SiliconCore

Redefines Clarity

Brief History of SiliconCore *Technology*

SiliconCore Technology (SiliconCore) was founded in 1997 in Milpitas, California, USA. The company's initial focus was design services, serving the needs of Silicon Valley's semiconductor industry. Around 2003, the company transitioned to a fabless semiconductor business model, with initial focus on the development of Laser Diode Drivers for the optical storage market. By 2010, the company had established itself as the market leader in the Laser Diode Driver market for DVD Recorders.

Over the last ten years, the company built a large amount of expertise in analog integrated circuit design, specializing in driver design. The same driver technology can also be applied to driving LEDs. Pursuing a strategy of diversification, the company entered the LED display panel driver market in 2008. In the process of developing LED drivers, the company's R&D team discovered that there were many problems with the existing LED display panel system architecture and the LED drivers used in these systems.

An effort to resolve these problems resulted in the invention of the Common Cathode Technology, also referred to as "Common-K". In 2011, SiliconCore's custom LED driver integrated circuit, based on the Common Cathode Technology, became available. This integrated circuit revolutionizes the LED display panel architecture and solves the common problems associated with LED displays, such as power dissipation and heat generation, ghosting effect, slow refresh rate, low gray scale, brightness, and color contrast.

In 2009, SiliconCore embarked on a vertical integration strategy by entering the LED display panel market. It quickly proceeded to establish itself as the technology leader with the introduction in 2011 of the world's first 1.9mm pitch LED display panel, enabled by its Common Cathode technology. Today, the company offers a full range of indoor and outdoor LED display panels, powered by its Common Cathode technology, and continues to push the technology envelope with the development, manufacturing and marketing of LED display panels with outstanding image quality and leading edge resolutions.

1997
Founded in Silicon Valley, USA-IP Design Services

2003
Transition to product company, started LDD business

2006
Started LDD mass production for Sony

2008
Entered LED Driver market for display panels

2009
Entered LED Display Panel Business

2010
Achieved more than 50% LDD market share

2011
Introduced World's first 1.9mm Pitch LED Display

2012
> Exceeded 500Mu LDD shipments, >50% Market Share

> Introduced Full Fine Pitch LED Panel Product Line

2013
> Demonstrated World's First 1.9mm 4k LED Screen at ISE.

> Launching P1.5

2014
Launching Sub P1.2

Sub P1.2

The SiliconCore Advantage:
Common Cathode Technology

/ Common Anode Technology
- Red, Green, and Blue channels use same power supply
- External ballast resistor (or intrinsic resistance at the Red channel)

/ Disadvantages
- Require external resistor or using intrinsic resistance at either RED LED or driver (or both)
- Higher heat generation through resistance
- Higher power dissipation
- Reduced LED life span
- Reduced reliability, higher maintenance cost
- Higher cost of ownership

The common anode LED configuration has inherent limitations for panel resolutions of less than 3mm (P3) pitch. The LED density at the higher resolutions requires too much power and generates too much heat, usually requiring cooling fans, which make the noise level unacceptable for many environments. The higher power and heat generation result in higher stress for the LEDs, reducing the reliability and life span and increasing maintenance costs and overall cost of ownership.
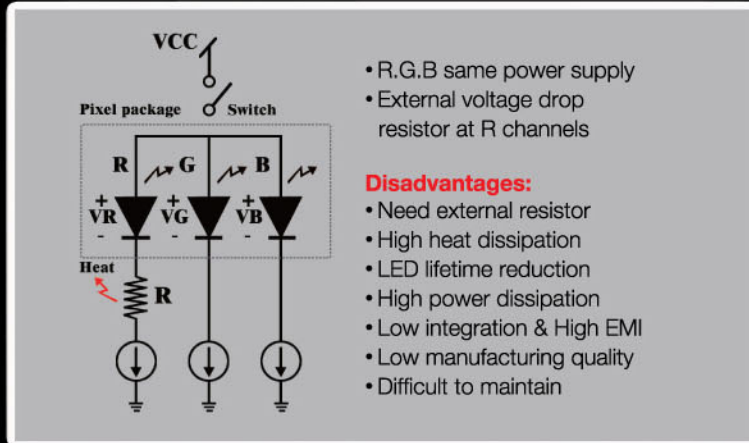
/ Common Cathode Technology
- Red, Green, and Blue use separate dedicated power supplies
- No need for ballast resistor

/ Advantages
- Eliminates external resistor
- Lower power dissipation
- Reduced heat generation
- Longer LED life span
- Higher reliability, lower maintenance cost
- Lower cost of ownership

The common cathode LED configuration reduced power dissipation of at least 30% allows the development of sub-3mm (P3) LED displays, the only limitation being LED packaging technology. The Common Cathode technology enables LED panel resolutions down to 1mm and beyond, with best in class image quality, totally silent fan-less operation, improved reliability and lower overall cost of ownership.

- R.G.B same power supply
- External voltage drop resistor at R channels

Disadvantages:
- Need external resistor
- High heat dissipation
- LED lifetime reduction
- High power dissipation
- Low integration & High EMI
- Low manufacturing quality
- Difficult to maintain

- R.G.B separate power supply
- No external resistors

Advantages:
- Low heat dissipation
- Longer LED lifetime
- Low Power dissipation
- High Contrast Ratio

## / Common Anode Technology

The common anode LED configuration seriously impairs the development of the higher resolution LED display panel market. LED displays based on the common anode solution have difficulty achieving a pixel pitch below 3mm (P3) at reasonable quality. In order to compensate for the smaller pixel to pixel distance, Conventional common anode LED display designs have to reduce refresh rate and gray scale resolution, increase power consumption and also generate serious ghost effect. Due to the low integration and high power consumption, external cooling fans may be required, further increasing the power consumption and panel thickness.
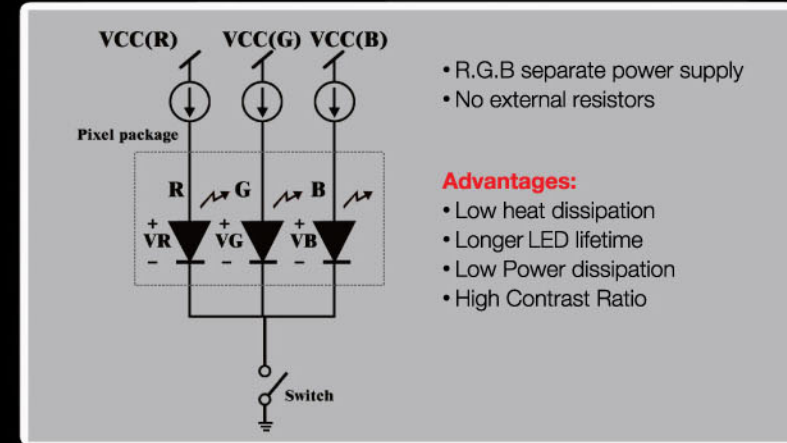
/ Common Cathode Technology

The common cathode technology from SiliconCore effectively overcomes this industry scalability barrier and establishes a platform for higher resolution LED display technology evolution. LED display panels using the common cathode solution can go down to less than 1mm pixel pitch without any sacrifice in quality. These fine pitch displays have higher refresh rate, higher gray scale and higher integration in cooler, lighter and thinner cabinet, with no requirement for external fans or cooling.

Refresh Rate, Grayscale Optimization
and EMI Noise Reduction
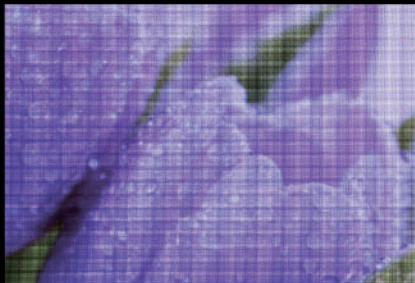

High refresh rate design

Low refresh rate cause horizontal lines

Some critical measures of image quality are the refresh rate and the grayscale used to generate the screen images. The state of the art LED driver ASIC developed by SiliconCore, based on the Common Cathode architecture, enables much higher clock rates, allowing for 2KHz refresh rates for P1.9mm class of LED displays. The advanced processing capabilities of the high integration ASIC make full use of true 16-bit grayscale processing, resulting in outstanding image quality for resolutions down to P1.5mm and beyond. Furthermore, the high integration ASIC drastically reduces component count on the PCB, leading to lower cost, and a simpler, more optimized PCB design with shorter PCB traces. The shorter PCB traces, combined with special noise reduction design techniques used in the LED driver ASIC, result in lower EMI emissions, a key advantage for high resolution LED display panels, where mobile phones may be used in close proximity to an active LED display.

Ghost Effect
Elimination

The ghost effect is caused by accumulated charge in the LED parasitic capacitance which can keep the LED partially ON after it was supposed to be turned OFF. When displaying fast moving video content, the ghost effect can result in blurred images, degrading the image quality and the viewing experience.
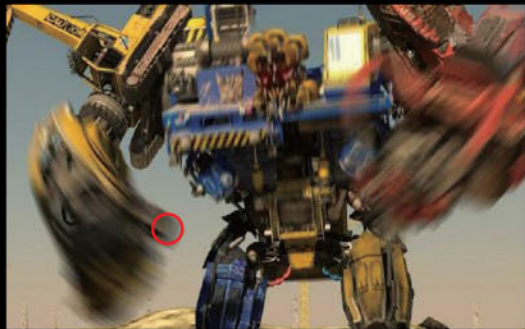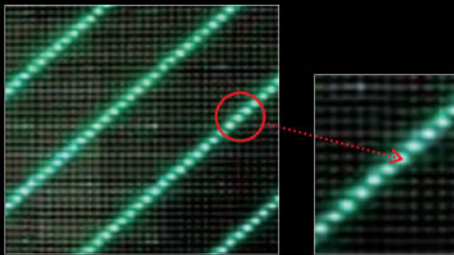

Ghost effect cause blurred video picture

A frequently used ghost effect solution for the common anode configuration relies on a bypass resistor or other external circuitry on the PCB to discharge the LED capacitance. This approach does not provide an adequate ghost effect elimination, furthermore, the additional components add cost, PCB complexity and further increase power dissipation.

The common cathode technology is particularly well suited for a ghost elimination solution by using a discharge switch which is fully integrated in the SiliconCore LED driver ASIC. This approach results in the ultimate image quality, without the addition of any external components and no increase in cost, complexity or power dissipation.
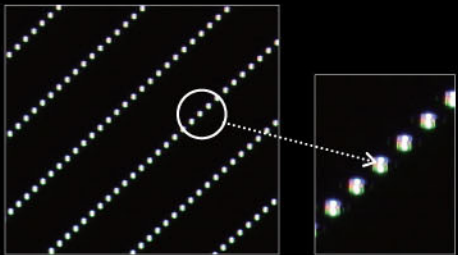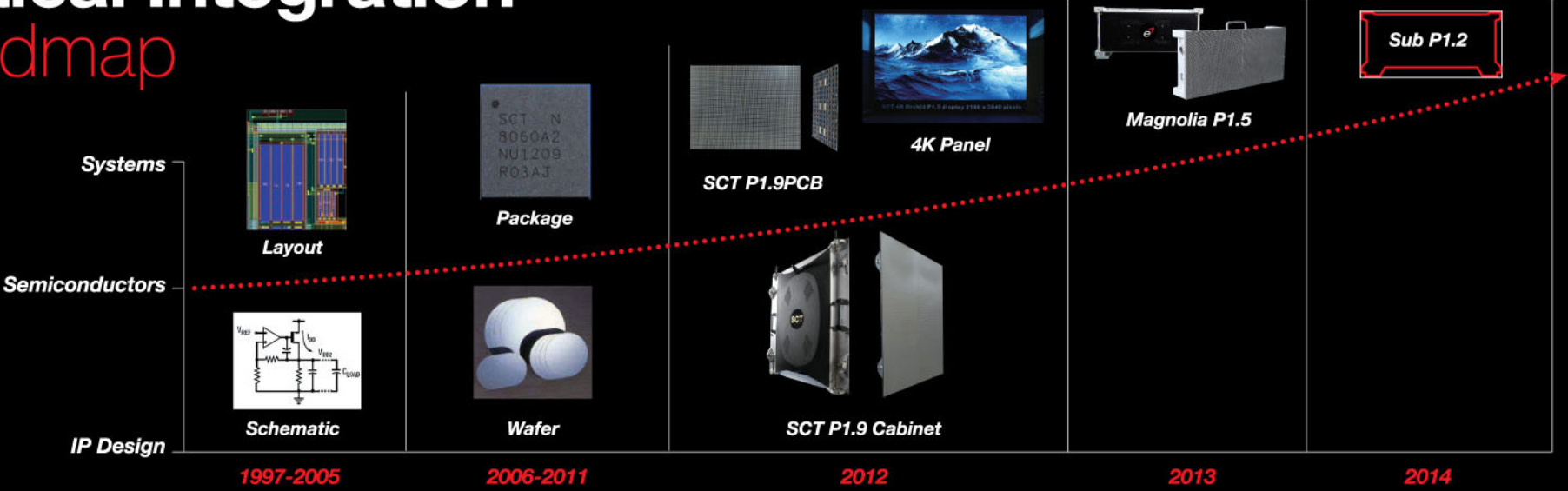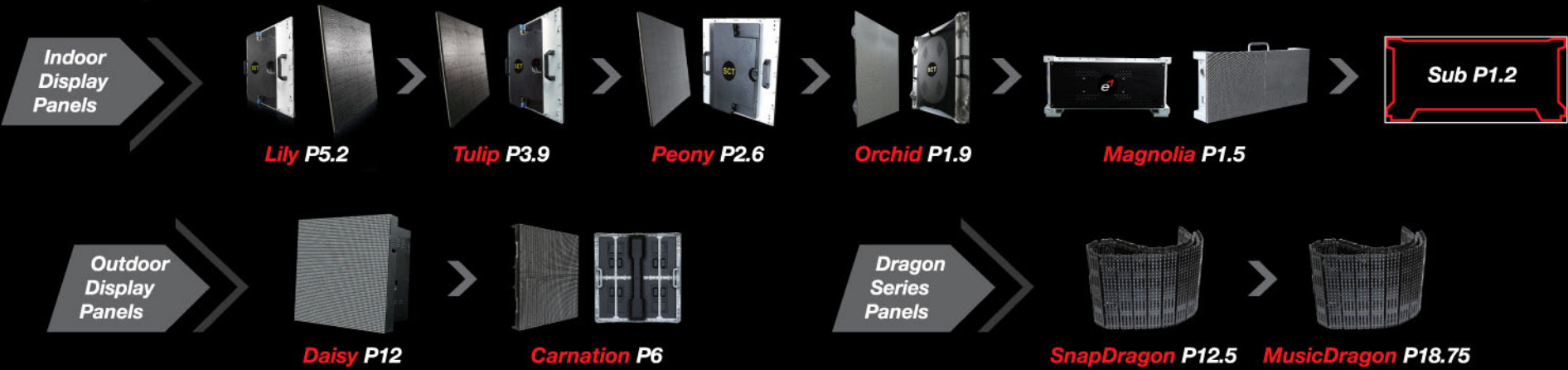

With Ghost Elimination

Without SiliconCore Ghost Elimination Technology

Vertical Integration
Roadmap

Systems				
	Layout	Package	SCT P1.9PCB	4K Panel
				Magnolia P1.5
				Sub P1.2
Semiconductors				
	Schematic	Wafer	SCT P1.9 Cabinet	
IP Design				
1997-2005	**2006-2011**	**2012**	**2013**	**2014**

SiliconCore LED Display
Roadmap

Indoor Display Panels → **Lily** P5.2 > **Tulip** P3.9 > **Peony** P2.6 > **Orchid** P1.9 > **Magnolia** P1.5 > **Sub P1.2**

Outdoor Display Panels → **Daisy** P12 > **Carnation** P6

Dragon Series Panels → **SnapDragon** P12.5 > **MusicDragon** P18.75

The SiliconCore
LED Display
Advantages

1 / Lowest Power Dissipation and Fan-less Operation

Thanks to the Common Cathode technology, the SiliconCore LED Display range of products has the lowest power dissipation in the industry, requiring no forced air cooling and resulting in completely silent, fan-less operation. For example, the groundbreaking Orchid P1.9 LED display has the following power specifications:

- *At 600 nits, average power of 94 W/㎡ and maximum power of 282 W/㎡*
- *At 2,000 nits, average power of 223 W/㎡ and maximum power of 670 W/㎡*

2 / Highest Brightness

The SiliconCore LED Display range of indoor products offers a standard maximum brightness of 2,000 nits or more, the highest brightness available in the industry for this class of product. This renders the best viewing experience, even in environments with high levels of ambient light.

3/ No Gaps, No Lines, No Bezels

The SiliconCore LED Display range of products is designed with a gap specification between adjacent modules of less than 0.1mm. In terms of viewing experience, this translates to seamless images on any size of display, with NO VISIBLE GAPS or LINES.

4/ Best Color and Brightness Uniformity

The SiliconCore LED Display products are calibrated at the factory across the entire display to within 1% of color and brightness uniformity, resulting in accurate color rendition with rich, vivid colors.

5/ Widest Viewing Angle

The SiliconCore LED Display products offer wide viewing angle of up to 160 degrees in any direction without color shift or any compromise on brightness, color saturation and clarity.

6/ Highest Reliability & Extended Life Time

The LEDs in SiliconCore's LED Display products are operated at well below their rated current levels, resulting in much lower stress on the LED devices. Consequently, the LEDs are more reliable and enjoy a longer life time, with the L70 and L50 LED specifications at 150,000 hours and 200,000 hours respectively.

- *L70 is the time for the LED brightness to degrade to 70% of its initial value*
- *L50 is the time for the LED brightness to degrade to 50% of its initial value*

7/ Thinnest Design

The SiliconCore LED Display products are designed with a depth of just 80mm. This allows real space savings for many applications where only limited protrusion is available, such as conference rooms, enclosed walkways and control rooms.

Indoor
displays
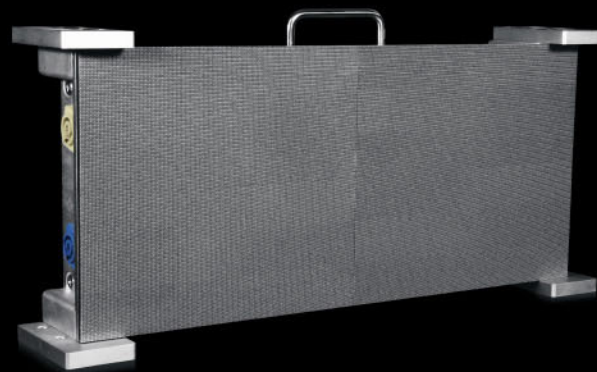
Magnolia P1.5

Continuing on its tradition of breaking through resolution barriers, SiliconCore's Magnolia P1.5 represents the state of the art in LED display technology, with a true 1.5mm LED pitch. At an unprecedented 444,900 pixels per square meter, it is the highest resolution LED display product on the market. This is the LED display for customers looking for the ultimate viewing experience with a minimum viewing distance of a typical LCD panel.

Utilizing the Common Cathode technology, the Magnolia P1.5 features the lowest power and heat dissipation in the industry, resulting in a totally silent fan-less design. The Magnolia features 3-in-1 surface mounted LEDs offering very wide viewing angles with no color shift.

Orchid P1.9-HD

Orchid P1.95-SD

Magnolia P1.5

Orchid P1.9-HD

The Orchid P1.9-HD is SiliconCore's mainstream product from the groundbreaking Orchid family of 1.9mm LED displays. The 360 by 320 pixel configuration of the Orchid P1.9-HD cabinets has been designed to allow exact implementation of the HD (High Definition) formats using the 9:16 aspect ratio, including 720P, 1080P and 4K (sometimes also referred to as "Ultra-HD"). This allows high quality HD content to be mapped directly, pixel-by-pixel, to the Orchid P1.9-HD displays, resulting in the ultimate image quality with no scaling and no other loss of information.

As with the other LED displays from SiliconCore, the Orchid P1.9-HD is powered by the Common Cathode technology, resulting in the lowest power and heat dissipation in the industry, while maintaining totally silent fan-less operation.

The Orchid P1.9-HD features 3-in-1 LEDs at a true 1.9 mm pitch, delivering an amazing physical resolution of 277,008 pixels per square meter, with minimum viewing distance of 1 meter and very wide viewing angles without color shift.

With a brightness of up to 2,000 nits, the Orchid P1.9-HD displays stunning image detail and quality, even in high ambient light conditions, such as all glass environments.

Orchid P1.95-SD

The Orchid P1.95-SD shares the same Common Cathode technology, architecture and design as its Orchid P1.9-HD cousin. However, the Orchid P1.95-HD uses a different cabinet form factor. Whereas the Orchid P1.9-HD cabinet design is optimized for implementing the HD (High Definition) 9:16 aspect ratio, the Orchid P1.95-SD uses the standard cabinet format size of 500mm by 500mm or 256 by 256 pixels. This allows the flexibility of easily implementing display panels of any size and aspect ratio.

Other features of the Orchid P1.95-SD include 3-in-1 LEDs at a true 1.95mm pitch, delivering an amazing pixel resolution of 262,144 pixels per square meter, with minimum viewing distance of 1 meter, very wide viewing angle without color shift, as well as a fan-less design with the lowest power and heat dissipation in the industry.
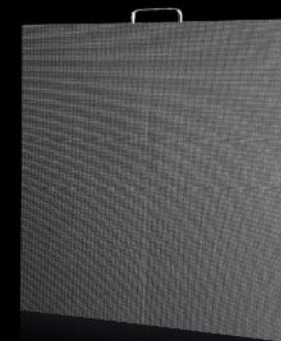
Peony P2.6

The Peony P2.6 is SiliconCore's 2.6mm pitch LED display cabinet. Based on the Common Cathode technology, it has low power dissipation, high brightness, high contrast ratio and high refresh rate. The Peony P2.6 offers an alternative to the Orchid P1.9 display for applications where the minimum viewing distance is 2 to 3 meters, while maintaining an impressive resolution, image quality and detail.

The Peony P2.6 features 3-in-1 LEDs at a true 2.6mm pitch, delivering a physical resolution of 147,456 pixels per square meter at a brightness of up to 2,000 nits, while maintaining very wide viewing angle without color shift. Thanks to the Common Cathode technology, the Peony P2.6 has the lowest power dissipation in the industry with totally silent fan-less operation.

Tulip P3.9

The Tulip P3.9 is SiliconCore's high resolution LED display panel for indoor applications where the minimum viewing distance is in the 3 to 4 meter range. Powered by SiliconCore's Common Cathode technology, the Tulip P3.9 features high brightness of up to 2,500 nits, while maintaining the lowest power dissipation in the industry, with completely silent fan-less operation.

The Tulip P3.9 uses 3-in-1 LEDs at a true 3.9mm pitch to deliver a physical resolution of 65,536 pixels per square meter. It delivers the best-in-class image quality with high contrast ratio, color saturation and accurate reproduction of 281 million colors with very wide viewing angle without color shift.
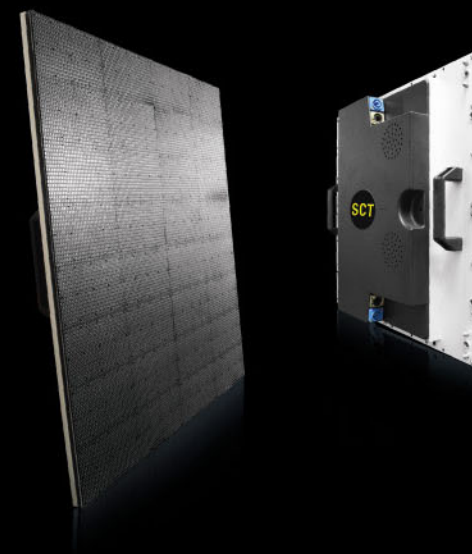
Semi-Outdoor
displays
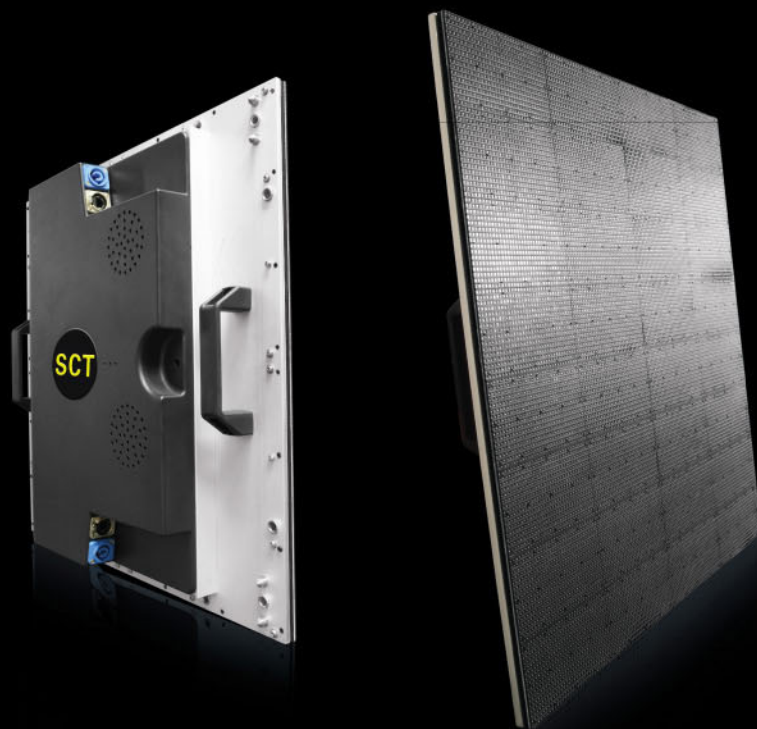
Lily P5.2

The Lily P5.2 is SiliconCore's LED display panel using 5.2mm pixel pitch for applications with a minimum viewing distance of 4 to 5 meters. The Lily P5.2 has a maximum brightness of 4,000 nits, allowing it to be used in "semi-outdoor" applications, where the LED display panel is covered but in a high ambient light environment. Some examples are covered outdoor walkways, covered parking lots or building entrance areas, shopping malls, or inside a shop window facing outwards.

Based on SiliconCore's Common Cathode technology, the Lily P5.2 has the lowest power and heat dissipation in its class, while maintaining the best image quality under 24/7 operating conditions.

Outdoor
displays

Carnation P6

The Carnation P6 is SiliconCore's full outdoor LED display panel based on the Common Cathode technology. The Carnation P6 has the highest resolution available for a true outdoor LED display panel, creating an amazing viewing experience with a minimum viewing distance down to the 5 to 6 meter range.

With a maximum brightness of 6,000 nits, a refresh rate in excess of 8KHz, and the lowest power dissipation in the industry, the Carnation P6 can operate 24/7 with outstanding image quality, even in bright outdoor lighting conditions. It is the ultimate LED display panel choice for outdoor applications, such as outdoor shopping malls, advertising signage and cinemas.

Daisy P12

The Daisy P12 is SiliconCore's true outdoor LED display product for large format display applications. With a 12mm LED pixel pitch, a maximum brightness of 6,000 nits and a refresh rate in excess of 25KHz, the Daisy P12 produces an outstanding viewing experience with viewing distances ranging from 10 to 300 meters, even under bright day light condition. The Daisy P12 is an excellent choice for large format outdoor display applications, such as score board and action replay screens in sport stadiums and advertising signage.
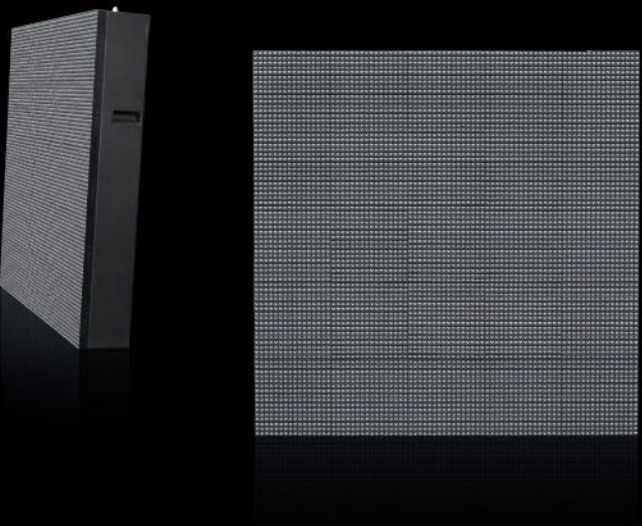
The Dragon Series

The Dragon series of LED displays are SiliconCore's LED display curtains for indoor and semi-outdoor applications. The curtain is semi-transparent, thus making it suitable for decoration or for superimposing an image on a backdrop. The Dragon series of LED displays is based on SiliconCore's Common Cathode technology, resulting in the lowest power dissipation in its class. The displays also have very high refresh rate and a color range of 281 Trillion colors. The Dragon series of LED displays is ideally suited for applications such as theatre stage scenery or other staged events, allowing the display of background video or real time scenery change.

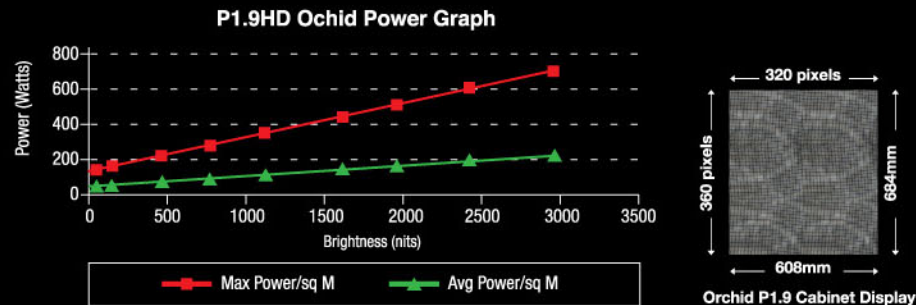The Dragon series currently consists of the SnapDragon P12.5 and the MusicDragon P18.75.

Products
specification

Magnolia P1.5

Description		Specification
Module resolution		Pitch 1.5mm
Brightness		2000 nits
Refresh rate		>1.9K Hz
Frame rates supported		50/60/100/120 Hz
Protection grade	Front	IP 54
	Back	IP 3x
Serviceability		All Service from Rear
Scan configuration		1/8
LED driver IC		SCL8060
LED type		SMD-1010 (Everlight/NationStar)
PCB size		240mm × 270mm
Cabinet size (W × H × D)		480mm × 270mm × 95mm
Construction material		Aluminum
Cabinet configuration		2 × 1PCBs
Cabinet resolution		320 × 180 Pixels
Cabinet weight		~6Kg
Viewing angle (50% brightness)		160° Horizontal, 160° Vertical
Certifications		PSE/CCC/ETL/CE/FCC/ROHS
Operating power voltage		100-240 Volts
Operating power frequency		50-60 Hz
Power consumption @ 2000nits		Max: 945 Avg: 315 W/㎡
Operating temperature		-20 min / +45°C max
Storage temperature		-20 min / +60°C max
Operating humidity		20% min / 90% max
Storage humidity		10% min / 90% max
Nominal LED work life (50% brightness)		100,000 hours
Video input		DVI/HDMI
Display resolution		443,999 Pixels/㎡
S/W brightness control		256 steps Auto or Manual
Grey scale resolution		16-bit

P1.5 Magnolia Power Graph

Side View   Front View

Back View
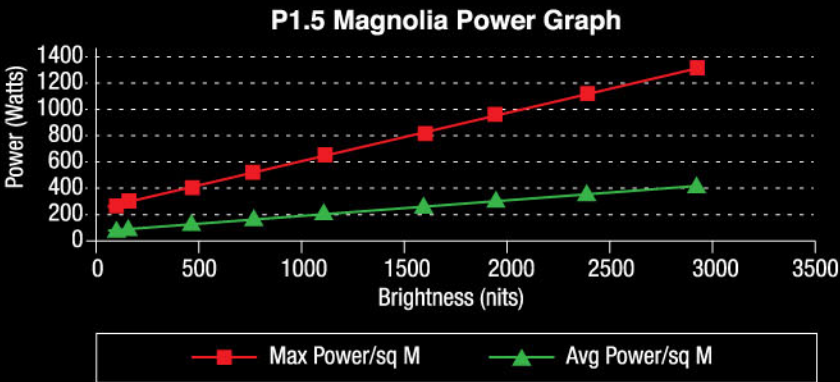
Magnolia P1.5 Cabinet Display

P1.9HD Ochid Power Graph

Orchid P1.9 Cabinet Display

P1.95SD Ochid Power Graph

Orchid P1.95 Cabinet Display

Orchid P1.9-HD

Description		Specification
Module resolution		Pitch 1.9mm
Brightness		2000 nits
Refresh rate		>1.9K Hz
Frame rates supported		50/60/100/120 Hz
Protection grade	Front	IP 54
	Back	IP 3x
Serviceability		All Service from Rear
Scan configuration		1/8
LED driver IC		SCL8060
LED type		SMD-1515 (NationStar)
PCB size		304mm × 228mm
Cabinet size (W × H × D)		608mm × 684mm × 80mm
Construction material		Aluminum
Cabinet configuration		2 × 3PCBs
Cabinet resolution		320 × 360 Pixels
Cabinet weight		~17Kg
Viewing angle (50% brightness)		160° Horizontal, 160° Vertical
Certifications		PSE/CCC/ETL/CE/FCC/ROHS
Operating power voltage		100-240 Volts
Operating power frequency		50-60 Hz
Power consumption @ 2000nits		Max: 670 Avg: 223 W/㎡
Operating temperature		-20 min / +45°C max
Storage temperature		-20 min / +60°C max
Operating humidity		20% min / 90% max
Storage humidity		10% min / 90% max
Nominal LED work life (50% brightness)		100,000 hours
Video input		DVI/HDMI
Display resolution		277,008 Pixels/㎡
S/W brightness control		256 steps Auto or Manual
Grey scale resolution		16-bit
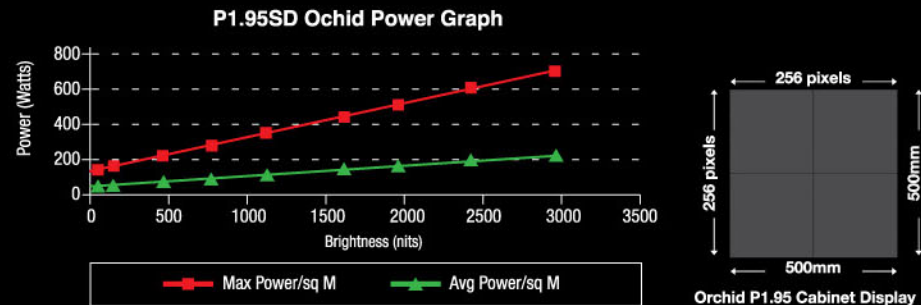
Orchid P1.95-SD

Description		Specification
Module resolution		Pitch 1.95mm
Brightness		2000 nits
Refresh rate		>1.9K Hz
Frame rates supported		50/60/100/120 Hz
Protection grade	Front	IP 54
	Back	IP 3x
Serviceability		All Service from Rear
Scan configuration		1/8
LED driver IC		SCL8060
LED type		SMD-1515 (NationStar)
PCB size		250mm × 250mm
Cabinet size (W × H × D)		500mm × 500mm × 80mm
Construction material		Aluminum
Cabinet configuration		2 × 2PCBs
Cabinet resolution		256 × 256 Pixels
Cabinet weight		~11Kg
Viewing angle (50% brightness)		160° Horizontal, 160° Vertical
Certifications		PSE/CCC/CE/ETL/FCC/ROHS
Operating power voltage		100-240 Volts
Operating power frequency		50-60 Hz
Power consumption @ 2000nits		Max: 670 Avg: 223 W/㎡
Operating temperature		-20 min / +45°C max
Storage temperature		-20 min / +60°C max
Operating humidity		20% min / 90% max
Storage humidity		10% min / 90% max
Nominal LED work life (50% brightness)		100,000 hours
Video input		DVI/HDMI
Display resolution		262,144 Pixels/㎡
S/W brightness control		256 steps Auto or Manual
Grey scale resolution		16-bit

P2.6 Peony Power Graph

Power (Watts) vs Brightness (nits)

- Max Power/sq M
- Avg Power/sq M

Peony P2.6 Cabinet Display (192 pixels × 192 pixels, 500mm × 500mm)

P3.9 Tulip Power Graph

Power (Watts) vs Brightness (nits)

- Max Power/sq M
- Avg Power/sq M

Tulip P3.9 Cabinet Display (128 pixels × 128 pixels, 500mm × 500mm)
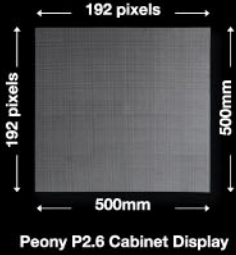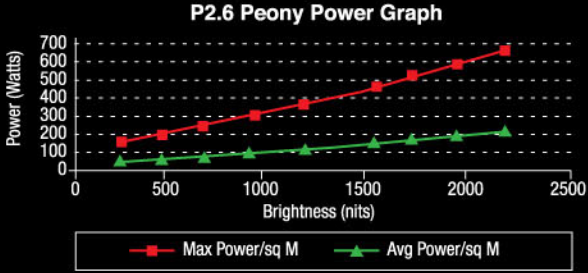
Peony P2.6

Description		Specification
Module resolution		Pitch 2.6mm
Brightness		2000 nits
Refresh rate		>1.9K Hz
Frame rates supported		50/60/100/120 Hz
Protection grade	Front	IP 54
	Back	IP 3x
Serviceability		All Service from Rear
Scan configuration		1/8
LED driver IC		SCL8060
LED type		SMD-1515 (NationStar)
PCB size		250mm × 250mm
Cabinet size (W × H × D)		500mm × 500mm × 80mm
Construction material		Aluminum
Cabinet configuration		2 × 2 PCBs
Cabinet resolution		192 x 192 Pixels
Cabinet weight		~11 Kg
Viewing angle (50% brightness)		160° Horizontal, 160° Vertical
Certifications		PSE/CCC/CE/ETL/FCC/ROHS
Operating power voltage		100-240 Volts
Operating power frequency		50-60 Hz
Power consumption @ 2000nits		Max: 633 Avg: 211 W/㎡
Operating temperature		-20 min / +50°C max
Storage temperature		-20 min / +60°C max
Operating humidity		20% min / 90% max
Storage humidity		10% min / 90% max
Nominal LED work life (50% brightness)		100,000 hours
Video input		DVI/HDMI
Display resolution		147,456 Pixels/㎡
S/W brightness control		256 steps Auto or Manual
Grey scale resolution		16-bit
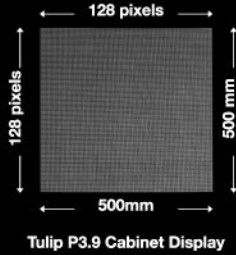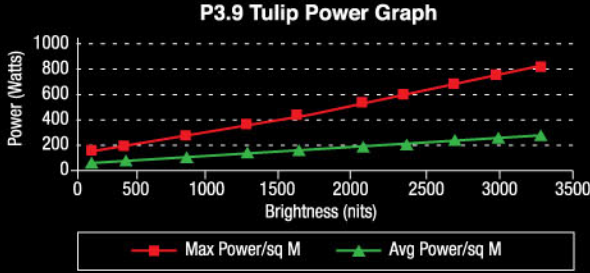
Tulip P3.9

Description		Specification
Module resolution		Pitch 3.9mm
Brightness		3000 nits
Refresh rate		>3.8K Hz
Frame rates supported		50/60/100/120 Hz
Protection grade	Front	IP 54
	Back	IP 3x
Serviceability		All Service from Rear
Scan configuration		1/4
LED driver IC		SCL8060
LED type		SMD-2020 (NationStar)
PCB size		250mm × 250mm
Cabinet size (W × H × D)		500mm × 500mm × 80mm
Construction material		Aluminum
Cabinet configuration		2 × 2 PCBs
Cabinet resolution		128 x 128 Pixels
Cabinet weight		~11 Kg
Viewing angle (50% brightness)		160° Horizontal, 160° Vertical
Certifications		PSE/CCC/CE/ETL/FCC/ROHS
Operating power voltage		100-240 Volts
Operating power frequency		50-60 Hz
Power consumption @ 3000nits		Max: 809 Avg: 269 W/㎡
Operating temperature		-20 min / +45°C max
Storage temperature		-20 min / +60°C max
Operating humidity		20% min / 90% max
Storage humidity		10% min / 90% max
Nominal LED work life (50% brightness)		100,000 hours
Video input		DVI/HDMI
Display resolution		65,536 Pixels/㎡
S/W brightness control		256 steps Auto or Manual
Grey scale resolution		16-bit

P5.2 Lily Power Graph

Power (Watts) vs Brightness (nits)

- ■— Max Power/sq M
- ▲— Avg Power/sq M

96 pixels / 96 pixels / 500mm / 500mm

Lily P5.2 Cabinet Display

Front View   Back View

128 pixels / 128 pixels / 768mm / 768mm

Carnation P6 Cabinet Display
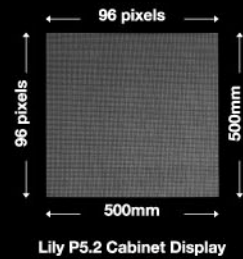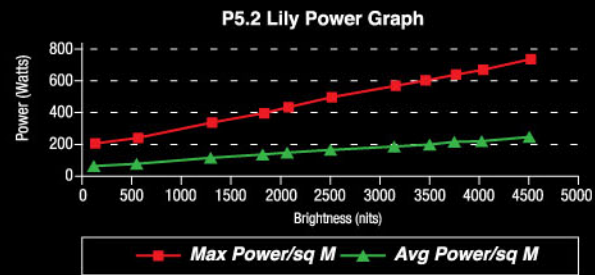
Lily P5.2

Description		Specification
Module resolution		Pitch 5.2mm
Brightness		4000 nits
Refresh rate		>3.8K Hz
Frame rates supported		50/60/100/120 Hz
Protection grade	Front	IP 54
	Back	IP 3x
Serviceability		All Service from Rear
Scan configuration		1/4
LED driver IC		SCL8060
LED type		SMD-3528 (NationStar)
PCB size		250mm × 250mm
Cabinet size (W × H × D)		500mm × 500mm × 80mm
Construction material		Aluminum
Cabinet configuration		2 × 2 PCBs
Cabinet resolution		96 x 96 Pixels
Cabinet weight		~11 Kg
Viewing angle (50% brightness)		160° Horizontal, 160° Vertical
Certifications		CCC/PSE/CE/ETL/FCC/ROHS
Operating power voltage		100-240 Volts
Operating power frequency		50-60 Hz
Power consumption @ 4000nits		Max: 735 Avg: 245 W/㎡
Operating temperature		-20 min / +45°C max
Storage temperature		-20 min / +60°C max
Operating humidity		20% min / 90% max
Storage humidity		10% min / 90% max
Nominal LED work life (50% brightness)		100,000 hours
Video input		DVI/HDMI
Display resolution		36,864 Pixels/㎡
S/W brightness control		256 steps Auto or Manual
Grey scale resolution		16-bit
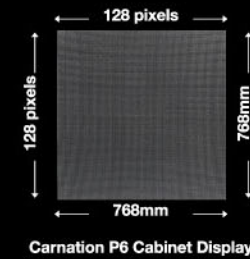
Carnation P6

Description		Specification
Module resolution		Pitch 6mm
Brightness		6000 nits
Refresh rate		>8K Hz
Frame rates supported		50/60/100/120 Hz
Protection grade	Front	IP 65
	Back	IP 43
Serviceability		All Service from Rear
Scan configuration		Static
LED driver IC		SCL8061
LED type		SMD-3535-Highlight (NationStar)
PCB size		384mm × 384mm
Cabinet size (W × H × D)		768mm × 768mm × 180mm
Construction material		Die-cast Aluminum
Cabinet configuration		2 × 2 PCBs
Cabinet resolution		128 x 128 Pixels
Cabinet weight		~26 Kg
Viewing angle (50% brightness)		140° Horizontal, 140° Vertical
Certifications		ETL/UL/CE/FCC/ROHS/TUV/CCC
Operating power voltage		100-240 Volts
Operating power frequency		50-60 Hz
Power consumption @ 6000nits		Max: 880 Avg: 293 W/㎡
Operating temperature		-20 min / +45°C max
Storage temperature		-20 min / +60°C max
Operating humidity		20% min / 90% max
Storage humidity		10% min / 90% max
Nominal LED work life (50% brightness)		100,000 hours
Video input		DVI/HDMI
Display resolution		27,777 Pixels/㎡
S/W brightness control		256 steps Auto or Manual
Grey scale resolution		16-bit

Front View   Side View   Daisy P12 Cabinet Display

Front View

Back View   Side View
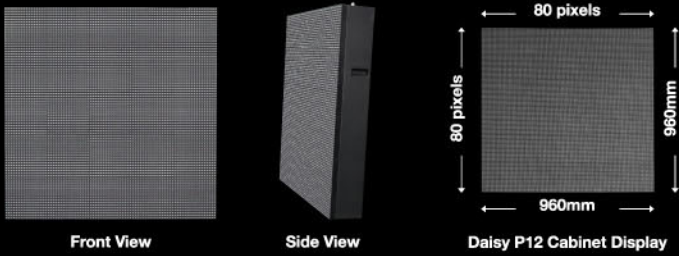
Daisy P12

Description		Specification
Module resolution		Pitch 12mm
Brightness		6000 nits
Refresh rate		≥25K Hz
Frame rates supported		50/60/100/120 Hz
Protection grade	Front	IP 65
	Back	IP 54
Serviceability		All Service from Rear
Scan configuration		Static
LED driver IC		SCL8032
LED type		DIP346 (1R1G1B)
PCB size		192mm ×192mm
Cabinet size (W × H × D)		1,152mm x 768mm x 160mm or 960mm x 960mm x 160mm
Construction material		Iron
Cabinet configuration		6 × 4 PCBs or 5 × 5 PCBs
Cabinet resolution		96 x 64 Pixels or 80 x 80 Pixels
Cabinet weight		~43 Kg
Viewing angle (50% brightness)		130° Horizontal, 130° Vertical
Certifications		CCC/CE/FCC/ROHS
Operating power voltage		100-240 Volts
Operating power frequency		50-60 Hz
Power consumption @ 6000nits		Max: 646 Avg: 215 W/㎡
Operating temperature		-20 min / +50°C max
Storage temperature		-40 min / +85°C max
Operating humidity		20% min / 90% max
Storage humidity		10% min / 90% max
Nominal LED work life (50% brightness)		100,000 hours
Video input		DVI/HDMI RF, S-Video, RGB, RGBHV, YUV, YC
Display resolution		6,889 Pixels/㎡
S/W brightness control		256 steps Auto or manual
Grey scale resolution		16-bit
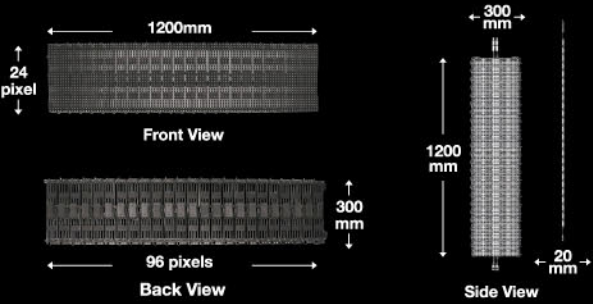
SnapDragon P12.5

Description		Specification
Module resolution		Pitch12.5mm
Brightness		2500 nits
Refresh rate		>8K Hz
Frame rates supported		50/60/100/120 Hz
Protection grade	Front	IP 54
	Back	IP 4x
Serviceability		All Service from Rear
Scan configuration		Static
LED driver IC		SCL8061
LED type		SMD-3528 (NationStar)
PCB size		42mm × 292mm
Cabinet size (W × H × D)		1200mm x 300mm x 20mm
Construction material		Iron and Plastic
Cabinet configuration		1 × 24 PCBs
Cabinet resolution		24 x 96 Pixels
Cabinet weight		~3.6 Kg
Viewing angle (50% brightness)		120° Horizontal, 120° Vertical
Certifications		TUV/CE/ROHS
Operating power voltage		100-240 Volts
Operating power frequency		50-60 Hz
Power consumption @ 2500nits		Max: 484 Avg: 161 W/㎡
Operating temperature		-20 min / +45°C max
Storage temperature		-20 min / +60°C max
Operating humidity		20% min / 90% max
Storage humidity		10% min / 90% max
Nominal LED work life (50% brightness)		100,000 hours
Video input		DVI/HDMI
Display resolution		6,400 Pixels/㎡
S/W brightness control		256 steps Auto or manual
Grey scale resolution		16-bit

MusicDragon P18.75

Front View

16 pixel

1200mm

Back View

64 pixels

300 mm

Side View

300 mm

1200 mm

14 mm
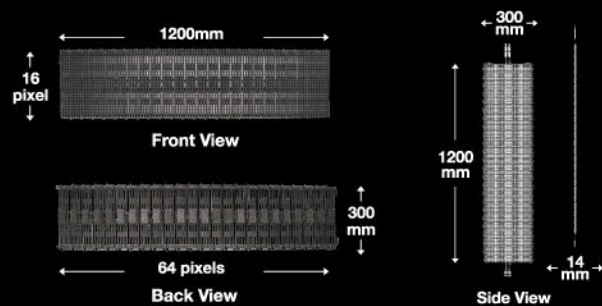
Description		Specification
Module resolution		Pitch 18.75 mm
Brightness		2500 nits
Refresh rate		>8K Hz
Frame rates supported		50/60/100/120 Hz
Protection grade	Front	IP 54
	Back	IP 4x
Serviceability		All Service from Rear
Scan configuration		Static
LED driver IC		SCL8061
LED type		SMD-3535 (NationStar)
PCB size		62mm × 288mm
Cabinet size (W × H x D)		1200mm x 300mm x 14mm
Construction material		Iron and Plastic
Cabinet configuration		1 × 16 PCBs
Cabinet resolution		16 x 64 Pixels
Cabinet weight		~3.0 Kg
Viewing angle (50% brightness)		120° Horizontal, 120° Vertical
Certifications		ETL/TUV/CE/ROHS
Operating power voltage		100-240 Volts
Operating power frequency		50-60 Hz
Power consumption @ 2500nits		Max: 396 Avg: 132 W/㎡
Operating temperature		-20 min / +50°C max
Storage temperature		-35 min / +85°C max
Operating humidity		20% min / 90% max
Storage humidity		10% min / 90% max
Nominal LED work life (50% brightness)		100,000 hours
Video input		DVI/HDMI
Display resolution		2,844 Pixels/㎡
S/W brightness control		256 steps Auto or manual
Grey scale resolution		16-bit

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