

# Absen-OF20V

## P20 Outdoor Full Color LED Screen User's Manual V1.0



**Name:** Outdoor Full Color  
**Model:** Absen-OF20V  
**Pitch:** 20mm  
**Module Resolution (L×H):** 16dots×8dots  
**Dimension(L×H):** 320mm×160mm  
**Cabinet Resolution (L×H):** 64dots×48dots  
**Dimension (L×H×T):** 1280mm×960 mm×150 mm

# Contents

Chapter 1. Specification and Performance.....	3
1.1 Specification.....	3
1.2 Performance.....	4
1.3 Function description.....	4
1.4 LED Screen model definition.....	5
1.5 Safety information.....	6
Chapter 2. Structure and Installation.....	8
2.1 Cabinet structure.....	8
2.2 Module structure.....	8
2.3 Cabinet assemble.....	9
2.4 Screen installs type.....	9
2.5 Screen framework structure.....	10
Chapter 3. Screen System Installation.....	13
3.1 PC operation system installation.....	13
3.2 Installation control cards.....	13
3.3 Cable connection step.....	14
3.4 Software installation.....	16
Chapter 4. Display card setting.....	18
4.1 ATI display card setting.....	18
4.2 GEFORCE display card setting.....	21
4.3 Computer Troubleshooting Setup.....	23
Chapter 5. Troubleshooting.....	25
5.1 System checking method.....	26
5.2 common troubles table.....	26
Chapter 6. Signal PIN definition and CAT5 facture .....	27
6.1 Module PIN definition.....	27
6.2 Signal wire facture.....	28

## Chapter 1. Specification and Performance

P20 Outdoor full color LED Screen is a kind of advanced screen which functions with double scanning; it is very popular among users. Pictures shown by this screen is with perfect performance. It is suitable for advertisement at bank, shop center, school, restaurant and similar indoor and Outdoor recreational applications.



Absen-OF20V

### 1.1 Specification:

- Module Dimension: 320mm×160mm
- Pitch: 20mm
- Pixel configuration : 2R1G1B 4pcs Φ5 ellipse LED Unit
- Module Resolution(L\*W): 16\*8
- Pixel Density(pixel/ m<sup>2</sup>) : 2500
- Brightness (cd/ m<sup>2</sup>) : ≥5500
- Optimal Viewing Distance(m) : 25-60
- Peak Power Consumption (≤) : 900w/m<sup>2</sup>
- Average Power Consumption (≤) : 350 W/m<sup>2</sup>
- Cabinet Weight: 65kg/m<sup>2</sup>
- Scan Mode: Static Scanning
- IP Rating: Front side IP65
- Horizontal Viewing Angle: 110°
- Vertical Viewing Angle: 60°
- Drive Voltage(DC): 4.5~5.5V
- Gradations: 256 Gradations for Red, Green and Blue
- Frame Rate: 60 (f/s)
- Control Mode: Real Time PC Monitoring
- Screen Lifespan: ≥100,000 hours
- Operating Voltage: AC110V~AC220V±15% 47~64HZ
- Effective Control Distance(m): up to 130 meters by CAT5 cable, single fiber upto 15 kilometer.
- Working Temperature: -30°C~50°C
- Working Humidity: 10%~90%

## 1.2 Performance:

- Super brightness and even luminance, this screen is designed with 16 gradations for adjustable lighting effect, which can be achieved both manually and by self-motion mode to ensure different viewing effect under different conditions;
- Abundant and uniform colorful vision effects
- Large viewing angle up to 120° horizontally and 60° vertically, no significant color loss from the standard viewing angle
- By applying PC multimedia technology, it is very convenient to display various types information source by LED Screen, such as TV Signal, Video Signal, Video Tape recorder Signal, DVD Video Signal, PC Movie and Letter Signal, etc. ;
- Quality advantage: Strict rules have been set from materials to finished products which have already been under guarantee of reliability
- Service advantage: Comprehensive service under same condition

## 1.3 Function Description:

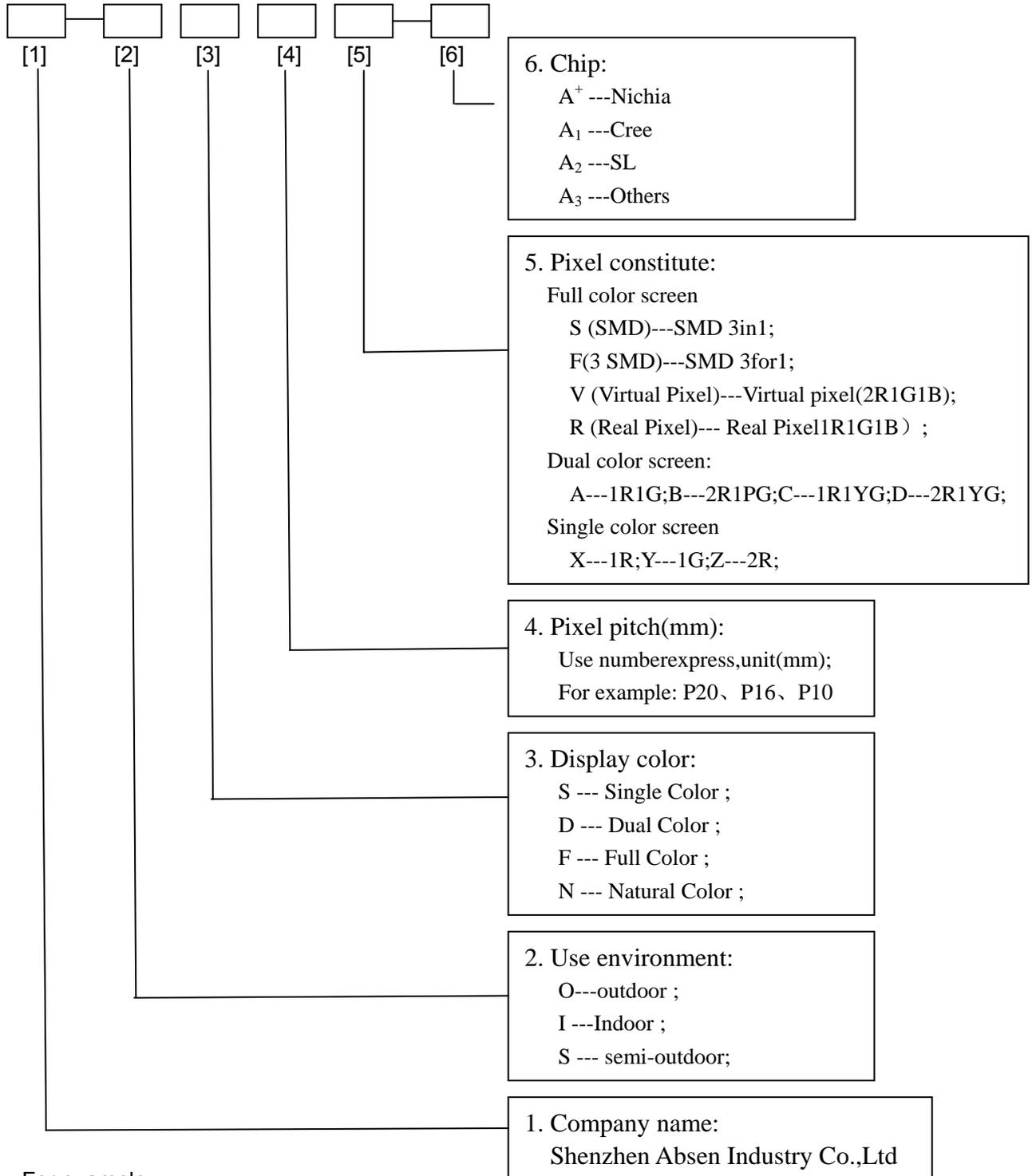
**Support DVI display** : connect to DVI port directly

**Single CAT5 cable transmission:** 1pc standard SUPER CAT IBDN cable transmission

**Support far distance transmission:** Adopt advanced data transmission technology, applying kilo-mega data communication chips, high anti-resistance ability, simple and supporting non-relay far distance transmission; 100m for communication distance CAT5 Cable can be achieved, multi-module fiber 500m, single-module fiber 15 kilometers, 100% data recover is achievable.

**Stable and reliable:** adopt 4 layers PCB and single pc GSI design which improve system stability and reliability remarkably.

## 1.4 LED Screen model definition



For example:

Absen-OF20V- A<sup>+</sup>

A<sup>+</sup> outdoor full color、 pixel pitch: 20mm、 virtual display.

Absen-IF10S- A

A<sub>1</sub> indoor full color、 pixel pitch10mm、 SMD 3in1.

Absen-SD25C

semi-outdoor dualcolor screen、pixel pitch: 25mm、pixel  
constitute:1R1G1B

## 1.5 Safety Information



### Warning!

Please read the following safety protection to make sure correct and safe operation during installation, power on, operation and maintaining.

The following signal indicates the safety information on the product and operation manual.



**Dangerous!**  
Very dangerous,  
direct touch will  
cause serious  
damage or death



**Warning!**  
Read the manual  
before installation,  
power-on and  
maintenance



**Warning!**  
High voltage  
dangerous!



**Warning!**  
Fire  
dangerous!



**Warning!**  
Intensity light  
will damage  
eyesight



Too much hot and electrical attack will cause serious damage



Please read and follow up user manual and warnings carefully before installation and operation. If you have any questions about how to operate the P20 Outdoor Full-color LED Screen safely please contact Absen directly or its dealer



In order to avoid electrical shock please note:

- Power off before disconnection and installation the P20 Outdoor Full-color LED Screen.
- ONLY apply to local current
- Power off during connection, installation, disconnection and maintaining.
- DO NOT operate this product under humid and rainy condition weathers



- DO NOT apply the products where there are flammable, erosive materials
- DO NOT apply the products near heat-emitting source, or the rising temperature may cause damage to the lighting fixture
- Please make sure that all connections are secure and tight
- DO NOT uncover the product without permission and guide
- No recycling components inside.
- The product shall only be installed and dissected by professionals
- Product details are subject to change without notice

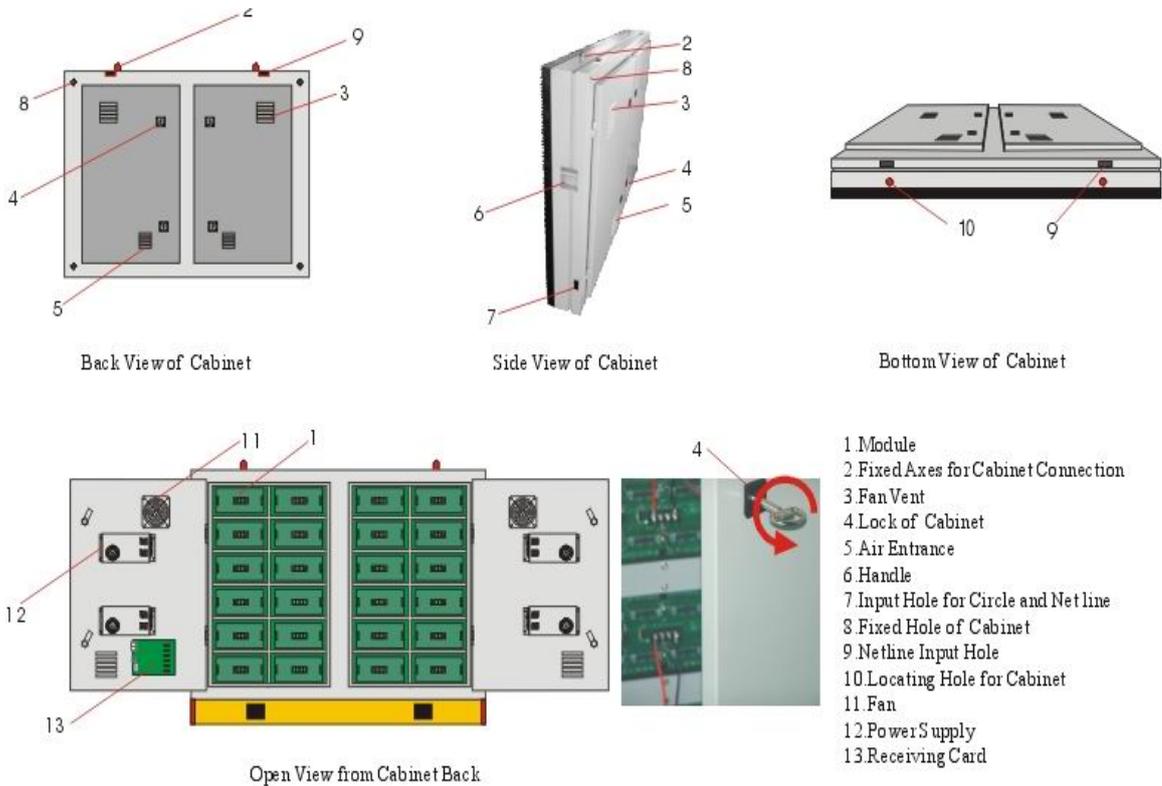


- DO NOT view the product below 40cm without eye-shield.
- DO NOT view the fixture directly from the focus light instrument

## Chapter 2. Structure and Installation

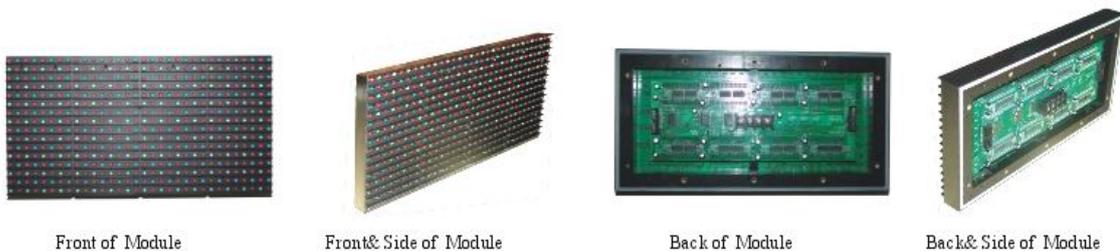
### 2.1 Cabinet structure

P20 Screen adopts case structure design, cabinet dimension is 1280mmX960mmX150mm, pictures as follows:



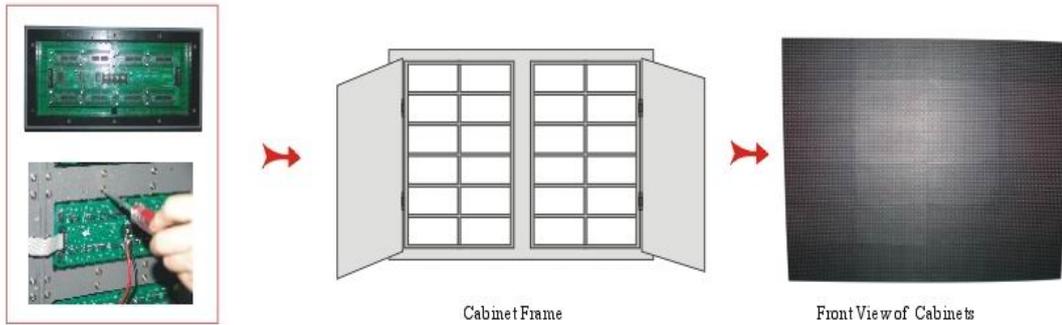
### 2.2 Module structure

Module is the smallest unit of Outdoor full color LED Screen; Cabinet is made up of modules. P20 display module dimension is 320\*240mm; resolution is 16\*8 pixels, pictures as follows:



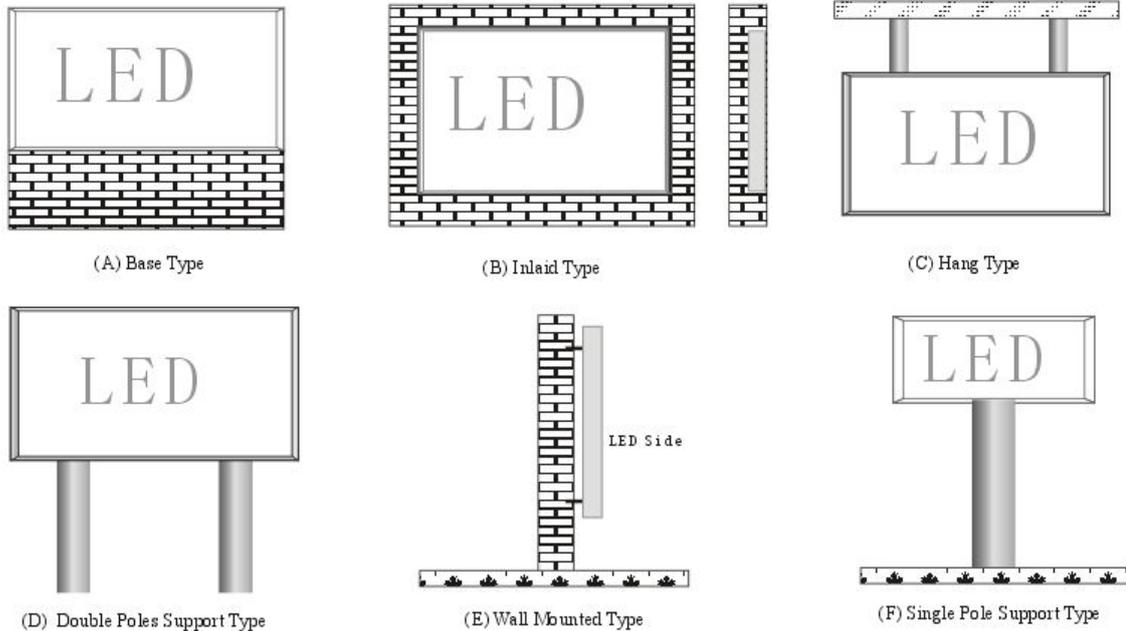
## 2.3 Cabinet assemble

Modules assemble to cabinet as follows:



## 2.4 Screen installs type

It's very important to Setup a horizontal, stable, firm platform for LED Screen, common install type as follows:



Outdoor LED Screen could adopt A/B/C/D/E/F; Indoor LED Screen could adopt A/B/C/D.

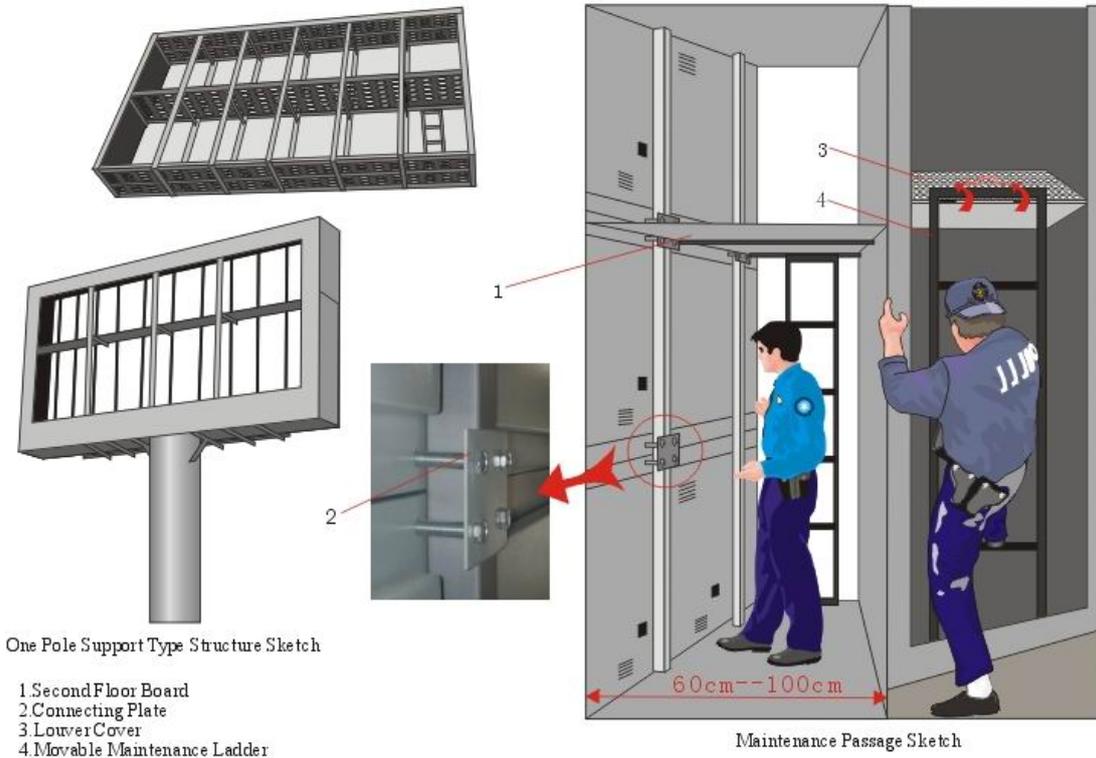
## 2.5 Screen framework structure

The design of the outside framework structure is decided by the installation requirements of LED Screen; screen size and color of surround stance. With the condition of guarantee adequate installation intension, try to minimize the weight of the framework.

For indoor LED Screen, normally there are two kinds of material of outside framework: Black aluminum alloy covered with stainless still(Dull and bright).black aluminum framework is simple in structure, and the color is close to the background color of LED Screen; then aluminum alloy covered with stainless steel framework is very beautiful and elegant.

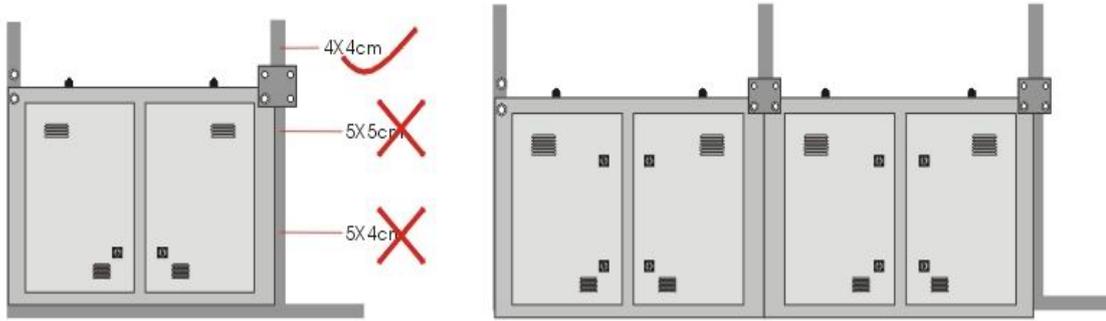
For Outdoor LED Screen, in order to make sure having enough intensity and strict water proof effect, outside framework should be steel structure. According to onsite circumstance and user's requirement, normally aluminum panel with plastic coat be used for the decoration. Screen installation step as follows:

1. Check whether the structure of LED Screen is made in reason or not
  - 1). the bottom layer structure should be solid.
  - 2). the width and height of the structure is suitable or not, usually larger than LED Screen 5~10mm is proper
  - 3). the distance between two pillars from the bottom to the top should be strictly the same. Otherwise, it will cause gap when install the cabinet.
  - 4). check the passage position inside the maintenance box is suitable or not and if it will block the cabinet door, if not suitable the cabinet door could not be opened after LED Screen finished installation.
  - 5). the holes for cables going through at two sides of cabinets will not be blocked.
2. According to the number of cabinets, please install the cabinets from the bottom to the top. The connection between cabinet methods is showed as below.



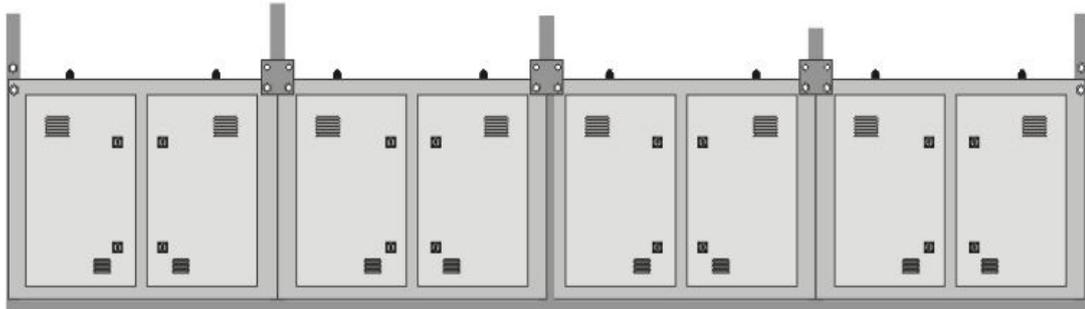
Make sure that the bottom layer of cabinets should be very flat, and then install the upper layer cabinets. Put water proof glue onto the joint between two cabinets. After the whole LED Screen finish debugging, the LED Screen framework should do strict water proof treatment.

3. Connect well the electricity power cable and CAT5 cable according the cable connection diagram.



Installation Drawing First Cabinet

Installation Drawing for Second Cabinet



Installation Drawing for First Layer



Second Layer Installation Drawing

Up and Down Installation Drawing

## Chapter 3 Screen System Installation

LED Screen can work normally after finishing system installation according to the following steps:

### 3.1 PC operation system installation

Windows 2000 ,Windows XP or Windows vista operation system installation, Windows Xp operation system is recommended.

### 3.2. Installation control cards

#### 1) Installation control cards:

We recommend to use the display card which contained with both VGA and DVI output port or double DVI output port, such as GeForce 7100GS (recommend to use) .



(1. Display Card slot; 2-5 Slots for Sending Card and TV or Video Capture Card, 6 Display Card; 7 Reinforcement Screw for Display Card)

#### 2) Installation LED Screen sending card



First, Insert sending card into computer mainboard PCI slot; then connect the DVI port between display card and sending card with DVI cable, and then connect PC COM port and sending card RJ11 port with serial transfer cable.

#### 3) Hardware Connection

Connect the power supply of screen, signal wire between cabinets, signal wire between PC and receive card.

---

⊕ **System Configuration List:**

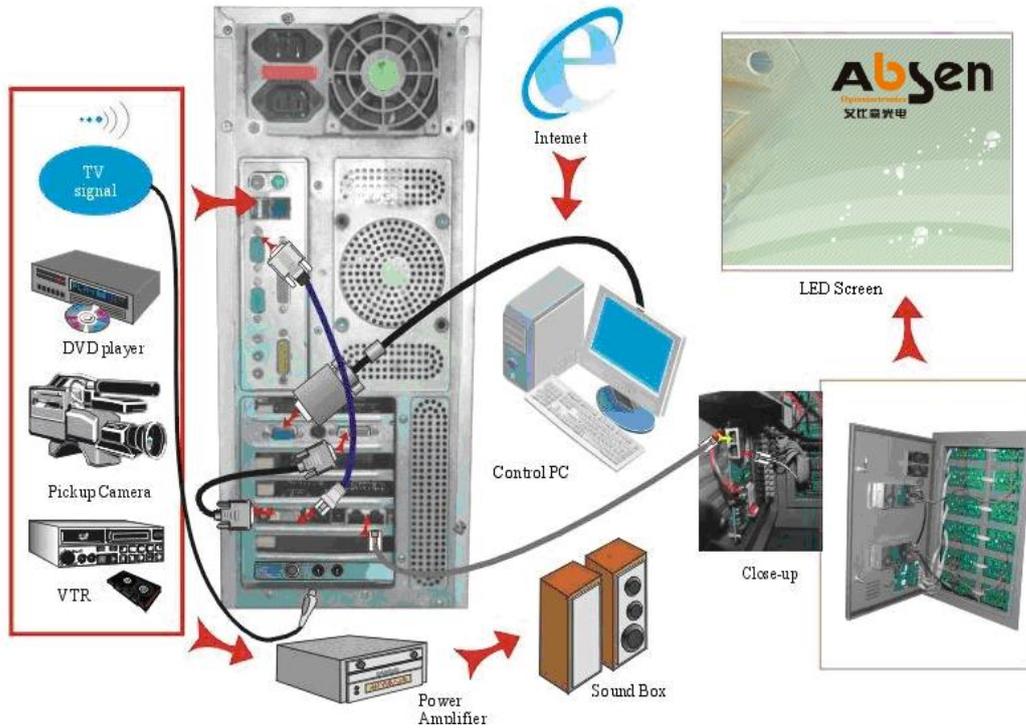
- 1).Sending card: 1pc
- 2).Receiving card: Confirm the amount according to the screen
- 3).Serial transfer cable: 1pc
- 4).DVI cable: 1pc
- 5).SUPER CAT5 IBDN Cable: 1pc

### **3.3 Cable connection step:**

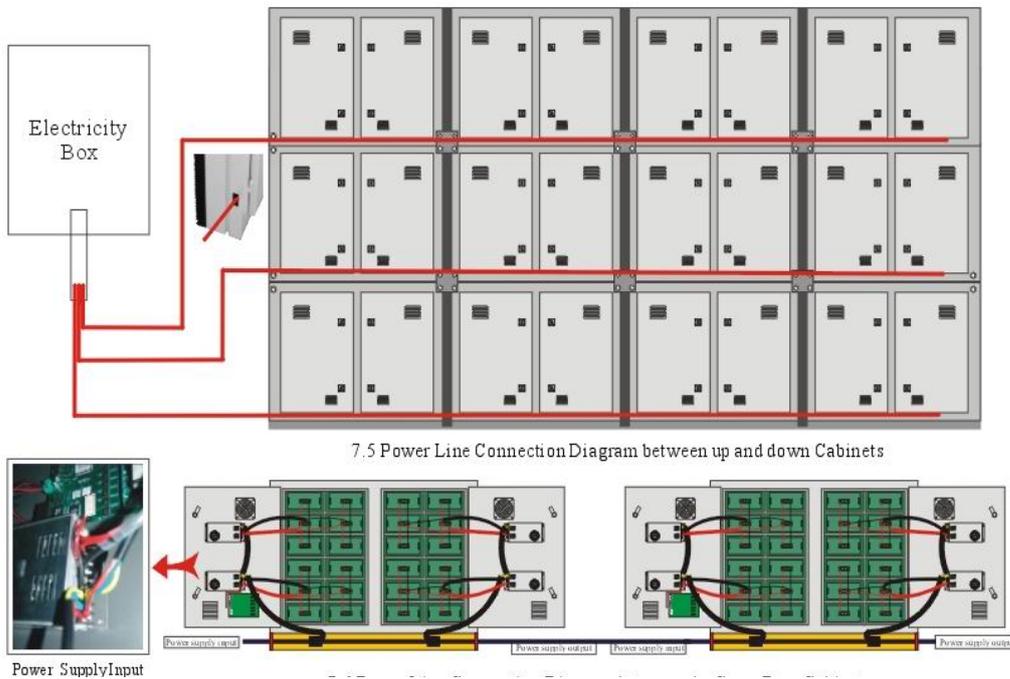
1. Preparation:

- 1). Uncover PC host, change common display card by DVI double output display card
- 2). Install sending card and connection all cables(DVI and RS232 cable)
- 3). Covers the PC host and startup computer.
- 4). Install DVI display card driver (NVIDIA or ATI) and sending card driver step by step.
- 5). Setup display card advance setting (refer to next chapter)
- 6). Install LED Screen program. (LED Studio), install serial number is 888888.
- 7). Connect the LED Screen sending card with the input port of first receiving card in the cabinet.

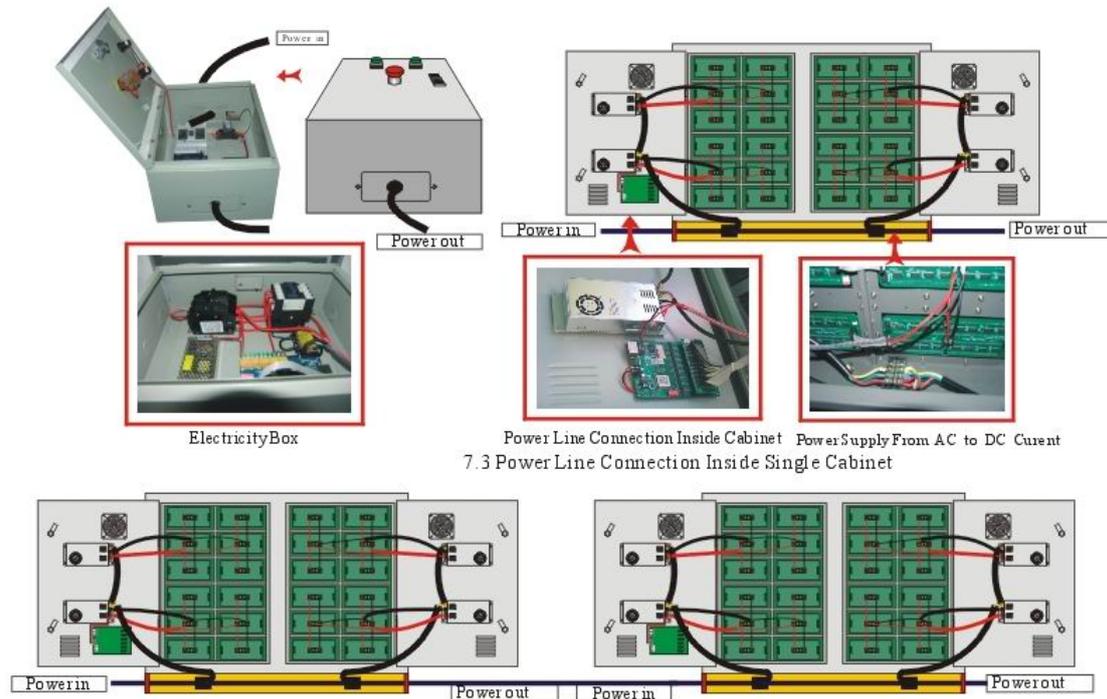
Outside wire connect as following:



Power cable connection as following:



Module cable connection as following:



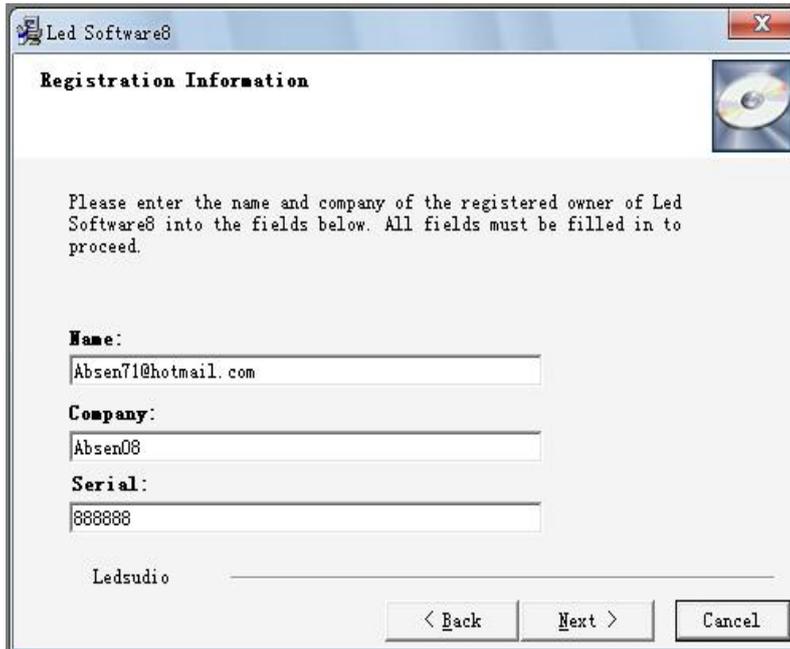
### 3.4 Software installation:

1. "LED Studio D8" can be easily installed, as shown below:

Put the "LED Studio D8" installation CD into the CD-ROM, the Installation Menu will automatically pop up. If not, then select this CD-ROM, double click it with your mouse, then select "Install LED Studio D8" (as Shown in Figure) and double click the icon to start the Installation Guide.



After that, simply follow the instruction on the screen. Note: This software is protected by a serial number. Please enter the correct serial number "888888".



After “LED Studio D8” software has been successfully installed, there will be a “LED Studio D8” program group in the 【Start】/【Program】/【LED Soft】 , then move to the “LED Studio D8” under this program group, click the icon to start program. Also, there will be a “LED Studio D8” short-cup on your desktop,as shown below. Also, you can start the program by double click on the icon.



LedStudio8

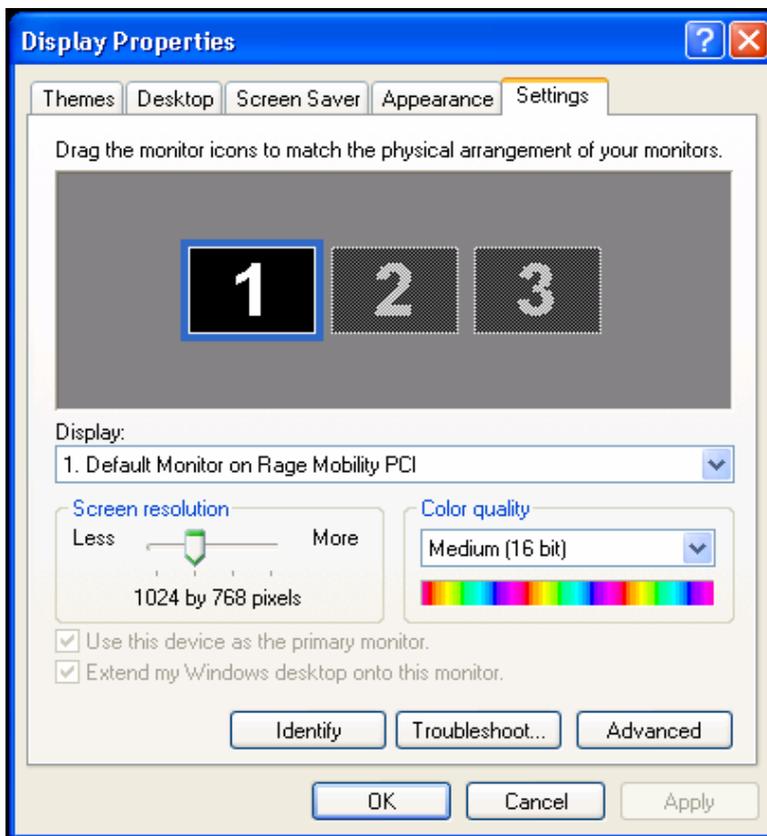
LED studio software detail operation , please refer to “LED Studio user’s manual”

## Chapter 4 Display Card Setting

Usually we have two different type display card, they are used nVIDIA or ATI display control IC, detail setup as following chapter 4.1 and chapter 4.2.

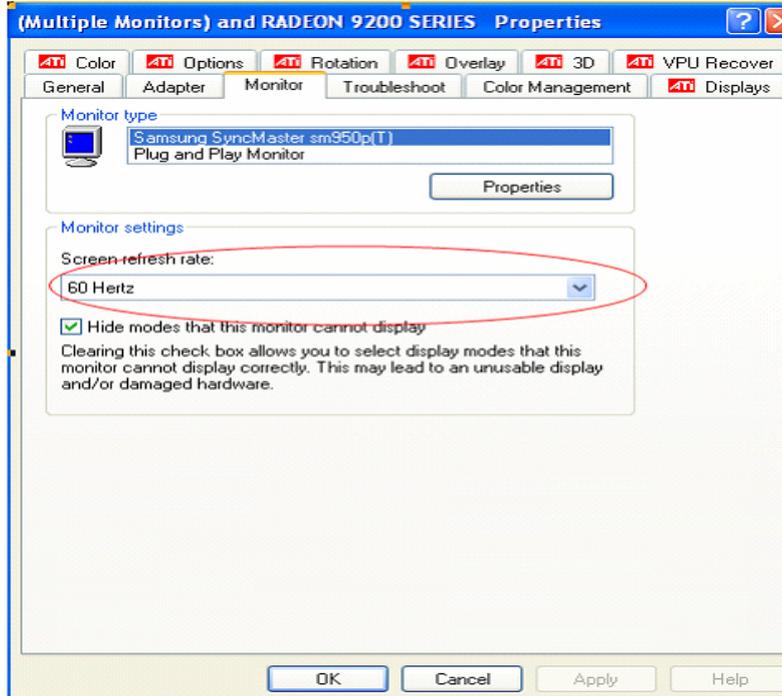
### 4.1 ATI Display Card setup

1. Press right bottom of MOUSE on the blank of desktop, enter into shortcut menu and choose Properties, setting the screen resolution to 1024 x 768 pixels as follows:

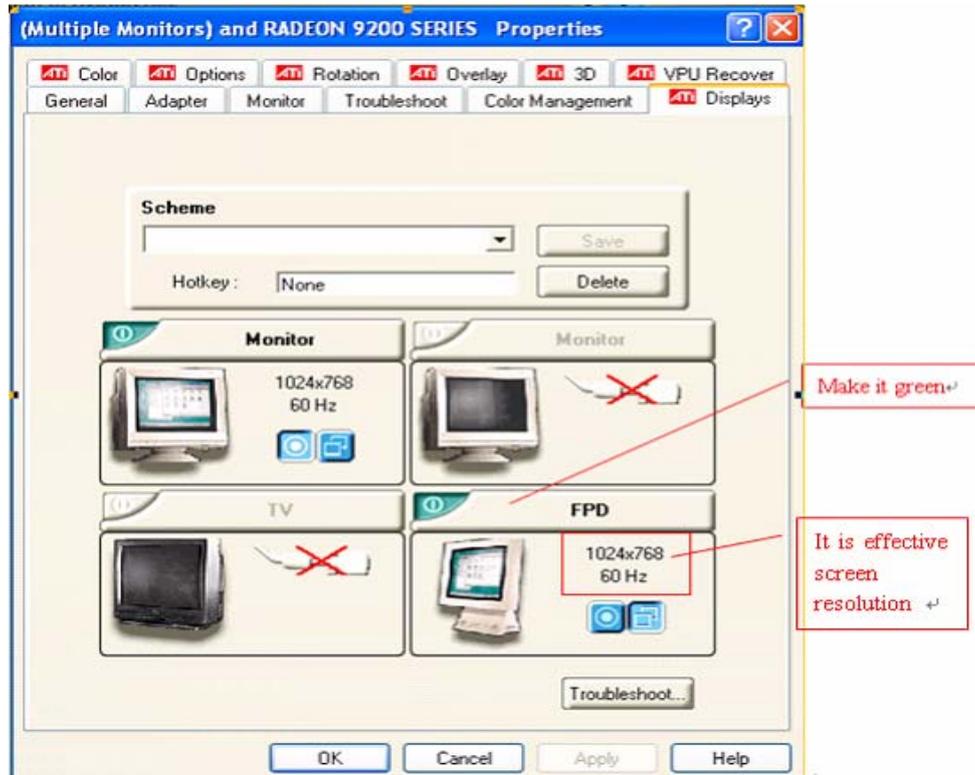


2. Press "Advanced" to setting the renovating frequency of the monitor to 60HZ as

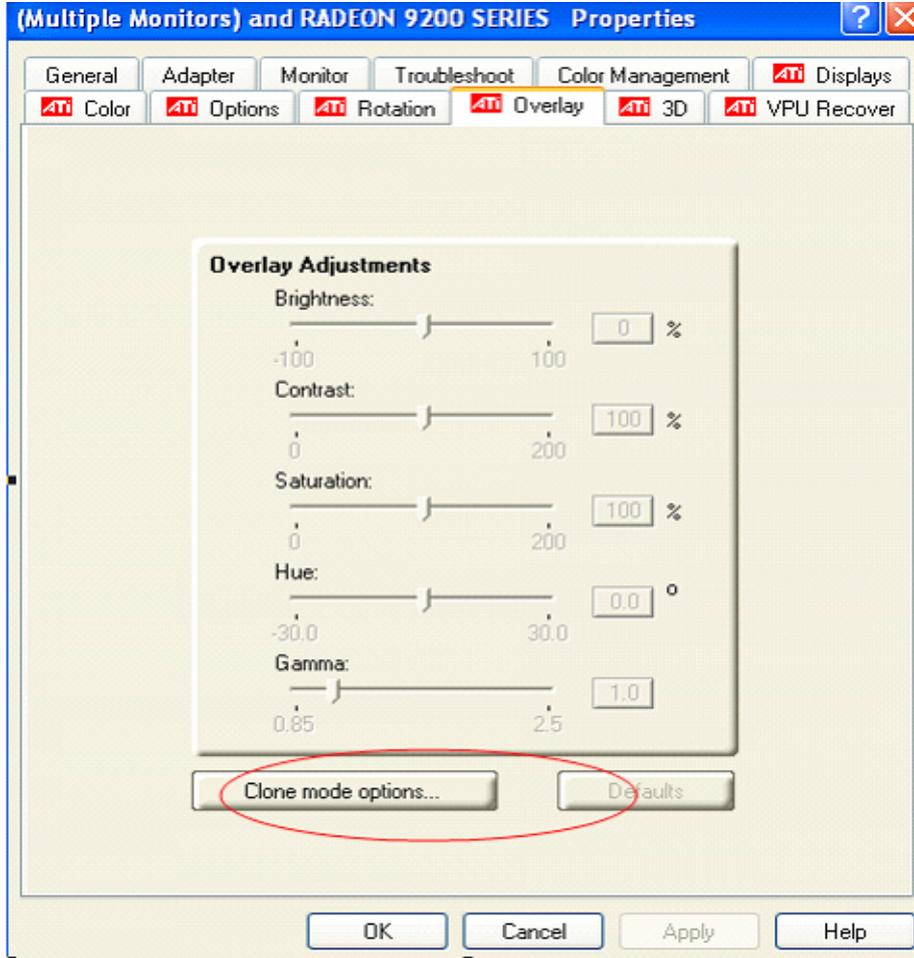
follows:



3. Press "display" option, turn FPD to green color as follows:

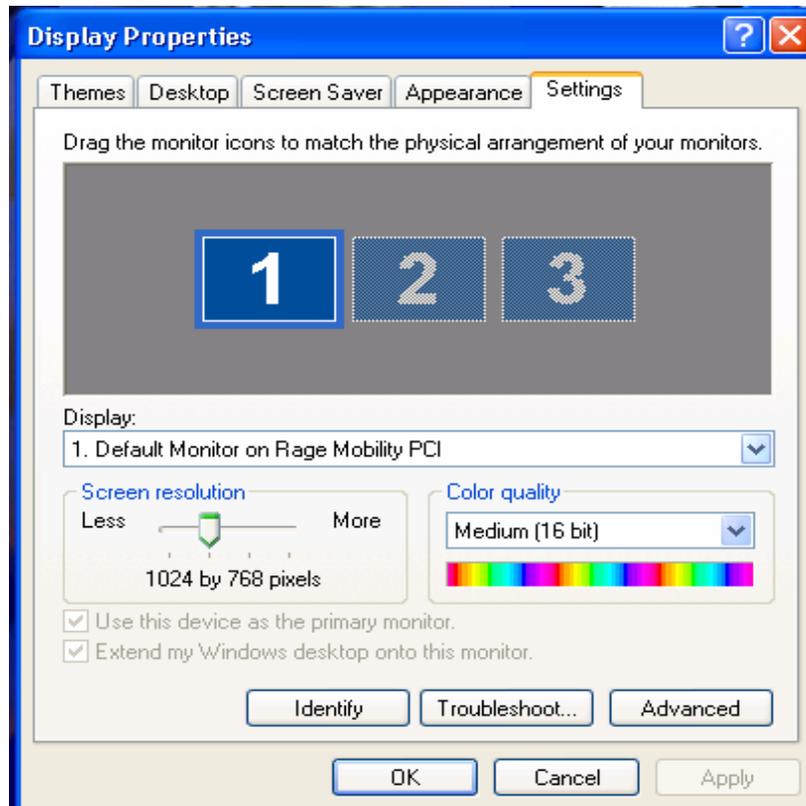


4. Press “Recover” option, enter into “clone mode options”, and the choose “Same on all” as follows:

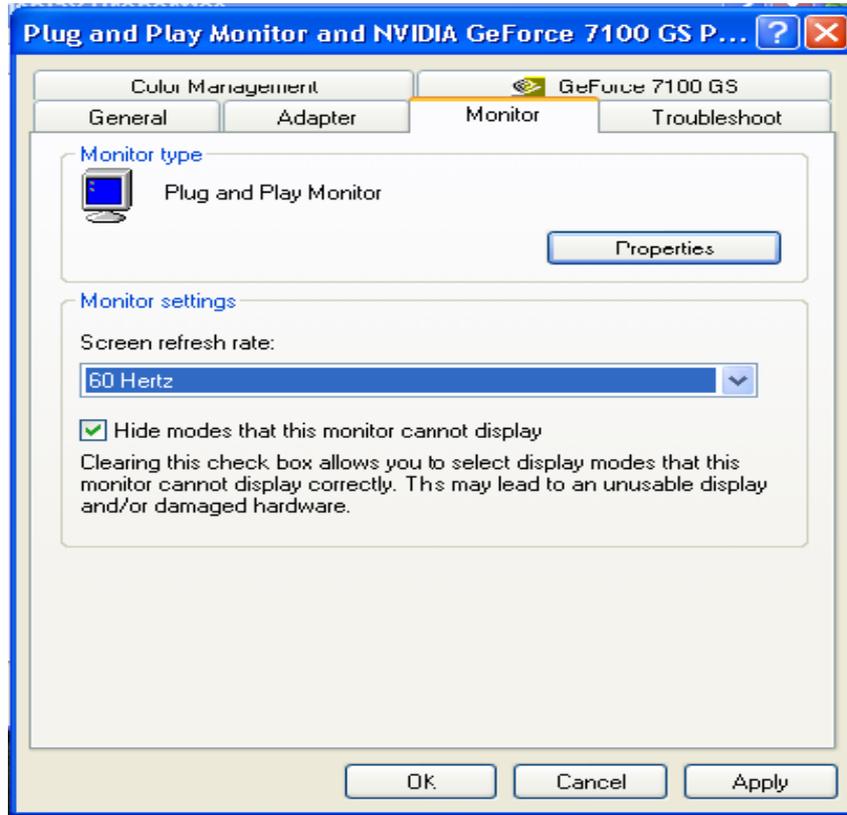


## 4.2 GEFORCE Display card setup

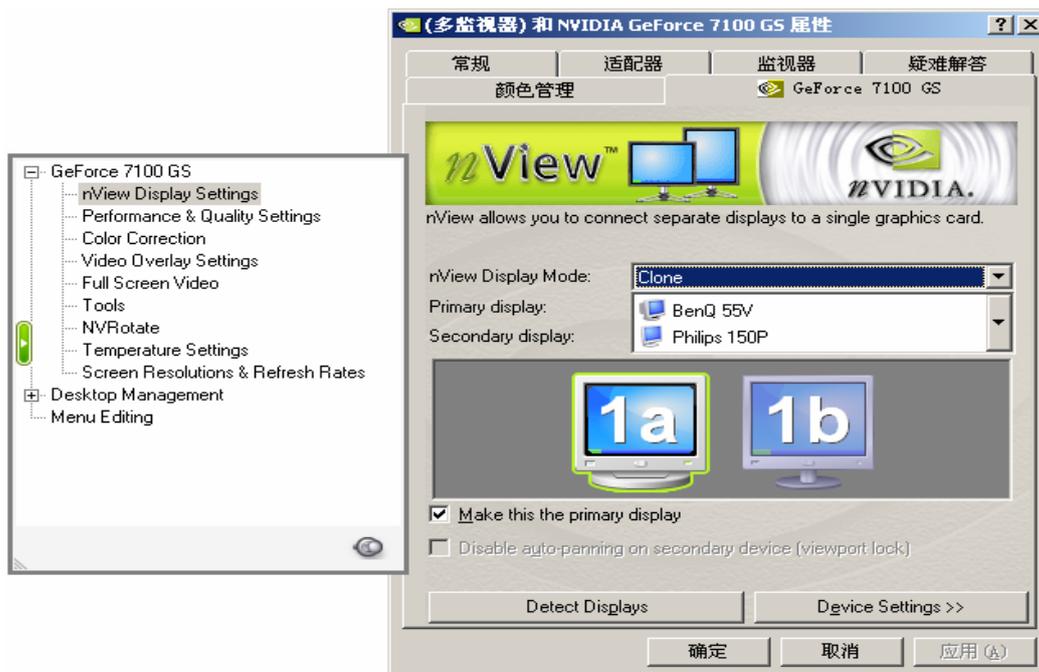
1. Press right bottom of MOUSE on the blank of table-board, enter into shortcut menu and choose Properties, setting the screen resolution to 1024 x 768 pixels as follows:



2. Press “Advanced” to setting the refresh rate of the monitor to 60HZ as follows:



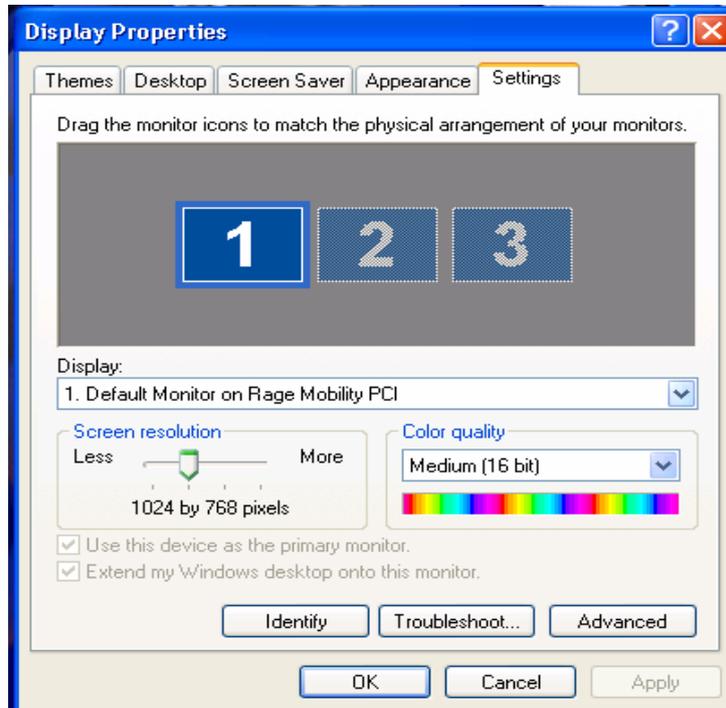
3. Press “GeForce 7100 Turbocache(TM)” options. Choose nView Display Settings menu, and press “Clone” on the options box as follows:



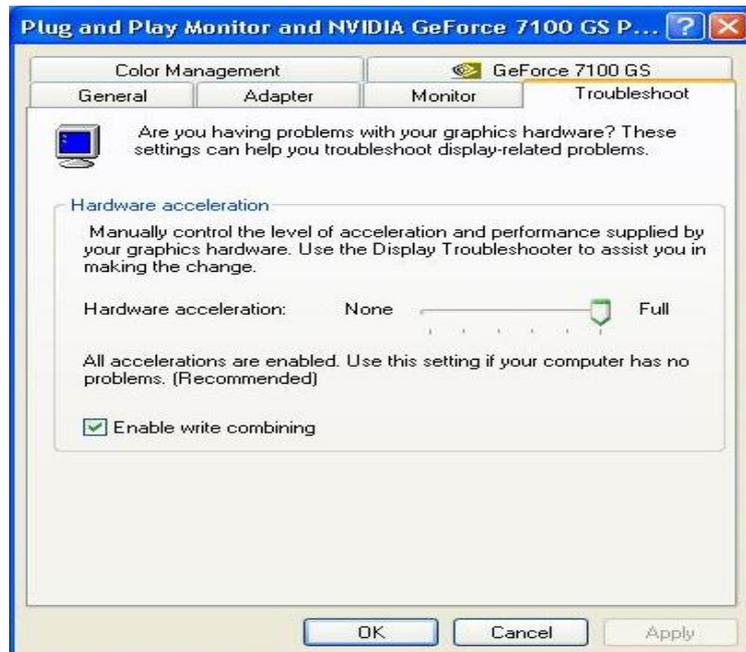
Choose “Application” and “Confirm”. Quit from Properties Selection.

## 4.3 Computer Troubleshooting Setup

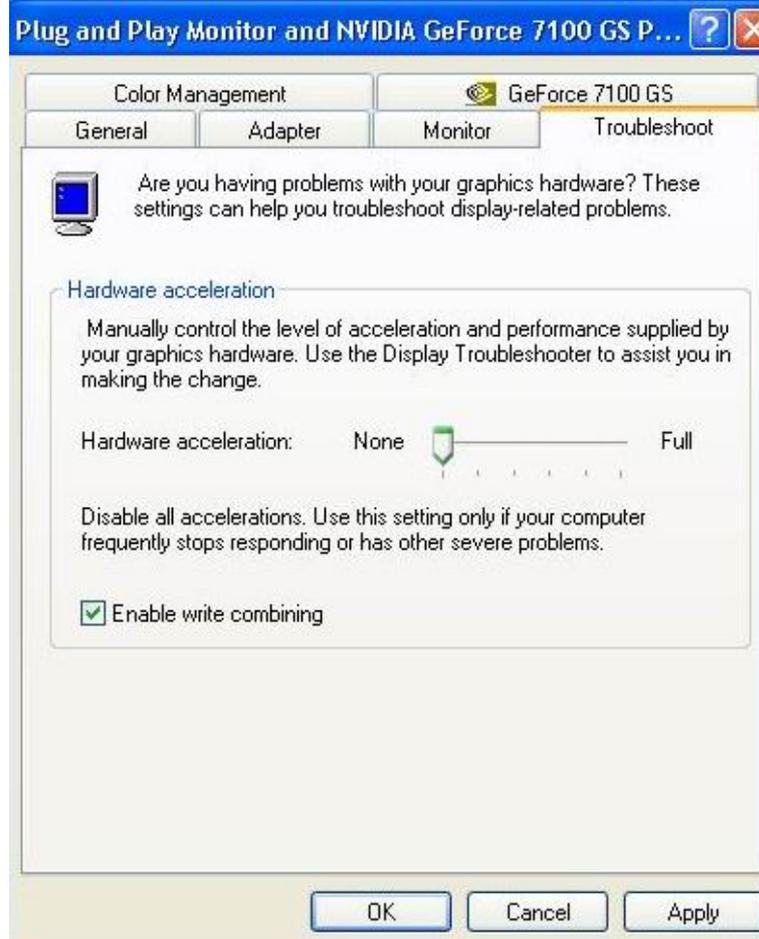
1. Press right bottom of mouse on the blank of table-board, enter into shortcut menu and choose Properties:



2. Press "Advanced" to get "Troubleshoot" menu as following:



3. Pull the “Hardware acceleration” from “Full” to “None”, an following:



Choose “Application” and “Confirm”. Quit from Properties Selection.

---

## Chapter 5 Troubleshooting

### 5.1. System checking method

Please check system according to the following steps if the LED Screen can not work normally after finishing the connection and the power supply:

- 1). Check the power supply system of the screen
- 2). Check the settings of LED control software
- 3). Check power supply, display module, scanning board, power supply indicator light. measure connector plug of the relative circuit board is  $DC5V\pm0.3$  by multi-meter.
- 4). The green Light on the receiving board will winkle under normal condition.
- 5). The Red Light and the green Light on the main card will last-shining and twinkle respectively under normal condition. If the Red Light does not work, check the main card. If the green Light does not twinkle, check the display card properties settings or check the DVI wire.
- 6). Check LED Screen module circuit according to the following steps:
  - Step 1. Check if the connect wires between display module are connect according to the indication.
  - Step 2. Check scanning board polarity and module connection.
  - Step 3. Check the indication light of sending card.
  - Step 4. Check the indicating light of the receiving card.
  - Step 5. Check the connect system refer to the accessory connect mode.
  - Step 6. Check the connection of DVI wire.
  - Step 7. Check the display card settings; please refer to the display card setting part.

## 5.2 Common Troubles table

Trouble Description	Trouble Analysis	Solution
The whole screen do not work	The power supply does not work	change power supply
	LED Control software setting power off	Setting control software to power on
	Signal cable does not connect well	Reconnect signal cable
	The LED Screen shows black color	Reset the computer desktop back color
	Module power supply does not connect well or voltage does not match	Make sure the voltage above DC4.75V
	The connect wire between module and scanning board is too long	Reduce the length of the signal cable
Screen twinkle	Signal cable longer than the stated length or some problem with cable wire	Make sure the cable wire quality is ok and the length is no more than 130 meters
	Signal cable does not fasten stably.	Re-insert the cable
Control software are out of control	RS232 cable is unplugged or plug laxed	Re-plug the RS232 cable
	Some trouble with LED unit module	Check the module
	Display card setting incorrect.	Reinstall the Display card
	LED Control software is locked	Open the control software
	Power supply will not increase when increasing power supply to the module	Increase power supply of receiving board

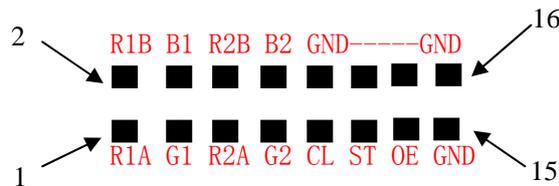
## Chapter 6. Signal PIN definition and CAT5 facture

### 6.1 Module PIN definition:

For the convenient to maintain LED Screen, we offered module signal pin definition as following:

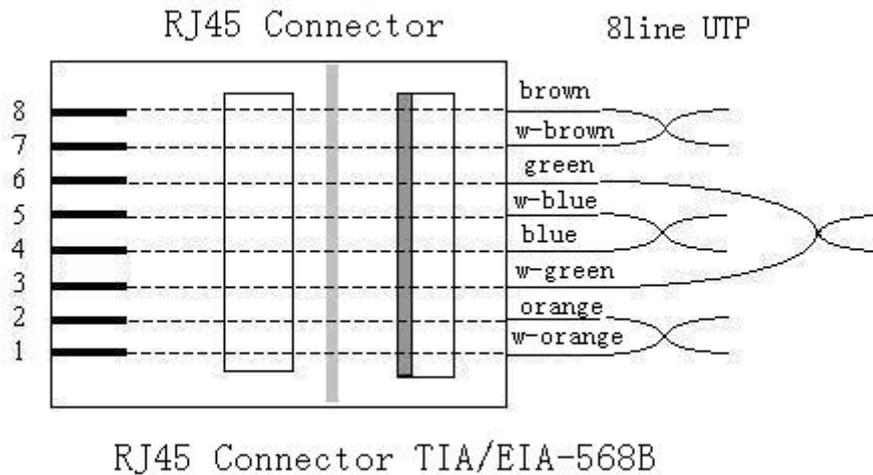
★ **Single pin definition:**

- GND= Ground
- ST = Latch signal
- CL = Clock signal
- OE = Enable signal
- R1A, R1B = First Red data
- G1 = First Green data
- B1 =First Blue data
- R2A, R2B = Second Red data
- G2 = Second Green data
- B2 =Second Blue data



## 6.2 Signal wire facture:

Communication wire (connect transfer card and receive card or connect between cabinets) according to the following standards facture.



1. Take off 3cm at the front end outer skin of the double-twist cable with special double-twist cable peeler (or other tools)
2. Match wire correctly

Please make sure that: wire1 and wire 2 form a circle match; wire3 and wire4 form a circle match; wire5 and wire6 form a circle match; Wire7 and wire8 form a circle match. At both ends of the wire, same methods will be used. The wire match is arranged in serration after certain color sequence. (Such as: 1、white orange, 2、orange, 3、white green, 4、green, 5、white blue, 6、blue, 7、white brown, 8、brown) .

After matching the wires, trim the wires; cut off the bare part of the double-twist cable, with only 15mm length left outsides. Wire heads shall be trimmed to uniformity, then put each wire of the double-twist wire into to RJ45 connector lead, the first lead shall be connected with orange-whitish wire, and the following in the same sequence. After all the double-twist wires have been placed tightly, then press wire and let the wire to meet with the RJ45 connectors with RJ45 wire-meet clamp

On the other end, the connection method is the same; after all above action completed, the RJ45 connectors shall be in uniformity\ . At, test the connection with measuring equipment, then the RJ45 connector is OK.

---

**Signal wire (connect sending card and receiving card) should be made as following steps:**

One side: 1. white orange, 2. orange, 3.white green, 4. blue, 5. white blue,  
6.green, 7.white brown, 8、 brown

Another side: 1. white orange, 2. orange, 3.white green, 4. blue, 5. white blue,  
6.green, 7.white brown, 8、 brown

**If all above measures have been take, problems still can not be solved, please contact us through E-mial、 FAX or phone call to get after-sale service.**