



Strato Pi CM - Strato Pi CM Duo Raspberry Pi OS image

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Introduction

This document describes the configuration of a Strato Pi CM or Strato Pi CM Duo with Raspberry Pi OS pre-installed when purchased directly from Sfera Labs. Moreover it provides for a quick start guide to promptly use your device.

OS Configuration

Raspberry Pi OS version

Raspberry Pi OS Lite

Release date: September 22nd 2022

System: 32-bit

Kernel version: 5.15

Debian version: 11 (bullseye)

User

Username: pi

Password: raspberry

Networking

The network configuration is unchanged from its defaults: DHCP is enabled on the Ethernet interface (eth0) and the hostname is set to “raspberrypi”.

On most networks with a DHCP server available you should be able to reach the unit as “raspberrypi.local”.

SSH

SSH access with password authentication is enabled on the standard port 22.

Strato Pi Configuration

Kernel module

The latest version (at the time of provisioning) of the Strato Pi Kernel module is installed, configured to load at boot and its sysfs files accessible to the user pi.

All details available at:

<https://github.com/sfera-labs/strato-pi-kernel-module>

RTC

The I²C bus is enabled and the “i2c-tools” package and the RTC configuration services and scripts are installed.

The OS is therefore setup to update and use the RTC-stored date and time.

For more details refer to the product User Guide.

Dual SD card

The “sdio” overlay is enabled, which is required on Strato Pi CM Duo to access the SD card on the secondary bus.

To this end, the following line is added to /boot/config.txt:

```
dtoverlay=sdio,bus_width=4,poll_once=off
```

Serial console

The Linux serial console is enabled by default on the *ttyAMA0* device, which is connected to Strato Pi CM’s RS-485 interface. The baud rate is set to 115200.

You can therefore access the console connecting a host computer to the RS-485 interface using, for instance, a USB adapter¹ and any serial communication application.

Note that, because the RS-485 hardware interface is half-duplex (meaning that both ends cannot transmit simultaneously) and the Linux console echoes each character it receives, rapid sending of multiple characters, like when pasting a whole command to the console, would result in corrupted text both ways.

To disable the console to use the RS-485 interface for other purposes, refer to the product User Guide.

Quick Start

Power on

Connect the +/- terminal block pins to a suitable power supply, with 9-28 Vdc output, able to supply at least 6W, or more if you have USB connected devices.

Refer to the product User Guide for detailed power supply requirements.

Switch on the power supply and wait for the unit to boot up.

You should see the blue ON LED start blinking, followed by interleaved periods of steady on and less regular blinks. Towards the end of the boot process the TX LED will blink and finally, approximately 30 seconds from power on, the ON LED will stay on.

¹ <https://www.sferalabs.cc/product/ftdi-usb-to-rs-485-adapter/>

System access

The simplest way to access the system is to connect it to a network with DHCP service and login via SSH.

Connect the Ethernet cable and make sure you see the LEDs of the Ethernet port active.

Use your favourite SSH client application from your host computer connected to the same network and use “raspberrypi.local” as address. For instance, from a Linux terminal:

```
$ ssh pi@raspberrypi.local
```

If the connection is successful, enter the password (“raspberry”) and you are ready to use Strato Pi CM.

If the connection does not succeed, try to ping “raspberrypi.local”. If the unit responds, you should be able to see its IP address in the ping responses, so you can try to use this IP for the SSH connection, e.g.:

```
$ ssh pi@192.168.1.13
```

If you were not able to retrieve the IP address of the unit, access your router, modem, or DHCP server control panel and find the IP address that has been assigned to Strato Pi.

Alternatively use a network scanner application to list all the devices connected to the network and search for Strato Pi.

In any case, it should appear on the network as a standard Raspberry Pi board.

If all of the above fails or you don’t have a DHCP-enabled network to work on, you can attempt connecting Strato Pi CM with an Ethernet cable directly to your host computer’s Ethernet port. Depending on your computer’s OS and network configuration you might be able to reach the unit as described above.

A final option is to access the console through the RS-485 serial interface as described above. From here you can login typing username (pi) and password (raspberry) and check the IP address of the unit using the “ifconfig” command.

You could even use the system directly through RS-485 serial console; it is not very user-friendly, but possible.

Usage

Once you are connected to the unit you can use it as a standard Raspberry Pi OS installation to configure your required network settings and install your application stack.

As a quick test, turn on the L1 LED typing:

```
$ echo 1 > /sys/class/stratopi/led/status
```