Useful Tips & instructions
Created by ERALED

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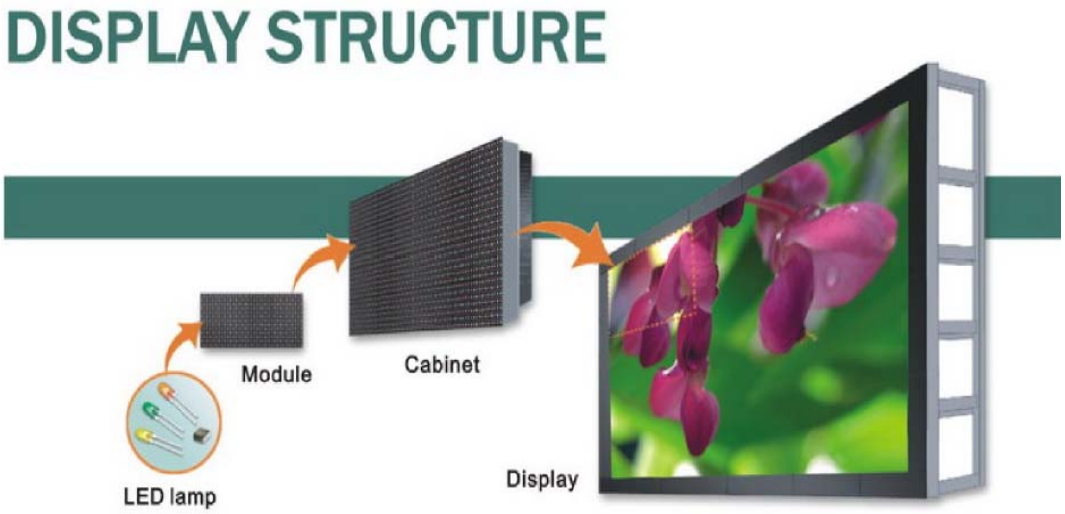
Part 1: Detailed explanation about the items mentioned in the quotation list

1.What is LED display screen body?
The LED display screen body is the final completed product for a digital video, graphics or text showing, it was composed by a certain rows and lines of LED display cabinet; the cabinet was composed by a certain quantity of LED modules, each LED module was composed by a certain rows and lines of LED pixels; each LED pixel were composed by a certain number of LED (1R1G1B, 2R2G2B, 3R2G2B etc.).



2. What is sending card, receiving card, hub card & IPC of the LED display screen system?
(1)Sending card, receiving card & hub card is the LED display screen's main parts of the control system. Sending card is installed in the controlling IPC, it is the data sending equipment； receiving card is installed in the cabinet, is the data receiving equipment; hub card is installed together with the receiving card, is the data distribution equipment. The hardware of the control system also includes the controlling IPC. It's better to use special IPC for the led display system since the common home use PC is not tough enough for continuous nonstop long time using. The controlling software is usually free and can download freely from the system provider's website. Our website also offers the load interface, but the newest version will be always on the system provider's website. All the above composed the main necessary parts of the control system.
(2)For the LED video display screen system: the most common use control system is LINSN, 2ND common use control system is DPSTAR, 3RD common use control system is ZDEC.
If you were new comer for this LED display system, you'd better choose LINSN system since the controlling software is very user friendly and the system's compatibility is the best.
DPSTAR has the same functions as LINSN, but the controlling software is not as user friendly as LINSN software. So the application of this system is not as wide as LINSN too.
ZDEC were focusing on the high level market, but failed in this market in the end. So now, it has a new popular version V8 system which has similar controlling software. The controlling software is still not as user friendly as

LINSN software. But the fresh frequency is very high (the fresh frequency of the static LED display is 10,000HZ, which is 10 times higher than the above 2 systems.

Besides the above 3 mainstream full color synchronous controlling system, there are also many other new systems, like NOVAL from Xian. Some system has very powerful function, some has very good user friendly interface. But none of them can compete with the above 3 mainstream system since the system's compatibility, function & programming software always have a very serious defect.

(3) Controlling system has a very strong relationship with the quality. If using a poor system, even the LED display's quality is high, the screen will still cannot have a perfect showing effect. If you were a new comer/user, then LINSN will be the best solution. But if the LED display's size is very large, like more than 50 SQM, then we'd better choose a more powerful system ZDEC-V8 since high fresh frequency is really very important for large LED screen. If you plan to stay in the LED display screen's industry for a long term, then we'd better choose the most powerful system ZDEC-V8 too. Of course, if you plan to build a LED billboards for your own small shop use. Then there will be no any meaning to spend a lot of time on the software and system using study for the ZDEC-V8 system. Another point which needs careful consideration is: if you never touch with the LED display before, then you'd better leave for minimum 1 day for learn & study how to use it. If you have an urgent project need for the LED display, then you have to leave a little more time for unexpected study obstacle.

3. Aluminum cabinet: comparing with common iron cabinet, aluminum cabinet is 100 USD/SQM higher than the common iron cabinet. Weight of aluminum cabinet is lighter than iron cabinet (iron cabinet: 70KG/SQM; aluminum cabinet: 45KG/SQM).

Aluminum cabinet has much better rustproof ability & longer using lifetime. But for the best rustproof solution, we suggest you choose hot galvanization method. By using hot galvanization, the iron/ aluminum cabinet will has the highest rustproof ability.

If using hot galvanization method: the cabinet size should be less than 1.5*1.5meters. Cost of this solution is 70USD/SQM.

Aluminum has higher possibility of bended during moving and installation period, so if not for rental use and no need for moving to different places frequently, then iron cabinet with hot galvanization will be a better solution than using aluminum material only. If the main application is for rental use & need to move to different places frequently, then aluminum cabinet solution will still be better than the iron cabinet with hot galvanization solution

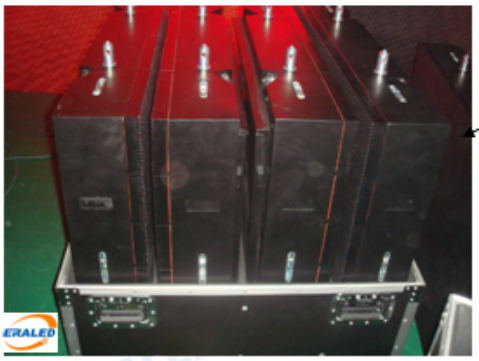
4. Flight case packing? What is wooden case packing & paper carton packing?

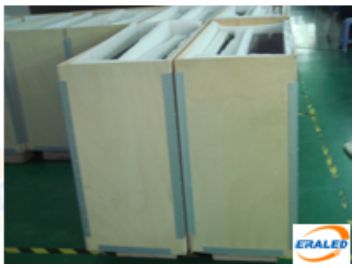
1>Flight case is use for rental application. It is tougher than the wooden case and the paper carton. It has 4 wheels and has 8 handles to make the transportation be very convenient and can be protected the LED display better. Cost is higher than the wooden case

2>Wooden case is for one time using, after unpacking, it cannot use any longer. For the fixed installation LED display system, wooden case packing is the only way and the best way for packing since the low cost and almost same safe level for one time using.

If your LED display screen system is for the rental use, please choose the flight case packing for your LED display screen.

3>Paper carton packing is only for domestic transportation and air freight using.





5. Hanging beam, lock button & cabinet inner structure is the rental use accessories:

(1) Hanging beam is one of the main parts for the rental display's structure. When the rental display's total height is less than 4 meters, then only the hanging beam is enough to hang it up; if the total height is more than 4 meters, then we also need a bottom base. One hanging beam is usually one cabinet's length; one hanging beam can also be 2, 3 or even more cabinet's length. The longer the hanging beam the better the screen's flatness will be. But when the hanging beam is longer, the free combination ability will be lower. So the most common use hanging beam length is equal to the cabinet length.

The following photos can give us a more clear idea on what is hanging beam:

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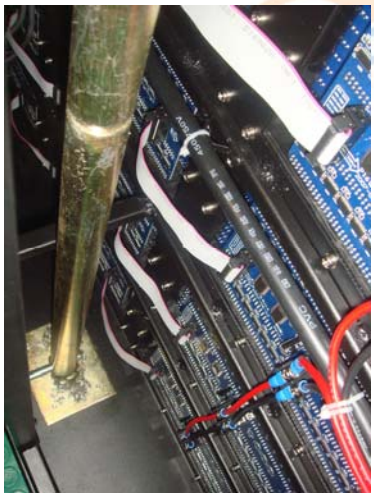
(2)Lock button: lock button is mainly for rental use: the advantage of the lock button is that it can make the cabinet assemble be faster and make the cabinet connection be more tight and flat than the normal standard LED display cabinet.

The lock button also widely used for sports stadium perimeter display, mobile truck & mobile trailer LED display.

The detailed diagram on what is the lock button is like the following photos shows you:

(3) Cabinet inner hanging structure (hanging suspender/pole): this is the main equipment for bear the total weight of the screen. This photo can help you get a clear idea on this concept:



(4) Diagram of intensive hanging cabinet structure is like what the following photos show you:

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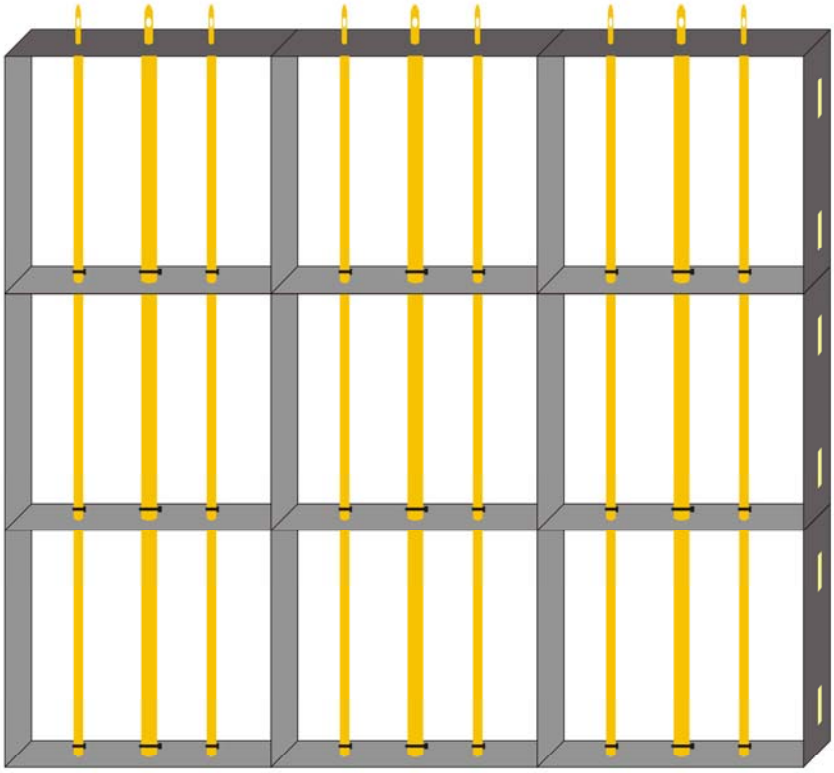

6. HD LED video processor: HD LED video processor is used for connecting HD video signals and other common video signals. The LED video processor can also control the LED display directly, which means we can install the sending card in the LED video processor directly and control the LED display without using IPC. For the common program making, IPC is much more convenient than the LED video processor. The main function of the LED video processor is expanding the video signal sources. Some signal has to connect with the LED video processor first, then can display on the IPC. For example, the live show signal has to connect with the LED video processor first --->then can display on the IPC.

The LED video processor has HD format (1920*1080) and common format (1024*768). If the LED display's definition is higher than 1024 pixels in length, then we'd better use the HD LED video processor. If the LED display's definition is less than 1024 pixels in length, then we can just use the common format LED video processor (support 1024*768 pixels)

The LED video processor has many optional models and each model has a little difference on the functions. For more detailed introduction on the LED video processor, please check the following link: http://www.videowall.cn/en/

If the LED display is only used for showing common format videos, graphics, text, and no need to connect to other signal sources, like camera, DVD, then we don't need the video processor. Only one IPC will be very enough.

7. Mounting legs, soft mask & soft top cover is the main parts of the sports perimeter LED display.

(1)Mounting legs of the sports stadium perimeter display is a special bracket of the cabinet. This bracket can help the cabinet slope a certain degree. As you know, the audience & the live show's camera is usually much higher than the sports stadium perimeter display's cabinet itself. So if the display cannot slope down a certain degree, then the viewing angle will not be good. In order to let the audience & the live show's camera get a perfect viewing angle,

mounting legs of the cabinet is important & the necessary parts of the sports perimeter display.

(2)Soft mask is a special module mask which is different from the common hard mask: it is soft which can protect the player if the player falls on the LED display suddenly. Only the outdoor LED display models: P12, P16, P20, P25 have soft mask. The most common use model is P16 & P20 outdoor LED video display models for the sports stadium perimeter application.

(3)Soft top cover is a special half round cover which has a circle of soft rubber. The main function is also protecting the player if the player falls on the LED display suddenly. All indoor and outdoor models can be equipped with the soft top cover to protect the player.

8. Dot correction is a new technology. After color & brightness dot correction, the color & brightness consistence will be much more improved comparing to the common LED display. Until now, ZDEC, NOVAL, DPSTAR, LINSN all the control system provider try to occupy this market. But none of them have a mature technology with user friendly software and high compatibility. So in the end, this market in China is still a blank. There're more failed cases than successful cases in this aspect. In this aspect, all spend too much money, but not getting a satisfied improving effect. From 2006 till 2011, no good mature dot correction system can be widely used. So if you plan to buy the LED display from China, you'd better not choose this dot correction solution. The key quality depends on the LED chip & the driving IC. As long as we ensure the key components quality is good, the final result will be the best. Dot correction is also wrongly used for some companies who use poor quality LED chip with advanced dot correction system to make the LED display's showing effect be perfect at the beginning. If so, the long term using will be a big problem since the lifetime will be much shorter if using dot correction in this condition.

9. Generator, environmental mute ark & power distribution cabinet is the necessary components of the mobile LED display & the sports perimeter LED display which is not easy to get the power. The power of the generator & power distribution cabinet depends on the LED display's power consumption. The bigger the LED display, the higher the power it need. For the environmental mute ark, it is used for reduce the noise of the generator. Because the generator is usually using diesel and the noise is big. So the environment mute ark is very necessary, esp. . for the mobile LED display, sports LED display and rental LED display.

10. Sound box & amplifier is the sound equipment, this is usually need to customize according to the installation site. Some outdoor installation site also need waterproof sound equipment. The power depends on the advertising space. Before buying this sound equipment, we'd better have a detailed talk with the professional sound equipment provider.

11. Multi-function card is also called environment monitor, which can help the LED display screen system achieve many functions, such as automatic false alarms, fire & smoke alarms, brightness adjustment, etc.
Nowadays multi-function card is mainly used for outdoor LED display screen's brightness control: brightness control is needed, esp. . for outdoor LED video display screen since the outside environment brightness level is changing during the daytime. If we don't adjust the brightness according to the environment's brightness, then LED display screen system will not have a perfect viewing effect: in the morning and afternoon time, the LED display will be too bright and harmful to people's eyes, also waste electricity.
There's two ways to achieve the brightness control: manually changing & automatic changing. The automatic brightness changing can adjust the LED display screen system's brightness perfectly according to the environment's brightness level. But the reason why the multi-function card is not widely used is: sometimes, esp. . during the rainy

or windy day, the environment's brightness changing is very great. And if the LED display's brightness also changing so greatly according to the environment's brightness, this will even affect the traffic light system. Normally the LED display's brightness can be adjusted better by the software. For the indoor LED display, because the indoor environment's brightness is almost always stable. So the application of the multi-function card is still very limited.

12. Shipping: when we can use air transportation & when we can to use the ocean shipping?
(1) Air transportation is fast, but the air freight is very high. The net weight of the LED display screen is around 45-70KG/SQM (45KG/SQM for aluminum cabinet & 70KG/SQM for iron cabinet); after packing the total gross weight is around 65-95KG/SQM (65KG/SQM for aluminum cabinet & 95KG/SQM for iron cabinet). So you can have an estimate on the general cost. It takes around 5 days from Shenzhen to most main air port in the world.
(2) Ocean shipping is slow, but the ocean shipping fee is much lower, only around 30-150 USD/CBM. It takes around 15-40 days from Shenzhen to most main sea port in the world. The packing size is around 0.4 CBM/SQM. So you can have an estimate on the general cost after you figure out the total packing size.

14. Quality grade & the LED chip (high grade quality with CREE LED chip or middle grade quality with SILAN LED chip?)
1> Cree chip is the first class LED chip in the world which has very high reputation. The characteristic is: high & stable brightness, long lifetime, low brightness depressing rate & most stable brightness level. Quality warranty time is 5 years. For a continuous normal using with CREE LED chip, you can use more than 5 years with no any problems. If you plan to build a LED billboards and plan to use it for more than 5 years, CREE chip will be the best solution. Many new users are not familiar with this aspect and looking for cheap and fine product, in the end only get cheap but not fine product at the beginning. After the new users using other common LED chip and meet much problem, then most of the new users switch for better quality LED billboards. For small projects, this method is okay, since even the 1st LED billboards not working well, the lost is still small. But for big LED billboards projects, it will be a big loss and great tragedy. So the bigger/larger the LED billboards, the better the quality it need. Once a big LED billboards projects were not successful, the new users may even go broke directly.

2> SILAN is a Chinese brand. It is one of the most cost effective solutions in our domestic local market. But the quality is not as high as CREE & Nichia (higher rate of dead lamps & brightness attenuation). Quality warranty time is 3 years. For a continuous normal using with SILAN LED chip, you can use only around 3 years with no much problem. If you plan to build a LED billboards and plan to use it for more than 3 years, SILAN chip will not be your best solution. Many new users are not familiar with this aspect and only looking for good price at the beginning. So they just use SILAN LED chip. What's worse, many companies just using fake SILAN LED chip, this make the poor condition be worse if buying this kind of LED billboards from such irresp. onsible factory. If so, the LED billboards will only using no more than 1 year, even 6 months, then will meet many problems. Such problems will never be fixed since the key components were not good from the beginning.

3>Summary: most suitable will be always the best; but the best will not always be the most suitable. Finding the most suitable solution is always a better idea than finding the best solution. The following aspects need your careful consideration:

(1)Time of ROI (return of investment): any kind of investment need a certain income & profit to maintain & continue, time of the ROI is one of the most key factors when you make the final investment decision.
If the local advertising rate is high and this high advertising rate can ensure your time of ROI within 1 year even

choosing the top grade solution, then there's no any doubt for you to choose CREE/Nichia LED chip for this LED display project.

If the local advertising rate is low and this advertising rate cannot ensure your time of ROI within 3 year even choosing the middle grade quality, then there's no any doubt for you to choose SILAN LED chip for this LED display project. In this condition, if using the top grade quality, there will be no any meaning for this investment since the time of ROI is too long. Maybe never withdraw your investment.

So the best is not always the most suitable; the most suitable will always be the best!

(2)Installation & using condition: generally speaking outdoor using has much higher quality requirement than the indoor using since the outdoor environment is much worse than the indoor environment.

For the outdoor LED display, we'd better using better quality in order meet fewer problems. If for outdoor using, we'd better choosing higher grade quality to get fewer problems.

For indoor LED display, the temperature, humidity condition is quite stable and all aspects much better than the outdoor using condition. In this condition we can just choose the middle grade quality and the quality will still be quite stable since the using environment is good.

(3)Application & using time is also an important factor: if the LED display has to use more than 12 hours a day, then it requires higher quality; but if the LED display only use several hours a days, then a middle grade quality will be quite enough.

For example, if an outdoor fixed installation LED billboards need to use around 15 hours days, 365 days a year, then the quality requirement should be high since the long time continuous using is a very hard burden for the LED display screen system.

If the LED display is for sports stadium using, and need to use only maximum 5 hours one time; 50 days a year(normally there will be less than 50 matches take place in a sports stadium). In this case, a middle grade quality LED display will be quite enough for this application.

Generally speaking, fixed installation LED display has higher quality requirement; rental, mobile, sports LED display has a little lower requirement for the quality.

(3)Resolution (pixel density/pixel pitch): resolution is also an important factor:

For very small pixel pitch: like 3mm, 4mm indoor models;10mm,12mm outdoor models: the resolution is quite high, higher resolution means more LED chips needed for it, cost also very high. In this condition, we'd better just choose a middle grade quality to maintain the total cost not too high.

But for big pixel pitch: like 7.62mm, 10mm indoor models; 16mm, 20mm outdoor models: the resolution is not very high, lower resolution means much less LED chips needed for it, cost also lower. In this condition, we'd better can choose a high grade quality to get longer using time and less future maintenance problems.

North America & Western Europe has the most strict & highest quality standard, there's the reason why Barco, Darktronics sell only top quality LED display with CREE/NICHIA LED chip, but most sales were big pixel pitch models, like 20mm, 25mm outdoor. Even Barco, Darktronics sell mainly 20mm, 25mm big pixel pitch models, but 95% customers still cannot afford the high cost.

China doesn’t have so high advertising rates & so high quality standard as north America & Western Europe: 80% domestic sales of the LED display were using SILAN LED chip with middle grade quality. So in China: 25mm pixel pitch model is almost gone out and nearly no any customer requires that any longer. 20mm pixel pitch is also go out little by little. Now: 16mm pixel pitch becomes the most common use outdoor model & 6mm pixel pitch becomes the

most common use indoor model. 10mm pixel pitch outdoor model & 5mm pixel pitch indoor model were also more and more popular in China.

(4) Max budget: budget is always one of the most important factors. There should be a practical business for any kind of investment, and the max budget should be fixed before taking any action. The cost of the LED display project not only includes the LED display body cost only, but also includes shipping, insurance, maintenance, etc. So we have to leave enough space for future operational cost within the budget. During the finalization, if we find the original budget is not practical, then we have to recheck the whole business plan again. If not, we may lose the whole meaning of the original plan.

15. Driving IC: the LED display's driving IC is the 2nd key component of the LED display; the importance is only second to LED chip. The most common use LED driving IC is MBI5024. Now there's a new version MBI5035 which can save up 60% of the power. Another model-MBI5042 is the high grade version which supports dot correction, high fresh frequency & high gray grade. Beside MBI LED driving IC, there's also many other optional brand (eg. YZ5024). But the quality is not as reliable as MBI LED driving IC.

16. Conventional solution & energy saving new solution:

(1) Conventional solution means use the most common use configuration for the LED display, it means using MBI5024/ MBI5042 driving IC with CREE/SILAN LED chip. The power consumption is usually around 200-1000W/SQM for most models of the full color LED display.

(2) Energy saving new solution means use the new energy saving LED driving IC with new energy saving circuit designing which can save 40% energy comparing to the conventional solution(only when the screen work method is static). The new energy saving solution is not only good for saving the electricity cost, but also good for the lifetime of the LED display. Because the lower the power, the lower the heat, lower temperature is good for all the inside electronic components. For the outdoor P16, P20 models, the energy saving is very big-40%, so the electricity saving is also very considerable. If the display's size is very big, then the electricity cost will be a big figure. When the initial budget allowed, then the best solution will be the energy saving solution in most cases.

Energy saving & screen work method relationship	
Static 1/1	40%
Scan 1/2	30%
Scan 1/4	20%
Scan 1/8-1/16	15%

Part 2: FAQ about the important items when we finalize and choose a certain LED display solution

1. Which application do you want to achieve?

1>single color, double color for text showing

Or

2> full color for video display for video and graphics showing

3>if the LED display is mainly used for commercial advertising, then you can only choose full color LED video display. And the most common use outdoor LED video display is P16mm 1R1G1B outdoor LED video display when the size is more than 10SQM.

When the size is less than 10 SQM, then the most common use model is P12mm & P10mm outdoor LED video display.

4>If the LED display is only for the text, letters, simple logos' showing, then the most common use model will be P10mm 1R single red color LED display & P20 2R1G tri-color LED display.

But if it is for the long distance text showing, then P25 & P31.25mm 4R or 4R2G LED display will also be a practical and high cost effective solution.

2. Outdoor use or indoor use?

A: For outdoor use:

(1)If facing the sun, the brightness should be more than 8000 nit, if lower than 8000 nit then the people will not see a clear image when it is in the noon time(mostly from 11AM-3PM).

If not facing the sun(back on to the sun),the brightness should be more than 5500 nit, if lower than 5500 nit then the people will not see a clear image too during the daytime.

So if your screen is facing the sun then you should be very careful for choosing the correct model and reliable supplier for you since some outdoor models' can only reach around 5500-7500 nit brightness. This is not very enough for your outdoor application.

(2)Brightness depressing rate: for a long term using consideration, the outdoor LED display's brightness depressing should be as slow as possible, if not, then the outdoor LED display cannot use for even 2 years then the brightness lowering to 3000 nit level and cannot make use any longer.

LED Chip brand is the most important key component for the brightness of the outdoor LED display. If for more than 3 years continuous long term using, we'd better using CREE/Nichia LED chip since it can maintain a high brightness level in the very long time (more than 5 years).

For a good quality LED display, it should be using more than 5 years with not big brightness depressing (maintains 80% of the original highest brightness level), this is very important esp. for some very important big project since for the big project it is very hard to make replacement. So when the project is very huge you should be more cautious on how to choose your LED display.

B: For indoor use:

(1)Normally the brightness should be more than 1200 nit, if lower than 1200 nit then the people will not see a clear image when it is more than 50 meters far away from the LED screen.

If the inside environment has very bright lighting environment, then brightness should be more than 2500 nit, if lower than 2500 nit then the people will not see a clear image again.

(2)For the indoor models: from P4mm,P5mm,P6mm,P7.62mm to P10mm,only all models can reach more than 2500

nit brightness(P5mm:1/8, P6mm:1/4, P7.62:1/4, P10mm:1/2 with high bright SMD3528); for P12mm & P16mm,the brightness is only around 1500nit. So when you make the finalization for which model to choose, you need to know clearly which kind of brightness environment you will have.

C: For semi-outdoor use:
(1) Normally semi-outdoor LED display refers to the LED display when it is using in the hall of the bus station, train station, air port, indoor sports stadium(basketball stadium) perimeter etc.
(2)The brightness requirement for the above application is around 4000 nit.
(3)The most common use solution for this semi-outdoor application is by using outdoor models, like P16, P20, P12 or P10mm.
The difference with the outdoor use is:
No need the waterproof rubber pouring on the surface of the module.
The screen work method is normally not static: like for P16, the screen work method is scanning 1/4, for P20, the screen work method is scanning 1/2.
The reason is that for semi-outdoor use, it is no need to be waterproof any longer and the brightness requirement is little lower than the outdoor model since no direct sunshine environment.

4>Another point on how to choose the correct model of the LED display is that when it is outdoor use, but not give a specific requirement for the brightness, then there will be many optional solutions, and between these solutions there will be some solution which is not a good solution for the project's real need. Like if your required model is 10 SQM P16mm outdoor LED video display, the default professional solution should be P16mm outdoor LED video display, the screen work method should be static 1/1. But if you are not very professional in this field, then it will be very hard for you to make the difference between static display and scan 1/4 display. In order to save the cost and offer very low attractive price, many companies offer the scanning 1/4 screen work method as the static display. What's worse is many companies even use YZ5024 driving IC to take place of the original good MBI5024. This will make your LED display's lifetime be shorter and even cannot use for more than 1 year. But when you really use it: firstly the brightness is much lower than the static display; secondly the lifetime will be much shorter than the static display.

3. Size (please inform width and height):
Dimension of the LED display you need and if we can adjust the size a little in order to fit for 4:3 & 16:9 ratio.
For a good quality full color LED video display, the whole resolution of the LED display should be more than 60,000 dots. That means for each model it has a smallest size requirement, like:

Dot-Pixel Pitch(MM)	Pixel（dot) density	Module size(mm)	standard dimension/size(mm) of the cabinet/Panel	Suggested LED display size(SQM)
P4	62500	96*96	960*960	1
P5	40000	122*122	896*672	2
P6	27777	192*96	960*960	2
P7.62	17222	244*122	976*976	3
P8	15625	256*128	1024*1024	4
P10	10000	320*160	1280*960	6
P12	6944	192*96	960*960	9

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P12.5	6400	200*100	1000*1000	9
P14	5120	224*112	896*672	12
P15	4444	240*240	960*960	14
P16	3906	256*128	1024*768	15
P18	3086	288*144	1152*864	19
P20	2500	320*160	1280*960	24
P22	2066	176*176	1056*1056	29
P25	1600	200*200	1000*1000	38
P30	1111	240*240	960*960	54
P31.25	1024	250*250	1000*1000	59

4. View distance:

4.1 Important viewing distance data for the solution choosing:

1> minimum viewing distance is?

2> maximum viewing distance is?

3> most common use viewing distance (the place where the most populated audience comes from)?

4.2 FYI: best viewing distance

1> best viewing distance refers to the distance from the LED display, where the people can see a whole and clear picture of the image on the LED display.

2> there are 2 ways to calculate the best viewing distance: one is by the pixel pitch, one is by the diagonal. There's also the reason why there's different viewing distance for same model LED display, also different viewing distance for same size LED display.

4.3 What is minimum best viewing distance, maximum best viewing distance?

(1)The minimum best viewing distance for each model is in the follow list: two of the most common use minimum viewing distance calculation methods were: 800*pixel pitch*16 & 30*diagonal line of the LED screen.

(2)The maximum best viewing distance depends on the LED screen's whole size, the most common use max viewing distance calculation method is: 600*pixel pitch of the LED screen.

(3)The following list can give you a clear idea on the best viewing distance for the main use models:

Pixel pitch	Pixel density	Perfect Min size(㎡)	Minimum Best viewing distance	Maximum Best viewing distance
4	62500.00	0.96	2	51
5	40000.00	1.50	3	64
6	27777.78	2.16	4	77
7.62	17222.26	3.48	5	98
8	15625.00	3.84	5	102
10	10000.00	6.00	6	128
12	6944.44	8.64	7	154
14	5102.04	11.76	8	179
16	3906.25	15.36	10	205
18	3086.42	19.44	11	230

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20	2500.00	24.00	12	256
25	1600.00	37.50	15	320
31.25	1024.00	58.59	19	400
37.5	711.11	84.38	23	480
40	625.00	96.00	24	512

5. Fixed installation or for movable (rental) usage?
1>If for fixed installation, we need to be clear on how to install it:
On the top of the wall
Or
Embed into the wall
Or
Hanging on the ceiling of the floor
Or
Standing on a single pillar
Or
Standing on two pillars?
2>If for movable (rental) usage:
(1)We should be clear on which kind of movable (rental) usage:
For mobile truck LED billboards using
Or
For big stage trailer LED billboards using
Or
For events rental using

(2) If for events rental use: we need flight case, lock button & hanging structure and an IPC.
A: Flight case is a special packing case for the rental LED display. It has 4-6 wheels and 8 handles; it is very convenient for transportation and moving. Detail is like the following photo shows:

B: Lock button:
Lock button is mainly for rental use: the advantage of the lock button is that it can make the cabinet assemble be faster and make the cabinet connection be more tight and flat than the normal standard LED display cabinet.
The lock button also widely used when it is for sports stadium perimeter display, mobile truck & mobile trailer LED display, etc. .

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The detailed diagram on what is the lock button is like the following photos shows you:

C: Hanging beam, lock button & cabinet inner structure is the rental use accessories:

(1) Hanging beam is one of the main parts for the rental display's structure. When the rental display's total height is less than 4 meters, then only the hanging beam is enough to hang it up; if the total height is more than 4 meters, then we also need a bottom base. One hanging beam is usually one cabinet's length; one hanging beam can also be 2, 3 or even more cabinet's length. The longer the hanging beam the better the screen's flatness will be. But when the hanging beam is longer, the free combination ability will be lower. So the most common use hanging beam length is equal to the cabinet length.

The following photos can give us a more clear idea on what is hanging beam:

(2)Lock button: lock button is mainly for rental use: the advantage of the lock button is that it can make the cabinet assemble be faster and make the cabinet connection be more tight and flat than the normal standard LED display cabinet.

The lock button also widely used for sports stadium perimeter display, mobile truck & mobile trailer LED display.

The detailed diagram on what is the lock button is like the following photos shows you:

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(3) Cabinet inner hanging structure (hanging suspender/pole): this is the main equipment for bear the total weight of the screen. This photo can help you get a clear idea on this concept:

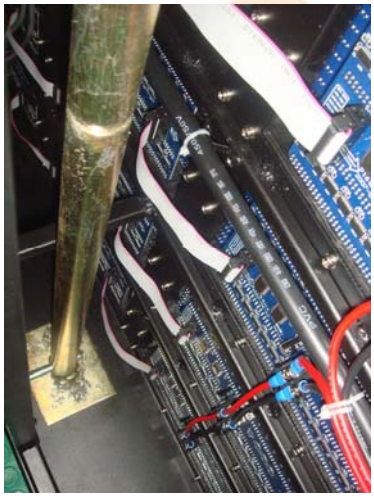

Diagram of intensive hanging cabinet structure is like what the following photos show you:

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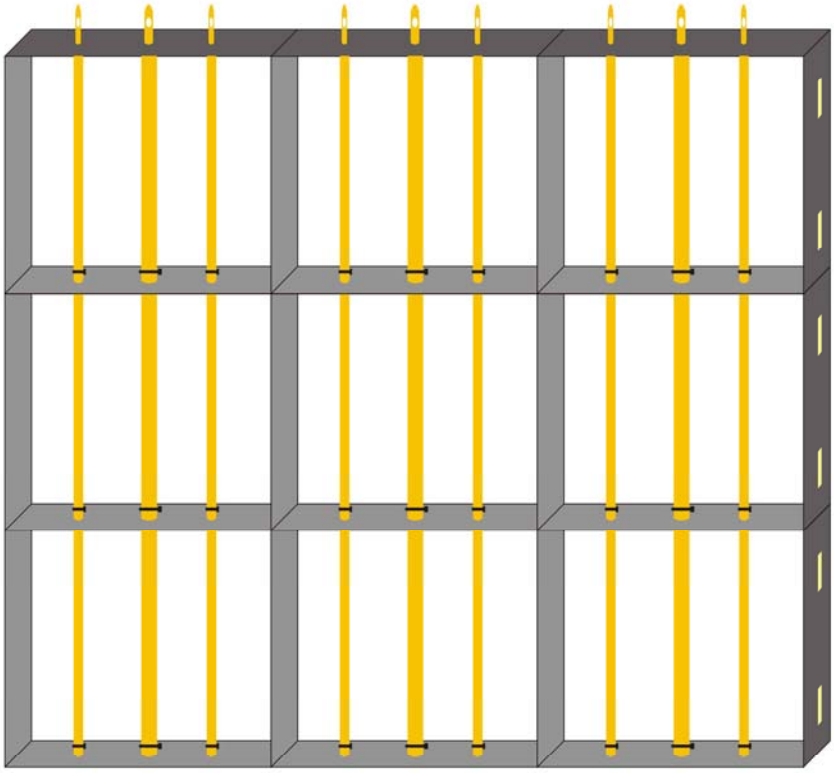

D: IPC is industrial personal computer which can use continuously for 2 years with no any stop. For LED display's special use IPC is a special IPC which is only 30mm thickness and can install inside the LED display cabinet. The name of it is LED6690.

The photos of the LED display use IPC is here for your reference (this model has a touch screen which is very convenient to install inside the LED display cabinet & the easy to make program):

E: Hanging shelf of the rental LED display:

Hanging shelf of the rental LED display is composed by 8 cross girder & 4 pillars, normally it is made of aluminum alloy material. The diagram and real photos is like the following photos shows:

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7. Communication distance: what's the distance between the controlling room and the LED screen?
For the common CAT5 data cable, the maximum communication distance is 100 meters; if more than 100 meters, then need repeater.
If the communication distance is more than 500 meters, then we can use fiber. The single mode fiber's maximum communication distance is 5000meters; the multi-mode fiber's maximum communication distance is 500meters).

8. Quality grade & the LED chip (high grade quality with CREE LED chip or middle grade quality with SILAN LED chip?)
1> Cree chip is the first class LED chip in the world which has very high reputation. The characteristic is: high & stable brightness, long lifetime, low brightness depressing rate & most stable brightness level. Quality warranty time is 5 years. For a continuous normal using with CREE LED chip, you can use more than 5 years with no any problems. If you plan to build a LED billboards and plan to use it for more than 5 years, CREE chip will be the best solution. Many new users are not familiar with this aspect and looking for cheap and fine product, in the end only get cheap but not fine product at the beginning. After the new users using other common LED chip and meet much problem, then most of the new users switch for better quality LED billboards. For small projects, this method is okay, since even the 1st LED billboards not working well, the lost is still small. But for big LED billboards projects, it will be a big loss and great tragedy. So the bigger/larger the LED billboards, the better the quality it need. Once a big LED billboards projects were not successful, the new users may even go broke directly.

2> SILAN is a Chinese brand. It is one of the most cost effective solutions in our domestic local market. But the quality is not as high as CREE & Nichia (higher rate of dead lamps & brightness attenuation). Quality warranty time is 3 years. For a continuous normal using with SILAN LED chip, you can use only around 3 years with no much problem. If you plan to build a LED billboards and plan to use it for more than 3 years, SILAN chip will not be your best solution. Many new users are not familiar with this aspect and only looking for good price at the beginning. So they just use SILAN LED chip. What's worse, many companies just using fake SILAN LED chip, this make the poor condition be worse if buying this kind of LED billboards from such irresp. onsible factory. If so, the LED billboards will only using no more than 1 year, even 6 months, then will meet many problems. Such problems will never be fixed since the key components were not good from the beginning.

3>Summary: most suitable will be always the best; but the best will not always be the most suitable. Finding the most suitable solution is always a better idea than finding the best solution. The following aspects need your careful consideration:

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(1)Time of ROI (return of investment): any kind of investment need a certain income & profit to maintain & continue, time of the ROI is one of the most key factors when you make the final investment decision.

If the local advertising rate is high and this high advertising rate can ensure your time of ROI within 1 year even choosing the top grade solution, then there's no any doubt for you to choose CREE/Nichia LED chip for this LED display project.

If the local advertising rate is low and this advertising rate cannot ensure your time of ROI within 3 year even choosing the middle grade quality, then there's no any doubt for you to choose SILAN LED chip for this LED display project. In this condition, if using the top grade quality, there will be no any meaning for this investment since the time of ROI is too long. Maybe never withdraw your investment.

So the best is not always the most suitable; the most suitable will always be the best!

(2)Installation & using condition: generally speaking outdoor using has much higher quality requirement than the indoor using since the outdoor environment is much worse than the indoor environment.

For the outdoor LED display, we'd better using better quality in order meet fewer problems. If for outdoor using, we'd better choosing higher grade quality to get fewer problems.

For indoor LED display, the temperature, humidity condition is quite stable and all aspects much better than the outdoor using condition. In this condition we can just choose the middle grade quality and the quality will still be quite stable since the using environment is good.

(3)Application & using time is also an important factor: if the LED display has to use more than 12 hours a day, then it requires higher quality; but if the LED display only use several hours a days, then a middle grade quality will be quite enough.

For example, if an outdoor fixed installation LED billboards need to use around 15 hours days, 365 days a year, then the quality requirement should be high since the long time continuous using is a very hard burden for the LED display screen system.

If the LED display is for sports stadium using, and need to use only maximum 5 hours one time; 50 days a year(normally there will be less than 50 matches take place in a sports stadium). In this case, a middle grade quality LED display will be quite enough for this application.

Generally speaking, fixed installation LED display has higher quality requirement; rental, mobile, sports LED display has a little lower requirement for the quality.

(3)Resolution (pixel density/pixel pitch): resolution is also an important factor:

For very small pixel pitch: like 3mm, 4mm indoor models;10mm,12mm outdoor models: the resolution is quite high, higher resolution means more LED chips needed for it, cost also very high. In this condition, we'd better just choose a middle grade quality to maintain the total cost not too high.

But for big pixel pitch: like 7.62mm, 10mm indoor models; 16mm, 20mm outdoor models: the resolution is not very high, lower resolution means much less LED chips needed for it, cost also lower. In this condition, we'd better can choose a high grade quality to get longer using time and less future maintenance problems.

North America & Western Europe has the most strict & highest quality standard, there's the reason why Barco, Darktronics sell only top quality LED display with CREE/NICHIA LED chip, but most sales were big pixel pitch models, like 20mm, 25mm outdoor. Even Barco, Darktronics sell mainly 20mm, 25mm big pixel pitch models, but 95% customers still cannot afford the high cost.

China doesn’t have so high advertising rates & so high quality standard as north America & Western Europe: 80%

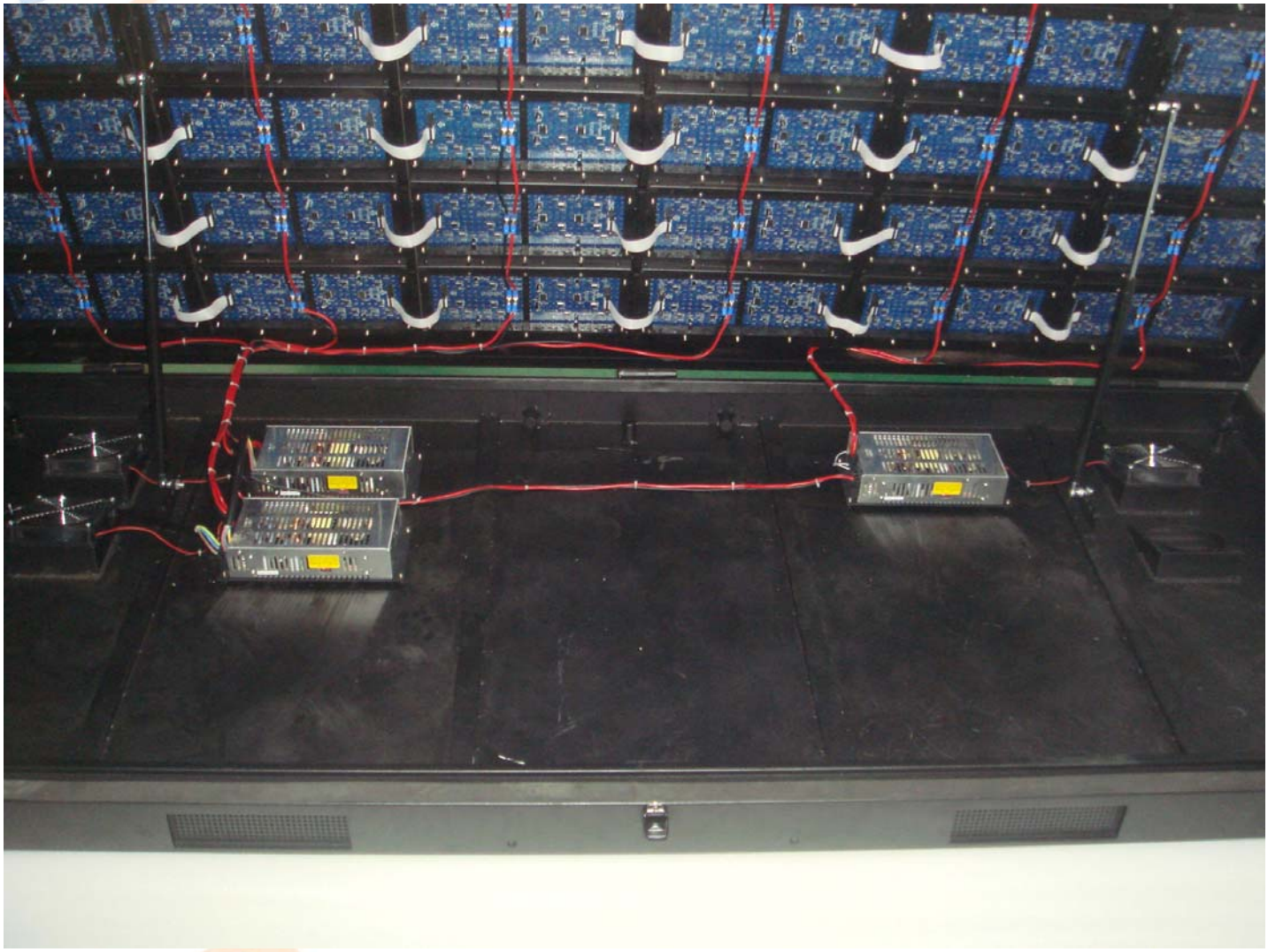
domestic sales of the LED display were using SILAN LED chip with middle grade quality. So in China: 25mm pixel pitch model is almost gone out and nearly no any customer requires that any longer. 20mm pixel pitch is also go out little by little. Now: 16mm pixel pitch becomes the most common use outdoor model & 6mm pixel pitch becomes the most common use indoor model. 10mm pixel pitch outdoor model & 5mm pixel pitch indoor model were also more and more popular in China.

(4) Max budget: budget is always one of the most important factors. There should be a practical business for any kind of investment, and the max budget should be fixed before taking any action. The cost of the LED display project not only includes the LED display body cost only, but also includes shipping, insurance, maintenance, etc. So we have to leave enough space for future operational cost within the budget. During the finalization, if we find the original budget is not practical, then we have to recheck the whole business plan again. If not, we may lose the whole meaning of the original plan.

9. Cabinet material: iron or aluminum cabinet material. Aluminum cabinet is 100 USD/SQM higher than the common iron cabinet. Weight of aluminum cabinet is lighter than iron cabinet (iron cabinet: 70KG/SQM; aluminum cabinet: 45KG/SQM).
Aluminum cabinet has much better rustproof ability & longer using lifetime. For the best rustproof solution, we suggest you choose hot galvanization method. By using hot galvanization, the iron/ aluminum cabinet will has the highest rustproof ability.
If using hot galvanization method: the cabinet size should be better less than 1.5*1.5meters. Cost of this solution is 70USD/SQM.
Aluminum has higher possibility of bended during moving and installation period, so if not for rental use and no need for moving to different places frequently, then iron cabinet with hot galvanization will be a better solution than using aluminum cabinet.

10. About front maintained cabinet:
(1)Front maintained cabinet means the LED display screen can be maintained from the front side: like replace & repair the modules, power supplies, fans etc. from the front side of the LED display screen. This is very important for some project since sometimes the installation site doesn't allow a considerable backside servicing space from the backside of the LED display screen.
(2)There are two means to achieve front maintenance: module front maintenance & cabinet front maintenance.
(3)Module front maintenance was achieved by magnetic pump. The advantage of this is that this is very easy to replace and repair. The disadvantage is the flatness of whole display is not good.
(4)Cabinet front maintenance was achieved by the LED display cabinet’s prop up structure. This is the most popular means to achieve front maintenance.
(5)More details about the front maintained cabinet please check the following items with photos’ illustration:
Front maintained cabinet----------Model 1 single side single cabinet
-- Model 2- single side multi-cabinets
-- Model 3--double side single cabinet

Model 1-single side single cabinet:
Cabinet size limit: 3.5 meters in length, 2.5 meters in height with iron cabinet.



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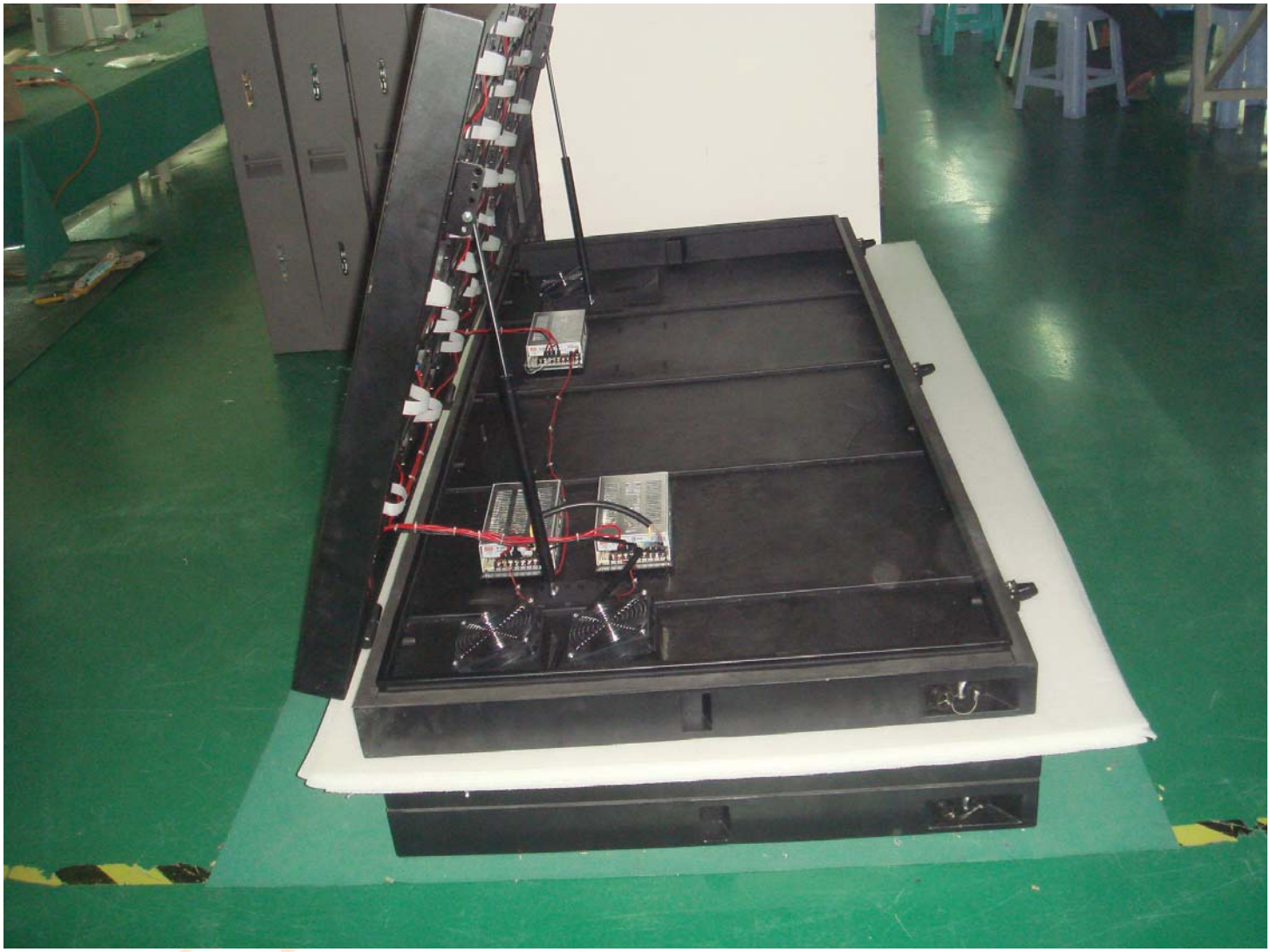

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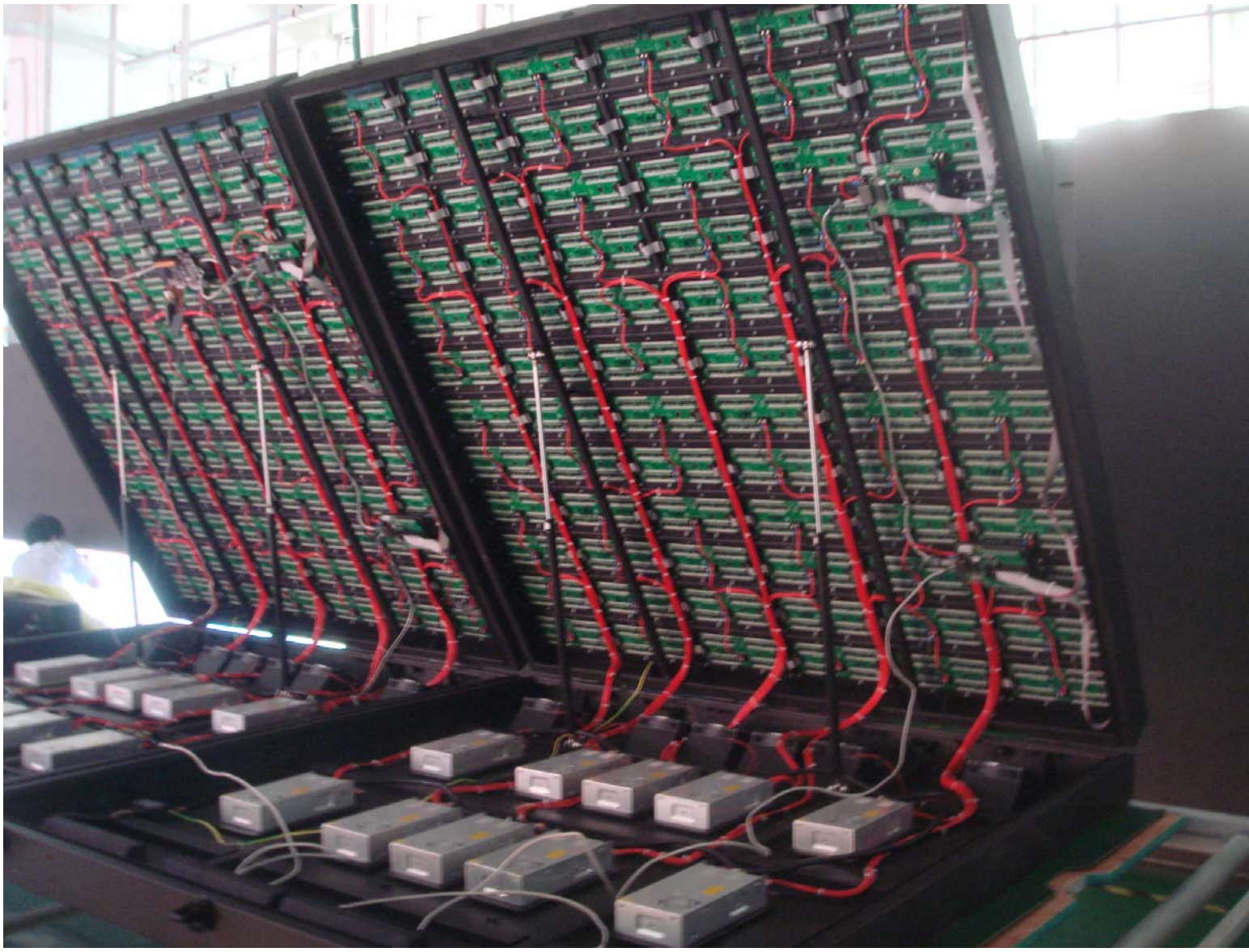
Model 2- single side multi-cabinets:

Cabinet size limit: No limit in length, limit for height is 2.5 meters (can only be one cabinet in height) with iron cabinet.



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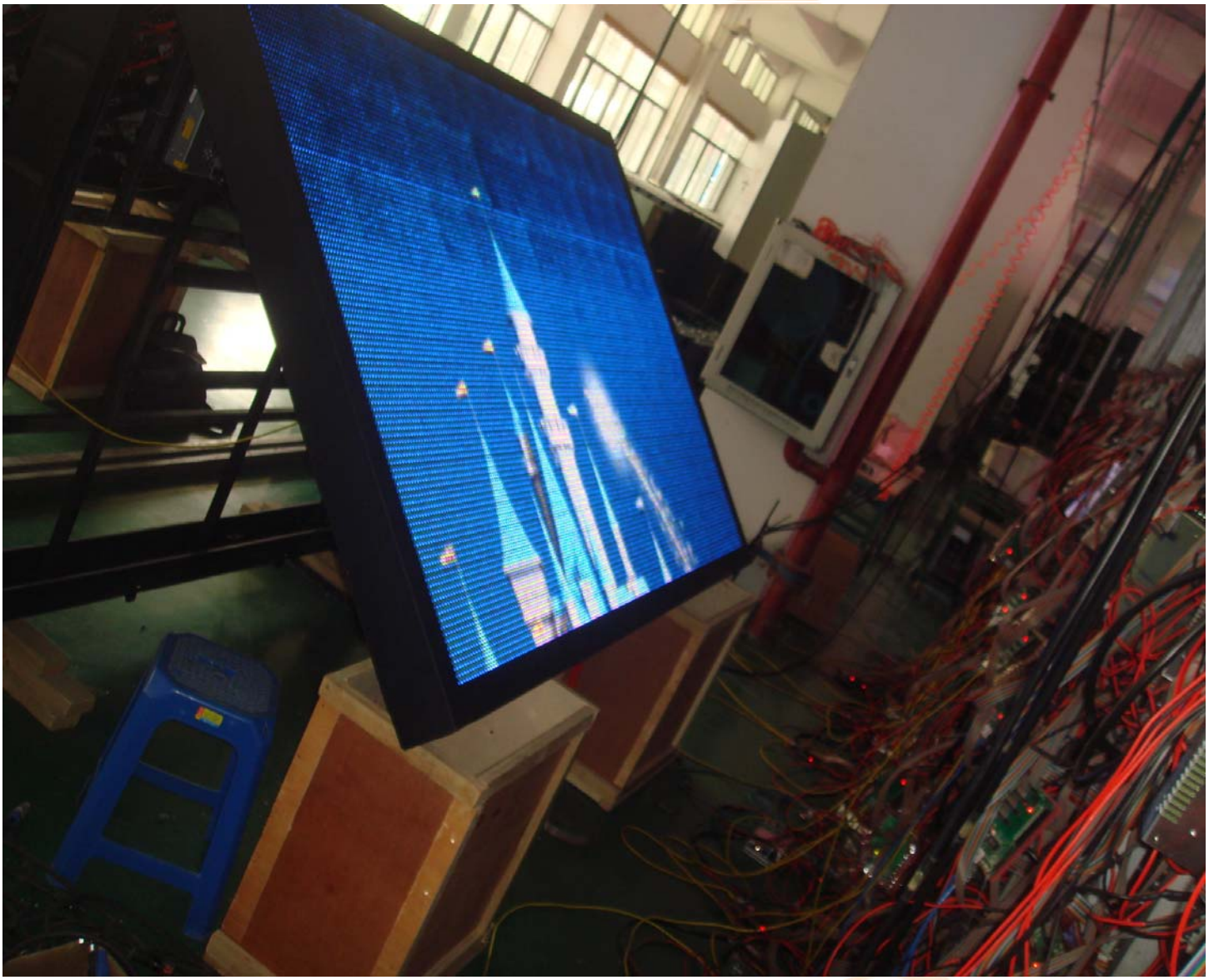
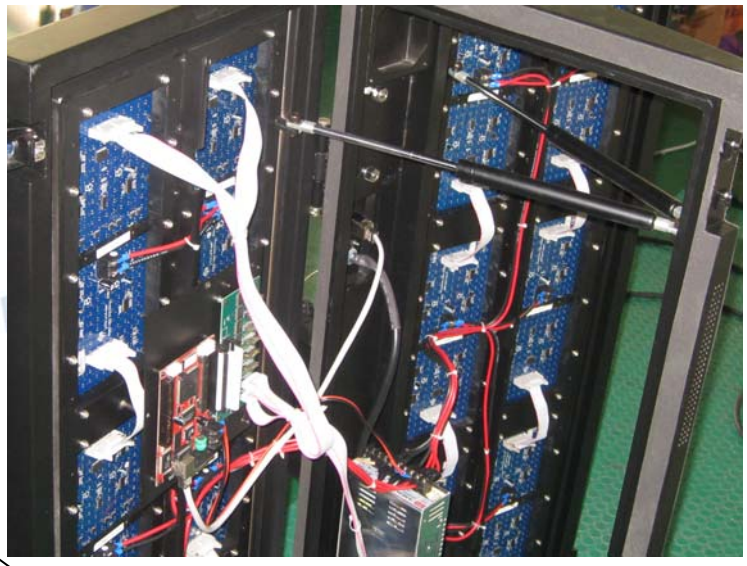
Model 3--double side single cabinet:

Cabinet size limit: 3.2 meters in length, 1.6 meters in height with iron cabinet.

Double-sided LED display, LED display to a small fine for the outdoor way, mainly used in small indoor and outdoor advertising signboards. Such LED displays on the heat, structure, maintenance requirements are unique.

This is P10 full color double side display with one unit cabinet only.





This is prop up structure

LED video display's double side front maintained cabinet before making assemble:

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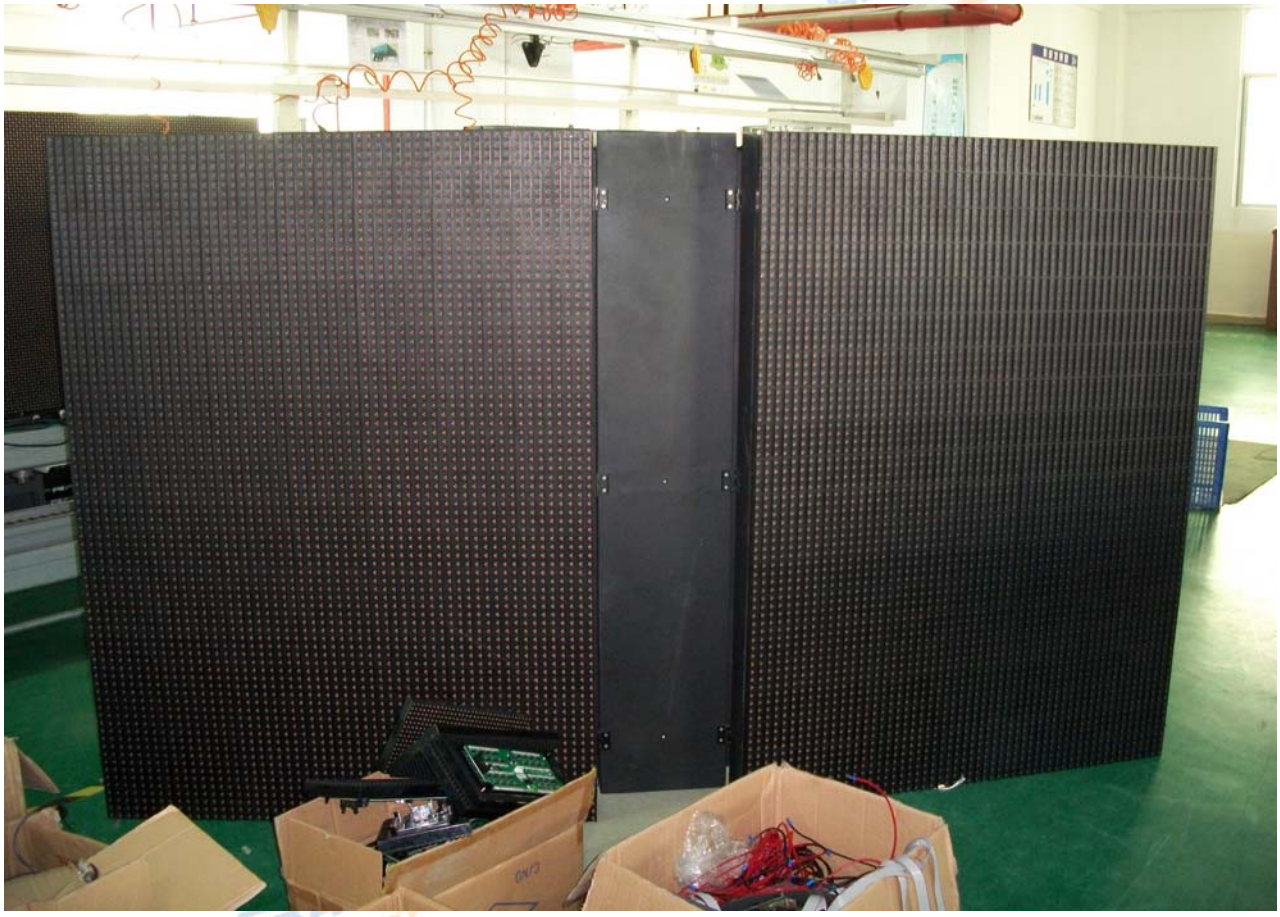
Double side LED video display cabinet after assemble:



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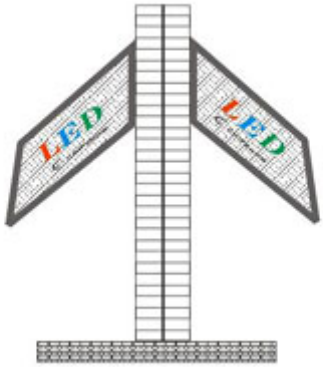
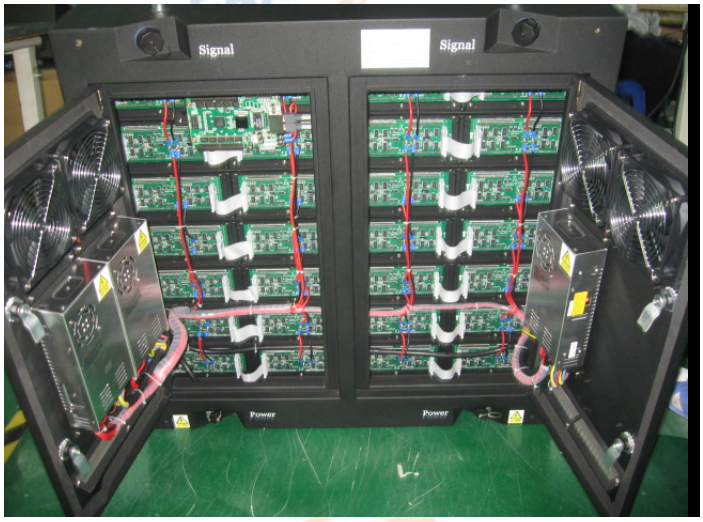
Cabinet and structure after installation:

	
	1. Precise structure of the independent design of cabinet, to ensure strict IP65 waterproof rating, ensuring cabinet light is easy to install. 2. High uniformity masks a perfect fit module and mask ink evenly, without shadows; the products all use ultraviolet aging, which can resistance to the instantaneous pressure slap Pa 20000. 3. Installation is simple for our customers in accordance with the needs of design and installation, a client after receiving the Screen, with our attached accessories in 2 hours can easily control the realization of installation and commissioning, to maximize the customer to reduce the workload.

11. About the rear maintenance

Rear maintenance has only one means to achieve: from the backside of the LED display’s cabinet.

This is the most common use servicing means.



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Part 3: Other knowledge maybe useful for your LED display business

1. How to choose the best rational product model of the LED display screen?

Corresponding to the LED display's best viewing distance, size, application & installation, there will be many optional product models fit for each specific project. ROI & Budget are also very important factors. This is a very complicated works, esp. . if this is the 1st time for you to do this business. You'd better talk more with the very professional specialist. If you didn't get the correct model, correct size for your project, then the result will be 100% terrible & disaster for you.

2. What's the difference between synchronous control system & asynchronous control system? How to choose the Corresponding control system for my LED display screen system?

1> Synchronous & asynchronous refers to the controlling PC working together with the LED display or not. Synchronous means when the LED display screen system is working, the controlling PC must open and cannot be closed. Also means the LED display and the controlling PC will be working synchronous together.

2> Asynchronous control system means when the LED display is working, the controlling PC can be closed and the LED display can work independently after the controlling PC closed. Of course the basic set up and the program making should be made and the program should be saved on the controlling card before closing the controlling PC.

3> Product model, controlling distance & application is the main factors. One more point is that the synchronous control system always has much better viewing effect and more powerful function; there's why the most LED video display system use synchronous controlling system.

3. What is the static LED display? What is the scanning LED display? What's the difference and which is better? How to choose the best scanning method for a certain LED display screen system?

Static display used for P14-31.25mm, when pixel pitch is smaller than 14mm, the main working method is scanning: like the P10mm & P12mm is scanning 1/4. The model and the Corresponding scanning method depend on the pixel density & brightness.

4. What is selected LED, what is pure green & pure blue? Why the LED video display need selected LED & also pure green & pure blue LED.

(1)The selected LED means the LED is choosing from a certain ratio of LED to get the most perfect LED. This selection process has 3 aspects: one is color selection, one is brightness selection & 3rd is the wave length selection.

For example, for the outdoor LED video display, the brightness and wave length for pure red, pure green & pure blue LED is:

Color	Brightness(mcd)	Wave length(nm)	Chip size(mill)
Pure red	1100-1300	625~630nm	9*9
Pure green	1900-2300	525~530nm	12*12
Pure blue	400-500	470~475nm	12*12

(2)LED video display need pure green & pure blue LED chip since if not it cannot achieve high gray grade and the image will be very poor too. The brightness consistence is also as important as the color consistence.

(3)For the common LED chip, the wave length difference is very big and the brightness difference is very big too if not using selected LED, the LED color & brightness consistence will be very bad. For single color & tri color LED display, it doesn't need pure green and pure blue since it only shows the text and letters & the color consistence is not so important for the text' showing.

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5. LED & LED Display Knowledge?

(1)LED is short for light emitting diode (LED) is a tiny, electronic semiconductor that converts electric energy into visible light. The chemical compound used within an LED determines its color, brightness and power efficiency. Unlike incandescent lamps, LED has no filaments that can burn out or fail. The LED were invented in 1923, until 1965 first commercial red LED were launched. Later green, yellow, blue, white LED lamps were launched later.

(2) LED display's development, history, application & usage

1.1923: LED were invented

2.1965: first commercial LED were launched: green, yellow LED lamps were launched later successive one by one

3.1990: Blue LED invented by Nichia Japan.

4.1993: Blue LED lamps were launched into the market by Nichia company Japan.

5.1993: the full color LED display screen were launched into the market

6.1998: white LED lamps were invented.

(3) Main applications of the LED display screen:

1. Commercial Advertising & Media: the main model for the full color LED display is P6-P20mm indoor & outdoor full color LED display.

2. Rental use LED display: P6/7.62mm indoor full color & P10/16mm outdoor full color LED display is the main model for the rental use LED display.

The rental use LED display is more and more popular since the display's cost is too high for common one time business, for some events business, the full color LED display become even one necessary part of it. This is a very fast developing market in the LED display business.

3. Stadium perimeter LED display: only for the football, basketball stadium: 200-400 meters around the stadium: P16&P20 is the main model for the stadium display.

4. Mobile truck/trailer LED display: P10 is the main model: install on two sides of the truck, and make advertising while moving.

5. Information showing system: pricing information, weather & humidity information; news & notices & shop logo showing. It is especially fit for the oil station, train & bus station, air port small shops, etc: P31.25mm outdoor full color & P20 outdoor double color, P10mm single color is the main model for outdoor system; P7.62 indoor full color/double color/single color is the main model for indoor system.

(4)Developing prospect:

The LED display is a new and fast developing industry. It is a very new and fast growing business; tomorrow will be definitely more prosperous for the LED display business. If your living's local district doesn't have a great popularized application of the LED display. Then there will be definitely a great future in your place.

6. What is virtual pixel, real pixel?

Real LED pixel is the physical LED pixel; virtual LED pixel is theoretically 4 times higher than real LED pixel. Actually, the real effect of the virtual pixel is not really 4 times better. It is only a much better, but not really can be 4 times better. When you LED display system is more than 640*480 pixels, actually you don't need to use virtual pixel if you plan to use the whole LED display for one advertising contents.

The most important reason why use virtual pixel is the red LED lamp's brightness is not strong enough to match with the green and blue LED lamps to get the most pure white color. The virtual pixel is not popular any longer since the red lamp's brightness (1100mcd) is high enough to take place of conventional two red led lamps (300mcd).

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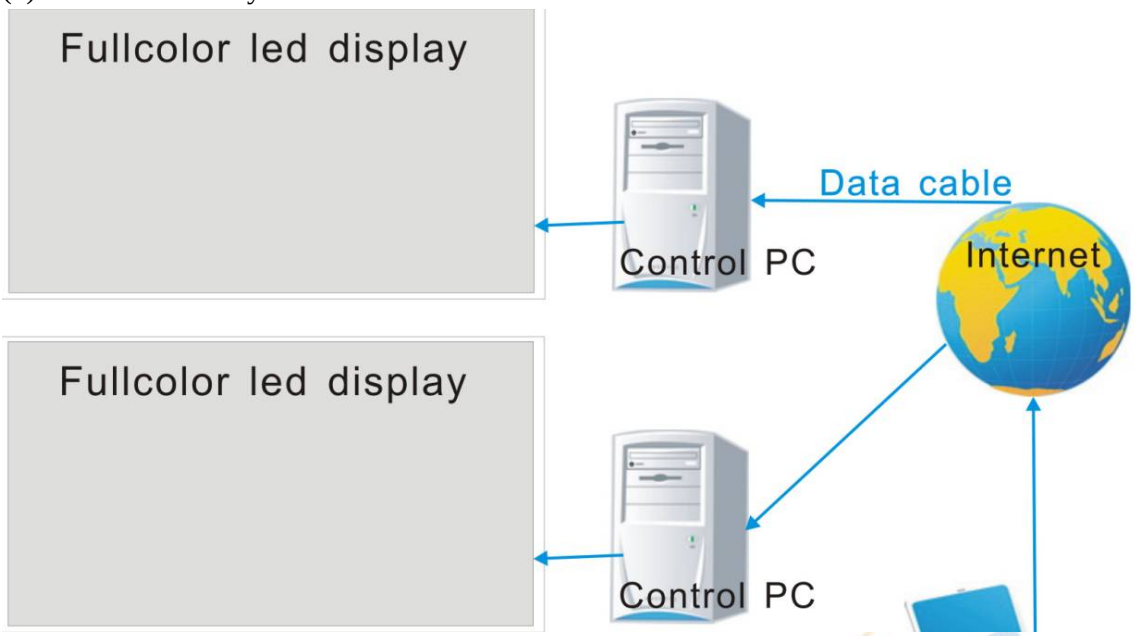
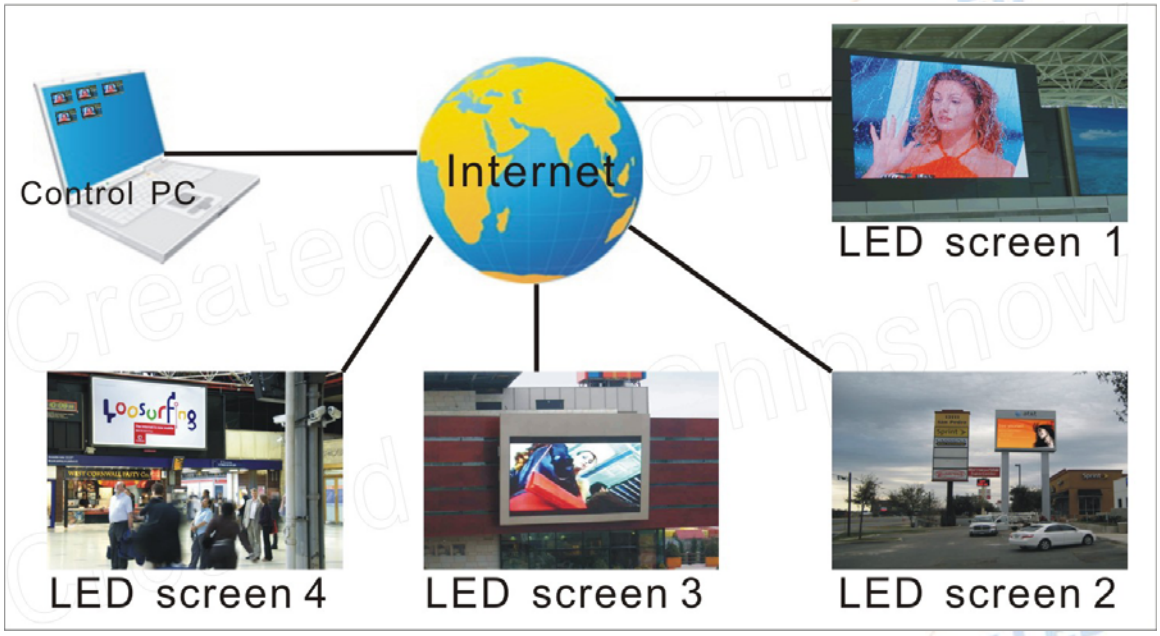
7. What's remote control & wireless control?

Remote control & wireless control is very necessary when the controlling HQ is far away from the LED display screen system.

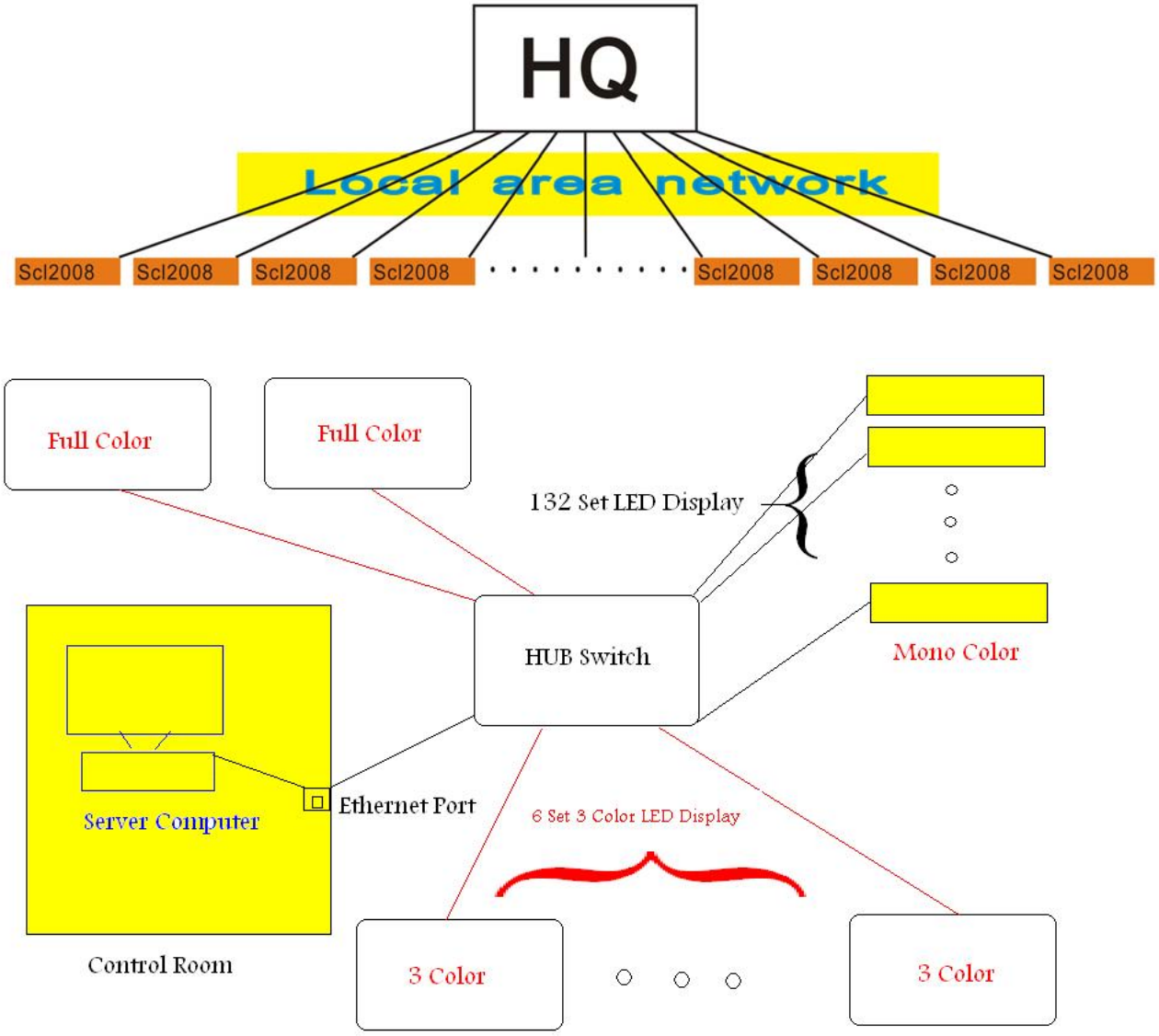
Remote control & wireless control is by IP address and internet/intranet system to achieve.

(1) Remote control by internet:





(2)Remote control by intranet:



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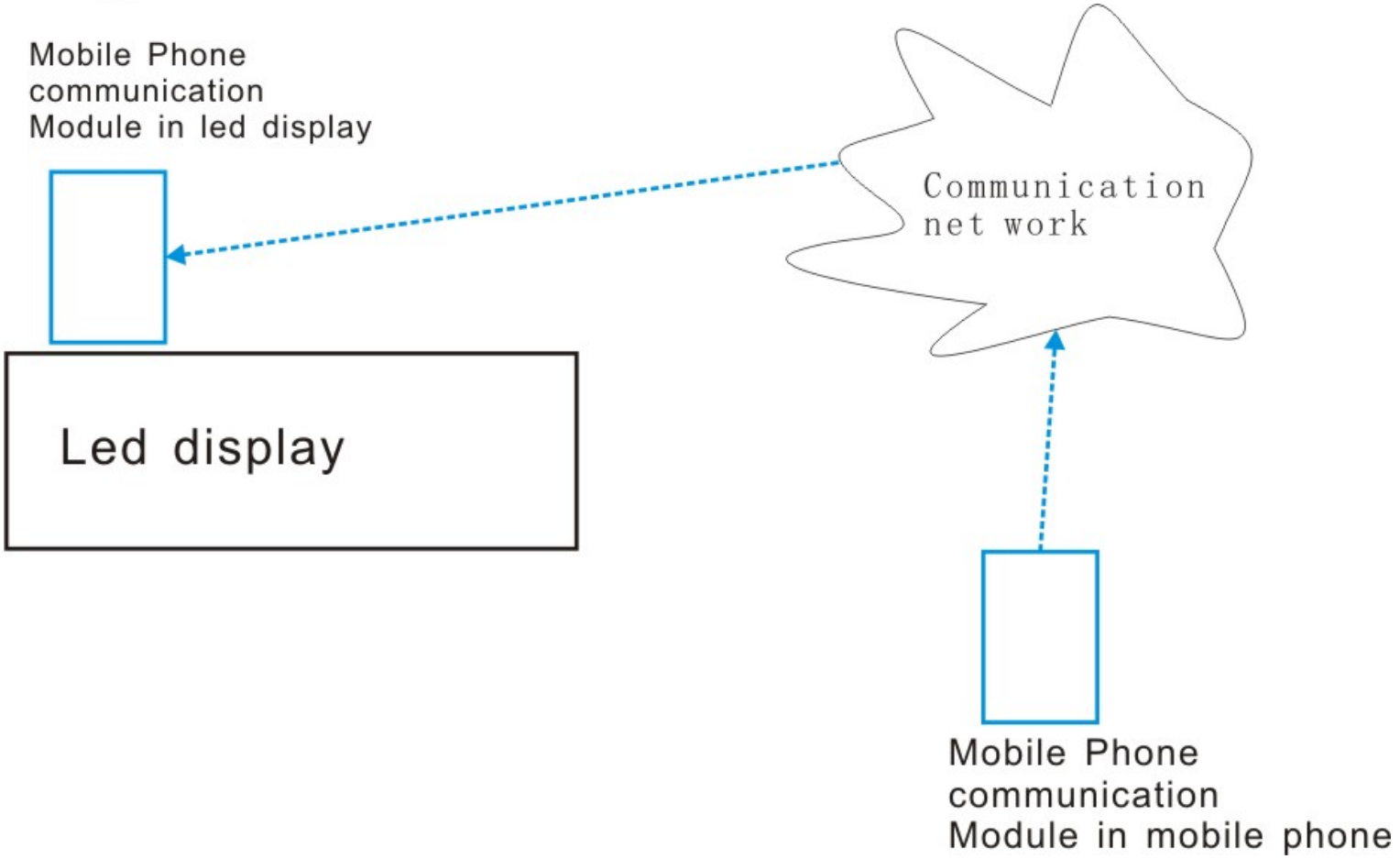
Email: manager@eraled.cn MSN:eraleddisplay@hotmail.com,Skype: eraleddisplay, Tel:0086-75527592546,Fax:0086-75527592567

(3)Wireless control by GPRS: