MYS-6ULX Single Board Computer

- *528MHz NXP i.MX 6UltraLite / 6ULL ARM Cortex-A7 Processor*
- *256MB DDR3, 256MB Nand Flash*
- *Ethernet, WiFi, LCD, USB Host, Device, TF Card, Buttons, LED, IO…*
- *Optional MYB-6ULX Expansion Board adds Ethernet, CAN, RS485, Audio, RTC and Camera*
- *Optional 4.3 or 7 inch LCD Module and Camera Module*
- *Two Variants of MYS-6ULX Boards Respectively for Industry 4.0 and IoT Applications*
- *Support Linux 4.1.15 with Debian distribution or by Yocto Project with Ported QT*

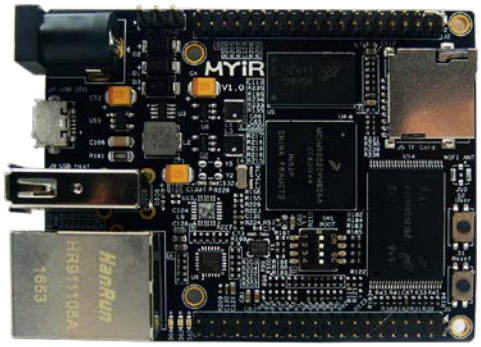

Figure 1-1 MYS-6ULX-IND

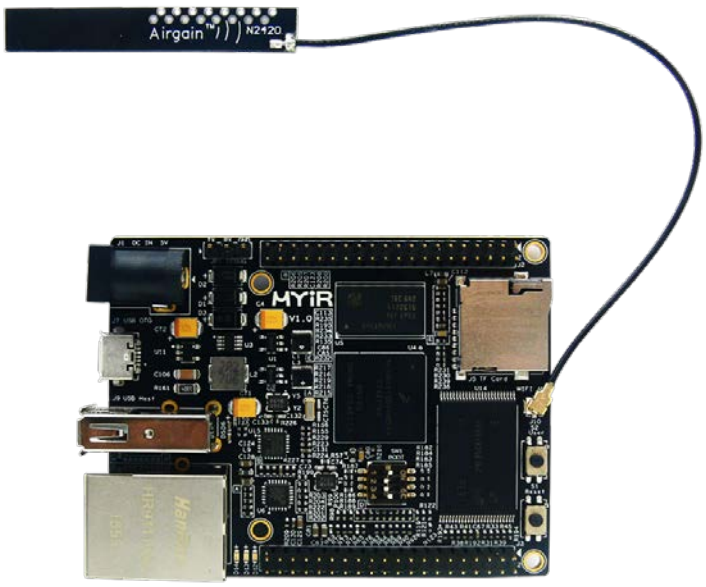

Figure 1-2 MYS-6ULX-IOT

Description

Measuring only 70mm by 55mm, the MYS-6ULX Single Board Computer is a high-performance low-cost System-on-Module (SoM) specially designed for Industry 4.0 (Industrie 4.0) and Internet of Things (IoT) applications. It is based on NXP's i.MX 6UltraLite / 6ULL processor family which features the most efficient ARM Cortex-A7 core and can operate at speeds up to 696 MHz.

The MYS-6ULX has two variants of boards which are called MYS-6ULX-IND and MYS-6ULX-IOT to meet different applications. The MYS-6ULX-IND is targeting industry 4.0 applications and based on i.MX6UL series processors while the MYS-6ULX-IOT is oriented for IOT applications and using i.MX6ULL series processors. They share the same hardware circuit design and fully compatible in software but also have their own characteristics. They have integrated 256MB DDR3 and 256MB Nand Flash as well as a set of peripherals and interfaces including Ethernet, USB Host, Device, LCD interface, TF card slot, etc. The MYS-6ULX-IOT has additionally a USB based WiFi module with antenna on the board. The MYS-6ULX-IND can support -40 to +85 Celsius extended temperature operation, which makes the board more suitable for industrial control and communication applications. MYIR has ported Linux 4.1.15 for the board with Debian distribution as well as Yocto project with ported QT. MYIR has also provided an interesting demo to enable customers to experience Amazon Alexa Voice Service.

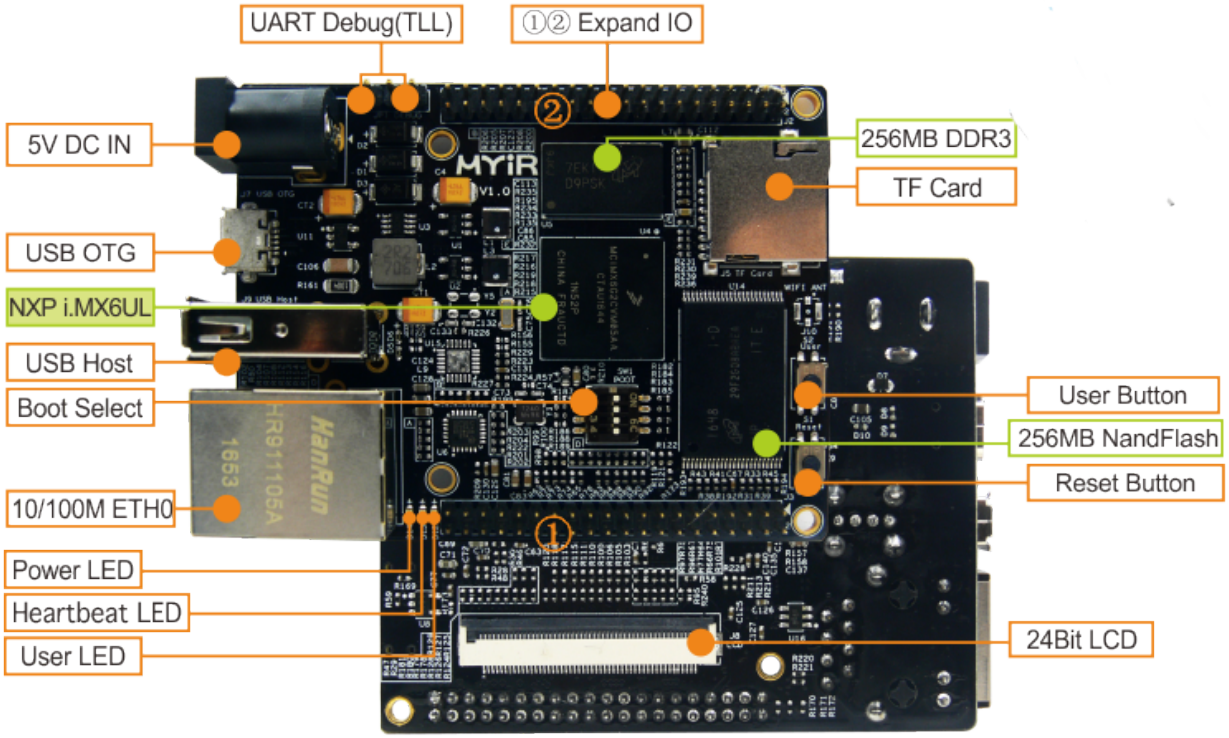

Figure 1-3 MYS-6ULX-IND

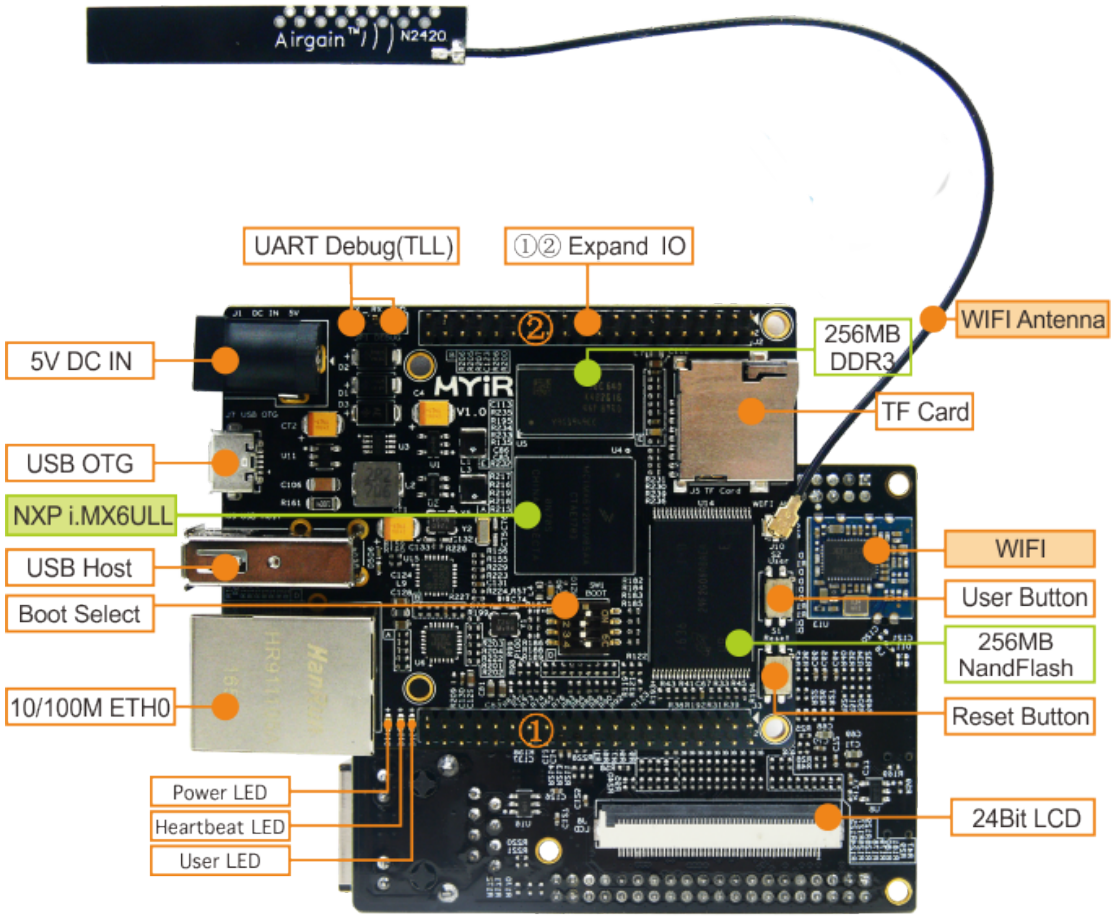

Figure 1-4 MYS-6ULX-IOT

MYIR has also designed an expansion board MYB-6ULX which is connected to the MYS-6ULX board through its onboard two 2.0mm pitch 2 x 20-pin expansion headers. The expansion board has extended one more Ethernet for MYS-6ULX and also added CAN, RS485, Audio, RTC and camera functions which has further enhanced the performance of MYS-6ULX board. MYIR will offer optional LCD modules and Camera module to help with customers' evaluation.

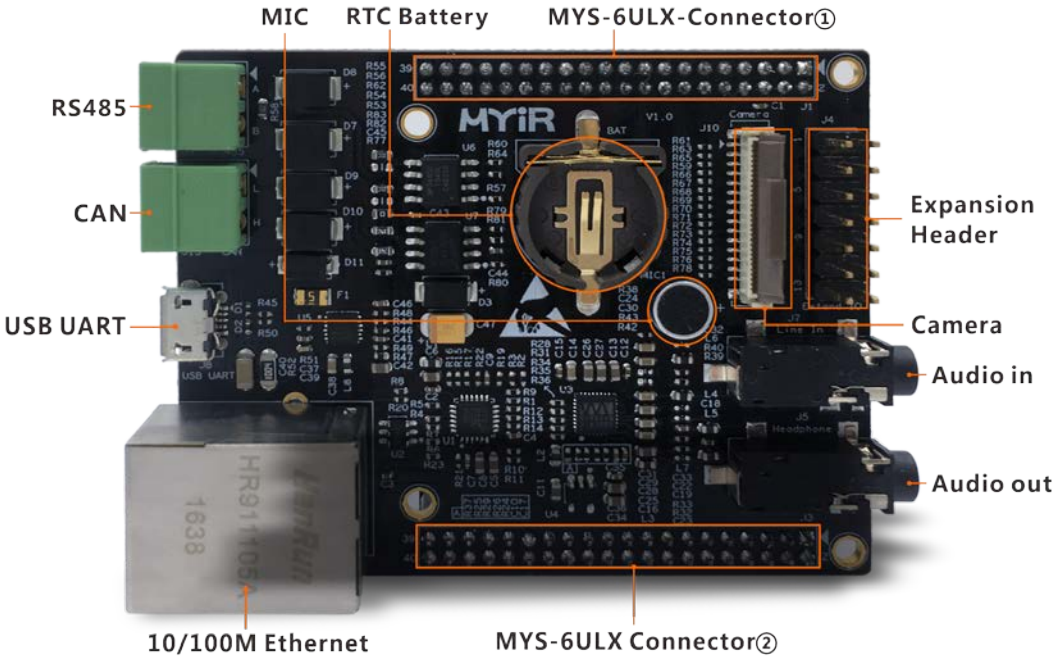

Figure 1-5 MYB-6ULX Expansion Board

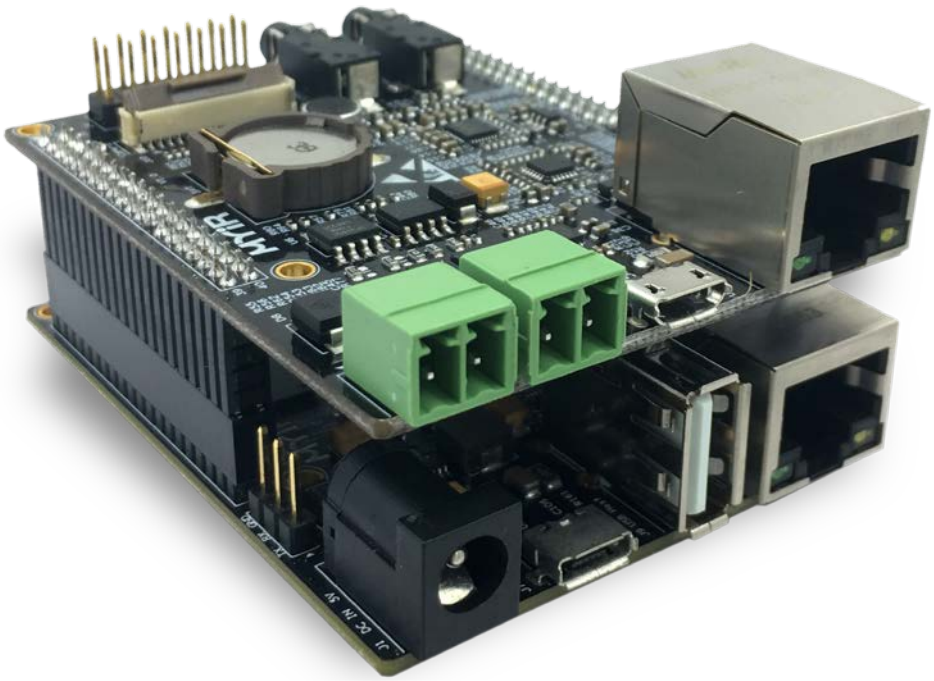

Figure 1-6 MYB-6ULX Expansion Board mounted on MYS-6ULX Board (delivered without battery)

Hardware Specification

The MYS-6ULX-IND is based on the high performance, ultra-efficient i.MX 6UltraLite processor family featuring an advanced implementation of a single ARM® Cortex®-A7 core and can operate at speeds up to 696 MHz. It includes an integrated power management module that reduces the complexity of external power supply and simplifies power sequencing. Each processor in this family provides various memory interfaces, including 16-bit LPDDR2, DDR3, DDR3L, raw and managed NAND flash, NOR flash, eMMC, Quad SPI and a wide range of other interfaces for connecting peripherals such as WLAN, Bluetooth™, GPS, displays and camera sensors.

MYIR is using the 14 x 14mm, 0.8 mm ball pitch, 289 MAPBGA package i.MX6UL application processor on the MYS-6ULX-IND board which provides multiple compatible options of G0, G1, G2 and G3 sub family. The MCIMX6G2CVM05A is the default part with the board and MYIR offers optional configurations for mass customization.

Feature	MCIMX6G0	MCIMX6G1	MCIMX6G2	MCIMX6G3
Speed	528 MHz	528 MHz, 696 MHz	528 MHz, 696 MHz	528 MHz
Cache	32 KB-I, 32 KB-D	32 KB-I, 32 KB-D 128 KB L2	32 KB-I, 32 KB-D 128 KB L2	32 KB-I, 32 KB-D 128 KB L2
OCRAM	128 KB	128 KB	128 KB	128 KB
DRAM	16-bit LP-DDR2, DDR3/DDR3L	16-bit LP-DDR2, DDR3/DDR4L	16-bit LP-DDR2, DDR3/DDR5L	16-bit LP-DDR2, DDR3/DDR6L
eFuse	512-bit	1024-bit	1536-bit	2048-bit
NAND (BCH40)	Yes	Yes	Yes	Yes
EBI	Yes	Yes	Yes	Yes
Ethernet	10/100-Mbit/s x 1	10/100-Mbit/s x 1	10/100-Mbit/s x 2	10/100-Mbit/s x 2
USB	OTG, HS/FS x 1	OTG, HS/FS x 2	OTG, HS/FS x 2	OTG, HS/FS x 2
CAN	0	1	2	2
Security	Basic	TRNG, Crypto Engine (AES/TDES/SHA), Secure Boot	TRNG, Crypto Engine (AES/TDES/SHA), Secure Boot	TRNG, Crypto Engine (AES with DPA/TDES/SHA/RSA), Secure Boot, tamper monitor, PCI4.0 pre-certification, OTF DRAM encryption
Graphic	None	None	PxP	PxP
CSI	None	None	24-bit Parallel CSI	24-bit Parallel CSI
LCD	None	None	24-bit Parallel LCD	24-bit Parallel LCD
Quad SPI	1	1	1	1
SDIO	2	2	2	2
UART	4	8	8	8
I2C	2	4	4	4
SPI	2	4	4	4
I2S/SAI	1	3	3	3
S/PDIF	1	1	1	1
Timer/PWM	Timer x 2, PWM x 4	Timer x 4, PWM x 8	Timer x 4, PWM x 8	Timer x 4, PWM x 8
12-bit ADC	1 x 10-ch.	1 x 10-ch.	2 x 10-ch.	2 x 10-ch.

Table 1-1 i.MX 6UltraLite Device Options

The MYS-6ULX-IOT is based on i.MX 6ULL processor which is a high-performance, ultra-efficient processor family featuring an advanced implementation of a single ARM® Cortex®-A7 core and capable of operating at speeds up to 528 MHz. The i.MX 6ULL is supported by discrete component power circuitry. It is a cost down version of i.MX 6UltraLite with fewer security features and lower maximum CPU frequency, but adding ePD support.

MYIR is using the 14 x 14mm, 0.8 mm ball pitch, 289 MAPBGA package i.MX6ULL application processor on the MYS-6ULX-IOT board which provides multiple compatible options of Y0, Y1 and Y2 sub family. The MCIMX6Y2DVM05A is the default part with the board and MYIR offers optional configurations for mass customization.

Feature	MCIMX6Y0	MCIMX6Y1	MCIMX6Y2
Core	ARM® Cortex-A7	ARM® Cortex-A7	ARM® Cortex-A7
Speed	528 MHz	528 MHz	528 MHz
Cache	32 KB-I, 32 KB-D	32 KB-I, 32 KB-D 128 KB L2	32 KB-I, 32 KB-D 128 KB L2
OCRAM	128 KB	128 KB	128 KB
DRAM	16-bit LP-DDR2, DDR3/DDR3L	16-bit LP-DDR2, DDR3/DDR4L	16-bit LP-DDR2, DDR3/DDR5L
eFuse	256-bit	256-bit	256-bit
NAND (BCH40)	Yes	Yes	Yes
EBI	Yes	Yes	Yes
Ethernet	10/100-Mbit/s x 1	10/100-Mbit/s x 1	10/100-Mbit/s x 2
USB	OTG, HS/FS x 1	OTG, HS/FS x 2	OTG, HS/FS x 2
CAN	0	1	2
Graphic	None	None	PxP
CSI	None	None	16-bit Parallel CSI
LCD	None	None	24-bit Parallel LCD
Quad SPI	1	1	1
SDIO	2	2	2
UART	4	8	8
I2C	2	4	4
SPI	2	4	4
I2S/SAI	1	3	3
ESAI	1	1	1
S/PDIF	1	1	1
Timer/PWM	Timer x 2, PWM x 4	Timer x 4, PWM x 8	Timer x 4, PWM x 8
12-bit ADC	1 x 10-ch.	1 x 10-ch.	2 x 10-ch.
Security	None	AES-128, HAB	AES-128, HAB
Temperature	-40°C to 105°C (Tj)	-40°C to 105°C (Tj)	-40°C to 105°C (Tj)

Table 1-2 i.MX 6ULL Device Options

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The MYS-6ULX Single Board Computer takes full features of the i.MX 6UltraLite / 6ULL processors. The MYB-6ULX is an expansion board which has further increased the functionality of the MYS-6ULX Board. Below table list the features of the two MYS-6ULX boards to help customers make choices according to your requirements.

Features	**MYS-6ULX-IND**	**MYS-6ULX-IOT**
Dimensions	70mm x 55mm	
PCB Layer	8-layer	
Power Supply	5V/1A	
Power Consumption	About 5V/0.25A (single board) About 5V/0.4A (board + 4.3" LCD) About 5V/0.8A (board + 7" LCD)	
Working Temp.	-40°C~85°C	0°C~70°C
Target Applications	Industry 4.0	IoT
CPU	MCIMX6Y2CVM05A/MCIMX6G2CVM05A	MCIMX6Y2DVM05A
DDR3	256MB (support up to 2GB)	
Nand Flash	256MB (support 512MB/1GB)	
Ethernet	1 x 10/100Mbps	
USB	1 x USB Host, 1 x Micro USB Device	
TF Card	1 x Micro SD card slot	
Button	1 x Reset Button, 1 x User Button	
LED	1 x Power Indicator, 2 x User LEDs	
LCD Connector	24-bit RGB LCD & Touch Screen (50-pin FPC connector)	
Debug Connector	2.5mm pitch 3-pin Headers, TTL	
Expansion Headers	Two 2.0mm pitch 2x20-pin male Headers (1 x Ethernet, 8 x UARTs, 4 x I2C, 2 x CAN, 4 x SPI, 8 x ADC, 4 x PWM, 2 x I2S, 1 x 8-bit Camera, 1 x JTAG, up to 46 x GPIOs)	
WiFi Module	-	2.4GHz, IEEE 802.11b/g/n standards
MYB-6ULX Expansion Board	70mm x 55mm, 4-layer PCB, 5V/1A USB Power Supply	
	Supports -40°C~85°C Working Temperature	
	1 x 10/100Mbps	
	1 x CAN	
	1 x RS485	
	1 x Micro USB Debug port	
	1 x Microphone, 1 x Headphone, 1 x Line In	
	1 x Camera Interface (30-pin FPC connector)	
	1 x RTC Battery Socket	
	1 x IO Expansion Header (2.0mm pitch 2 x 7-pin headers)	
	2 x 2.0mm pitch 2 x 20-pin female Header Connectors (connect with MYS-6ULX)	

Note: the peripheral signals brought out to the expansion headers are listed in maximum number. Some signals are reused. Please refer to the processor datasheet.

Table 1-3 Hardware Features of MYS-6ULX Single Board Computer

Function Block Diagram

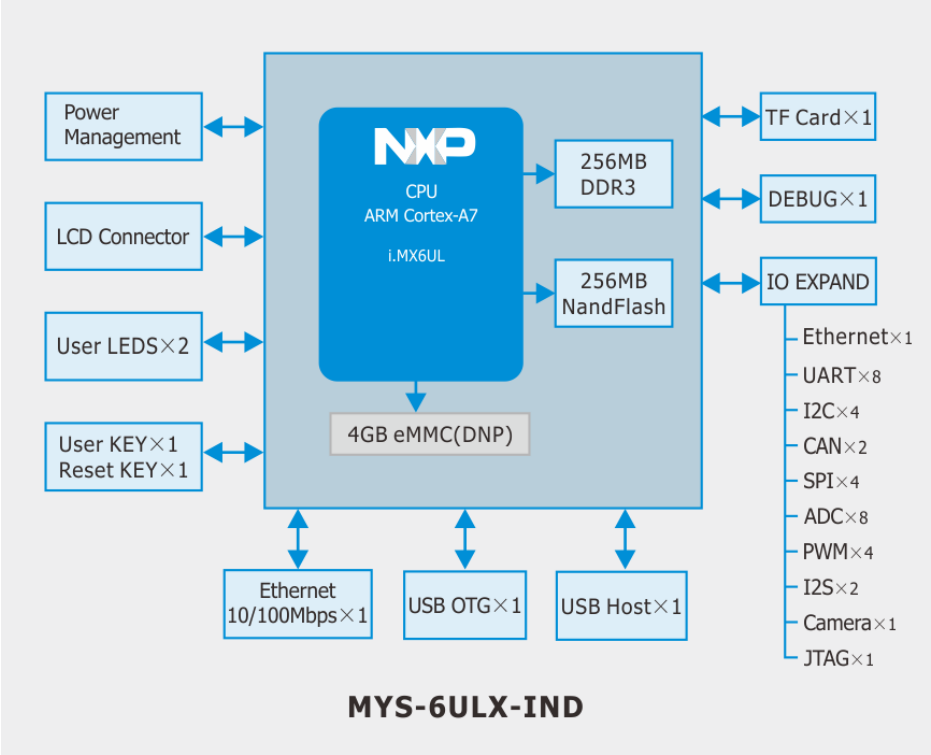

Figure 1-7 Function Block Diagram of MYS-6ULX-IND

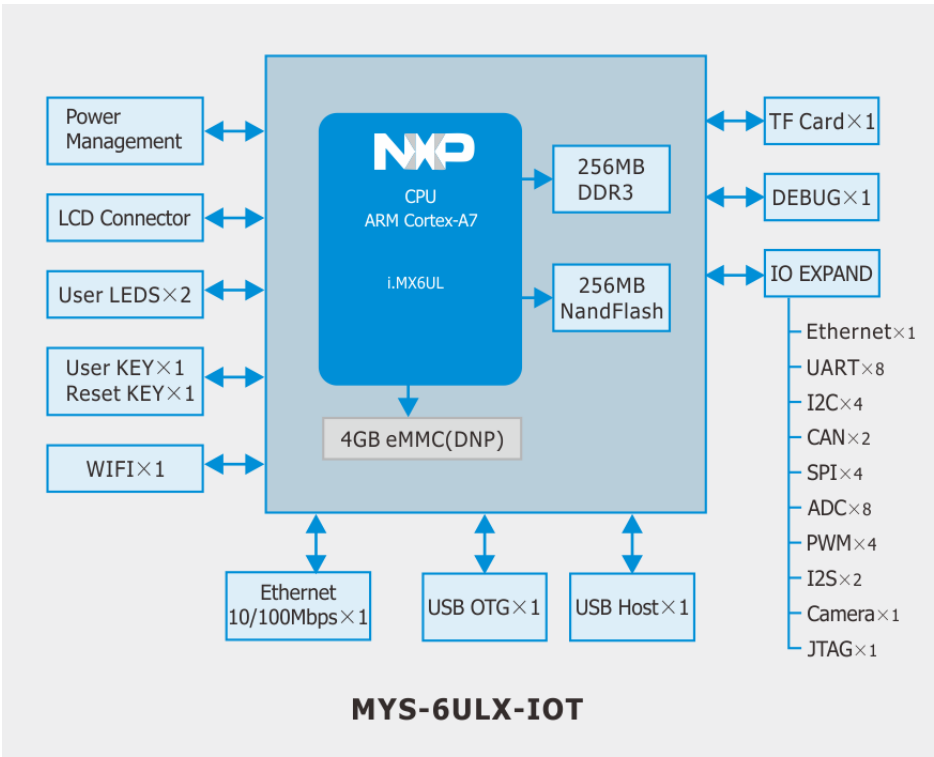

Figure 1-8 Function Block Diagram of MYS-6ULX-IOT

Dimension Charts

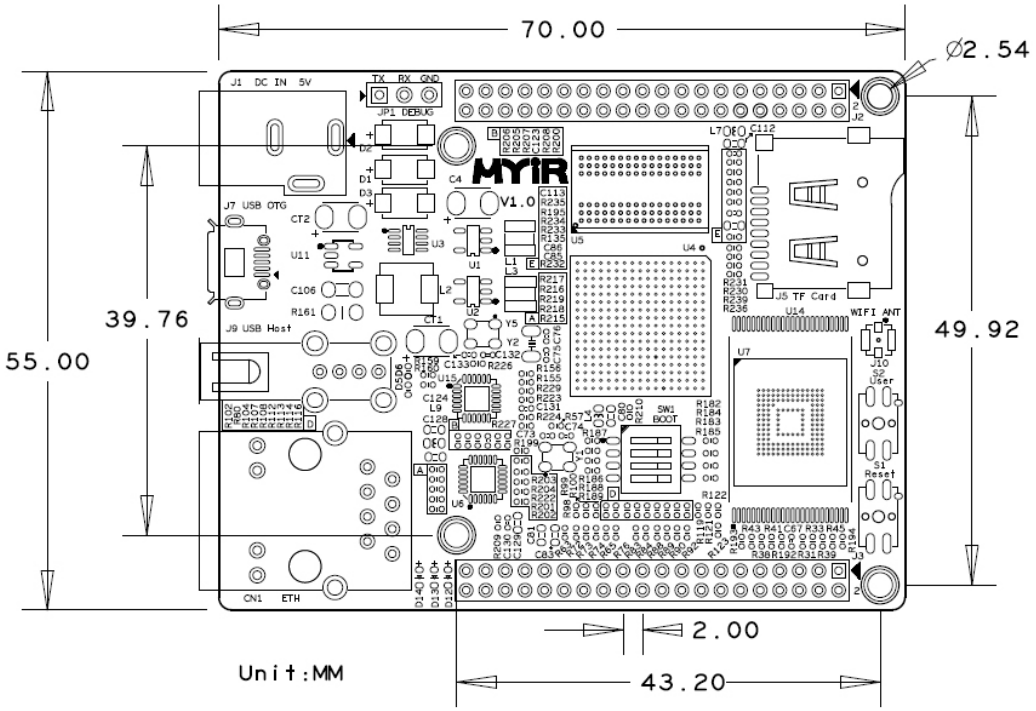

Figure 1-9 Dimension Chart of MYS-6ULX Single Board Computer

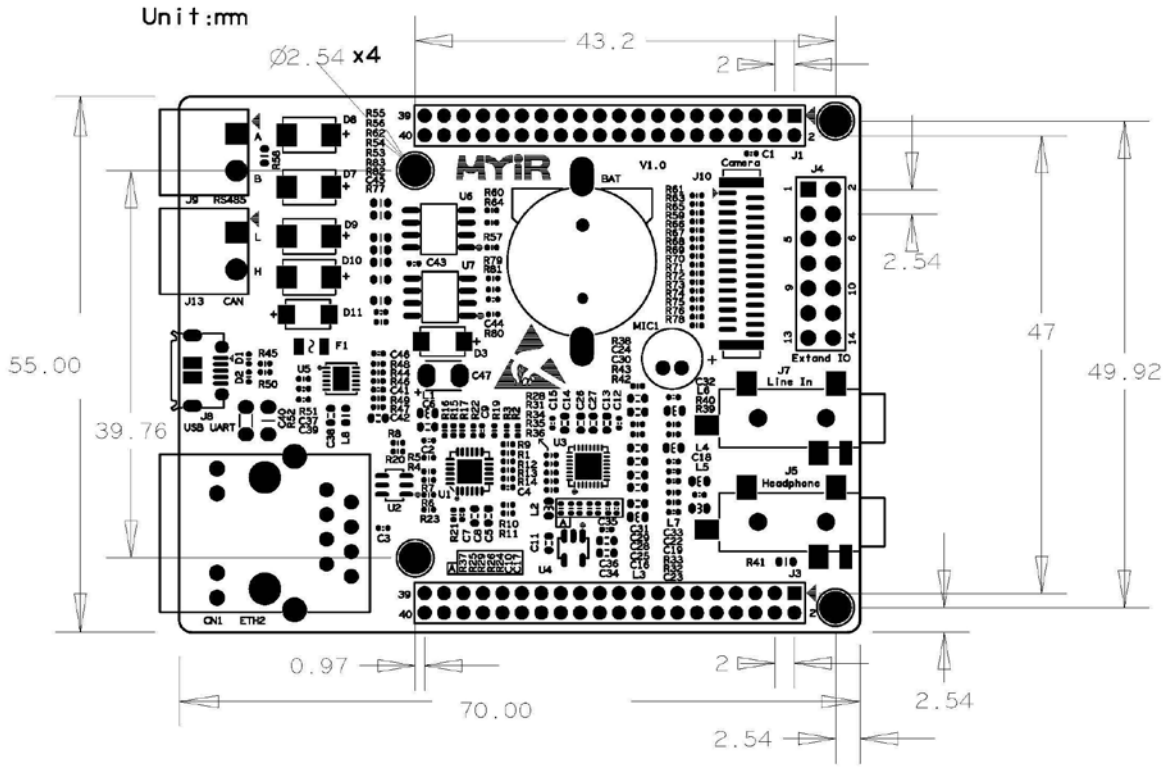

Figure 1-10 Dimension Chart of MYB-6ULX Expansion Board

Software Features

The MYS-6ULX Single Board Computer is ready to run Linux with Debian distribution or by Yocto project with QT. Many peripheral drivers are in source code to help accelerate customers' designs with a stable and reliable hardware and software platform. The software features are summarized as below:

Item	Features	Description
Bootstrap program	u-boot	The primary bootstrap (source code)
Linux Kernel	Version	Linux 4.1.15 (source code)
Linux Drivers	USB	HOST and Device drivers (source code)
	Ethernet	Ethernet driver (source code)
	MMC/SD	MMC/SD card driver (source code)
	NandFlash	Nand Flash driver (source code)
	UART	UART driver (source code)
	LCD Controller	LCD driver (source code), supporting MYIR's 4.3- and 7- inch LCD module
	Touch Panel	Touch screen driver (source code), supporting 4-wire capacitive and resistive touch screen
	CAN	CAN driver (source code)
	Camera	Camera driver (source code), Supporting MYIR's MY-CAM011B Camera module
	Audio	Audio driver (source code)
	RTC	RTC driver (source code)
	Button	Button driver (source code)
	LED	LED driver (source code)
File System	Yocto	Including QT 5.0 (source code)
	Debian	Binary file and Building Instructions
Compiler Tool Chain	Linaro GCC 4.9 hf	Binary file

Table 1-4 Software Features of MYS-6ULX Single Board Computer

Order Information

Item	Part No.
MYS-6ULX Single Board Computer	MYS-6ULX-IND (MYS-6ULG2-256N256D-50-I-IND)
	MYS-6ULY2-256N256D-50-I-IND
	MYS-6ULX-IOT (MYS-6ULY2-256N256D-50-C-IOT)
MYB-6ULX Expansion Board	MYB-6ULX
MY-LCD43TP 4.3-inch LCD Module with Resistive Touch Screen	MY-TFT043RV2
MY-LCD70TP 7-inch LCD Module with Resistive Touch Screen	MY-TFT070RV2
MY-LCD70TP-C 7-inch LCD Module with Capacitive Touch Screen	MY-TFT070CV2
MY-CAM011B Camera Module	MY-CAM011B

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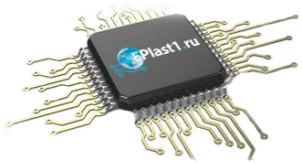
- Защита от снятия компонента с производства.



Как с нами связаться

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