



EDM1-CF-IMX6

SYSTEM ON MODULE

EDM1-CF-IMX6 USER GUIDE 091, TechNexion

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2. Revision

Revision	Date	Description	Created by
0.90	16/09/2013	Preliminary Release	TechNexion
0.91	26/09/2013	Add contents of the different available start kits. Adjust layout and corrections.	TechNexion

3. Care and maintenance

3.1. General

Your device is a product of superior design and craftsmanship and should be treated with care. The following suggestions will help you.

- Keep the device dry. Precipitation, humidity, and all types of liquids or moisture can contain minerals that will corrode electronic circuits. If your device does get wet, allow it to dry completely.
- Do not use or store the device in dusty, dirty areas. Its moving parts and electronic components can be damaged.
- Do not store the device in hot areas. High temperatures can shorten the life of electronic devices, damage batteries, and warp or melt certain plastics.
- Do not store the device in cold areas. When the device returns to its normal temperature, moisture can form inside the device and damage electronic circuit boards.
- Do not attempt to open the device.
- Do not drop, knock, or shake the device. Rough handling can break internal circuit boards and fine mechanics.
- Do not use harsh chemicals, cleaning solvents, or strong detergents to clean the device.
- Do not paint the device. Paint can clog the moving parts and prevent proper operation.
- Unauthorized modifications or attachments could damage the device and may violate regulations governing radio devices.

These suggestions apply equally to your device, battery, charger, or any enhancement. If any device is not working properly, take it to the nearest authorized service facility for service.

3.2. Regulatory information



Disposal of Waste Equipment by Users in Private Household in the European Union

This symbol on the product or on its packaging indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more

information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or the shop where you purchased the product.



We hereby declare that the product is in compliance with the essential requirements and other relevant provisions of European Directive 1999/5/EC (radio equipment and telecommunications terminal equipment Directive).

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The Compliance of RoHS /REACH

We warrant that all the materials, products and components which provided by TechNexion to customer comply according directive EU RoHS (2002/95/EC), RoHS II amendment, REACH (1907/2006/ED) SVHC and Annex 17, JIG-101, as follows:

Cadmium (Cd)	: Under 100ppm
Lead (Pb)	: Under 1000ppm
Mercury (Hg)	: Under 1000ppm
Hexavalent Chromium (Cr6)	: Under 1000ppm
PBB	: Under 1000ppm
PBDE (include DecaBDE)	: Under 1000ppm

RoHS Compliance Statement

We are aware of above directive and our product can meet the specification requirements above.



Company Stamp



Federal Communications Commission (FCC) Unintentional emitter per FCC Part 15
This device has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio or television reception. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio and television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment to an outlet on a different circuit from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help.



WARNING! To reduce the possibility of heat-related injuries or of overheating the computer, do not place the computer directly on your lap or obstruct the computer air vents. Use the computer only on a hard, flat surface. Do not allow another hard surface, such as an adjoining optional printer, or a soft surface, such as pillows or rugs or clothing, to block airflow. Also, do not allow the AC adapter to contact the skin or a soft surface, such as pillows or rugs or clothing, during operation. The computer and the AC adapter comply with the user-accessible surface temperature limits defined by the International Standard for Safety of Information Technology Equipment (IEC 60950).

4. Introduction

The EDM1-CF-i.MX6 is a system on module based on the EDM-standard.

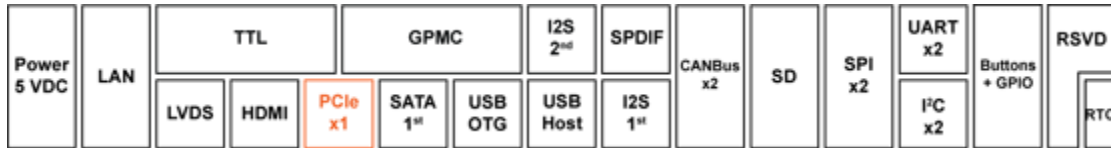
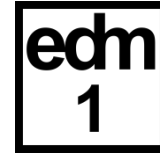


Figure 1: supported functions on the EDM1-FAIRY Carrier Board

The EDM modules are typically being used as building blocks for portable and stationary embedded systems. The core CPU and support circuits, including DRAM, boot flash, power sequencing, CPU power supplies, Gigabit Ethernet and display interfaces are concentrated on the module. The modules are used with application specific carrier boards that implement other features such as audio CODECs, touch controllers, sensors and etcetera.

The modular approach offered by the EDM standard gives your project scalability, fast time to market and upgradability while reducing engineering risk and maintain a competitive total cost of ownership.

The SOM and its carrier board come in different versions, the user's guide is meant as a general guide for all these versions. Pictures and details of the device can differ from the actual purchased product. All specifications are subject to change without notice.

Visit our website (www.technexion.com) for more details, to download this user guide or to see other information.

4.1. CPU Differences

Support of certain interfaces depend on the System on Module that is used in combination with the Carrier Board. Figure 2 for example shows that SATA is only supported on the i.MX6 Dual and Quad System on Modules.

Red indicates change from column to the left

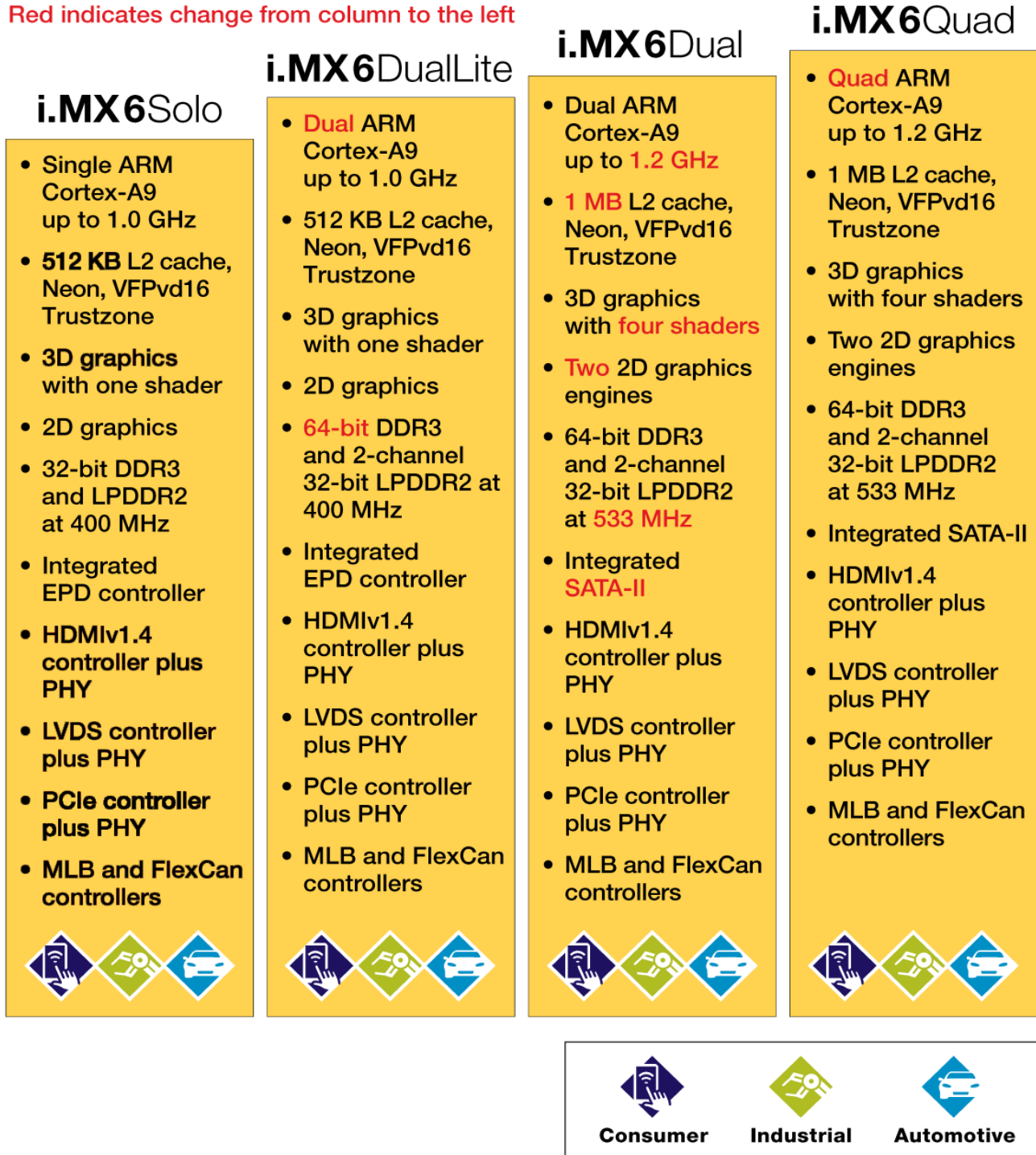


Figure 2: Differences in specifications and interfaces between CPUs

5. Getting started

5.1. Contents of EDM1CFIMX6S10START



Figure 3: Contents of EDM1CFIMX6S10START

Item	description	details
1	EDM1CFIMX6S10R512NI4GL2C System on Module	EDM Compact Type 1 Freescale i.MX6 Solo 1Ghz + 512MB RAM + 4GB iNAND + Gigabit LAN + 2 CAN

Table 1: Contents of EDM1CFIMX6S10START

5.2. Contents of EDM1CFIMX6S10BWSTART



Figure 4: Contents of EDM1CFIMX6S10BWSTART

Item	description	details
1	EDM1CFIMX6S10R512NI4GBWL2C System on Module	EDM Compact Type 1 Freescale i.MX6 Solo 1Ghz + 512MB RAM + 4GB iNAND + Gigabit LAN + 2 CAN + 802.11bgn + Bluetooth 4.0
2	EDMANTP150A138045D2450BK	4.5 dB, 2.4/5 GHz, black color antenna. U.FL to SMA patch cable

Table 2: Contents of EDM1CFIMX6S10BWSTART

5.3. Contents of EDM1CFIMX6U10START



Figure 5: Contents of EDM1CFIMX6U10START

Item	description	details
1	EDM1CFIMX6U10R1GBNI4GL2C System on Module	EDM Compact Type 1 Freescale i.MX6 DualLite 1Ghz + 1GB RAM + 4GB iNAND + Gigabit LAN + 2 CAN

Table 3: Contents of EDM1CFIMX6U10START

5.4. Contents of EDM1CFIMX6U10BWSTART



Figure 6: Contents of EDM1CFIMX6U10BWSTART

Item	description	details
1	EDM1CFIMX6U10R1GBNI4GBWL2C System on Module	EDM Compact Type 1 Freescale i.MX6 DualLite 1Ghz + 1GB RAM + 4GB iNAND + Gigabit LAN + 2 CAN + 802.11bgn + Bluetooth 4.0
2	EDMANTP150A138045D2450BK	4.5 dB, 2.4/5 GHz, black color antenna. U.FL to SMA patch cable

Table 4: Contents of EDM1CFIMX6U10BWSTART

5.5. Contents of EDM1CFIMX6D10START



Figure 7: Contents of EDM1CFIMX6D10START

Item	description	details
1	EDM1CFIMX6D10R1GBNI4GLS2C System on Module	EDM Compact Type 1 Freescale i.MX6 Dual 1Ghz + 1GB RAM + 4GB iNAND + Gigabit LAN + 2 CAN + SATA
2	EDMHSCP12200501	EDM Compact 12 mm passive heatsink + mylar
		4 screws
		4 washers
		20*20 mm thermopad with 0.5 mm thickness for Lidded Freescale CPUs

Table 5: Contents of EDM1CFIMX6D10START

5.6. Contents of EDM1CFIMX6D10BWSTART



Figure 8: Contents of EDM1CFIMX6D10BWSTART

Item	description	details
1	EDM1CFIMX6D10R1GBNI4GBWLS2C System on Module	EDM Compact Type 1 Freescale i.MX6 Dual 1Ghz + 1GB RAM + 4GB iNAND + Gigabit LAN + 2 CAN + SATA + 802.11bgn + Bluetooth 4.0
2	EDMHSCP12200501	EDM Compact 12 mm passive heatsink + mylar
		4 screws
		4 washers
3	EDMANTP150A138045D2450BK	20*20 mm thermopad with 0.5 mm thickness for Lidded Freescale CPUs
		4.5 dB, 2.4/5 GHz, black color antenna. U.FL to SMA patch cable

Table 6: Contents of EDM1CFIMX6D10BWSTART

5.7. Contents of EDM1CFIMX6Q10START

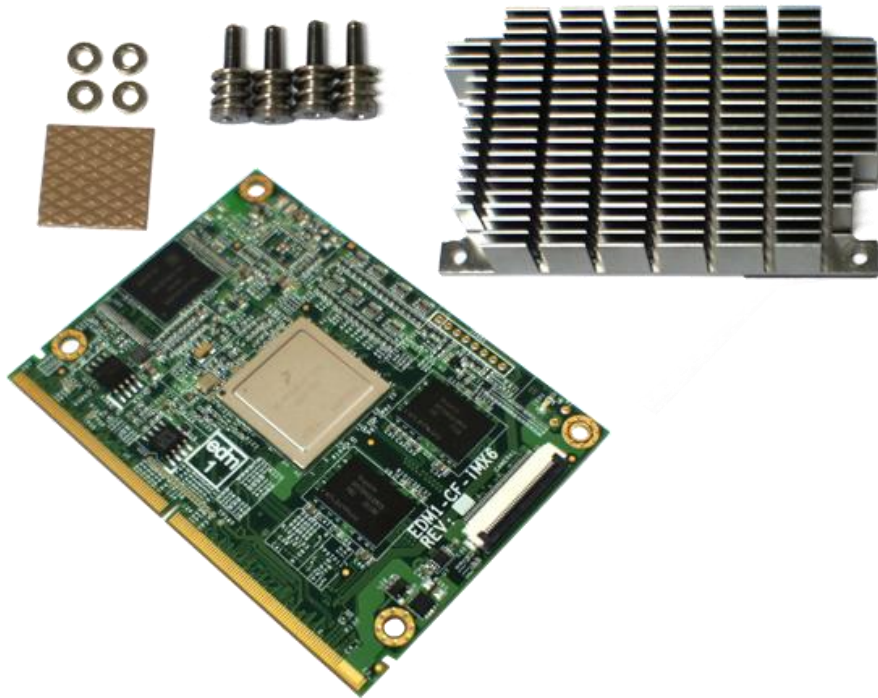


Figure 9: Contents of EDM1CFIMX6Q10START

Item	description	details
1	EDM1CFIMX6Q10R2GBNI4GLS2C System on Module	EDM Compact Type 1 Freescale i.MX6 Quad 1Ghz + 2GB RAM + 4GB iNAND + Gigabit LAN + 2 CAN + SATA
2	EDMHSCP12200501	EDM Compact 12 mm passive heatsink + mylar
		4 screws
		4 washers
		20*20 mm thermopad with 0.5 mm thickness for Lidded Freescale CPUs

Table 7: Contents of EDM1CFIMX6Q10START

5.8. Contents of EDM1CFIMX6Q10BWSTART



Figure 10: Contents of EDM1CFIMX6Q10BWSTART

Item	description	details
1	EDM1CFIMX6Q10R2GBNI4GBWLS2C System on Module	EDM Compact Type 1 Freescale i.MX6 Quad 1Ghz + 2GB RAM + 4GB iNAND + Gigabit LAN + 2 CAN + SATA + 802.11bgn + Bluetooth 4.0
2	EDMHSCP12200501	EDM Compact 12 mm passive heatsink + mylar
		4 screws
		4 washers
3	EDMANTP150A138045D2450BK	20*20 mm thermopad with 0.5 mm thickness for Lidded Freescale CPUs
		4.5 dB, 2.4/5 GHz, black color antenna. U.FL to SMA patch cable

Table 8: Contents of EDM1CFIMX6Q10BWSTART

5.9. Quick Start Guide

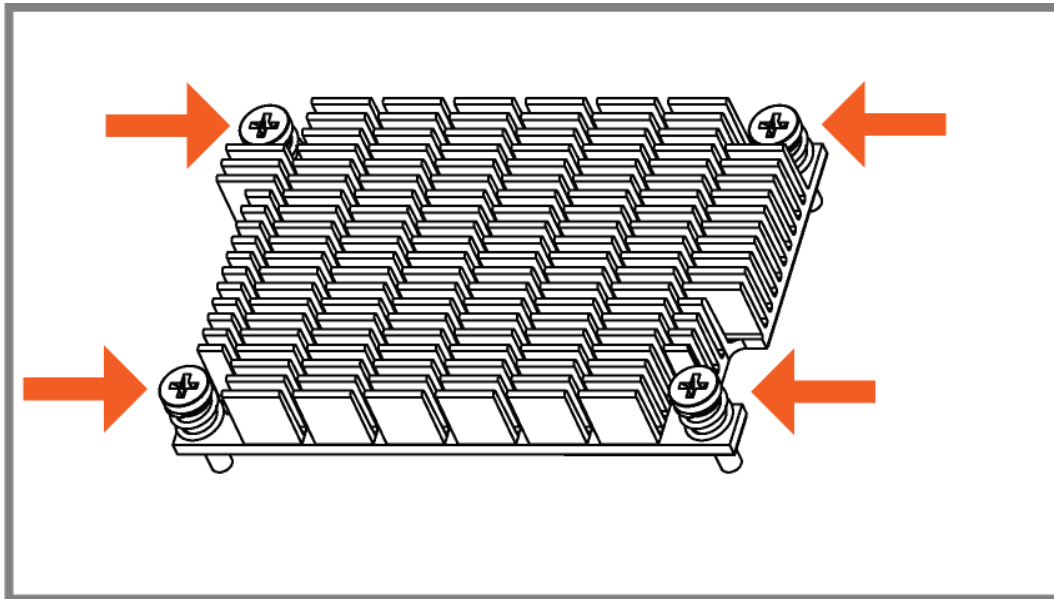


Figure 11: Step 1 - Insert the screws

Insert the screws (with springs), in the four corner holes of the heat sink. (Skip to step 5, if the module does not require a heat sink).

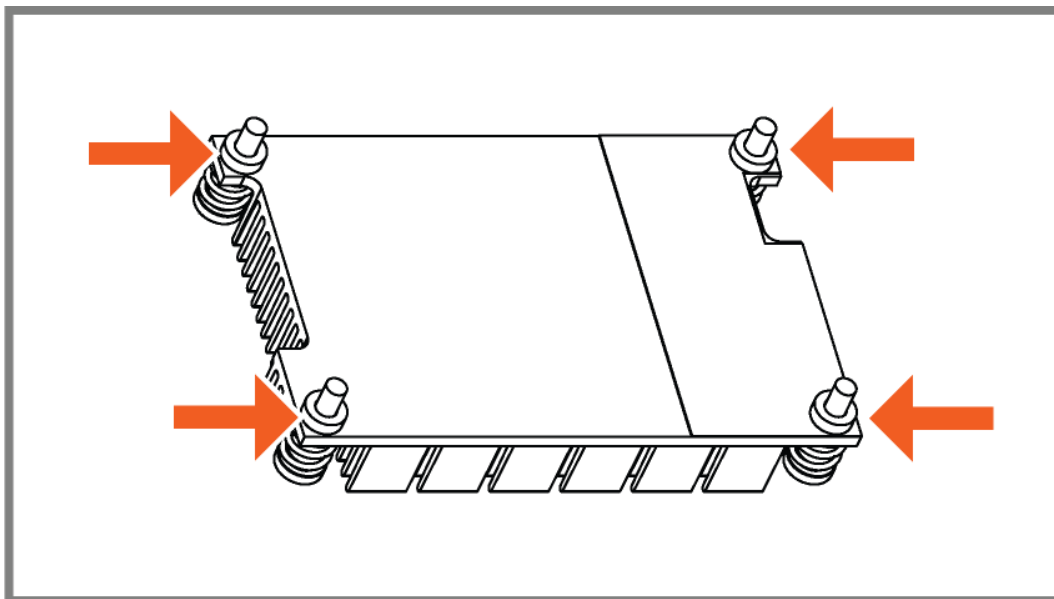


Figure 12: Step 2 - Mount the washers

Turn the assembly upside down. Mount the four washers on the screws.

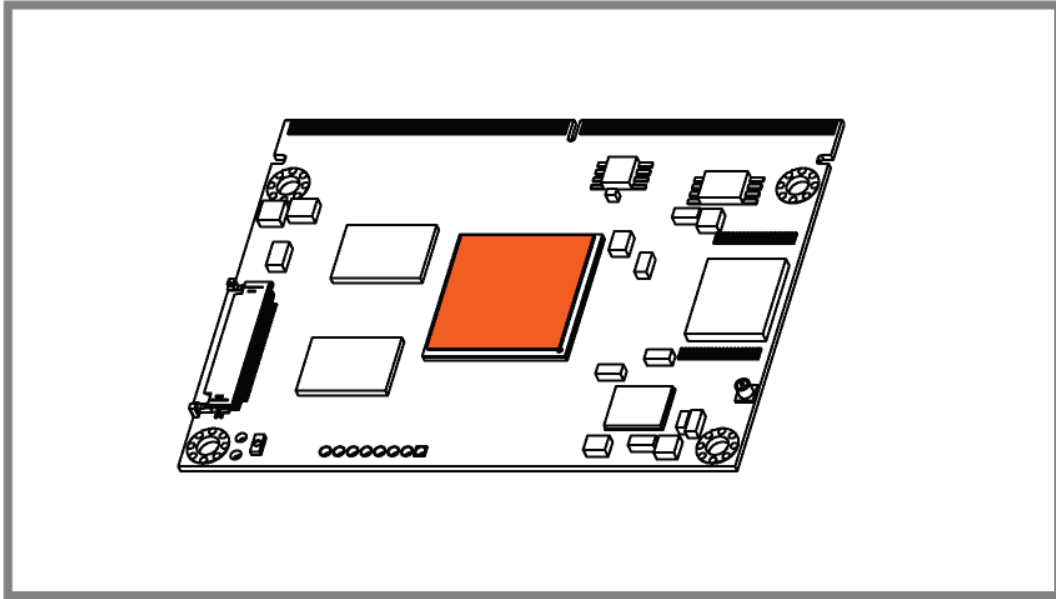


Figure 13: Step3 - Place the thermopad (on the processor)

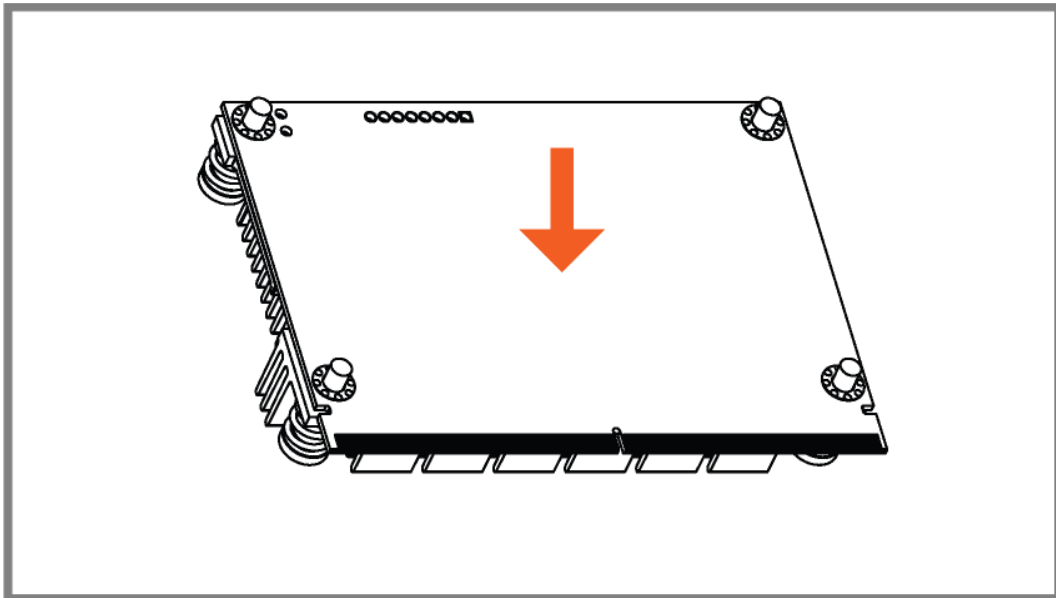


Figure 14: Step4 - Place the module on the heat sink, and turn the assembly around.

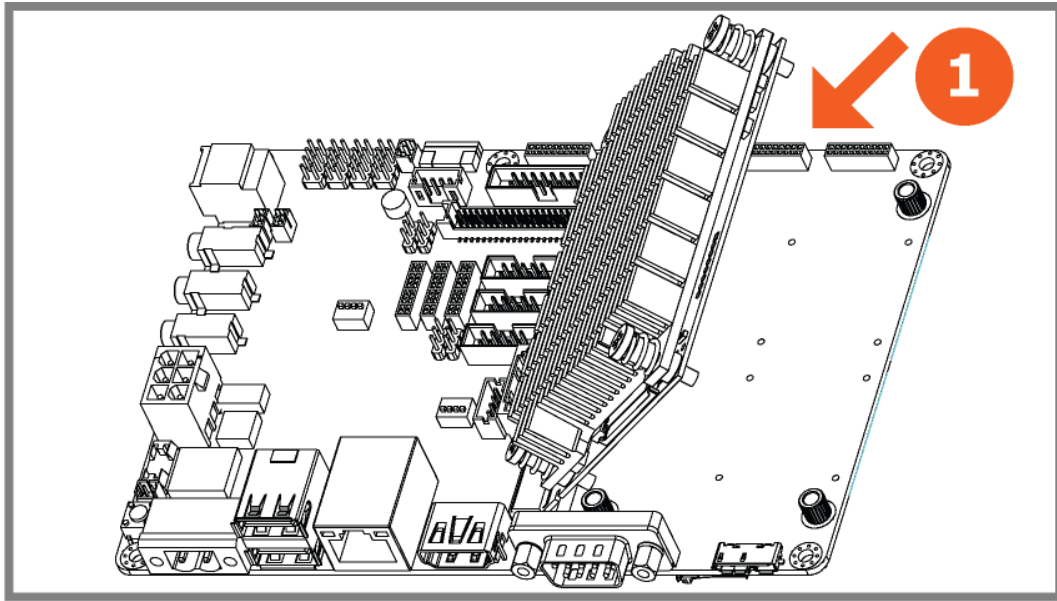


Figure 15: Step5 - Insert the module in the carrier board

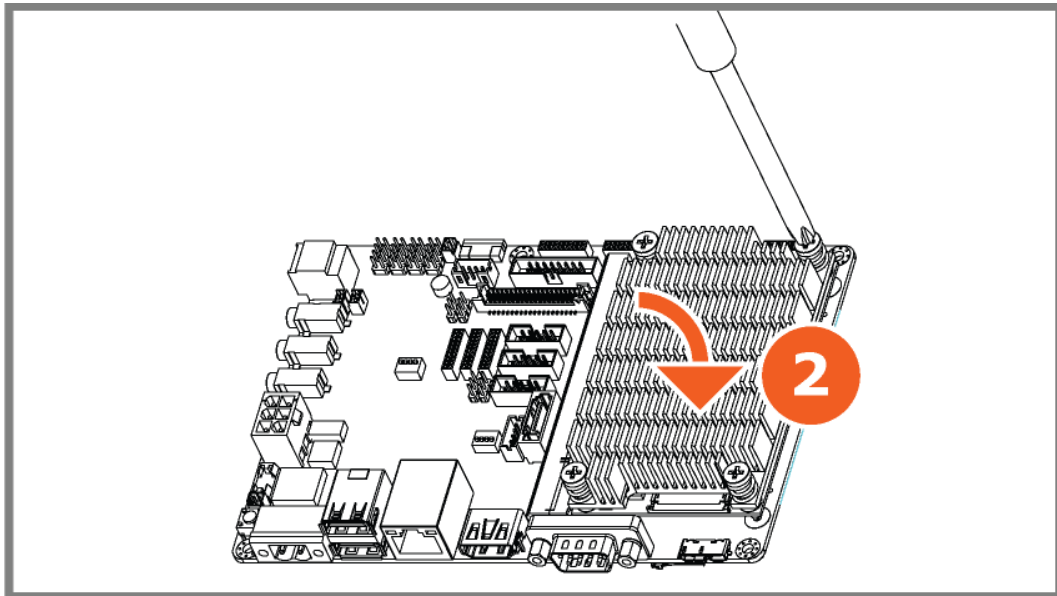


Figure 16: Step6 - Press the module down and fasten the screws

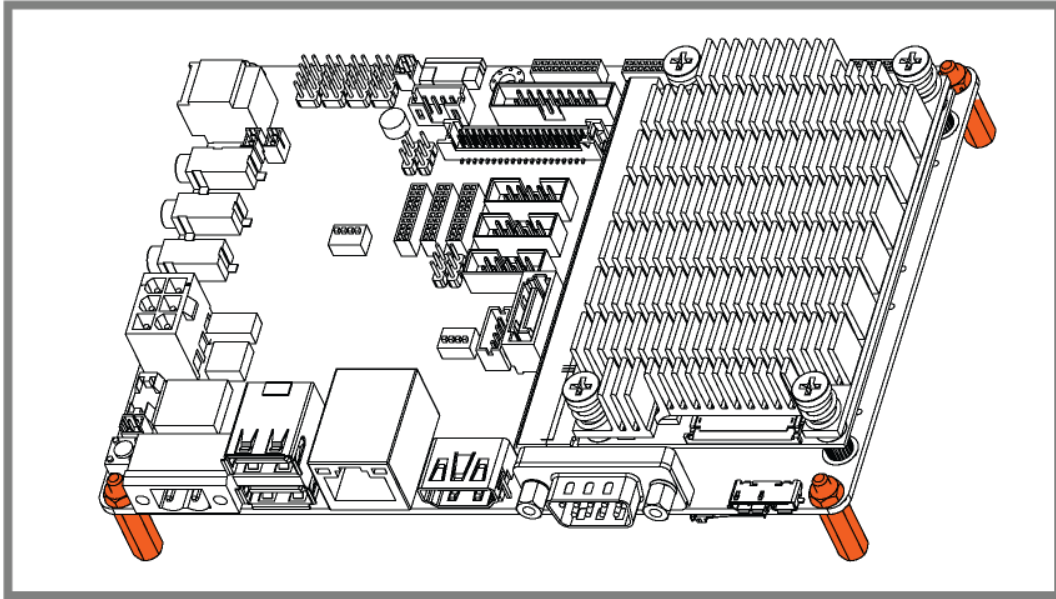


Figure 17: Step7 - Mount the 4 standoffs in the corner holes of the carrier board

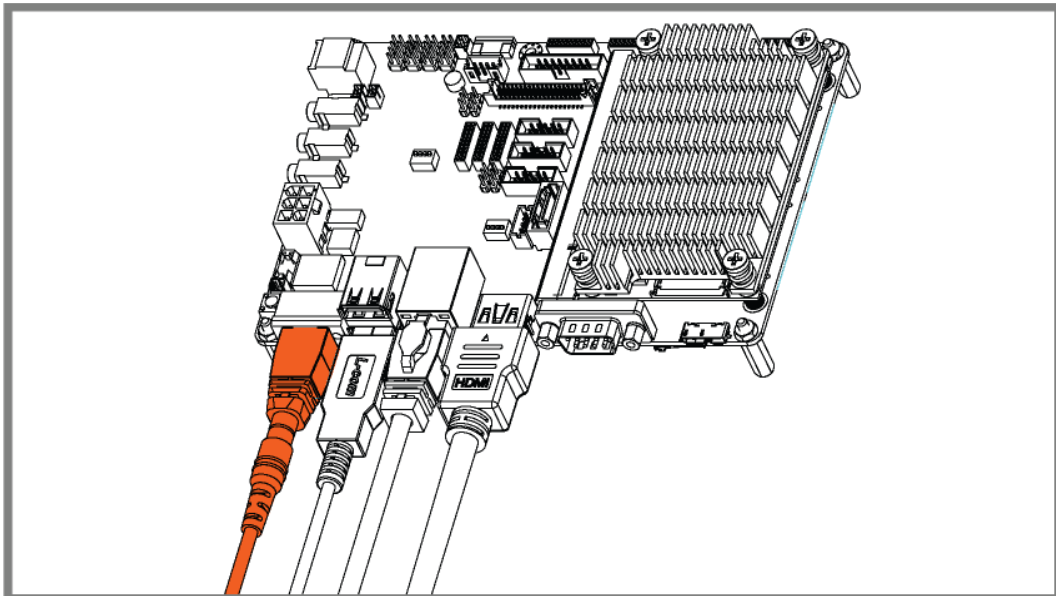


Figure 18: Step8 - Insert the cables

Insert a good HDMI cable to connect a HDMI monitor. A USB-mouse and a LAN cable. After this insert the power adapter with the small converter, the unit will start booting up.



Figure 19: Step9 - Factory Default screen

The module is pre-installed with factory default software, offering a selection of operating systems. When a choice is made; a step-by-step process will start. Patience is required, it can take up to 30 minutes to complete the process with a good internet connection.

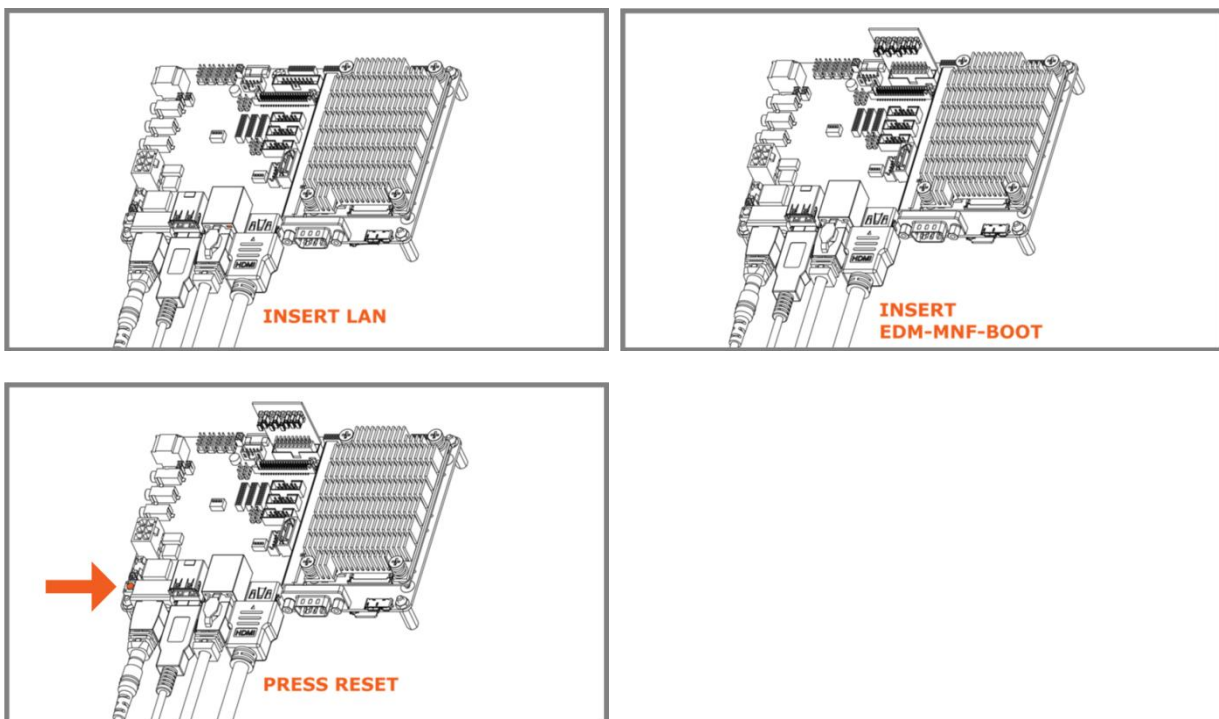


Figure 20: During installation

During the installation of the software several on-screen-instructions can appear, of which some require some action. Follow the onscreen instructions to complete the installation.

5.10. Block diagram

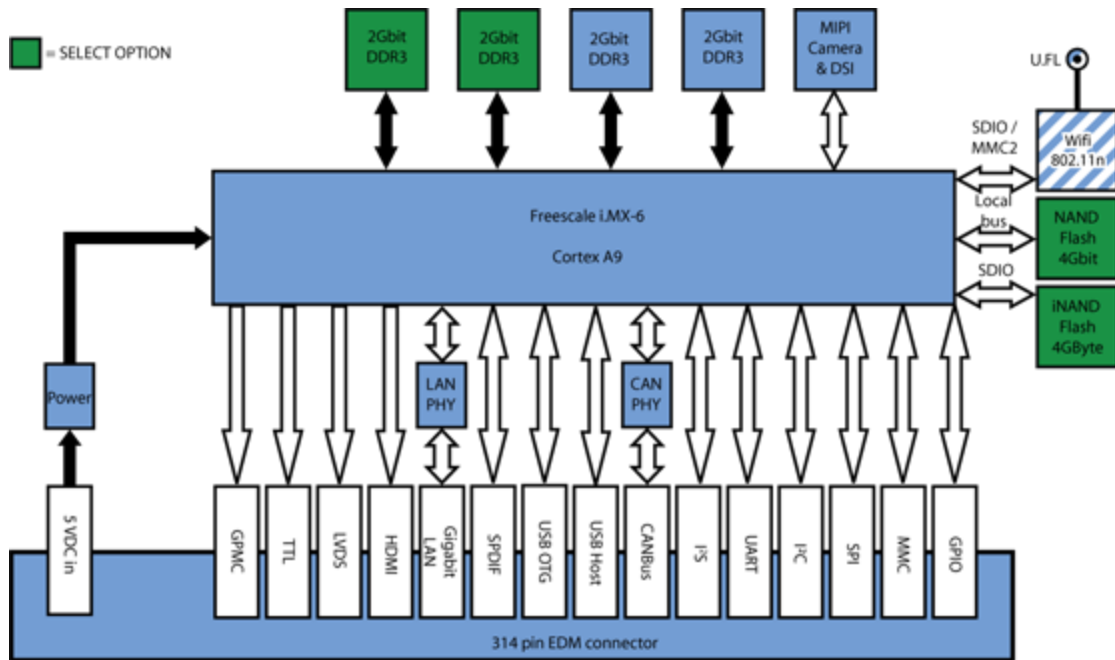


Figure 21: Block diagram of the EDM1-CF-IMX6 System on Module

5.12. EDM1-CF-IMX6 System on module overview

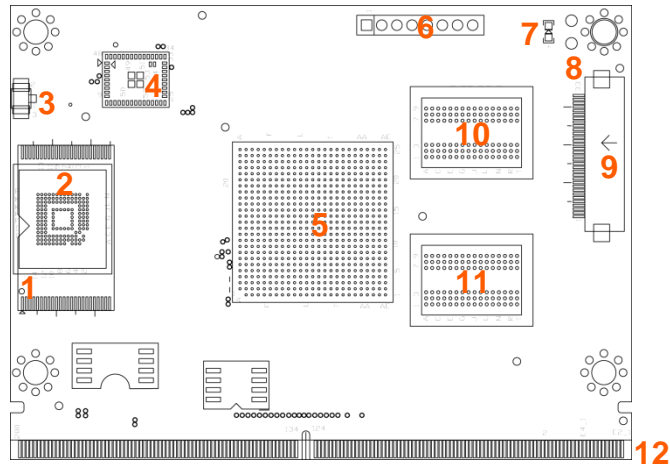


Figure 22: EDM1-CF-IMX6 top view

Top view

#	function	#	function
1	NANDFlash (co-layout)	7	Power LED
2	iNAND (co-layout)	8	Optional Power connector
3	Antenna connector	9	Camera1 connector
4	BCM 4330	10	Memory Chip
5	i.NX6 Processor	11	Memory Chip
6	JTAG connector	12	EDM connector

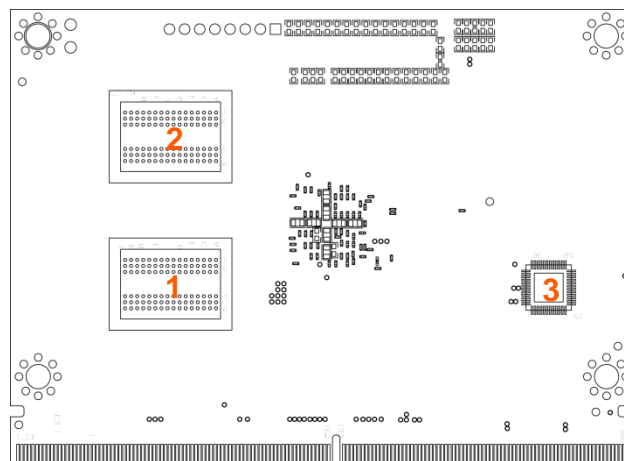


Figure 23: edm1-fairy bottom view

Bottom view

#	function	#	function
1	Memory Chip	3	Atheros AR8031 Gigabit LAN PHY
2	Memory Chip		

6. Software

6.1. Create a rescue SD-card with the factory default software



Figure 24: the Factory Default screen Rescue card icon

Insert a SD-card into the carrier board and press the rescue card icon to create the rescue card-SD. This is the easiest way to create the card.

The Rescue Card is used to install the Factory Default screen. This is the easiest way to create the rescue card and allows you to always return to the default screen, in case something went wrong or in case you want to install another Operating system.

In case you forget to create the rescue card or lost it, it is possible to download the image from the TechNexion website and create the card. This procedure is described in the next chapter "Create a rescue SD-card on a computer".

6.2. Create a rescue SD-card on a computer

This chapter describes how to install the rescue image (factory default screen) from a SD-card on your development kit.

6.2.1. Create the SD-card with the rescue image in a Windows environment

After downloading the rescue-image for your carrier board; extract it on your Windows computer

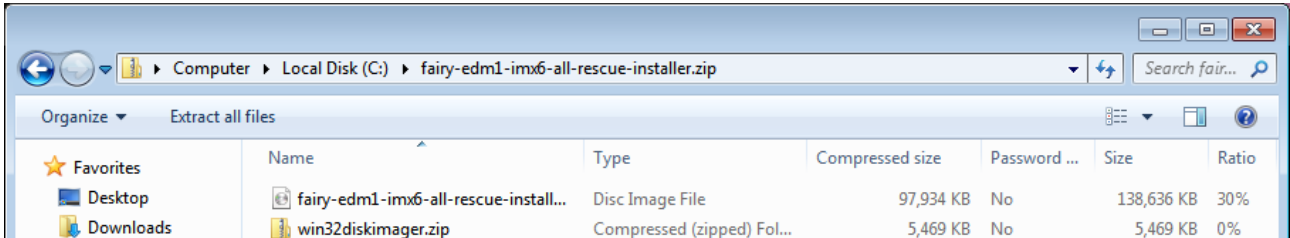


Figure 25: Extracted files

Content of the zip-file:	Explanation
Win32diskimager	Utility to write the image on a SD-card
Fairy-edm1-imx6-all-rescue-installer.img	Rescue image for EDM1-FAIRY carrier board

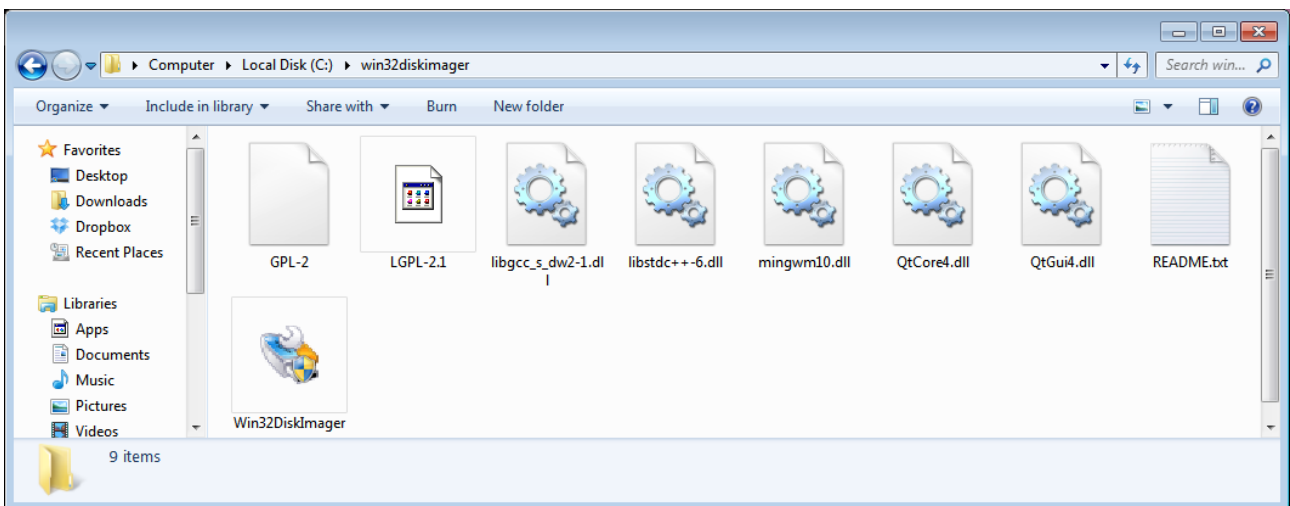
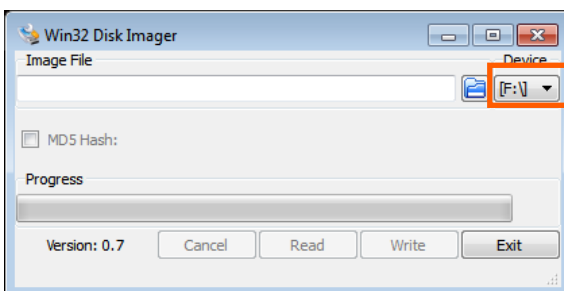


Figure 26: Extract and execute the win32-disk-imager to prepare the rescue image creation



After inserting the SD-card select the SD-card as device

Figure 27: Select the SD-card (in your computer) as device

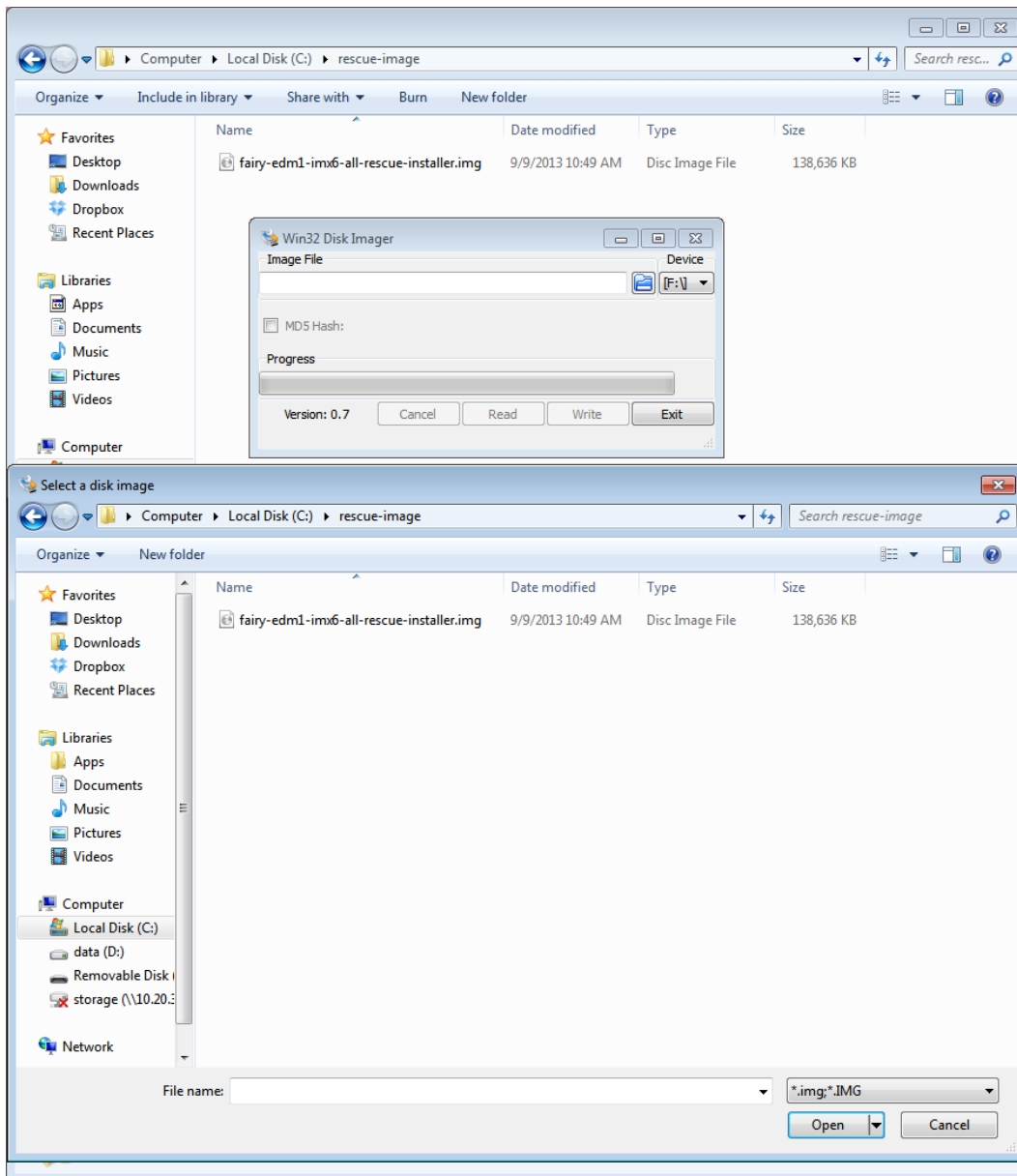


Figure 28: Select, browse and locate the rescue- image file

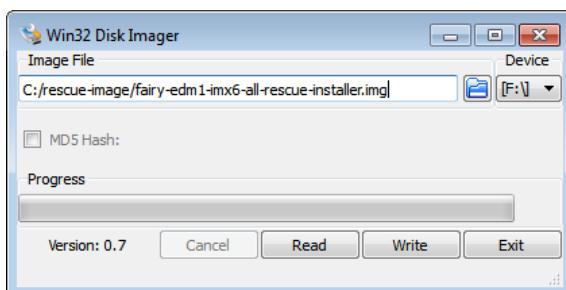


Figure 29: Click the write button to create the rescue-image SD-card

After creating the SD-card on your Windows based Computer, take out the SD-card and proceed to chapter 2 of this guide, to install it on your development kit.

6.2.2. Create the SD-card with the rescue image in a Linux environment

After downloading the rescue-image for your carrier board; extract it on your Linux computer

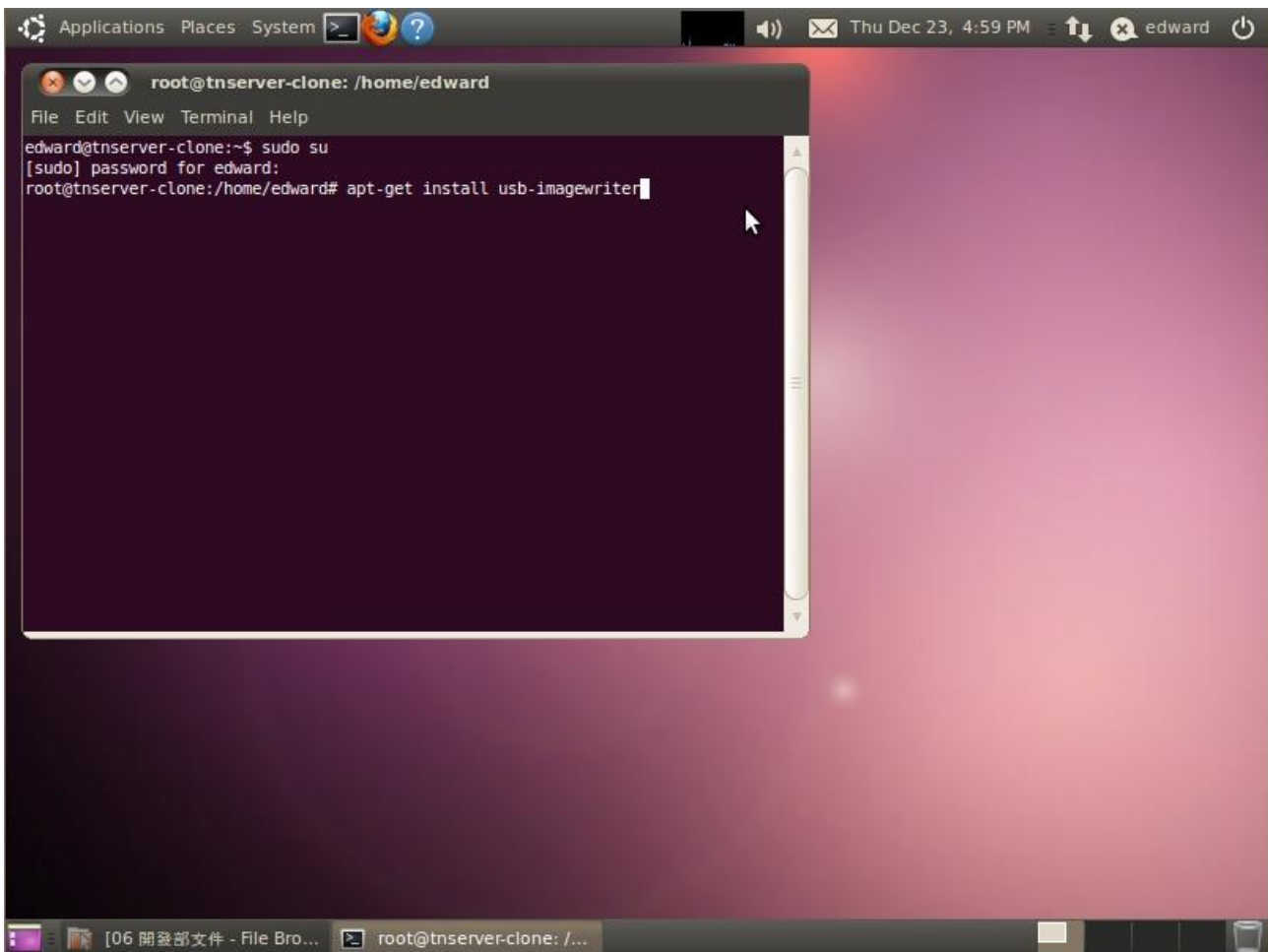


Figure 30: Install the image writer on your Linux computer

Install the image writer:

```
# apt-get install usb-imagewriter
```



Figure 31: Start image writer (Applications>accessories>imagewriter)



Figure 32: Select the downloaded image and destination (SD-card in your computer), click write to device



Figure 33: Press the “OK” button to confirm

6.2.3. Create the SD-card with command line in a Linux environment.

If using a Linux computer, the SD card can also be made using a terminal. Issue the command

```
# dd if=rescue.img of=/dev/sdd bs=65536
```

replace rescue.img with the SD card image and /dev/sdd with your SD card device

6.3. Installing the rescue image on the carrier board with the SD-card



Notice! The following procedure can take up to **10 minutes** to complete.

Insert the newly created SD-card in your development kit, connect the EDM-MNF-BOOT PCB into the MNF-connector and then connect the power supply.

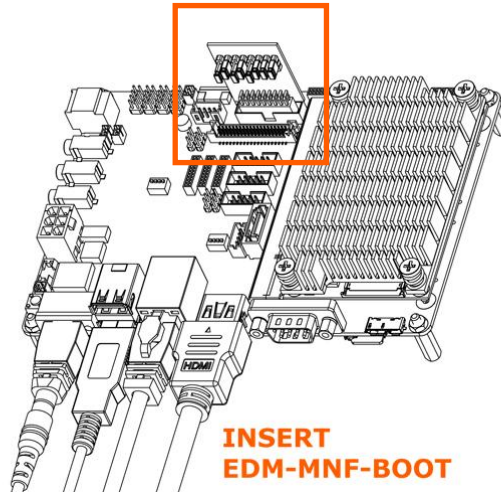


Figure 34 : Insert the SD-card, the EDM-MNF-BOOT PCB and then connect the power

The following screens will appear and complete the installation of the rescue-software automatically (See Figure 23 to 26).

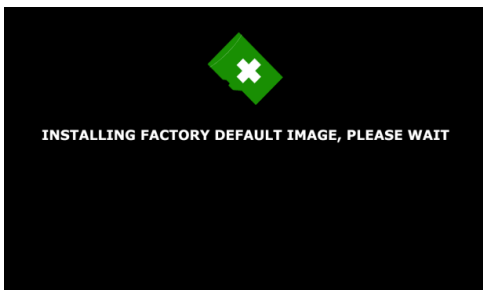


Figure 35: Installing the rescue image (factory default)

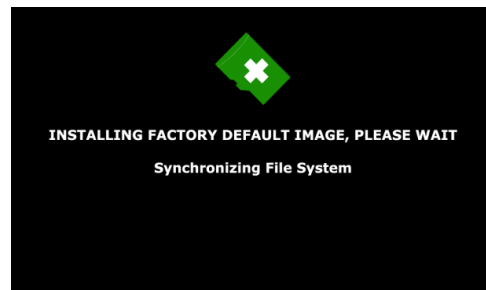


Figure 37: Installing the rescue image – Synchronizing File System

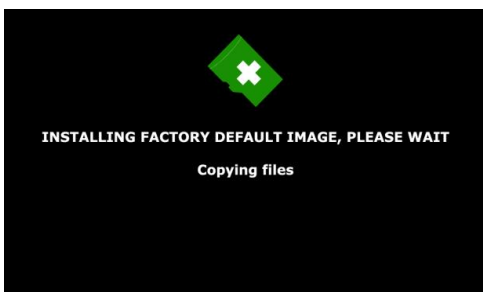


Figure 36: Installing the rescue image – Copying files

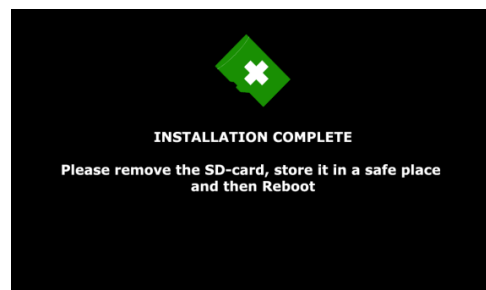


Figure 38: Installation complete - Take out the SD card and the EDM-MNF-BOOT PCB and reboot.



Notice! If your image does not run automatically, please do the following:

1. Disconnect the power to the board
2. Check jumper settings on the inserted EDM-MNF-BOOT PCB

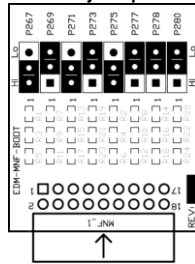


Figure 39 : Jumper setting on EDM-MNF-BOOT to boot EDM type 1 and 2 i.MX6 modules from SD-card

3. Reapply the power to the board

6.4. Factory Default Home Screen



Figure 40: Factory Default Home Screen

The installation of the rescue-image is finished and the development kit will show the Factory default Home Screen.

To install for example Android; just press the Android icon (make sure you are still connected to the internet).

- “Android (NAND)” will install in NAND Flash.

To install for example Linux; just press the Linux icon (make sure you are still connected to the internet).

- “Linux (NAND)” will install in NAND Flash.

6.5. Create a SD-card with a downloaded image from the website

This process is similar to creating the rescue SD-card on the computer, as described in the previous chapter.

The SD card images can be found in the support section of the used System on Module.



Putting Huge Things in Tiny Places

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Products

EDM

EDM System-on-Modules

- EDM1-CF-IMX6
- EDM2-CF-IMX6
- EDM2-XI-QM77

EDM Carrier Boards

- EDM1-FAIRY
- EDM2-WIZARD

ARM CPU Modules

- TI OMAP3530
- TAO-3530
- Inferno
- Thunder
- Tsunami
- TI Sitara AM3517
- TAM-3517
- Twister
- Thb-3517
- TI DM3730
- TDM-3730
- Blizzard

Accessories and Add-On's

- Prism-0700W-START
- TCM-500A

HMI


- Prism-0700W-SYSTEM
- Th-0735W
- Th-0635
- Th-0835
- Th-1035
- Th-1235
- Th-1535

Home > Support > Download Center > EDM > EDM Modules > EDM1-CF-IMX6


EDM1-CF-IMX6 Documentation and Downloads

All documentation for EDM1-CF-IMX6 board are listed below.


EDM1-CF-IMX6 + EDM1-FAIRY Rescue SD Card Image

	Description	Rescue image for EDM1-CF-IMX6 and EDM1-FAIRY (display on HDMI and control by USB mouse)
	Revision	REV. 1.05
	Date	14 September 2013
	File	Rescue image for EDM1-CF-IMX6


EDM1-CF-IMX6 + EDM1-FAIRY Android Jellybean

	Description	Android Jellybean 4.2.2 for EDM1-CF-IMX6 (Now with .apk utilities for GPIO/CANbus/Serial)
	Revision	VER. 4.2.2
	Date	6 September 2013
	Source	Android Jellybean (4.2.2) Sourcecode for EDM1-CF-IMX6
	Demo	Android Jellybean (4.2.2) runtime image for EDM1-CF-IMX6 and EDM1-FAIRY

EDM1-CF-IMX6 + EDM1-FAIRY Linux SDK

	Description	Linux sourcecode SDK for EDM1-CF-IMX6
	Revision	VER. 3.0.35
	Date	1 August 2013
	File	Linux Sourcecode SDK for EDM1-CF-IMX6

EDM1-CF-IMX6 + EDM1-FAIRY Ubuntu Image

	Description	Ubuntu runtime image with HDMI output for EDM1-CF-IMX6 and EDM1-FAIRY
	Revision	VER. 10.04
	Date	7 September 2013
	File	Ubuntu runtime image for EDM1-CF-IMX6 and EDM1-FAIRY

EDM1-CF-IMX6 + EDM1-FAIRY Yocto Image


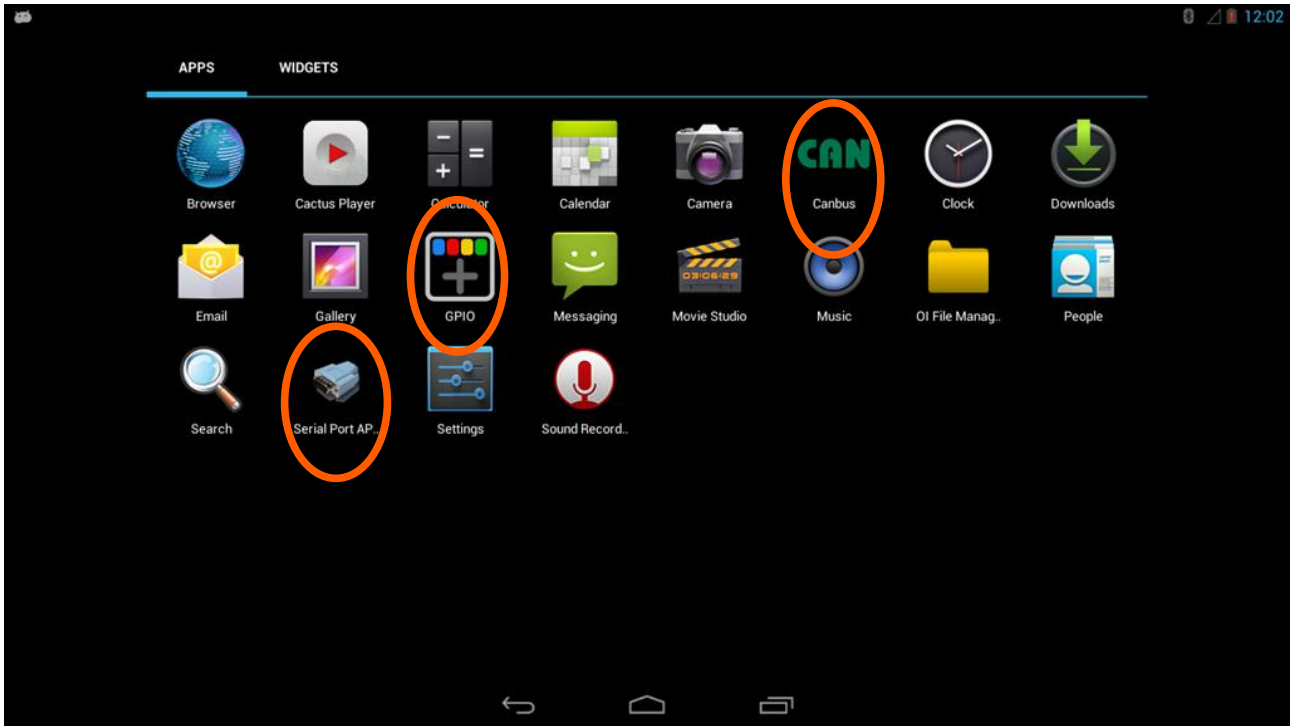
	Description	Yocto is not a distribution but a way to build your own embedded Linux. We created a runtime image for evaluation purposes for EDM1-CF-IMX6 and EDM1-FAIRY
	Revision	VER. 1.4
	Date	14 September 2013
	File	Yocto runtime image for EDM1-CF-IMX6 and EDM1-FAIRY

Figure 41: The SD card images can be found in the support section of the module that is used with the Fairy carrier board.

7. Android - NDK sample application

In Android, you can control hardware using native code.

There are three NDK sample applications on the APPS tab: CAN BUS, GPIO, Serial Port API-.

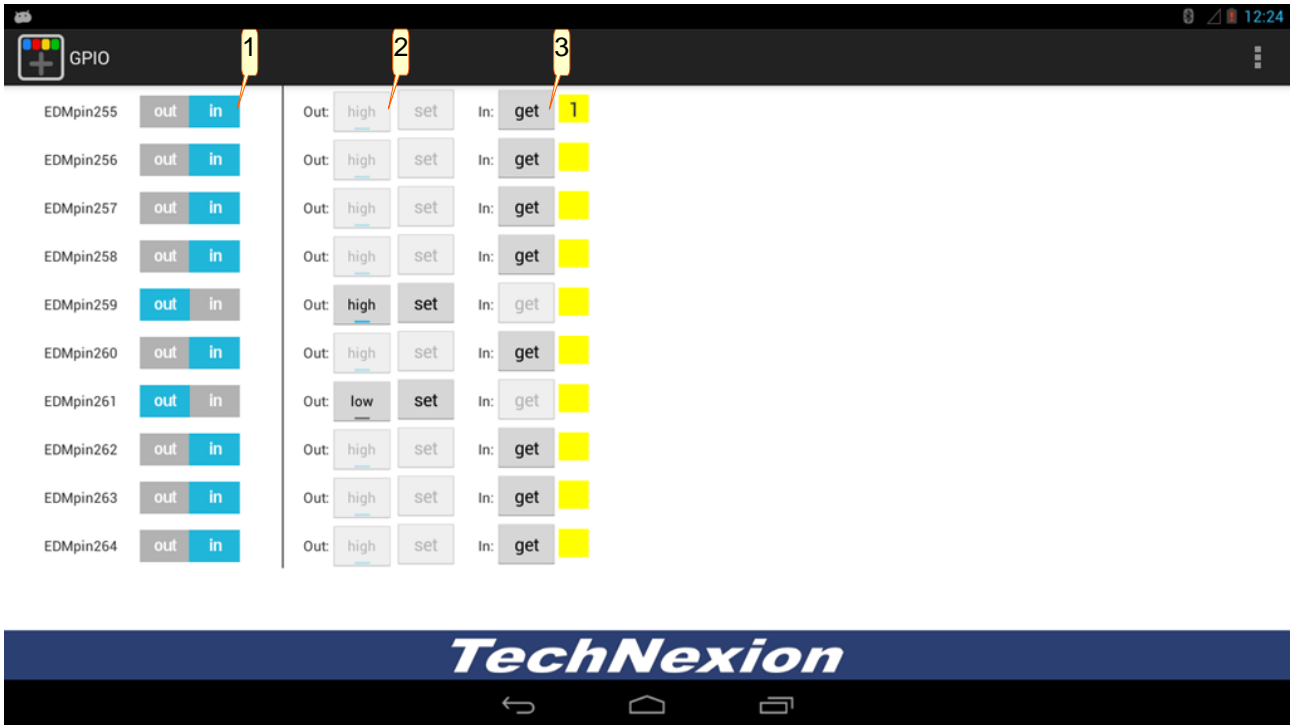


7.1. GPIO APP

When the GPIO APP is opened the screen will have the following elements:

The GPIO number corresponds to the pin definition in schematic.

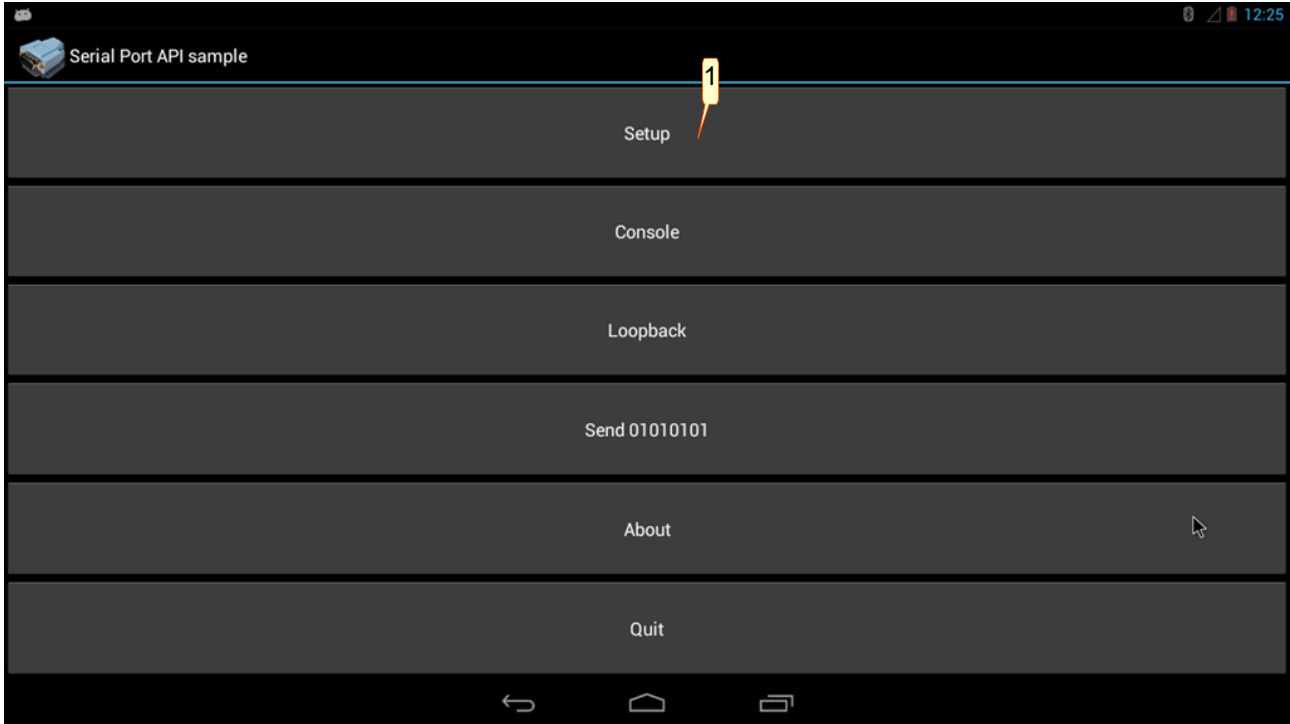
1. Choose GPIO direction as input/output. Then the UI will change dynamically.
2. If you configure GPIO as output, please choose high/low level. Click “set”, then the output of GPIO as you wish.
3. If you configure GPIO as input, just click “get” to get GPIO input level.



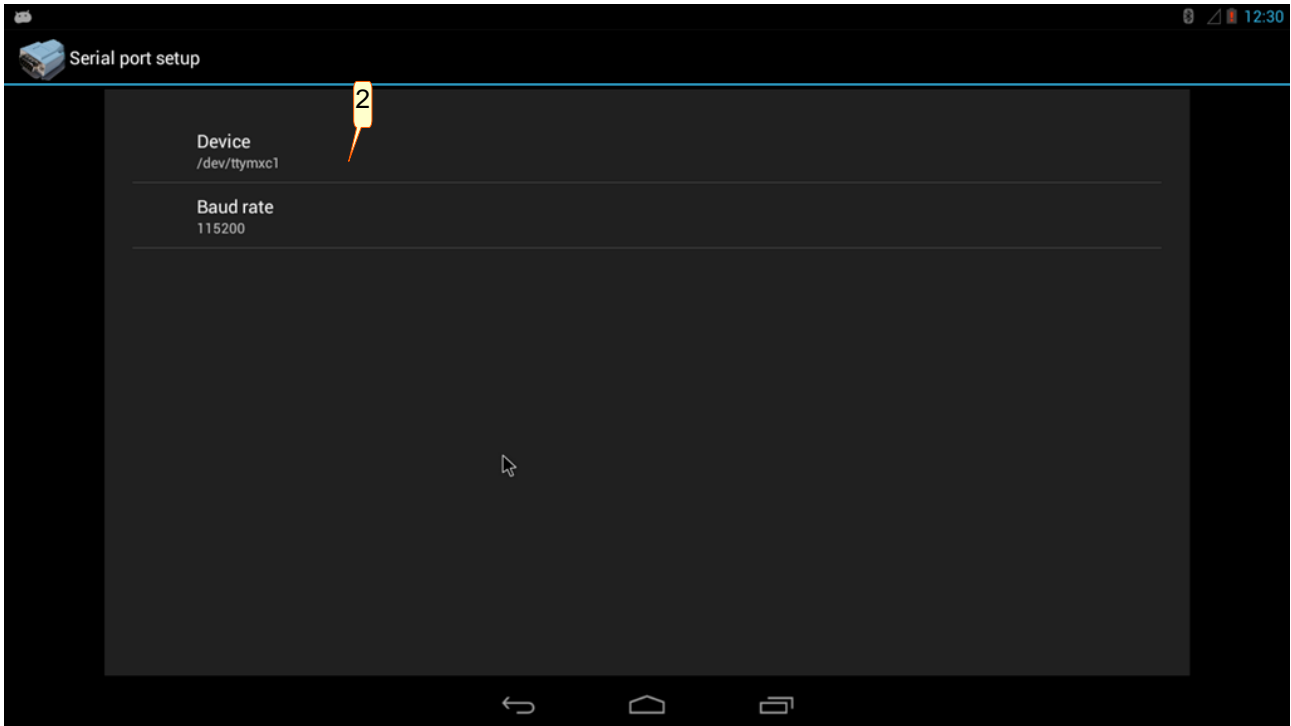
7.2. Serial Port APP

When the serial port APP is opened it will show the following menu:
(This APP is from <http://code.google.com/p/android-serialport-api/>)

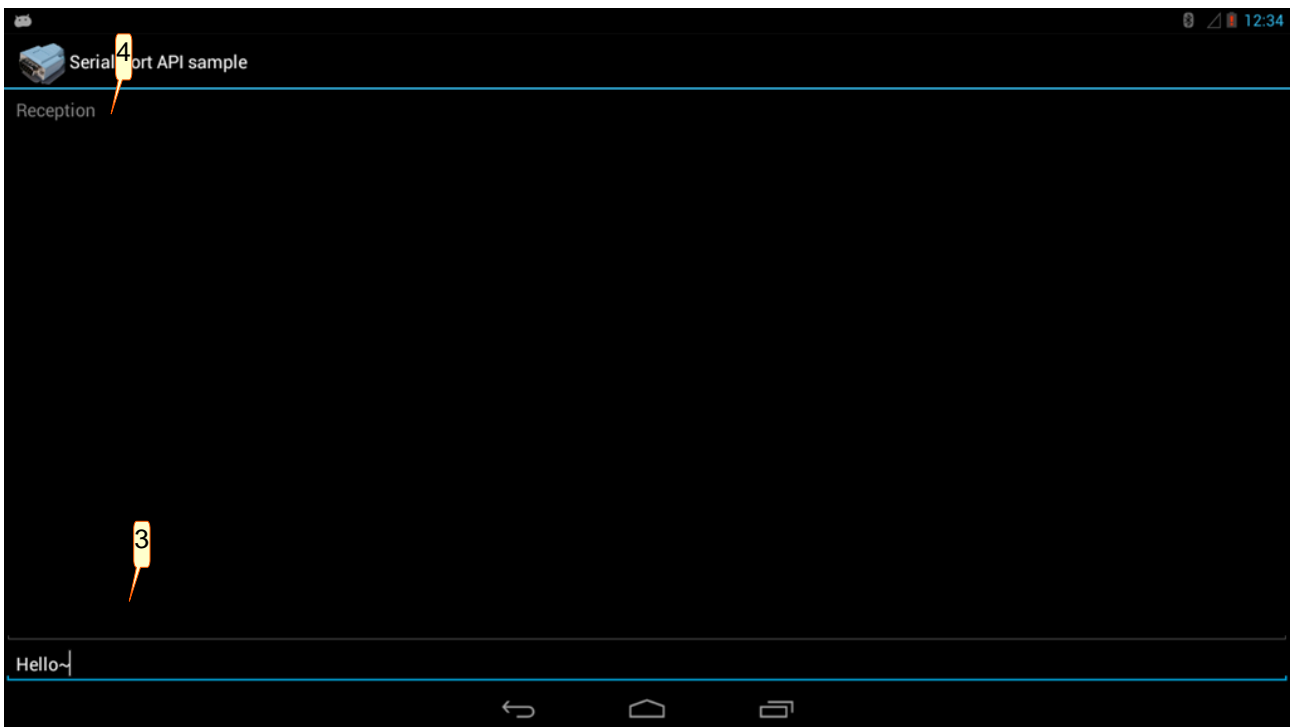
1. Click "Setup" to set serial port and baud rate.



2. By default, you only have the permission to access `/dev/ttymx1`, and it corresponds to the serial port on your board. Please assign the Device as `"/dev/ttymx1"` and the baud rate depends on the speed of device you connect.



3. Type the word you want to transmit in “Emission” field. Then press “enter”.
4. You can also receive the data from the other device in “Reception” field.

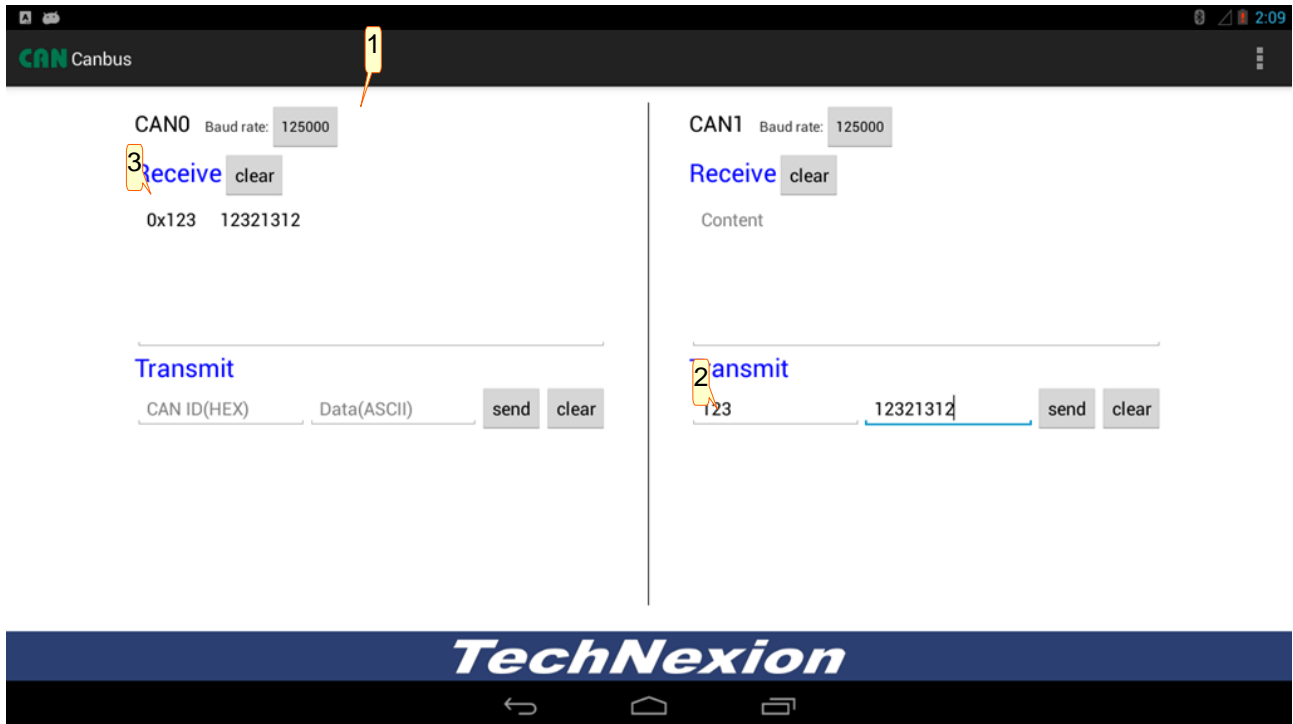


7.3. CAN BUS APP

When the CAN BUS APP is opened the screen will show the following elements::

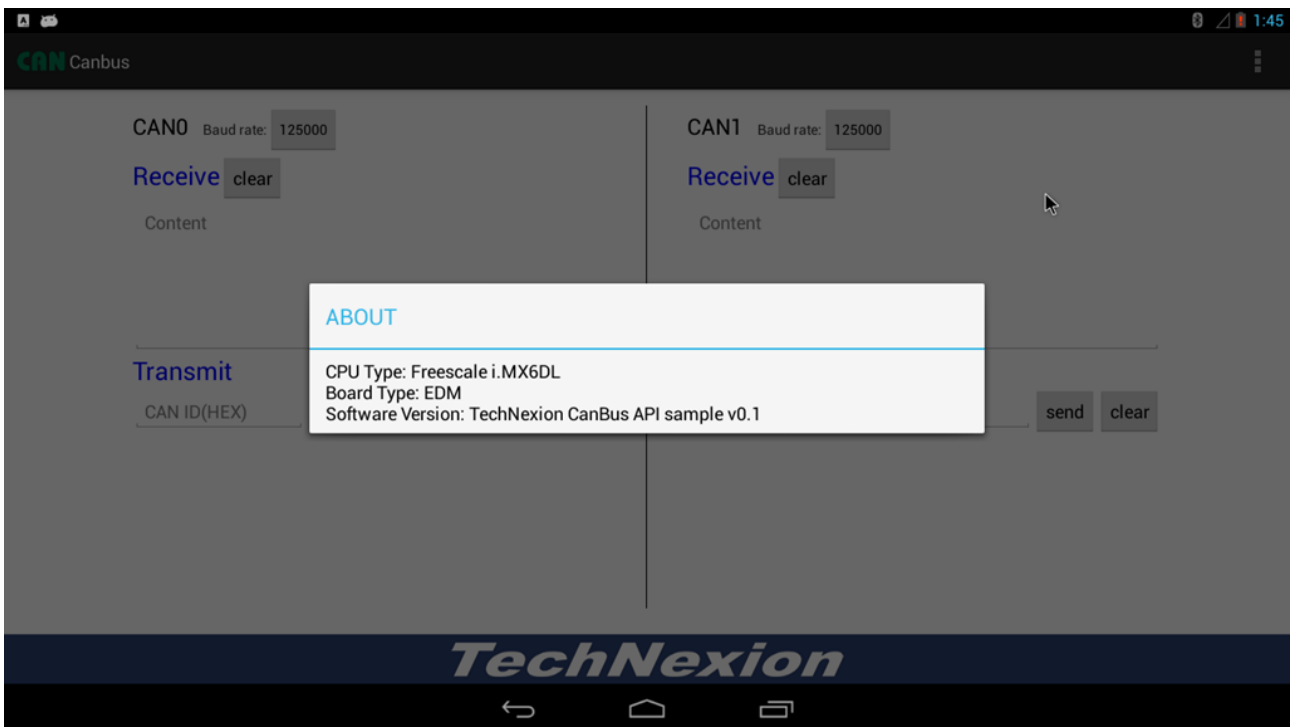
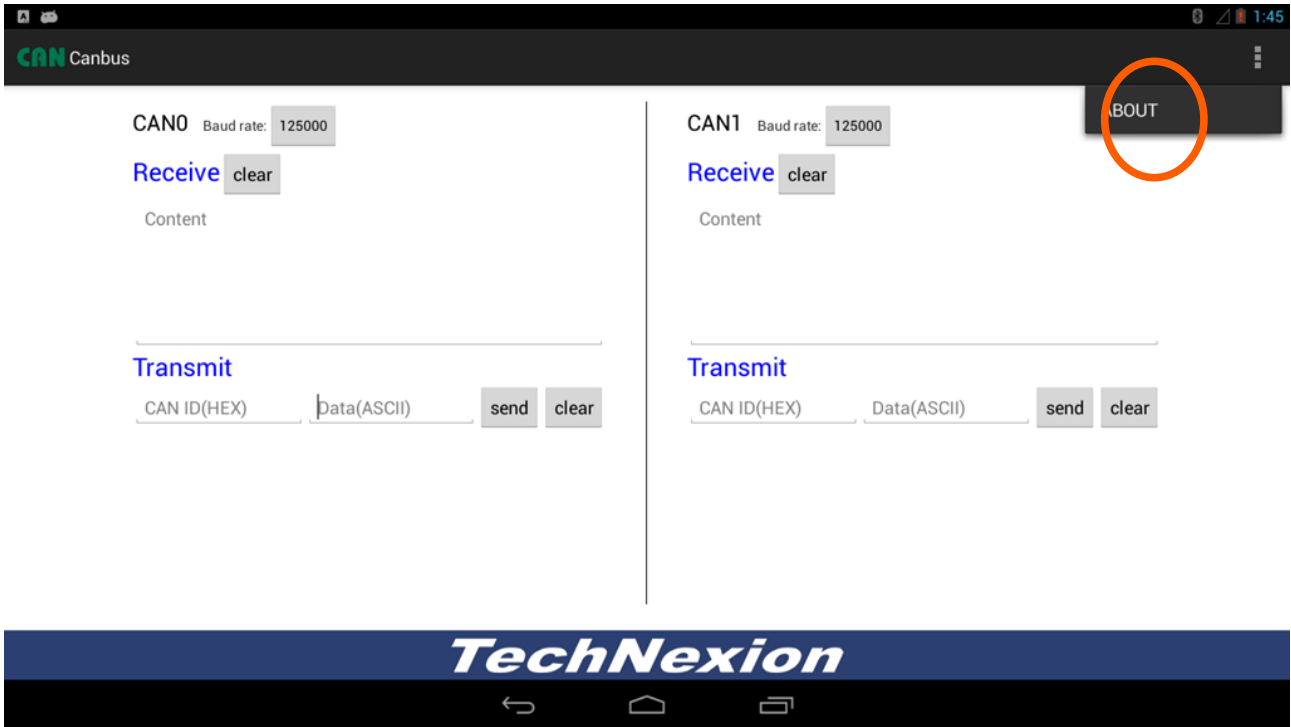
First, please check your CAN BUS cable connect well. For simplicity, you can just connect CAN1 to CAN2 slot on your board for loopback.

1. Select baud rate for CAN interface. The baud rate you select on both side of device must be the same.
2. Enter CAN ID in "CAN ID" field and data in "Data" field. Then press "send" to activate transmission.
3. You will receive data from other side in "Receive Content".



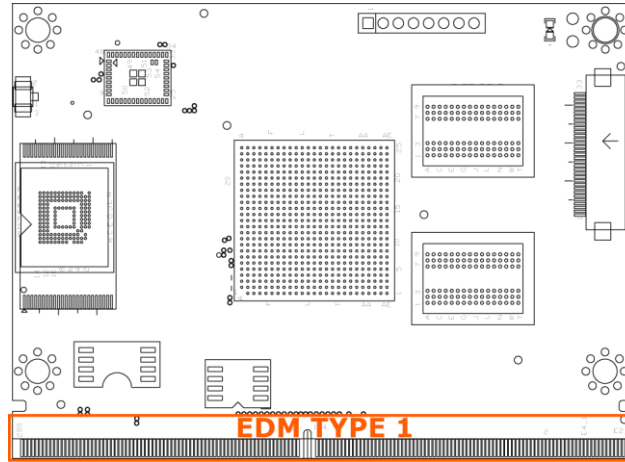
7.4. Provide Feedback and Report Problems

Enter "ABOUT" to check and note the CPU type, board type and software version .
Contact TechNexion on the website <http://www.technexion.com/index.php/contact> .



8. Connectors - Pin out

8.1. EDM Connector



The EDM connector 314 pin assignment for type 1 are listed in the table below.

Pin #	EDM	Signal	V	I/O	Description
E1_1		5VSB	5VSB	P	Standby Power Supply 5VDC \pm 5%
E2_1		5VSB	5VSB	P	Standby Power Supply 5VDC \pm 5%
E1_2		VCC	5V	P	Power Supply 5VDC \pm 5%
E2_2		VCC	5V	P	Power Supply 5VDC \pm 5%
E1_3		VCC	5V	P	Power Supply 5VDC \pm 5%
E2_3		VCC	5V	P	Power Supply 5VDC \pm 5%
E1_4		VCC	5V	P	Power Supply 5VDC \pm 5%
E2_4		VCC	5V	P	Power Supply 5VDC \pm 5%
E1_5		VCC	5V	P	Power Supply 5VDC \pm 5%
E2_5		VCC	5V	P	Power Supply 5VDC \pm 5%
E1_6		VCC	5V	P	Power Supply 5VDC \pm 5%
E2_6		VCC	5V	P	Power Supply 5VDC \pm 5%
E1_7		VCC	5V	P	Power Supply 5VDC \pm 5%
E2_7		VCC	5V	P	Power Supply 5VDC \pm 5%
E1_8		VCC	5V	P	Power Supply 5VDC \pm 5%
E2_8		VCC	5V	P	Power Supply 5VDC \pm 5%
E1_9		VCC	5V	P	Power Supply 5VDC \pm 5%
E2_9		VCC	5V	P	Power Supply 5VDC \pm 5%
E1_10		VCC	5V	P	Power Supply 5VDC \pm 5%
E2_10		VCC	5V	P	Power Supply 5VDC \pm 5%
E3_1		GND	GND	P	Ground
E4_1		GND	GND	P	Ground
E3_2		GBE_MDI2+	LAN	I/O	Gigabit Ethernet Media Dependent Interface (MDI) differential pair 2 positive signal

Pin #	EDM	Signal	V	I/O	Description
E4_2		GBE_MDI0+	LAN	I/O	Gigabit Ethernet Media Dependent Interface (MDI) differential pair 0 positive signal
E3_3		GBE_MDI2-	LAN	I/O	Gigabit Ethernet Media Dependent Interface (MDI) differential pair 2 negative signal
E4_3		GBE_MDI0-	LAN	I/O	Gigabit Ethernet Media Dependent Interface (MDI) differential pair 0 negative signal
E3_4		GND	GND	P	Ground
E4_4		GND	GND	P	Ground
E3_5		GBE_MDI3+	LAN	I/O	Gigabit Ethernet Media Dependent Interface (MDI) differential pair 3 positive signal
E4_5		GBE_MDI1+	LAN	I/O	Gigabit Ethernet Media Dependent Interface (MDI) differential pair 1 positive signal
E3_6		GBE_MDI3-	LAN	I/O	Gigabit Ethernet Media Dependent Interface (MDI) differential pair 3 negative signal
E4_6		GBE_MDI1-	LAN	I/O	Gigabit Ethernet Media Dependent Interface (MDI) differential pair 1 negative signal
E3_7		LED1_ACT	CMOS 3.3V	O	Gigabit Ethernet LED Activity indicator
E4_7		GND	GND	P	Ground
E3_8		GND	GND	P	Ground
E4_8		LED1_nLink100	CMOS 3.3V	O	Gigabit Ethernet 100Mbit/sec LED link indicator
E3_9		LVDS_A0-	LVDS	O	LVDS primary channel differential pair 0 negative signal
E4_9		LED1_nLink1000	CMOS 3.3V	O	Gigabit Ethernet 1000Mbit/sec LED link indicator
E3_10		LVDS_A0+	LVDS	O	LVDS primary channel differential pair 0 positive signal
E4_10		GND	GND	P	Ground
1		GND	GND	P	Ground
2		LCD_D0	TTL	O	LCD Pixel Data bit 0
3		LVDS_A1-	LVDS	O	LVDS primary channel differential pair 1 negative signal
4		LCD_D1	TTL	O	LCD Pixel Data bit 1
5		LVDS_A1+	LVDS	O	LVDS primary channel differential pair 1 positive signal
6		GND	GND	P	Ground
7		GND	GND	P	Ground
8		LCD_D2	TTL	O	LCD Pixel Data bit 2
9		LVDS_A2-	LVDS	O	LVDS primary channel differential pair 2 negative signal
10		LCD_D3	TTL	O	LCD Pixel Data bit 3
11		LVDS_A2+	LVDS	O	LVDS primary channel differential pair 2 positive signal
12		GND	GND	P	Ground
13		GND	GND	P	Ground
14		LCD_D4	TTL	O	LCD Pixel Data bit 4
15		LVDS_A3-	LVDS	O	LVDS primary channel differential pair 3 negative signal
16		LCD_D5	TTL	O	LCD Pixel Data bit 5

Pin #	EDM	Signal	V	I/O	Description
17		LVDS_A3+	LVDS	O	LVDS primary channel differential pair 3 positive signal
18		GND	GND	P	Ground
19		GND	GND	P	Ground
20		LCD_D6	TTL	O	LCD Pixel Data bit 6
21		LVDS_ACLK-	LVDS	O	LVDS primary channel clock negative signal
22		LCD_D7	TTL	O	LCD Pixel Data bit 7
23		LVDS_ACLK+	LVDS	O	LVDS primary channel clock positive signal
24		GND	GND	P	Ground
25		GND	GND	P	Ground
26		LCD_D8	TTL	O	LCD Pixel Data bit 8
27		LVDS_ABL_CTRL	CMOS 3.3V	O	LVDS primary channel panel backlight control
28		LCD_D9	TTL	O	LCD Pixel Data bit 9
29		LVDS_AEN	CMOS 3.3V	O	LVDS primary channel panel backlight enable
30		GND	GND	P	Ground
31	NC	LVDS_AVDD_EN	CMOS 3.3V	O	LVDS primary channel panel power enable
32		LCD_D10	TTL	O	LCD Pixel Data bit 10
33	NC	eDP0_SELFTEST	CMOS 3.3V	I	Embedded Display Port Detection pin
34		LCD_D11	TTL	O	LCD Pixel Data bit 11
35	NC	eDP0_HPD	CMOS 3.3V	I	Embedded Display Port Hot Plug Detection pin
36		LCD_D12	TTL	O	LCD Pixel Data bit 12
37		I2C_SDA	CMOS 3.3V	I/O	Display ID DDC data line used for LVDS flat panel detection. If not used this can be assigned to General Purpose I ² C bus data line
38		LCD_D13	TTL	O	LCD Pixel Data bit 13
39		I2C_SCL	CMOS 3.3V	I/O	Display ID DDC clock line used for LVDS flat panel detection. If not used this can be assigned to General Purpose I ² C bus clock line
40		LCD_D14	TTL	O	LCD Pixel Data bit 14
41		GND	GND	P	Ground
42		GND	GND	P	Ground
43		HDMI1_CLK+	HDMI	O	HDMI differential pair clock positive signal
44		LCD_D15	TTL	O	LCD Pixel Data bit 15
45		HDMI1_CLK-	HDMI	O	HDMI differential pair clock negative signal
46		LCD_D16	TTL	O	LCD Pixel Data bit 16
47		GND	GND	P	Ground
48		GND	GND	P	Ground
49		HDMI1_D0+	HDMI	O	HDMI differential pair 0 positive signal
50		LCD_D17	TTL	O	LCD Pixel Data bit 17
51		HDMI1_D0-	HDMI	O	HDMI differential pair 0 negative signal
52		LCD_D18	TTL	O	LCD Pixel Data bit 18
53		GND	GND	P	Ground
54		GND	GND	P	Ground
55		HDMI1_D1+	HDMI	O	HDMI differential pair 1 positive signal
56		LCD_D19	TTL	O	LCD Pixel Data bit 19
57		HDMI1_D1-	HDMI	O	HDMI differential pair 1 negative signal

Pin #	EDM	Signal	V	I/O	Description
58		LCD_D20	TTL	O	LCD Pixel Data bit 20
59		GND	GND	P	Ground
60		GND	GND	P	Ground
61		HDMI1_D2+	HDMI	O	HDMI differential pair 2 positive signal
62		LCD_D21	TTL	O	LCD Pixel Data bit 21
63		HDMI1_D2-	HDMI	O	HDMI differential pair 2 negative signal
64		LCD_D22	TTL	O	LCD Pixel Data bit 22
65		GND	GND	P	Ground
66		GND	GND	P	Ground
67		HDMI1_HPD DP1_HPD	CMOS 3.3V	I	HDMI/DP Hot plug detection signal that serves as an interrupt request
68		LCD_D23	TTL	O	LCD Pixel Data bit 23
69	NC	HDMI1_CAD	HDMI	I/O	Cable Adaptor Detect
70		LCD_CLK	TTL	O	LCD Pixel Clock
71		HDMI1_CEC	HDMI	I/O	HDMI Consumer Electronics Control
72		LCD_HSYNC	TTL	O	LCD Horizontal Synchronization
73		I2C_SCL	CMOS 5V	I/O	Display ID DDC data line used for HDMI detection. If not used this can be assigned to General Purpose I ² C bus clock line
74		LCD_VSYNC	TTL	O	LCD Vertical Synchronization
75		I2C_SDA	CMOS 5V	I/O	Display ID DDC data line used for HDMI detection. If not used this can be assigned to General Purpose I ² C bus data line
76		LCD_BKLEN	TTL	O	LCD backlight control
77		GND	GND	P	Ground
78		LCD_DRD Y	TTL	O	LCD dot enable pin signal
79	NC	PCIEB_CLK+	PCIE	O	PCI Express channel B clock differential pair positive signal
80		LCD_VDDEN	TTL	O	LCD Voltage On
81	NC	PCIEB_CLK-	PCIE	O	PCI Express channel B clock differential pair negative signal
82		LCD_CNTRST	TTL	O	LCD Backlight Control
83		GND	GND	P	Ground
84	NC	RSVD			Reserved
85		PCIEA_CLK+	PCIE	O	PCI Express channel A clock differential pair positive signal
86		GPMC_nCSA	CMOS 3.3V	O	GPMC Chip Select bit A
87		PCIEA_CLK-	PCIE	O	PCI Express channel A clock differential pair negative signal
88		GND	GND	P	Ground
89		GND	GND	P	Ground
90		GPMC_nCSB	CMOS 3.3V	O	GPMC Chip Select bit B
91		PCIEA_TX+	PCIE	O	PCI Express channel A Transmit output differential pair positive signal
92		GPMC_nCSC	CMOS 3.3V	O	GPMC Chip Select bit C
93		PCIEA_TX-	PCIE	O	PCI Express channel A Transmit output differential pair negative signal
94		GND	GND	P	Ground
95		GND	GND	P	Ground
96		GPMC_nCSD	CMOS 3.3V	O	GPMC Chip Select bit D

Pin #	EDM	Signal	V	I/O	Description
97		PCIEA_RX+	PCIE	I	PCI Express channel A Receive input differential pair positive signal
98	NC	GPMC_nCSE	CMOS 3.3V	O	GPMC Chip Select bit E
99		PCIEA_RX-	PCIE	I	PCI Express channel A Receive input differential pair negative signal
100		GND	GND	P	Ground
101		GND	GND	P	Ground
102		GPMC_WAIT	CMOS 3.3V	I	External indication of wait
103	NC	PCIEB_TX+	PCIE	O	PCI Express channel B Transmit output differential pair positive signal
104		GPMC_WP	CMOS 3.3V	O	GPMC Write Protect / Enable
105	NC	PCIEB_TX-	PCIE	O	PCI Express channel B Transmit output differential pair negative signal
106		GPMC_CLE	CMOS 3.3V	O	GPMC Lower Byte Enable. Also used for Command Latch Enable
107	NC	PCIE_PRST#	PCIE	I	PCI Express interface presence detection pin
108		GPMC_ALE	CMOS 3.3V	O	GPMC Address Valid or Address Latch Enable
109	NC	PCIEB_RX+	PCIE	I	PCI Express channel B Receive input differential pair positive signal
110		GPMC_WE	CMOS 3.3V	I	GPMC Write Enable
111	NC	PCIEB_RX-	PCIE	I	PCI Express channel B Receive input differential pair negative signal
112		GPMC_RE	CMOS 3.3V	O	GPMC Read Enable
113	NC	PCIECLK_OEA	PCIE	O	PCI Express channel A hot plug detection signal
114	NC	RSVD			Reserved
115	NC	PCIECLK_OEB	PCIE	O	PCI Express channel B hot plug detection signal
116	NC	GPMC_A10	CMOS 3.3V	O	GPMC output address bit 10
117	NC	PCIE_WAKE#	CMOS 3.3V	I	PCI Express Wake Event: Sideband wake signal asserted by components requesting wake up
118	NC	GPMC_A9	CMOS 3.3V	O	GPMC output address bit 9
119		PCIE_RST#	CMOS 3.3V	O	PCI Express Reset signal for external devices
120	NC	GPMC_A8	CMOS 3.3V	O	GPMC output address bit 8
121		GND	GND	P	Ground
122	NC	GPMC_A7	CMOS 3.3V	O	GPMC output address bit 7
123		SATA1_RXP	SATA	I	Serial ATA channel 1 Receive differential pair positive signal
124		GND	GND	P	Ground
125		SATA1_RXN	SATA	I	Serial ATA channel 1 Receive differential pair negative signal
126		KEY			
127		KEY			
128		KEY			
129		KEY			

Pin #	EDM	Signal	V	I/O	Description
130		KEY			
131		KEY			
132		KEY			
133		SATA1_nACT	SATA	I/O	Serial ATA LED. Open collector output pin driven during SATA command activity
134	NC	GPMC_A6	CMOS 3.3V	O	GPMC output address bit 6
135		SATA1_TXP	SATA	O	Serial ATA channel 1 Transmit differential pair positive signal
136	NC	GPMC_A5	CMOS 3.3V	O	GPMC output address bit 5
137		SATA1_TXN	SATA	O	Serial ATA channel 1 Transmit differential pair negative signal
138	NC	GPMC_A4	CMOS 3.3V	O	GPMC output address bit 4
139		USB1_HUB_RST	USB	O	Universal Serial Bus carrier board hub reset pin
140	NC	GPMC_A3	CMOS 3.3V	O	GPMC output address bit 3
141		USB2_OC	CMOS 3.3V	I	Over current detect input pin to monitor USB power over current
142	NC	GPMC_A2	CMOS 3.3V	O	GPMC output address bit 2
143	NC	StdB2_SSRX+	USB	I	Universal Serial Bus Superspeed receiver differential pair positive signal
144	NC	GPMC_A1	CMOS 3.3V	O	GPMC output address bit 1
145	NC	StdB2_SSRX-	USB	I	Universal Serial Bus Superspeed receiver differential pair negative signal
146	NC	GPMC_D15	CMOS 3.3V	I/O	GPMC data bit 15
147	NC	GND2_DRAIN	USB	P	Universal Serial Bus ground for signal return
148		GND	GND	P	Ground
149	NC	StdB2_SSTX+	USB	O	Universal Serial Bus Superspeed transmitter differential pair positive signal
150	NC	GPMC_D14	CMOS 3.3V	I/O	GPMC data bit 14
151	NC	StdB2_SSTX-	USB	O	Universal Serial Bus Superspeed transmitter differential pair negative signal
152	NC	GPMC_D13	CMOS 3.3V	I/O	GPMC data bit 13
153		GND	GND	P	Ground
154		GND	GND	P	Ground
155		USB2_OTG_ID	USB	I	Universal Serial Bus On-The-Go detection signal
156	NC	GPMC_D12	CMOS 3.3V	I/O	GPMC data bit 12
157		USB2_D+	USB	I/O	Universal Serial Bus port 2 differential pair positive signal
158	NC	GPMC_D11	CMOS 3.3V	I/O	GPMC data bit 11
159		USB2_D-	USB	I/O	Universal Serial Bus port 2 differential pair negative signal

Pin #	EDM	Signal	V	I/O	Description
160	NC	GPMC_D10	CMOS 3.3V	I/O	GPMC data bit 10
161		USB2_VBUS	5V	I/O	Universal Serial Bus port 2 power
162	NC	GPMC_D9	CMOS 3.3V	I/O	GPMC data bit 9
163		USB2_PWR_EN	USB	O	Universal Serial Bus power enable
164	NC	GPMC_D8	CMOS 3.3V	I/O	GPMC data bit 8
165		USB1_OC	CMOS 3.3V	I	Over current detect input pin to monitor USB power over current
166		GND	GND	P	Ground
167	NC	StdB1_SSRX+	USB	I	Universal Serial Bus Superspeed receiver differential pair positive signal
168		GPMC_D7	CMOS 3.3V	I/O	GPMC data bit 7
169	NC	StdB1_SSRX-	USB	I	Universal Serial Bus Superspeed receiver differential pair negative signal
170		GPMC_D6	CMOS 3.3V	I/O	GPMC data bit 6
171	NC	GND1_DRAIN	USB	P	Universal Serial Bus ground for signal return
172		GPMC_D5	CMOS 3.3V	I/O	GPMC data bit 5
173	NC	StdB1_SSTX+	USB	O	Universal Serial Bus Superspeed transmitter differential pair positive signal
174		GPMC_D4	CMOS 3.3V	I/O	GPMC data bit 4
175	NC	StdB1_SSTX-	USB	O	Universal Serial Bus Superspeed transmitter differential pair negative signal
176		GPMC_D3	CMOS 3.3V	I/O	GPMC data bit 3
177		GND	GND	P	Ground
178		GPMC_D2	CMOS 3.3V	I/O	GPMC data bit 2
179		USB1_D-	USB	I/O	Universal Serial Bus port 1 differential pair negative signal
180		GPMC_D1	CMOS 3.3V	I/O	GPMC data bit 1
181		USB1_D+	USB	I/O	Universal Serial Bus port 1 differential pair positive signal
182		GPMC_D0	CMOS 3.3V	I/O	GPMC data bit 0
183		USB1_VBUS	5V	I/O	Universal Serial Bus port 1 power
184		GND	GND	P	Ground
185		GND	GND	P	Ground
186		I2S2_RXD	CMOS 3.3V	I	Secondary Integrated Interchip Sound (I ² S) channel receive data line
187		I2S1_RXD	CMOS 3.3V	I	Primary Integrated Interchip Sound (I ² S) channel receive data line
188		I2S2_TXFS	CMOS 3.3V	O	Secondary Integrated Interchip Sound (I ² S) channel frame synchronization signal
189		I2S1_TXFS	CMOS 3.3V	O	Primary Integrated Interchip Sound (I ² S) channel frame synchronization signal

Pin #	EDM	Signal	V	I/O	Description
190		I2S2_TXD	CMOS 3.3V	O	Secondary Integrated Interchip Sound (I ² S) channel transmit data line
191		I2S1_TXD	CMOS 3.3V	O	Primary Integrated Interchip Sound (I ² S) channel transmit data line
192		I2S2_TXC	CMOS 3.3V	O	Secondary Integrated Interchip Sound (I ² S) channel word clock signal
193		I2S1_TXC	CMOS 3.3V	O	Primary Integrated Interchip Sound (I ² S) channel word clock signal
194		I2S2_CLK	CMOS 3.3V	O	Secondary Integrated Interchip Sound (I ² S) channel master clock signal
195		I2S1_CLK	CMOS 3.3V	O	Primary Integrated Interchip Sound (I ² S) channel master clock signal
196		SPDIF_OUT	SPDIF	O	Sony / Philips Digital Interconnect Format Audio output
197		CAN2+	CAN	I/O	Secondary CAN (controller Area Network) differential pair positive signal
198		GND	GND	P	Ground
199		CAN2-	CAN	I/O	Secondary CAN (controller Area Network) differential pair negative signal
200		CAN1+	CAN	I/O	Primary CAN (controller Area Network) differential pair positive signal
201		GND	GND	P	Ground
202		CAN1-	CAN	I/O	Primary CAN (controller Area Network) differential pair negative signal
203		SDIO_CD	CMOS 3.3V	I/O	MMC/SDIO Card Detect
204		GND	GND	P	Ground
205		SDIO_CMD	CMOS 3.3V	I/O	MMC/SDIO Command
206		SDIO_CLK	CMOS 3.3V	O	MMC/SDIO Clock
207		SDIO_WP	CMOS 3.3V	I/O	MMC/SDIO Write Protect
208		SDIO_LED	CMOS 3.3V	O	MMC/SDIO LED
209		SDIO_DAT1	CMOS 3.3V	I/O	MMC/SDIO Data bit 1
210		SDIO_PWR	CMOS 3.3V	O	MMC/SDIO Power Enable
211		SDIO_DAT3	CMOS 3.3V	I/O	MMC/SDIO Data bit 3
212		SDIO_DAT0	CMOS 3.3V	I/O	MMC/SDIO Data bit 0
213	NC	SDIO_DAT5	CMOS 3.3V	I/O	MMC/SDIO Data bit 5
214		SDIO_DAT2	CMOS 3.3V	I/O	MMC/SDIO Data bit 2
215	NC	SDIO_DAT7	CMOS 3.3V	I/O	MMC/SDIO Data bit 7
216	NC	SDIO_DAT4	CMOS 3.3V	I/O	MMC/SDIO Data bit 4
217		GND	GND	P	Ground
218	NC	SDIO_DAT6	CMOS 3.3V	I/O	MMC/SDIO Data bit 6

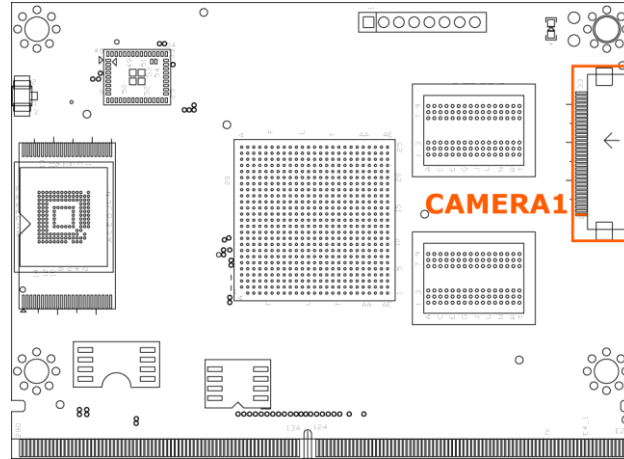
Pin #	EDM	Signal	V	I/O	Description
219		SPI2_MOSI	CMOS 3.3V	O	Serial Peripheral Interface primary channel master output slave input signal
220		GND	GND	P	Ground
221		SPI2_MISO	CMOS 3.3V	I	Serial Peripheral Interface primary channel master input slave output signal
222		SPI1_MOSI	CMOS 3.3V	O	Serial Peripheral Interface secondary channel master output slave input signal
223		SPI2_CLK	CMOS 3.3V	O	Serial Peripheral Interface primary channel clock signal
224		SPI1_MISO	CMOS 3.3V	I	Serial Peripheral Interface secondary channel master input slave output signal
225		SPI2_CS0	CMOS 3.3V	O	Serial Peripheral Interface primary channel Chip Select 0 signal
226		SPI1_CLK	CMOS 3.3V	O	Serial Peripheral Interface secondary channel clock signal
227		SPI2_CS1	CMOS 3.3V	O	Serial Peripheral Interface primary channel Chip Select 1 signal. Do not use if only 1 SPI device is used
228		SPI1_CS0	CMOS 3.3V	O	Serial Peripheral Interface secondary channel Chip Select 0 signal
229		GND	GND	P	Ground
230		SPI1_CS1	CMOS 3.3V	O	Serial Peripheral Interface secondary channel Chip Select 1 signal. Do not use if only 1 SPI device is used
231		I2C2_SCL	CMOS 3.3V	I/O	I ² C bus clock line
232		GND	GND	P	Ground
233		I2C2_SDA	CMOS 3.3V	I/O	I ² C bus data line
234		UART2_CTS	UART	O	Universal Asynchronous Receive Transmit secondary channel clear to send signal
235		I2C3_SCL	CMOS 3.3V	I/O	I ² C bus clock line
236		UART2_TXD	UART	O	Universal Asynchronous Receive Transmit secondary channel transmit data signal
237		I2C3_SDA	CMOS 3.3V	I/O	I ² C bus data line
238		UART2_RXD	UART	I	Universal Asynchronous Receive Transmit secondary channel receive data signal
239		GND	GND	P	Ground
240		UART2_RTS	UART	O	Universal Asynchronous Receive Transmit secondary channel request to send signal
241		UART1_CTS	UART	O	Universal Asynchronous Receive Transmit secondary channel clear to send signal
242	NC	UART2_DCD	UART	I	Universal Asynchronous Receive Transmit secondary channel carrier detect signal

Pin #	EDM	Signal	V	I/O	Description
243		UART1_TXD	UART	O	Universal Asynchronous Receive Transmit secondary channel transmit data signal
244	NC	UART2_DSR	UART	I	Universal Asynchronous Receive Transmit secondary channel data set ready signal
245		UART1_RXD	UART	I	Universal Asynchronous Receive Transmit secondary channel receive data signal
246	NC	UART2_DTR	UART	O	Universal Asynchronous Receive Transmit secondary channel data terminal ready signal
247		UART1_RTS	UART	O	Universal Asynchronous Receive Transmit secondary channel request to send signal
248	NC	UART2_RI	UART	I	Universal Asynchronous Receive Transmit secondary channel ring indication signal
249		GND	GND	P	Ground
250		GND	GND	P	Ground
251	NC	S3	CMOS 3.3V	O	S3 signal shuts off power to all runtime system components that are not maintained during S3 state (suspend to RAM)
252		ON/OFF	CMOS 3.3V	I	Power ON button input signal
253	NC	S5	CMOS 3.3V	O	S5 signal shuts off power to the system. Restart is only possible with power button or by a system wake up event
254		RESET	CMOS 3.3V	I	Reset button input signal
255		GPIO	CMOS 3.3V	I/O	General Purpose Input Output
256		GPIO	CMOS 3.3V	I/O	General Purpose Input Output
257		GPIO	CMOS 3.3V	I/O	General Purpose Input Output
258		GPIO	CMOS 3.3V	I/O	General Purpose Input Output
259		GPIO	CMOS 3.3V	I/O	General Purpose Input Output
260		GPIO	CMOS 3.3V	I/O	General Purpose Input Output
261		GPIO	CMOS 3.3V	I/O	General Purpose Input Output
262		GPIO	CMOS 3.3V	I/O	General Purpose Input Output
263		GPIO	CMOS 3.3V	I/O	General Purpose Input Output
264		GPIO	CMOS 3.3V	I/O	General Purpose Input Output
265		GND	GND	P	Ground
266		GND	GND	P	Ground
267		RSVD			Reserved
268		RSVD			Reserved
269		RSVD			Reserved
270		RSVD			Reserved

Pin #	EDM	Signal	V	I/O	Description
271		RSVD			Reserved
272		RSVD			Reserved
273		RSVD			Reserved
274		RSVD			Reserved
275		RSVD			Reserved
276		RSVD			Reserved
277		RSVD			Reserved
278		RSVD			Reserved
279	NC	Watchdog	CMOS 3.3V	O	Watchdog event indication signal
280		RSVD			Reserved
281		VCC_RTC	3.3V	I	Input power for RTC clock

8.2. Camera1 connector

The module contains a standardized camera connector. On the connector are MIPI DSI and CSI interfaces and I²C, GPIO and power available.

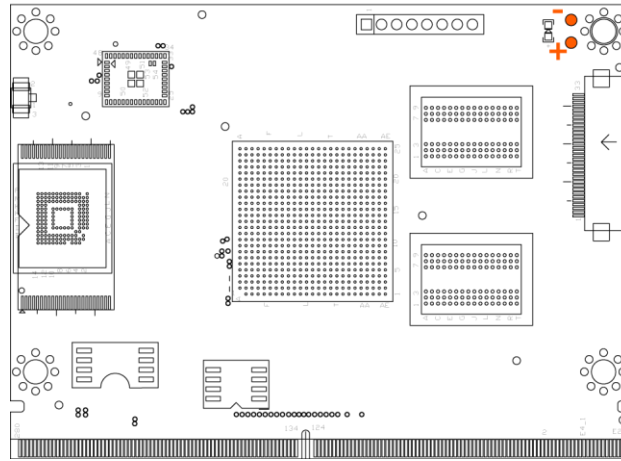


Camera1 pin #	Function	Camera1 pin #	Function
1	CSI_CLK0P	18	GND
2	CSI_CLK0M	19	DSI_D0P
3	GND	20	DSI_D0M
4	CSI_D0P	21	GND
5	CSI_D0M	22	DSI_CLK0P
6	GND	23	DSI_CLK0M
7	CSI_D1P	24	GND
8	CSI_D1M	25	I2C2_SCL
9	GND	26	I2C2_SDA
10	CSI_D2P	27	3.3V
11	CSI_D2M	28	3.3V
12	GND	29	GPIO_3_CLK02
13	CSI_D3P	30	GPIO6
14	CSI_D3M	31	GPIO4_14
15	GND	32	5V
16	DSI_D1P	33	5V
17	DSI_D1M		

Table 9 - Camera Connector Pin-out

8.3. Optional Power Connector

In case your project does not require a carrier board, there is an option to mount a power connector on the module.
Molex 43650-0200 is a connector that will fit in the two holes and the mounting screw hole



pin #	Function	pin #	Function
1	GND	2	+

Table 10 - Optional Power Connector Pin-out

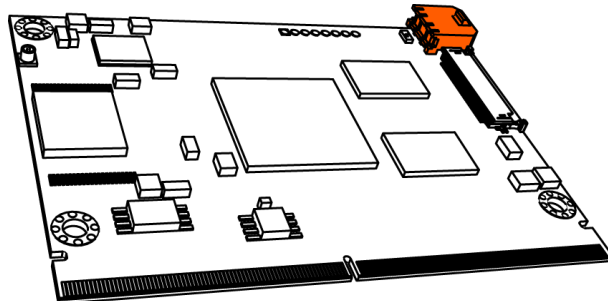
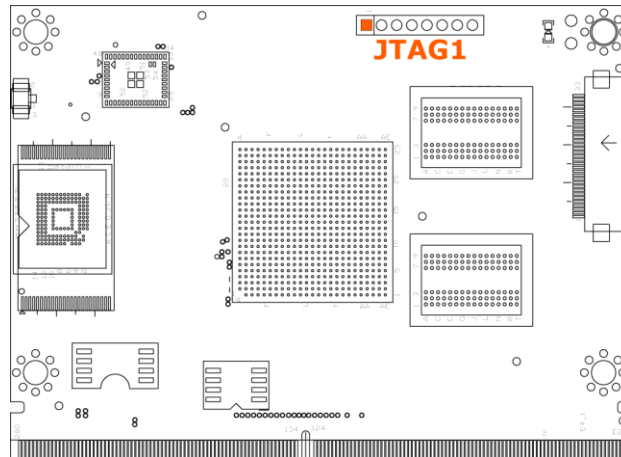


Figure 42: The Molex 43650-0200 connector assembled

8.4. JTAG Connector

Joint Test Action Group (JTAG) is the common name for the IEEE 1149.1 Standard Test Access Port and Boundary-Scan Architecture. It was initially devised by electronic engineers for testing printed circuit boards using boundary scan and is still widely used for this application.

Today JTAG is also widely used for IC debug ports. In the embedded processor market, essentially all modern processors implement JTAG when they have enough pins. Embedded systems development relies on debuggers communicating with chips with JTAG to perform operations like single stepping and break pointing.

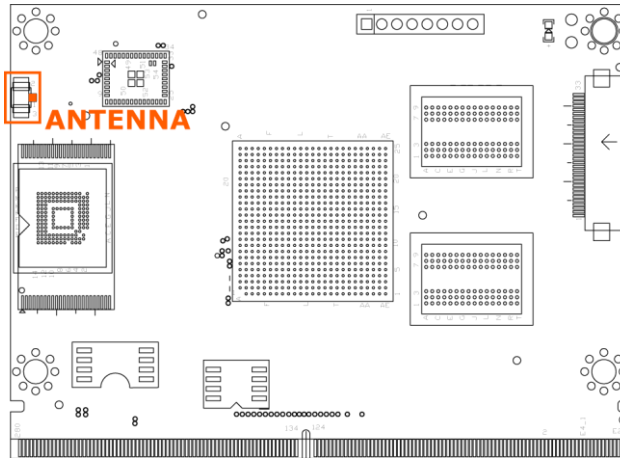


pin #	Function
1	3.3V
2	JTAG_nTRST
3	JTAG_TMS
4	JTAG_TDI
5	JTAG_TDO
6	JTAG_nSRST
7	JTAG_TCK
8	GND

Table 11 - JTAG Connector Pin-out

8.5. Antenna1 Connector

An antenna for the Broadcom BCM4330 can be connected to the U.FL IPEX connector.



pin #	Function
1	RF_ANT
2	GND
3	GND

Table 12 - Antenna1 Connector Pin-out (U.FL IPEX)

8.6. EDM-MNF-BOOT PCB

To force the board to boot from SD-card, the EDM-MNF-BOOT PCB should be inserted in the MNF Connector as shown in Figure 44 (white dot at orange arrow; jumpers facing inward). For the EDM Type 1 and 2 i.MX6 modules the Jumpers should be set as shown in Figure 43, Without the EDM-MNF-BOOT PCB the boot order will not change and it will boot from the default (iNAND/ NAND Flash)

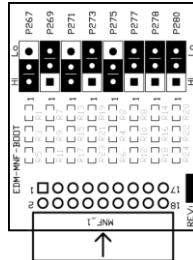


Figure 43: EDM-MNF-BOOT PCB with jumpers in SD-boot setting for EDM type 1 and 2 i.MX6 modules.

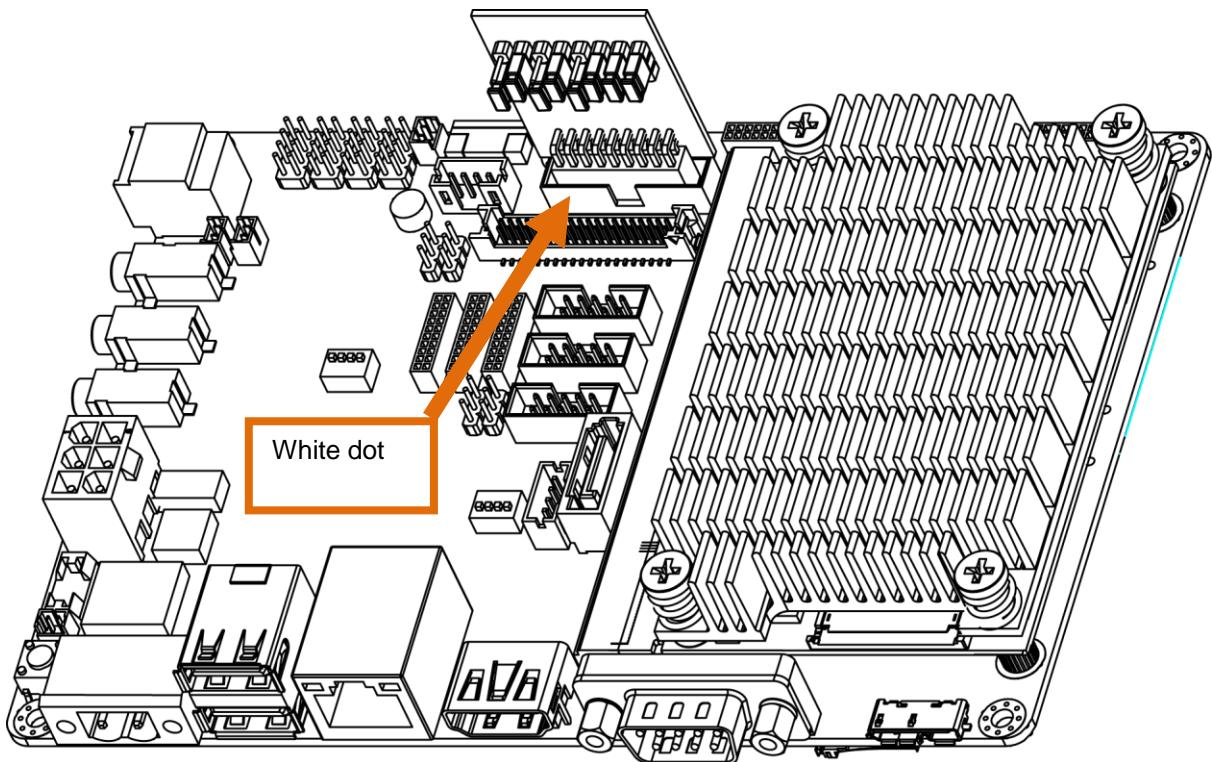


Figure 44: the EDM-MNF-BOOT PCB inserted in the MNF connector of the carrier board

6.2.4. Additional Boot options

Option: Boot from SATA

CFG1[7]	CFG1[6]	CFG1[5]	CFG1[4]	CFG2[6]	CFG2[5]	CFG2[4]	CFG2[3]
0010=SATA Boot				XX		XX	

the resistors on the System on Module are set to:

cfg2[4]=0; Tx spread spectrum disabled

cfg2[3]=0; Rx spread spectrum disabled

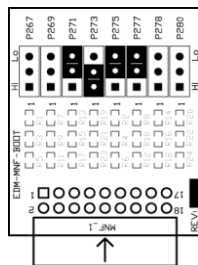
cfg2[2]=0; SATA speed Gen2 (3.0Gbps)

cfg2[1:0]=00; SATA type i

(Source:IMX6DQRM page 436)

translate order to EDM-MNF-BOOT PCB

P267	P269	P271	P273	P275	P277	P278	P280
CFG2[5]	CFG2[6]	CFG1[4]	CFG1[5]	CFG1[6]	CFG1[7]	CFG2[3]	CFG2[4]
X	X	0	1	0	0	X	X



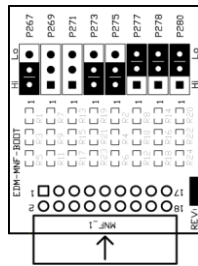
Attention: The following option is only possible in case a custom baseboard is made.

Option: in case 4-bit iNAND is connected to the SD1 on a custom carrier board:

CFG1[7]	CFG1[6]	CFG1[5]	CFG1[4]	CFG2[6]	CFG2[5]	CFG2[4]	CFG2[3]
011X=MMC/eMMC Boot				X0=1-bit X1=4-bit 10=8-bit		00=SD1 Boot 01=SD2 Boot 10=SD3 Boot 11=SD4 Boot	
010X=SD/eSD Boot				X0=1-bit X1=4-bit		00=SD1 Boot 01=SD2 Boot 10=SD3 Boot 11=SD4 Boot	
1XXX=NANDF Boot							

translate order to EDM-MNF-BOOT PCB

P267	P269	P271	P273	P275	P277	P278	P280
CFG2[5]	CFG2[6]	CFG1[4]	CFG1[5]	CFG1[6]	CFG1[7]	CFG2[3]	CFG2[4]
1	X	X	1	1	0	0	0



8.7. Mechanical Dimensions

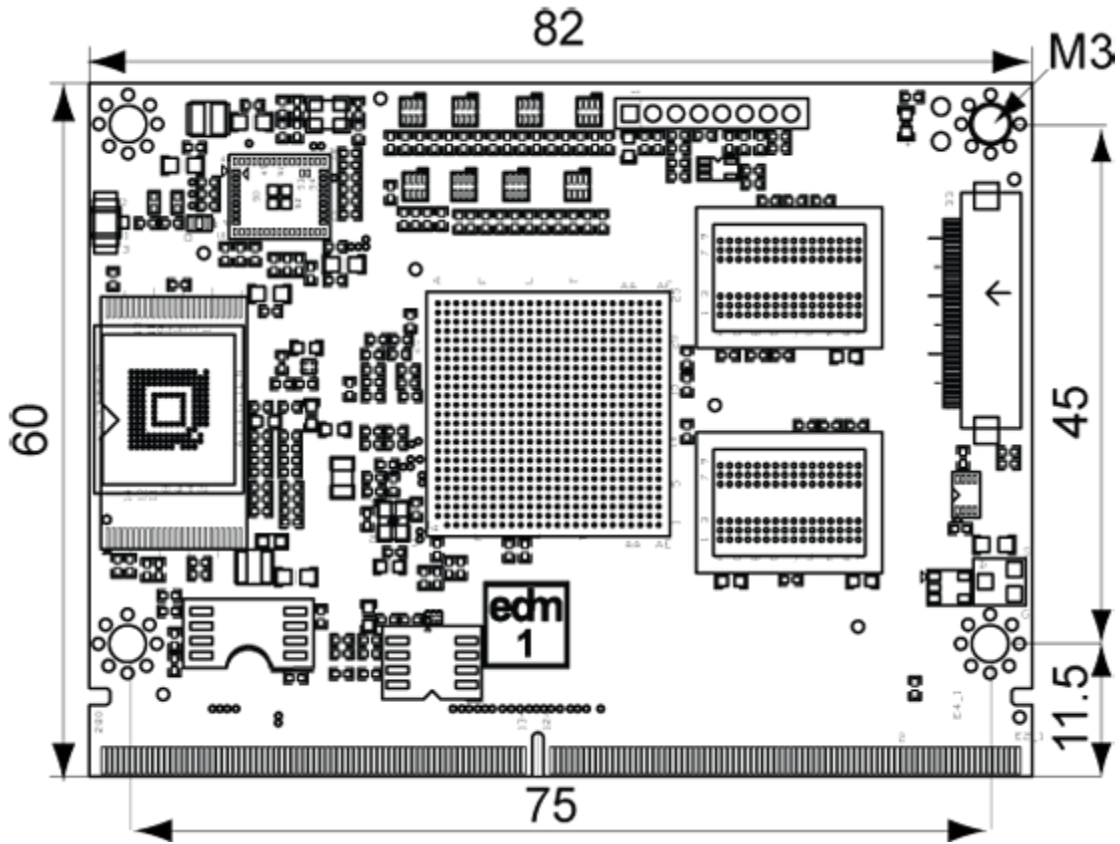


Figure 45: EDM1-CF-IMX6 System on module dimensions (Dimensions in mm)

Note: 2D DXF-files and 3D STEP-files are available at the download center.

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