

Ultimo Series of Hardware Design Manuals

The Ultimo series card is a network interface card. Its main interface functions include one 100-megabit network interface, a reserved I2S/TDM audio interface for control and monitoring or for transparent transmission of custom data packets, and a UART interface for controlling and monitoring or for transmitting custom data packets. It is mainly applied in dual-channel or quad-channel audio transceivers.

Main features of the module: Utilizing the most advanced module technology, it offers you a network audio transmission solution in a faster and more cost-effective manner. With the features of automatic device discovery, label-based signal wiring, and plug-and-play operation, it provides excellent audio performance through a freely shared standard network.

Audio function

Sampling rate	44.1/48/88.2kHz
Audio channel input/output	2x2 Channels, 4x4 Channels
Digital audio format	TDM、I2S
Audio transmission format	Transmitting audio via IP and AES67
Sampling bit depth	16/24/32 Bit
Clock	Built-in word clock or external word clock



Figure 1 (Top View)

1. Pin description

Type	Description
IO	Input/Output
DI	Digital input
DO	Digital output
PI	Power input
PO	Power output
AI	Analog input
AO	Analog output
OD	Open Drain

Table 1 (Description of IO Parameter Types)

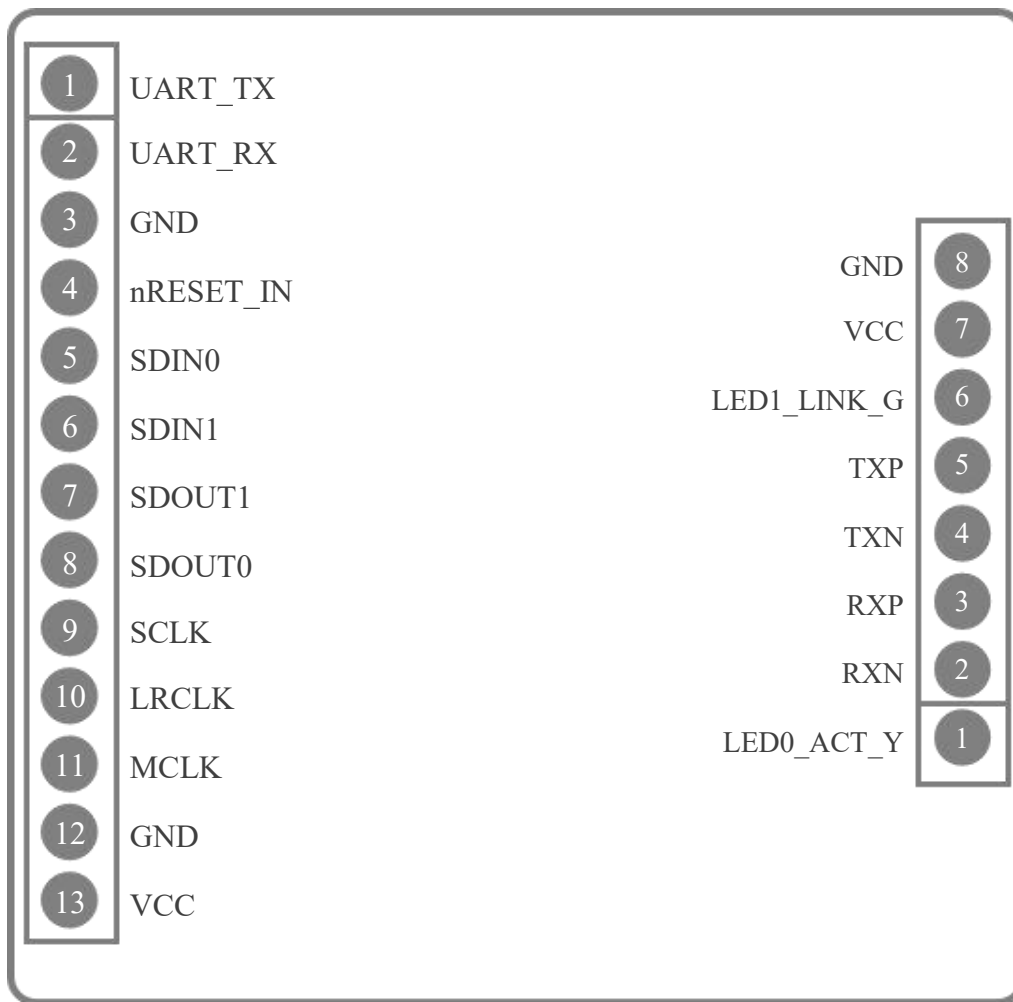


Figure 2 Pin Definitions

The following table lists the specific types and definitions of the pins. The number of pins for terminal J8 is 13, and for J10 it is 8. For detailed information, please refer to the pin description in Figure 1.

J8 No. (13P)	Pin type	Name	I/O	Description	DC Characteristics	Note
13	POWER	VCC	PI	Power module	Vnorm=3.3V	
3、12		GND	PI	GND	Vnorm=0V	
4	RST	nRESET_IN	DI	Force Card Reset	3.3V Level	
1	UART	CMOS_RS_232_TX_A	DO	UART A		
2		CMOS_RS_232_RX_A	DI			
9	I2S/TDM	SCLK	DO	Audio I2S/TDM Clock		
10		LRCLK	DO	Left Right Clock		
11		MCLK	DO	Master Clock Output		
8		SDOUT0	DO	Audio I2S/TDM Out		
7		SDOUT1	DO			
5		SDIN0	DI	Audio I2S/TDM In		
6		SDIN1	DI			

J10 No. (8P)	Pin type	Name	I/O	Description	DC Characteristics	Note
7	POWER	VCC	PI	Power module	Vnorm=3.3V	
8		GND	PI	GND	Vnorm=0V	
1	LI/O	LED0_ACT_Y	DI	LED Indication		PU
6		LED1_LINK_G	DI			PD
5、4	MDI	TXP、TXN	IO	Differential pair		
3、2		RXP、RXN	IO			

Table 2 Pin Description

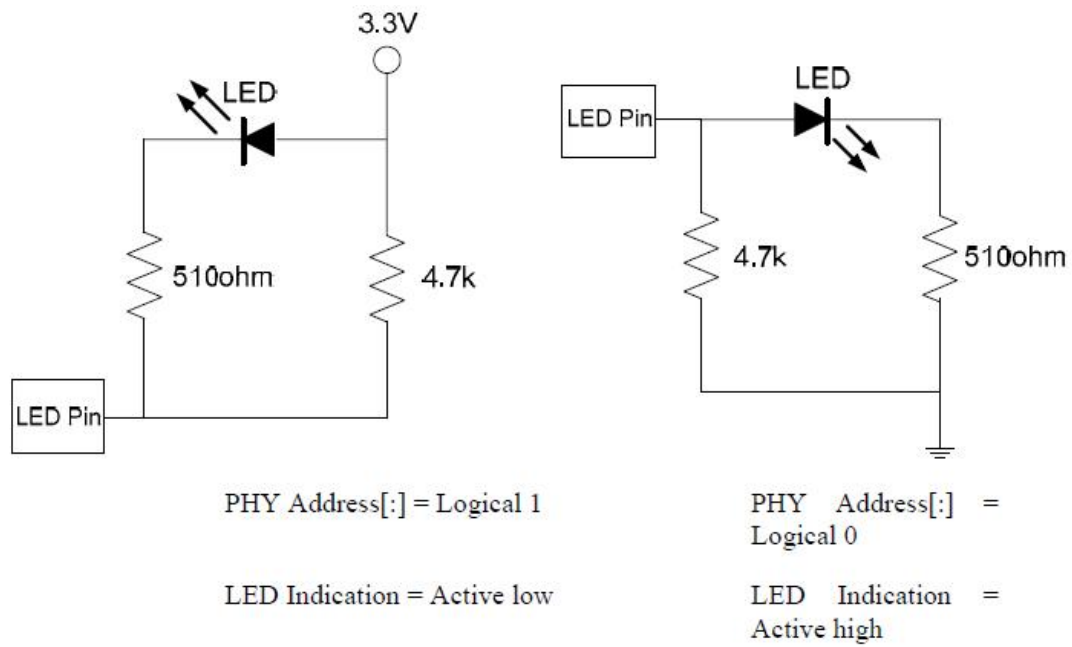


Figure 3 LED and PHY Address Configuration

- Note:** 1. LED0 Default PU, LED1 Default PD;
2. PHY Address is 0x01.

1. Physical scale

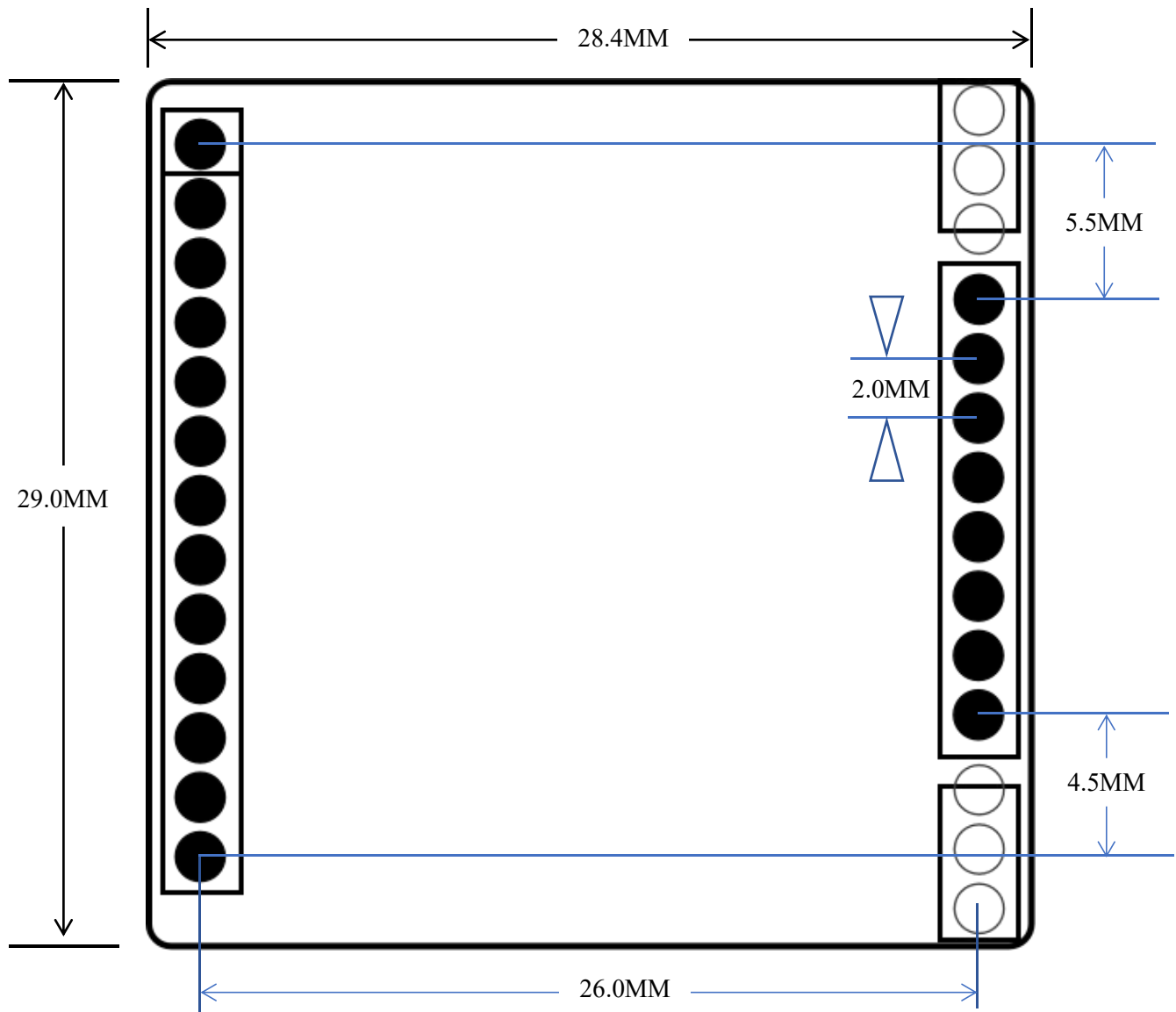


Figure 4 Physical dimensions of the module

3. History version record

Version	Revise content	Release time
A0	First draft released	December 1st, 2019
A1	Update the product the pin definition diagrams.	May 31st, 2023

Table 3 (Historical Version Record Table)