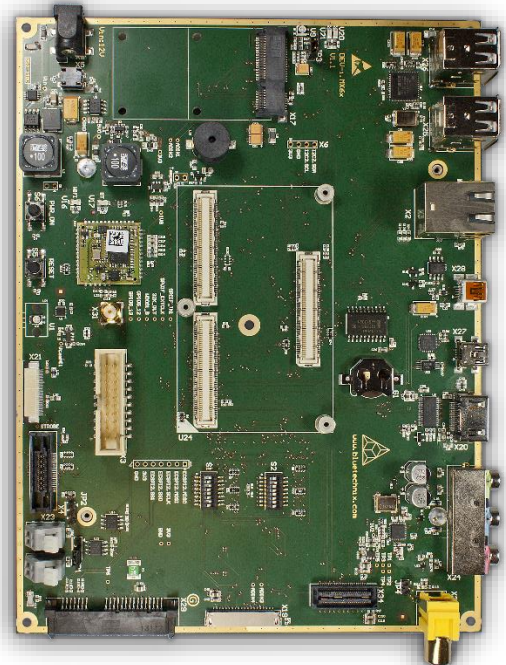


BLUETECHNIX
Embedding Ideas

DEV-i.MX6x

Hardware User Manual

Version 1.3





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Information

For further information on technology, delivery terms and conditions and prices please contact Bluetechnix (<http://www.bluetechnix.com>).

Warning

Due to technical requirements components may contain dangerous substances.

1 Introduction

The DEV-i.MX6x Development Board is a feature rich, low cost rapid development platform designed to decrease time-to market of customized applications. It supports Bluetechnix' powerful i.MX6x based Core Modules like the latest CM-i.MX6Q/D/S. The development board provides all interfaces on dedicated connectors and features the latest extender socket (bottom side) for upcoming extender boards. The form factor of the DEV-i.M6x allows easy integration of the board into OEM products.

In combination with any of Bluetechnix' CM-i.MX6x the DEV-i.MX6x is a future proof embedded development platform for high sophisticated applications in all areas!

1.1 Overview

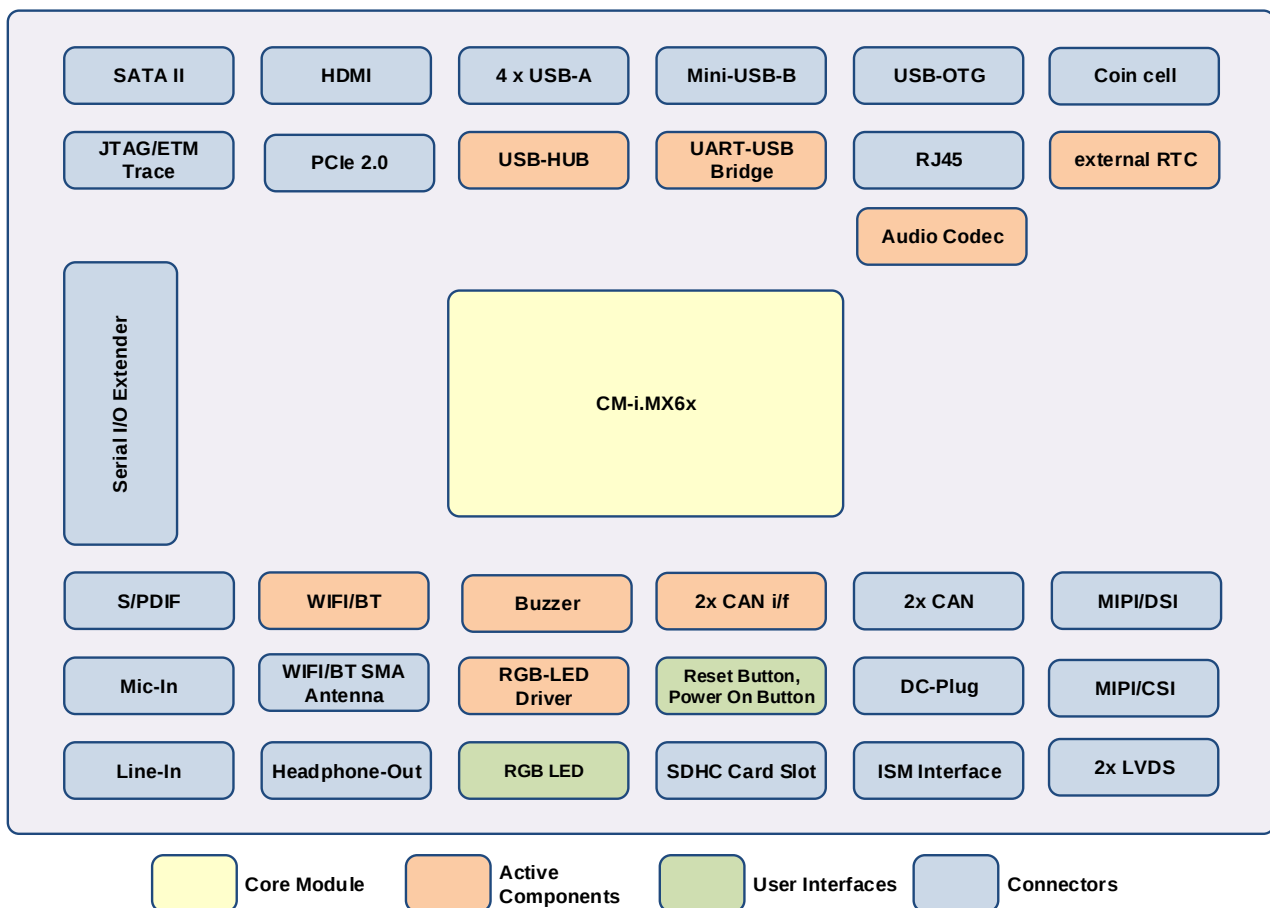


Figure 1-1 Overview of the main components

1.2 Key Features

1.2.1 CM-i.MX6x

The CM-i.MX6x offers following features:

- Freescale i.MX6Q ARM® Cortex™-A9

- 2GByte DDR3-SDRAM
- 2MByte NOR / 2GByte eMMC
- Single power supply (2.7V – 5.5V)
- All peripherals available on connectors
- Industrial and commercial temperature range

For further information see the CM-i.MX6x Hardware User Manual available at <http://www.bluetechnix.com/goto/cm-i.mx6x>.

1.2.2 Active components on DEV-i.MX6x

- 4 Port USB Hub (**USB2517**)
- USB/UART Bridge (**CP2102**)
- 2x CAN Transceiver (**SN65HVD232D**)
- RGB-LED Driver with I²C interface (**TCA62724FMG**)
- WIFI/Bluetooth module (**WiBear-SF1** or **WiBear-11G**)
- External RTC (**PCF2129AT/1**)
- Audio Codec (**SGTL5000**)
- Buzzer

1.3 Available extensions

In addition, different extensions boards from Bluetechnix will be available. Further boards are added based on the number of customer demands. All specifications you need to design a custom board of your own are freely available so you can start your design right away. Bluetechnix also offers design support for your custom extensions.

1.4 Applications

- Automotive
 - Rear Seat Entertainment Systems
 - Telematics
- Consumer
 - Portable Navigation Devices
 - Tablets
 - Smart Monitors
- Industrial
 - Human Machine Interface (HMI)
 - Aerospace and Defense
 - Security and Alarms Systems



- **Medical/Healthcare**
 - Health Care Equipment and Devices
 - Handheld Medical/Industrial
- **Networking**
 - Test and Measurement

2 General Description

2.1 Functional Description

2.1.1 Core Module

The DEV-i.MX6x provides three connectors to connect a CM-i.MX6x Core module to it.

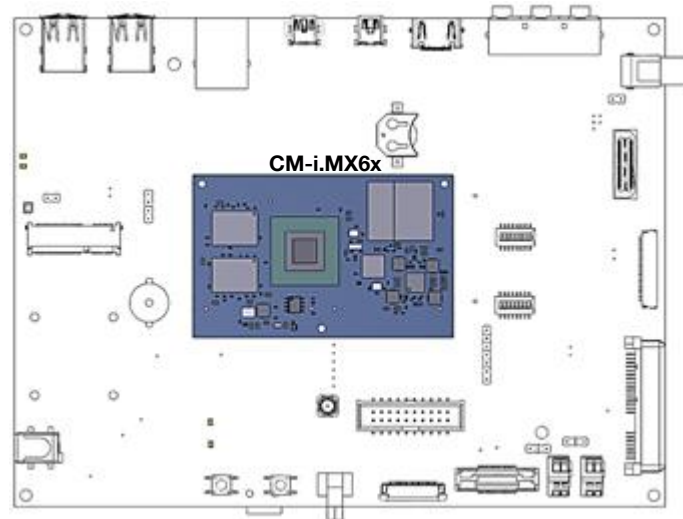


Figure 2-1 Position of the CM-i.MX6x

For further information see Hardware User Manual of CM-i.MX6x available at <http://www.bluetechnix.com/goto/CM-i.MX6x>

2.1.2 Power Supply

The DEV-i.MX6x must be powered by an external 12V power supply connected to X5. This input voltage is also routed to the extension connectors and can be used there, e.g. for TFT backlight etc.

The minimum requirements are 12V @ 1.5A.

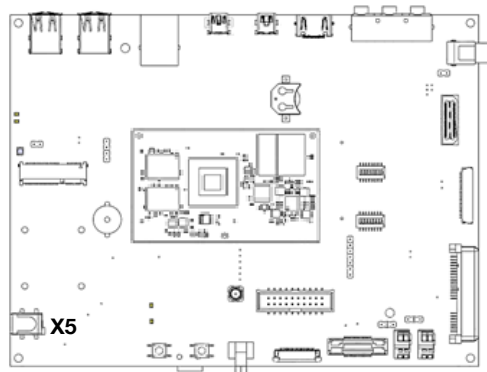


Figure 2-2 Position of X5

For further information see chapter 4.1.

2.1.3 JTAG

A standard ARM JTAG connector (20 pins, 2.54mm pitch) (X3) is available for processor debugging.

For further information see chapter 4.2.

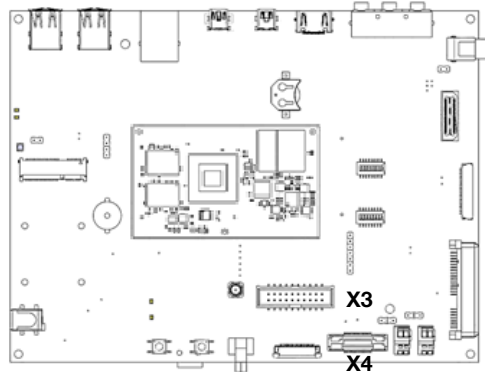


Figure 2-3 Position of X3 and X4

2.1.4 TPIU (Trace Port)

Trace Port (X4) is not supported anymore.

2.1.5 Extension Connector

The DEV-i.MX6x provides an Extension Connector X1 on the bottom side of the board. The connector allows the connection of a Bluetechnix Extension board or a custom designed board. All specifications needed to design a custom board are freely available and Bluetechnix also offers design support for your custom extensions.

Supply	Max. Current [mA]	Requirement
5V	1000	-
3V3	800	No LVDS display and MiniPCle card connected

NOTE: Bluetechnix is not responsible for the effects of additional circuit load.

For further information see chapter 4.19.

2.1.1 HDMI

The HDMI connector (X20) provides a standard interface for digital video and audio signals. The HDMI/DVI transmitter is connected to the HDMI interface of the CM-i.MX6x module.

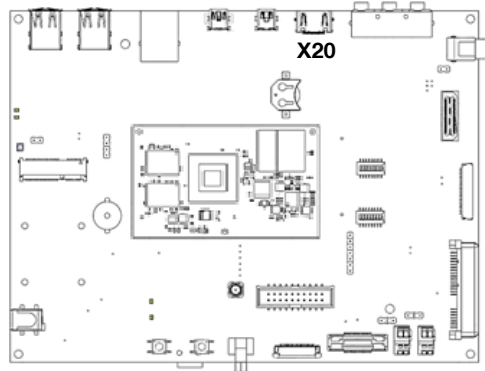


Figure 2-4 Position of X20

For further information see chapter 4.18.

2.1.2 Debug UART

The CM-i.MX6x Debug UART (UART4) is routed through a USB/UART bridge (CP2102 Silicon Labs) to the connector X27.

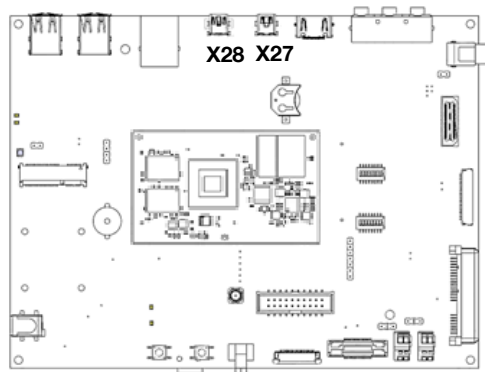


Figure 2-5 Position of X27 and X28

For further information see chapter 4.4.

2.1.3 USB-OTG

The i.MX6x' internal USB-OTG PHY is routed to a mini USB-A/B connector X28.

For further information see chapter 4.9 and figure 2-5.

2.1.4 Audio Codec

The AUD4 interface of the CM-i.MX6x is routed via an audio codec (SGTL5000) with the I²C address 0x0A to an audio interface connector (X24). It provides a standard PC audio interface with Microphone-In, Line-In and Line-Out. Standard 3,5mm audio jacks are used. A Headset can be connected to the Microphone-In and Line-Out connectors.

2.1.5 CAN

Two SN65HVD232D CAN transceiver are present on the DEV-i.MX6x, which allows integration of the board into a CAN bus infrastructure. CAN1 is available on connector X23 and CAN 2 is available on connector X22. The termination resistor can be activated by inserting the appropriate jumper.

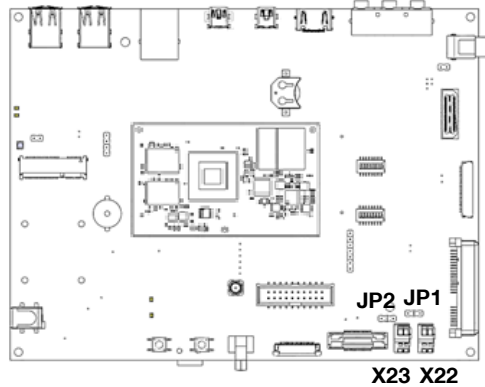


Figure 2-6 Position of CAN connectors

Jumper position	Termination resistor
JP1 in marked position	for CAN2 not connected
JP1 in other position	for CAN2 connected
JP2 in marked position	for CAN1 not connected
JP2 in other position	for CAN1 connected

Table 2.1: Jumper JP1 and JP2 description

For further information see chapter 4.24.

2.1.6 Ethernet

As the GBit Ethernet PHY is already integrated on the i.MX6x, the LAN signals are routed directly to a RJ45 LAN connector (X2).

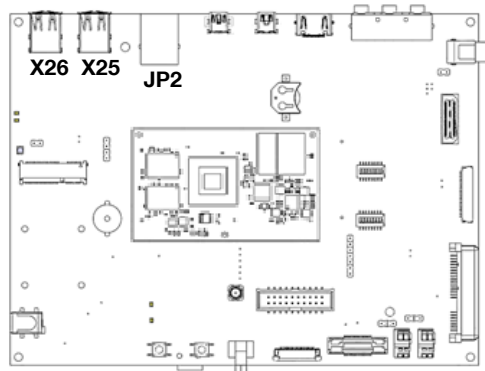


Figure 2-7 Position of X2, X26 and X25

For further information see chapter 4.8.

2.1.7 USB

The USBH port of the DEV-i.MX6x is connected to a seven port USB HUB (SMSC USB2517). Therefore the board features two standard dual USB-A connectors (X26 and X25), two USB lanes are routed to the extension connector and one USB lane is routed to the USB/UART Bridge.

For further information see chapter 4.23 and figure 2-7.

2.1.8 SD Card

The SDHC-Card signals are directly connected to the SD1 port of the CM-i.MX6x. A standard SD-Card connector (X7) mounted on the bottom side of the board supports SD and SDHC cards.

For further information see chapter 4.23.

2.1.9 ISM Camera Interface

The camera sensor interface signals (CSI0) are routed to a 30 pin ZIF connector (X21). The connector is compatible to the Bluetechnix ISM interface and allows connecting all available Image Sensor Modules from Bluetechnix (see [BLT ISM connector](#)).

2.1.10 SATA II

The DEV-i.MX6x allows connecting one SATA II HDD or SSD. The 5.0V supply which is needed for most 2.5" HDDs or SSDs is available on the SATA II connector X29.

The user has to make sure, that no more than 500mA will be drawn from the 5.0V terminal. A 1A fuse is populated on the DEV-board.

2.1.11 PCIe 2.0

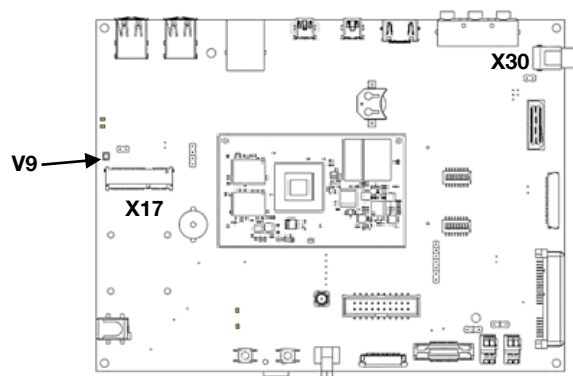


Figure 2-8 Position of X17, V9, JP3 and X30

The PCIe interface of the CM-i.Mx6x is routed to connector X17. A RGB-LED (V9) is connected to the MiniPCIe module for debug purposes. A SIM Card holder (X18) is also directly connected to the miniPCIe connector.

For further information see chapter 4.20, chapter 4.21 and figure 2-8.

2.1.12 S/PDIF Output

The i.MX6x' S/PDIF Out signal is routed to the Cinch connector X30.

For further information see chapter 4.25 and figure 2-6.

2.1.13 WIFI / Bluetooth

NOTE: A WiBear-SF1 is mounted on DEV-i.MX6x up to V1.1.1. The WiBear-SF1 is a Wifi+Bluetooth module.
A WiBear-11G is mounted on DEV-i.MX6x starting from V1.1.2. The WiBear-11G is a Wifi module.
Use a Bluetooth-Dongle connected to the USB interface if you need a Bluetooth interface.

A WiBear-SF1 or WiBear-11G module is mounted on the DEV-i.MX6x. The needed antenna must be connected to SMA connector X31. This antenna is shared by the Wifi and Bluetooth. There are also indicator LEDs on the board (V17 and V16), which shows the activity status of the module.

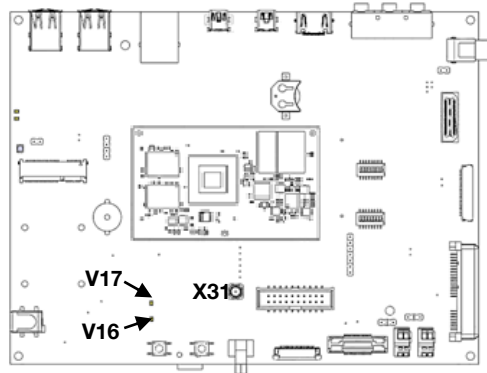


Figure 2-9 Position of X31

LED	Status
V16	Wifi activity
V17	Bluetooth activity

Table 2.2: LED V16 and V17 description

For further information see chapter 4.25.

2.1.14 MIPI CSI

The three lane MIPI CSI interface of the CM-i.MX6x is connected to connector X19.

To use an Omnivision OV5640MRSL or the Raspberry-Pi camera with this interface, a small adapter board is available from Bluetechnix.

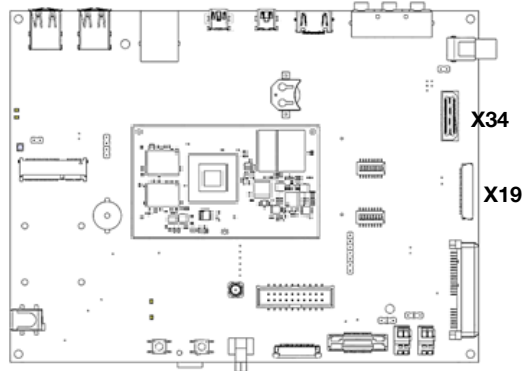


Figure 2-10 Position of X19 and X34

For further information see chapter 4.13.

2.1.15 MIPI DSI

The two lane MIPI DSI interface of the CM-i.MX6x is connected to connector X34.

For further information see chapter 4.14 and figure 2-10.

2.1.16 RTC (Real time Clock)

An RTC is mounted on the DEV-i.MX6x and is connected to I2C2 (address 0x51) of the CM-i.MX6x. The RTC backup battery have to be placed into battery holder G1.

For further information see chapter 4.11.

2.1.17 LVDS0

The LVDS0 interface of the CM-i.MX6x is directly connected to connector X12. Connector X10 provides an interface for the display backlight. A resistive touch screen can be connected to X11.

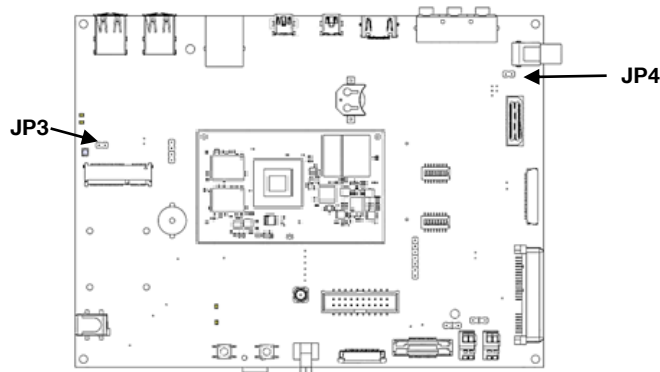


Figure 2-11 Position of JP3 and JP4

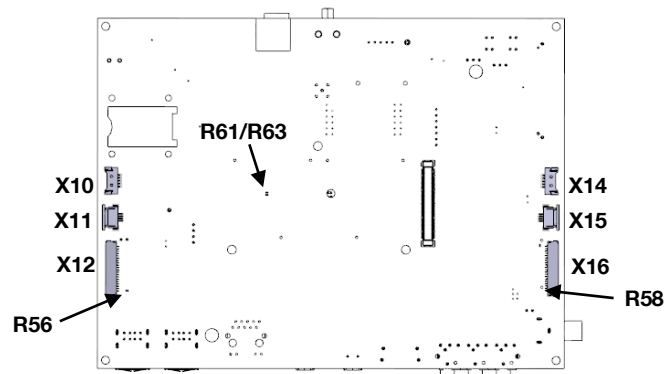


Figure 2-12 Position of the LVDS connectors

Reverse scan function, jumper JP3

This jumper is used to set the reverse scan function.

Jumper position	Reverse scan function
Mounted	Activated
Not mounted	Deactivated

Table 2.3: Jumper JP3 description

Data input selection, resistor R56

Populate this resistor to set the data input length.

Resistor	Data input selection
Mounted	8 Bit
Not mounted	6 Bit

Table 2.4: Resistor R56 description

For further information see chapter 4.15.

2.1.18 LVDS1

The LVDS1 interface of the CM-i.MX6x is directly connected to connector X16. Connector X14 provides an interface for the display backlight. A resistive touch screen can be connected to X15.

Reverse scan function, jumper JP4

This jumper is used to set the reverse scan function.

Jumper position	Reverse scan function
Mounted	Activated
Not mounted	Deactivated

Table 2.5: Jumper JP4 description

Data input selection, resistor R58

Populate this resistor to set the data input length.

Resistor	Data input selection
Mounted	8 Bit
Not mounted	6 Bit

Table 2.6: Resistor R58 description

PWM Dimmer, resistors R61 and R63

The resistors R61 and R63 are used to set the PWM source for dimming the display.

PWM source	Mount option
PWM_OUT1 (same as LVDS0)	R63 mounted, R61 not mounted
PWM_OUT2	R63 not mounted, R61 mounted

Table 2.7: Resistors R63, R61 description

For further information see chapter 4.15, figure 2-11 and figure 2-12.

2.1.19 Reset Button (S5)

The DEV-i.MX6x provides a reset button (S5) to reset the board.

2.1.20 Power On/Off Button (S6)

The board provides a power on button (S6) to power on/off the core module.

2.1.21 RGB LED (V1)

The RGB LED (V1) is connected to the TCA62724FMG RGB-LED driver and can be used for status signaling. The RGB-LED driver is connected to I²C2 interface of the CM-i.MX6x and its I²C address is set to 0x55.

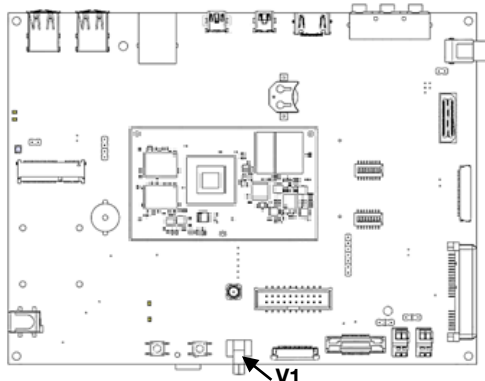


Figure 2-13 Position of V1

2.1.22 GPIO LEDs (V20, V21)

Two LEDs are available on the DEV-i.Mx6x. A green LED (V20) is connected to GPIO5_0 of the CM-i.MX6x and a red LED (V21) is connected to GPIO5_9.

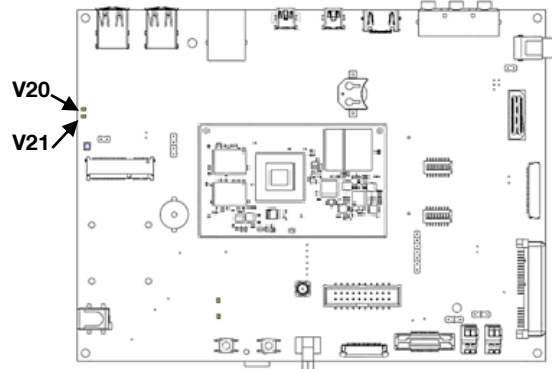


Figure 2-14 Position of V20 and V21

2.1.23 Buzzer

The DEV-i.MX6x provides a Buzzer (CUI Inc., CD-1206) connected to the PWM_OUT3 pin of the CM-i.MX6x.

2.2 Boot Modes

The DEV-i.MX6x supports the following boot modes:

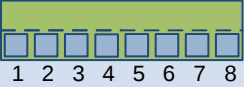
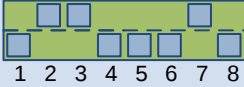
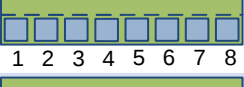
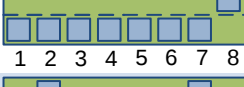
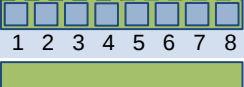
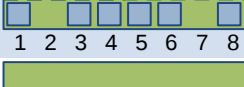
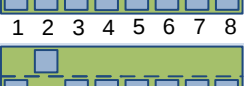
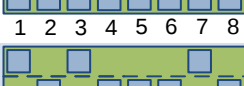
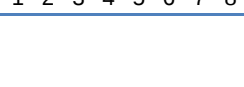
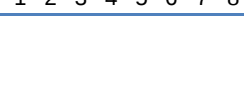
Boot mode	S2 settings		S1 settings	
SPI-NOR		On Off		On Off
USB		On Off		On Off
SATA		On Off		On Off
Fuse boot		On Off		On Off
SD card		On Off		On Off
eMMC		On Off		On Off



Table 2-8 Boot mode switch settings

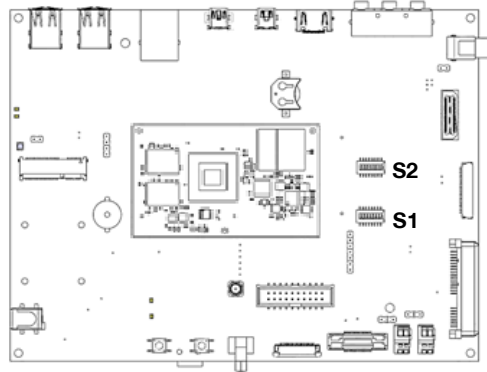


Figure 2-15 Position of S1 and S2

3 Specifications

3.1 Electrical Specifications

3.1.1 Operating Conditions

Symbol	Parameter	Min	Typical	Max	Unit
V_{IN}	Input supply voltage	11	12	15	V
P	Board Power Consumption ¹⁾	TBD	-	TBD	W
V_{USBx}	USB Supply Voltage	4.5	5.0	5.5	V
I_{USBx}	USB Supply Current	-	-	500	mA

Table 3-1: Electrical characteristics

¹⁾ The Power consumption refers to a CM-i.MX6x with Android running in idle state and no Extension Boards or USB-Devices plugged in.

3.1.2 Maximum Ratings

Stressing the device above the rating listed in the absolute maximum ratings table may cause permanent damage to the device. These are stress ratings only. Operation of the device at these or any other conditions greater than those indicated in the operating sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

Symbol	Parameter	Min	Max	Unit
V_{IO}	Input or output voltage	-0.5	3.6	V
V_{IN}	Input supply voltage	10	16	V
T_{AMB}	Ambient temperature	0	70	°C
T_{STO}	Storage temperature	-20	85	°C
Φ_{AMB}	Relative ambient humidity		90	%

Table 3-2: Absolute maximum ratings

3.1.3 ESD Sensitivity



ESD (electrostatic discharge) sensitive device. Charged devices and circuit boards can discharge without detection. Although this product features patented or proprietary protection circuitry, damage may occur on devices subjected to high energy ESD. Therefore, proper ESD precautions should be taken to avoid performance degradation or loss of functionality.

4 Connector Description

4.1 X5 - Power supply

This is the main power supply connector for the board. Use a standard DC power plug with 5.5x2.5mm diameter to power the board.

Minimum requirements for external power supply: 12V @ 1.5A.



Figure 4-1 Polarity of the external power supply

Descriptor	Description	Manufacturer	Part Number
X5	DC Power, RA	Cui	CUI-PJ-002AH-SMT
Mating Connector			
	DC Power Plug	Cliff Electronic Components	DCPP2

Table 4-1: Connector description X5

4.2 X3 – JTAG

The JTAG interface of the Core Module is connected to the 20-pin 2.54mm header, X3. The JTAG connector is compliant with any ARM JTAG Emulator. (e.g ARM DSTREAM)

4.3 X27 – Debug UART

The USB Mini-B connector X27 provides access to the Debug UART (UART4) through the USB to UART Bridge.

Descriptor	Description	Manufacturer	Part Number
X27	USB Mini-B, RA	Molex	675031020
Mating Cable			
	USB Mini-B OTG-STD A	Molex	88732-8600

Table 4-2: Connector description X27

4.4 X6 – I²C

The header connector X6 (not mounted) provides access to the I²C2 signals of the CM-i.MX6x Core Module.

Descriptor	Description	Manufacturer	Part Number
X6	Header, 4-Pin	Harwin	M20-9990445
Mating Connector			
	Crimp housing, 4-Way	Harwin	M20-1060400

Table 4-3: Connector description X6

4.5 X35 – SPI

The header connector X35 (not mounted) provides access to the ECSPi2 signals of the CM-i.MX6x Core Module.

Descriptor	Description	Manufacturer	Part Number
X35	Header, 7-Pin	Molex	22-03-2071
Mating Connector			
	Crimp housing, 7-Way	Harwin	M20-1060700

Table 4-4: Connector description X35

4.6 X24 – Audio

The 3-way connector X24 provides an audio interface to the CM-i.MX6x through the audio codec.

Descriptor	Description	Manufacturer	Part Number
X24	3-way stereo 3.5mm, RA	Anytronic	SCJ374R5-3P
Mating Connector			
	3.5mm stereo cable	Pro Signal	AV02559

Table 4-5: Connector description X24

4.7 X2 – Ethernet

The RJ45 connector X2 provides a 10/100/1000Mbit Ethernet interface to the CM-i.MX6x.

Descriptor	Description	Manufacturer	Part Number
X2	10/100/1000Mbit RJ45, RA	Taimag	RJLBG-014TC1
Mating Cable			
	CAT7 cable	STEWART CONNECTOR	CA77-005M0-8

Table 4-6: Connector description X2

4.8 X28 – USB-OTG

The USB Mini A/B connector X28 provides the USB-OTG interface to the CM-i.Mx6x.

Descriptor	Description	Manufacturer	Part Number
X28	USB Mini A/B, RA	Molex	56579-0576
Mating Cable			
	USB cable, Mini-B OTG-STD A	Molex	88732-8600

Table 4-7: Connector description X28

4.9 X7 – SD-Card slot

The SD-Card slot X7 provides an interface to a SD-Card through the SD1 interface.

Descriptor	Description	Manufacturer	Part Number
X7	SD-Card slot	Multicomp	MC34459
Mating Card			
	SDHC Ultra II	Sandisk	SD4814

Table 4-8: Connector description X7

4.10 G1 – Backup battery holder

The backup battery holder provides a power supply to the RTC when no external power supply is applied to the board.

Descriptor	Description	Manufacturer	Part Number
G1	Battery holder, 1216/1220/1225	Keystone Electronics	3000TR
Mating Battery			
	3V Lithium battery	Multicomp	CR1220

Table 4-9: Connector description G1

4.11 X21 – ISM Camera

The ISM connector provides an interface to Bluetechnix ISM camera modules.

Descriptor	Description	Manufacturer	Part Number
X21	FFC/FPC Connector, 0.5mm, 30 Pos., RA	Samtec	ZF5-30-02-T-WT
Mating Cable			
	ZIF Cable, 0.5mm, 50mm, 30Pos	Samtec	FJH-30-D-02.00-4
Mating Modules			
	Aptina MT9M025	Bluetechnix GmbH	ISM-MT9M025
	Aptina MT9M131	Bluetechnix GmbH	ISM-MT9M131-Color
	Aptina MT9P031	Bluetechnix GmbH	ISM-MT9P031
	See www.bluetechnix.com		

Table 4-10: Connector description X21

4.12 X19 – MIPI CSI

The connector X19 provides an interface to the MIPI CSI interface of the CM-i.MX6x module.

Descriptor	Description	Manufacturer	Part Number
X19	DF19, 1mm, 20 Pos., RA	Hirose	DF19G-20P-1H(54)



Descriptor	Description	Manufacturer	Part Number
Mating Cable			
	DF19 cables, 20 Pos.*)	Various	DF19 cables, 20 Pos.*)
Mating Modules			
	TBD		

Table 4-11: Connector description X19

*) Can be ordered from Bluetechnix GmbH.

4.13 X34 – MIPI DSI

The connector X34 provides an interface to the MIPI DSI interface of the CM-i.MX6x module.

Descriptor	Description	Manufacturer	Part Number
X34	QSH-030-01-L-D-A	Samtec	QSH-030-01-L-D-A
Mating Connector			
	QTH-030-01-L-D-A	Samtec	QTH-030-01-L-D-A
Mating Modules			
	TBD		

Table 4-12: Connector description X34

4.14 X12 and X16 – LVDS Display

The LVDS display connectors provides interfaces to TFT (touch) displays.

Descriptor	Description	Manufacturer	Part Number
X12 and X16	DF19, 1mm, 20 Pos., RA	Hirose	DF19G-20P-1H(54)
Mating Cable			
	DF19 cables, 20 Pos.)*	Various	-
Mating Display			
	10.4" TFT-LCD Module*)	Promate	97G104S2N2F-2

Table 4-13: Connector description X12 and X16

*) Can be ordered from Bluetechnix GmbH.

4.15 X10 and X14 – Display Backlight

The display backlight connectors provides interfaces to TFT (touch) displays.

Descriptor	Description	Manufacturer	Part Number
X10 and X14	1.25mm, 5 Pos., RA	Molex	WM7602CT-ND
Mating Cable			
	KR1253H-05P cables, 5 Pos.)*	Various	-

Descriptor	Description	Manufacturer	Part Number
Mating Display			
	10.4" TFT-LCD Module ^{*)}	Promate	97G104S2N2F-2

Table 4-14: Connector description X10 and X14

^{*)} Can be ordered from Bluetechnix GmbH.

4.16 X11 and X15 – Touch screen

The touch screen connectors provides interfaces to 4-wire resistive TFT touch screen display.

Descriptor	Description	Manufacturer	Part Number
X11 and X15	FFC/FPC, 1mm, 4 Pos., RA	Tyco Electronics	84953-4
Mating Display			
	10.4" TFT-LCD Module ^{*)}	Promate	97G104S2N2F-2

Table 4-15: Connector description X11 and X15

^{*)} Can be ordered from Bluetechnix GmbH.

4.17 X20 – HDMI

The HDMI Type A connector provides a high-definition multimedia interface to the DEV-i.MX6x.

Descriptor	Description	Manufacturer	Part Number
X20	HDMI Type A, RA	FCI	10029449-001RLF
Mating Cable			
	HDMI-A-A, 1.8m	Pro Signal	127790

Table 4-16: Connector description X20

4.18 X1 – Extension Connector

The extension connector provide an interface to connect custom-designed extension boards to the DEV-i.MX6x.

Descriptor	Description	Manufacturer	Part Number
X1	FX10-100P female	Hirose	FX10A-100P/10-SV
Mating Connector			
	FX10-100P female.	Hirose	FX10A-100S/10-SV

Table 4-17: Connector description X1

4.19 X17 – Mini PCI express

The Mini PCI express connector provides a MiniPCIe interface to the DEV-i.MX6x.

Descriptor	Description	Manufacturer	Part Number
X17	MiniPCle connector	JAE	MM60-52B1-B1-R850
Mating Cards			
	MiniPCle cards	Various	-

Table 4-18: Connector description X17

4.20 X18 – SIM card

The SIM card connector X18 is directly connected to the MiniPCle connector.

Descriptor	Description	Manufacturer	Part Number
X18	SIM card connector	C&K	CCM03-3013 R102
Mating Cards			
	Mini SIM cards	Various	-

Table 4-19: Connector description X18

4.21 X29 – SATA II

The SATA II connector provides a SATA II interface to the DEV-i.MX6x.

Descriptor	Description	Manufacturer	Part Number
X29	SATA connector	FCI	10029364-001LF
Mating Cable			
	Cable SATA 15pin to 15pin	ROLINE	11.03.1042

Table 4-20: Connector description X29

4.22 X25 and X26 – USB

The connectors X25 and X26 provide four USB Host interfaces to the DEV-i.MX6x.

Descriptor	Description	Manufacturer	Part Number
X25 and X26	Dual USB connector	Multicomp	MC32594
Mating Cable			
	USB A/B cable	Various	-

Table 4-21: Connector description X25 and X26

4.23 X22 and X23 – CAN

The connectors X22 and X23 provide access to the CAN bus.



Descriptor	Description	Manufacturer	Part Number
X22 and X23	PCB Terminal	Wago	233-202
Mating Wire			
	Wire 0.08 mm ² – 0.5 mm ²	Various	-

Table 4-22: Connector description X22 and X23

4.24 X30 – S/PDIF

The connector X30 provides an S/PDIF output to the DEV-i.MX6x.

Descriptor	Description	Manufacturer	Part Number
X30	Cinch connector	Pro Signal	PSG01547
Mating Cable			
	Cinch cable	Various	-

Table 4-23: Connector description X30

4.25 X31 – WIFI / BT Antenna

The connector X31 provides an S/PDIF output to the DEV-i.MX6x.

Descriptor	Description	Manufacturer	Part Number
X31	SMA connector	Multicomp	19-46-2-TGG
Mating Antennas			
	2.4GHz SMA Antenna ^{*)}	Various	-

Table 4-24: Connector description X31

^{*)} Can be ordered from Bluetechnix GmbH.



5 Application Information

5.1 Application Example Schematics

Have a look at our DEV-i.MX6 schematics, which can be found at <http://www.bluetechnix.com/goto/dev-i.mx6> to get application examples.



6 Mechanical Outline

This section shows the mechanical outline of the DEV-i.MX6x. All dimensions are given in mm.

6.1 Top View

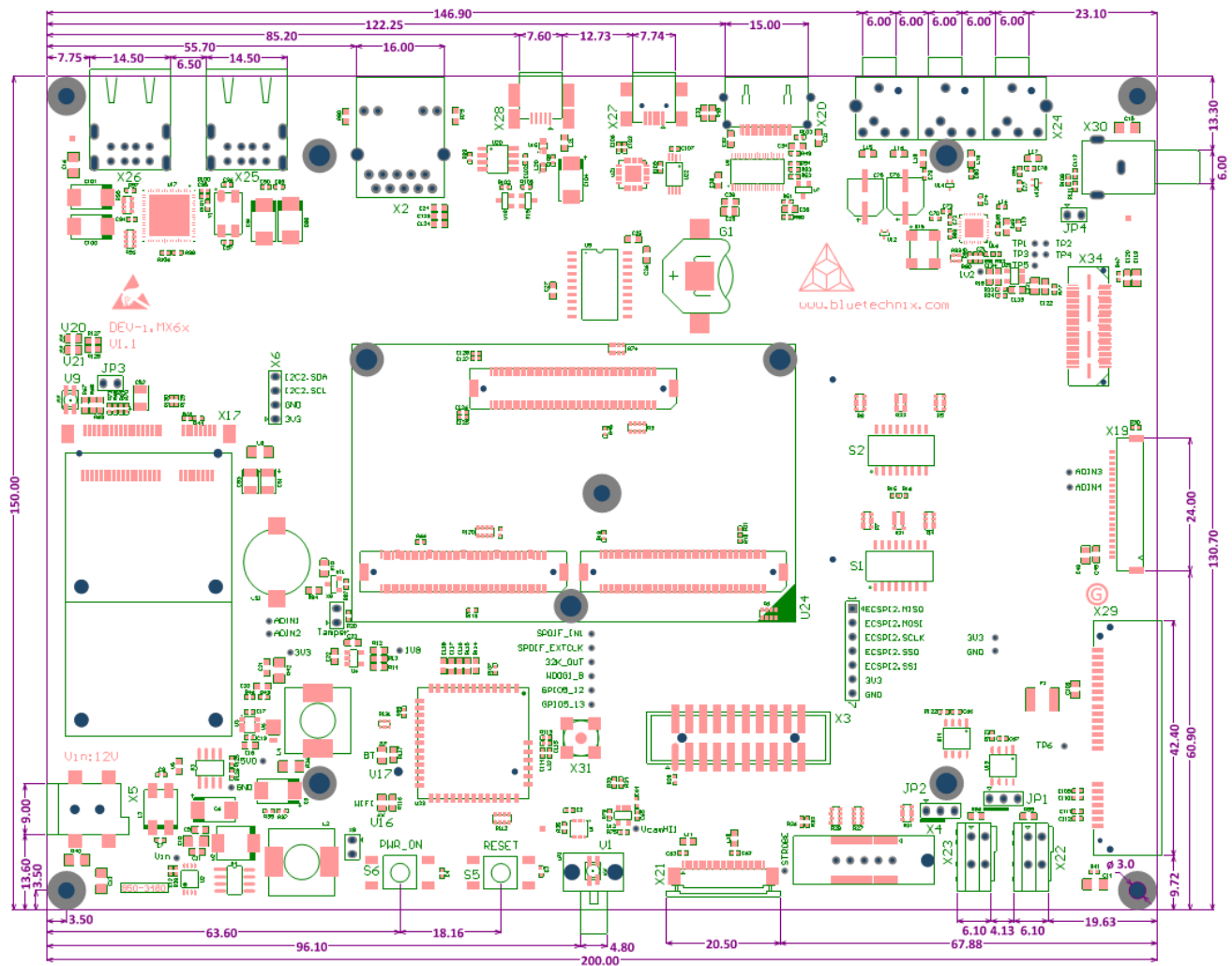


Figure 6-1 Mechanical outline top view



6.2 Bottom View

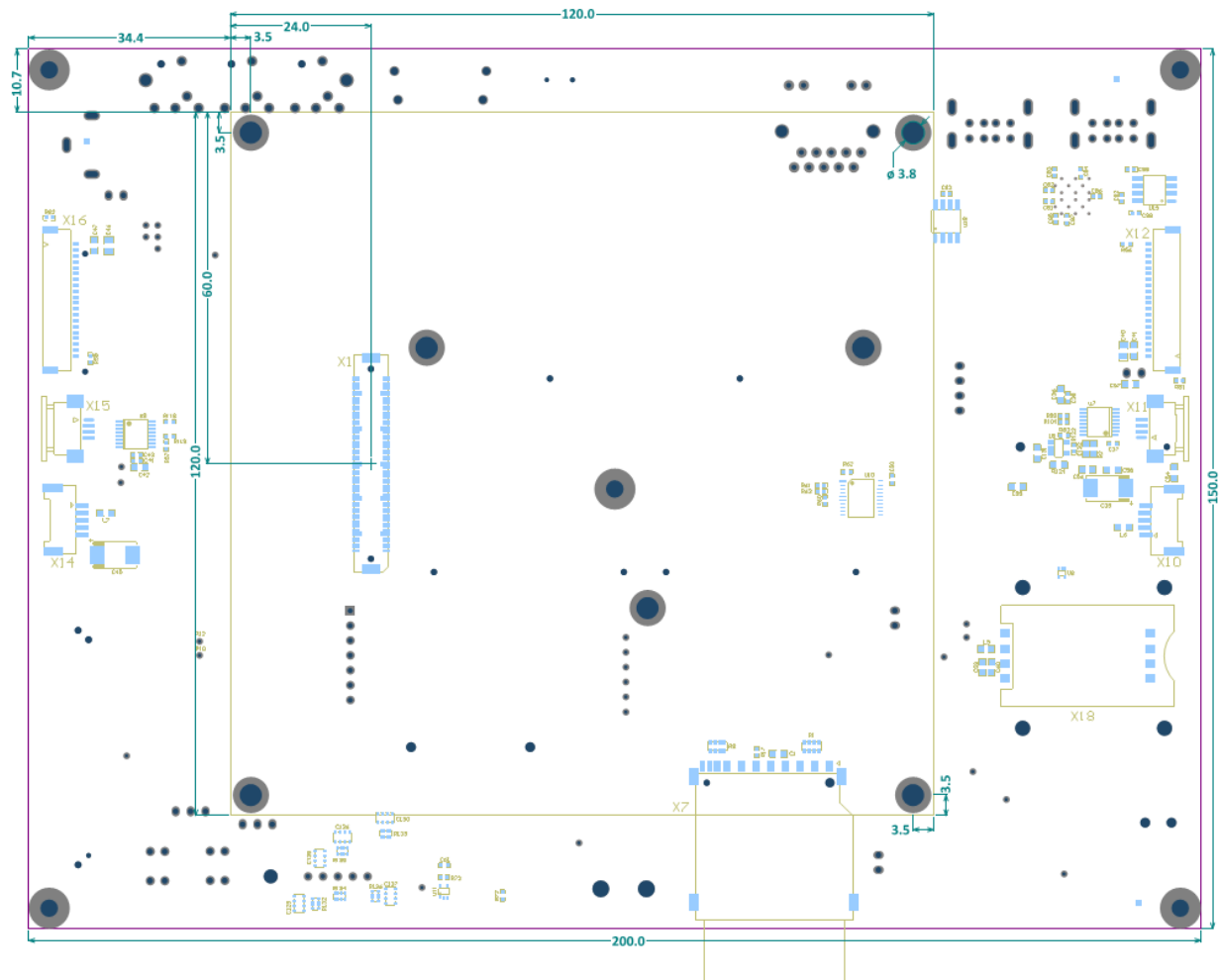


Figure 6-2 Mechanical outline bottom view

6.3 Side View

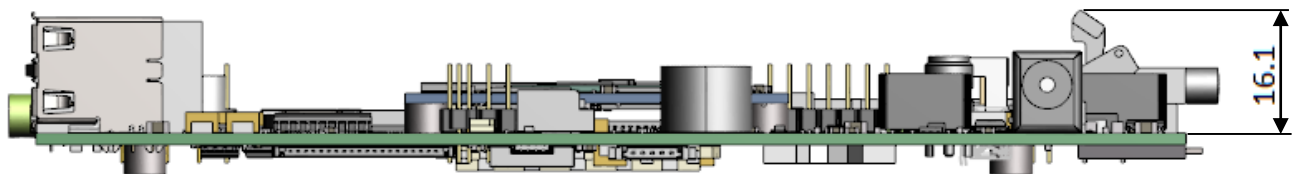


Figure 6-3 Mechanical outline side view

7 Support

7.1 General Support

General support for products can be found at Bluetechnix' support site <https://support.bluetechnix.at/wiki>

7.2 Board Support Packages

Board support packages and software downloads are available at <https://support.bluetechnix.at/wiki/I.MX6>

7.3 i.MX Software Support

7.3.1 Linux

Linux BSP and images of derivatives can be found at Bluetechnix' support site <https://support.bluetechnix.at/wiki> at the software section of the related product.

7.3.2 Android

Please contact Bluetechnix for support information.

7.3.3 Win CE

Please contact Bluetechnix for support information.

7.4 i.MX Design Services

Based on more than seven years of experience with Blackfin and i.MX, Bluetechnix offers development assistance as well as custom design services and software development.

7.4.1 Upcoming Products and Software Releases

Keep up to date with all product changes, releases and software updates of Bluetechnix at <http://www.bluetechnix.com>.

8 Ordering Information

Article Number	Name	Temperature Range
100-4126-1	i.MX6Q Development Starter Package	Commercial
100-4127-1	i.MX6Q Development Starter Package	Industrial

Table 8-1: Ordering information

NOTE: Custom Core Modules are available on request! Please contact Bluetechnix (office@bluetechnix.com) if you are interested in custom Core Modules.

9 Dependability

9.1 MTBF

Please keep in mind that a part stress analysis would be the only way to obtain significant failure rate results, because MTBF numbers just represent a statistical approximation of how long a set of devices should last before failure. Nevertheless, we can calculate an MTBF of the development board using the bill of material. We take all the components into account. The PCB and solder connections are excluded from this estimation. For test conditions we assume an ambient temperature of 30°C of all development board components. We use the MTBF Calculator from ALD (<http://www.aldservice.com/>) and use the reliability prediction MIL-217F2 Part Stress standard. Please get in touch with Bluetechnix (office@bluetechnix.com) if you are interested in the MTBF result.

10 Product History

10.1 Version Information

Version	Component	Type
1.0.0	4 Port USB Hub WIFI/Bluetooth module RTC Audio Codec CAN Transceiver	USB2517 WiBear-SF PCF2129AT/1 SGTL5000 SN65HVD232D
1.1.0	4 Port USB Hub WIFI/Bluetooth module RTC Audio Codec CAN Transceiver	USB2517 WiBear-SF PCF2129AT/1 SGTL5000 SN65HVD232D
1.1.1	4 Port USB Hub WIFI/Bluetooth module RTC Audio Codec CAN Transceiver	USB2517 WiBear-SF PCF2129AT/1 SGTL5000 SN65HVD232D
1.1.2	4 Port USB Hub WIFI/Bluetooth module RTC Audio Codec CAN Transceiver	USB2517 WiBear-11G PCF2129AT/1 SGTL5000 SN65HVD232D

Table 10-1: Overview DEV-i.MX6x product changes

10.2 Anomalies

Version	Date	Description
V1.0	2013 04 05	No anomalies reported yet.
V1.1	2013 11 18	TPUI (Trace Port) is not supported anymore
V1.1	2014 09 22	Boot from SD card after HW reset is not working. Reason: 3V3 is not 0V when EN_PERI goes low. Solution: Power cycle the DEV-i.MX6x to boot from SD card.

Table 10-2 – Product anomalies



11 Document Revision History

Version	Date	Document Revision
0	2013 04 05	First release V1.0 of the Document
1	2013 09 27	Updated for Hardware Version V1.1
2	2014 09 22	Anomaly "Boot from SD card" added to chapter 10.2 Version 1.1.2 added to chapter 10.1 Chapter 2.1.13 update
3	2015 06 16	Mechanical Drawing update

Table 11-1: Revision history

12 List of Abbreviations

Abbreviation	Description
ADI	Analog Devices Inc.
AI	Analog Input
AMS	Asynchronous Memory Select
AO	Analog Output
CM	Core Module
DC	Direct Current
DSP	Digital Signal Processor
eCM	Enhanced Core Module
EBI	External Bus Interface
ESD	Electrostatic Discharge
GPIO	General Purpose Input Output
I	Input
I²C	Inter-Integrated Circuit
I/O	Input/Output
ISM	Image Sensor Module
LDO	Low Drop-Out regulator
MTBF	Mean Time Between Failure
NC	Not Connected
NFC	NAND Flash Controller
O	Output
OS	Operating System
PPI	Parallel Peripheral Interface
PWR	Power
RTOS	Real-Time Operating System
SADA	Stand Alone Debug Agent
SD	Secure Digital
SoC	System on Chip
SPI	Serial Peripheral Interface
SPM	Speech Processing Module
SPORT	Serial Port
TFT	Thin-Film Transistor
TISM	Tiny Image Sensor Module
TSC	Touch Screen Controller
UART	Universal Asynchronous Receiver Transmitter
USB	Universal Serial Bus
USBOTG	USB On The Go
ZIF	Zero Insertion Force

Table 12-1: List of abbreviations



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