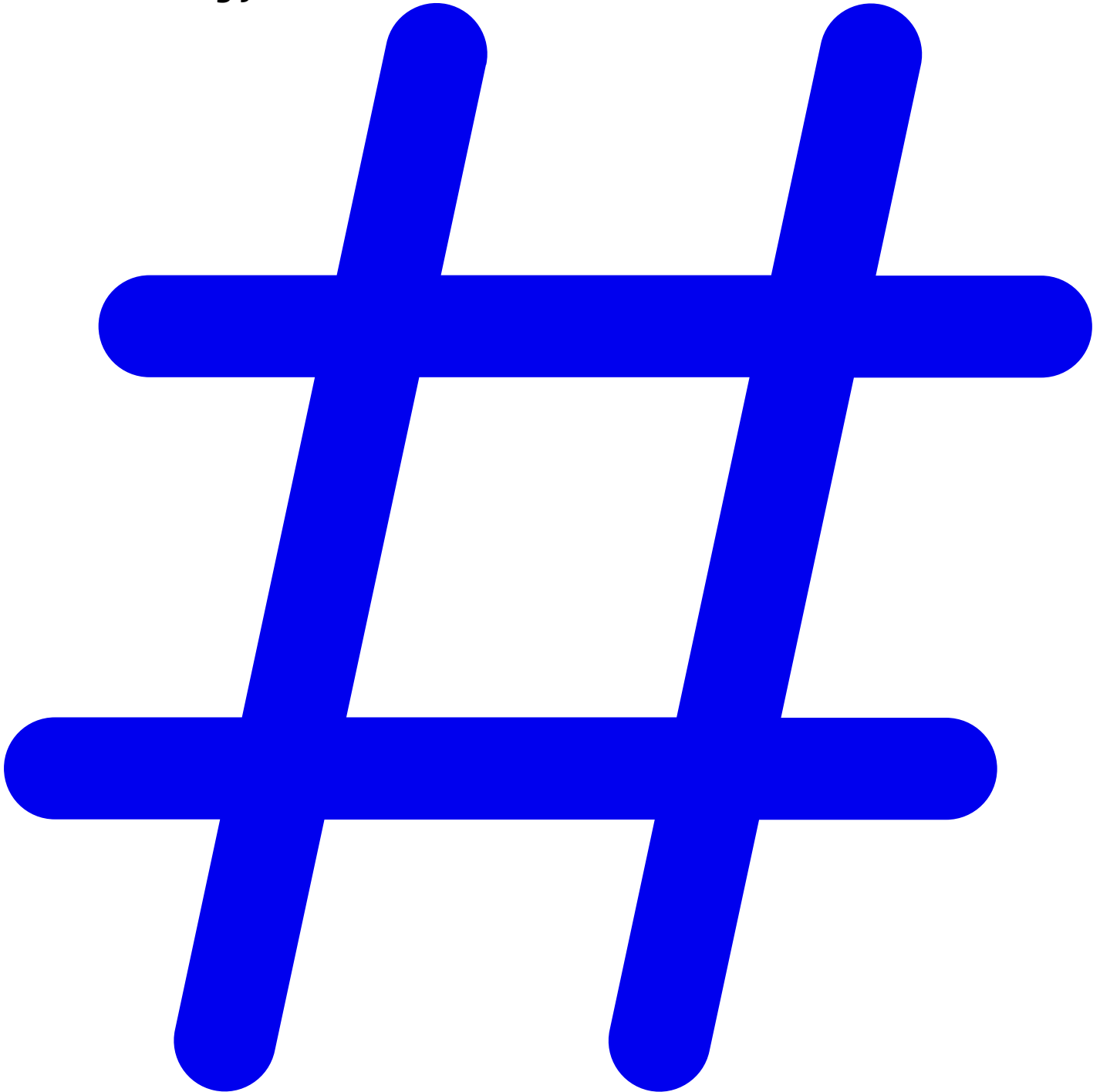
Do not interrupt or interfere with the USB connectivity or the power supply to the carrier board until the flashing procedure is complete

The flashing process will take 15-20 minutes to complete.

The system will automatically Reboot when the flashing process is complete.

6. Shutdown the system and remove the recovery mode USB cable connection.
7. Remove the jumper on D from JP3 & mount it on H on JP3 as shown in [Section 7.3 JP3: Select USB2.0 - 1 Mode](#) to operate the USB2.0 port 1 as a HOST
8. Switch on the power supply; now the system should boot to Linux Desktop

14.2.1 Flashing Jetson Xavier NX Module



1. Download the BSP Image file dsc-floyd-nx-release-2.0-20201022.tar.gz from the FTP site and copy it to a directory on the Linux Host Machine.

Alternatively, the file may be copied to a different source such as the Desktop.

2. Navigate to the directory containing the downloaded file, by using the following command:

```
cd ~/Desktop
```

To unzip the copied Image file:

3. Issue the following command depicted below:

```
sudo tar -pxvzf dsc-floyd-nx-release-2.0-20201022.tar.gz
```

It may take a few minutes for the file to unzip.

NOTE: *The tar.gz file name is liable to change according to the version and release date.*

To switch to the directory where the file has been extracted:

4. Issue the following command as depicted below:

```
cd LinuxforTegra
```

To flash the Jetson Xavier NX Module:

5. Issue the following command as depicted below:

```
sudo ./flash.sh jetson-xavier-nx-devkit-emmc mmcblk0p1
```



Do not interrupt or interfere with the USB connectivity or the power supply to the carrier board until the flashing procedure is complete

The flashing process will take 15-20 minutes to complete.

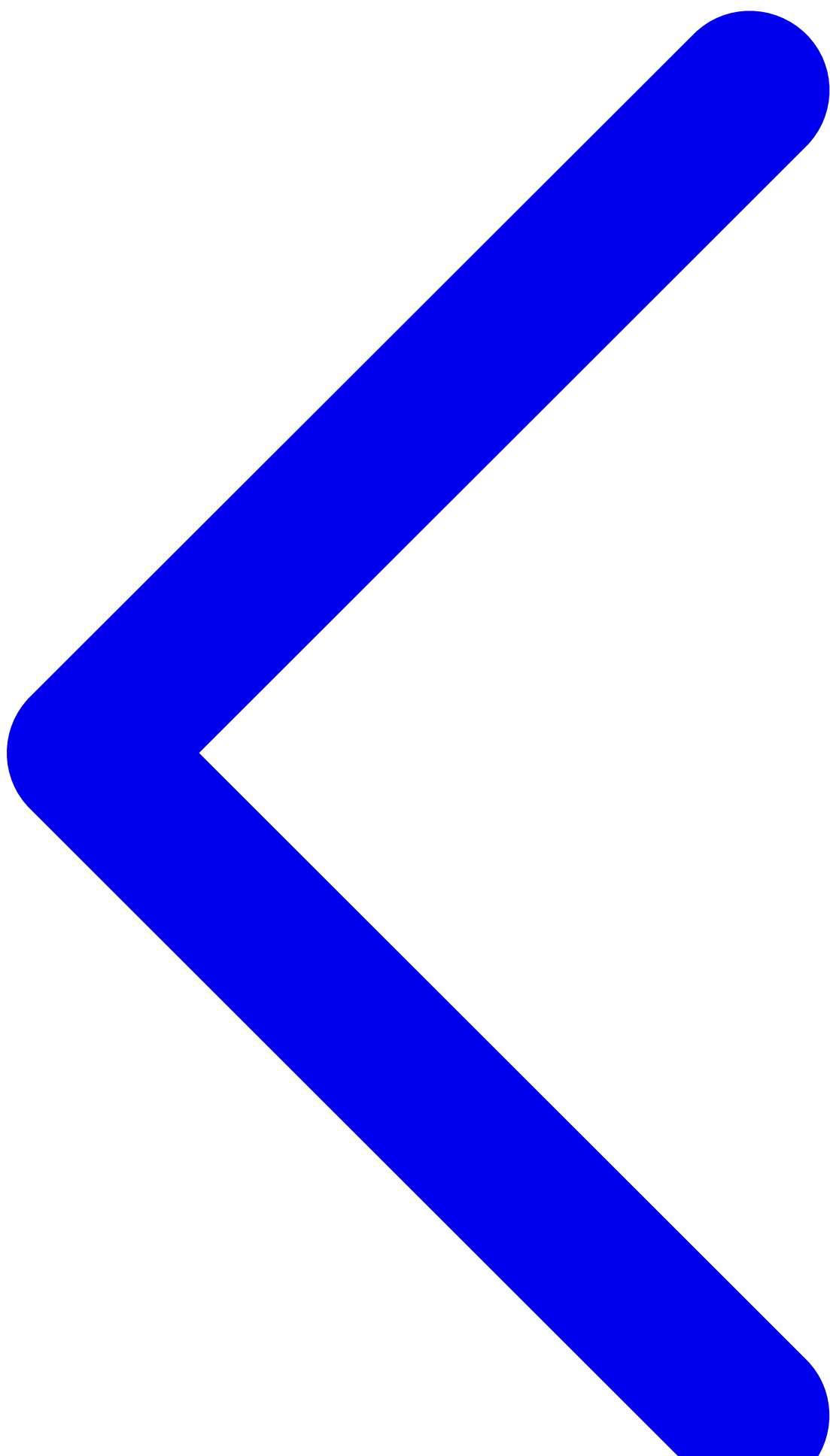
The system will automatically Reboot when the flashing process is complete.

6. Shutdown the carrier board and remove the recovery mode USB cable connection.

7. Remove the jumper on D from JP3 & mount it on H on JP3 as shown in [Section 7.3 JP3: Select USB2.0 - 1 Mode](#) to operate the USB2.0 port 1 as a HOST

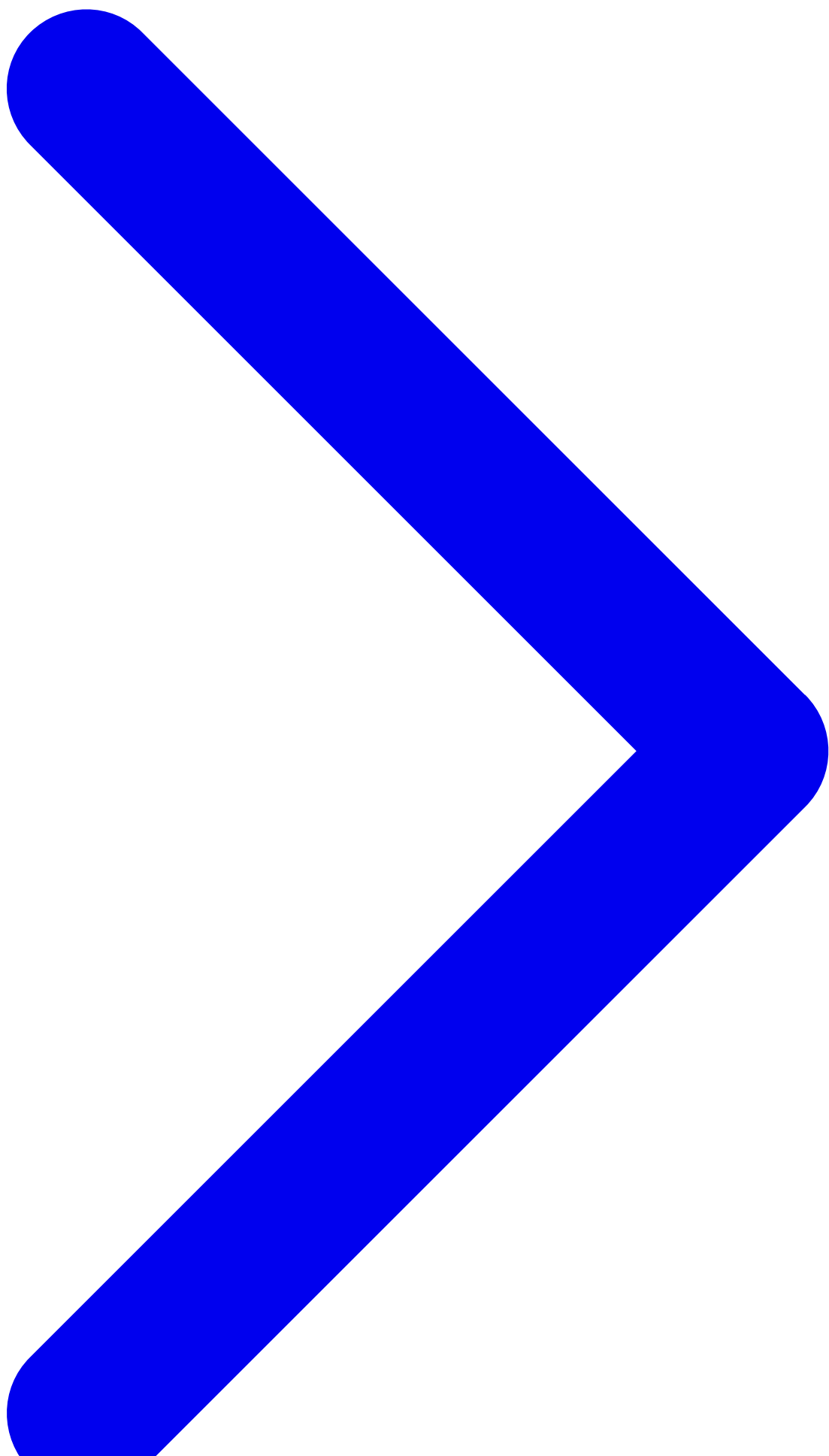
8. Switch on the power supply; now the system should boot to Linux Desktop

With the BSP package installed, the Jetbox-Floyd is ready for application development.





[Previous](#) [13. SYSTEM ASSEMBLY](#)





[Next15. DIGITAL I/O](#)

Last updated 5 years ago

Was this helpful?

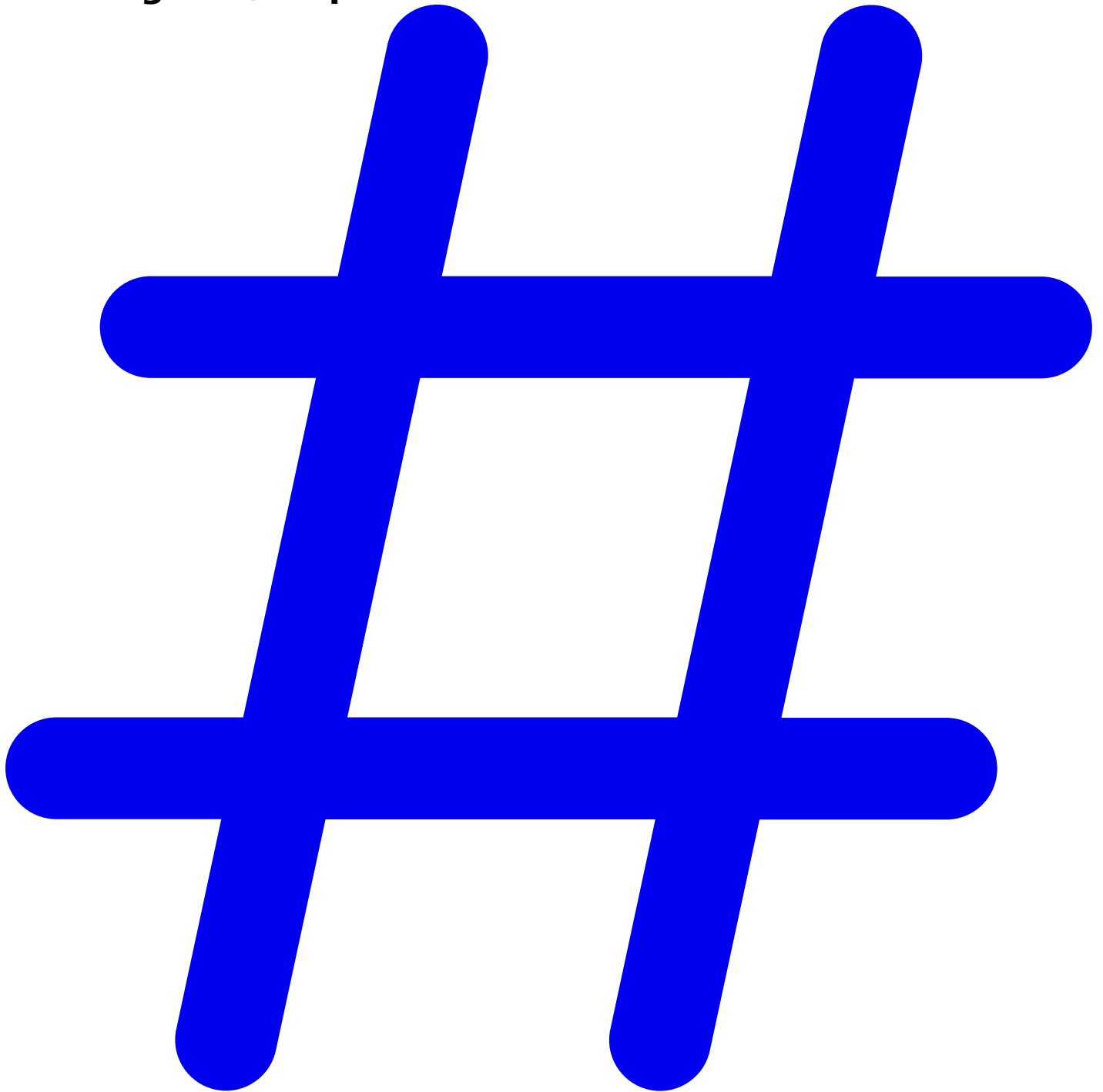
For the complete documentation index, see [llms.txt](#). This page is also available as [Markdown](#).

Jetbox-Floyd provides 8 GPIOs optionally exposed on the front panel at connector EXP 2. Refer to [Section 8.8 Digital I/Os \(EXP 2\)](#) for connector pinouts.

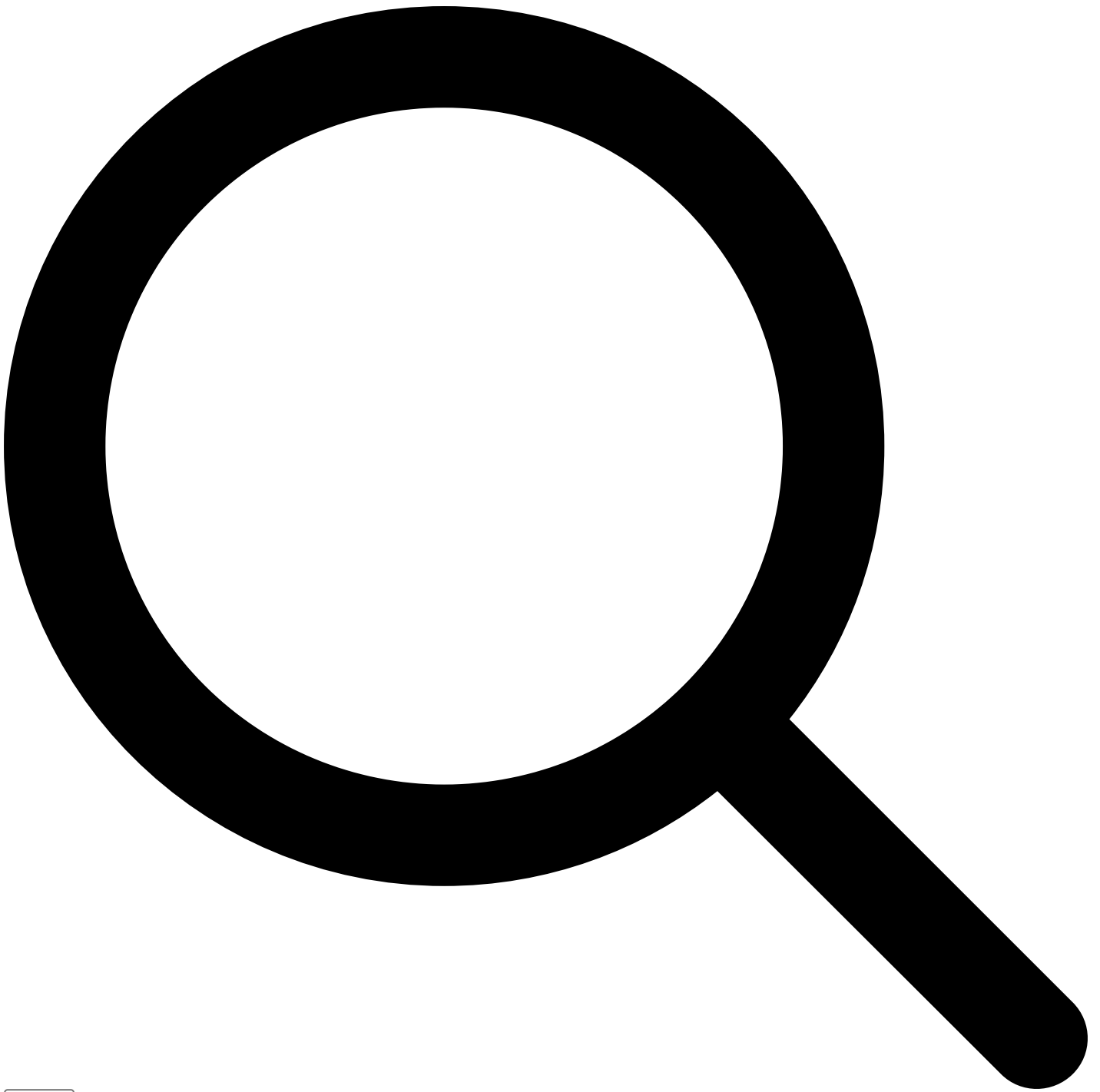
The DIOs on the JETBOX-FLOYD is realized using I2C to GPIO expander.

The I2C GPIO expander can be addressed at 0x70 on on the bus /dev/i2c-0.

15.1 Digital I/O Specifications



The DIOs on Jetbox-Floyd are 3.3V output compliant & 5V input tolerant. The logic specifications are as follows:



Search

Digital I/O Specifications

Device

TCA9538

Number of Lines

8

Direction

Programmable bit by bit

Logic levels

3.3V nominal outputs, 5V tolerant inputs

Pull resistors

10K ohms +/-1%; Jumper-selectable pull-up/down

Input voltage

Logic 0:

-0.5V min, 0.66V max

Logic 1

2.64V min, 5.5V max

Output Voltage

Logic 0:

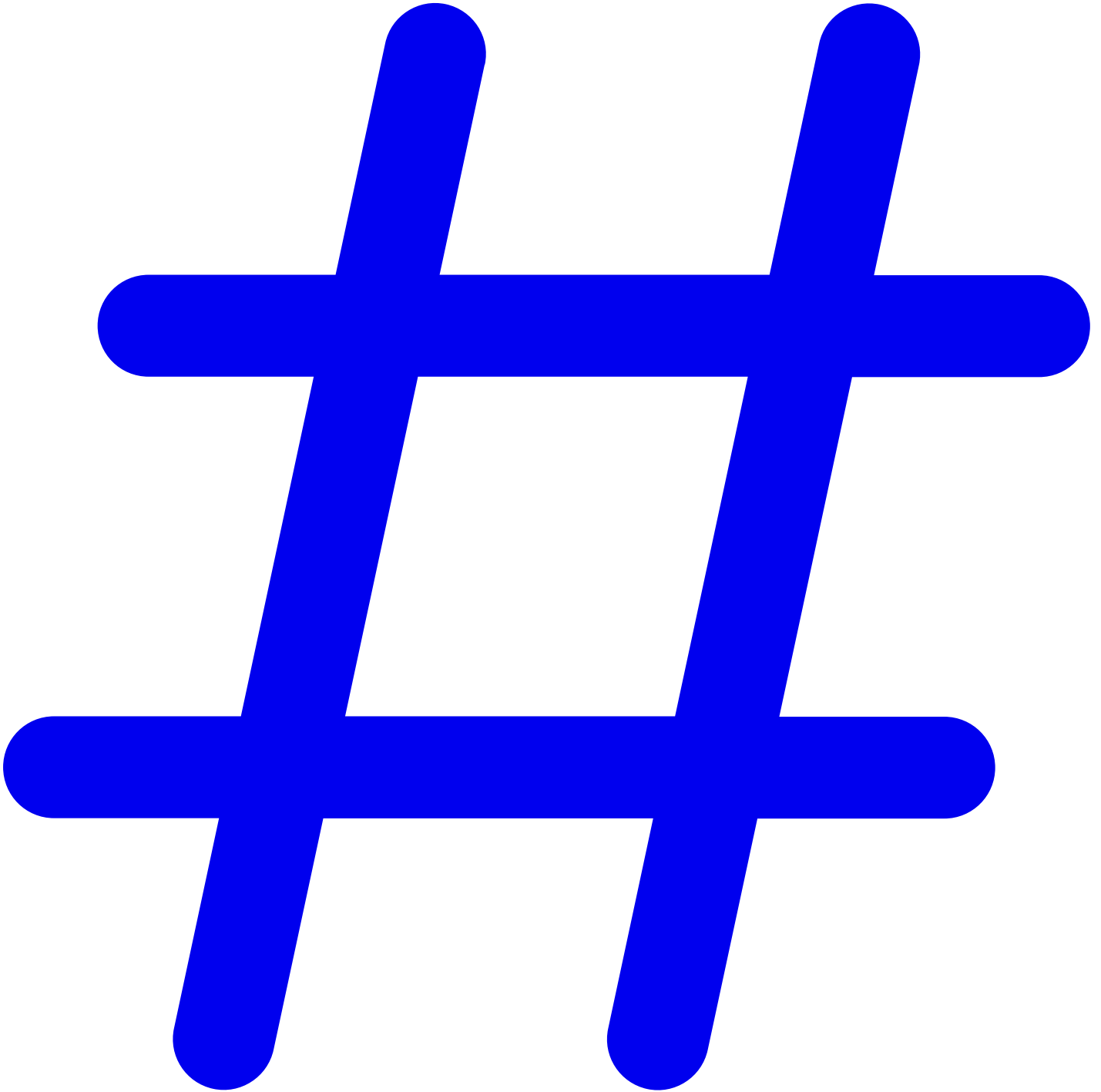
0.0V min; 0.7V max @ 10mA output current

Logic 1

2.8V min @ -10mA output current; 3.3V max

Since the DIOs are realized with GPIO expanders, the DIOs do not provide any alternate functions but can only be used to drive logic high & logic low.

15.2 Software Commands



There are 3 commands to use the DIOs. They are as follows:

1. `gpio_util setdir`

This command configures the direction of a particular DIO. For example, to set DIO 3 as an input & DIO 4 as an output, follow the command as provided below:

```
gpio_util setdir 3 in // sets DIO 3 as an input
gpio_util setdir 4 out // sets DIO 4 as an output
```

2. `gpio_util getdir`

This command reads the direction of a particular DIO. For example, to read the direction of DIO 2 (earlier set as an input) & DIO 5 (earlier set as an output), use the command as follows:

```
readDir2 = gpio_util getdir 2 // returns the value "in"
readDir5 = gpio_util getdir 5 out // returns the value "out"
```

3. gpio_util setval

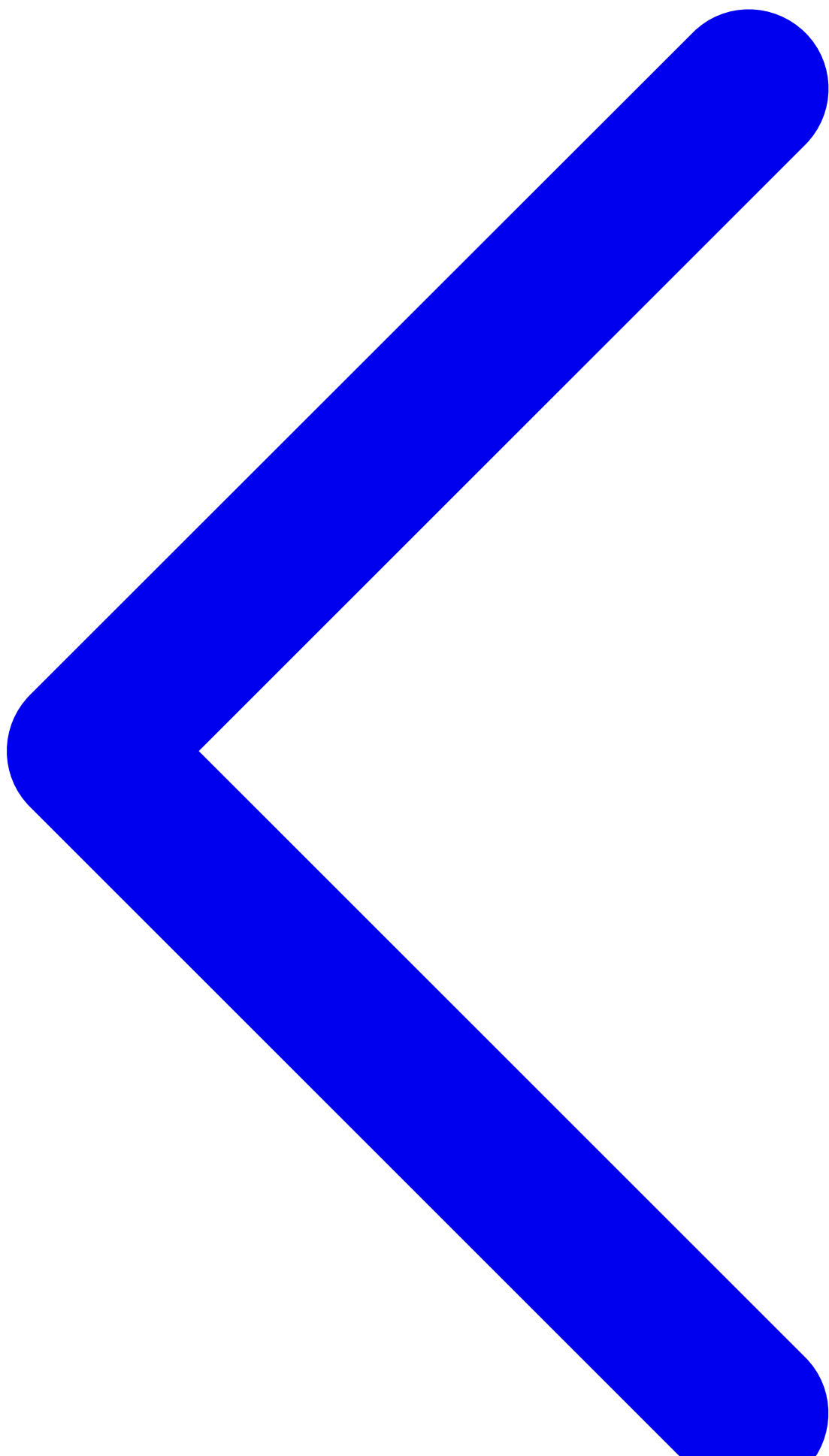
This command configures the logic driven to an output. For example, to drive a logic 0 to DIO 2 & a logic 1 to DIO 5, use the command as follows:

```
gpio_util setval 2 0 // drives DIO 2 as logic 0  
gpio_util setval 5 1 // drives DIO 5 as logic 1
```

4. gpio_util getval

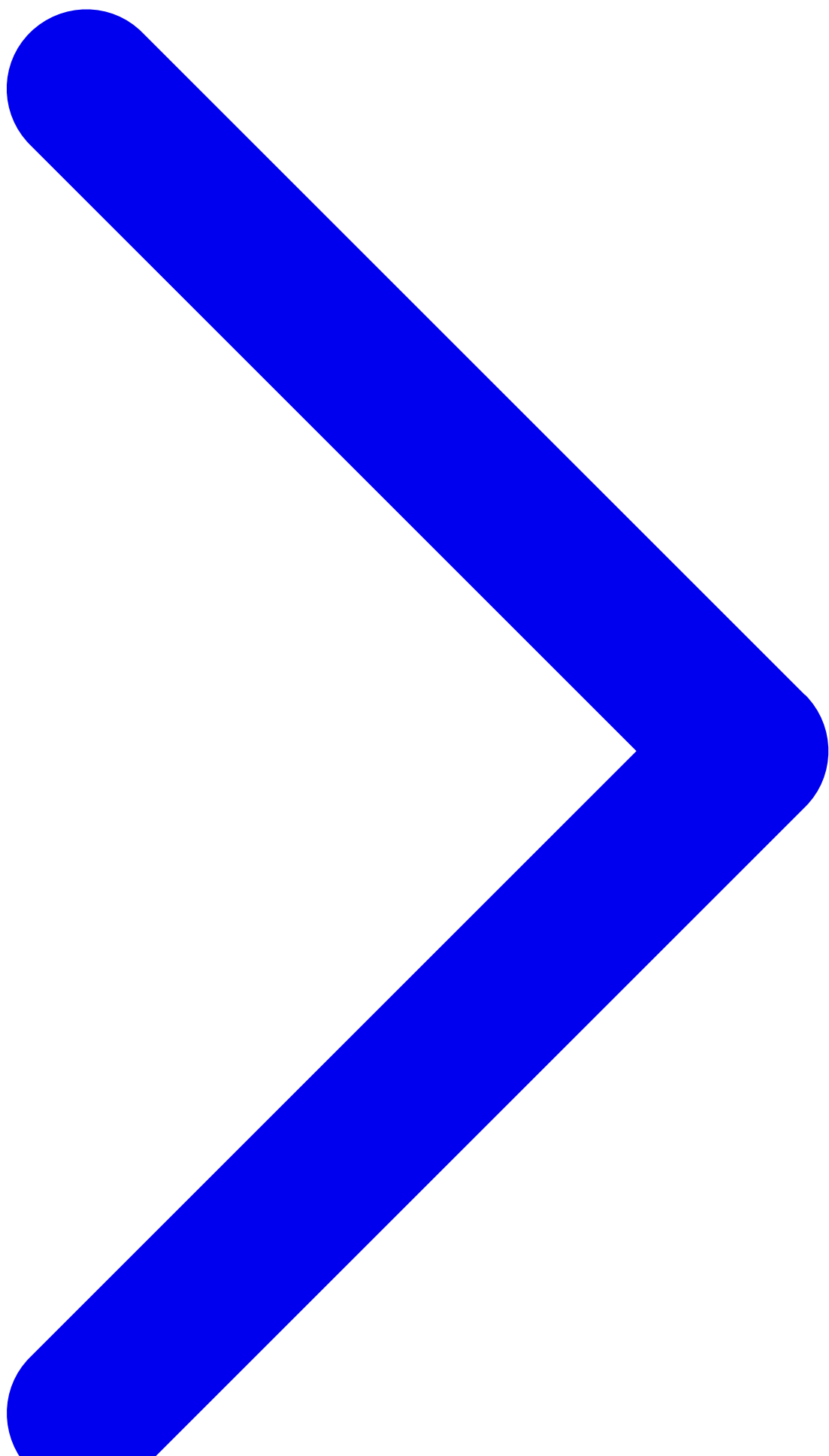
This command reads the logic at an input pin. For example, to read the logic value at DIO 6, use the command as follows:

```
read6 = gpio_util getval 6 // reads the logic of DIO 6
```





[Previous](#)[14. REPROGRAMMING THE EMBEDDED LINUX IMAGE](#)





[Next16. SERIAL PORTS](#)

Last updated 5 years ago

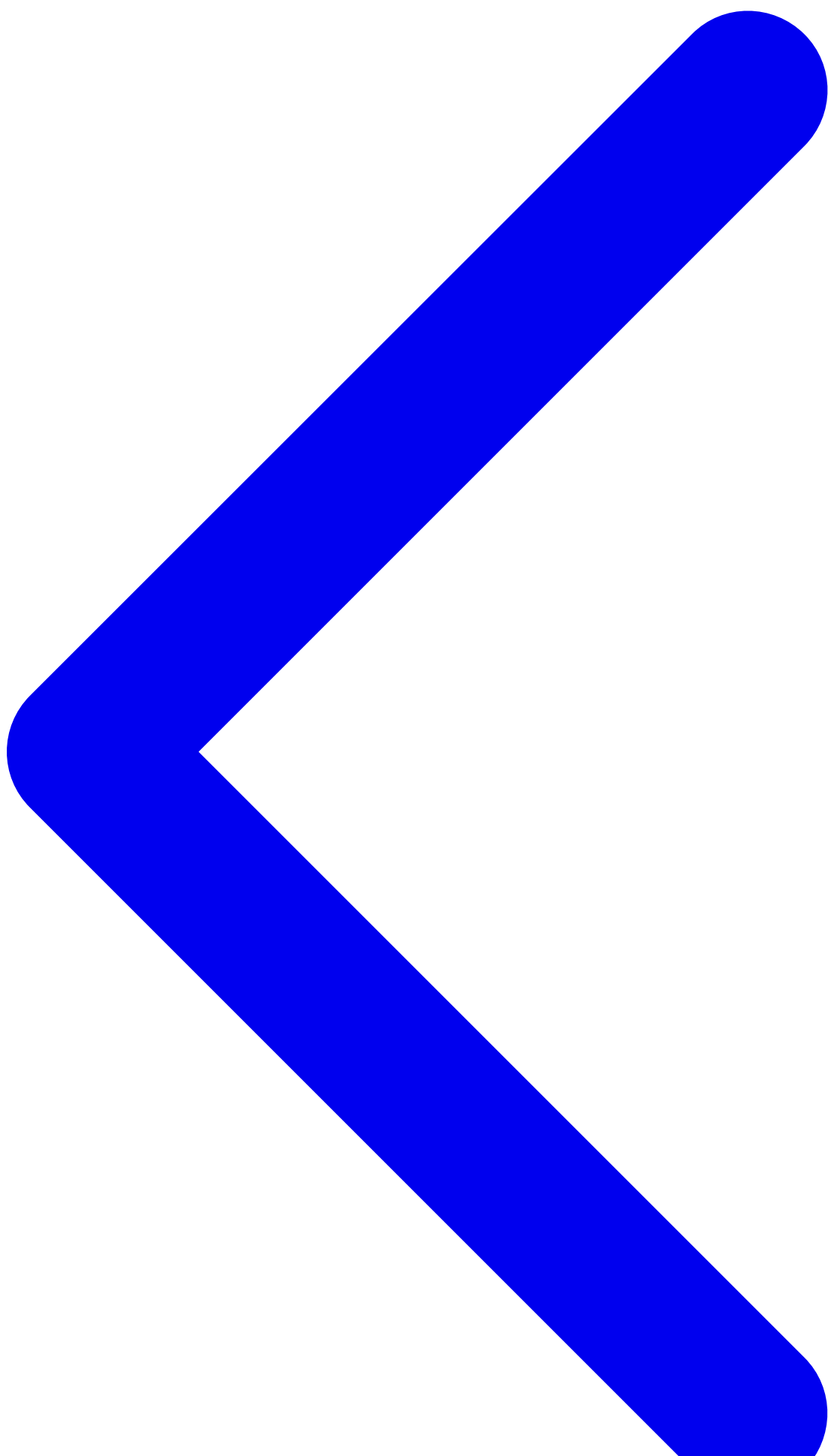
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Diamond Systems Corporation warrants that its products will be free from defects and errors in material and workmanship and perform in full accordance with the technical specifications stated in the description of the product for a 2-Year Period from the Date of Shipment. Unless otherwise stated, Diamond Systems Corporation Limited Warranty Policy covers the following criterion:

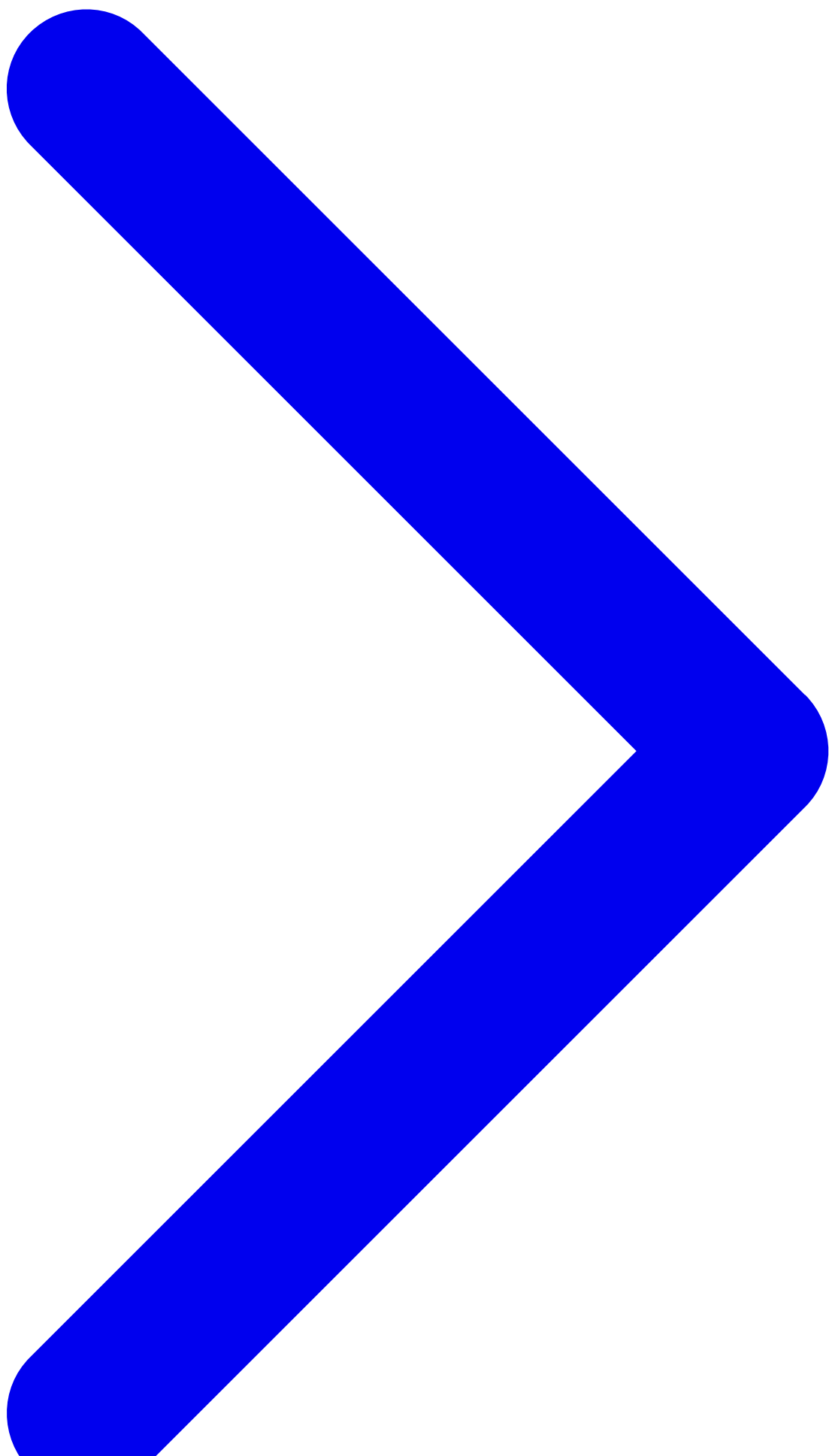
- It is extended to the original Purchaser/Consumer.
- Under Terms and Conditions of the Warranty, Diamond Systems Corporation, at its sole discretion, will repair or replace any defective parts or components of its product.
- The product must be returned to Diamond Systems Corporation in the-approved packaging, pre-authorized with a Diamond Systems Corporation-assigned Return Material Authorization (RMA) Number which is referenced on the shipping document.
- The Customer will prepay the shipment cost of the product to the Diamond Systems Corporation designated site.
- Diamond Systems Corporation will prepay the return shipping cost of the repaired or replaced the RMA product. Diamond Systems Corporation Limited Warranty Policy does not cover product defects or damages incurred due to:
 - Attempts by Customer to repair or resolve any product issues without the prior consent of Diamond Systems Corporation.
 - Mishandling, misuse, neglect, normal wear, and tear, or accident.
- DIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF WARRANTY OR CONDITION, OR UNDER ANY OTHER LEGAL THEORY, INCLUDING BUT NOT LIMITED TO LOST PROFITS, DOWNTIME, GOODWILL, DAMAGE TO OR REPLACEMENT OF EQUIPMENT AND PROPERTY, ANY COSTS OF RECOVERING, REPROGRAMMING, OR REPRODUCING ANY PROGRAM OR DATA STORED IN OR USED WITH DIAMOND SYSTEMS CORPORATION PRODUCTS, AND ANY FAILURE TO MAINTAIN THE CONFIDENTIALITY OF DATA STORED ON THE PRODUCT.

NOTE: *THE LIMITED WARRANTY POLICY DOES NOT WARRANT TO REPAIR ANY OR EVERY DIAMOND SYSTEMS CORPORATION PRODUCT.*





[Previous](#) **18. SPECIFICATIONS**





[NextFloyd SC](#)

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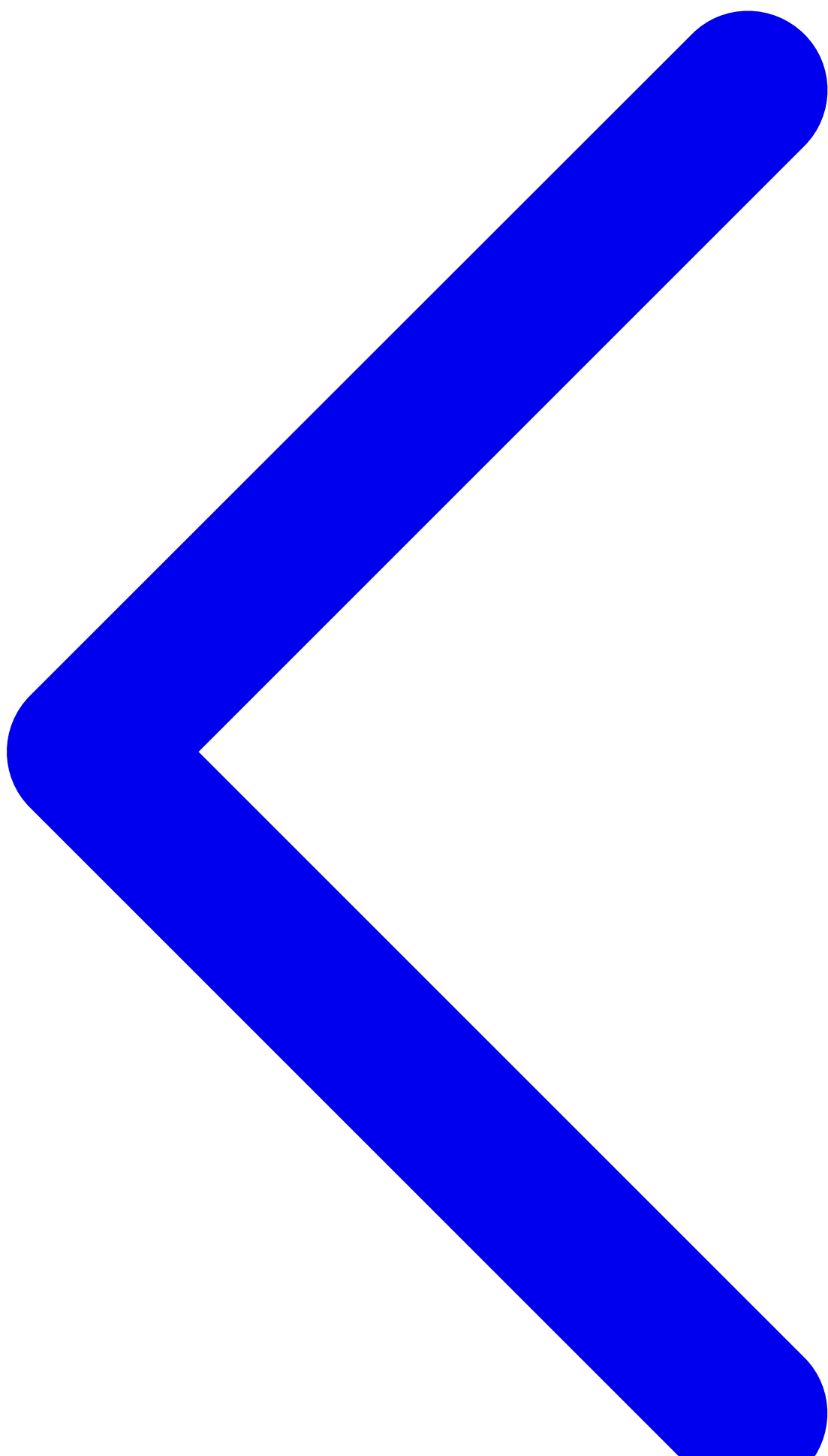
Jetbox-Floyd provides I/O expansion with M.2 PCIe M-Keyed 2280 sized & full-sized mPCIe sockets. The M.2 socket can be used for SSD applications while the mPCIe sockets can be used to install WiFi or GPS modules.

The M.2 & the mPCIe sockets are accessed by removing the TOP heat spreader plate from the Jetbox-Floyd. After installing the required M.2 and/or mPCIe modules, the Jetbox-Floyd TOP heat spreader plate can be assembled back to the Jetbox.

To ensure better receiving signal strength, Jetbox-Floyd provides two cut outs on the front panel. These cut outs case an SMA connector each, to which external antennas can be connected. See illustration below:

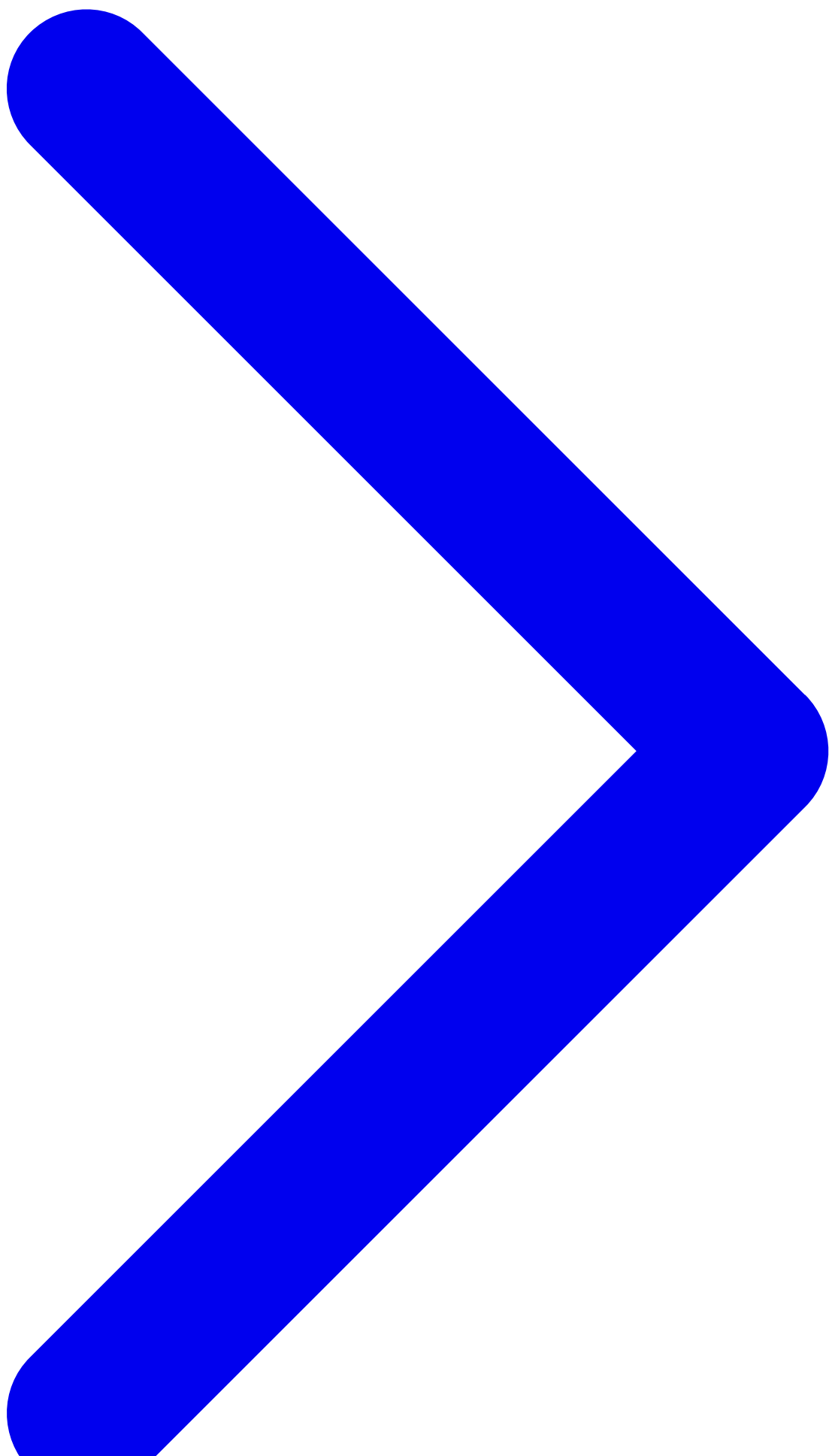
The mPCIe WiFi/GSM/LTE modules contain a U. FL connector onboard to use with an external antenna. This U.FL connector can be connected to the Antenna SMA connector on Jetbox-Floyd with **U.FL to SMA cables**.

The M.2 & mPCIe availability & characteristics are dependent on product configurations. Refer to [Section 2.2 Product Configurations](#).





[Previous](#)16. SERIAL PORTS





[Next18. SPECIFICATIONS](#)

Last updated 5 years ago

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For the complete documentation index, see [llms.txt](#). This page is also available as [Markdown](#).

The serial ports on the Nano & Xavier NX are available at different device IDs. The device IDs are provided as below:

SER 1 --> J1 --> ttyTHS1

SER 2 --> J9 --> ttyTHS2

SER 1 --> J1 --> ttyTHS0

SER 2 --> J9 --> ttyTHS1

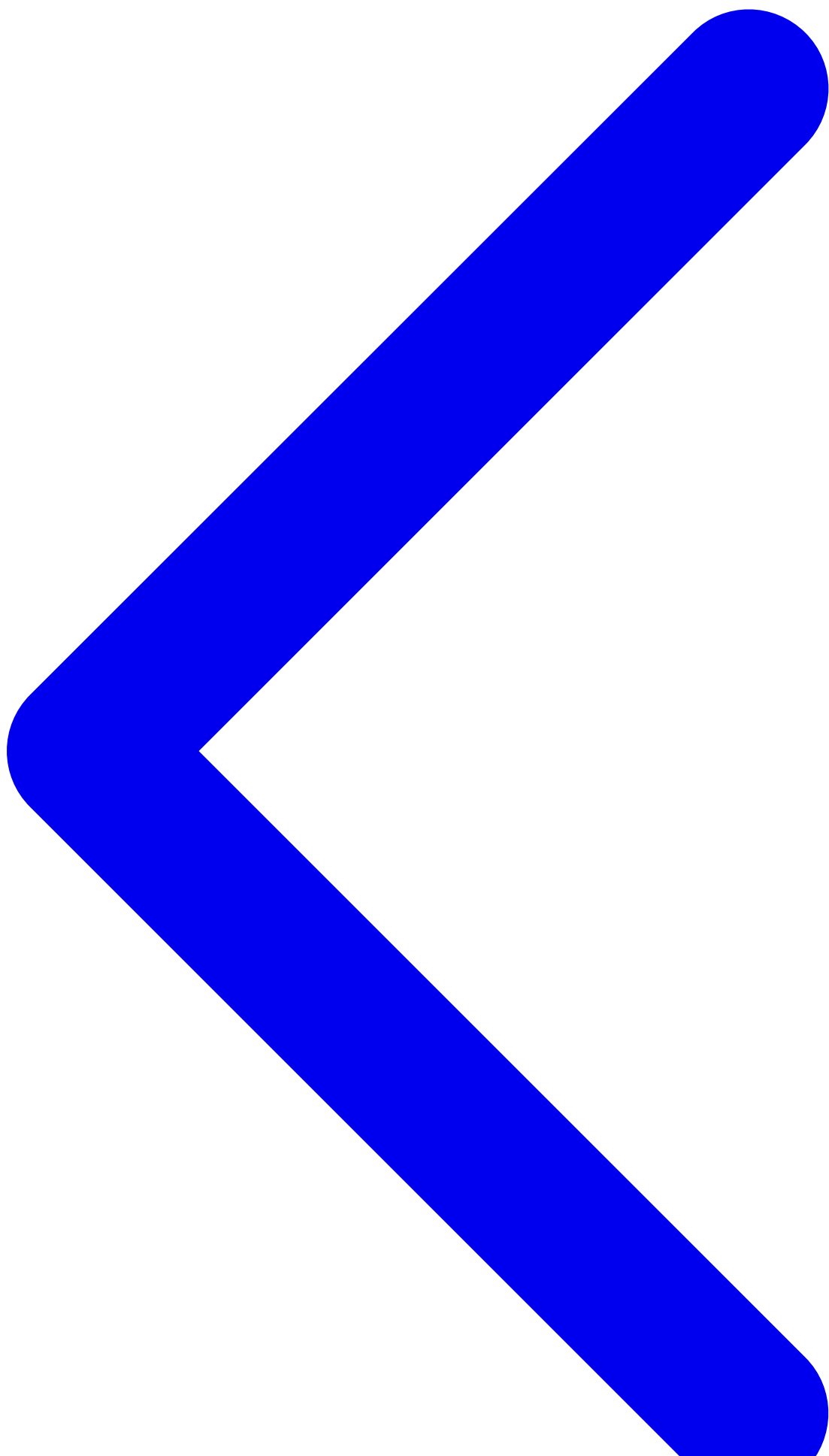
From the transmitter node, it is essential to enable the RTS during transmit & disable it thereafter. Since, the auto RTS feature is not supported on Nvidia serial port drivers, the RTS signals would need to be enabled manually just before transmit & disabled right after the transmission. The following commands are used for these purposes:

On Nano:

```
sudo rs485_util ttyTHS2 1; // enable RTS for SER 2 (J9)
                          // to transmit
sudo rs485_util ttyTHS2 0; // disable RTS for SER 2 (J9)
                          // to receive
```

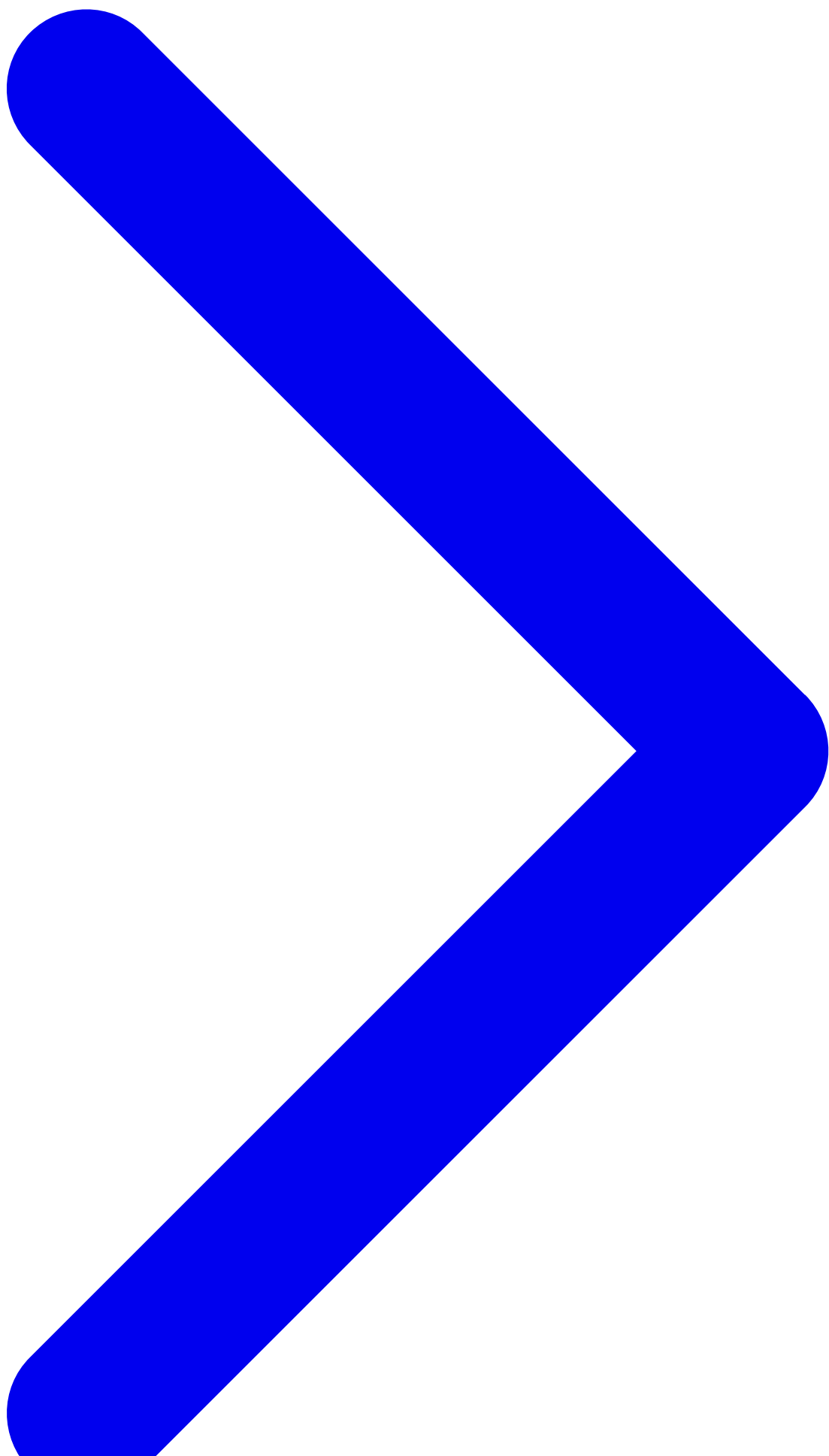
On Xavier NX:

```
sudo rs485_util ttyTHS0 1; // enable RTS for SER 1 (J1)
                          // to transmit
sudo rs485_util ttyTHS0 0; // disable RTS for SER 1 (J1)
                          // to receive
```





[Previous](#)15. DIGITAL I/O





[Next17. I/O EXPANSION SOCKETS](#)

Last updated 4 years ago

Was this helpful?

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Features

Jetson Module

Jetson Nano or Jetson Xavier NX

Cooling Accessory

Integrated heat spreader solution

Camera Interface

3 x4 lane CSI-2 camera interfaces

CAN Interface

1x CAN 2.0

Non-isolated transceiver standard, isolation optional consult factory (*Model dependent*)

Digital I/O

8x Digital IOs obtained through I2C GPIO expander

Display

One HDMI 2.0 with integrated audio

One HDMI 2.0 without audio

(*Model dependent*)

Ethernet

2x 10/100/1000 Mbps RJ45 with built-in magnetics and LEDs

(*Model dependent*)

Power over Ethernet

PSE, External 50-57VDC external supply required;

Supports 2x PoE+ (51W max; 25.5W per port depending on supply capacity)

(*Model dependent*)

Mass Storage

1x mPCIe socket, full size (*Model dependent*)

1x M.2 2280 M-Key PCIe socket (*Model dependent*)

1x Micro-SD socket

Serial Ports

2x RS-232/422/485 Ports (*Model dependent*)

USB Ports

2x USB 2.0, 1x USB 3.0

Utility

Force recovery, Power button, Reset, Debug UART, Force off,

I2C (3.3V), SPI (3.3V)

Digital I/O Specifications

Device

TCA9538

Number of Lines

8

Direction

Programmable bit by bit

Logic levels

3.3V nominal outputs, 5V tolerant inputs

Pull resistors

10K ohms +/-1%; Jumper-selectable pull-up/down

Input voltage

Logic 0:

-0.5V min, 0.66V max

Logic 1

2.64V min, 5.5V max

Output Voltage

Logic 0:

0.0V min; 0.7V max @ 10mA output current

Logic 1

2.8V min @ -10mA output current; 3.3V max

Mechanical and Environmental Properties

System Input Voltage

7-24VDC; Absolute Max input voltage = 26VDC

Floyd carrier board dimensions

L 5.8" x W 3.04" (147.32 mm x 77.2 mm)

Jetbox-Floyd dimensions

175mmW x 91mmD x 53mmH / 6.9"W x 3.6"D x 2.1"H

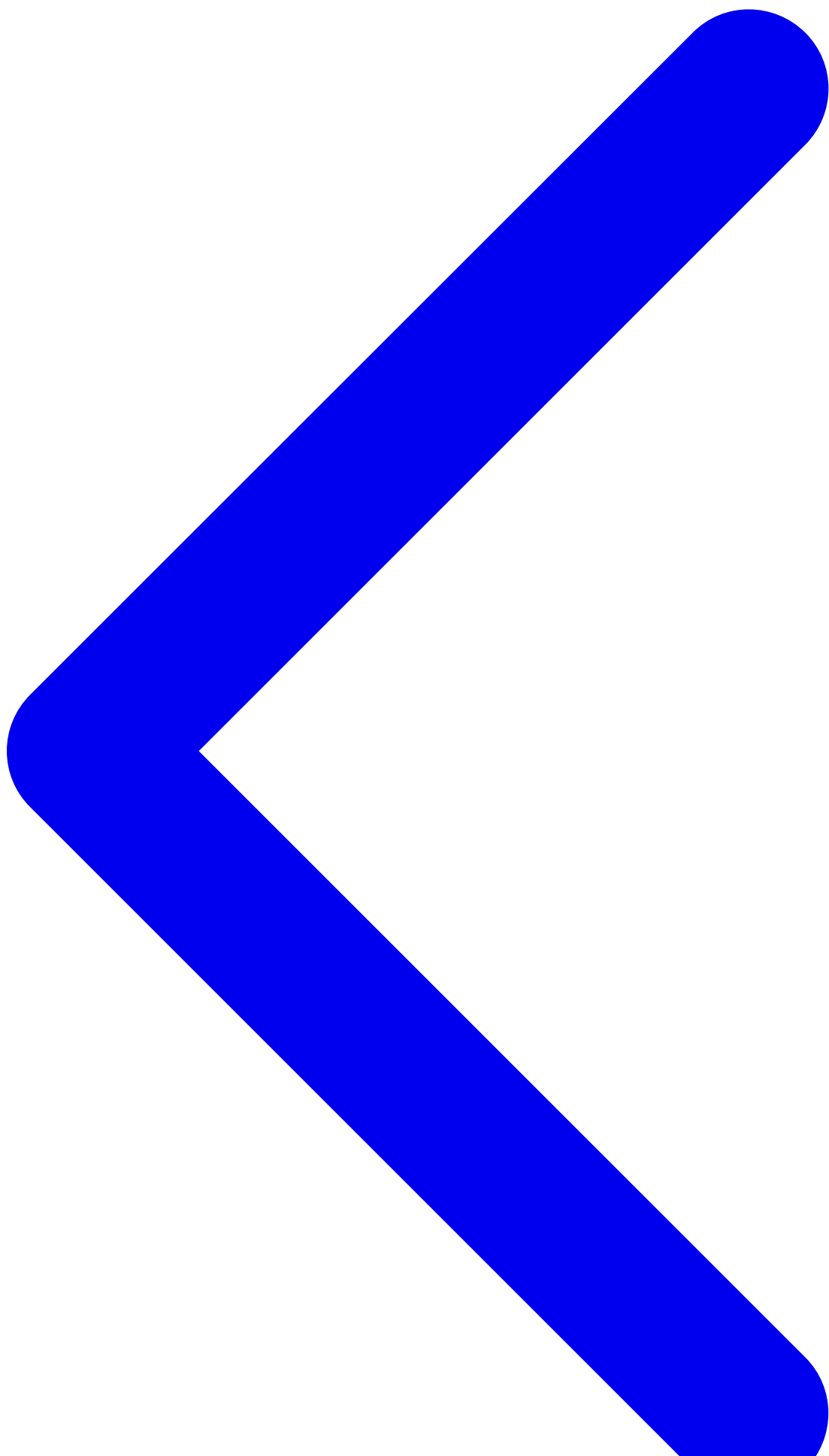
Weight

Operating Temperature

-25°C to +70°C ambient

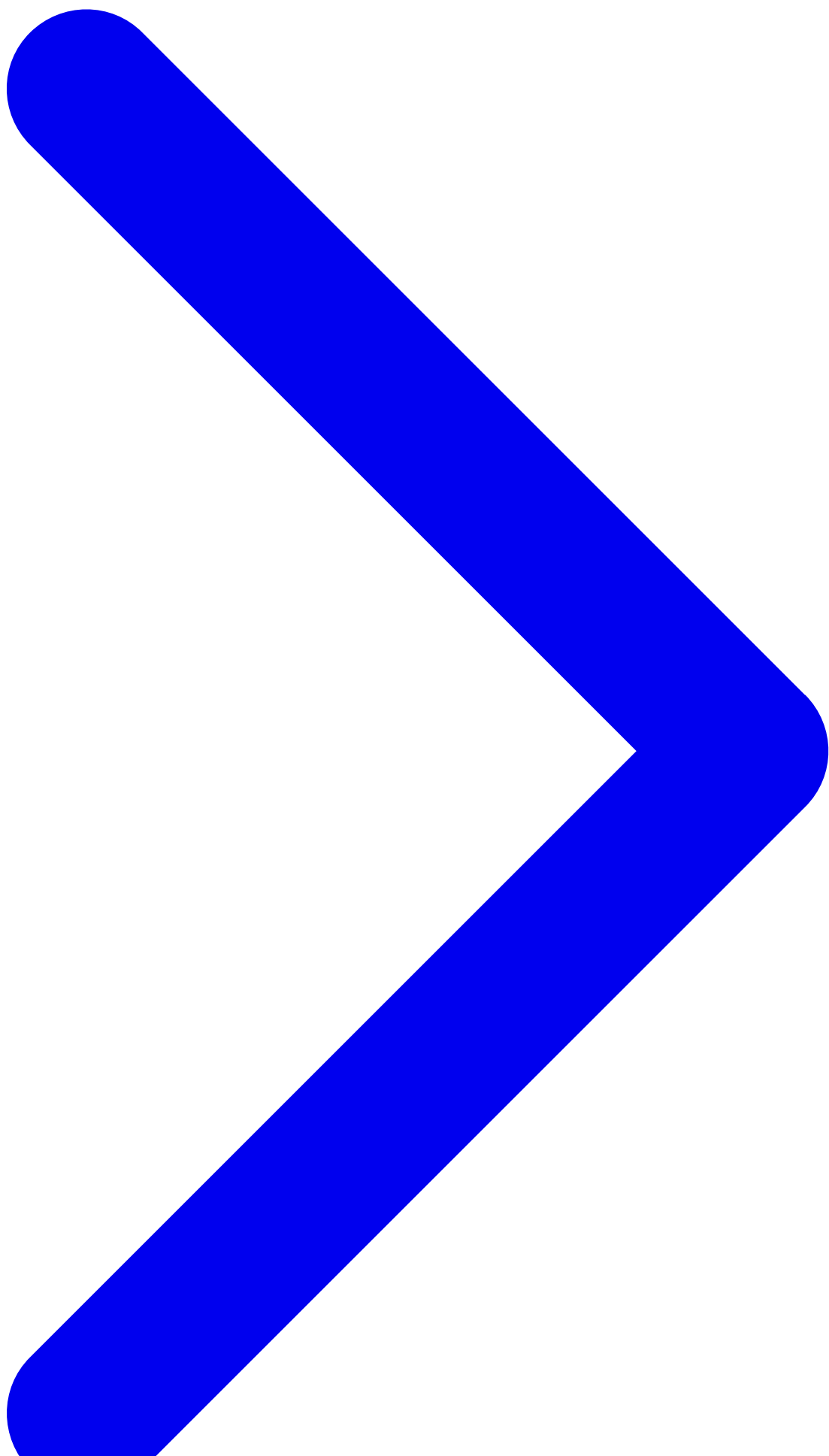
RoHS

Compliant





[Previous](#) [17. I/O EXPANSION SOCKETS](#)





[Next19. LIMITED WARRANTY POLICY](#)

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