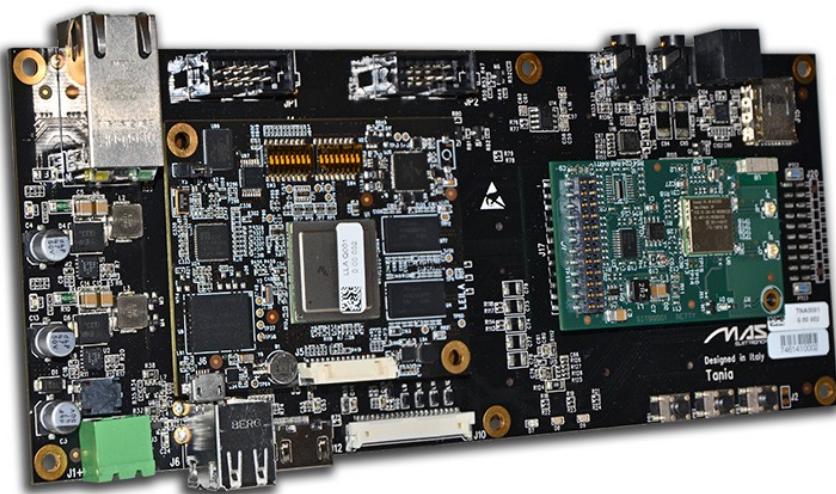


TANIA
Leila i.MX6 Evaluation Board
Member of
Modul MAS family



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Introduction

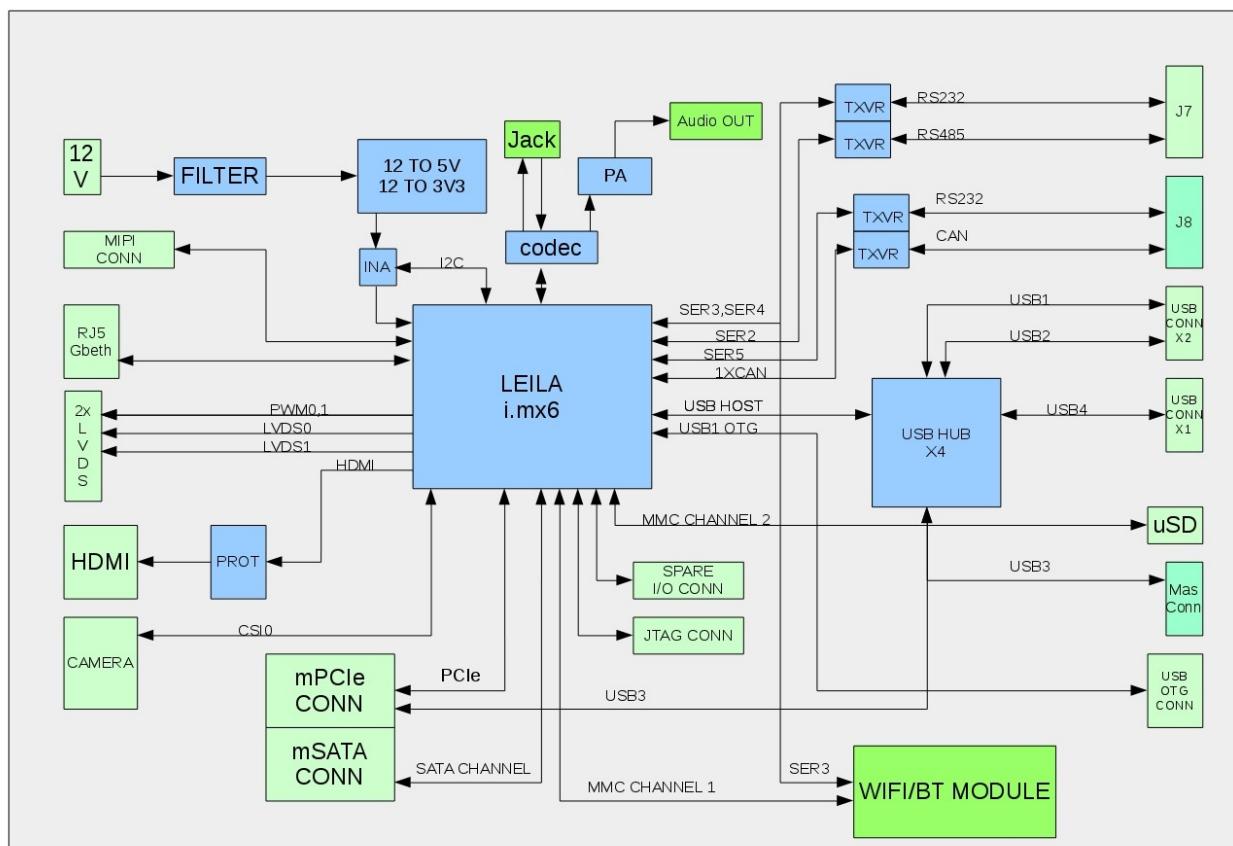
Modul_Mas is a new DIN rail family of products introduced by Mas elettronica to approach the industrial market. This family uses the CPU modules designed by Mas elettronica

For more information contact our support

support@maselettronica.com

Leila i.MX6 Evaluation Board

Tania Leila Evaluation Board is a new board of MAS Elettronica designed to allow quick access to all the features offered by Leila i.MX6 CPU module. Economic, comprehensive, flexible. Designed in a 12 Module DIN Rail Format.

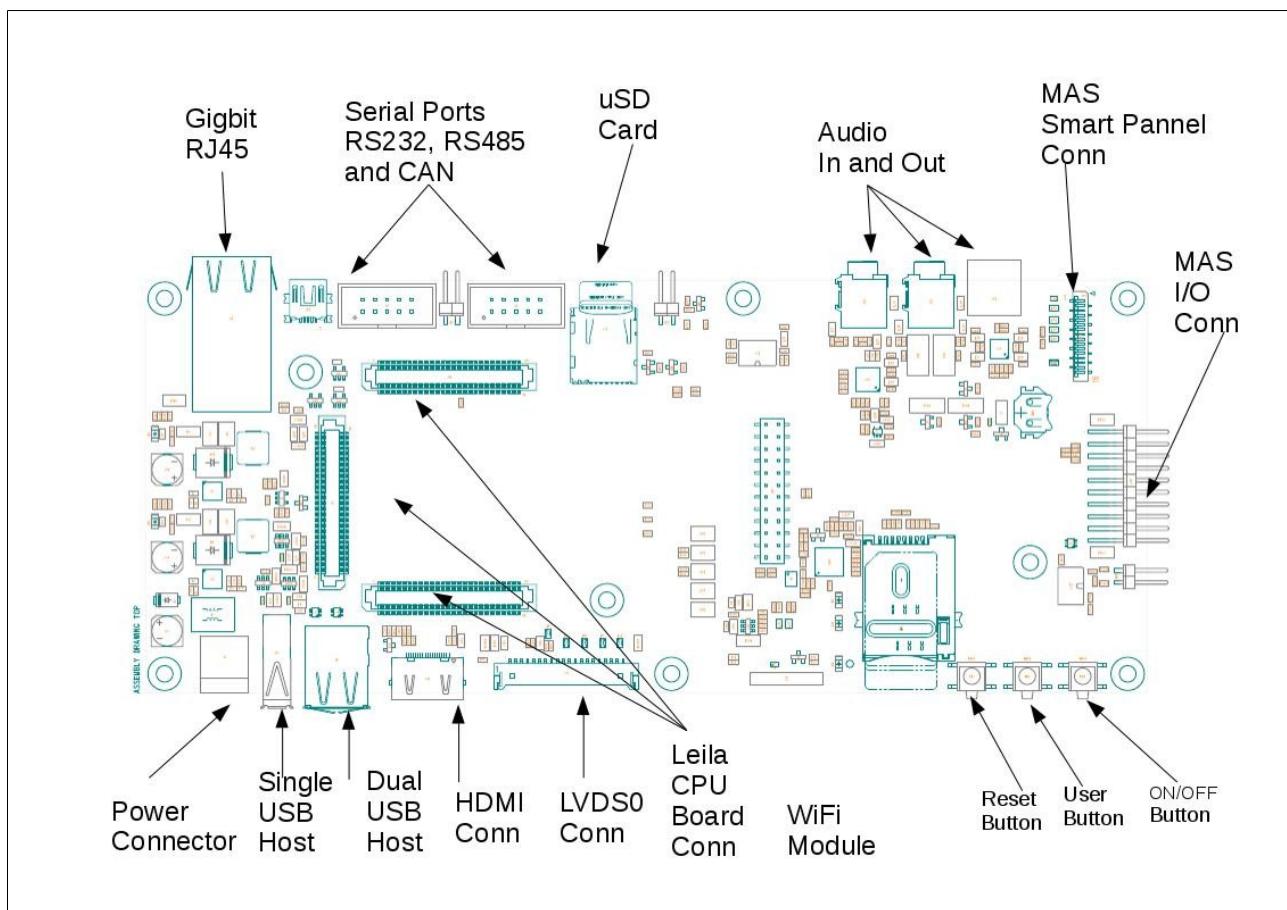


Tania Box Block diagram

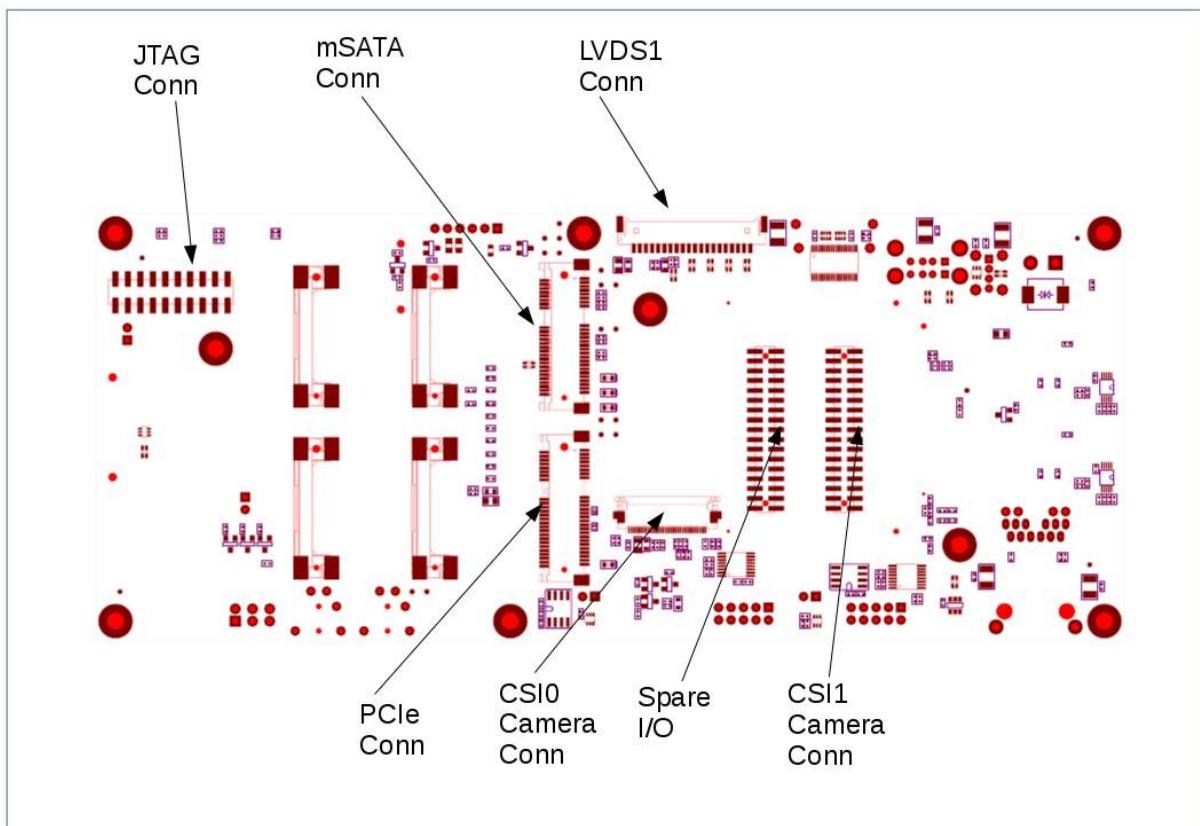
Technical Specifications

CPU Supported	
Leila CPU Board	With Solo, Dual, Dual lite and Quad processors
Display, camera input and Touch Panel interface	
LVDS	x 2 LVDS 24 bit channels
HDMI	x 1 HDMI 1.4a Display interface
DSI	x 1 DSI interface
Capacitive touch pannel	x 1 I2C or USB
CSI	x 1 16 bit Camera input
Serial interface	
UART	x 3 RS232; x 1 RS485
USB	x 3 2.0 High speed
CAN	x 1 CAN 2.0
SPI	x 2 con 2 chip select
I2C	x 2
PCIe	x 1 mPCIe connector
JTAG	x 1 JTAG Connector
LAN and Wireless	
Gigabit Ethernet	x 1 10/100/1000 Ethernet
WiFi/BT	Support for Wireless modules family WL18xx
Audio	
Input	x 1 microphone input jack 3,5 mm
Amplified ouput	x 1 2.1 W stereo output
Headphone out	x 1 stereo headphone out
I/O Interface	
GPIO	up to 60
PWM	x 3
LED	x 3 user defined
Push button	x 1 ON/OFF; x 1 reset x 1 user defined
Watch Dog	Hardware watch dog
Memory	
uSD	x 1 uSD connector
Sata	x 1 mSata connector
Electrical Specifications	
Power supply	Range 9-48V DC
Supply current monitoring	5 and 3,3V current and power monitoring.
Mechanical Specifications	
Dimentions	210mm x 86mm

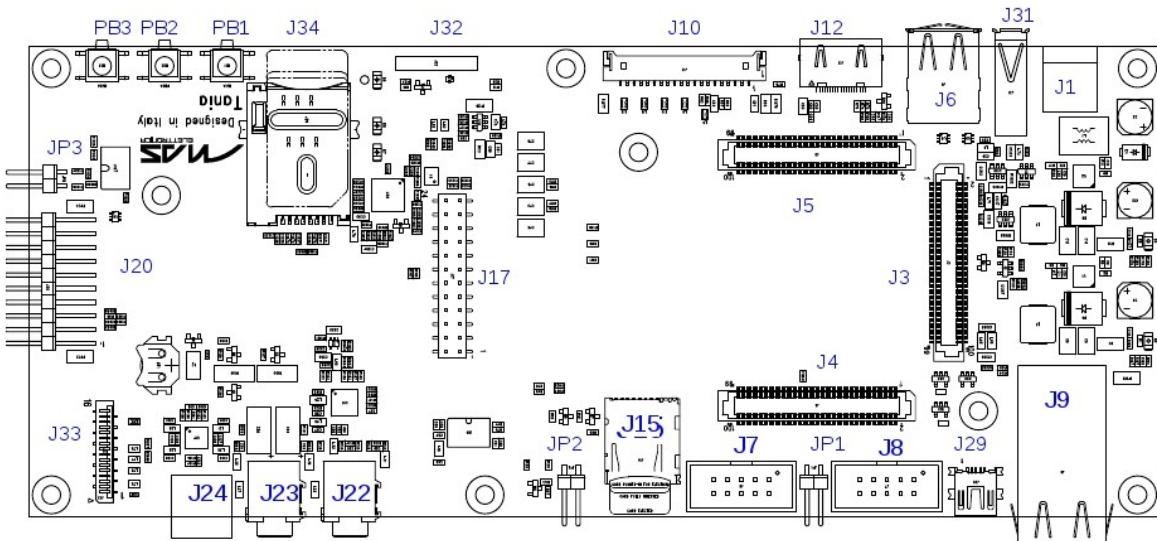
Top View of the Board



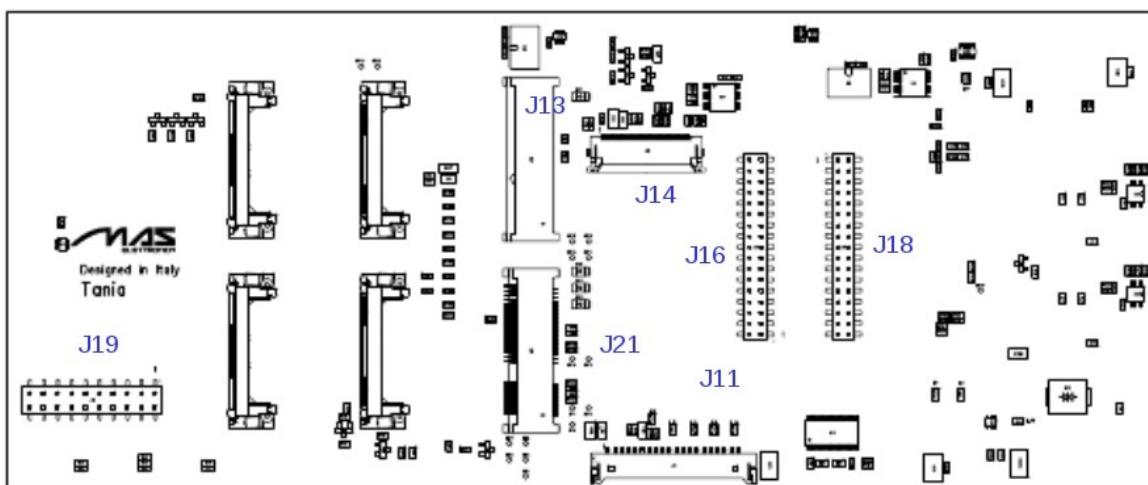
Bottom view of the Board



TOP view of the Board with connector References



Bottom View of Tania with connectors references



Connector description

POWER IN J1

- Part Number: 691313510002

PIN	Name	Description
1	POWER_IN+	Main voltage input +
2	POWER_IN-	Main voltage input -

Leila conn.A J3

- Part Number: FX8-100P-SV1(91)

Description	Name	PIN	PIN	Name	Description
Main ground reference	GND	1	2	GND	Main ground reference
PCIE differential TX- pair	PCIE_TXM	3	4	PCIE_RXP	PCIE differential RX+ pair
PCIE differential TX+ pair	PCIE_TXP	5	6	PCIE_RXM	PCIE differential RX- pair
Main ground reference	GND	7	8	GND	Main ground reference
Usb host positive differential pair	USB_HOST_DP	9	10	CLK1_P	i.MX6 differential clock out +
Usb host negative differential pair	USB_HOST_DN	11	12	CLK1_N	i.MX6 differential clock out -
Main ground reference	GND	13	14	GND	Main ground reference
Sd2 command signal	SD2_CMD	15	16	USB_OTG_ID	Usb OTG id signal
Main ground reference	GND	17	18	GND	Main ground reference
Sd2 clock signal	SD2_CLK	19	20	USB_OTG_DP	Usb OTG positive differential pair
Main ground reference	GND	21	22	USB_OTG_DN	Usb OTG negative differential pair
Sd2 data 0 signal	SD2_DATA0	23	24	GND	Main ground reference
Sd2 data 1 signal	SD2_DATA1	25	26	USB_OTG_VBUS	Usb OTG bus voltage
Sd2 data 2 signal	SD2_DATA2	27	28	GND	Main ground reference
Sd2 data 3 signal	SD2_DATA3	29	30	SATA_TXP	Sata differential TX+ pair
Sd2 data 4 signal	SD2_DATA4	31	32	SATA_TXN	Sata differential TX- pair
Sd2 data 5 signal	SD2_DATA5	33	34	GND	Main ground reference
Sd2 data 6 signal	SD2_DATA6	35	36	SATA_RXN	Sata differential RX- pair
Sd2 data 7 signal	SD2_DATA7	37	38	SATA_RXP	Sata differential RX+ pair
i.MX6 GPIO_16 signal	GPIO_16	39	40	GND	Main ground reference
GND	Main ground reference	41	42	SD1_DATA3	Sd1 data 3 signal
i.MX6 GPIO6_IO10 signal	GPIO6_IO10	43	44	SD1_DATA2	Sd1 data 2 signal
i.MX6 GPIO6_IO11 signal	GPIO6_IO11	45	46	SD1_DATA1	Sd1 data 1 signal
i.MX6 GPIO6_IO14 signal	GPIO6_IO14	47	48	SD1_DATA0	Sd1 data 0 signal
i.MX6 pulse-width modulation signal 4	PWM4	49	50	GND	Main ground reference
i.MX6 pulse-width modulation signal 3	PWM3	51	52	SD1_CLK	Sd1 clock signal
i.MX6 pulse-width modulation signal 2	PWM2	53	54	GND	Main ground reference
i.MX6 pulse-width modulation signal 1	PWM1	55	56	SD1_CMD	Sd1 command signal
GND	Main ground reference	57	58	RGMII_LED_ACT	Gigabit ethernet activity led signal

J3 Cont

Description	Name	PIN	PIN	Name	Description
i.MX6 SDA signal of bus I2C 3	I2C3_SDA	59	60	RGMII_LINK	Gigabit ethernet link led signal
i.MX6 SCL signal of bus I2C 3	I2C3_SCL	61	62	TXRXM_D	Gigabit ethernet negative differential pair D
i.MX6 GPIO5_IO16 signal	GPIO5_IO16	63	64	TXRXP_D	Gigabit ethernet positive differential pair D
i.MX6 UART3 request to send signal	UART3 RTS	65	66	GND	Main ground reference
i.MX6 UART3 clear to send signal	UART3_CTS	67	68	TXRXM_C	Gigabit ethernet negative differential pair C
i.MX6 UART3 RX signal	UART3_RXD	69	70	TXRXP_C	Gigabit ethernet positive differential pair C
i.MX6 UART3 TX signal	UART3_TXD	71	72	GND	Main ground reference
i.MX6 GPIO5_IO17 signal	GPIO5_IO17	73	74	TXRXM_B	Gigabit ethernet negative differential pair B
i.MX6 UART2 request to send signal	UART2_RTS	75	76	TXRXP_B	Gigabit ethernet positive differential pair B
i.MX6 UART2 clear to send signal	UART2_CTS	77	78	GND	Main ground reference
i.MX6 UART2 RX signal	UART2_RX	79	80	TXRXM_A	Gigabit ethernet negative differential pair A
i.MX6 UART2 TX signal	UART2_TX	81	82	TXRXP_A	Gigabit ethernet positive differential pair A
i.MX6 GPIO4_IO29 signal	GPIO4_IO29	83	84	GND	Main ground reference
Main ground reference	GND	85	86	GPIO7_IO09	i.MX6 GPIO7_IO09 signal
i.MX6 GPIO4_IO18 signal	GPIO4_IO18	87	88	GPIO6_IO16	i.MX6 GPIO6_IO16 signal
i.MX6 TCK JTAG signal	JTAG_TCK	89	90	GPIO2_IO01	i.MX6 GPIO2_IO01 signal
i.MX6 TDO signal	JTAG_TDO	91	92	GPIO1_IO30	i.MX6 GPIO1_IO30 signal
Main ground reference	GND	93	94	BKUP_BAT	i.MX6 backup battery voltage
HDMI display data channel data signal	HDMI_DDC_DAT_IN	95	96	ON_OFF	i.MX6 on/off signal
HDMI display data channel clock signal	HDMI_DDC_CLK_IN	97	98	RESETN	System reset output
Main ground reference	GND	99	100	GND	Main ground reference

Leila conn.B J5

- Part Number: FX8-100P-SV1(91)

Description	Name	PIN	PIN	Name	Description
Main ground reference	GND	1	2	5V	Leila main voltage rail
Main ground reference	GND	3	4	5V	Leila main voltage rail
Main ground reference	GND	5	6	5V	Leila main voltage rail
Main ground reference	GND	7	8	5V	Leila main voltage rail
Main ground reference	GND	9	10	5V	Leila main voltage rail
Main ground reference	GND	11	12	5V	Leila main voltage rail
Not connected	NC	13	14	GND	Main ground reference
Not connected	NC	15	16	DSI_CLK0M	MIPI DSI negative clock differential pair
Main ground reference	GND	17	18	DSI_CLK0P	MIPI DSI positive clock differential pair
Not connected	NC	19	20	GND	Main ground reference
Not connected	NC	21	22	DSI_D0M	MIPI DSI negative data 0 differential pair
Main ground reference	GND	23	24	DSI_D0P	MIPI DSI positive data 0 differential pair
Not connected	NC	25	26	GND	Main ground reference
Not connected	NC	27	28	DSI_D1M	MIPI DSI negative data 1 differential pair
Main ground reference	GND	29	30	DSI_D1P	MIPI DSI positive data 1 differential pair
Not connected	NC	31	32	GND	Main ground reference
Not connected	NC	33	34	LVDS0_TX0_N	LVDS channel 0 negative differenzial pair 0
Main ground reference	GND	35	36	LVDS0_TX0_P	LVDS channel 0 positive differenzial pair 0
Not connected	NC	37	38	GND	Main ground reference
Not connected	NC	39	40	LVDS0_TX1_N	LVDS channel 0 negative differenzial pair 1
Main ground reference	GND	41	42	LVDS0_TX1_P	LVDS channel 0 positive differenzial pair 1
HDMI hot plug detection signal	HDMI_HPD	43	44	GND	Main ground reference
HDMI consumer electronics control input signal	HDMI_CEC_IN	45	46	LVDS0_TX2_N	LVDS channel 0 negative differenzial pair 2
i.MX6 SDA signal of bus I2C 2	I2C2_SDA	47	48	LVDS0_TX2_P	LVDS channel 0 positive differenzial pair 2
i.MX6 SCL signal of bus I2C 2	I2C2_SCL	49	50	GND	Main ground reference
Main ground reference	GND	51	52	LVDS0_CLK_N	LVDS channel 0 negative clock differenzial pair
HDMI positive clock differential pair	HDMI_CLKP	53	54	LVDS0_CLK_P	LVDS channel 0 positive clock differenzial pair
HDMI negative clock differential pair	HDMI_CLKM	55	56	GND	Main ground reference
Main ground reference	GND	57	58	LVDS0_TX3_N	LVDS channel 0 negative differenzial pair 3
HDMI positive data 0 differential pair	HDMI_D0P	59	60	LVDS0_TX3_P	LVDS channel 0 positive differenzial pair 3
HDMI negative data 0 differential pair	HDMI_D0M	61	62	GND	Main ground reference
Main ground reference	GND	63	64	LVDS1_TX0_N	LVDS channel 1 negative differenzial pair 0
HDMI positive data 1 differential pair	HDMI_D1P	65	66	LVDS1_TX0_P	LVDS channel 1 positive differenzial pair 0
HDMI negative data 1 differential pair	HDMI_D1M	67	68	GND	Main ground reference
Main ground reference	GND	69	70	LVDS1_TX1_N	LVDS channel 1 negative differenzial pair 1
HDMI positive data 2 differential pair	HDMI_D2P	71	72	LVDS1_TX1_P	LVDS channel 1 positive differenzial pair 1
HDMI negative data 2 differential pair	HDMI_D2M	73	74	GND	Main ground reference
Main ground reference	GND	75	76	LVDS1_TX2_N	LVDS channel 1 negative differenzial pair 2
i.MX6 UART4 TX signal	UART4_TX	77	78	LVDS1_TX2_P	LVDS channel 1 positive differenzial pair 2
i.MX6 UART4 RX signal	UART4_RX	79	80	GND	Main ground reference
i.MX6 UART5 TX signal	UART5_TX	81	82	LVDS1_CLK_N	LVDS channel 1 negative clock differenzial pair
i.MX6 UART5 RX signal	UART5_RX	83	84	LVDS1_CLK_P	LVDS channel 1 positive clock differenzial pair
Main ground reference	GND	85	86	GND	Main ground reference
i.MX6 can bus 1 TX signal	CAN_TX_1	87	88	LVDS1_TX3_N	LVDS channel 1 negative differenzial pair 3
i.MX6 can bus 1 RX signal	CAN_RX_1	89	90	LVDS1_TX3_P	LVDS channel 1 positive differenzial pair 3
i.MX6 can bus 2 TX signal	CAN_TX_2	91	92	GND	Main ground reference
i.MX6 can bus 2 RX signal	CAN_RX_2	93	94	NC	Not connected
i.MX6 GPIO6_IO31 signal	GPIO6_IO31	95	96	JTAG_TDI	i.MX6 TDI signal
Sd2 card detect signal	SD2_CD_B	97	98	JTAG_TMS	i.MX6 TMS signal
Sd1 card detect signal	SD1_CD_B	99	100	JTAG_nTRST	i.MX6 nTRST signal

Leila conn.C J4

- Part Number: FX8-100P-SV1(91)

Description	Name	PIN	PIN	Name	Description
Power good cpu voltage signal	PWGOOD_CPU	1	2	I2C1_SDA	i.MX6 SDA signal of bus I2C 1
i.MX6 GPIO06_08 signal	GPIO6_IO08	3	4	I2C1_SCL	i.MX6 SCL signal of bus I2C 1
i.MX6 GPIO02_11 signal	GPIO2_IO11	5	6	GND	Main ground reference
i.MX6 GPIO02_07 signal	GPIO2_IO03	7	8	GPIO6_IO15	i.MX6 GPIO06_15 signal
i.MX6 GPIO06_07 signal	GPIO6_IO07	9	10	GPIO2_IO00	i.MX6 GPIO02_00 signal
i.MX6 GPIO07_10 signal	GPIO7_IO10	11	12	GPIO2_IO08	i.MX6 GPIO02_08 signal
i.MX6 GPIO02_02 signal	GPIO2_IO02	13	14	GPIO4_IO16	i.MX6 GPIO04_16 signal
i.MX6 GPIO04_19 signal	GPIO4_IO19	15	16	GPIO4_IO17	i.MX6 GPIO04_17 signal
Main ground reference	GND	17	18	GPIO6_IO09	i.MX6 GPIO06_09 signal
CSI channel 1 horizontal sync clock signal	CSI1_HSYNC	19	20	GND	Main ground reference
CSI channel 1 data 5 signal	CSI1_DAT09	21	22	CSI1_DAT19	CSI channel 1 data 15 signal
CSI channel 1 data 13 signal	CSI1_DAT17	23	24	CSI1_DAT12	CSI channel 1 data 8 signal
CSI channel 1 data 11 signal	CSI1_DAT15	25	26	CSI1_DAT18	CSI channel 1 data 14 signal
CSI channel 1 data 12 signal	CSI1_DAT16	27	28	CSI1_DAT07	CSI channel 1 data 3 signal
CSI channel 1 pixel clock signal	CSI1_PIXCLK	29	30	CSI1_DAT08	CSI channel 1 data 4 signal
CSI channel 1 vertical sync clock signal	CSI1_VSYNC	31	32	CSI1_DAT06	CSI channel 1 data 2 signal
CSI channel 1 data 9 signal	CSI1_DAT13	33	34	CSI1_DAT11	CSI channel 1 data 7 signal
CSI channel 1 data 6 signal	CSI1_DAT10	35	36	CSI1_DAT05	CSI channel 1 data 1 signal
CSI channel 1 data 10 signal	CSI1_DAT14	37	38	CSI1_DAT04	CSI channel 1 data 0 signal
Main ground reference	GND	39	40	GND	Main ground reference
i.MX6 EIM_A16 signal	EIM_A16	41	42	EIM_A18	i.MX6 EIM_A18 signal
i.MX6 EIM_A19 signal	EIM_A19	43	44	GPIO5_IO7	i.MX6 GPIO05_07 signal
i.MX6 EIM_A17 signal	EIM_A17	45	46	GPIO1_IO27	i.MX6 GPIO01_27 signal
PCIE dis signal	PCIE_DIS_B	47	48	GPIO5_IO6	i.MX6 GPIO05_06 signal
PCIE wake signal	PCIE_WAKE_B	49	50	GPIO4_IO20	i.MX6 GPIO04_20 signal
PCIE reset signal	PCIE_RST_B	51	52	RESET_IN#	System reset input
Main ground reference	GND	53	54	CSP13_CS2	SPI channel 3 chip select 2 signal
i.MX6 clock 0 output	GPIO_0_CLKO	55	56	CSP13_CS1	SPI channel 3 chip select 1 signal
i.MX6 GPIO04_31 signal	GPIO4_IO31	57	58	CSP13_MOSI	SPI channel 3 mosi signal
i.MX6 GPIO01_29 signal	GPIO1_IO29	59	60	CSP13_MISO	SPI channel 3 miso signal
i.MX6 GPIO04_28 signal	GPIO4_IO28	61	62	CSP13_CLK	SPI channel 3 clock signal
i.MX6 GPIO05_08 signal	GPIO5_IO8	63	64	CSP13_CS3	SPI channel 3 chip select 3 signal
i.MX6 GPIO05_05 signal	GPIO5_IO5	65	66	GND	Main ground reference
Main ground reference	GND	67	68	AUDIO_ON_OFF	Audio poweron signal
SPI channel 2 mosi signal	CSP12_MOSI	69	70	AUD4_TXD	Audio txd signal
SPI channel 2 chip select 0 signal	CSP12_CS0	71	72	AUD4_TXC	Audio txc signal
SPI channel 2 miso signal	CSP12_MISO	73	74	AUD4_RXD	Audio rxd signal
SPI channel 2 clock signal	CSP12_CLK	75	76	AUD4_FSX	Audio fsx signal
SPI channel 2 chip select 1 signal	CSP12_CS1	77	78	GND	Main ground reference
Main ground reference	GND	79	80	CSI0_DAT13	CSI channel 0 data 9 signal
CSI channel 0 data 14 signal	CSI0_DAT18	81	82	CSI0_DAT12	CSI channel 0 data 8 signal
CSI channel 0 data 5 signal	CSI0_DAT09	83	84	CSI0_DAT19	CSI channel 0 data 15 signal
CSI channel 0 data 13 signal	CSI0_DAT17	85	86	CSI0_DAT16	CSI channel 0 data 12 signal
CSI channel 0 data 7 signal	CSI0_DAT11	87	88	CSI0_DAT15	CSI channel 0 data 11 signal
CSI channel 0 data 10 signal	CSI0_DAT14	89	90	CSI0_HSYNCH	CSI channel 0 horizontal sync clock signal
CSI channel 0 data 4 signal	CSI0_DAT08	91	92	CSI0_DAT05	CSI channel 0 data 1 signal
CSI channel 0 data 2 signal	CSI0_DAT06	93	94	CSI0_DAT10	CSI channel 0 data 6 signal
CSI channel 0 data 3 signal	CSI0_DAT07	95	96	CSI0_PIXCLK	CSI channel 0 pixel clock signal

USB J6

- Part Number: 72309-8034BLF

2x USB Host interfaces, the OTG is configured as a Host.

Descrizione	Nome	PIN	PIN	Nome	Descrizione
Usb host voltage bus	USB2_VBUS	A1	B1	USB1_VBUS	Usb otg voltage bus
Usb host negative differential pair	USB_HOST_DN	A2	B2	USB_OTG_DN	Usb otg negative differential pair
Usb host negative differential pair	USB_HOST_DP	A3	B3	USB_OTG_DP	Usb host negative differential pair
Main ground reference	GND	A4	B4	GND	Main ground reference
Usb connector shield	SHLD	1	2	SHLD	Usb connector shield
Usb connector shield	SHLD	3	4	SHLD	Usb connector shield

SERIALS A J7

- Part Number: MC9A12-1034

Serial Port Connector 2x RS232 and 1x RS485

Description	Name	PIN	PIN	Name
RS485 negative signal	RS485N	1	2	RS232_RX4
RS232 channel 3 tx signal	RS232_TX3	3	4	RS232_CTS3
Main ground reference	RS232_RX3	5	6	RS485P
RS232 channel 3 request to send signal	RS232_TX4	7	8	RS232_RTS3

SERIALS B J8

- Part Number: MC9A12-1034

Serial Port Connector 1x RS232 and 1x CAN interface.

Description	Nome	PIN	PIN	Nome	Description
Can bus high signal	CANH	1	2	NC	Not connected
RS232 channel 5 tx signal	RS232_TX5	3	4	NC	Not connected
RS232 channel 5 rx signal	RS232_RX5	5	6	NC	Not connected
Not connected	NC	7	8	CANL	Can bus low signal
Main ground reference	GND	9	10	NC	Not connected

ETHERNET J9

- Part Number: 0826-1A1T-23-F

PIN	Name	Description
1	TRDCT3	Termination pair 3
2	TRD3-	Gigabit ethernet negative differential pair 3
3	TRD3+	Gigabit ethernet positive differential pair 3
4	TRD2+	Gigabit ethernet positive differential pair 2
5	TRD2-	Gigabit ethernet negative differential pair 2
6	TRDCT2	Termination pair 2
7	TRDCT4	Termination pair 4
8	TRD4+	Gigabit ethernet positive differential pair 4
9	TRD4-	Gigabit ethernet negative differential pair 4
10	TRD1-	Gigabit ethernet negative differential pair 1
11	TRD1+	Gigabit ethernet positive differential pair 1
12	TRDCT1	Main voltage input -
13	LEDYC	Yellow led cathode
14	LEDYA	Yellow led anode
15	LEDGC	Green led cathode
16	LEDGA	Green led anode
17	SHLD	RJ45 shield
18	SHLD	RJ45 shield

JUMPER RS485 JP1

- Part Number: R20660CT1X2MD

Closing this Jumper activates the 120 ohm termination

PIN	Name	Description
1	RESISTOR A	Termination resistor A
2	RESISTOR B	Termination resistor B

JUMPER CAN BUS JP2

- Part Number: R20660CT1X2MD

Closing this Jumper activates the 120 ohm termination

PIN	Name	Description
1	RESISTOR A	Termination resistor A
2	RESISTOR B	Termination resistor B

HDMI J12

- Part Number: 10029449-111RLF

PIN	Name	Description
1	HDMI_D2P_F	HDMI positive data 2 differential pair
2	GND	Main ground reference
3	HDMI_D2M_F	HDMI negative data 2 differential pair
4	HDMI_D1P_F	HDMI positive data 1 differential pair
5	GND	Main ground reference
6	HDMI_D1M_F	HDMI negative data 1 differential pair
7	HDMI_D0P_F	HDMI negative data 0 differential pair
8	GND	Main ground reference
9	HDMI_D0M_F	HDMI negative data 0 differential pair
10	HDMI_CLKP_F	HDMI positive clock differential pair
11	GND	Main ground reference
12	HDMI_CLKM_F	HDMI negative clock differential pair
13	CEC_BCK_PRO	HDMI consumer electronics control input signal
14	NC	Yellow led anode
15	H_CLK_OUT	HDMI display clock channel data signal
16	H_DAT_OUT	HDMI display data channel data signal
17	GND	Main ground reference
18	HDMI_5V_OUT	+5V isolate output
19	HP_DET_OUT	HDMI hot plug detection signal
20	SHLD	HDMI connector shield
21	SHLD	HDMI connector shield
22	SHLD	HDMI connector shield
23	SHLD	HDMI connector shield

LVDS0 J10

- Part Number: 53780-2070
- Single Channel 24 bit LVDS

PIN	Name	Description
1	5V	+5V LCD voltage output
2	5V	+5V LCD voltage output
3	GND	Main ground reference
4	GND	Main ground reference
5	PWM1	PWM dimming backlight signal
6	3V3	+3V3 LCD voltage output
7	LVDS0_TX3_P	LVDS channel 0 positive differential pair 3
8	LVDS0_TX3_N	LVDS channel 0 negative differential pair 3
9	GND	Main ground reference
10	LVDS0_CLK_P	LVDS channel 0 positive clock differential pair
11	LVDS0_CLK_N	LVDS channel 0 negative clock differential pair
12	GND	Main ground reference
13	LVDS0_TX2_P	LVDS channel 0 positive differential pair 2
14	LVDS0_TX2_N	LVDS channel 0 negative differential pair 2
15	GND	Main ground reference
16	LVDS0_TX1_P	LVDS channel 0 positive differential pair 1
17	LVDS0_TX1_N	LVDS channel 0 negative differential pair 1
18	GND	Main ground reference
19	LVDS0_TX0_P	LVDS channel 0 positive differential pair 0
20	LVDS0_TX0_N	LVDS channel 0 negative differential pair 0

LVDS1 J11

- Part Number: 53780-2070
- Single Channel 24 bit LVDS

PIN	Name	Description
1	5V	+5V LCD voltage output
2	5V	+5V LCD voltage output
3	GND	Main ground reference
4	GND	Main ground reference
5	PWM2	PWM dimming backlight signal
6	3V3	+3V3 LCD voltage output
7	LVDS1_TX3_P	LVDS channel 1 positive differential pair 3
8	LVDS1_TX3_N	LVDS channel 1 negative differential pair 3
9	GND	Main ground reference
10	LVDS1_CLK_P	LVDS channel 1 positive clock differential pair
11	LVDS1_CLK_N	LVDS channel 1 negative clock differential pair
12	GND	Main ground reference
13	LVDS1_TX2_P	LVDS channel 1 positive differential pair 2
14	LVDS1_TX2_N	LVDS channel 1 negative differential pair 2
15	GND	Main ground reference
16	LVDS1_TX1_P	LVDS channel 1 positive differential pair 1
17	LVDS1_TX1_N	LVDS channel 1 negative differential pair 1
18	GND	Main ground reference
19	LVDS1_TX0_P	LVDS channel 1 positive differential pair 0
20	LVDS1_TX0_N	LVDS channel 1 negative differential pair 0

SATA Connector J13

- *Connector type: Mini PCIe Card Connector and Latch, Part Number: MM60-52B1-E1-R650.*

Tania supports the Serial ATA (SATA) interface on the Apalis module and allows peripherals such as mSATA SSDs to be connected.

Description	Name	PIN	PIN	Name	Description
Not connected	NC	1	2	MPCIE_3V3	3v3 power supply
Not connected	NC	3	4	GND	Main ground reference
Not connected	NC	5	6	mSATA_1V5	1v5 power supply
Not connected	NC	7	8	NC	Not connected
Main ground reference	GND	9	10	NC	Not connected
Not connected	NC	11	12	NC	Not connected
Not connected	NC	13	14	NC	Not connected
Main ground reference	GND	15	16	NC	Not connected
Not connected	NC	17	18	GND	Main ground reference
Not connected	NC	19	20	NC	Not connected
Main ground reference	GND	21	22	NC	Not connected
	SATA_RXP_CON	23	24	mSATA_3V3	Power supply mSATA
	SATA_RXN_CON	25	26	GND	Main ground reference
Main ground reference	GND	27	28	mSATA_1V5	Power supply mSATA
Main ground reference	GND	29	30	NC	Not connected
	SATA_TXN_CON	31	32	NC	Not connected
	SATA_TXP_CON	33	34	GND	Main ground reference
Main ground reference	GND	35	NC	Not connected	
Main ground reference	GND	37	38	NC	Not connected
Power supply mSATA	mSATA_3V3	39	40	GND	Main ground reference
Power supply mSATA	mSATA_3V3	41	42	NC	Not connected
Not connected	NC	43	44	NC	Not connected
Not connected	NC	45	46	NC	Not connected
Not connected	NC	47	48	mSATA_1V5	Power supply mSATA
Main ground reference	GND	49	50	GND	Main ground reference
Not connected	NC	51	52	MPCIE_3V3	3v3 power supply

CSI Camera CONNECTOR J14

- Part Number: 54104-3231

The Parallel Camera Interface on connector J14 is intended for applications requiring image capture capability from CMOS image sensors. This interface supports a wide variety of operating modes, data widths, formats, and clocking schemes. For details, please see the Leila module datasheet.

PIN	Name	Description
1	GPIO_0_CLKO	i.MX6 GPIO signal
2	CSI0_DAT16	CSI channel 0 data 16 signal
3	CSI0_DAT04	CSI channel 0 data 4 signal
4	CSI0_DAT05	CSI channel 0 data 5 signal
5	CSI0_DAT06	CSI channel 0 data 6 signal
6	CSI0_DAT07	CSI channel 0 data 7 signal
7	CSI0_DAT08	CSI channel 0 data 8 signal
8	CSI0_DAT09	CSI channel 0 data 9 signal
9	CSI0_DAT10	CSI channel 0 data 10 signal
10	CSI0_DAT11	CSI channel 0 data 11 signal
11	GND	Main ground reference
12	CSI0_DAT12	CSI channel 0 data 12 signal
13	CSI0_DAT13	CSI channel 0 data 13 signal
14	CSI0_DAT14	CSI channel 0 data 14 signal
15	CSI0_DAT15	CSI channel 0 data 15 signal
16	CSI0_HSYNCH	CSI channel 0 data Horizontal sync signal
17	CSI0_VSYNCH	CSI channel 0 data Vertical sync signal
18	CSI0_PIXCLK	CSI channel 0 data Pixclk signal
19	GND	Main ground reference
20	CSI0_DAT17	CSI channel 0 data 17 signal
21	GPIO4_IO31 / CAM_TRIGGER	i.MX6 GPIO signal
22	GPIO2_IO08 / CSI_RST#	i.MX6 GPIO signal
23	CSI0_DAT19	CSI channel 0 data 19 signal
24	CSI0_DAT18	CSI channel 0 data 18 signal
25	GPIO2_IO02 / CAM_OE	i.MX6 GPIO signal
26	I2C1_SCL	I2C bus 1 clock signal
27	I2C1_SDA	I2C bus 1 data signal
28	3V3	Power supply 3V3
29	3V3	Power supply 3V3
30	3V3	Power supply 3V3
31	VIN	Power supply VIN
32	VIN	Power supply VIN

uSD CONNECTOR J15

Part Number: DM3AT

PIN	Name	Description
1	SD2_DATA2	Sd2 data 2
2	SD2_DATA3	Sd2 data 3
3	SD2_CMD	Sd2 command
4	3V3	Power supply 3V3
5	SD2_CLK	Sd2 clock signal
6	GND	Main ground reference
7	SD2_DATA0	Sd2 data 0
8	SD2_DATA1	Sd2 data 1
9	SD2_CD_B	Sd2 chip detect
10	GND	Main ground reference

Connector J16

- Part Number: strip 17*2

Descrizione	Nome	PIN	PIN	Nome	Descrizione
Pulse width modulation O	PWM4	1	2	CSPI3_CLK	SPI channel 3 clock signal
Pulse width modulation O	PWM3	3	4	CSPI3_MOSI	SPI channel 3 mosi signal
Main ground reference	GND	5	6	CSPI3_MISO	SPI channel 3 miso signal
Sd2 data 4 signal	SD2_DAT4	7	8	CSPI3_CS3	SPI channel 3 chip select 3 signal
Sd2 data 5 signal	SD2_DAT5	9	10	CSPI3_CS2	SPI channel 3 chip select 2 signal
Sd2 data 6 signal	SD2_DAT6	11	12	CSPI3_CS1	SPI channel 3 chip select 1 signal
Sd2 data 7 signal	SD2_DAT7	13	14	PWM2	Pulse width modulation O
Main ground reference	GPIO_16	15	16	CSPI2_CLK	SPI channel 2 clock signal
Can Bus TX 2	CAN_TX_2	17	18	CSPI2_MISO	SPI channel 2 miso signal
Can Bus RX 2	CAN_RX_2	19	20	CSPI2_MOSI	SPI channel 2 mosi signal
	GPIO4_IO20	21	22	CSPI2_CS1	SPI channel 2 chip select 1 signal
Main ground reference	GND	23	24	CSPI2_CS0	SPI channel 2 chip select 0 signal
GPIO_signal	GPIO1_IO30	25	26	RESETN	
GPIO_signal	GPIO1_IO29	27	28	I2C3_SDA	I2C bus data signal
UART2_signal	UART2_CTS	29	30	I2C3_SCL	I2C bus clock signal
GPIO_signal	GPIO7_IO09	31	32	3V3	Power Supply 3V3
Main ground reference	GND	33	34	3V3	Power Supply 3V3

Connector for Wireless Module Netty J17

- Part Number: SSM-112-L-DV

Description	Name	PIN	PIN	Name	Description
Main Board Input Voltage	VIN	1	2	VIN	Main Board Input Voltage
Bluetooth TX	BT_TXD	3	4	SD1_CLK	Sd1 clock signal
Bluetooth RX	BT_RXD	5	6	SD1_CMD	Sd1 command signal
Bluetooth CTS	BT_CTS	7	8	SD1_DAT3	Sd1 data 3 signal
Bluetooth RTS	BT_RTS	9	10	SD1_DAT2	Sd1 data 2 signal
	UARTD_BT	11	12	SD1_DAT1	Sd1 data 1 signal
	HOST_BT	13	14	SD1_DAT0	Sd1 data 0 signal
Wake up Bluetooth	WAKEUP_BT	15	16	WL_EN	Wireless enable
	BT_UART_EN	17	18	WLAN_IRQ	Wlan IRQ Signal
Bluetooth enable	BT_EN	19	20	I2C_SCL_BT	I2C Clock for Bluetooth Mod
Power supply 3V3	3V3	21	22	I2C_SDA_BT	I2C Data for Bluetooth Mod
Main ground reference	GND	23	24	GND	Main ground reference

Connector General Purpose J18

- Part Number: strip 17*2

Description	Name	PIN	PIN	Name	Description
CSI channel 1 data 4 signal	CSI1_DAT04	1	2	CSI1_DAT12	CSI channel 1 data 12 signal
CSI channel 1 data 5 signal	CSI1_DAT05	3	4	CSI1_DAT13	CSI channel 1 data 13 signal
CSI channel 1 data 6 signal	CSI1_DAT06	5	6	CSI1_DAT14	CSI channel 1 data 14 signal
CSI channel 1 data 8 signal	CSI1_DAT08	7	8	CSI1_DAT15	CSI channel 1 data 15 signal
CSI channel 1 data 9 signal	CSI1_DAT09	9	10	CSI1_DAT16	CSI channel 1 data 16 signal
CSI channel 1 data 10 signal	CSI1_DAT10	11	12	CSI1_DAT17	CSI channel 1 data 17 signal
CSI channel 1 data 11 signal	CSI1_DAT11	13	14	CSI1_DAT18	CSI channel 1 data 18 signal
Main ground reference	GND	15	16	CSI1_DAT19	CSI channel 1 data 19 signal
Audio rxd signal	AUD4_RXD	17	18	CSI1_HSYNC	CSI channel 1 Horizontal sync signal
Audio txd signal	AUD4_TXD	19	20	CSI1_PIXCLK	CSI channel 1 Pixel sync signal
Audio txc signal	AUD4_TXC	21	22	CSI1_VSYNC	CSI channel 1 Vertical sync signal
Audio fsx signal	AUD4_FSX	23	24	EIM_A16	i.MX6 EIM_A16 signal
	SD1_CD_B	25	26	EIM_A17	i.MX6 EIM_A17 signal
GPIO signal	GPIO1_IO29	27	28	EIM_A18	i.MX6 EIM_A18 signal
GPIO signal	GPIO7_IO10	29	30	EIM_A19	i.MX6 EIM_A19 signal
GPIO signal	GPIO5_IO17	31	32	3V3	Power supply 3V3
Main ground reference	GND	33	34	3V3	Power supply 3V3

JTAG J19

- Part Number: TSM-110-01-T-DV

Description	Name	PIN	PIN	Name	Description
3V3 Power supply	3V3	1	2	3V3	3V3 Power supply
i.MX6 nTRST signal	JTAG_nTRST	3	4	GND	Main ground reference
i.MX6 TDI signal	JTAG_TDI	5	6	GND	Main ground reference
i.MX6 TMS signal	JTAG_TMS	7	8	GND	Main ground reference
i.MX6 TCK signal	JTAG_TCK	9	10	GND	Main ground reference
	RESET_IN#	11	12	GND	Main ground reference
i.MX6 TDO signal	JTAG_TDO	13	14	GND	Main ground reference
	RESETN	15	16	GND	Main ground reference
Not connected	NC	17	18	GND	Main ground reference
Not connected	NC	19	20	GND	Main ground reference

BUS EXTERNAL MAS J20

- Part Number: 610120249121

Mas elettronica Has a Standard expansion connector, the pinout is below:

Description	Name	PIN	PIN	Name	Description
5V Power supply	5V	1	2	5V	5V Power supply
Main ground reference	GND	3	4	GND	Main ground reference
I2C bus 2 clock	I2C2_SCL	5	6	I2C2_SDA	I2C bus 2 data
USB OTG DATA -	USB_OTG_DN	7	8	USB_OTG_DP	USB OTG DATA +
i.MX6 GPIO signal	GPIO2_IO11	9	10	GPIO4_IO19	i.MX6 GPIO signal
i.MX6 GPIO signal	GPIO2_IO03	11	12	GPIO4_IO29	i.MX6 GPIO signal
	RESETN	13	14	GPIO4_IO28	i.MX6 GPIO signal
i.MX6 uart5 tx signal	UART5_TX	15	16	UART5_RX	i.MX6 uart5 rx signal
Main ground reference	GND	17	18	GND	Main ground reference
3V3 Power supply	3V3	19	20	3V3	3V3 Power supply

Mini-PCIe Connector J21

- Part Number: 0679100002

Tania supports the PCI Express interface on the Leila module and allows Mini PCIe devices to be connected.

Descrizione	Nome	PIN	PIN	Nome	Descrizione
wake up gpio in	PCIE_WAKE_B	1	2	MPCIE_3V3	3v3 power supply
test point 2	TP2	3	4	GND	Main ground reference
test point 1	TP1	5	6	MPCIE_1V5	1v5 power supply
test point 3	TP3	7	8	PCIe_UIM_PWR/TP4	PCIe power supply
Ground	GND	9	10	PCIe_UIM_DATA/TP5	PCIe i/o data
Clock input from buffer ICS9DB106	PCIe_CREFCLKM/CLK_1_N	11	12	PCI3_UIM_CLK/TP6	SIM Card
Clock input from buffer ICS9DB106	PCIe_CREFCLKP/CLK_1_P	13	14	PCIe_UIM_RST/T_P7	SIM Card
Main ground reference	GND	15	16	PCIe_UIM_VPP/T_P8	SIM Card
Test point	TP9	17	18	GND	Main ground reference
Test point	TP10	19	20	PCIE_DIS_B	Wireless disable (active low) input
Main ground reference	GND	21	22	PCIE_RST_B	Power Good (Reset) input
PCI Express RX - input	PCIe_CRXM	23	24	MPCIE_3V3	Power supply mpcie
PCI Express RX + input	PCIe_CRXP	25	26	GND	Main ground reference
Main ground reference	GND	27	28	MPCIE_1V5	Main ground reference
Main ground reference	GND	29	30	PCIe_SMB_CLK	SM Bus Clock I
PCI Express TX - output	PCIe_CTXM	31	32	PCIe_SMB_DATA	SM Bus Data I/O
PCI Express TX + output	PCIe_CTXP	33	34	GND	Main ground reference
Main ground reference	GND	35	36	PCIE_USB_DM	USB Data I/O
Main ground reference	GND	37	38	PCIE_USB_DP	USB Data I/O
Power supply mpcie	MPCIE_3V3	39	40	GND	Main ground reference
Power supply mpcie	MPCIE_3V3	41	42	LED_WWAN_B	Sd1 data 3 signal
Main ground reference	GND	43	44	LED_WLAN_B	Sd1 data 2 signal
Test point	TP11	45	46	LED_WPAN_B	Sd1 data 1 signal
Test point	TP12	47	48	MPCIE_1V5	Sd1 data 0 signal
Test point	TP13	49	50	GND	Main ground reference
Test point	TP14	51	52	MPCIE_3V3	Power supply mpcie

AUDIO IN J22

- Part Number: SJ-43515TS

PIN	Name	Description
1	GND	Ground
2	AUDIO_LIN_L	Audio line left
3	AUDIO_LIN_R	Audio line right
4	NC	Not connected
5	NC	Not connected

HEADPHONE J23

- Part Number: SJ-43515TS

PIN	Name	Description
1	HEADPHONE_RETURN/GND_SIGNAL	Ground
2	HEADPHONE_RIGHT	Headphone right
3	HEADPHONE_LEFT	Headphone left
4	VCC_AUDIO	Audio power supply
5	NC	Not connected

SPEAKERS J24

- Part Number: DMC 1,5/3-G1-3,5 P20THR

PIN	Name	Description
1	SPK_L_P	speaker left +
2	SPK_L_N	speaker left -
3	GND	ground
4	SPK_R_P	Speaker right +
5	SPK_R_N	Speaker right -
6	GND	ground

Connctor DSI output J25

- Part Number: 0528932095

PIN	Name	Description
1	DSI_CLK0M	
2	DSI_CLK0P	
3	GND	Main ground reference
4	DSI_D0M	
5	DSI_D0P	
6	GND	Main ground reference
7	DSI_D1M	
8	DSI_D1P	
9	GND	Main ground reference
10	GPIO7_IO10	i.MX6 GPIO signal
11	GPIO5_IO17	i.MX6 GPIO signal
12	PWM3	Pulse width Modulation 3
13	3V3	Power supply 3V3
14	3V3	Power supply 3V3
15	GPIO1_IO30	i.MX6 GPIO signal
16	GPIO1_IO29	i.MX6 GPIO signal
17	5V	Power supply 5V
18	5V	Power supply 5V
19	GND	Main ground reference
20	GND	Main ground reference
21	GND	Main ground reference
22	GND	Main ground reference

Rohs compliance

Tania Smart Controller complies with the European Union's Directive 2002/95/EC: "Restrictions of Hazardous Substances".

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