Date: 2011-5-25

Company website: www.ledsigncc.com

# Hardware Information of M-series controllers

## 1. Physical parameters of control card

| Working voltage | 3.6~7.5 V |
|---|---|
| Working current | < 300mA |
| Power consumption | <1.5watt |
| Working temperature | －20°C～＋70°C |
| Dimension | 17.52 (L) x9.56 (W)x3.1 (H)cm |
| Weight | <200g |

## 2. Technical parameters

| Mode | M31 (full color) | M20 (full color) | M10 (single/double color) |
|---|---|---|---|
| Maximum Pixels | 256×256(virtual pixels) 320×256(actual pixels) Allow widest pixels 2048(connect led screen in segment way ) Support maximum ten thousand pixels | 320×128 | 1024×512 4000×128(connect led screen in segment way) |
| Memory | 500MB | 500MB | 500MB |
| Grey level | 4096 | 4096 | 256 |
| Scan mode | Outdoor/indoor | Outdoor/indoor | Outdoor/indoor |
| Communicate interface | Serial port/LAN port/U-disk | Serial port/LAN port/U-disk | Serial port/LAN port/U-disk |
| Communicate type | LAN, Internet, GPRS，RF，3G | LAN, Internet GPRS，RF，3G | LAN, Internet GPRS，RF，3G |
| Hub card | Standard hub/ expansion board (could connect 16 interfaces of | Standard hub (could connect 8 interfaces of HUB75or HUB40) | Standard hub (could connect 16 interfaces of Hub08 or 32 interfaces of Hub12) |

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|  | HUB75 or HUB40) | | |
|---|---|---|---|
| Audio | Optional (USB sound card) | Optional (USB sound card) | Optional (USB sound card) |
| Schedule | Support | Support | Support |
| Software | LED Editor/LED Sign/LEDSet2.0 | | |
| Sensor | Support to show temperature and humidity, auto-adjust brightness and use infrared remote to change program | | |
| Video format | Support AVI,WMV,MPG,MOV,DAT,VOB,MP4,FLV etc | | |
| Animation format | Support GIF,SWF etc | | |
| Image format | Support bmp, jpg, gif, wmf, ico etc | | |
| Text | Support txt，rtf，single-line text, static text, multi-line text and etc | | |
| Table | Powerful function of editing table | | |
| Time | Support various analog clock and digital clock | | |
| Timer | Support clockwise and count down | | |
| USB port | Support upgrade memory by plugging USB | | |
| Partition | divide into several areas randomly | | |

## 3. Dimension
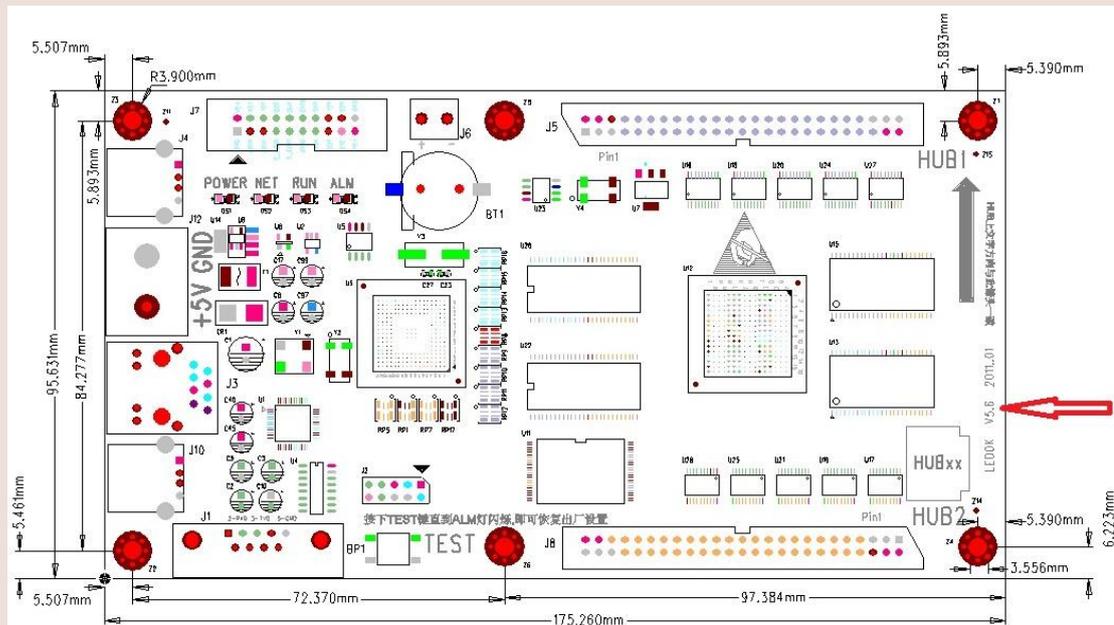
## 4. Serial number of control card

Each control card has a unique serial number to indicate the mode, production batch and number, which also align the MAC address. With this serial number, technicians could provide timely and effective supports. Please protect the label when using the card.

Format of serial number is Mode--production batch—number, details in below:
[Mode]----please refer to "mode catalogue" passage so to judge the card is double color or dull color and also get the pixels information.
[Production batch]---consist of "month" and "year". 1-12 months show like 1~9, A, B, C. 2000~2099 show like 00~99, two numbers.
[Number]----includes 5 numbers, which stand for the production number 00000~99999.
These above information will decide the unique MAC address and default IP address:
[Unique MAC address]----contains 12 numbers into six segments: "0" "0" "0" "production bath (3 numbers)" "0" "number (5 numbers)"
[Default IP address]----192.168.0.200

Take "M20-B07-00888" for example:
[Mode]: M20 is full color control card, max pixels 320x128
[Production batch] and [Number]: 888th control card produced in November, 2007.
[Default IP address]: 192.168.0.200
[Unique MAC address]:"00:0B:07:00:08:88"

## 5. Version information

Our company is keeping on improving the controller and has improved functions and stability. Moreover, we make the controller's hardware and software forward compatible so that customer could upgrade software to latest version. When using LED editor software to manage multi-controller, customer could also check version information of each controller.

PCB version information
PCB version has been printed on the right part of controller, near the 50pin interface.
PCB version contains product name, PCB version, design date
Please see picture in below:

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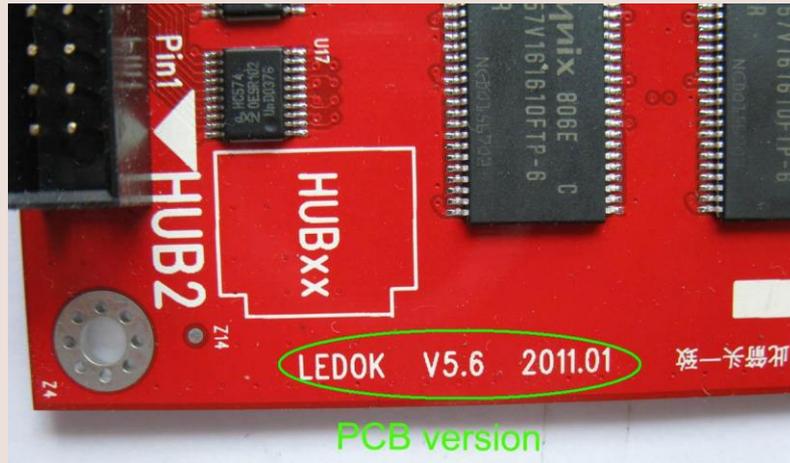
Product name: LED OK, it is the main PCB

PCB version: V5.6 means the $6^{th}$ version of $5^{th}$ solution

Design date: 2011.01. It means design this PCB in January, 2011.

# 6. Introduce all interfaces in controller
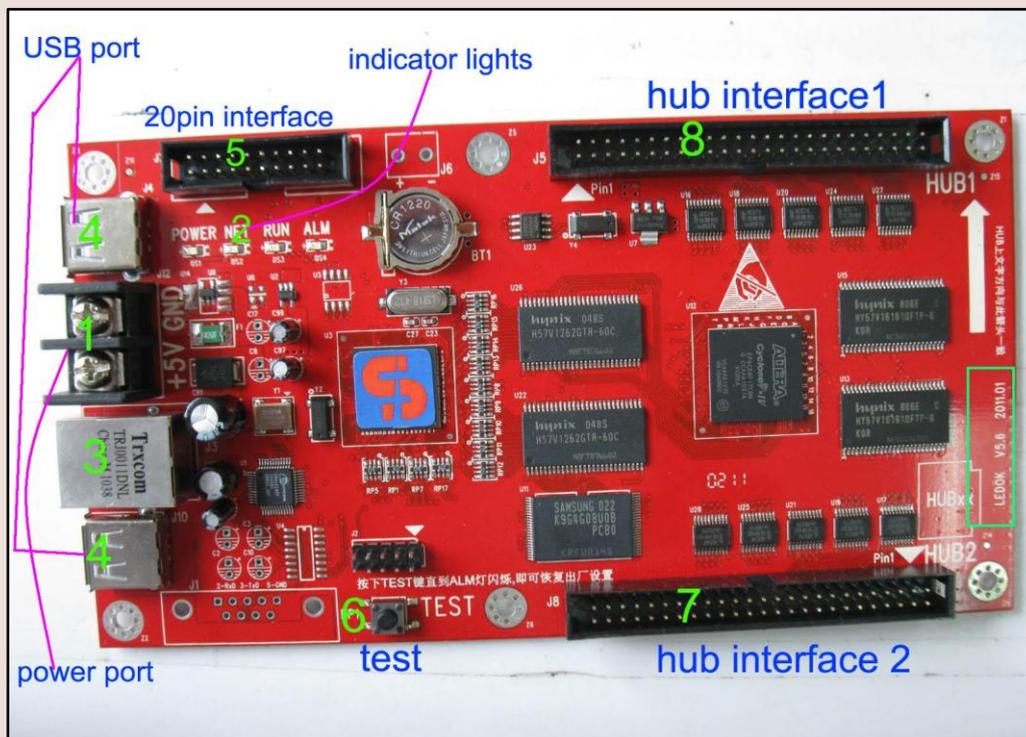


## 6.1 Power port (1)

The power port is 5V, the controller could afford input voltage range at 3.7~7.5V. We also make

enough protection measurements for power part, like over-current self-restore; overvoltage protection, low-voltage, and polarity reverse, filtering and absorb peak protection, so that to protect the controller and display from damage.

## 6.2  Indicator lights (2)

Indicator lights are located in the left top of controller; the order is POWER, NET, RUN and ALM. When we provide technical support, we need to know the state of each light.



Power light:

Turn on: it means the power is normal.

Turn off: please check your power connection and also check whether the controller has been burned.

Net light:

Turn on and blinking: it means the network is normal.

Turn off: please check your network work connection.

Run light:

Turn on: it means the controller state is pause, test or display in real time.

Blinking regularly: the controller display program and work normal

Other: the controller works abnormal. We will analyze in below.

ALM light:

Turn on: the controller has problem, need to do upgrade software or send back to repair.

Turn off: controller could work.

Blinking: when using 3G/internet mode, it means the controller has accessed to server.

If the four lights blinking irregularly that mean the controller work abnormal or could not work. Now please check the hardware and software parameter and check program content.

Solution: at this moment, we advice to do recovery to ex-factory parameters or delete all programs and make new program again.

If the controller still could not work then please consult our engineers; if necessary please send back to repair.

## 6.3  100MB Ethernet interface (3)

It is a standard Ethernet interface, so customer can connect controller with computer via cross

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network cable directly. Customer could also choose LAN and all computers in this LAN could control the card. We also supply internet solution for controller.

Customer could set up, upgrade and test the controller through this interface. Without wire, the controller can access to high speed network and can be installed in bank, post office, traffic, stock exchange market, campus and workshop and so on.

## 6.4  USB ports (4)

With this standard USB port, customer could plug in U-dick, sound card and other USB port devices. The controller will auto-recognize u-disk as storage, upgrade program. The controller could work with many brands of u-disk. With this solution, customer does not need to install long wires for various advertising displays to upgrading program.

## 6.5  Multi-function extend interface (5)

This interface has 20pin, which contains three serial communication interfaces (SCL) and multiple program controlled IO control tube feet.

Serial communication interface can connect various devices (sensor, GPRS, RF and computer) through TTL electrical level directly or through RS232/RS485.

Version 5.6

|  | Pin number | Pin number | Signal name |
|---|---|---|---|
| GND | 1 | 2 | VCC,+5V |
| RxD_TTL | 3 | 4 |  |
| TxD_TTL | 5 | 6 |  |
| RxD_232 | 7 | 8 |  |
| TxD_232 | 9 | 10 |  |
|  | 11 | 12 | TxD_232 |
| Power_control | 13 | 14 | RxD_232 |
|  | 15 | 16 | TxD_TTL |
|  | 17 | 18 | RxD_TTL |
| VCC,+5V | 19 | 20 | GND |

Note: Signal 3 and 5 are serial port 1, baud rate: 9600, no verify

　　　Signal 7 and 9 are serial port 2, baud rate: adjustable

　　　Signal 13: turn on/off led display on schedule, or output high level and low level to turn on/off led display through hardware.

　　　High level: +5V　　ON, turn on LED display

　　　Low level: 0V　　OFF, turn off LED display

　　　Leave other pins empty.

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Version 5.8

| Signal name | Pin number | Pin number | Signal name |
|---|---|---|---|
| GND | 1 | 2 | VCC,+5V |
| RxD_TTL | 3 | 4 | |
| TxD_TTL | 5 | 6 | |
| RxD_ TTL | 7 | 8 | |
| TxD_ TTL | 9 | 10 | |
| | 11 | 12 | TxD_ TTL |
| Power_control | 13 | 14 | RxD_ TTL |
| | 15 | 16 | TxD_TTL |
| | 17 | 18 | RxD_TTL |
| VCC,+5V | 19 | 20 | GND |

Note: Signal 3 and 5 are serial port 1, baud rate: 9600, no verify

Signal 7 and 9 are serial port 2, baud rate: adjustable

Signal 13: turn on/off led display on schedule, or output high level and low level to turn on/off led display through hardware.

High level: +5V      ON, turn on LED display

Low level: 0V      OFF, turn off LED display

Leave other pins empty.

## 6.6  Test button (6)

Customer could press TEST button to do many tests, such as main parameters, grey level, screen color, and so on when the controller works fine.

When controller works abnormal, customer could use this button to recovery the controller into ex-factory default parameter.

## 6.7  HUB interface 1(7) and interface 2 (8)

50pin definition of hub interface 1 and 2 are the same with main-stream controllers, which could compatible with hundreds type of standard hub cards.

50pin definition of double color controller could totally compatible with standard hub cards, as shown in below:

standard double color interface

In order to compatible with more hub cards, the LED set2.0 Software will choose hub card automatically for full color controller, please check picture in below for details:



standard full color interface 1 LINSN01      standard full color interface 2 LINSN02

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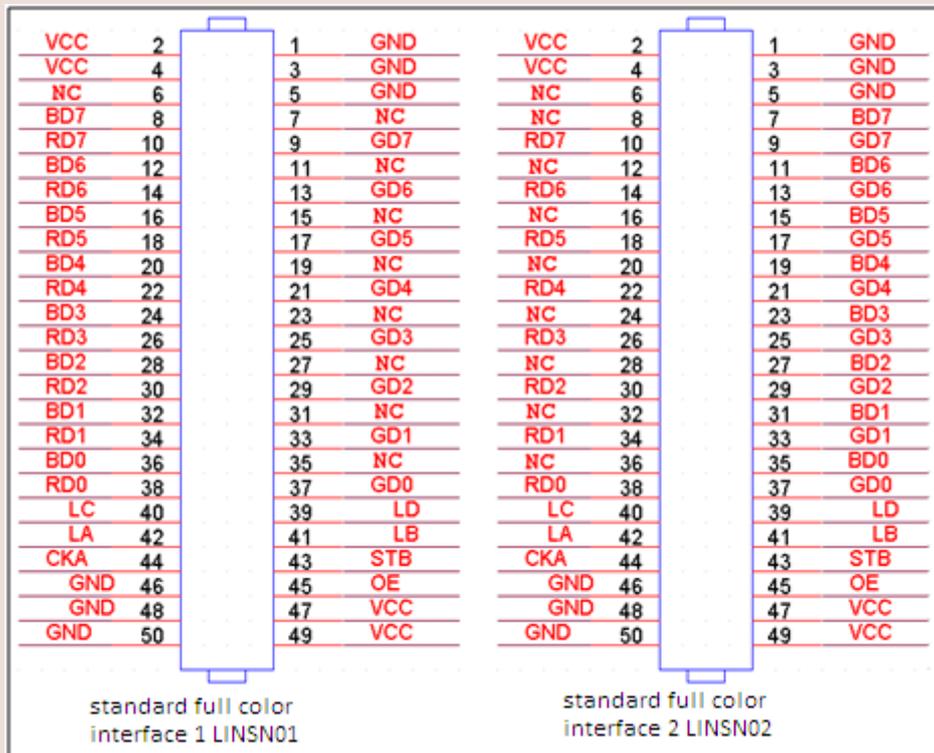
# 7. Recovery parameters

When customers need to do recovery for control card?
1.  Control card version is confusion
2.  Control card works abnormal, like RUN light does not bright
3.  Could not find control card IP address after trying all methods.
And so on

Before recovery control card, customers should make sure that HCP file has been saved in your computer. Because the control card will lost all parameters just keep the ex-plant parameters after recovery.

Steps of recovering control card:
Step1. Press test button on control card until Power, Net, and RUN and Alarm lights turn on while RUN and Alarm lights blinking, stop press now. This may need 10 seconds.

Step2, repeat step 1
After recovery control card, customers need to do setup again or import existing hcp file directly.

Some ex-factory parameters as shown in table:

| Height pixels | 128 |
|---|---|
| Width pixels | 512(dual color)，256(full color) |
| Scan mode | 1/16(dual color),1/8 scan(full color） |
| Program | Default table and parameter information |
| IP address | 192.168.0.200 |

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