

GigaSOM gS01

Evaluation kit

September 2019





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1 Introduction

This document is intended to provide instructions on how to set up GigaSOM for first usage. It also lists different interfaces and connectors that can be used.

2 Description

GigaSOM evaluation kit consists of GigaSOM Module and GigaSOM Carrier Board.

2.1 Key Features

- Intel Apollo Lake E3940 64-bit processor
- Cyclone 10 GX FPGA

3 Kit Contents

- GigaSOM Carrier Board
- GigaSOM Module
- SD card with preloaded starting Linux OS
- Power supply adapter

5 Carrier connectors and interfaces

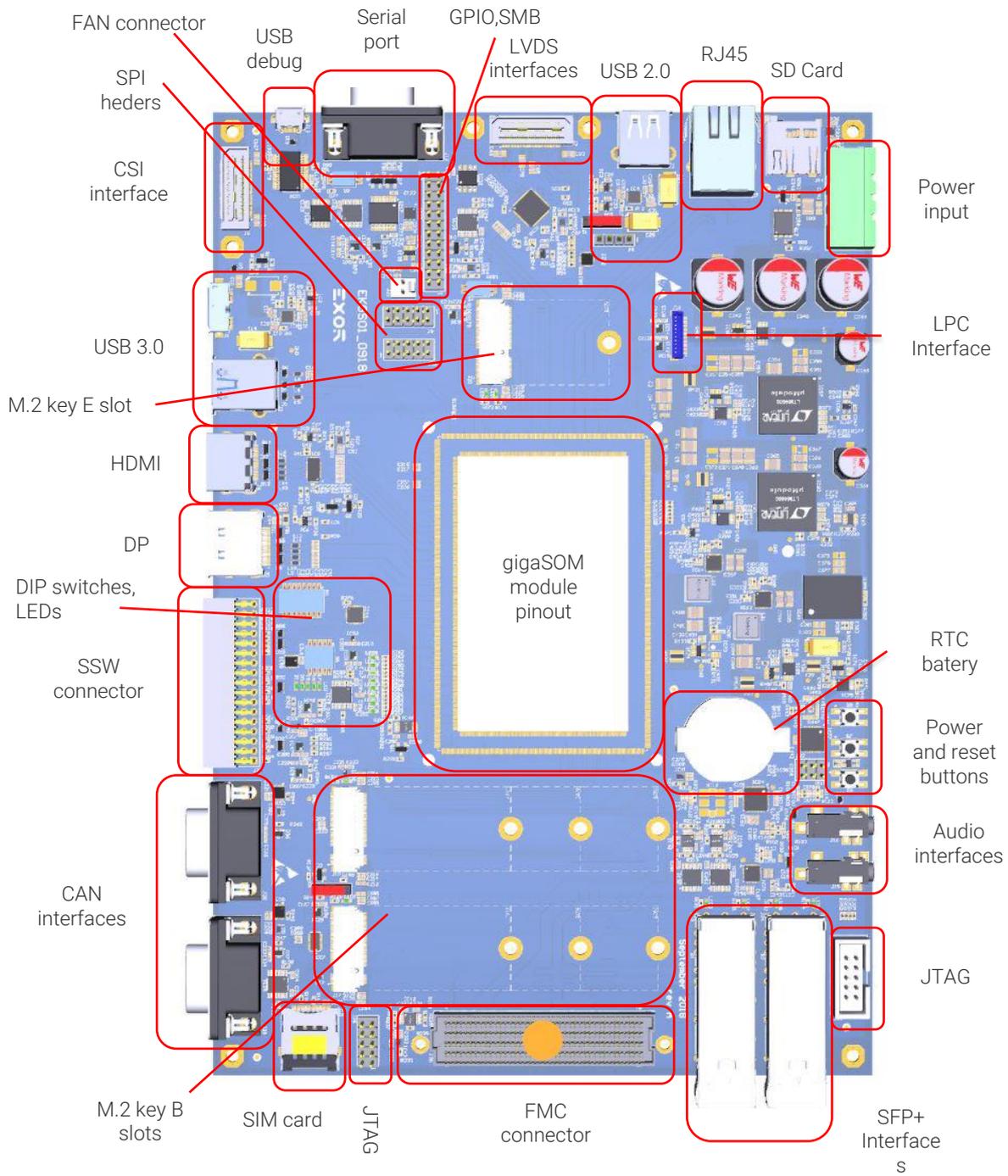


Figure: Interfaces and connectors on GigaSOM Carrier Board



6 Getting started

To get started, plug in all the connectors needed and then plug in the power to the 1795679 connector at J31. This chapter describes all of the connectors on the board.

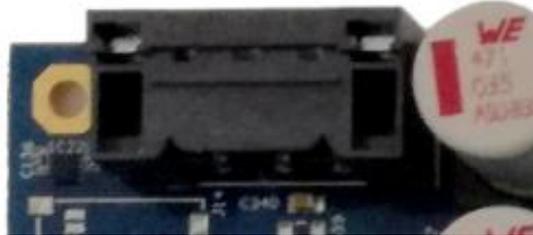


Figure: Power connector 1795679

An OS may already be installed on the board in which case you should just log in using username and password that was given to you and run the script “run.sh” for the final setup. To run the script open a terminal either by clicking on the taskbar “Terminal” icon, right click on desktop and choosing “Open in Terminal” or pressing Ctrl + Alt + T at the same time. With terminal opened, enter the following command:

```
$ sudo sh run.sh
```

In case the OS isn't installed on your board, insert installation media and reboot the system. Choose the OS to install and follow the instructions. After you're done installing, run “run.sh” script for the final setup as was described in the previous paragraph.

If the OS isn't previously installed and it didn't come with the package, you may have to download it from Exor's website (<https://exorint.com/>).

Instructions for downloading and installing the software and setting up the environment are in Linux BSP document.

If so desired, a different OS can be installed on the system but then these instructions and Linux BSP instructions cannot be followed.

6.1 Buttons

There are 3 buttons on GigaSOM carrier board. Button S7 is a CPU reset button and will reset the GigaSOM module i.e. CPU when pressed (warm boot). Button S8 is a system reset button and will reset GigaSOM board when pressed (cold boot). Button S9 is reserved and it is not used.



Figure: System reset (left), CPU reset (middle), and reserved (right) buttons



6.2 USB

GigaSOM contains the following USB interfaces:

- One USB3.0/2.0 interface Port A type
- One USB3.0/2.0 interface dual role micro AB
- One USB2.0 type A port
- One USB2.0 with header

Switch S1 is used to change between using USB header or USB at QSH connector.

6.3 Display

There are three display output ports to choose from: DP (Display Port), HDMI, and Dual channel LVDS port.

6.3.1 Display port (DP)

To use DP as display output, simply plug in DP cable into DP connector J5. Any standard DP display works.

6.3.2 HDMI out

To use HDMI as display and audio output, simply plug in HDMI cable into HDMI connector J6. Any standard HDMI display works.

6.3.3 Dual channel LVDS port

To use Dual channel LVDS port, plug in LVDS adapter to QSH connector J7. Tested with Sharp LQ156M3LW01 display with LVDS interface. It requires QSH to LVDS adapter.

WARNING: Be careful not to connect the display to camera connector J8. They both use the same QSH connector.



Figure: QSH LVDS connector



6.4 Ethernet

There is a RJ45 ethernet connector T1. To use it, plug in an ethernet cable.

6.5 Micro SD card

There is a micro SD card slot J14. Plug in a micro SD card. This is the slot to plug in a micro SD card with preloaded Linux OS.

6.6 SIM card

There is a SIM card slot at J18. To use it, plug in Micro SIM card into it.

6.7 Audio interface

There are two 3.5 mm audio sockets. J15 uses I2S codec and J16 uses HDA codec. Both sockets support audio output and audio input i.e. speakers and microphone. If you want both speaker and microphone, the audio jack has to have 4 metal rings on it i.e. needs to have tip, two rings and a sleeve.



Figure: HDA (left) and I2S (right) 3.5 mm sockets

6.8 SPI interface

There are two SPI interfaces on the board. SPI interface is at header J9 and Fast SPI at header J10.



Figure: SPI header and Fast SPI header



6.9 LPC interface

There is a Low Pin Count (LPC) bus at connector J11.

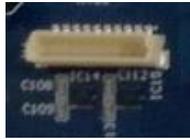


Figure: LPC interface connector

6.10 Camera CSI interface

Camera can be connected on CSI interface QSH connector J8. It requires QSH to CSI adapter.

WARNING: Be careful not to connect the camera to LVDS connector J7. They both use the same QSH connector.



Figure: QSH CSI connector

6.11 Serial interface

There is an RS232/RS485 standard 9-pin (Dsub9) female connector on J12 for serial port communication. There is also a micro USB type B (J13). The switch S2 next to the serial port is used to choose between RS232 and RS485. The first one switches between RS422 (OFF) and RS485 (ON) mode and the second one switches between control by CPU GPIO (which sets RS232 mode) (OFF) and RS422/RS485 (ON) mode.



Figure: Dsub9 and micro USB port for serial interface



6.12 Fan connector

There is a fan connector at J21.

6.13 M.2 key B slots

There are two M.2 key B slots on J17 and J19 in which can SSD be plugged in. The connector J17 uses PCIe interface and is approximately 3 times faster than the connector J19 which uses SATA interface. To use either interface screw it in place through the hole on the board. Supported sizes are 2242, 2260, and 2280. The Switch S3 can be used to change slot J17 to work with PCIe or SATA interface.

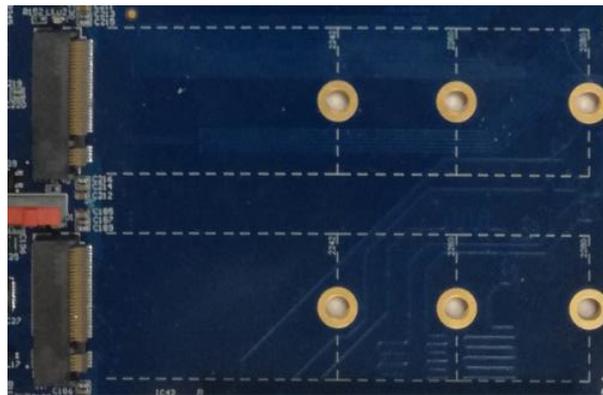
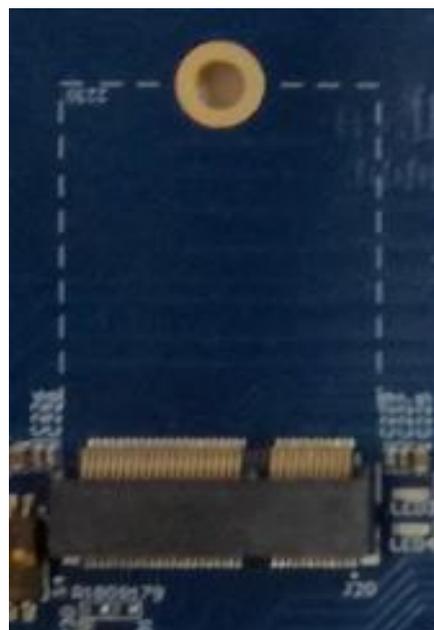


Figure: M.2 key B slots. J17 is the bottom and J19 is the top one

6.14 M.2 key E slot

There is a M.2 key E slot for Wi-Fi, NFC, GNSS and Bluetooth modules. To use a module, plug it in connector J20 and screw it in place through the hole on the board. Supported size is 2230. The switch S4 turns Wi-Fi and Bluetooth on/off and LED3 signifies the state of Wi-Fi and LED4 signifies the state of Bluetooth. To turn them on, both switches must be in OFF position.



6.18 SFP+

There are two SFP+ interfaces at connectors J23 and J24. Each SFP+ connector has two LEDs. The following table describes meaning of each LED state.

LED	Signal name	Description
LED 5	SFP0_RLED	LED is turn ON when SFP0_RLED is DOWN
LED 6	SFP1_RLED	LED is turn ON when SFP1_RLED is DOWN
LED 7	SFP0_GLED	LED is turn ON when SFP0_GLED is DOWN
LED 8	SFP1_GLED	LED is turn ON when SFP1_GLED is DOWN

Table: SFP+ LED statuses

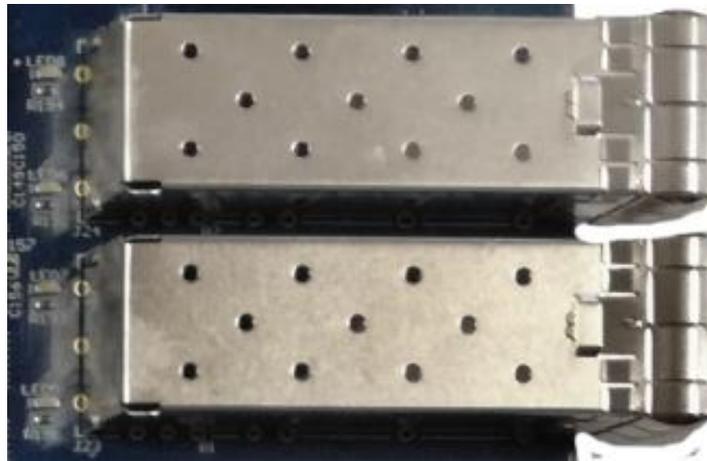


Figure: SFP+ connectors and LEDs

6.19 SSW connector

There is an SSW Samtec connector at J27. It can be used with multiple interfaces such as SPI, UART, I2C, two groups of GPIO signals and power supply.



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