灰度科技
HUIDU TECHNOLOGY

PRODUCT SPECIFICATION

LED display asynchronous control system
HD-C16L

Version number：V2.0

Update history：

Release version	Release time	Release Notes
V2.0	Dec. 12th, 2024	Added 3 sets of CTRL, support program switching
V1.0	Sep. 25th, 2023	First release

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1. Overview

C16L is a new generation LED multimedia playback card that integrates a sending card, a receiving card and a playback terminal. Compared with the traditional asynchronous playback solution, it can reduce the need for a computer playback terminal, making it easy to control at any time. It has an onboard receiver directly connecting to the screen, which is relatively more cost-effective; It supports the playback of videos, pictures, Gif animations, texts, WPS documents, tables, clocks, timings and other program contents; It supports 60Hz frame rate output, smooth word movement and remote control of power supply and other functions .

C16L comes standard with Wi-Fi and supports mobile APP - "LedArt" wireless control; It supports access to the "XiaoHui Cloud" platform to easily realize remote cluster management on the Internet; It supports USB interface to update programs; It supports external various environmental monitoring sensors, achieving real-time viewing of environmental monitoring data; C16L is widely used in smart commercial displays and smart city fields, such as light pole screens, door screens, vehicle screens and other advertising and display fields.

2. Features

Input：

1. Support 1 channel 100M communication network port, communicate with the other devices via TCP/UDP.

2. Support 1 channel USB communication interface, which can be used to update programs and expand capacity;

3. Support 1 channel dedicated interface for temprature sensor, 1 channel dedicated interface for GPS sensor and 1 channel universal sensor input interface.
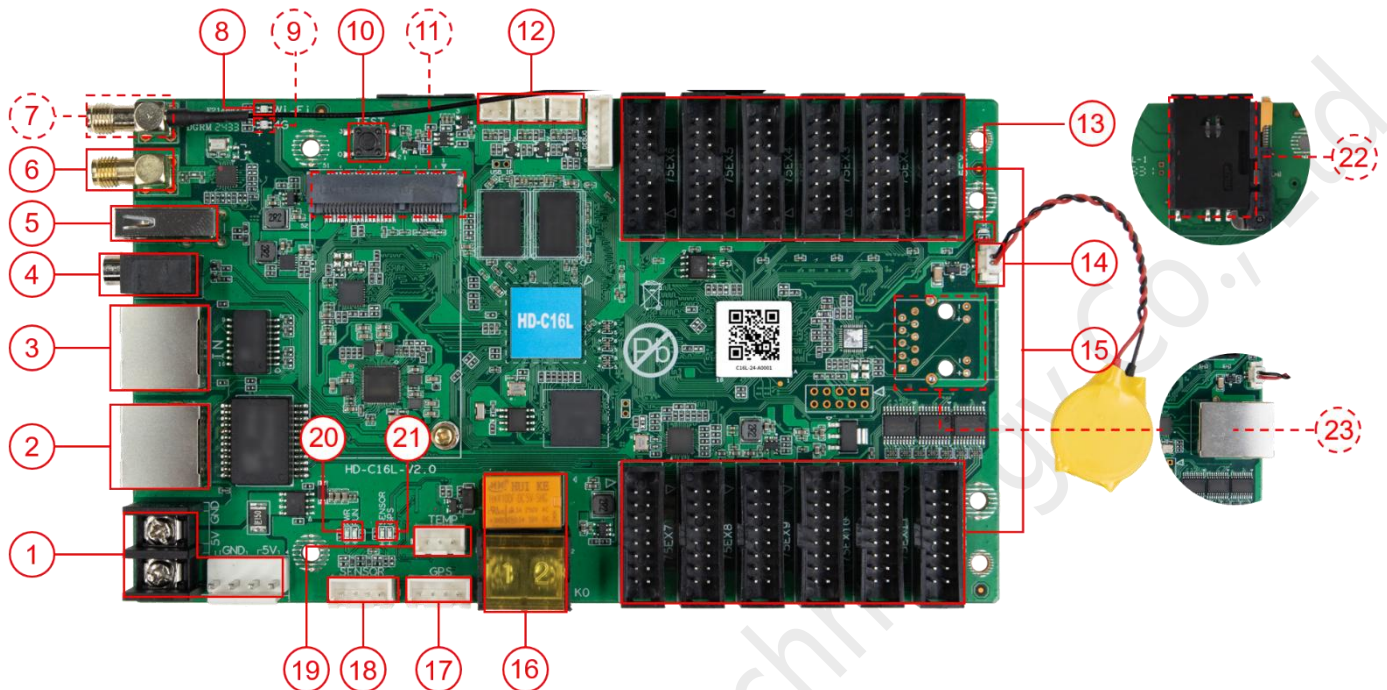
Output：

1. The maximum control range is 650,000 pixels, only C16L can load 200,000 pixels, the maximum width is 2048 pixels; cascade receiving card can load 650,000 pixels, the maximum width support 8192 pixels (width > 2048 triggers discount) or the maximum high support 1920 pixels;

2. Comes standard with 1 channel Gigabit output network port, which can be directly cascaded to the HD-R series receiving card to control the display; supports optional RJ45 Gigabit output port on the other side;

3. Onboard 12 sets HUB75E interfaces;

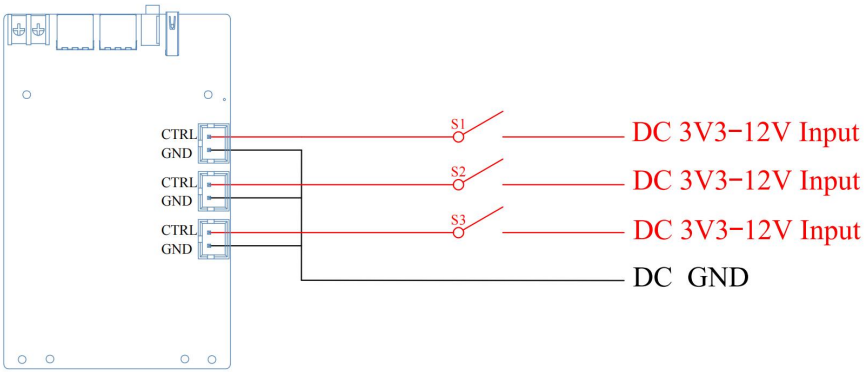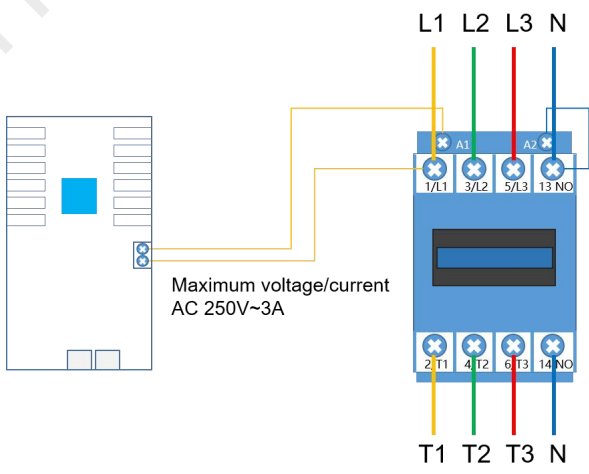4. 1 channel TRS 3.5mm standard two-channel audio output.

Functions：

1. Comes with 2.4GHz Wi-Fi and supports mobile APP wireless control (supports Wi-Fi-AP mode, Wi-Fi-STA mode, recommended operating distance within 15M);

2. Onboard 1-channel relay can remotely control the power supply;

3. Supports 2-channel video window playback (supports up to 2 channels of 1080P);

4. Support 3 sets of CTRL function, switching detection, detecting 12V level input, controlling bright screen/black screen/switching program.

5. Support 4G access to XiaoHui Cloud platform to realize remote management on the Internet (optional);

6. Support UART communication;

7. Supports 2 channel RS-232 or RS-485 communication.

8. Support Chinese and English voice broadcasting function.

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3. Interface Description

Serial number	Name	Description
1	Power input terminal	5V DC Power Input or 4PIN Anti-Dumbing Power Input
2	Output network port	Gigabit output network port, cascaded with HD-R series receiving cards; Supports optional RJ45 Gigabit output port on the other side (23 serial number interface)
3	Input network port	100M input network port, communicate with the other devices via TCP/UDP
4	Audio output	TRS 3.5mm standard two-channel audio output port
5	USB	Used to update programs or expand capacity
6	Wi-Fi antenna	Connect Wi-Fi antenna to enhance wireless signal

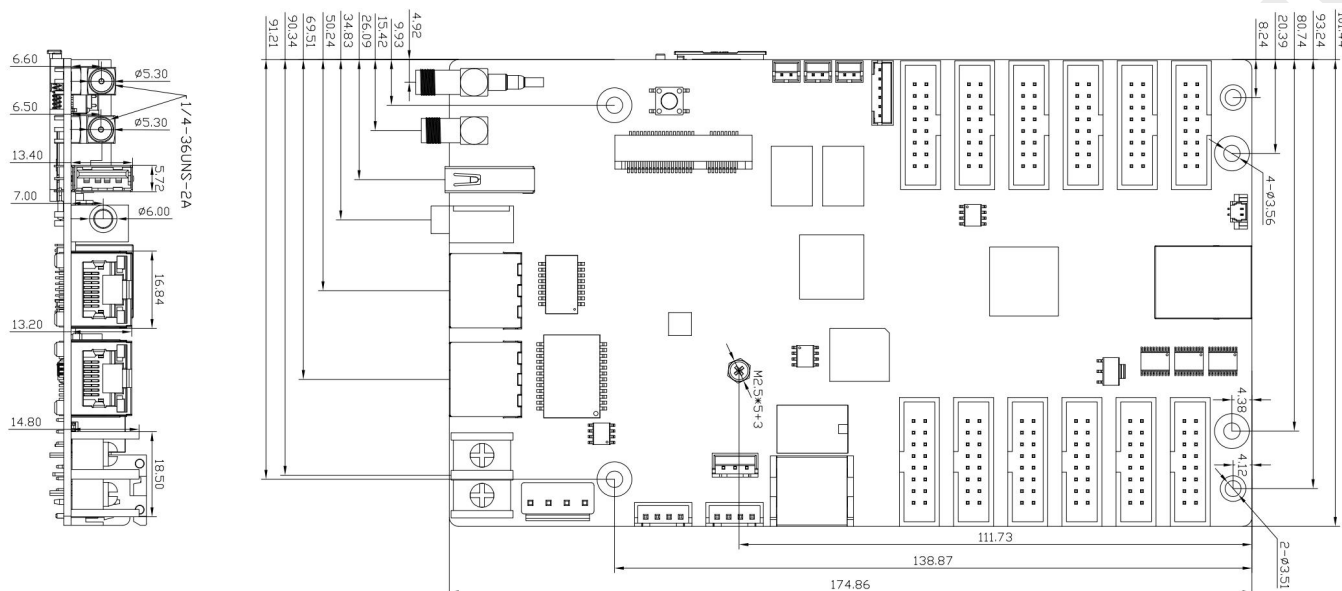| 7	4G antenna installation port	External 4G antenna to enhance 4G signal
8	Wi-Fi indicator light	AP mode: ①The green light flashes, the AP mode is normal; ②The red light flashes, Cannot connect to the hotspot; ③The light does not light up, the module cannot be detected and; STA mode: ①The green light is always on, bridge to the router, and the connection to the cloud server is successful; ②The red light flashes, STA mode exception; ③The red light is always on, router not bridged; ④The yellow light is always on，bridge to router, not connected to cloud server; ⑤The light does not light up, STA mode exception;
9	4G communication indicator light	①The green light is always on, mobile network is working and connected to the cloud server; ②The red light flashes and the SIM cannot be detected; ③The red light is always on, there is no signal or the SIM is in arrears or cannot dial; ④The yellow light is always on and cannot connect to the cloud service; ⑤The light does not light up and the module cannot be detected.
10	Test button	for test the brightness and contrast of the display screen

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11	PCIE-4G socket	4G module socket (optional function, installed with 4G antenna by default)
12	3 sets of CTRL	Switching quantity detection, detecting 12V level input, controlling on/off screen
13	Display indicator light	If the green light flashes, the FPGA system is running normally; if the green light is on or off, the system is running abnormally.
14	Battery interface	Connect the 2PIN RTC battery
15	HUB75E interface	Connect HUB75 (B/D/E) interface module
16	Relay	Relay on/off, supports maximum load: AC 250V~3A or DC 30V-3A The connection method is as follows:
17	GPS interface	Serial Port

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		①Default TTL level, supports RS232 or RS485
		②Connect GPS module for timing or positioning
18	Sensor interface	Serial Port ①Default TTL level, supports RS232 or RS485 ②Connection of external sensor accessories such as environmental monitoring, multi-function sensors, etc.
19	Temperature sensor dedicated interface	Connect a temperature sensor to monitor the surrounding environment temperature in real time
20	System indicator light	PWR: Power indicator light, green light is always on, power input is normal RUN: System running light. If the green light flashes, the system is running normally; if the green light is always on or off, the system is running abnormally.
21	Sensor & GPS indicator light	Sensor: ①When detecting that no sensor is connected, the light does not light up; ②When detecting that a sensor is connected, the green light is always on. GPS: ①When detecting that there is no GPS signal, the light does not light up; ②When the GPS star search number < 4, the green light flashes; ③When the GPS star search number >= 4, the green light is always on.
22	Standard SIM card holder	Used to install 4G data card and provide networking function (optional, supports optional eSIM card)

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23	Output network port	Optional RJ45 Gigabit output network port, copy display

4. Dimensions

Size（mm）：

Tolerance: ±0.3 Unit: mm

5. Specifications

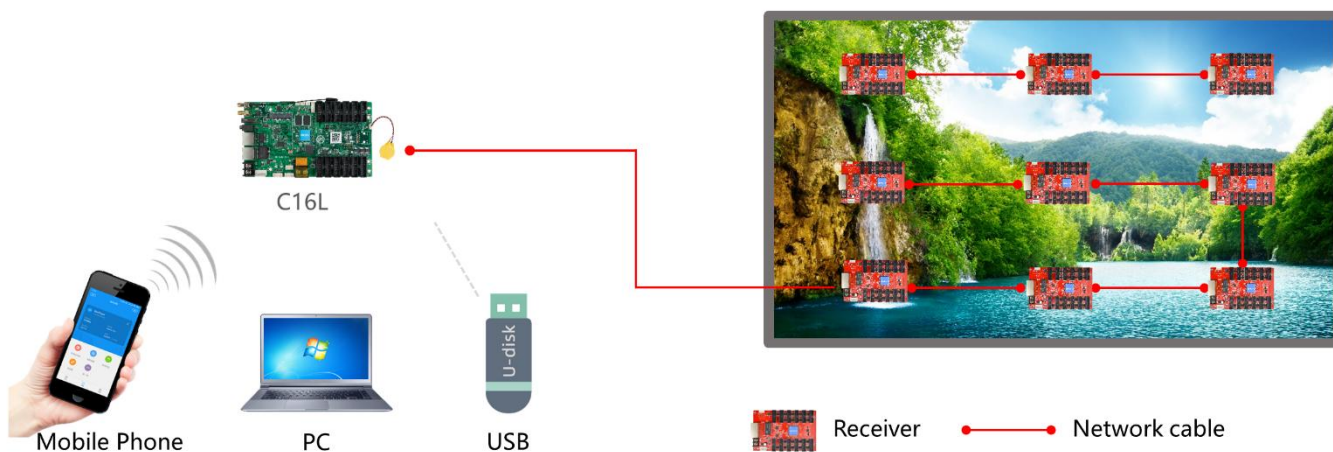| Program schedule	Supports sequential playback of multiple programs, timed playback, program insertion, and multi-screen synchronization
Program partition	Support any partition of program window
Video format	AVI, WMV, MPG, RM/RMVB, VOB, MP4, FLV and other common video formats Supports up to 2 channels of 1080 video playback at the same time
Image Format	BMP, GIF, JPG, JPEG, PNG, PBM, PGM, PPM and other common image formats
Audio format	MPEG-1 Layer III, AAC, etc.
Text display	Single line text, static text, multi-line text, animated words, WPS, etc.
Clock display	RTC real-time clock display and management

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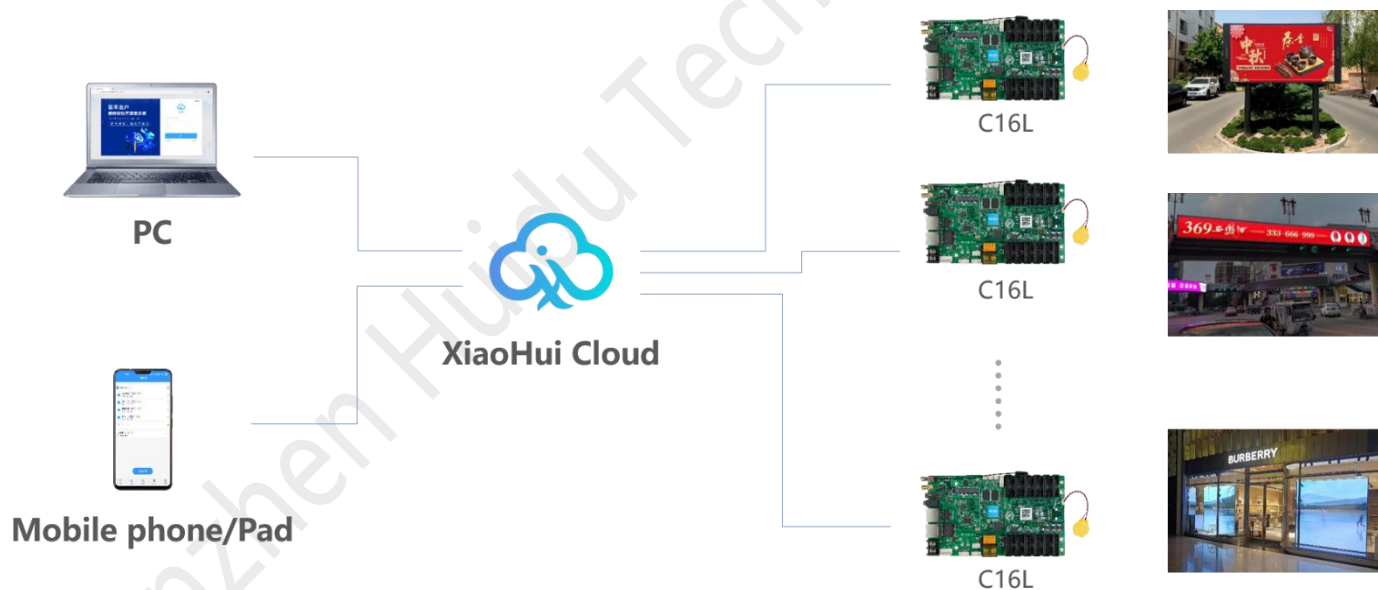| U disk	Plug and play	
Electrical parameters	Input power	DC 5V （4.6V~5.5V）
	Maximum power consumption	8W
Hardware parameters	Hardware performance	1.5GHz, Quad-core CPU, Mali-G31GPU Support 1080p@60fps hard decoding playback Support 1080p@30fps hardware encoding
Storage	Internal storage	4GB (2G available)
Storage environment	Temperature	-40℃～80℃
	Humidity	0%RH～80%RH (no condensation)
Working environment	Temperature	-40℃～80℃
	Humidity	0%RH～80%RH （no condensation）

Packaging Information	Checklist:
	
	  1×C16L
	
	  1×WiFi antenna
	
	  1×certificate
	
	Note: 4G antenna comes with 4G module optional 1PCS	

Size	174.9mm×101.4mm	
Net weight	0.14KG	
Protection level	The bare board is not waterproof, prevent water from dripping into the product, and do not get the product wet or rinsed	
System software	Linux4.4 operating system software FPGA software	

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Options List:

Voice authorization	Voice activation license code , voice announcement function activated after use
RS232	RS232 communication, supported by soldered chips
RS485	RS485 communication, supported by soldered chip
SENSOR	Optionally available with different sensor accessories
GPS	Optional GPS module for use
TEMP	For use with optional single temperature sensor module
4G Module	Optional 4G module according to different regions, with 4G antenna to be used
Output network port	Optional RJ45 Gigabit output port on the other side of the standard output port (23 serial number connector)

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6. Way of Communication

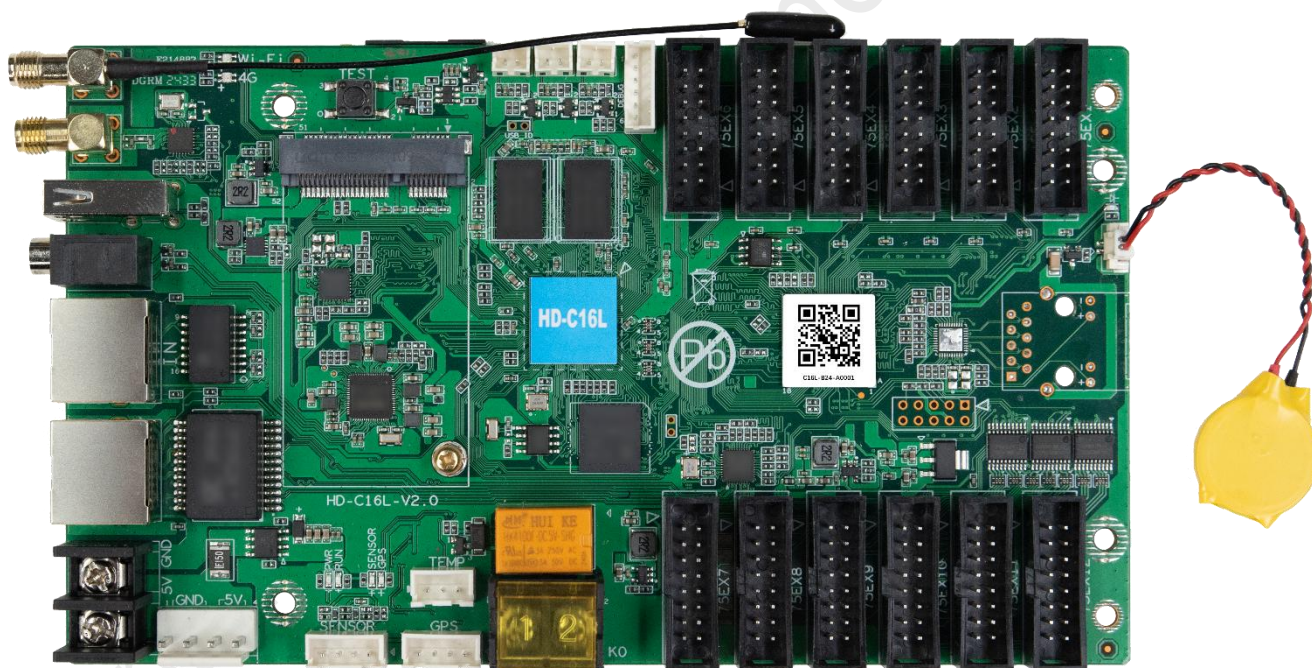1. Stand-alone control, supports Wi-Fi, network port direct connection, and USB interface for communication.

2. Cluster control, supports Internet remote control.

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7. Supporting Software for the System

Name	Type	Description
HDPlayer	PC Client	Local management system for LED displays for debugging, program editing, program distribution, etc.
XiaoHui Cloud	Web Client	Cloud display information release system, through the browser login, to realize the LED display remote cluster management and information release and other functions.
LedArt	Mobile Client	Support Android, iOS, Harmony platforms, to realize the control of LED display and program wireless distribution and other functions.

8. Appearance

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Illustrate:

Welcome to choose Huidu Technology products. There may be differences between the product pictures in the

specification and the actual appearance (such as interface caps, antenna installation, etc.). Please refer to the

actual product. If you have any questions, please contact technical support or salesperson for confirmation.

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