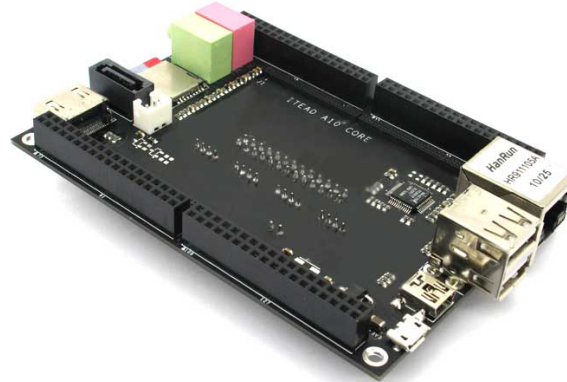**ITEAD STUDIO**
make innovation easier

Iteaduino PLUS

Overview

Iteaduino Plus is positioned as an evaluation baseboard for ITEAD A10 CORE, so it breaks out the dedicated interfaces (HDMI, Micro-SD, USB, SATA, Ethernet RJ45 and audio input / output) on the core board module as well as some GPIO interfaces. First, it provides a 2x13 2.54mm pitched bus interface, which includes general GPIO, SPI, IIC and power pins compatible with Raspberry Pi connection cable and various Raspberry Pi adaptor boards that we supply, and it can be connected directly to ITEAD NFC module, SIM900 GSM/GPRM modules, etc. Other 4 pins are broken out as 2.0mm grove socket for directly connecting to our electronic brick modules, and the remaining pins are laid out on the edges of boards and broken out as two 2x36 2.54mm pitched pins for users to make secondary development with DuPont wires. Besides, in order to facilitate connecting to the USB-to-TTL cable for debugging, we also reserve UART interfaces so that you can insert FOCA adapter board directly for communication.

Unlike Raspberry Pi and other similar single-board computers, we innovatively design and sell the core board and functional baseboard separately to help customers modularize the complex core board, and customers can design and produce the dedicated baseboard of their own according to their needs to complete their projects. We will continue to offer dedicated baseboards with various functions, and users can choose and replace the core board according to their needs, which can avoid repeated purchasing of the expensive master control.

Specifications

PCB size	109.22X76.2X1.2mm
Indicator	3V3 /5V
Interface	HDMI/SATA/MICROSD/USB-AX2/MICROUSB/MINIUSB/ RJ45/3.5MM sonic socketX2/2*36 2.54mm socketX2

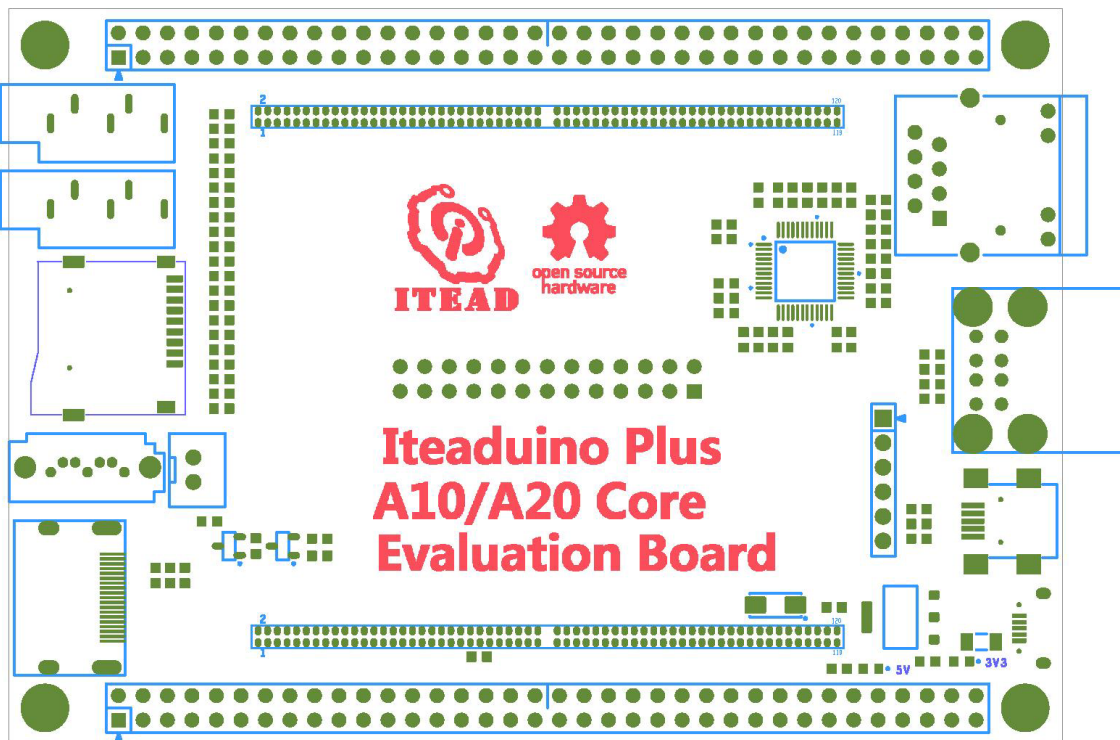| Working voltage	5V DC (6.3VDC MAX)
Working voltage at I/O port	3V3

Note:

1, As power supply from USB port of PC can only support the system working properly under low load, an external AC ~ DC power supply is recommended to ensure system working normally under high load.

2, When A10 Core works under large load, voltage loss on USB power cable should be considered, as there might be abnormities such as program running away due to insufficient input voltage. To ensure a good power supply, we customized a batch of high-quality USB power cable, and the internal resistance is controlled to about 400 ohm. We recommend using the USB power cable supplied by ITEAD to ensure sufficient supply voltage, do not use power cables of poor quality.
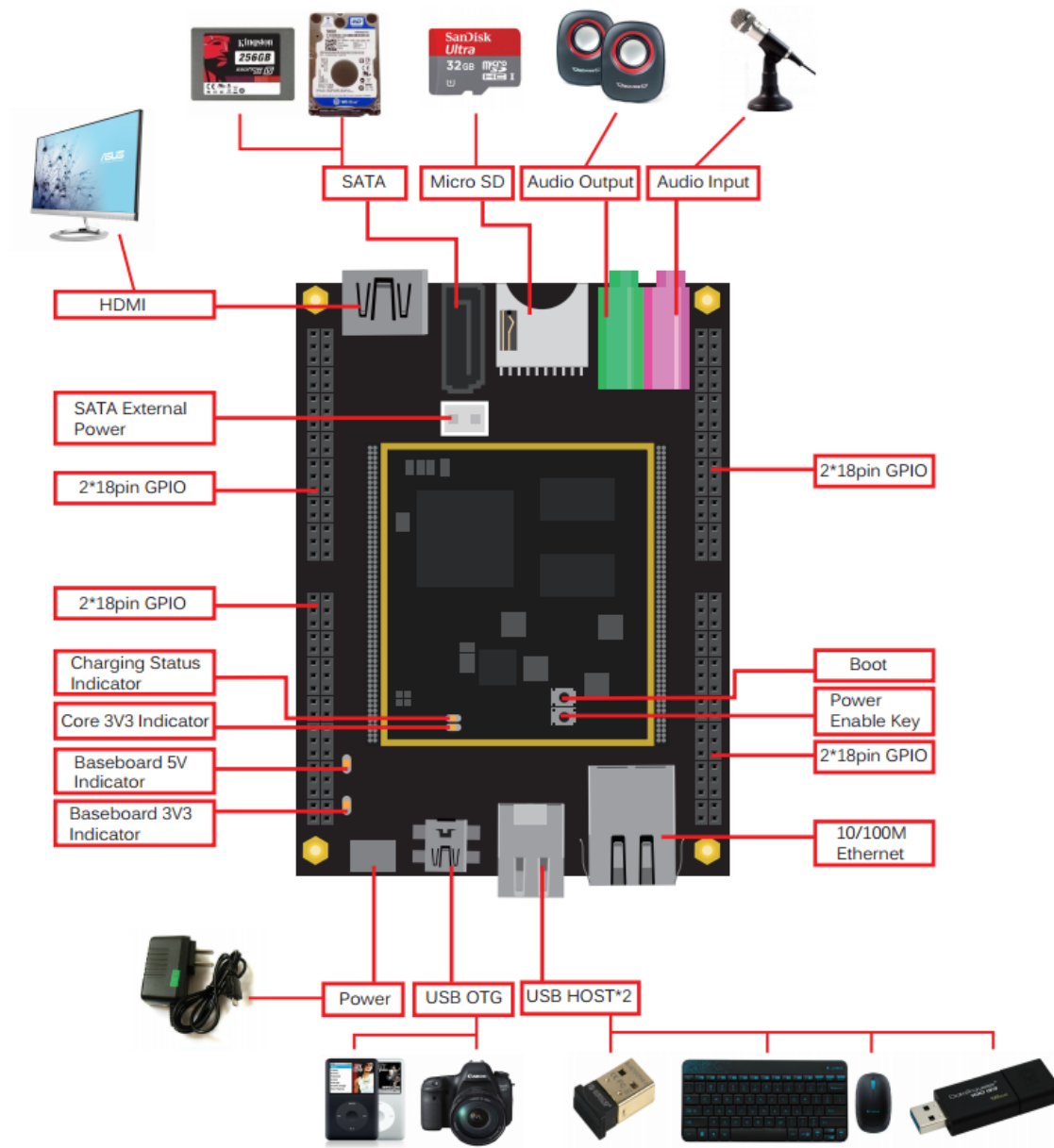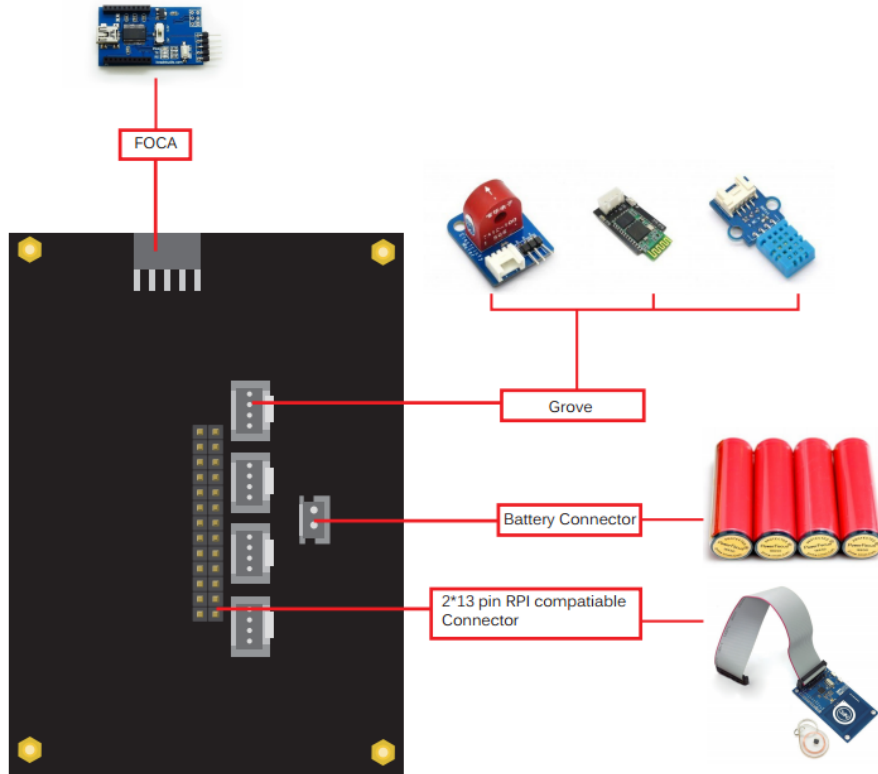
Hardware

Appearance

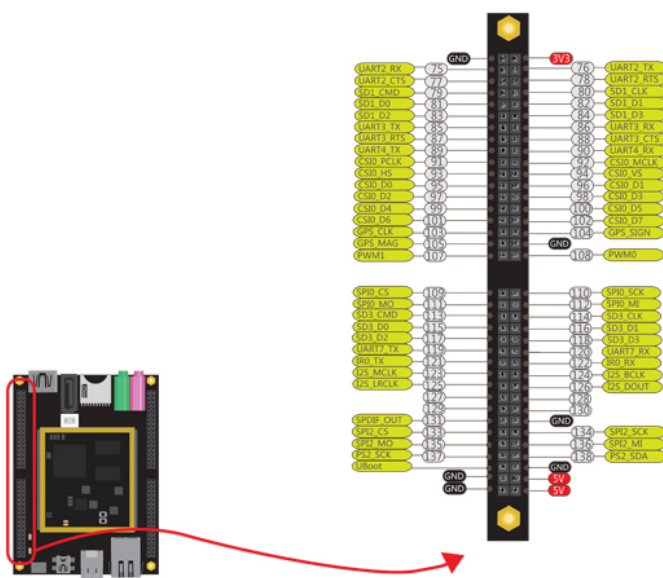For detailed dimension and specifications, please find in the appendix.

ITEAD STUDIO
make innovation easier

Interface diagram:

FOCA

Grove

Battery Connector

2*13 pin RPI compatiable Connector

pinMap

ITEAD STUDIO

ITEAD OS Pin map for Iteadino Plus
CN: www.iteados.com
EN: forum.iteadstudio.com

UART2_RX	75	76	UART2_TX
UART2_CTS	77	78	UART2_RTS
SD1_CMD	79	80	SD1_CLK
SD1_D0	81	82	SD1_D1
SD1_D2	83	84	SD1_D3
UART3_TX	85	86	UART3_RX
UART3_RTS	87	88	UART4_TX
UART4_TX	89	90	UART4_RX
CSI0_PCLK	91	92	CSI0_MCLK
CSI0_HS	93	94	CSI0_VS
CSI0_D0	95	96	CSI0_D1
CSI0_D2	97	98	CSI0_D3
CSI0_D4	99	100	CSI0_D5
CSI0_D6	101	102	CSI0_D7
GPS_CLK	103	104	GPS_SIGN
GPS_MAG	105		
PWM1	107	108	PWM0

SPI0_CS	109	110	SPI0_SCK
SPI0_MO	111	112	SPI0_MI
SD3_CMD	113	114	SD3_CLK
SD3_D0	115	116	SD3_D1
SD3_D2	117	118	SD3_D3
UART7_TX	119	120	UART7_RX
IR0_TX	121	122	IR0_RX
I2S_MCLK	123	124	I2S_BCLK
I2S_LRCLK	125	126	I2S_DOUT

SPDIF_OUT	131		
SPI2_CS	133	134	SPI2_SCK
SPI2_MO	135	136	SPD_MI
PS2_SCK	137	138	PS2_SDA
UBoot			

GPIO
Multiplexing Function

ITEAD STUDIO
make innovation easier

ITEAD STUDIO
ITEAD OS Pin map for Iteadino Plus
CN: www.iteados.com
EN: forum.iteadstudio.com

GPIO
Multiplexing Function
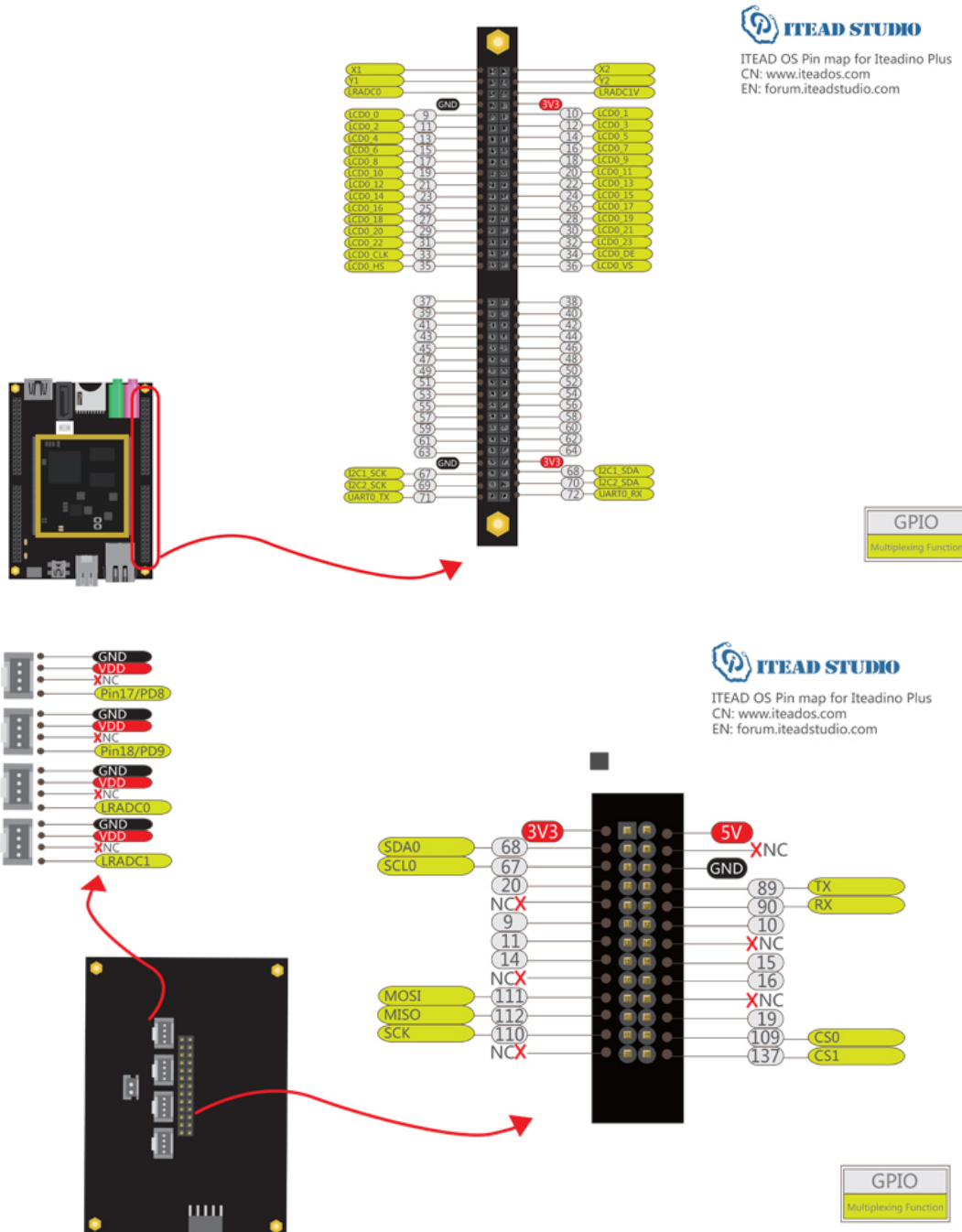
ITEAD STUDIO
ITEAD OS Pin map for Iteadino Plus
CN: www.iteados.com
EN: forum.iteadstudio.com

GPIO
Multiplexing Function

Download addresses for high-definition vector diagrams：http://url6.org/ktE

Introduction to ITEAD OS

Due to insufficient hardware resources, traditional microcontrollers have small internal data memory capacity, relatively low computing speed and lower communication speed, and they are not competent in many applications, such as using high-speed A/D conversion devices and video image acquisition and processing. A lot of single-board computers are powerful enough to support such applications; however, whose interoperability with external hardware is poor which requires knowledge of the complex linux kernel programming to complete writing of drive.

To facilitate users to use Iteaduino PLUS and to achieve creations from a variety of wonderful ideas, thus they will not take Iteaduino Plus as an ordinary cheap single-board computer for common applications, such as browsing the web, writing documentation and setting up the server, etc. We do not only break out a large number of interfaces on the board, but also customize a linux distribution - ITEAD OS.

ITEAD OS enables users to easily use Iteaduino PLUS as a powerful development board. Each user can write and run a small program to control Iteaduino PLUS hardware and to realize a variety of thoughts and ideas that cannot be achieved by simple microcontroller, PC and laptop through the hardware. For example, after data is collected by high-speed A/D, Fourier transformation can be done directly on the system, and then real-time spectrum information can be output on the screen, but this cannot be achieved by microcontrollers; besides, after reading complex ambient temperature value on the PC, one-way relay switch can be controlled to turn on or off the fan according to the temperature. All these features can be easily achieved in Iteaduino PLUS.

In ITEAD OS, we provide a number of simple operation functions, so that users can operate I/O port directly to easily send and to receive on UART bus, and even direct operation functions for some common modules will be offered in the future, such as the function which allows users to read temperature directly via DHT11 module. In the β version of ITEAD OS, we have provided a series of operation functions as shown in the list below. With updates of ITEAD OS, we will provide more and more powerful functions.

Function type	Name
Digital I/O	pinMode()
	digitalWrite()
	digitalRead()
8 Bits Advanced I/0	Set8BitsBUS()
	digitalWrite8()
	digitalRead8()
16 Bits Advanced I/O	Set16BitsBUS()
	digitalWrite16()
	digitalRead16()
Time	millis ()
	micros ()
	delay ()
	delayMicroseconds ()
Serial	SerialBegin()
	SerialWrite()
	SerialPrint()
	SerialPrintln()
	SerialRead()
	SerialFlush()
	SerialAvailable()
	SerialEnd()
Analog I/O	analogWrite()

Related products

We have already customized a shield named Iteaduino PLUS Arduino PLUG for Iteaduino PLUS. It offers interfaces compatible with Arduino, thus all Arduino-compatible shields can be used on it. Besides, it also provides Grove interfaces which can be connected to a variety of electronic brick modules and a header compatible with 26-pin GPIO interface of Raspberry Pi, so a variety of shields customized for Raspberry Pi can also be used on it.
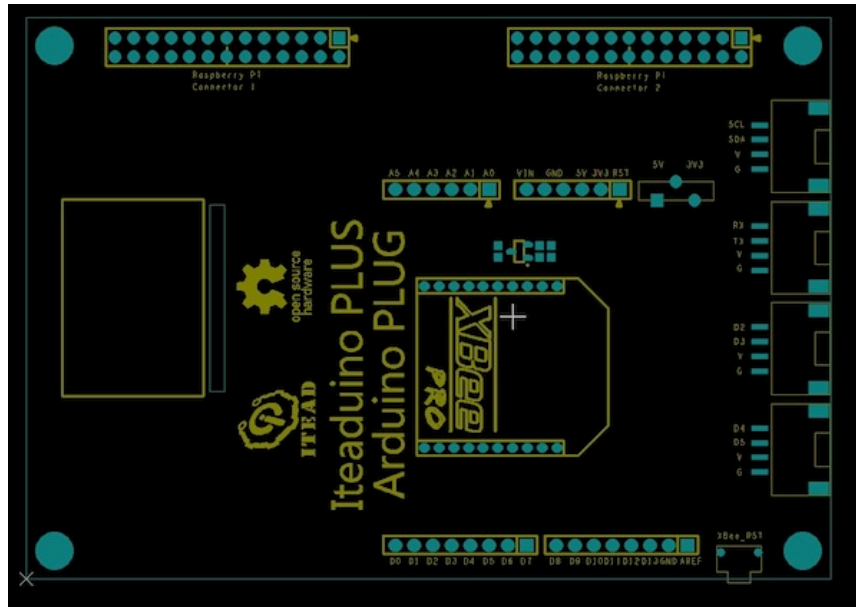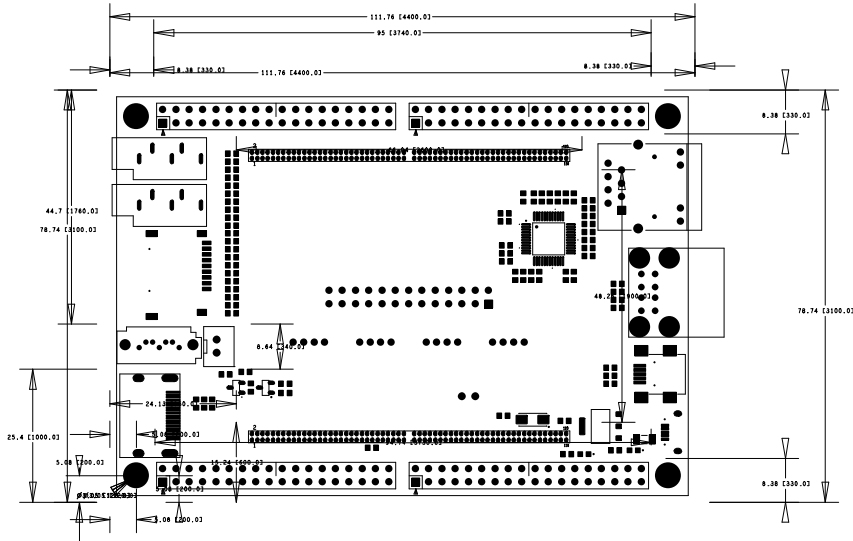

Links and References

-ITEAD official website: http://iteadstudio.com
-ITEAD OS official forum in English: http://forum.iteadstudio.com/
-ITEAD OS official forum in Chinese: http://iteados.com
-Functions manual in English: http://url6.org/inW

Appendix: Dimension and specifications

unit: mm [mil]

Revision record

Version	Description	Written by	Date
v1.0	Initial version	Jerry Shi	10th, August, 2013
V1.1	Revision of dimension and pinmap	Jerry Shi	2nd, September, 2013