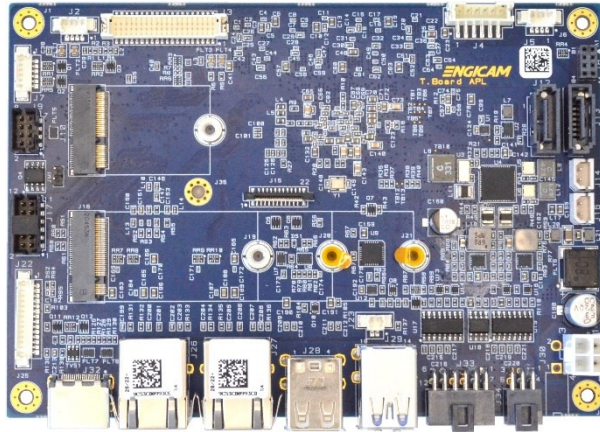


T.BOARD APL USR MANUAL



Revision History

DATE	REVISION	CHANGE DESCRIPTION
23/03/2023	1.0.0	Release

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1. INTRODUCTION

This document describes the connectors and the interfaces unit available for the users on the Engicam's T.Board APL and it specifies the electrical characteristic and specifications of the signals.

1.1 ACRONYMS AND ABBREVIATIONS USED

The table below shows the acronyms and abbreviations used in the manual.

ABBREVIATION	EXPLANATION
ADC	Analogue to Digital Converter
Auto-MDIX	Automatically Medium Dependent Interface Crossing, a PHY with Auto-MDIX f is able to detect whether RX and TX need to be crossed (MDI or MDIX)
CAN	Controller Area Network, a bus that is manly used in automotive and industrial environment
CPU	Central Processor Unit
DAC	Digital to Analogue Converter
DDC	Display Data Channel, interface for reading out the capability of a monitor
DSI	Display Serial Interface
EDID	Extended Display Identification Data, timing setting information provided by the display in a PROM
EMI	Electromagnetic Interference, high frequency disturbances
eMMC	Embedded Multi Media Card, flash memory combined with MMC interface controller in a BGA package, used as internal flash memory
ESD	Electrostatic Discharge, high voltage spike or spark that can damage electrostatic-sensitive devices
GBE	Gigabit Ethernet, Ethernet interface with a maximum data rate of 1000Mbit/s
GND	Ground
GPIO	General Purpose Input/Output, pin that can be configured being an input or output
HDA	High Definition Audio (HD Audio), digital audio interface between CPU and audio codec
HDMI	High-Definition Multimedia Interface, combines audio and video signal
I2C	Inter-Integrated Circuit, two wire interface for connecting low speed peripherals
I2S	Integrated Interchip Sound, serial bus for connecting PCM audio data between two devices
JTAG	Joint Test Action Group, widely used debug interface
LCD	Liquid Crystal Display
LSB	Least Significant Bit
LVDS	Low-Voltage Differential Signalling, electrical interface standard that can transport very high speed signals over twisted-pair cables.
MSB	Most Significant Bit
NA	Not Available
NC	Not Connected
OD	Open Drain
OTG	USB On-The-Go, a USB host interface that can also act as USB client when connected to another host interface
PCB	Printed Circuit Board
PD	Pull Down Resistor
PHY	Physical Layer of the OSI model

ABBREVIATION	EXPLANATION
PMIC	Power Management IC, integrated circuit that manages amongst others the power sequence of a system
PU	Pull Up Resistor
PWM	Pulse-Width Modulation
RGB	Red Green Blue, colour channels in common display interfaces
SD	Secure Digital, flash memory card
SDIO	Secure Digital Input Output, an external bus for peripherals that uses the SD interface
SOC	System on a Chip, IC which integrates the main component of a computer on a single chip
SPI	Serial Peripheral Interface Bus, synchronous four wire full duplex bus for peripherals
USB	Universal Serial Bus, serial interface for internal and external peripherals

2. CABLE MAP OVERVIEW

This image shows an overview about the cable connecting map of the T.Board.

TOP LAYER

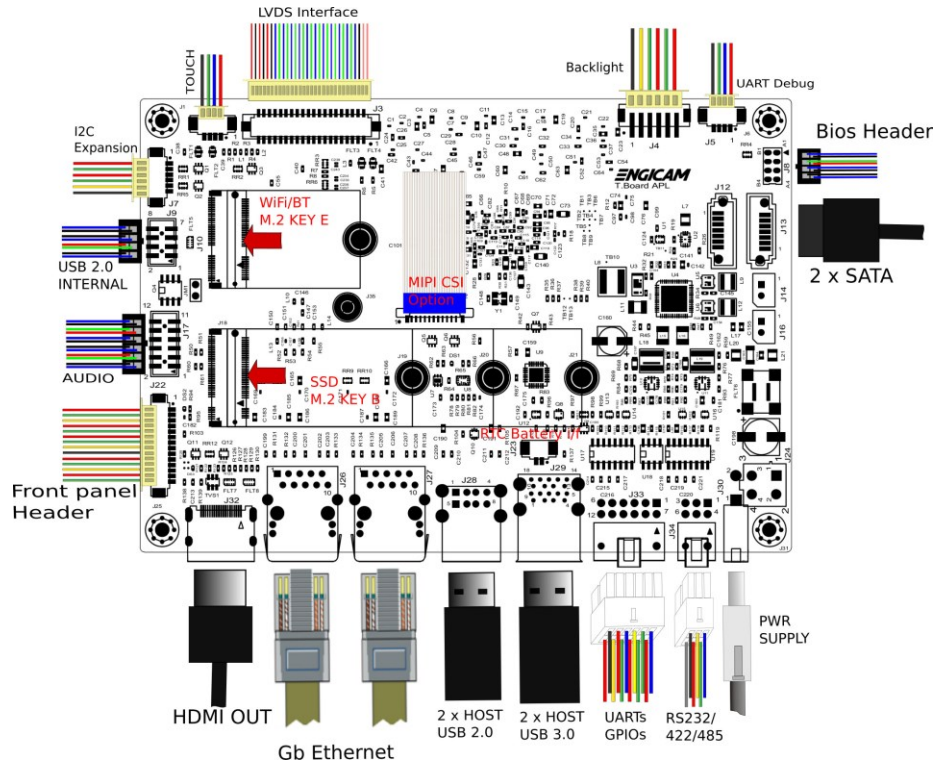


Figure 1

Bottom LAYER

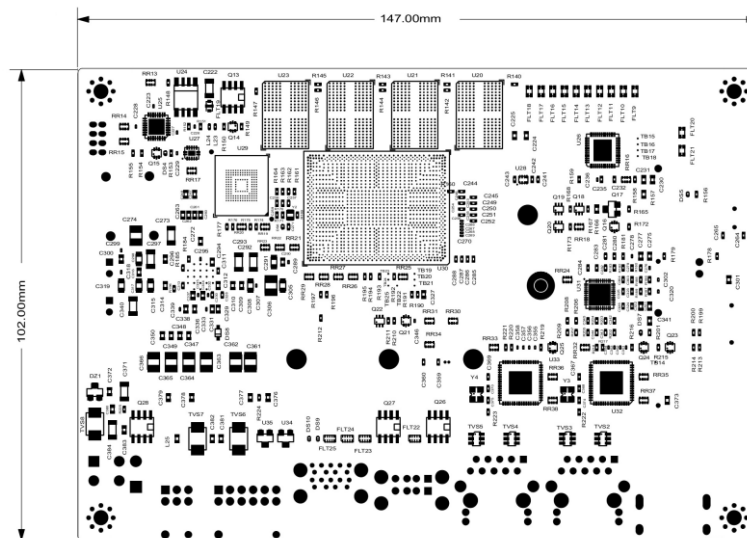


Figure 2

3. ORDERING INFORMATION

Following we provide the ordering information and the description for the Basic technical specifications:

Ordering Code	MPQ	Description	Operating temperature range °C
0026810373E75A	1	T.BOARD APL E3930 2GB BASIC 32GB eMMC (3.5" SBC, Intel E3930 dual core 6W, 2GB LPDDR4, 32GB eMMC -25°C, NO LVDS, HDMI, NO TPM, NO AUDIO, 2xUSB 3.0, 2xUSB 2.0, 2x232, M.2 Key B, M.2 Key E, SINGLE GB ethernet, NO 1A outputs, 2x 24Vdc inputs)	-40 to +85
0026810373E76A	1	T.BOARD APL E3940 4GB BASIC 32GB eMMC(3.5" SBC, Intel E3940 quad core 9.5W, 4GB LPDDR4, 32GB eMMC -25°C, NO LVDS, HDMI, NO TPM, NO AUDIO, 2xUSB 3.0, 2xUSB 2.0, 2x232, M.2 Key B, M.2 Key E, SINGLE GB ethernet, NO 1A outputs, 2x 24Vdc inputs)	-40 to +85
0026800373E76A	1	T.BOARD APL E3940 4GB FULL 32GB eMMC(3.5" SBC, Intel E3940 quad core 9.5W, 4GB LPDDR4, 32GB eMMC -25°C, LVDS, NO TPM, AUDIO, 2xUSB 3.0, 2xUSB 2.0, 2x232, M.2 Key B, M.2 Key E, DUAL GB ethernet, 2 x 1A outputs, 2x 24Vdc inputs)	-40 to +85
0026800375E77A	1	T.BOARD APL E3950 8GB FULL 32GB eMMC(3.5" SBC, Intel E3950 quad core 12W, 8GB LPDDR4, 32GB eMMC -25°C, NO LVDS, HDMI, NO TPM, NO AUDIO, 2xUSB 3.0, 2xUSB 2.0, 2x232, M.2 Key B, M.2 Key E, SINGLE GB ethernet, NO 1A outputs, 2x 24Vdc inputs)	-40 to +85
Option			
00257000014590	1	Heatspreader for T.BOARD APL	-40 to +85

Note: Internal Junction Temperature Range (TJ) -40°C to 105°C

Available formats

Features	Basic	Full
3.5" SBC	X	X
Intel E39x0	X	X
xGB LPDDR4 (*)	X	X
32GB eMMC -25°C	X	X
LVDS		X
HDMI	X	X
TPM		X
AUDIO		X
2 x USB 3.1	X	X
2 x USB 2.0	X	X
2 x RS232	X	X
M.2 Key B	X	X
M.2 Key E	X	X
GB ethernet	SINGLE	DUAL
1A outputs		X
2x 24Vdc inputs	X	X

4. RAM

The board mounts Low-Power Double Data Rate (LPDDR), also known as LPDDR SDRAM.

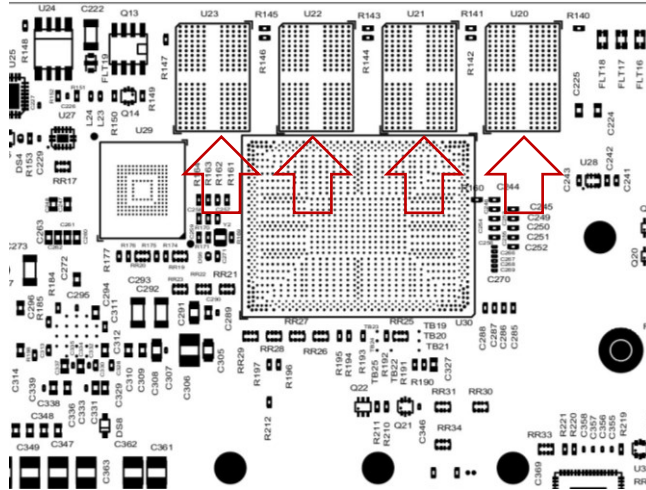


Figure 3

Available formats

Setup	Memory configurations
E3930 BASIC	2GB RAM
E3940 BASIC	4GB RAM
E3940 FULL	4GB RAM
E3950 FULL	8GB RAM

5. USB INTERFACES

The T.Board is equipped with an USB Stacked Connector, Type A, USB 2.0, 8 Ways, Horizontal.

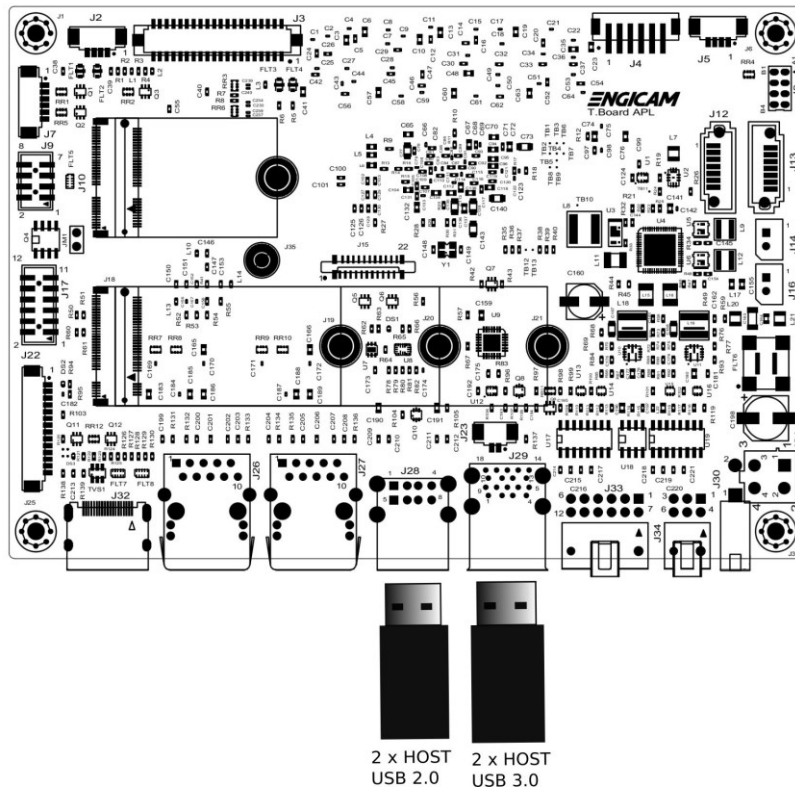


Figure 4

The following tables show the electrical connection of USB interfaces (Type A connector) for both the USB2.0 interfaces connections.

Connector reference J28

Pin number	Signal Name	Function Description	Voltage reference
1	VBUS	Power Signal	Standard USB
2	DM	Data N	Standard USB
3	DP	Data P	Standard USB
4	GND	Power Signal	-
5	VBUS	Power Signal	Standard USB
6	DM	Data N	Standard USB
7	DP	Data P	Standard USB
8	GND	Power Signal	-
910-11-12	GND	Power Signal	-

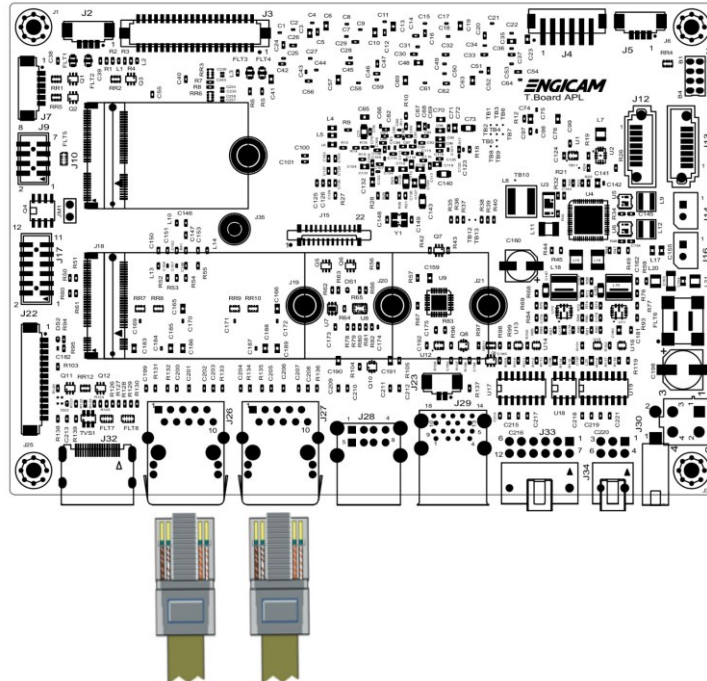
The following tables show the electrical connection of USB interfaces (Type A connector) for both the USB3.1 interfaces connections.

Connector reference J29

Pin number	Signal Name	Function Description	Voltage reference
1-10	VBUS	Power Signal	Standard USB
2-11	D-	Data N	Standard USB
3-12	D+	Data P	Standard USB
4-13	GND	Power Signal	-
5-14	SSRX-	Power Signal	Standard USB
6-15	SSRX+	Data N	Standard USB
7-13	GND	Power Signal	-
8-17	SSTX-	Data P	Standard USB
9-18	SSTX+	Power Signal	-
19-20-21-22	GND	Power Signal	-

6. ETHERNET CONNECTION

The Ethernet connection uses 2 x RJ45 standard modular connector RJ45 Jack, 1 x 1 (Port), 8P8C, through hole mount. The plug is on standard UTP cable.



Gb Ethernet
Figure 5

The following tables show the wiring map for each the single port connector (as above mentioned the plug is on standard UTP cable)

Connector reference J26

Pin Number	Signal Name	Function Description	Voltage reference
1	GBE0_TPIAP	Gigabit Ethernet Signal	Standard Ethernet
2	GBE0_TPIAN	Gigabit Ethernet Signal	Standard Ethernet
3	GBE0_TPIBP	Gigabit Ethernet Signal	Standard Ethernet
4	GBE0_TPIBN	Gigabit Ethernet Signal	Standard Ethernet
5	MID		-
6	MID		-
7	GBE0_TPICP	Gigabit Ethernet Signal	Standard Ethernet
8	GBE0_TPICN	Gigabit Ethernet Signal	Standard Ethernet
9	GBE0_TPIDP	Gigabit Ethernet Signal	Standard Ethernet
10	GBE0_TPIDN	Gigabit Ethernet Signal	Standard Ethernet
11	GBE0_LINK100#	Status signal led	-
12	GBE0_LINK1000#	Status signal led	-
13	+3V3_S3	Power Signal	
14	GBE0_LINK_ACT#	Status signal led	
15	CAP		
16	CAP		

Connector reference J27

Pin Number	Signal Name	Function Description	Voltage reference
1	GBE1_TPIAP	Gigabit Ethernet Signal	Standard Ethernet
2	GBE1_TPIAN	Gigabit Ethernet Signal	Standard Ethernet
3	GBE1_TPIBP	Gigabit Ethernet Signal	Standard Ethernet
4	GBE1_TPIBN	Gigabit Ethernet Signal	Standard Ethernet
5	MID		-
6	MID		-
7	GBE1_TPICP	Gigabit Ethernet Signal	Standard Ethernet
8	GBE1_TPICN	Gigabit Ethernet Signal	Standard Ethernet
9	GBE1_TPIDP	Gigabit Ethernet Signal	Standard Ethernet
10	GBE1_TPIDN	Gigabit Ethernet Signal	Standard Ethernet
11	GBE1_LINK100#	Status signal led	-
12	GBE1_LINK1000#	Status signal led	-
13	+3V3_S3	Power Signal	
14	GBE1_LINK_ACT#	Status signal led	
15	CAP		
16	CAP		

NOTE: For further information is strongly recommended to refer to the APL datasheet and reference manual

7. RS232 AND RS485 CONNECTIONS

The T.Board is equipped with up to 2 RS232 interfaces which are connected by Molex 53398-0471

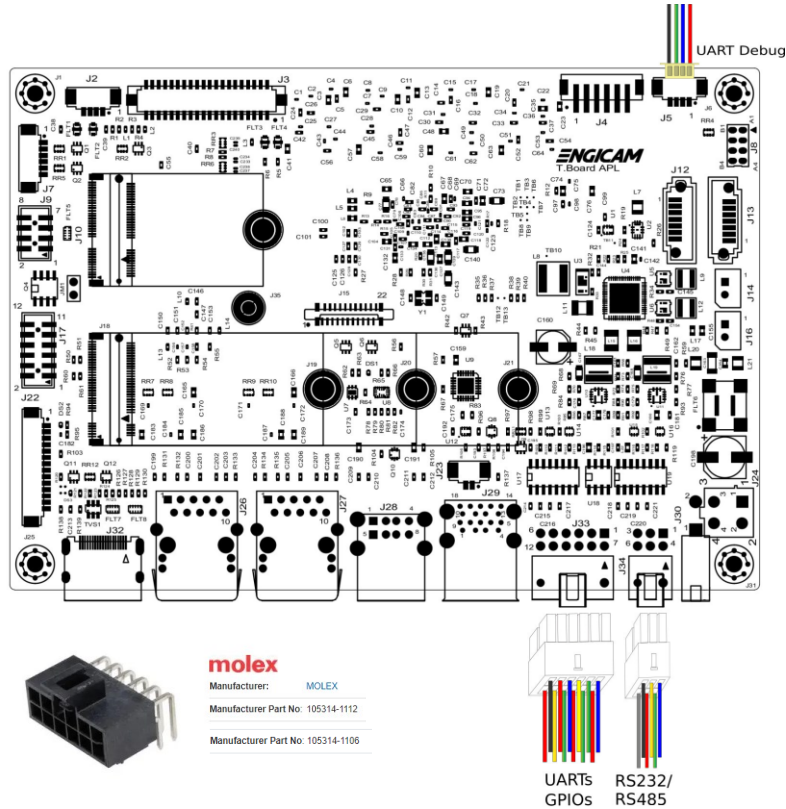


Figure 6

The following table shows the wiring map for two wires UART CMOS voltage level that mates with 51021-0400

Connector reference J5

Pin number	Signal Name	Function Description	Voltage reference
1	1,8V	Power Signal	-
2	UART3_TX	Transmit Signal	CMOS_1.8V
3	UART3_RX	Receive Signal	CMOS_1.8V
4	GND	Power Signal	-

The RS232 interfaces are mapped on a 12 poles NanoFit connector, mates with 105314-1112.

Connector reference J33

Pin number	Signal Name	Function Description	Voltage reference	Pin number	Signal Name	Function Description	Voltage reference
1	UART2_TXD_RS232	Transmit Signal	RS232 standard	7	UART1_TXD_RS232	Transmit Signal	RS232 standard
2	UART2_RXD_RS232	Receive Signal	RS232 standard	8	UART1_RXD_RS232	Receive Signal	RS232 standard
3	GND	Power Signal	-	9	GND	Power Signal	-
4	GND	Power Signal	-	10	GND	Power Signal	-
5	GPO2_EXT	Spare GPIO	+3,3V	11	GPO1_EXT	Spare GPIO	+3,3V
6	GPI2_EXT	Spare GPIO	+3,3V	12	GPI1_EXT	Spare GPIO	+3,3V

GPO2_EXT is controlled by GPIO13, North Community offset 13
GPI2_EXT is controlled by GPIO12, North Community offset 12

GPI2_EXT is controlled by GPIO15, North Community offset 15
 GPI1_EXT is controlled by GPIO14, North Community offset 14

The RS232 interfaces are mapped on a 6 poles NanoFit connector, mates with 1053141106.

Connector reference J34

Pin number	1x RS232 4wire (Default)	RS232 2 wire + RS485 (Mounting Option)	2x RS232 2 wire (Mounting Option)	Voltage reference
1	UART0_TX	UART0_TX	UART0_TX	RS232
2	UART0_RTS	RS485_TX_P	UARTA_TX	RS232/485 Standard
3	GND	GND	GND	-
4	UART0_CTS	RS485_TX_N	UARTA_RX	RS232/485 Standard
5	UART0_RX	UART0_RX	UART0_RX	RS232 Standard
6	GND	GND	GND	-

8. POWER SUPPLY CONNECTIONS

The figure shows the power supply connection. The T.Board receives an input DC voltage, which ranging from +12V to +24V.

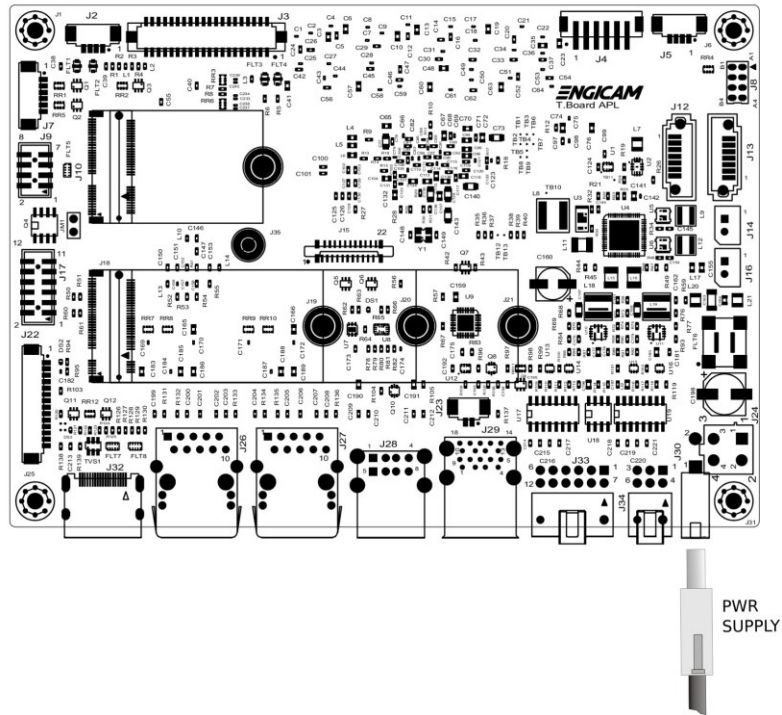


Figure 7

The power supply is brought from the connector J30 is a Molex Minifit pin header 2 contacts code 87427-0202 which mates with code 39-01-2025 or internal vertical Minifit connector (ref J24) code 39-28-8040, mates with 39-01-2040.

J30

Pin number	Signal Name	Function Description	Min Voltage	Typical Voltage	Max Voltage
1	+VIN	Power Signal	12 VDC*	24 VDC	26 VDC
2	GND	Power Signal	-	-	-

J24

Pin number	Signal Name	Function Description	Min Voltage	Typical Voltage	Max Voltage
1-2	GND	Power Signal	-	-	-
3-4	+VIN	Power Signal	12 VDC*	24 VDC	26 VDC

*Only when the monitor is not in use

9. AUDIO CONNECTION

The following figure shows the output audio mode connector Molex type 87832-1272 that mates with Milli-Grid Crimp Housing 51110 or Milli-Grid Cable-to-Board Receptacle 87568 series or compliant.

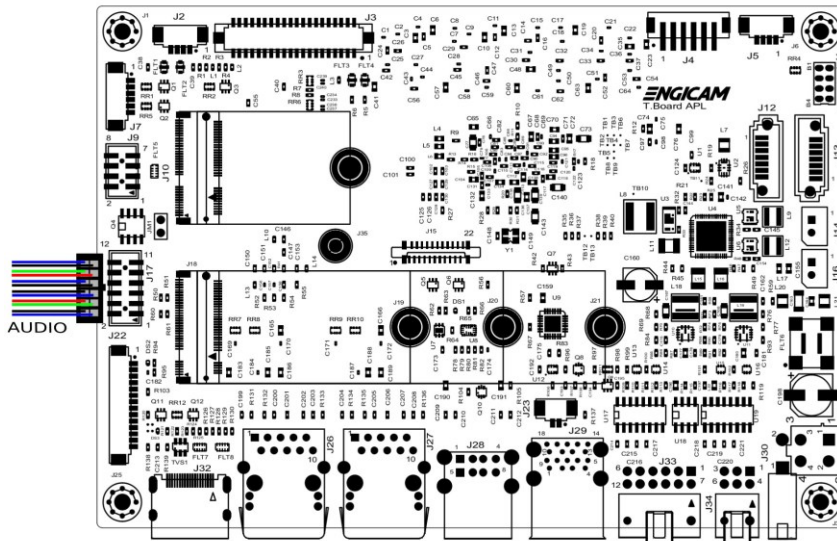


Figure 8

Analog Outputs features:

HP Output:

- 101 dB Dynamic Range (A-wtd)
- -89 dB THD+N

MIC IN:

- Pre-amplifier with Selectable 0 dB, +10 dB, +20 dB, and +30 dB Gain Settings
- Programmable, Low-noise MIC Bias Level

Connector reference J17

Pin number	Signal Name	Pin number	Signal Name
1	GND	2	MIC-R
3	MIC-L	4	SENSE-MIC
5	GND	6	LINE-R
7	LINE-L	8	SENSE-LINE
9	GND	10	HP-R
11	HP-L	12	SENSE-MIC

Note: For further information about audio connections and specifications please refer to CS4207-CNZ datasheet

10. LVDS INTERFACE

The T.Board is equipped with one connector for a LVDS HDTV interface. The LVDS ports may be used as:

- Double LVDS channel up to HD resolution
- Single LVDS channel up to full HD resolution

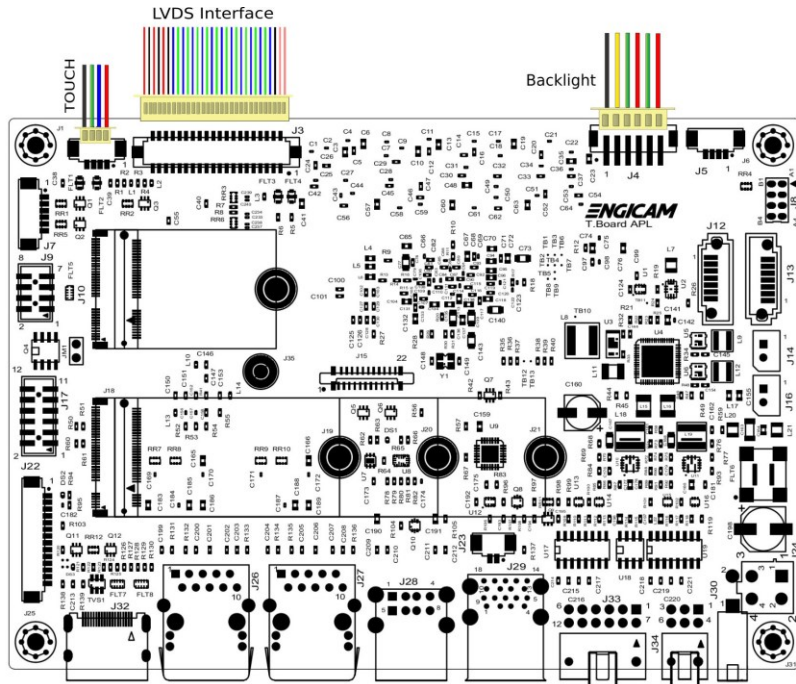


Figure 9



HRS
 Manufacturer: HIROSE(HRS)
 Manufacturer Part No: DF13EA-40DP-1.25V

The following table shows the map of the 40p poles connector used to LVDS interface. The connector which mates with LVDS interface is Hirose code DF13-40DP-1.25V or compatible code.

Connector reference J3

Pin Number on DF13 Connector	Signal Name	Function Description	Voltage reference
1	+5V	Power Signal	-
2	+5V	Power Signal	-
3	+5V	Power Signal	-
4	+3,3V	Power Signal	-
5	+3,3V	Power Signal	-
6	+3,3V	Power Signal	-
7	+3,3V/+5V	Power Signal	-
8	GND	Power Signal	-
9	LVDS0_TXP0	LVDS Interface's Signals	+2,5V
10	LVDS0_TXN0	LVDS Interface's Signals	+2,5V
11	GND	Power Signal	-
12	LVDS0_TXN1	LVDS Interface's Signals	+2,5V
13	LVDS0_TXP1	LVDS Interface's Signals	+2,5V
14	GND	Power Signal	-
15	LVDS0_TXP2	LVDS Interface's Signals	+2,5V

Pin Number on DF13 Connector	Signal Name	Function Description	Voltage reference
16	LVDS0_TXN2	LVDS Interface's Signals	+2,5V
17	GND	Power Signal	-
18	LVDS0_CKN	LVDS Interface's Signals	+2,5V
19	LVDS0_CKP	LVDS Interface's Signals	+2,5V
20	GND	Power Signal	-
21	LVDS0_TXP3	LVDS Interface's Signals	+2,5V
22	LVDS0_TXN3	LVDS Interface's Signals	+2,5V
23	GND	Power Signal	-
24	LVDS1_TXN0	LVDS Interface's Signals	+2,5V
25	LVDS1_TXP0	LVDS Interface's Signals	+2,5V
26	GND	Power Signal	-
27	LVDS1_TXP1	LVDS Interface's Signals	+2,5V
28	LVDS1_TXN1	LVDS Interface's Signals	+2,5V
29	GND	Power Signal	-
30	LVDS1_TXN2	LVDS Interface's Signals	+2,5V
31	LVDS1_TXP2	LVDS Interface's Signals	+2,5V
32	GND	Power Signal	-
33	LVDS1_CKP	LVDS Interface's Signals	+2,5V
34	LVDS1_CKN	LVDS Interface's Signals	+2,5V
35	GND	Power Signal	-
36	LVDS1_TXN3	LVDS Interface's Signals	+2,5V
37	LVDS1_TXP3	LVDS Interface's Signals	+2,5V
38	GND	Power Signal	-
39	Pull up/down		+3,3V
40	Pull up/down		+3,3V

Attention! Address 0x40h reserved for PTN346IBS.

10.1 LVDS BACK-LIGHT INTERFACES

The T.Board is interfaced to back-light connection through the following connector JST code B6B-PH-SM4-TB that is mated with JST code PHR-6 or compatible

The Following table shows the pinout back-light interface.

Connector reference J4

Pin Number	Signal Name
1	+12V
2	+12V
3	GND
4	GND
5	PWM
6	BKL_EN



10.2 TOUCH SCREEN INTERFACES

The LVDS touch screen is connected by the MOLEX connector code 53398-0471 that mates with 51021-0400 PicoBlade Wire-to-Wire connector or compliant

The Following table reports the connector's pin-out.

Connector reference J2

Pin Number	Signal Name
1	+5V
2	USB2_DP5
3	USB2_DN5
4	GND

11. HDMI INTERFACE

HDMI is a compact audio/video interface for transferring uncompressed digital audio/video data from a HDMI - compliant device to a compatible digital audio device, computer monitor, video projector, and digital television. For information about the HDMI specifications refer to the HDMI standard.

Connector reference J32

Pin Number	Name
1	TMDS Data2+
2	TMDS Data2 Shield
3	TMDS Data2-
4	TMDS Data1+
5	TMDS Data1 Shield
6	TMDS Data1-
7	TMDS Data0+
8	TMDS Data0 Shield
9	TMDS Data0-
10	TMDS Clock+
11	TMDS Clock Shield
12	TMDS Clock-
13	CEC
14	Reserved
15	SCL
16	SDA
17	Ground
18	+5V
19	Hot Plug detect / HEC Data+

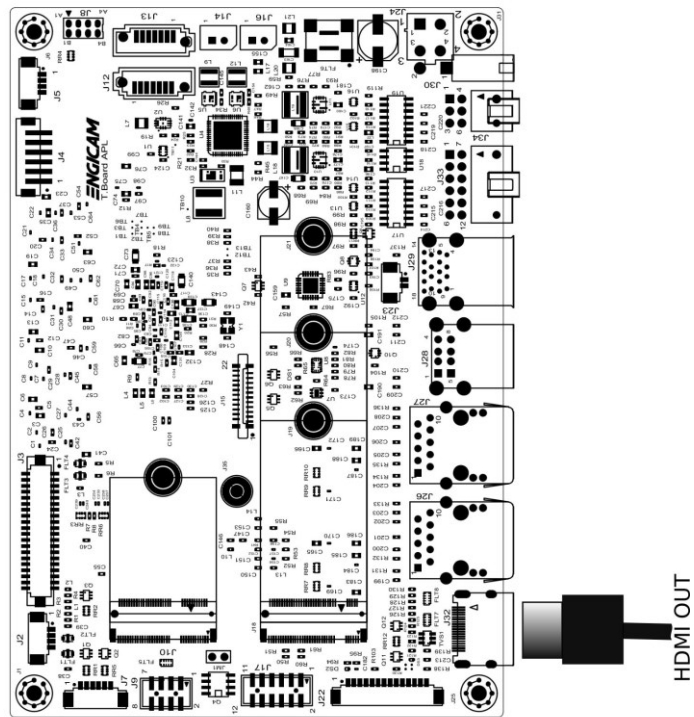


Figure 10

The connector is a standard HDMI type 19 poles. In the table is shown the standard pin configuration. Resolution available, up to 4K(dependent on SOM used).

12. SSD INTERFACES

The T.Board allows managing up to 2 x SSD form factor (2242, 2260 or 2280) both via PCIe, or one with SATA and one with PCIe.

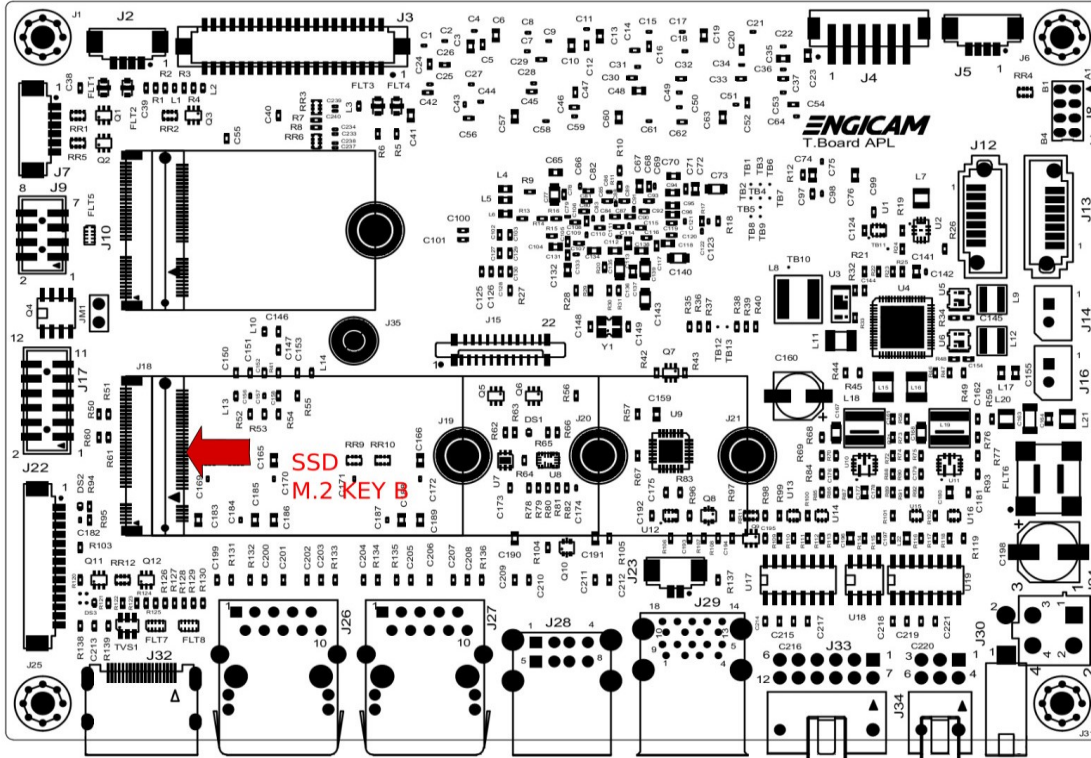


Figure 11



Both the interfaces are implemented on an M.2 connector Key B, mapped as follow

The connector J18 is mapped used PCIE and SATA i/f.

Pin Number	Signal Name	Pin Number	Signal Name
1	GND	2	+3V3_S
3	GND	4	+3V3_S
5	-	6	-
7	-	8	-
9	-	10	SSD_LED_N
11	GND		
		20	-
21	GND	22	-
23	-	24	-

Pin Number	Signal Name	Pin Number	Signal Name
25	-	26	-
27	GND	28	-
29	PCIE_P1_RXN	30	-
31	PCIE_P1_RXP	32	-
33	GND	34	-
35	PCIE_P1_TXN	36	-
37	PCIE_P1_TXP	38	-
39	GND	40	-
41	SSD_SATA_RXP_PCI_RXN	42	-
43	SSD_SATA_RXN_PCI_RXP	44	-
45	GND	46	-
47	SSD_SATA_TXN_PCI_TXN	48	-
49	SSD_SATA_TXP_PCI_TXP	50	PCIE_RST_N_0
51	GND	52	M2_SSD_CLKREQn
53	PCIE_CLKREF0_DN	54	-
55	PCIE_CLKREF0_DP	56	-
57	GND	58	-
59	-	60	-
61	-	62	-
63	-	64	-
65	-	66	-
67	-	68	-
69	GND	70	+3V3_S
71	GND	72	+3V3_S
73	GND	74	+3V3_S
75	GND		

13. WLAN / BT INTERFACE

The T.Board is equipped with WiFi interface i/BT form factor (2230) implemented on an M.2 connector Key E.

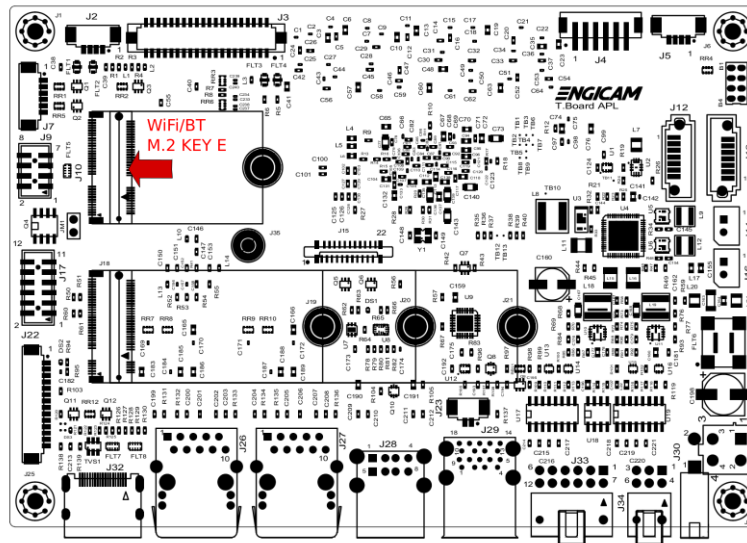


Figure 12

Connector reference J10

Pin Number	Signal Name	Pin Number	Signal Name
1	GND	2	+3V3_M2E
3	USB2_DP7	4	+3V3_M2E
5	USB2_DN7	6	WLAN_BT_LED_N
7	GND	8	-
9	-	10	-
11	-	12	-
13	-	14	-
15	-	16	WLAN_BT_LED_N
17	-	18	GND
19	-	20	-
21	-	22	-
23	-		
		32	-
33	GND	34	-
35	PCIE_P2_TXP	36	-
37	PCIE_P2_TXN	38	-
39	GND	40	-
41	PCIE_P2_RXP	42	-
43	PCIE_P2_RXN	44	-
45	GND	46	-
47	PCIE_CLKREF1_DP	48	-
49	PCIE_CLKREF1_DN	50	-

Pin Number	Signal Name	Pin Number	Signal Name
51	GND	52	PCIE_RST_N_1
53	M2_KEYE_CLKREQn	54	3V3 PU
55	-	56	PCIE_W_DISABLE_3V3
57	GND	58	WF_I2C_DAT
59	-	60	WF_I2C_CLK
61	-	62	WF_I2C_nINT
63	GND	64	-
65	-	66	-
67	-	68	-
69	GND	70	-
71	-	72	+3V3_S
73	-	74	+3V3_S
75	GND		

14. AUX CONNECTOR

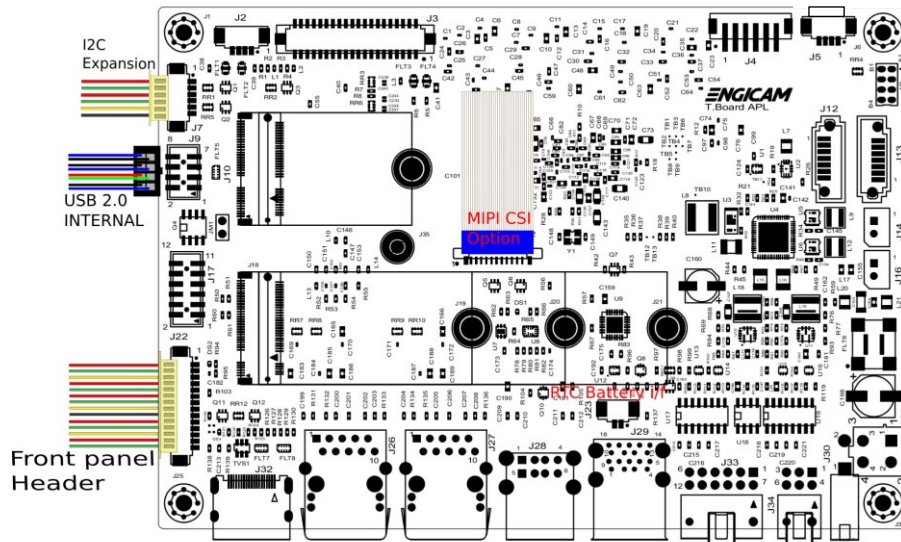


Figure 13

The T.Board is equipped with an I2C Expansion Connector, MOLEX code 53398-0671, that mates with 51021-0600 PicoBlade Wire-to-Wire connector or compliant. The Following table reports the connector's pin-out.

Connector reference J7

Pin Number	Signal Name
1	+3V3
2	I2C4_SCL_1V8
3	I2C4_SDS_1V8
4	GPIO_28
5	GPIO_29
6	GND



Internal USB 2.0, Connector, MOLEX Milligrig

Connector reference J9

Pin Number	Signal Name	Pin Number	Signal Name
1	+5V_USB2_5	2	+5V_USB2_4
3	USB2_AUX_DN5	4	USB2_DN4
5	USB2_AUX_DP5	6	USB2_DP4
7	GND	8	GND



Front panel Header Connector, MOLEX 53398-1471, that mates with 51021-1400 PicoBlade Wire-to-Wire connector or compliant.

Connector reference J22

Pin Number	Signal Name	Description
1	PMU_RSTBTN_N	RESET BTN +
2	GND	RESET BTN -
3	POWER_BTN_CN#	POWER BTN +
4	GND	POWER BTN -
5	POWER_LED_PU	POWER LED +
6	GND	POWER LED -
7	NC	-
8	NC	-
9	HDD_LED_PU	HDD LED +
10	HDD_LED_N	HDD LED -
11	WLAN_BT_ACT_PU	WLAN LED +
12	WLAN_BT_LED_N	WLAN LED -
13	INTRUDER_CN#	INTRUDER +
14	GND	INTRUDER -



MIPI-CSI option FPC22 05mm V Wurth Elektronik

Connector reference J15

Pin Number	Signal Name	Pin Number	Signal Name
1	GND	2	MCSI_RX_DATA0_N
3	MCSI_RX_DATA0_P	4	GND
5	MCSI_RX_DATA1_N	6	MCSI_RX_DATA1_P
7	GND	8	MCSI_RX_CLK0_N
9	MCSI_RX_CLK0_P	10	GND
11	MCSI_RX_DATA2_N	12	MCSI_RX_DATA2_P
13	GND	14	MCSI_RX_DATA3_N
15	MCSI_RX_DATA3_P	16	GND
17	CAM0_PWRn	18	CAM0_RSTn
19	GND	20	I2C0_CSI0_SCL
21	I2C0_CSI0_SDA	22	+VCAM



RTC battery interface Connector, MOLEX 53398-0271, that mates with 51021-0200 PicoBlade Wire-to-Wire connector or compliant.

Connector reference J23

Pin Number	Signal Name
1	+VBAT_RTC
2	GND



15. PRODUCT COMPLIANCE

In order to respect own internal policy regarding the environmental regulations and safety laws, Engicam in this chapter confirms the compliant, when applicable, of its own products to the normatives ROHS and REACH and to the recognized hazards.

No hazards to report!

16. ON-LINE SUPPORT

We offer an on-line support to allow the customer to stay updated on the development of software release and on the enhancement of the documentation.

Following is shown the references for ENGICAM on-line support.

16.1 SUPPORT

ENGICAM Product Experts are available to answer questions via email:

support@engicam.com

16.2 DISCLAIMER

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