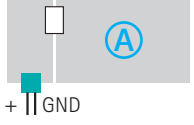
phyBOARD®-Mira i.MX 6 HTML-Kit

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

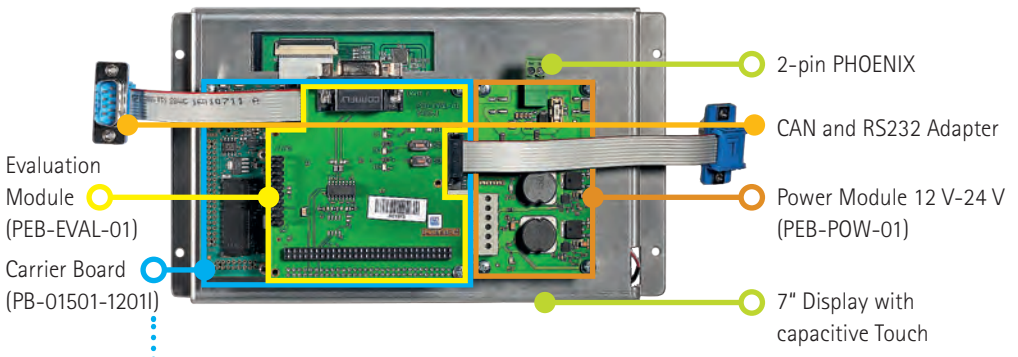
1) Preparing the Hardware

1. Check the kit content (see overview on the right hand side).
2. Have your connection cables at hand: You need a power supply and optionally a standard Ethernet cable. Phytec offers an accessory kit which includes these cables.
3. Power up the phyBOARD-Mira. **For the 24 V-kit version (A):** Connect the 2-pin PHOENIX connector (included) to a 12 V-24 V (±10%) DC power supply.
   Please note the polarity of the connectors, see picture **(A)**!
   If you have bought the optional power supply with your kit, it comes already with the 2-pin connector wired.
4. Turn your power supply on and plug the 2-pin PHOENIX connector into the green jack of your kit.
   The Power LED **D2** will light up.

12V-24V-kit version



Kit Contents – **phyBOARD-Mira i.MX 6** (PB-01501-005) includes:



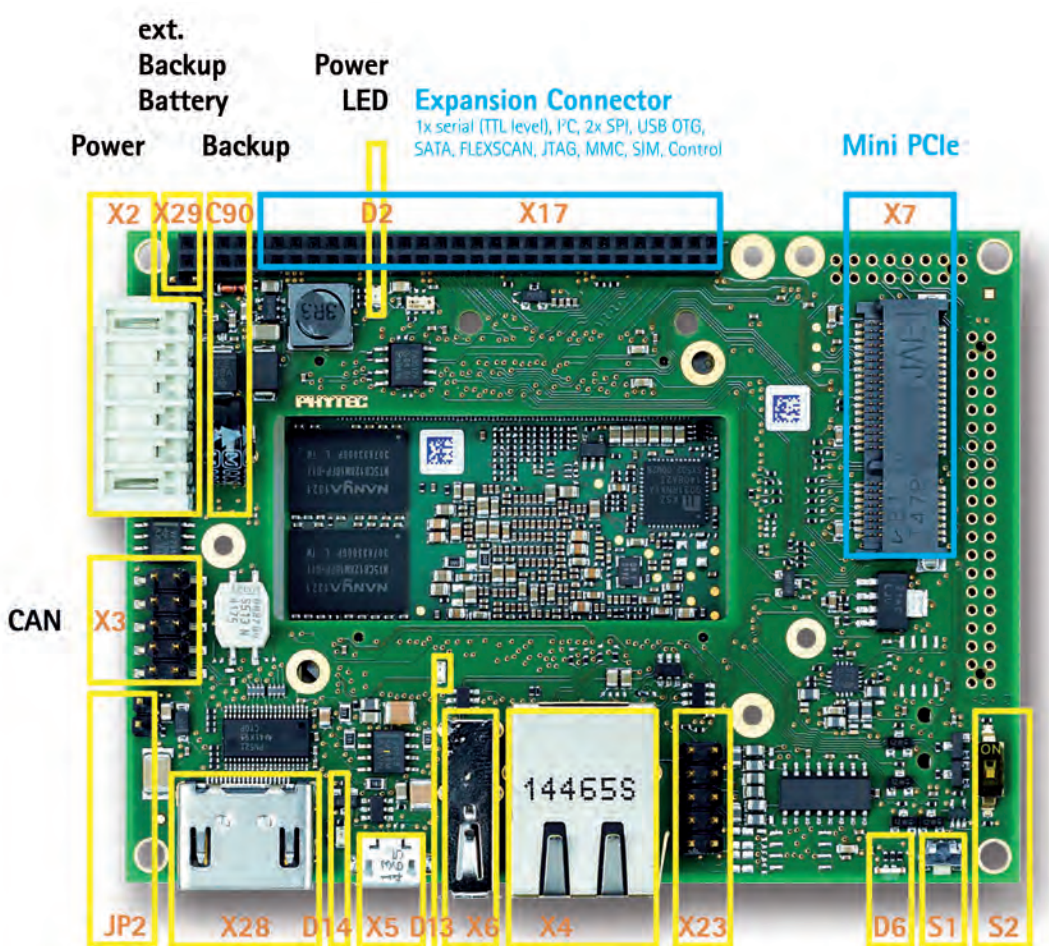
Additional Equipment required

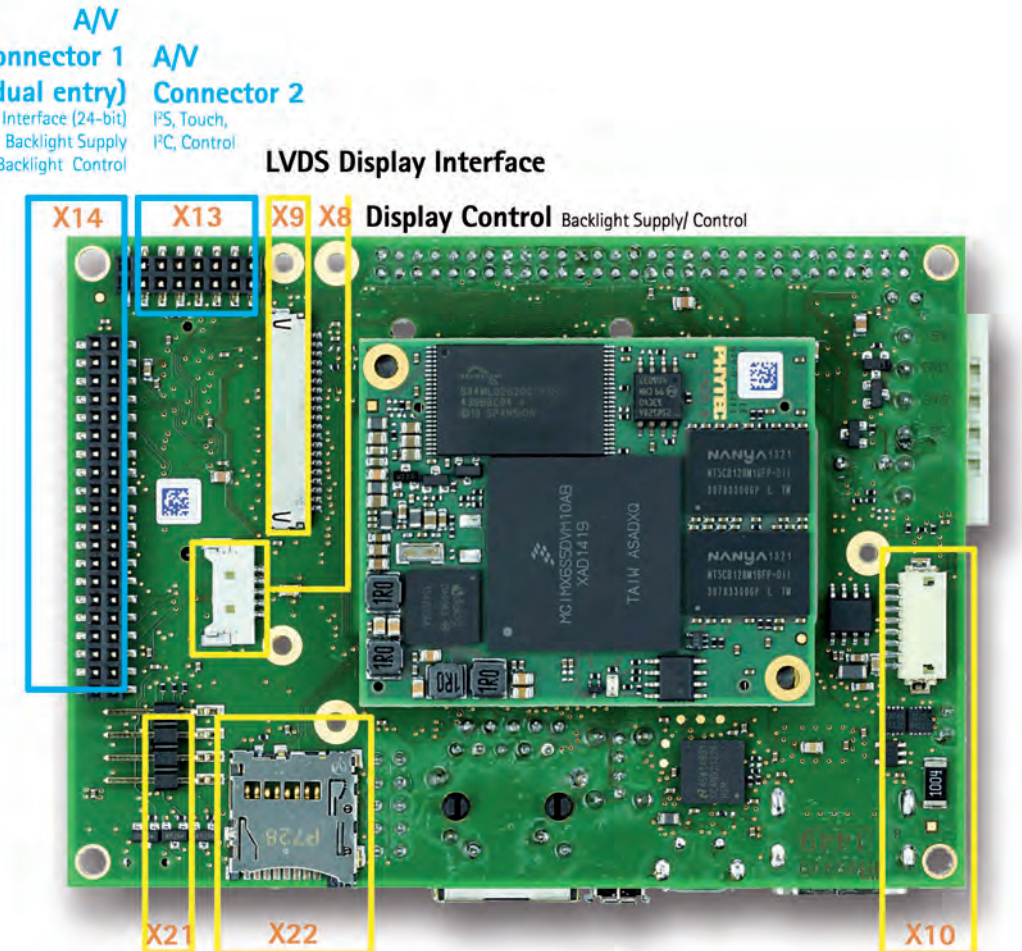
Power Adapter 5 V or 24 V

Ethernet Cable

phyBOARD®-Mira i.MX 6

Carrier Board (PB-01501-1201I





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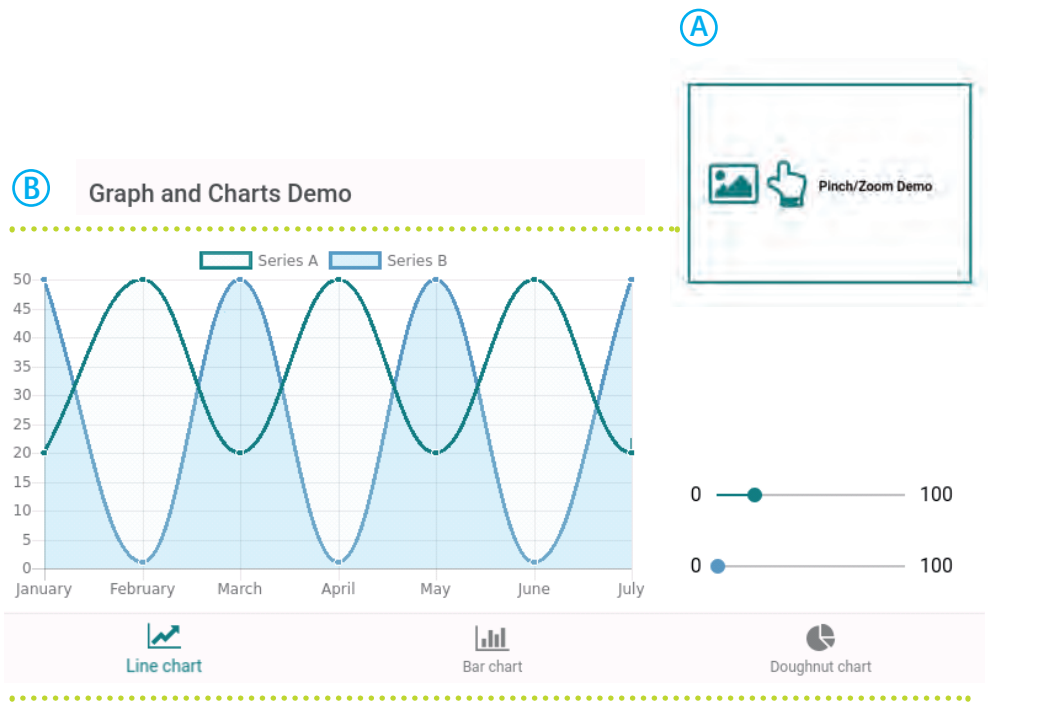
Quick Start Guide

2) Inspect the HTML5 Demo

When the board is done booting, you see an HTML5 demo on screen. You can swipe the screen **(A)** to access different demo apps. Pushing the frame will open the demo **(B)**. You see a web app created with the Ionic 2 framework. On the LEDs demo screen, you will see the client gui app communicating with the *Node.js* server app, which provides the hardware access. In the example **(C)** the LEDs are controlled using the *libmraa* GPIO interface, which accesses the Linux kernel sysfs GPIOs.



3) Deploy your own web project onto the board

It is very easy to get started with your own project. If the content will be hosted on the board, you can just copy the client web content to the board. It will then be displayed by the browser engine.

Ethernet connection peer-to-peer

The Ethernet interface of the board is configured to have a fixed IP which is 192.168.3.11/255.255.255.0. This is suitable for a peer-to-peer connection to your development machine. You can directly connect the Ethernet cable to the board.

Ethernet connection managed network

Additionally a DHCP client is running. When you connect the board to a network served by a DHCP server, an address will automatically be requested. In that case, you need to substitute 192.168.3.11 with the acquired address, throughout the following paragraph.

Copy your files

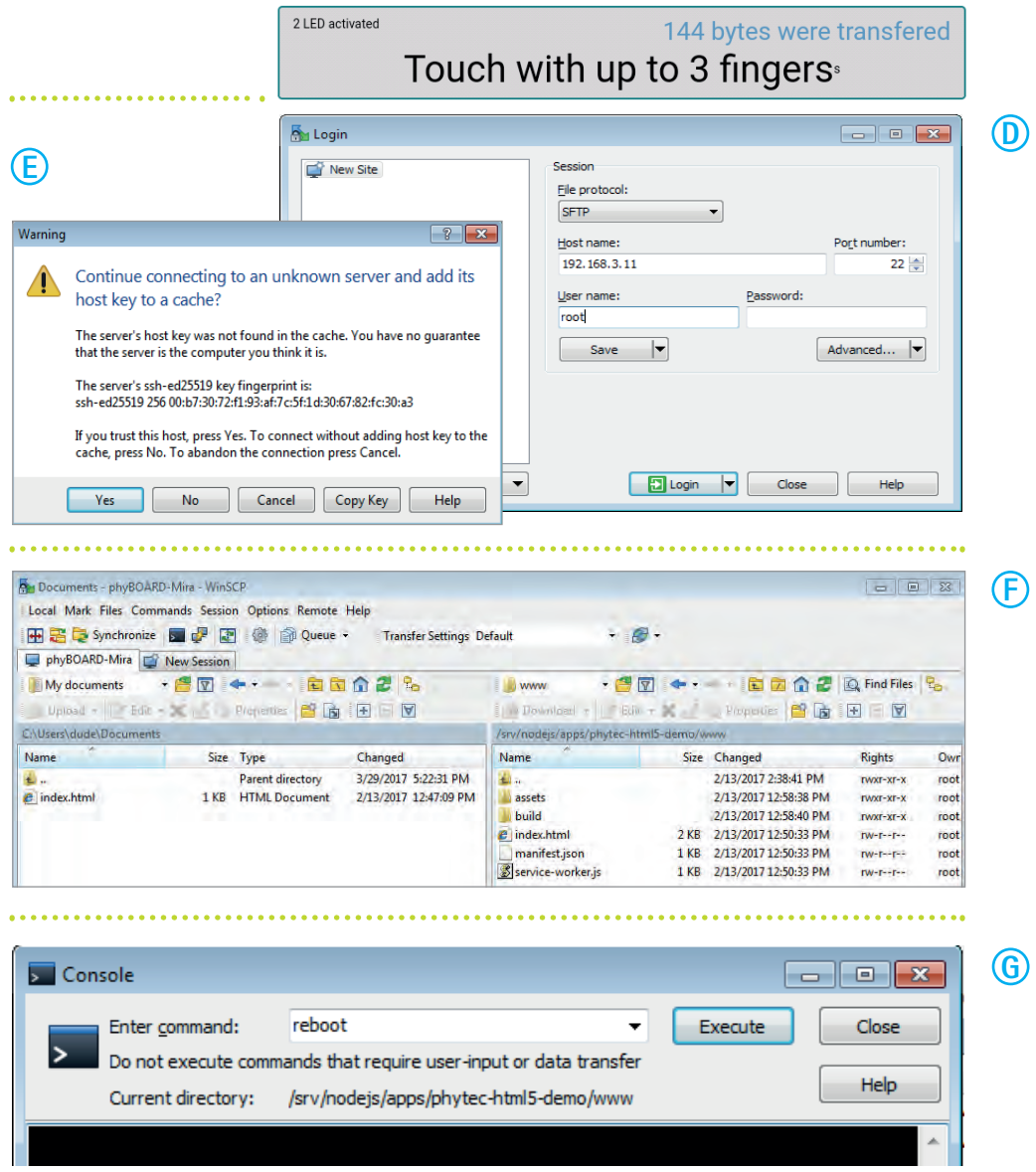
There are three network services running on the board: *ssh*, *sftp* and *Node.js*. To upload your files, you can use *sftp*. There should be a *sftp* tool for any host OS.
Jump to the description with your OS and afterwards continue with reading section 4).

OS: Windows

You can use *WinSCP*, which is an open-source tool, to copy your files. Open *WinSCP* and create a new sftp connection to 192.168.3.11 port 22 using the "root" user with no password **(D)**. When connecting for the first time, the ssh server on the board will create a new random ssh key, which you need to trust **(E)**. Once the connection is established, navigate to the directory /srv/nodejs/apps/phytec-html5-demo/www/ **(F)**. The index.html file will be provisioned by the web server. Just copy your web content to this directory, replacing the index.html. If you don't have any web content at hand, you can also use this test page:

```
<!DOCTYPE html>
<html>
    <head>
        <title>Example Page</title>
    </head>
    <body>
        <h1>Yes!</h1>
        <p>You created your first Webapp.</p>
    </body>
</html>
```

The easiest way to test the new content is to just reboot the board. Open a new terminal with *WinSCP* using **Ctrl+T**, select **OK** for a separate shell session and execute **reboot** **(G)**.



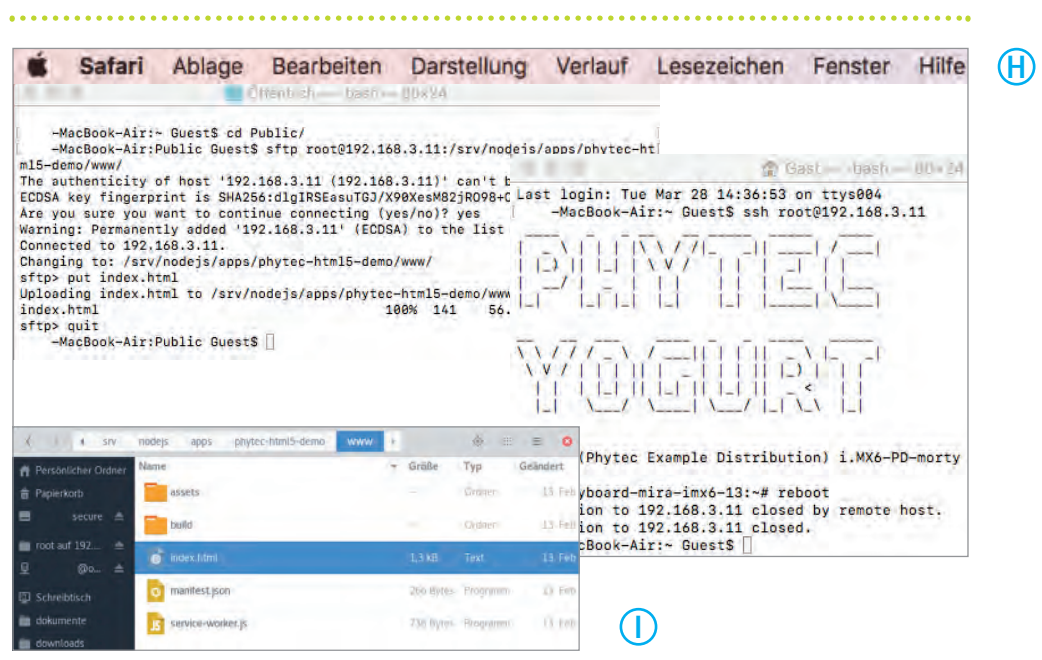
OS: MacOS

MacOS has all the tools on board to control the embedded target. Open two Terminals found under /Applications/Utilities, as shown in **(H)**. The first Terminal will be used to upload a custom index.html. Navigate to the folder where the new index.html is situated using cd. Enter sftp root@192.168.3.11:/srv/nodejs/apps/phytec-html5-demo/www/ . Accept the ssh certificate as trusted by typing yes. Type put index.html to upload the new file and overwrite the pre-deployed file. In the second Terminal, open a ssh session by entering ssh root@192.168.3.11 and reboot the board with reboot.

OS: Linux

Linux can work exactly as the MacOS workflow, or you can just use Nautilus in Gnome (I). Open connect to server using the URL:
sftp://root@192.168.3.11/srv/nodejs/apps/phytec-html5-demo/www/ . After copying your web content to the board, reboot the board using a teminal as described for MacOS.

After rebooting, you should see the new "index.html" on screen (J).



4) Redirecting the URL

Instead of providing the web content on the board, you might want to connect the board to a network and point the web browser to an external URL. To achieve that, you can use the previously mentioned method to connect to the board with sftp. But this time navigate to /lib/systemd/system/qtwebbrowser.service. Download the file and edit it on the host. The start URL is specified within the ExecStart setting. Its default is http://localhost. Set the desired URL, upload the modified file back to the target and reboot the board.

Continue exploring the Development Kit

In our Demo we use the Ionic 2 framework and implement an exemplary workflow to help you getting started with modern web app development. Please continue reading the full documentation at: www.phytec.de/HTML5-Kit

Enjoy!