Z-turn IO Cape User Guide

Version 1.0

May 29, 2015

Version History

Version Number	Description	Time
V1.0	Initial Version	2015/05/29

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Chapter 1 Hardware Description

Z-turn IO Cape is IO expansion board design for Z-turn Board, expansion interface includes ADC, general IO, LCD, camera interface, can help to extend more applications on Z-trun Board.

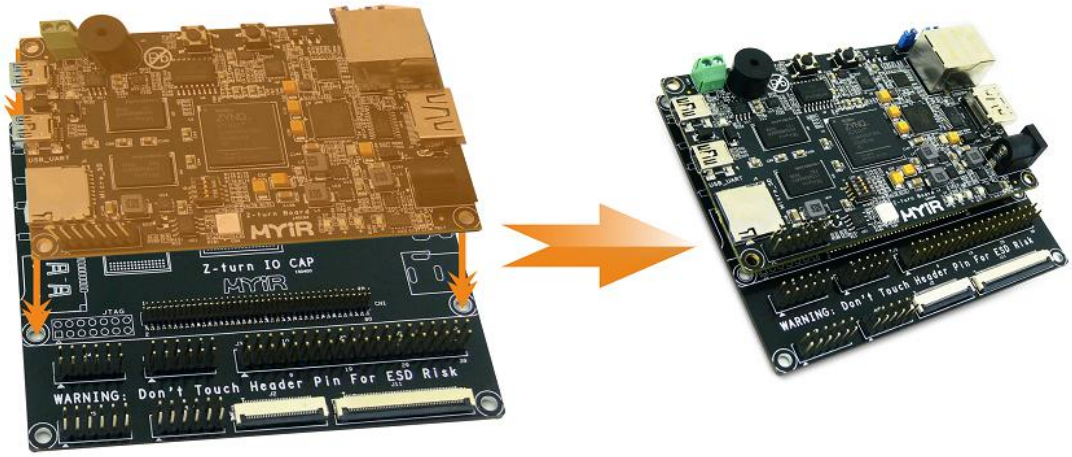

Figure 1-1

1.1 Interface Description

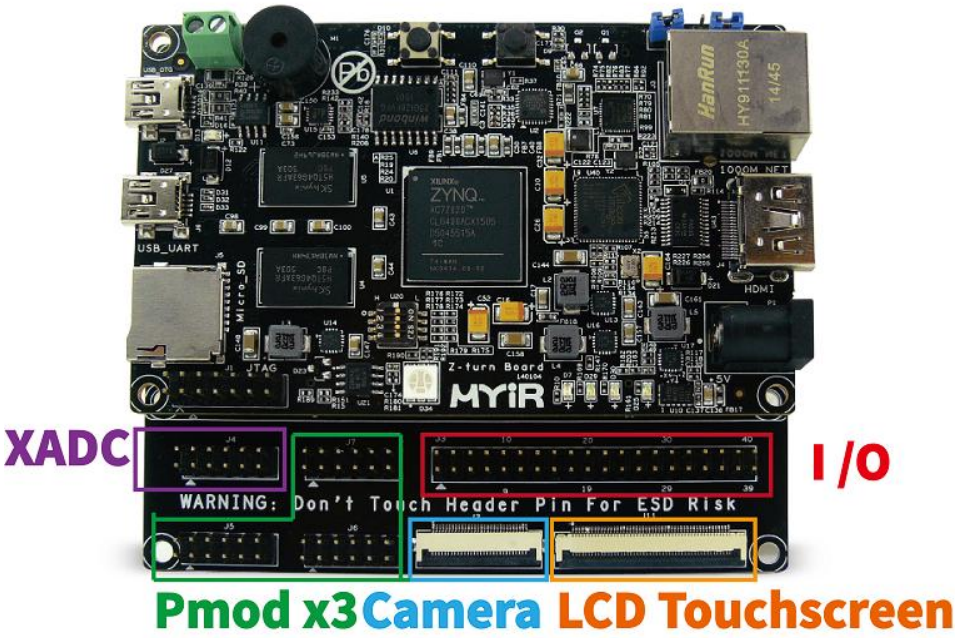

Figure 1-2

1.1.1 I/O

IO functions, connected to J3, pin-shared with LCD, if you do not use LCD can be used as a general IO. Please refer to schematic for pin definition.

VDD_5V	1	2	VDD_3.3V
GND	3	4	GND
IO_B35_LN2	5	6	IO_B35_LP2
IO_B35_LN3	7	8	IO_B35_LP3
IO_B35_LN4	9	10	IO_B35_LP4
IO_B35_LN5	11	12	IO_B35_LP5
IO_B35_LN6	13	14	IO_B35_LP6
IO_B35_LN7	15	16	IO_B35_LP7
IO_B35_LN8	17	18	IO_B35_LP8
IO_B35_LN9	19	20	IO_B35_LP9
IO_B35_LN10	21	22	IO_B35_LP10
IO_B35_LN11	23	24	IO_B35_LP11
IO_B35_LN12	25	26	IO_B35_LN13
IO_B35_LN14	27	28	IO_B35_LP14
IO_B35_LN15	29	30	IO_B35_LP15
IO_B35_LN16	31	32	IO_B35_LP16
IO_B35_LN17	33	34	IO_B35_LP17
IO_B35_LN18	35	36	IO_B35_LP18
IO_B35_LN19	37	38	IO_B35_LP19
IO_B35_LN20	39	40	IO_B35_LP20

Figure 1.1.1

1.1.2 LCD Touchscreen

You can access 4.3 and 7-inch capacitive screen of MYiR, connected to J11, pin definitions refer to corresponding schematic.

Table 1.1.2

Num	IO Name	Function
1	VDD_5V	
2	VDD_5V	
3	VDD_3.3V	
4	VDD_3.3V	
5	GND	
6	GND	

7	IO_B35_LP8	LCD_DATA0
8	IO_B35_LN8	LCD_DATA1
9	IO_B35_LP9	LCD_DATA2
10	IO_B35_LN9	LCD_DATA3
11	IO_B35_LP10	LCD_DATA4
12	IO_B35_LN10	LCD_DATA5
13	IO_B35_LP11	LCD_DATA6
14	IO_B35_LN11	LCD_DATA7
15	IO_B35_LN12	LCD_DATA8
16	IO_B35_LN13	LCD_DATA9
17	IO_B35_LP14	LCD_DATA10
18	IO_B35_LN14	LCD_DATA11
19	IO_B35_LP15	LCD_DATA12
20	IO_B35_LN15	LCD_DATA13
21	IO_B35_LP16	LCD_DATA14
22	IO_B35_LN16	LCD_DATA15
23	IO_B35_LP17	LCD_DATA16
24	IO_B35_LN17	LCD_DATA17
25	IO_B35_LP18	LCD_DATA18
26	IO_B35_LN18	LCD_DATA19
27	IO_B35_LP19	LCD_DATA20
28	IO_B35_LN19	LCD_DATA21
29	IO_B35_LP20	LCD_DATA22
30	IO_B35_LN20	LCD_DATA23
31	GND	
32	IO_B35_LP21	Backlight enabled
33	IO_B35_LN21	LCD RESET
34	IO_B35_LP22	Display enable
35	IO_B35_LN22	Touch Interrupt
36	IO_B35_LP23	Touch RESET
37	IO_B35_LP7	I2C1_SCL
38	IO_B35_LN7	I2C1_SDA
39	GND	
40	IO_B35_LN23	DEN
41	IO_B35_LP24	VSYNC
42	IO_B35_LN24	HYSNC
43	IO_B35_LP13	PCLK
44	GND	
45	NC	
46	NC	
47	NC	
48	NC	

49	NC	
50	GND	

1.1.3 Camera

Reserved for camera interface, connected to J2, pin definitions refer to corresponding schematic.

Table 1.1.3

Num	Pin	Function
1	GND	
2	NC	
3	NC	
4	NC	
5	NC	
6	IO_B35_LP2	CAM_DATA2
7	IO_B35_LN2	CAM_DATA1
8	IO_B35_LP3	CAM_DATA3
9	IO_B35_LN3	CAM_DATA0
10	IO_B35_LP4	CAM_DATA4
11	GND	
12	IO_B35_LP12	CAM_PCLK
13	GND	
14	IO_B35_LN4	CAM_DATA5
15	IO_B35_LP5	CAM_DATA6
16	GND	
17	NC	
18	GND	
19	IO_B35_LN5	CAM_DATA7
20	IO_B35_LP6	CAM_HSYNC
21	IO_B35_LN6	CAM_VSYNC
22	GND	
23	NC	
24	NC	
25	IO_B35_LP7	I2C_SCL
26	IO_B35_LN7	I2C_SDA
27	GND	
28	VDD_3.3V	
29	VDD_3.3V	
30	VDD_5V	

1.1.4 Pmod

3 Pmod interface module for general Pmod, connected to J5/J6/J7, pin definitions refer to corresponding schematic.

Table 1.1.4

Num	J5	J6	J7
1	IO_B34_LP1	IO_B34_LP6	IO_B13_LP12
2	IO_B34_LP3	IO_B35_LP1	IO_B13_LP11
3	IO_B34_LN1	IO_B34_LN11	IO_B13_LN12
4	IO_B34_LN3	IO_B35_LN1	IO_B13_LN11
5	IO_B34_LP2	IO_B34_LP8	IO_B13_LP14
6	IO_B34_LP4	IO_B34_LP5	IO_B13_LP13
7	IO_B34_LN2	IO_B34_LP8	IO_B13_LN14
8	IO_B34_LN4	IO_B34_LN5	IO_B13_LN13
9	GND	GND	GND
10	GND	GND	GND
11	VDD_3.3V	VDD_3.3V	VDD_3.3V
12	VDD_3.3V	VDD_3.3V	VDD_3.3V

1.1.5 ADC Interface

J4 can be accessed by ADC (may be a differential signal), J4 also extends 4 IO of PS.

XADC_INP0	1	2	XADC_INN0
XADC_TEMP_P	3	4	XADC_TEMP_N
PS_MIO10	5	6	PS_MIO11
PS_MIO12	7	8	PS_MIO13
GND	9	10	XADC_GND
VDD_3.3V	11	12	XADC_VCC

Table 1.1.5

1.2 Mechanical parameters

Please refer to PCB documentation provided, for Z-turn Board Cape board reference design.

1.2.1 Mechanical specifications

Length x width: 102mm x 88mm, For more information reference DXF file.

1.2.2 Electrical parameters

Power: 5V/1A, 3.3V/1A

PS IO: 3.3V

PL IO: 3.3V

ADC Input: 0~1.8V

Chapter 2 Software Introduction

Take XC7Z010 as example, XC7Z020 steps are same, please modify corresponding file.

Ramdisk boot

Copy CD\02-Images\Ramdisk folder file to SD card, and rename “7z010-lcd.bit” to “7z010.bit”, if using 7-inch capacitive screen, rename “devicetree-800x480.dtb” to “devicetree.dtb”, if 4.3-inch rename “devicetree-480x272.dtb” to “devicetree.dtb”.

Ubuntu boot

Unzip CD\04-Linux_Source\Filesystem\”xillinux-1.3.img.gz”, burning to SD card using Win32DiskImager tools. Rename “7z010-lcd.bit” to “7z010.bit” on SD card, if using 7-inch capacitive screen, rename “devicetree-800x480.dtb” to “devicetree.dtb”, if 4.3-inch rename “devicetree-480x272.dtb” to “devicetree.dtb”. Then rename “uEnv-ubuntu.txt” to “uEnv.txt”.

Appendix 1 Warranty & Technical Support Services

MYIR Tech Limited is a global provider of ARM hardware and software tools, design solutions for embedded applications. We support our customers in a wide range of services to accelerate your time to market.

MYIR is an ARM Connected Community Member and work closely with ARM and many semiconductor vendors. We sell products ranging from board level products such as development boards, single board computers and CPU modules to help with your evaluation, prototype, and system integration or creating your own applications. Our products are used widely in industrial control, medical devices, consumer electronic, telecommunication systems, Human Machine Interface (HMI) and more other embedded applications. MYIR has an experienced team and provides custom design services based on ARM processors to help customers make your idea a reality.
The contents below introduce to customers the warranty and technical support services provided by MYIR as well as the matters needing attention in using MYIR's products.

Service Guarantee

MYIR regards the product quality as the life of an enterprise. We strictly check and control the core board design, the procurement of components, production control, product testing, packaging, shipping and other aspects and strive to provide products with best quality to customers. We believe that only quality products and excellent services can ensure the long-term cooperation and mutual benefit.

Price

MYIR insists on providing customers with the most valuable products. We do not pursue excess profits which we think only for short-time cooperation. Instead, we hope to establish long-term cooperation and win-win business with customers. So we will offer reasonable prices in the hope of making the business greater with the customers together hand in hand.

Delivery Time

MYIR will always keep a certain stock for its regular products. If your order quantity is less than the amount of inventory, the delivery time would be within three days; if your order quantity is greater than the number of inventory, the delivery time would be always four to six weeks. If for any urgent delivery, we can negotiate with customer and try to supply the goods in advance.

Technical Support

MYIR has a professional technical support team. Customer can contact us by email (support@myirtech.com), we will try to reply you within 48 hours. For mass production

and customized products, we will specify person to follow the case and ensure the smooth production.

After-sale Service

MYIR offers one year free technical support and after-sales maintenance service from the purchase date. The service covers:

1. Technical support service

a) MYIR offers technical support for the hardware and software materials which have provided to customers;
b) To help customers compile and run the source code we offer;
c) To help customers solve problems occurred during operations if users follow the user manual documents;
d) To judge whether the failure exists;
e) To provide free software upgrading service.

However, the following situations are not included in the scope of our free technical support service:

a) Hardware or software problems occurred during customers' own development;
b) Problems occurred when customers compile or run the OS which is tailored by themselves;
c) Problems occurred during customers' own applications development;
d) Problems occurred during the modification of MYIR's software source code.

2. After-sales maintenance service

The products except LCD, which are not used properly, will take the twelve months free maintenance service since the purchase date. But following situations are not included in the scope of our free maintenance service:

a) The warranty period is expired;
b) The customer cannot provide proof-of-purchase or the product has no serial number;
c) The customer has not followed the instruction of the manual which has caused the damage the product;
d) Due to the natural disasters (unexpected matters), or natural attrition of the components, or unexpected matters leads the defects of appearance/function;
e) Due to the power supply, bump, leaking of the roof, pets, moist, impurities into the boards, all those reasons which have caused the damage of the products or defects of appearance;
f) Due to unauthorized weld or dismantle parts or repair the products which has caused the damage of the products or defects of appearance;
g) Due to unauthorized installation of the software, system or incorrect configuration or computer virus which has caused the damage of products.

Warm tips:

1) MYIR does not supply maintenance service to LCD. We suggest the customer first check the LCD when receiving the goods. In case the LCD cannot run or no display, customer should contact MYIR within 7 business days from the moment get the

goods.

2) Please do not use finger nails or hard sharp object to touch the surface of the LCD.
3) MYIR suggests user purchasing a piece of special wiper to wipe the LCD after long time use, please avoid clean the surface with fingers or hands to leave fingerprint.
4) Do not clean the surface of the screen with chemicals.
5) Please read through the product user manual before you using MYIR's products.
6) For any maintenance service, customers should communicate with MYIR to confirm the issue first. MYIR's support team will judge the failure to see if the goods need to be returned for repair service, we will issue you RMA number for return maintenance service after confirmation.

3. Maintenance period and charges

a) MYIR will test the products within three days after receipt of the returned goods and inform customer the testing result. Then we will arrange shipment within one week for the repaired goods to the customer. For any special failure, we will negotiate with customers to confirm the maintenance period.

b) For products within warranty period and caused by quality problem, MYIR offers free maintenance service; for products within warranty period but out of free maintenance service scope, MYIR provides maintenance service but shall charge some basic material cost; for products out of warranty period, MYIR provides maintenance service but shall charge some basic material cost and handling fee.

4. Shipping cost

During the warranty period, the shipping cost which delivered to MYIR should be responsible by user; MYIR will pay for the return shipping cost to users when the product is repaired. If the warranty period is expired, all the shipping cost will be responsible by users.

5. Products Life Cycle

MYIR will always select mainstream chips for our design, thus to ensure at least ten years continuous supply; if meeting some main chip stopping production, we will inform customers in time and assist customers with products updating and upgrading.

Value-added Services

1. MYIR provides services of driver development base on MYIR's products, like serial port, USB, Ethernet, LCD, etc.
2. MYIR provides the services of OS porting, BSP drivers' development, API software development, etc.
3. MYIR provides other products supporting services like power adapter, LCD panel, etc.
4. ODM/OEM services.

MYIR Tech Limited
Room 1306, Wensheng Center, Wenjin Plaza,
North Wenjin Road, Luohu District, Shenzhen, China 518020
Support Email: support@myirtech.com
Sales Email: sales@myirtech.com
Phone:+86-755-22984836
Fax: +86-755-25532724
Website: www.myirtech.com

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- Консультации по применению компонента;
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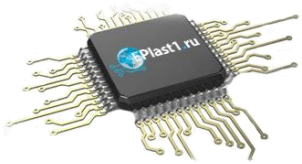
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



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Телефон: 8 (812) 309 58 32 (многоканальный)
Факс: 8 (812) 320-02-42
Электронная почта: org@eplast1.ru
Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.