

phyCORE[®]-i.MX 8M Mini phyBOARD[®]-Polis / SBC Kit

Get your phyCORE-i.MX 8M Mini / SBC Kit powered up and connected in just a few simple steps.

1 | PREPARING THE HARDWARE

1. Have the included connection cables on hand: a USB-A to USB-B Micro cable, a standard Ethernet cable and the power adapter (+24 V / 3 A).
2. Connect the power adapter (+24 V DC) to the power supply connector (X33).
3. Connect the USB cable to the Debug FTDI connector (X30) and the host PC.
4. Ensure the boot mode jumpers are set to SD Card (Figure 1).
5. Turn your power supply on.

Kit Contents

phyBOARD-Polis with phyCORE-i.MX 8M Mini
PB-02820-001.A1



Power Adapter +24 V



RS-232 Cable



SD Card



Ethernet Cable



USB flash drive
with Virtual Machine



USB-A to USB-B
Micro Cable



Optional Accessories

Display Kit 10"

KPEB-AV-10-100.Ax



Figure 1: SD Card Boot Configuration



phyBOARD[®]-Polis
with phyCORE[®]-i.MX 8M Mini

FRONT

BACK

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L-1003eA1

Quick Start Guide

2 | PREPARING AND STARTING THE VIRTUAL MACHINE

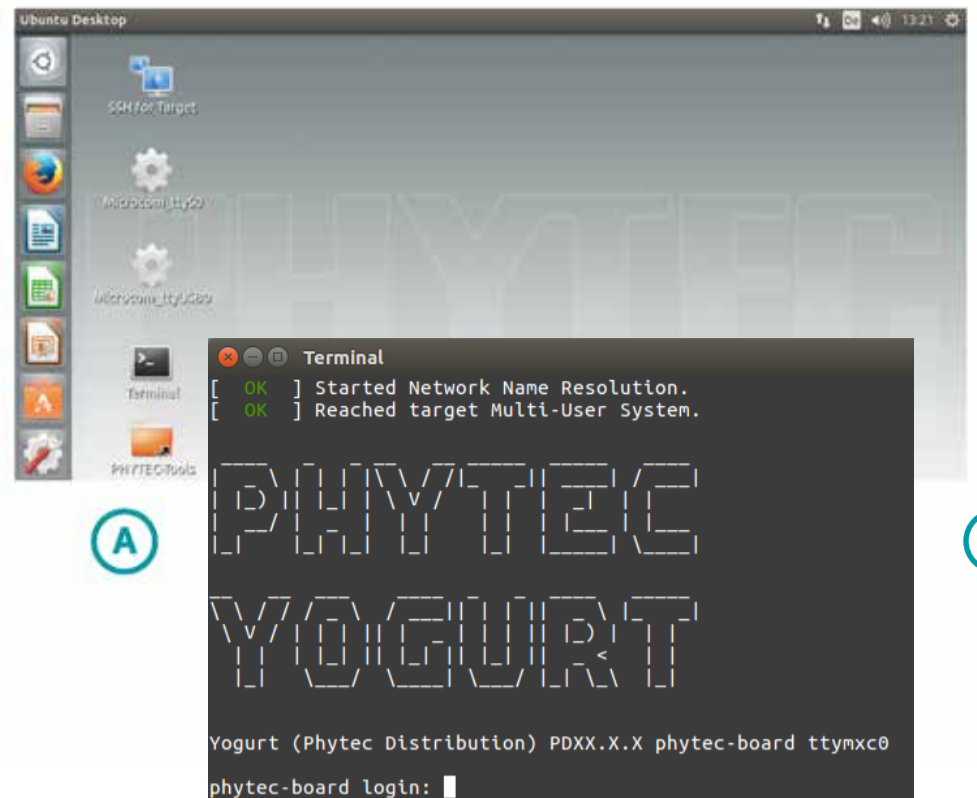
To follow this QuickStart and the descriptions in the Development Environment Guide you need our compressed **phyCORE-i.MX 8M Mini** virtual machine hard disc image (SO-552v1.zip). The hard disk image includes all software installations and configurations (e.g. Tool-chain, Eclipse, Qt Creator) necessary for a successful start-up of the **phyCORE-i.MX 8M Mini**. 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. Insert the SD Card into the Polaris (X4).
2. Unpack the compressed file with an appropriate tool to your local hard drive to get the included .vmdk 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-552v1.vmdk** as existing hard disk.
 - An Ethernet adapter, as well as a serial interface, or the USB controller must be available to connect to the phyCORE-i.MX 8M Mini.

We recommend to have 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: phym - password: phytec**


Now you are ready to connect your PC with the phyCORE-i.MX 8M Mini.



3 | GETTING CONNECTED

SERIAL CONNECTION


1. Connect one end of the serial cable to the DB-9 connector (X9 UART0).
2. Connect the other end to the first serial interface of your PC (or to an USB to DB-9 dongle, connected to your host).
3. 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.

4. 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..*`

5. Use "root" as the log-in-name on the serial console (and press enter).
6. 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).



```
Terminal
root@phytec-board:~# ifconfig
can0    Link encap:UNSPEC HWaddr 00-00-00-00-00-00-00-00-00-00-00-00-00-00-00-00
        UP RUNNING NOARP MTU:16 Metric:1
        RX packets:0 errors:0 dropped:0 overruns:0 frame:0
        TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:10
        RX bytes:0 (0.0 B) TX bytes:0 (0.0 B)
        Interrupt:27

eth0    Link encap:Ethernet HWaddr 5A:FF:7D:96:4D:71
        inet addr:192.168.3.11 Bcast:192.168.3.255 Mask:255.255.255.0
        UP BROADCAST MULTICAST MTU:1500 Metric:1
        RX packets:0 errors:0 dropped:0 overruns:0 frame:0
        TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:1000
        RX bytes:0 (0.0 B) TX bytes:0 (0.0 B)

eth1    Link encap:Ethernet HWaddr 52:24:13:7A:B3:0D
        inet addr:192.168.4.11 Bcast:192.168.4.255 Mask:255.255.255.0
        UP BROADCAST MULTICAST MTU:1500 Metric:1
        RX packets:0 errors:0 dropped:0 overruns:0 frame:0
        TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:1000
        RX bytes:0 (0.0 B) TX bytes:0 (0.0 B)

lo      Link encap:Local Loopback
        inet addr:127.0.0.1 Mask:255.0.0.0
        inet6 addr: ::1%128 Scope:Host
        UP LOOPBACK RUNNING MTU:65536 Metric:1
        RX packets:0 errors:0 dropped:0 overruns:0 frame:0
```

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 8M Mini will be established.

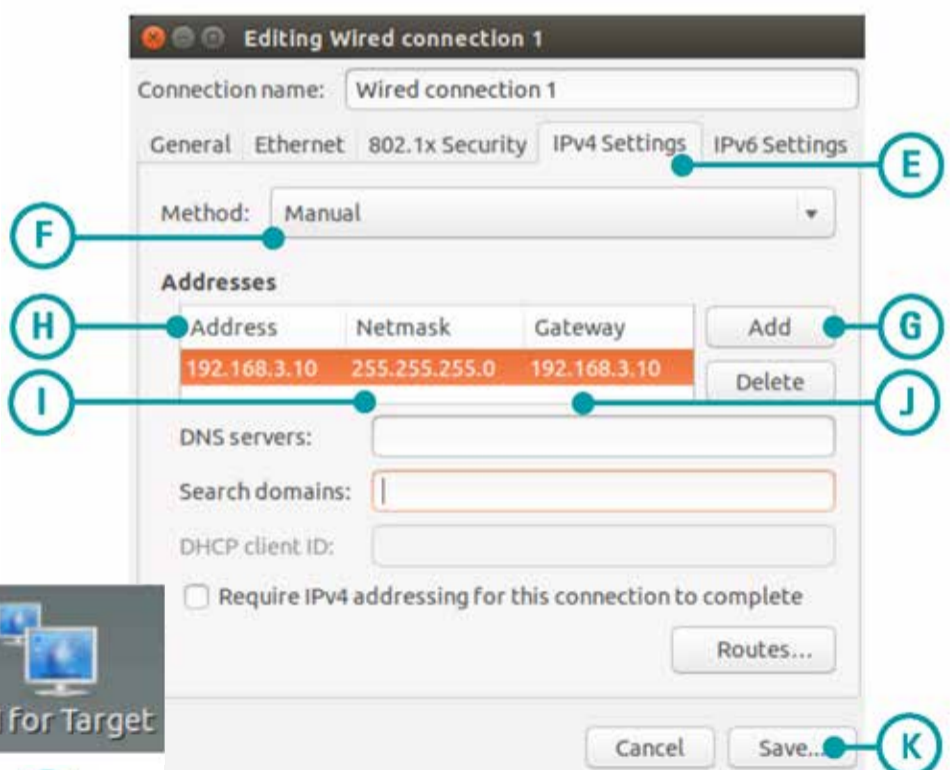
1. Connect your preferred Ethernet interface on your PC with RJ45 connector X1 (ETH1) on the **phyCORE-i.MX 8M Mini** using the included Ethernet cable.
2. Configure the IP-settings on your host platform in Ubuntu:
 - In the **Unity-panel** (left side of your desktop) click on the **Ubuntu logo** (topmost 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 (I)** as subnet mask (I) and **192.168.3.10 (J)** 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.



```
ssh root@192.168.3.11
The authenticity of host '192.168.3.11 (192.168.3.11)' can't be established.
ECDSA key fingerprint is SHA256:3k1bGkVUyoxDUv7agcZvQbKkcBJG0X1dnPbtsDNRPU.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '192.168.3.11' (ECDSA) to the list of known hosts.

PHYTEC
YOGURT

Yogurt (Phytec Distribution) PDXX.X.X phytec-board ttyxc0
root@phytec-board:~#
```

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.
- On our German product page (www.phytec.de/produkt/system-on-modules/phycore-imx-8m-mini-nano-phyboard-polis-download/) or the English product page (www.phytec.eu/product-eu/system-on-modules/phycore-imx-8m-mini-nano-phyboard-polis-download/) you will find more and the latest documentations, downloads and FAQs.
- Please feel free to contact our support team if you have any questions about getting the board up and running.