

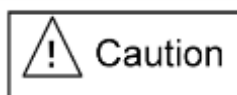
# **M820L Hybrid Codec PCI Express Card User's Manual**

Revision 1.3a  
Nov. 22, 2019

socionext™

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Depending on the PCB operating conditions, the surface of the devices on PCB may become extremely hot and possibly cause burns.  
Take appropriate safety measures for this case.

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部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印刷线路板	○	○	○	○	○	○
电缆	×	○	○	○	○	○
连接器	×	○	○	○	○	○

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Revision History

Date	Revision	Description
Feb. 20, 2018	0.95	First edition
Mar. 14, 2017	0.96	2 Deliverables The deliverables were changed. Figure 2-1 was modified. 4 Environment Requirements Table 4-1 were modified. 5.1 Main Specification Table 5-1 was modified. 5.4 Connectors and LED Figure 5-2 and Table 5-3 were modified. 5.5 Label Position The Figure 5-4 was added. 6.1 Confirmation of PCI Express I/O Bracket The description was modified.
Mar. 29, 2018	1.0	3. Related Documents The document name was modified. 5.1 Main Specification The note was added.
Apr. 10, 2018	1.1	5.1 Main Specification The item "Memory" in Table 5-1 was modified.
Apr. 27, 2018	1.2	3. Related Documents The related documents were added.
Oct. 24, 2018	1.3	1. Overview Table 1-1 was added.
Nov. 22, 2019	1.3a	The footer contents were changed.

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## 1. Overview

"M820 Hybrid Codec" features the 4K/60p HEVC compatible multi-format CODEC IC "MB86M30" as well as the ARM® core based multi-core processor IC "SC2A11B". "M820 Hybrid Codec" is an application platform for advanced video processing such as compressed video transcoding, real time extraction of semantical video information (meta data), and its integration with the video data. This application platform is enabled to extract maximum values from video data using the combination of the high-performance processing with the dedicated hardware and the flexible software processing with the general-purpose processor.

This document describes the hardware specification and setup of the M820L Hybrid Codec PCI Express card (hereinafter referred to as M820L). Figure 1-1 shows the appearance of M820L.



**Figure 1-1: M820L Hybrid Codec PCI Express card (M820L)**

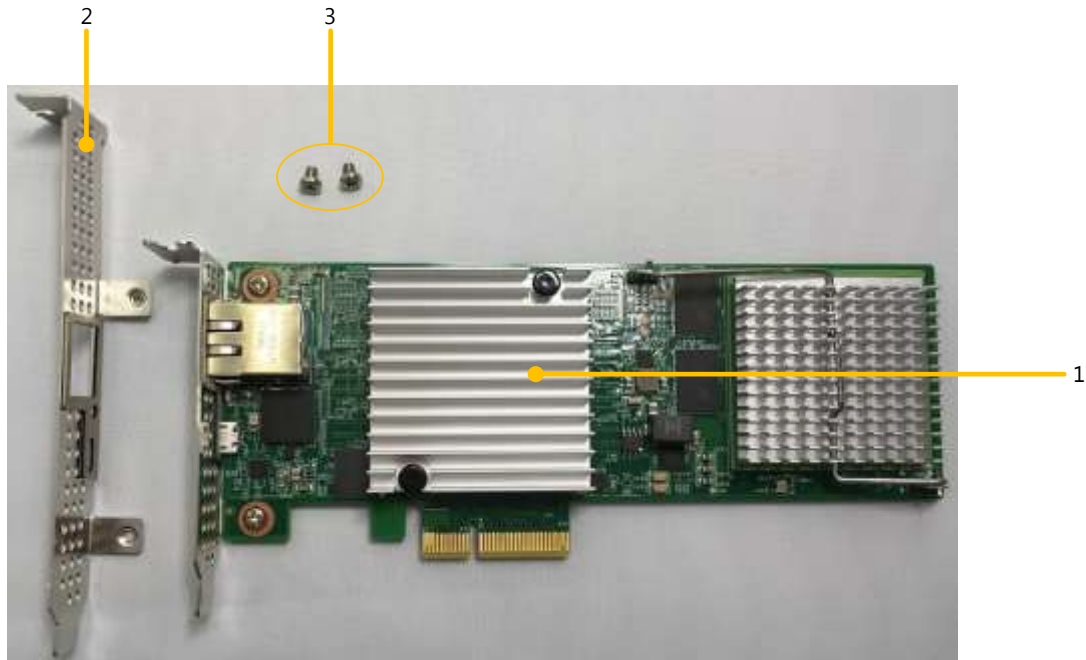
**Table 1-1: Part number and its MOQ/SPQ**

Part number	MOQ/SPQ
SC0FM8A-1AA	5/5
SC0FM8A-2AA	1/1

## 2. Deliverables

The deliverables related to the M820L hardware are as follows:

- 1) M820L Hybrid Codec PCI Express card (M820L)
- 2) Standard PCI Express I/O bracket for M820L (for replacement from low profile bracket)
- 3) Screws for attaching bracket with M820L (two pieces)



**Figure 2-1: Deliverables**

Notes:

1. Electrostatic discharge (ESD) may damage M820L. Touch M820L under the ESD-safe environment. To prevent the static electricity from damaging M820L, it is recommended the user wears the antistatic glove/clothes or ESD preventive wrist strap.
2. If too much force is applied to M820L, the devices on this card may be damaged such as the twisting of the device pins. Do not exert too much force on M820L.

### 3. Related Documents

The documents related to this document are as follows:

- M820 Hybrid Codec Basic Model Application Guide (PCIe Endpoint Device, FFmpeg Edition)
- M820 Hybrid Codec Basic Model Application Guide (Stand-alone, FFmpeg Edition)
- M820 Hybrid Codec Basic Model Application Guide (Stand-alone, GStreamer Edition)

### 4. Environmental Requirements

Table 4-1 shows the environmental requirements for M820L.

**Table 4-1: M820L environmental requirements**

Requirement	Operating	Non-operating
Temperature	+ 0 °C to +35 °C	-40 °C to +70 °C
Minimum airflow	200 LFM (Inlet temperature: +55 °C)	-
Relative humidity	5 % to 85 %, Non-condensing	5 % to 95 %, Non-condensing

Note:

High humidity and condensation on M820L causes short circuits. Do not operate M820L outside the environmental requirements. Make sure M820L is completely dry before providing the power.

In addition, when preserving M820L, preserve it in the non-condensing and ESD-safe environments.



## 5. M820L Hardware Specification

### 5.1. Main Specification

Table 5-1 shows the M820L main hardware specification.

**Table 5-1: M820L main hardware specification**

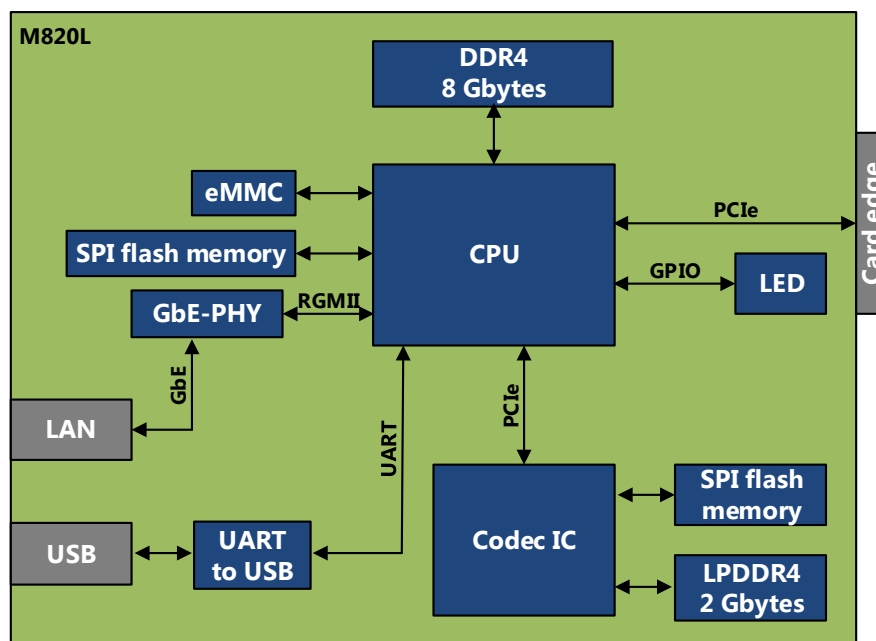
Main processor	
CPU	ARM® Cortex®-A53 (Dual, 1GHz) x12
Memory	DDR4 SDRAM: 8 Gbytes eMMC flash memory: 64 Gbytes
Interface	
Ethernet	RJ-45 1000/100BASE-T
PCI Express	Gen2.0, 4 lanes card edge
USB	Micro USB 2.0 device (Dual UART)
Others	
Power supply	12V (+/-8%)/2 A (provided from PCI Express card edge)
Size	179.49 mm x 79.2 mm x 20 mm (Low profile I/O bracket attached) 179.08 mm x 120.0 mm x 20 mm (Standard I/O bracket attached)
Weight	135 g (Low profile I/O bracket attached) 138 g (Standard I/O bracket attached)
Power consumption	24 W

Note:

Do not install M820L in the PC/server chassis with the power management by the PCI-PM software compatible mechanisms enabled.

### 5.2. Block Diagram

Figure 5-1 shows the M820L block diagram.



**Figure 5-1: M820L block diagram**

### 5.3. Main Parts

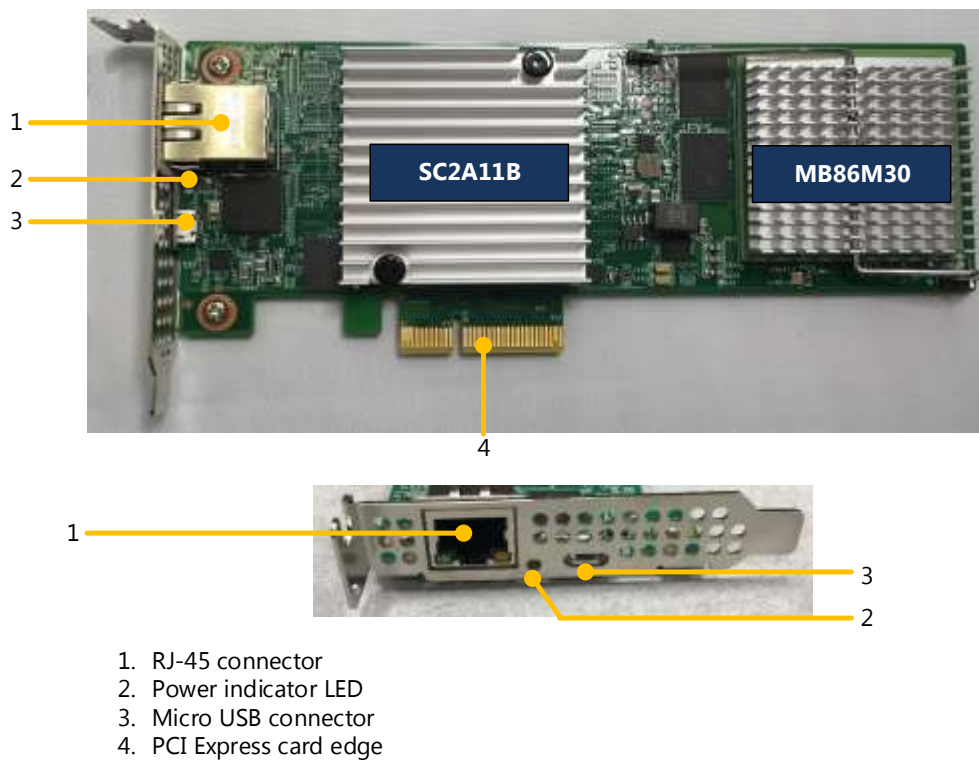
Table 5-2 shows the M820L main parts.

**Table 5-2: M820L main parts**

Part	Part number
CPU	SC2A11B (Socionext)
Codec IC	MB86M30 (Socionext)
GbE-PHY	BCM5482HA2KFBG (Broadcom)
UART to USB	CP2105-GM (Silicon Labs)

### 5.4. Connectors and LED

Figure 5-2 shows the M820L connectors and LED.



**Figure 5-2: M820L connectors and LED**

Table 5-3 shows the status description of LED.

**Table 5-3: LED**

Color	Status description
Green	Power on

## 5.5. Label Position

The label position of the MAC address and serial number is as follows.



**Figure 5-3: MAC address**



Serial number

**Figure 5-4: Serial number**

## 6. M820L Hardware Setup

This chapter describes the M820L hardware setup method.

### 6.1. Confirmation of PCI Express I/O Bracket

Firstly, confirm the PCI Express I/O bracket to be used of the PC/server chassis.

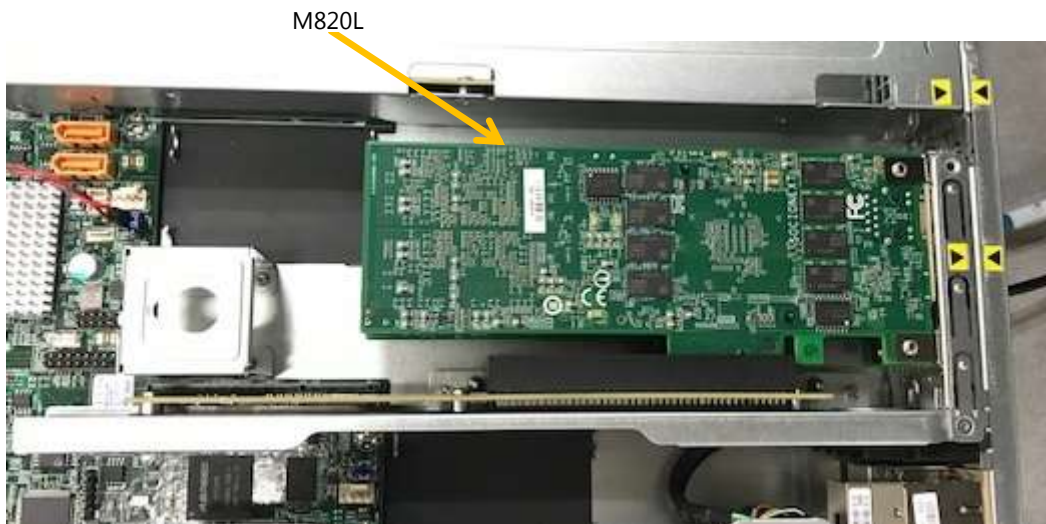
If the standard bracket is used, it is necessary to replace the bracket with the standard bracket because the low profile bracket is attached to M820L before shipping.

Note:

The screws attached as the deliverables cannot be reused.

### 6.2. Installing M820L in PC/Server Chassis

After the replacement of the bracket as necessary, install M820L in the PC/server chassis which has the PCI Express card slot as shown below.



**Figure 6-1: M820L installed in server chassis**

Turn on the PC/server chassis after confirming M820L is correctly installed in its PCI Express slot. The M820L power supply is provided from PCI Express card edge power (+12 V).

In case of the M820L removal from PC/server chassis, remove the card after confirming the PC/server chassis in which the card has been installed is turned off. After removing the card, put the card into the ESD-protective case, bag, sheet, etc.

#### **Caution:**

*Depending on the M820L operating conditions, the surface of the devices on M820L may become extremely hot and possibly cause burns. Pay attention not to touch the surface of these devices when removing M820L from the PC/server chassis after the M820L operation is completed.*

Notes:

1. Extreme care should be taken to mechanical stress to M820L in order to avoid the unexpected damage. For example, when the PC/server chassis is transported, this card should be removed from the PC/server chassis during transporting.
2. When installing/removing M820L in/from the PC/server chassis, do not exert too much force on this card. If too much force is applied to M820L, the devices on this card may be damaged.  
In addition, in case of M820L installation/removal, touch M820L under the ESD-safe environment. To prevent the static electricity from damaging M820L, it is recommended the user wears the antistatic glove/clothes or ESD preventive wrist strap.

For details of the M820L software installation and M820L operation, see "M820 Hybrid Codec Basic Model Application Guide".

## **7. Appendix**

### **7.1. Standard Compliances**

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M820L is in compliance with the requirements specified by the following certification bodies:

- FCC Class A (USA & Canada)
- CE Mark Class A (Europe)
- BSMI (Taiwan)
- KC (Korea)
- VCCI Class A (Japan)

