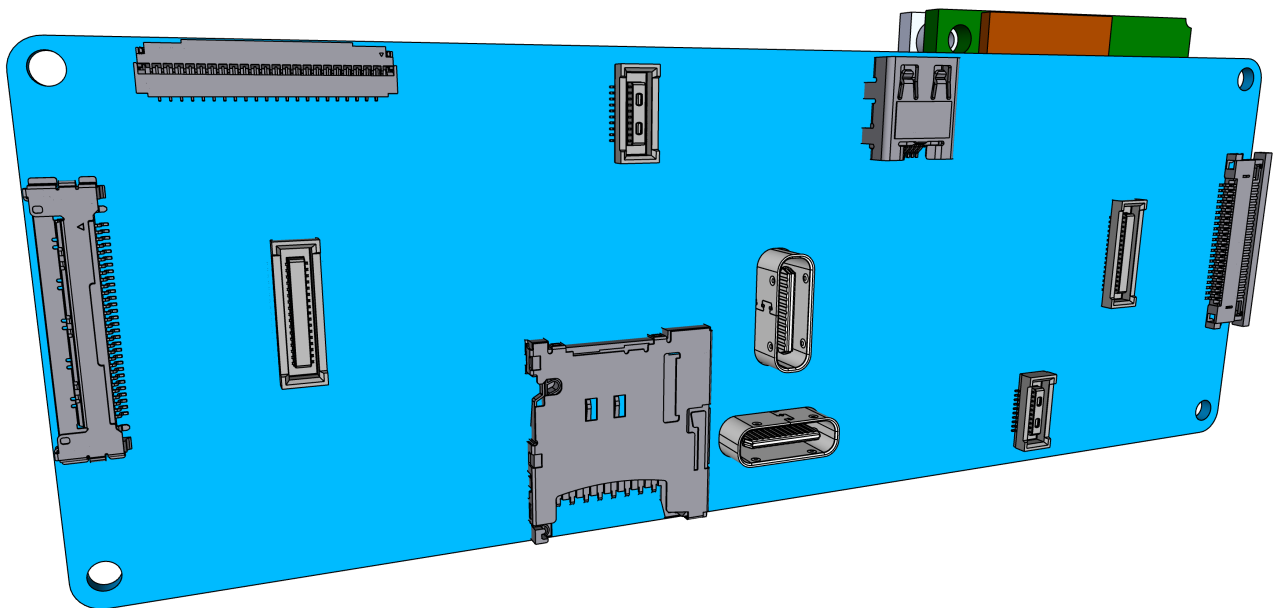


Bridge Board 909c

The 909c is a Bridge Board version made for testing and experimentation with the Ziloo attachments without attaching the SB-UCM i.MX8 board or directly attaching it. The setup enables connecting a [Compulab SB-UCM-iMX8PLUS](#), [DART-MX8M-PLUS Evaluation Kit](#) or [I-Pi SMARC IMX8M Plus](#) development board. Not all the 909 connectors will be mounted on the 801 production bridge board that mounts the i.MX8 board.

Of note in design,

- Some of the UCM-iMX8M-Plus carrier board interface pins are multifunctional. Up to 4 functions (ALT modes) are accessible through each multifunctional pin.
- All of the UCM-iMX8M-Plus digital interfaces operate at 3.3V voltage levels unless noted otherwise.
- RGMII ENET1 signals operate at 1.8V voltage level
- SD/SDIO port #2 can be configured to operate at 3.3V or 1.8V voltage levels. Voltage level is controlled by SoC pin GPIO1_IO04.



Open points

- B2B sound/I2C connectors
- Mux chips shutdown mode
- Should there be Boot origin switches like EVK? (4 bits? EVK)
- Annotations and Logo on the board
- TEST The Mux pin configurations

Difference from revision B

- The PD Controller is no longer on the bridge board
- The Power module connects to the bridge board to provide dual USB-C
- Two 50 pin connectors take high speed and low speed signals to USB-C connectors
- Two 20 pin sound connectors
- Only 1 alternative CSI connector for each side
- I2S Mic removed from debug connector, CAN1/CAN2 added.
- No soldering pads
- No Alt USB breakouts on bridge board
- No Alt mode on bridge board
- No I2C breakouts on bridge board
- No 45 pin Alt Mode Connectors
- Only m.2 Key B (no Key E)
- Pulled parts out in BRIDGE_BOARD_CAMERA, BRIDGE_BOARD_SOUND, BRIDGE_BOARD_M2_KEY_B documents.

Core Components

- [SB-UCM-iMX8PLUS](#) System-on-Module
- 2 * [Hirose DF40HC\(3.0\)-100DS-0.4V](#) mated height 3.0mm
- 2 * [Hirose DF40-50DS-0.4V](#) mated height 1.5mm [Mouser](#) - [JLCPCB socket](#)
- M.2 key B connector H4.20mm [Amphenol ICC 10128793001RLF](#)
- 2 * [Hirose DF40C-34DS-0.4V](#) ([Mouser](#)
- 1 * microSD card slot (suggested Molex 5031821852) push-push, compact. [Mouser](#), [Molex](#)
- 1 * [CBTL04083 Multiplexer Switch ICs 3.3V CH 2:1](#) - [Mouser](#)
- 3 * PCA9555 I/O Expander
- 1 * [TS5USBC410 Dual 2:1 USB 2.0 Mux/DeMux Switch](#). [Mouser](#)

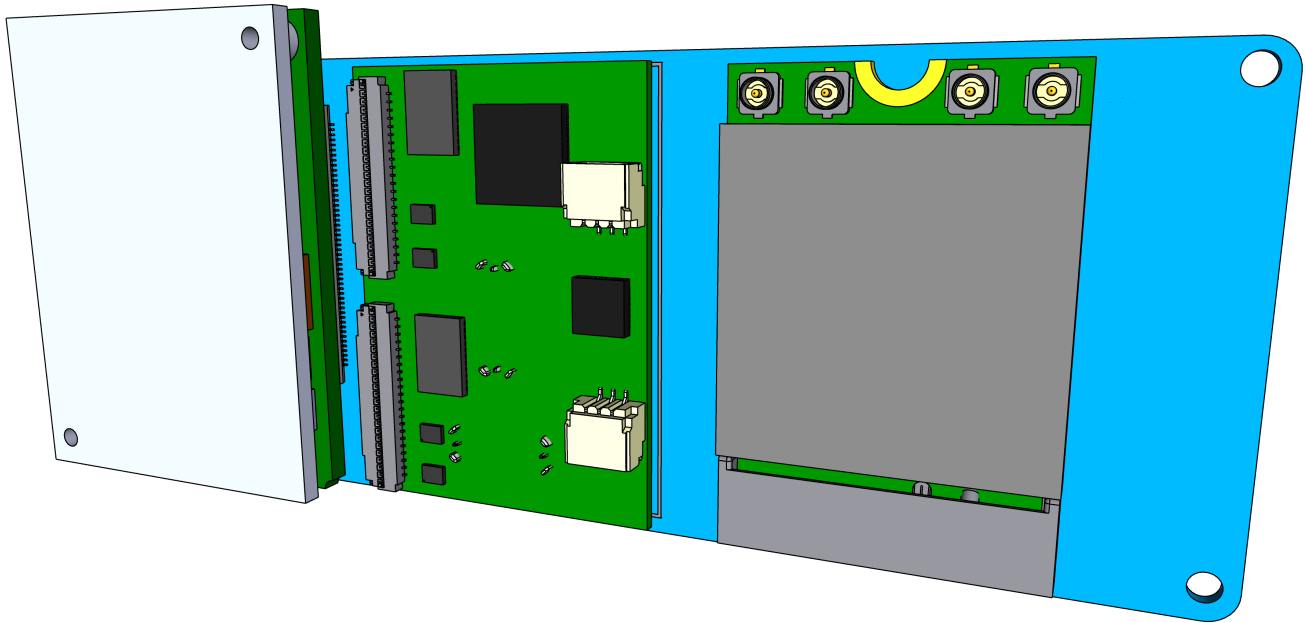
Dev. Connectors

- 1 * MicroHDMI (suggested Molex 46765-1301) [Mouser](#) [Molex](#)
- 1 * [Molex 22PIN 0.5mm pitch 54548-2271](#)
- 1 * [I-PEX 30PIN 0.4mm pitch 20525-030E-02](#)
- 1 * [TE Connectivity 45PIN 0.3MM 571-4-2328724-5 FPC 3-2328724-5](#) \$0.41 ProductDetail/Hirose-Connector/DF40C-34DS-04V51?qs=vcbW%252B4%252BSTlpg26DsEbj1iQ%3D%3D))
- 2 * [Hirose DF40-20DS-0.4V](#) mated height 1.5mm [Mouser](#) - [JLCPCB socket](#)

Other Components

Connectors placed on the board are,

- [PI6CG18200 clock](#)
- 1 * 24C08 Carrier-board EEPROM. [Mouser](#)
- 1 * TSM-120-01-F-DV Samtec 2*20 pins surface mounted .100 (Smiley model) [Mouser](#)
- [SuperSpeed MUX PI5USB30213A](#) may be an option instead of CBTL04083
- [Alternate USB 2.0 Mux/DeMux Mouser JLCPCB part](#)
- 5 * TXB0108 voltage shifters 3.3V to 1.8V



The back of the board connects for SB-UCM-iMX8PLUS, T-USB module and M.2 Key B module. The SB-UCM-iMX8PLUS is the center of the board and receives all signals.

System Power Module

This is a new module

The system power is driven by the T-USB module via the two 50 pin connectors. There is no need to power the board from other connectors than USB-C.

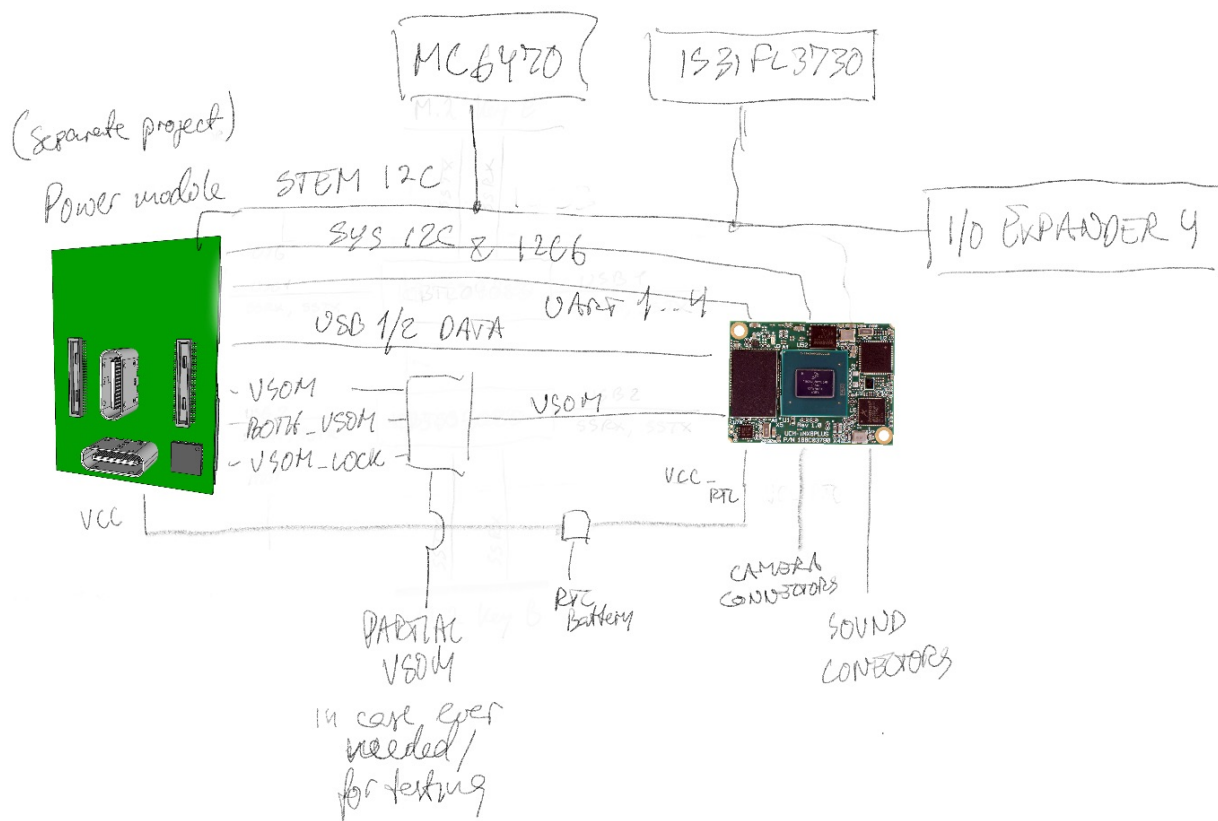
According to the UCM-IMX8PLUS Reference Guide the Supply Voltage is 3.45V to 4.4V. VSOM from the Power module provides this level. From it 5V0, 3V3, 2V8, and 1V8 are derived. 5V is stepped up from VSOM. These should not be mixed with the VIN_5V and VIN_3V3 on the T-USB module connector, which are for experimenting with power source role.

- m.2 connectors are based on 3V3 and 1V8
- Sound is based on 3V3 or 1V8
- Cameras are 1V8, 2V8 and 3V3
- HDMI can supply 5V / 50 mA
- HDMI signal level is 5V
- LED matrix may need 5V
- Debug connector has 5V

So there are in total three(four) uses of 5V

1. HDMI supply and signal (50 mA) from upregulated VSOM
2. LED matrix(not on 801/909 board) may need 5V

- VIN_5V is optional and separate from the power on the board. It is supplied from the soldering pad/point.



When connecting the T-USB module to the Bridge Board VSOM is provided over multiple pins on both connectors. The bridge board can draw a limited current from individual pins, but must only drive the System Module with power when all VSOM pins are connected. This allows for avoiding damage or strange behavior, if the power module is partially inserted.

- No VSOM pins connected
- At least one VSOM pin is connected
- VSOM Pins from both connectors connected
- All VSOM pins connected (including VSOM_LOCK)

When pins from both connectors are supplying VSOM the Bridge Board should raise BOTH_VSOM. The Power Module may restrict VSOM to some pins dependent on BOTH_VSOM.

4 / 20

As the first step in the detachment of the power module the physical unlock button must be pressed which raises PMIC_STBY_REQ. The next step is to turn the back plate which will disconnect the conditional VSOM_LOCK pin.

This requires logic on the 701/801/909/919 boards.

Powering Sensors and Camera modules

- Camera modules should receive power regardless of VSOM_LOCK supplying.
- Sensors (MC6470, VM3011) should receive power regardless of VSOM_LOCK supplying.
- EEPROM 24C08 should receive power regardless of VSOM_LOCK supplying.
- PCA9555 EX4 should receive power regardless of VSOM_LOCK supplying.
- USB Multiplexers should not receive power unless all 10 VSOM are connected.

Power Logic on Bridge board

The T-USB module is inserted onto the bridge board. As this gets inserted the bridge board must detect it and enable power as connection is established. This relates to when to provide the System Module and m.2 module with VSOM

a) If at least one VSOM pin on both connectors is high, BOTH_VSOM is raised high by the bridge board. b) Directly connect VCC_RTC on T-USB connectors, soldering pad and System Module. c) If all 9 VSOM pins are supplying power, use it to power the System Module d) If all 10 VSOM and VSOM_LOCK pins are supplying power, deliver upregulated 5V e) If all 10 VSOM and VSOM_LOCK pins are supplying power, deliver 2.8V to camera modules f) If all 10 VSOM and VSOM_LOCK pins are supplying power, deliver power to m.2 modules g) If some VSOM pins are powered deliver it to always running circuits(like IMU) on bridge board(not on 909c).

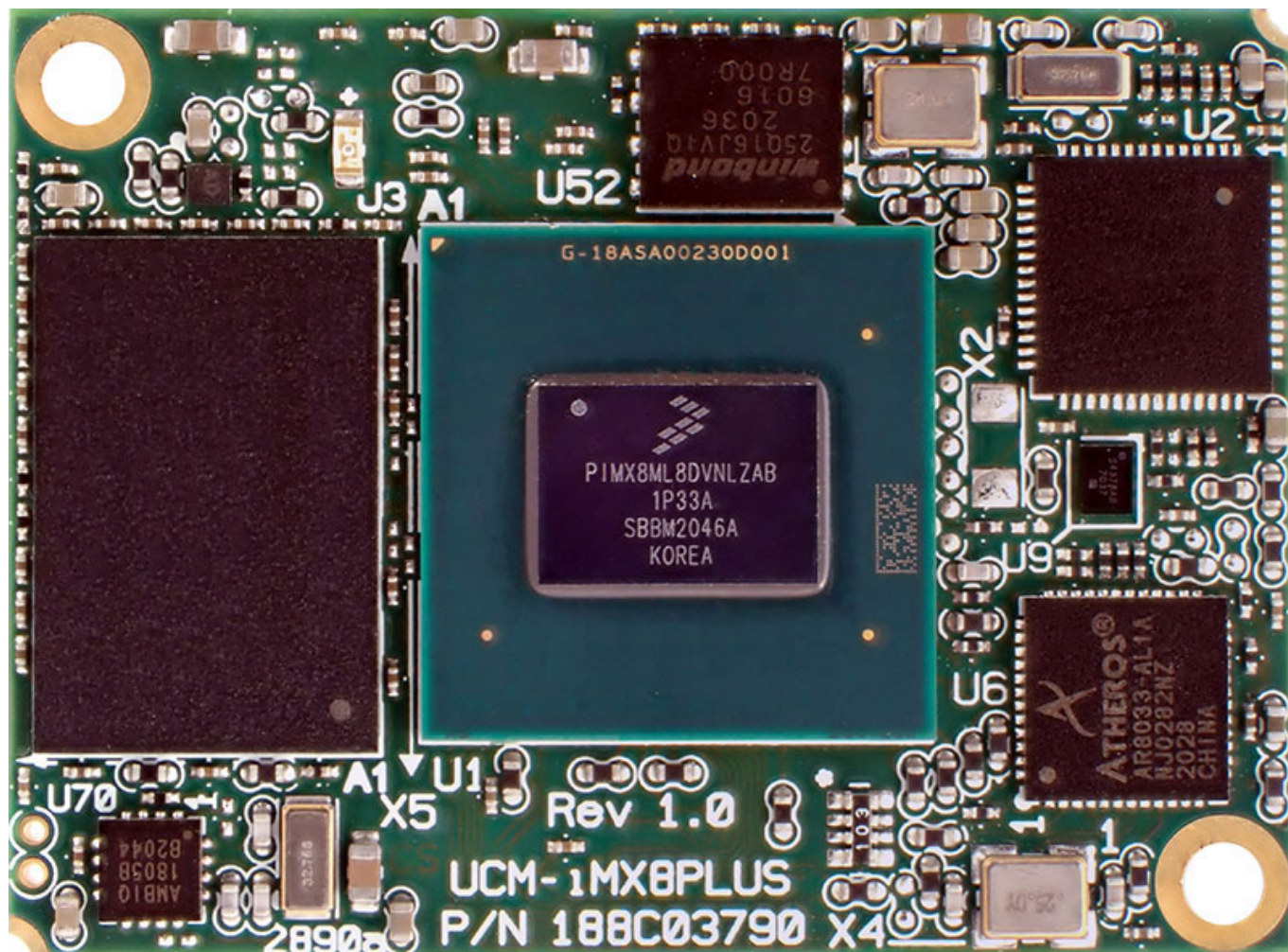
The module connectors have pins that are used for different setups. Not all should be connected to the 909 board.

System SB-UCM-iMX8PLUS Module (SoM)

The daughter board clicks into the two Hirose 100 pin board-to-board connectors.

For further details see [Product Page](#).

- The CSI1 & CSI2 are wired from the 100pin connectors to relevant CSI connectors.
- The CSI1 lanes are connected to Left CSI.
- The CSI2 lanes are connected to Right CSI.
- The USB1(OTG) data connects to 50 pin high speed connector.
- The USB2(Host) data connects to multiplexer between 50 pin high speed connector and m.2. Switched with MUX_HOST on EX0.
- 50 pin controls takes in signals from SoM (LVDS, UART, I2C, INTs)
- The 45 pins Debug connector will break out many additional signal lines.
- The Debug connector can be placed near the 100 pin connectors if it helps the board layout.



MicroSD and MicroHDMI

The MicroHDMI connector is connected to the HTMI_TX*, HDMI_DDC_*, HDMI_CEC, HDMI_HPD pins from the i.MX8 module.

The MicroSD connector is connected to SD2_DATA*, SD2_CLK, SD2_CMD, SD2_nCD on the i.MX8 module.



The T-USB module connects two USB-C connectors to the board via multiplexers and a Power Delivery Controller. USB Data is routed over the 50 pins data connector as well as the M.2 Expansion connector. The Host USB connection is multiplexed between the two.

T-USB connector 3.0 data mapping

Two USB 2.0/3.0 connections are provided by the T-USB module. T-USB module 50 pin connectors supply/consume:

- USB1 v2 / v3 data
- USB2 v2 / v3 data
- LVDS data pairs
- UART 1/2/3/4
- I2C SYS/3
- GPIO4_IO19, GPIO1_IO0, GPIO1_IO1
- SYS_RST_PMIC / POR_B_3P3 / PMIC_ON_REQ / PMIC_STBY_REQ / PWRBTN / ALT_BOOT / QSPI_BOOT_EN_3P3
- VCC_RTC

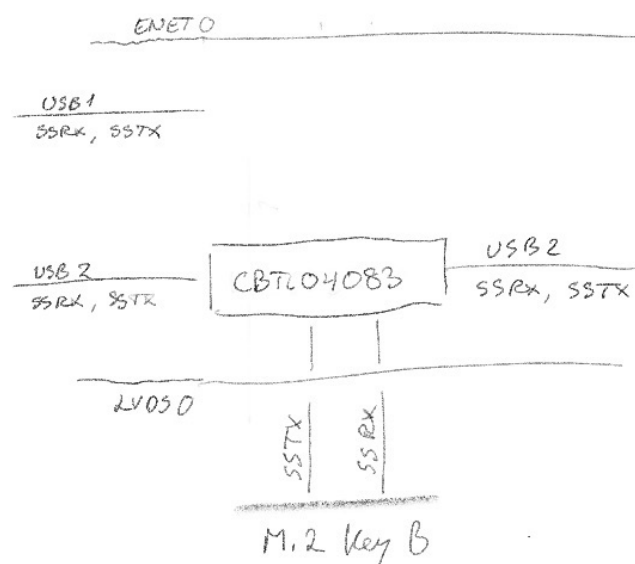
T-USB module 50 pin connectors not connected:

- SPI
- SWD

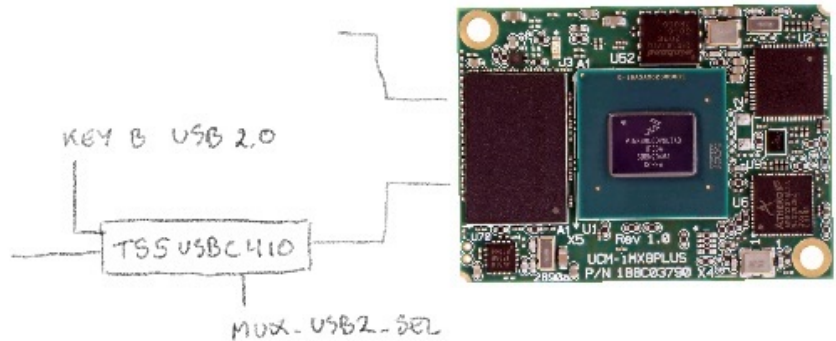
Multiplexing USB

The i.MX8 has two USB busses. USB1(supports OTG) and USB2(Host mode only).

The USB 3.0 superspeed Host/USB2 from the SoM are multiplexed using CBT04083 and controlled by MUX_USB3_SEL pins.



The USB 2.0 Host/USB2 from the SoM are multiplexed using TS5USBC41 and controlled by MUX_USB2_SEL pins. The USB-C connector USB 2.0 signals(A/B 6/7) are managed separately and multiplexed using TS5USBC41. This allows routing an Extra USB 2.0 signal selectively via the Debug Breakout connector.



SEL	Connect to
High	m.2
Low	T-USB

I2C EEPROM

Add an EEPROM like 24C08 present on the UCM carrier board. Unlike reference design it should be connected to Stem I2C from 50 pin connector

Wiring and Connecting

The board can be used in different ways

1. Adding a daughterboard, two OV2735 camera modules and connecting a USB cable with power.
2. Adding a daughterboard, two RPi camera modules and connecting a USB cable with power.
3. Use the board to connect two OV2735 camera modules to Compulab SB-UCM-iMX8PLUS
4. Use the board to connect two OV2735 camera modules to I-Pi SMARC IMX8M Plus

Required distances/location

- Camera module distance 70mm
- USB-C connectors cannot be moved
- Board size can only be increased to save cost
- Holes in the corners should be the regular sort for mounting.
-

I/O Expanders

The pins on I/O Expanders are rearranged

Three expanders are placed on the bridge board and a fourth is on the Power Module.

Expander 0

The development board uses a single Expander. The 909 and 801 uses 2x PCA9555 to control more states. The system expander input triggers interrupt via EX0_nINT (GPIO4_IO19). This expander deals with activity relevant during waking.

This first expander, which is also on the dev. board maps,

Expander	Connected to
EX0.0	mPCIe_PERST on M2 Key B
EX0.1	
EX0.2	
EX0.3	
EX0.4	MUX_OTG_USB2_SEL - SoM USB1
EX0.5	MUX_OTG_USB3_SEL - SoM USB1
EX0.6	MUX_HOST_USB2_SEL - SoM USB2
EX0.7	MUX_HOST_USB3_SEL - SoM USB2
EX0.8	CSI1_PWR_DWN_B
EX0.9	LEFT_CAM_RESET
EX0.10	LEFT_ATT_INT
EX0.11	LEFT_ATT_XSHUT
EX0.12	CSI2_PWR_DWN_B
EX0.13	RIGHT_CAM_RESET
EX0.14	RIGHT_ATT_INT
EX0.15	RIGHT_ATT_XSHUT

I/O Expander like Compulab Carrier Board to map Camera interrupts. (SYS I2C)

Expander 4

This 919 EX4 Faceboard sensor I/O Expander is placed on faceboard and controlled via the Stem I2C.

- LED Controller
- Motion Sensor
- Sound Sensor

- Nighttime camera attached sensors
-

The EX4 expander input triggers interrupt via STEM_INT.

Expander	Connected to
EX4.3	IMU_INTM - MC6470 INTM
EX4.4	IMU_IRQ - MC6470 INTA / Motion Controller
EX4.5	IMU_RESETN - Motion Controller
EX4.6	IMU_MODE - Motion Controller
EX4.7	LED_SHUTDOWN - SDB
EX4.8	MIC VM3011 DOUT
EX4.9	W_DISABLE2# on m.2 Key E
EX4.10	W_DISABLE1# on m.2 Key E
EX4.11	M2E_PWROFF on m.2 Key E
EX4.12	M2B_PWROFF on m.2 Key B
EX4.13	DEVSLP 3V3 on m.2 Key B
EX4.14	RIGHT_ATT_INT
EX4.15	RIGHT_ATT_XSHUT

I/O Expander to cover m.2 Expander (Stem I2C). Some sensor pins not connected.

Expander 6

The 919 EX6 expander is used for testing m.2 signals on Key B and Key E. It is on the SYS I2C bus. Pins on Key B are prefixed with **B_**. Pins on Key E are prefixed with **E_**.

The EX6 expander input triggers interrupt via EX0_nINT (GPIO4_IO19).

Expander	Connected to
EX6.0	E_COEX4
EX6.1	E_DEV_WLAN_WAKE
EX6.2	E_ALERT / I2C_IRQ
EX6.3	E_LED / DAS / DSS
EX6.4	E_UART WAKE
EX6.5	E_SDIO WAKE
EX6.6	E_LED2#

Expander	Connected to
EX6.8	B_RESET#
EX6.9	B_ALERT / I2C_IRQ
EX6.10	B_LED / DAS / DSS
EX6.11	B_CONFIG_1

I/O Expander to cover m.2 Expander (SYS I2C). E_* pins are not connected.

SYS I2C addresses

SYS I2C addresses

Reduced the devices connected to SYS bus

Address	Chipset	Description
0x20	PCA9555	16 bit expander EX0
0x25	PCA9450	Reserved 7 bit address
0x26	PCA9555	16 bit expander EX6
0x4A 0x4B	PCA9450	Power Management IC
0x68	PI6CG18200	PCIe clock generator
0x70 0x71	TPS65988	RESERVED for PD Controller Port 1 / SYS
0xD2/D3	RTC	AM1805 real time clock (RTC)

Signal Interrupt(INT) pins

Various chips have internal state changes that should cause interrupts by the SoM(CPU). It is essential that inputs are flagged so communication can be reliable.

On the reference board these are triggered via USB1_TCPC_nINT(P1.60) It is used for I/O Expander 0 and input IRQs.

Events that we want to catch

- T-USB OTG plug events
- T-USB Host plug events
- PD Controller state changed
- Camera sensors input ready
- I/O Expander input ready
- m.2 connectors
- PCIe

Interrupts from the PD Controller are input to I/O Expander 0 (or 3). It in turn triggers an interrupt on EX0_nINT or EX_T_nINT.

Interrupts from the Left and right cameras interrupt signal(ATT_INT) is connected to I/O Expander 0. It in turn triggers an interrupt on EX0_nINT.

Direct/Indirect interrupt triggers

Chip	Chip pin	Output to	Description
PDA9555 EX 0	INT	EX0_nINT	Original Expander - P1.60
PDA9555 EX 4	INT	STEM_INT	50 pin connector to T-USB module
PDA9555 EX 6	INT	EX0_nINT	m.2 Expander for SYS - P1.60
PCIe m.2 Key B	WAKE#	PCIE_WAKE_B	m.2 Key B - P2.52
PCIe m.2 Key B	CLKREQ#	PCIE_CLKREQ_B	m.2 Key B - P2.90
Left Sensors	ATT_INT	EX0.10	Left Camera Module sensors
Right Sensors	ATT_INT	EX4.14/EX0.14	Right Camera Module sensors

909c Connector Pinouts

Debugging Breakout connector

No.	Pin	Description	Voltage
1	5V	Board Power 5V	
2	3V3	Board Power 3.3V	
3	VIN	USB Power input direct	
4	GND	GND	
5	UART2_RX	Debug UART2 RX	
6	UART2_TX	Debug UART2 TX	
7	GND	GND	
8	UART4_RX	Debug UART4 RX	
9	UART4_TX	Debug UART4 TX	
10	GND	GND	
11	TDI	JTAG	
12	TMS	JTAG	
13	TCK	JTAG	
14	RTCK	NC? JTAG	
15	TDO	JTAG	

No.	Pin	Description	Voltage
16	RESET	SYS_RST_PMIC SoM	
17	PWRBTN	Power Button SoM	
18	QSPI_BOOT_EN_3P3	FLEXSPI BOOT	
19	ALT_BOOT	PB_ALT_BOOT	
20			
21			
22	CAN2_TX	CAN bus 2 P1.33	3.3V
23	CAN2_RX	CAN bus 2 P1.49	3.3V
24	CAN1_RX	CAN bus 1 P1.51	3.3V
25	CAN1_TX	CAN bus 1 P1.53	3.3V
26	ECSPI2_MISO	SPI2 MISO	
27	ECSPI2_SCLK	SPI2 Clock	
28	ECSPI2_SS0	SPI2 SS0	
29	ECSPI2_MOSI	SPI2 MOSI	
30	L_CAM_FSIN	Left Frame sync input	
31	L_CAM_STROBE	Left Frame sync output	
32	L_EXTCLK	Left External Clock Input (MCLK)	
33	L_ATT_XSHUT	Left Attached Shutdown	
34	L_RESET	Left Camera Reset	
35	L_PWRDN	Left Camera Shutdown	
36	R_CAM_FSIN	Right Frame sync input	
37	R_CAM_STROBE	Right Frame sync output	
38	R_EXTCLK	Right External Clock Input (MCLK)	
39	R_ATT_XSHUT	Right Attached Shutdown	
40	R_RESET	Right Camera Reset	
41	R_PWRDN	Right Camera Shutdown	
42	SYS_SCL	System I2C SCL	
43	SYS_SDA	System I2C SDA	
44	I2C3_SCL	Stem/3 I2C SCL	
45	I2C3_SDA	Stem/3 I2C SDA	

50 pin B2B connectors

These connectors are new

Two connectors tie the daughterboard to the bridge board. Both are of a 50 pin Highrose B2B type.

- [JLCPCB plug](#)
- [JLCPCB socket](#)

default height 1.5mm

Connector 1: High Speed Data Connector 2: PD Controller, Debug, USB 2.0

Power	Max Current	Pins
VSOM	3.0 A	10
GND	3.0 A	10
VCC_RTC	600 mA	2
VIN_3V3	300 mA	1
VIN_5V	600 mA	2
LDO_3V3	300 mA	1

Connector 1 high-speed data, close to Alt Mode Breakout connectors

- 6 * GND
- 7 * VSOM

One side

Pin	Code	Type	Details	Voltage	Misc	MCU pin.
1	VSOM	Power	Main power for board 3.45V - 4.5V		Conn. detect	
2	USB1_RX_DP	USB	USB1 RX D+ (OTG)			
3	USB1_RX_DN	USB	USB1 RX D- (OTG)			
4	GND	Power	Ground			
5	USB1_TX_DP	USB	USB1 TX D+ (OTG)			
6	USB1_TX_DN	USB	USB1 TX D- (OTG)			
7	GND	Power	Ground			
8	USB2_RX_DP	USB	USB2 RX D+ (Host)			
9	USB2_RX_DN	USB	USB2 RX D- (Host)			

Pin	Code	Type	Details	Voltage	Misc	MCU pin.
10	GND	Power	Ground			
11	USB2_TX_DP	USB	USB2 TX D+ (Host)			
12	USB2_TX_DN	USB	USB2 TX D- (Host)			
13	GND	Power	Ground			
17	STEM_SCL	I2C	STEM_SCL			GP17 I2C0
18	STEM_SDA	I2C	STEM_SDA			GP16 I2C0
19	STEM_INT	I2C	Sensor interrupts			
20	GND	Power	Ground			
21	SWD_CLK_RP	RP2040				
23	SWD_DAT_RP	RP2040				
24	PWR_CHARGE	Battery	Internal charge current for testing			
25	BAT_STAT	Battery	Internal charging status for testing			

Other side

Pin	Code	Type	Details	Voltage	Misc	MCU pin.
50	LVCLK+	LVDS	LVDS CLK+			
49	LVCLK-	LVDS	LVDS CLK-			
48	VSOM	Power	Main power for board 3.45V - 4.5V			
47	LVD0+	LVDS	LVDS D0+			
46	LVD0-	LVDS	LVDS D0-			
45	VSOM	Power	Main power for board 3.45V - 4.5V			
44	LVD1+	LVDS	LVDS D1+			
43	LVD1-	LVDS	LVDS D1-			
42	VSOM	Power	Main power for board 3.45V - 4.5V			
41	LVD2+	LVDS	LVDS D2+			
40	LVD2-	LVDS	LVDS D2-			
39	VSOM	Power	Main power for board 3.45V - 4.5V			

Pin	Code	Type	Details	Voltage	Misc	MCU pin.
38	LVD3+	LVDS	LVDS D3+			
37	LVD3-	LVDS	LVDS D3-			
36	VSOM	Power	Main power for board 3.45V - 4.5V			
35						
34						
20	GND	Power	Ground			
32	CAN_RX		CAN1_RX		P21.12	
31	CAN_TX		CAN1_TX		P21.14	
30	BAT_LDO	Battery	4.9V 50mA LDO for STAT LED			
28	UART_RP_TXD	Debug				GP0.
27	UART_RP_RXD	Debug				GP1
26	VSOM	Power	Main power for board 3.45V - 4.5V			

Could also take in HDMI or PCIe lanes instead of LVDS

Connector 2 PD controller, close to power connectors

- 2 * VSOM, 3 * GND, 1 * VCC_RTC, 1 * VIN_3V3
- 1 * VSOM, 1 * GND, 2 * VIN_5V

One side

Pin	Code	Type	Details	Voltage	Misc
1	VSOM	Power	Main power for board 3.45V - 4.5V		Conn. detect
2	GND	Power	Ground		
3	USB1_DP	USB	USB1 D+		
4	USB1_DN	USB	USB1 D-		
5	GND	Power	Ground		
6	USB2_DP	USB	USB2 D+		
7	USB2_DN	USB	USB2 D-		
8	GND	Power	Ground		
9	SWD_CLK	Debug	PD Controller GPIO12		
10	SWD_DAT	Debug	PD Controller GPIO13		

Pin	Code	Type	Details	Voltage	Misc
11	BOTH_VSOM	Enable	Bridge board signal;VSOM connected on both sides		
12		Future			
18	SYS I2C SCL	I2C			P21.7
19	SYS I2C SDA	I2C			P21.5
15	VSOM_LOCK	Power	Main power for board 3.45V - 4.5V, if mechanical lock shorted		Mech. lock
16	SYS_RST_PMIC	Reset	PMIC reset input pin. Internally pulled up with LDO1 power rail. Once low, PMIC performs reset.		P10.9
17	POR_B_3P3	Reset	Power On reset output pin. Open drain output requiring external pull up resistor.		P10.7
18	PMIC_ON_REQ	Reset	PMIC ON input from Application processor. When high, the device starts power on sequence.		P10.5
19	PMIC_STBY_REQ	Reset	Standby mode input from Application processor. When high, device enters STANDBY mode.		P10.3
20	VCC_RTC	Power	Low power mode supply		
21	PWRBTN	Boot	Power button trigger		
22	ALT_BOOT	Boot	Alternate boot		
23	QSPI_BOOT_EN_3P3	Boot	SPI boot		P21.18
24	BAT_CE#	Charger	Charge Enable Active-Low. Connect CE to a high logic level to place the battery charger in standby mode.		
25	PD_VIN_EN	Future	Enable VIN_5V/3V3 from PWR_SYS (TBD)		

Other side

Pin	Code	Type	Details	Voltage	Misc	mcu pin
50	PD_HRESET	Future	PD Controller HRESET (High)			
49	GND	Power	Ground			
48	UART1_TXD	UART	P1.72 UART1 Tx		P20.9	GP4 UART1

Pin	Code	Type	Details	Voltage	Misc	mcu pin
47	UART1_RXD	UART	P1.19 UART1 Rx		P20.11	GP5 UART1
46	UART2_TXD	UART	UART2 Tx		P20.1	GP8 UART1.
45	UART2_RXD	UART	UART2 Rx		P20.3	GP9 UART1
44	UART3_TXD	UART	P1.61 UART3 Tx		P20.2	GP12 UART0
43	UART3_RXD	UART	P1.21 UART3 Rx		P20.4	GP13 UART0
42	UART4_TXD	UART	UART4 Tx		P20.8	GP20 UART1
41	UART4_RXD	UART	UART4 Rx		P20.10	GP21 UART1
40	MIC_CLK	Sensor	frontboard mic			
39	MIC_DATA	Sensor				
38	MIC_INT	Sensor			?	
37	MOTION_INT	Sensor	frontboard motion mic on stem I2C		?	
36	NIGHT_SCL	I2C	I2C6_SCL		P21.2	GP19 I2C1.
35	NIGHT_SDA	I2C	I2C6_SDA		P21.4	GP18 I2C1.
34	NIGHT_INT	I2C	Sensor interrupts			
33	SPI_CS	RP2040	RP SPI	3.3V		GP29 SPI1
32	SPI_CLK	RP2040	RP SPI	3.3V		GP10 SPI
31	SPI_MISO	RP2040	RP SPI	3.3V		GP28 SPI
30	SPI_MOSI	RP2040	RP SPI	3.3V		GP11 SPI
29	VIN_3V3		Supply for TPS64988 circuitry and I/O. Current 50 mA	3.3V		

Pin	Code	Type	Details	Voltage	Misc	mcu pin
28	VIN_5V	Power	System 5V power source (PPHV1, PPHV2, PP1_CABLE, PP2_CABLE). 500 mA.	5V		
27	VIN_5V	Power	System 5V power source (PPHV1, PPHV2, PP1_CABLE, PP2_CABLE). 500 mA.	5V		
26	VSOM	Power	Main power for board 3.45V - 4.5V		Conn. detect	