phyBOARD®-Nash i.MX 93

Get your phyBOARD-Nash powered up and connected in just a few simple steps.

1 | PREPARING THE HARDWARE

1. Have your connection cables at hand: You need a USB C to USB A cable (one-toone) and a standard Ethernet cable. Phytec offers an accessory kit which includes these cables

2. Power up the phyBOARD-Nash i.MX 93. Connect the pin PHOENIX connector (included) to a 12 V-24 V (±10%) DC power supply. Note the polarity of the connectors (see **picture A**)! If you are using the included power supply with your kit, it is already wired with the 2-pin connector. Turn on your power supply and plug the 2-pin PHOENIX connector into the green jack on your kit (**X49**).

3. The Power LED **D30** will light up.

Kit Contents

phyBOARD-Nash i.MX93	Power Adapter +24 V	USB flash drive with Virtual Machine
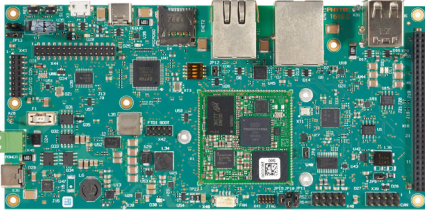
12 V-24 V-kit version

RS-232 and CAN Adapter — Ethernet Cable

2-pin PHOENIX — USB-A to USB-B
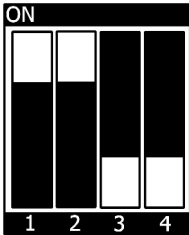
Figure 1: Boot Mode DIP Switch (**S3**) SD Card Setting

phyBOARD-Nash
with phyCORE-i.MX 93

FRONT – CONNECTORS
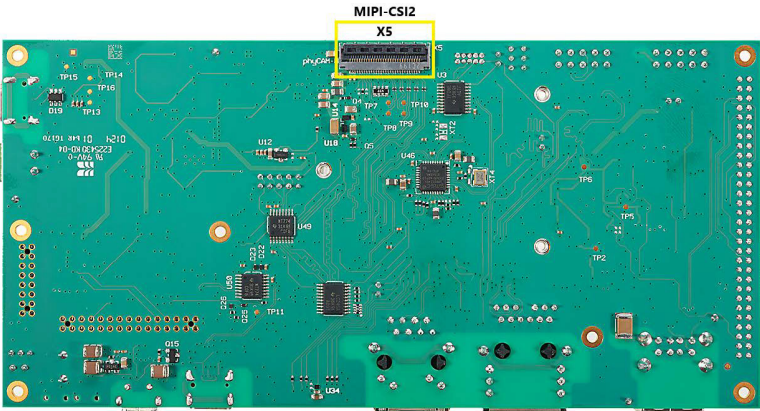
BOTTOM
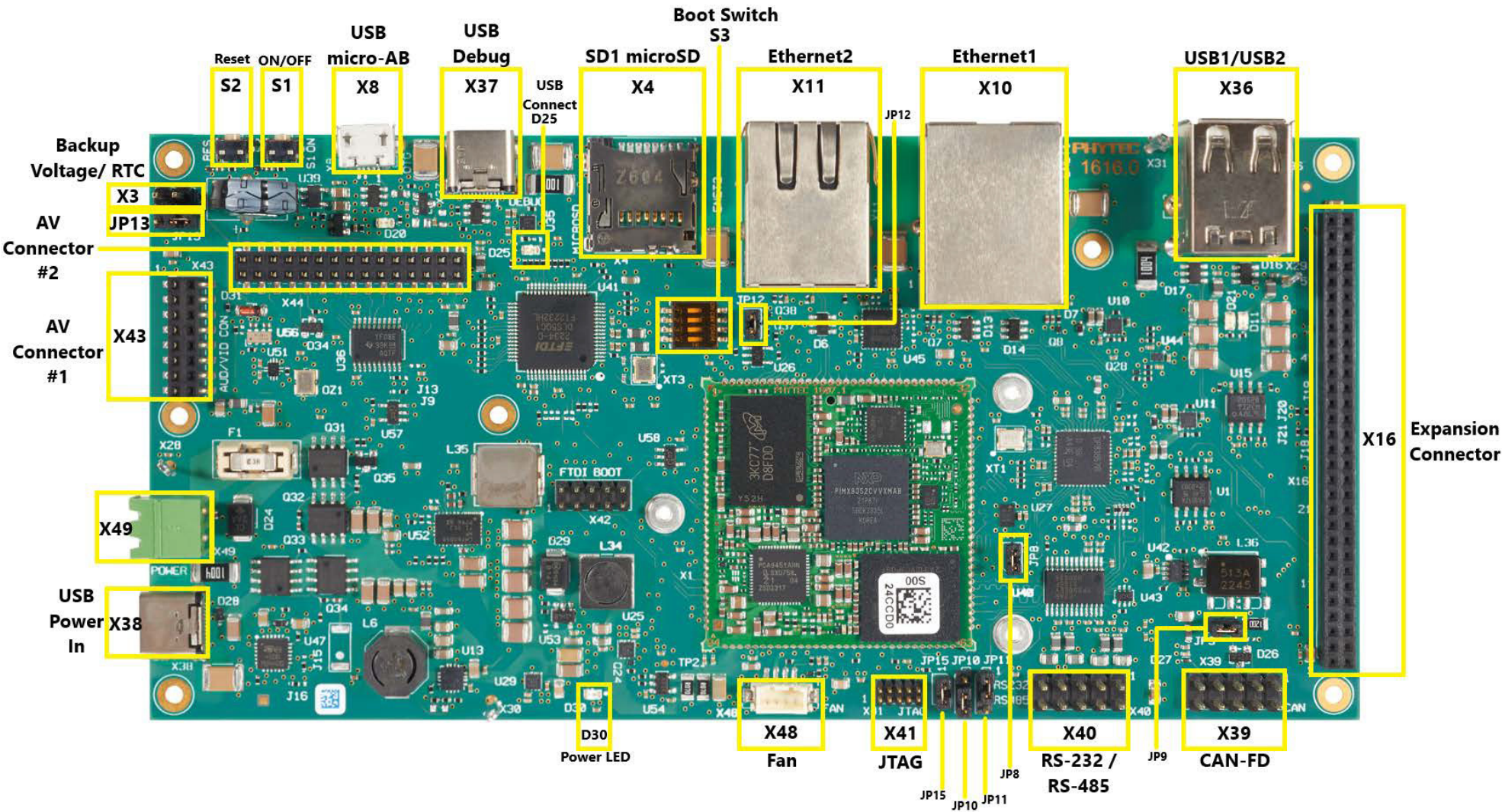
- Reset **S2**
- ON/OFF **S1**
- USB micro-AB **X8**
- USB Debug **X37**
- USB Connect **D25**
- Boot Switch **S3**
- SD1 microSD **X4**
- Ethernet2 **X11**
- Ethernet1 **X10**
- USB1/USB2 **X36**
- Backup Voltage/ RTC **X3**
- **JP13**
- AV Connector #2
- AV Connector #1 **X43**
- **X49**
- USB Power In **X38**
- **D30** Power LED
- **X48** Fan
- **X41** JTAG
- **JP15 JP10 JP11**
- **JP8**
- **X40** RS-232 / RS-485
- **JP9**
- **X39** CAN-FD
- **X16** Expansion Connector

Quick Start Guide

2 | PREPARING AND STARTING THE VIRTUAL MACHINE

To follow this QuickStart and the descriptions in the Development Environment Guide you need our compressed **phyBOARD-Nash i.MX 93** virtual machine hard disc image (**SO-561vl.zip**). The hard disk image includes all software installations and configurations (e.g. Toolchain, Eclipse, Qt Creator) necessary for a successful start-up of the **phyBOARD-Nash**. The virtual machine hard disk image (.vmdk) is suitable for most virtualization software and can be mounted to an appropriate virtual machine (tested with VMware Player and Virtualbox).

1. Alternatively to the USB flash drive that is included, you can download the image under https://www.phytec.de/p/som/phycore-imx-91-93/ and download the virtual machine hard disk image. Otherwise plugin the USB flash drive which includes the required file.
2. **Unpack** the compressed file with an appropriate tool to your local hard drive to get **the included .ova file.**
3. Follow the instructions of your virtualization software to create a new virtual machine. Pay regard to the following settings required to obtain a correctly working virtual machine:
   • Choose **Linux-Ubuntu 64-bit version** as operating system.
   • Use the unpacked file **SO-561vl.ova** as existing hard disk.
   • An Ethernet adapter, as well as a serial interface, or the USB controller must be available to connect to the **phyBOARD-Nash**.

We recommend having two network adapters available on the host pc. One for a peer-to-peer connection to the target and one with access to the internet. Otherwise, be advised that you will need to swap Ethernet connections multiple times in order to access documentation and sources.

4. Start the virtual machine with our hard disk image. You will see the modified Ubuntu desktop **(A)**. For further use of the virtual machine the pre-created login data is: **username: phyvm – password: phytec**

Now you are ready to connect your PC with the phyBOARD-Nash.

3 | GETTING CONNECTED — SERIAL CONNECTION

1. Connect the USB C cable to connector X37 on the phyBOARD-Nash and the other end to an open USB A port of your PC. The blue LED D25 will light up.
2. Click the **Microcom_ttyS0 icon (B)** on the Ubuntu desktop (for direct serial interface connection) or click the **Microcom_ttyUSB0 icon** if you are using an USB to DB-9 dongle.

🦊 *By default every input and output is transmitted over the serial connection with a baud rate of 115200.*

3. Click the reset button **S2** on the board (or power cycle the board).

A serial console has been started within your Live System.
You should see a boot message and the login-prompt on this console (C). Congratulations!

➕ *If you do not see any output in the Microcom window, check the serial connection between the target and your host. By default Microcom uses /dev/ttyS0. If you want to use another port you can click on the Microcom Icon at your desktop with your right mouse button and select Properties. A window opens in which you can change the properties of the Microcom icon. Click in the Command field and search for „-p/dev/ttyS0". Change it for example to /dev/ttyS1 and so on if you have more than one serial port. If the Microcom window does not open, one reason could be a lock-file which was created when Microcom was not correctly terminated. Delete this file by opening a terminal and type: sudo rm /var/lock/LCK..**

4. Use "root" as the log-in-name on the serial console (and press enter).
5. As a good example (and helpful for understanding the next step) enter **ifconfig**. You will get information about the configuration of the Ethernet interface of the target **(D)**.

ETHERNET CONNECTION

We recommend disconnecting your host-PC from any other network, because a peer to-peer connection from your PC to the phyCORE-i.MX 91 / 93 will be established.

1. Connect your preferred Ethernet interface on your PC with RJ45 connector **X11** (eth0) on the **phyBOARD-Nash** using the included Ethernet cable.
2. Configure the IP-settings on your host platform in Ubuntu:
   • In the **Unity-panel** (left side of your desktop) click on the **Ubuntu logo** (topmost icon).
   • The Ubuntu dashboard will open; enter **System Settings** in the search field (you will see the corresponding icon showing up already during typing of the search string).
   • Open **System Settings** and click on the **Network icon**.
   • Select the physical interface to which you have connected the Ethernet cable (if you have more than one network in the list) and click on **Options**.
   • Select the **IPv4Settings (E)** tab and choose **Manual (F)** in the **Method** drop down box.
   • Click **Add (G)** and enter the IP address **192.168.3.10 (H)** and **255.255.255.0** as subnet mask **(I)** and **192.168.3.10** as gateway **(J)**.
   • Last, click on **Save (K)** to save these connection settings and close the windows.

You are now ready to test the Ethernet network connection.

3. Click on the **SSH for Target icon (L)** on your desktop. A console window will open and you will see an authentication question. Type **yes** and press Enter.

You are now connected to the target (M). Congratulations!

➕ *If you do not see the user login, check the Ethernet connection between the target and the host. Be sure that you have configured the network adapter in the virtual machine configuration correct.*

YOUR POSSIBLE NEXT STEPS

• Please read our Development Environment Guide on the desktop of the VM to learn how to use the advantages of the virtual machine image.
• Please check German product page https://www.phytec.de/p/som/phycore-imx-91-93/ or English language product page https://www.phytec.eu/en/p/som/phycore-imx-91-93/ for the latest documentation, downloads & FAQs.
• Feel free to contact our support team if you have any questions getting the board up and running.

Microcom

Editing Wired connection 1

Connection name: Wired connection 1

General | Ethernet | 802.1x Security | **IPv4 Settings** | IPv6 Settings

Method: Manual **(F)**

Addresses

Address	Netmask	Gateway
192.168.3.10	255.255.255.0	192.168.3.10

Add **(G)**
Delete

DNS servers:
Search domains:
DHCP client ID:

☐ Require IPv4 addressing for this connection to complete

Routes...

Cancel | Save... **(K)**

SSH for Target **(L)**

ssh root@192.168.3.11