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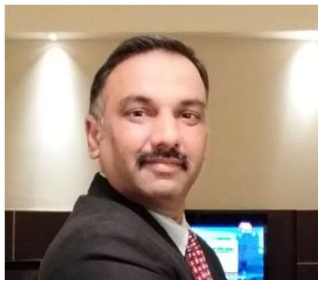
Latest Innovations in
Control Room Video Wall Solution

&

Trends from DLP to Fine Pitch LED Video Wall



By: Kuldeep Singh Rathore (D
Pyrotech Electronics P
U

resenter

- Kuldeep Singh Rathore has got total working experience of 25 years in IT and display solution.
- He is having an experience in the display solution for more than 10 years.
- Had provided video wall solution into power generation transmission distribution / Oil and gas / City surveillance / and smart city projects control room.

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CONTENTS

Fundamental Of Fine Pitch Technology

- Why Fine Pitch Technology ?
- Comparison of Fine Pitch Technologies
- Pixel Pitches of Fine Pitch LED
- Mounting Arrangements of Fine Pitch Technology

Application of Fine Pitch Technology

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WHY FINE PITCH TECHNOLOGY ?

History of LED Displays

- Early use with incandescent bulbs in sports and roadside digital signage
- Breakout with introduction of RGB LEDs in late 1990's
- Initially used monochrome LEDs

Benefits of Fine Pitch Technology

- Seamless = No bezels
- Brightness ≥ 800 nits
- Wide color gamut ≥ 95% NTSC
- Unmatched uniformity
- Wide viewing angles
- Long life ≤ 1,00,000 hours (~10 years)
- Any size or shape, not only 16:9

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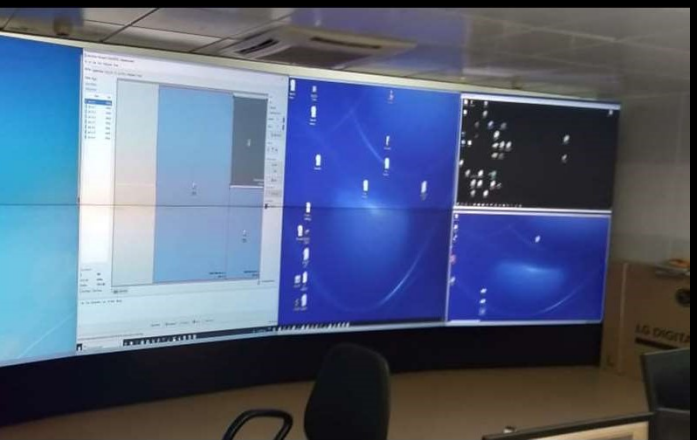
Different Technologies in video walls

LED LIT LCD VIDEO WALL

FINE PITCH LED VIDEO W

LP VIDEO WALL



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Comparison of Fine Pitch Technologies

ar Projection DLP

small bezel (<1mm)
ination LED , LASER
ly reliable
pixel density
static image performance
brightness
to 1000-mm installed depth
axis viewing compromises
er cost

Ultra Narrow Bezel LCD

- Good value/lower cost
- High brightness, lower lifetime
- Good off-axis viewing
- High pixel density
- Best touch solutions
- 3.6 to 8.0-inch installed depth
- Small but prominent bezel (.8mm)

Fine Pitch LED

- Seam less
- Unmatched Uniformity
- Best Viewing Angle
- Longest Life
- High Brightness
- Depth varies, rear access co
- Lower Pixel Density

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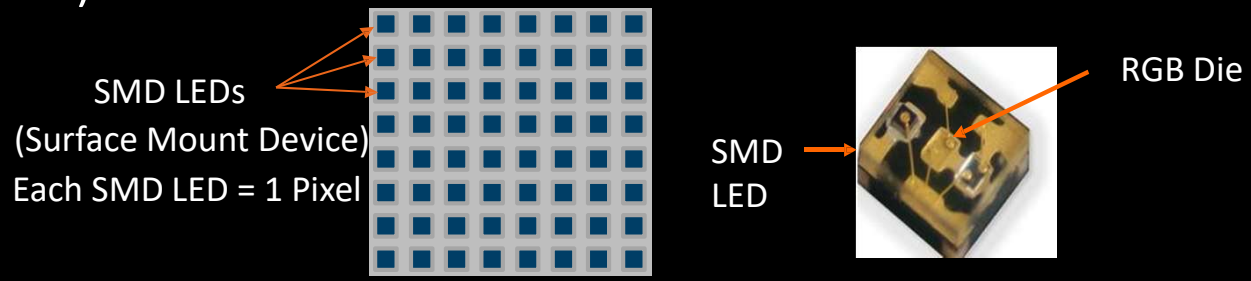
Pixel Pitches of Fine Pitch LED

hat Comprises Each Pixel in a DV LED Display?

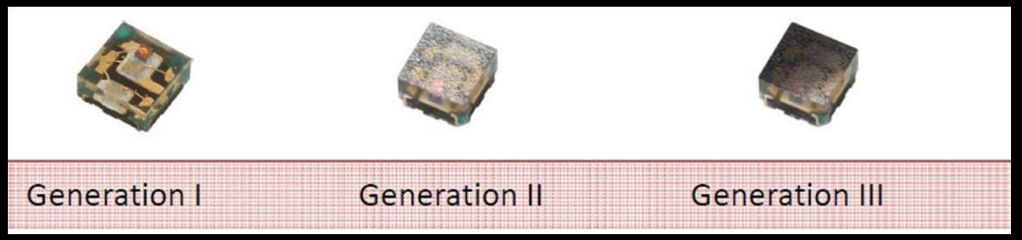
One SMD (Surface Mount Device) LED

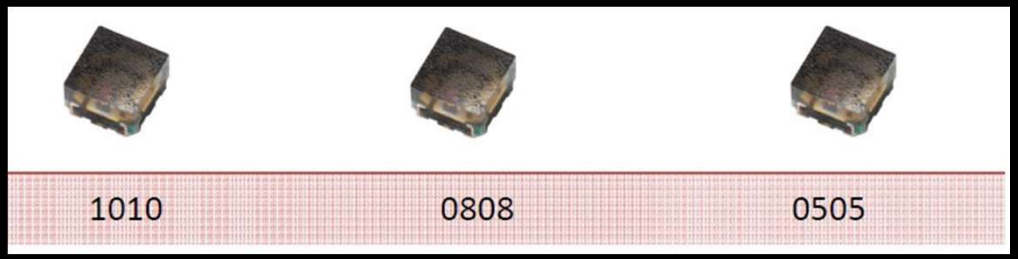


RGB LEDs for DV LED Signage

Surface Mounted Device (SMD):
Trend toward reduced
reflectance (improved contrast)

Smaller packages, 1010 = 1 x 1mm
Used in:
≥ P0.8 ≥ P1.5 ≥ P1.2





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Pixel Construction Comparison

ple: Full HD Display = 2,073,600 pixels

ar Projection DMD

le solid-state device
D)

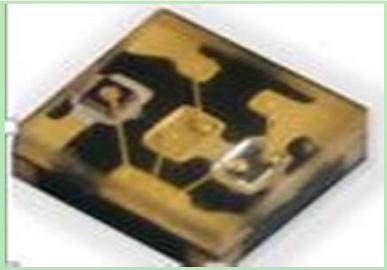
light hits DMD

structure less visible

LED Lit LCD Module

- Single multi-layered LCD module
- 2M cells in module
- Pixel structure less visible

SMD LED



- 2M SMD LED pixels
- Each is surface-mounted
- Pixels are more visible an easily damaged

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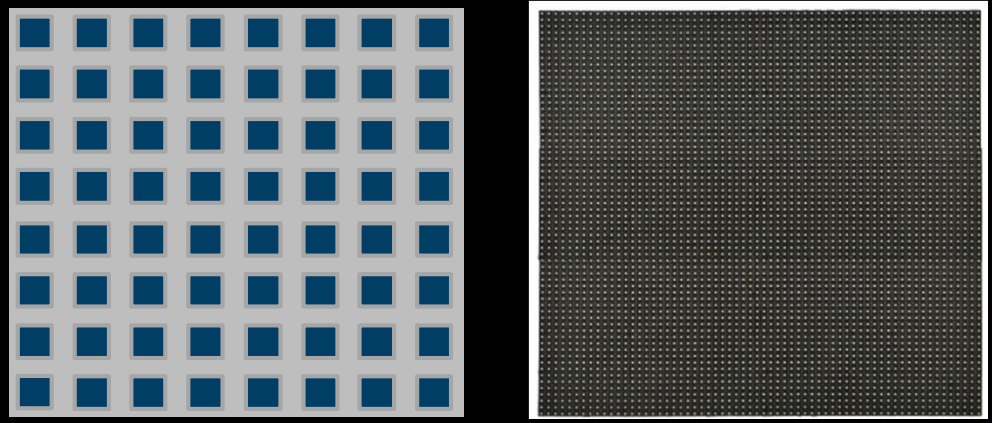
Pixel Pitches of Fine Pitch LED

What is the term for a Printed Circuit Board (PCB) with SMD LEDs mounted on it?

- Modular or
- Tile



LED Module or LED Tile

or

PCB (Printed Circuit Board)

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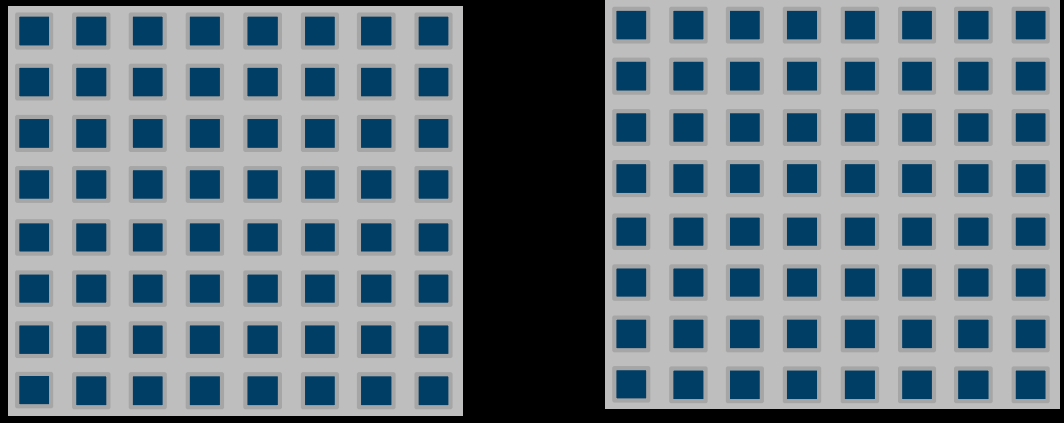
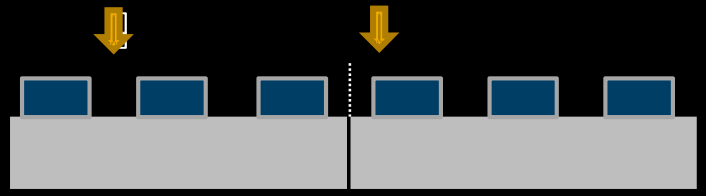
Pixel Pitches of Fine Pitch LED

Constructing Seamless Fine Pitch LED Displays



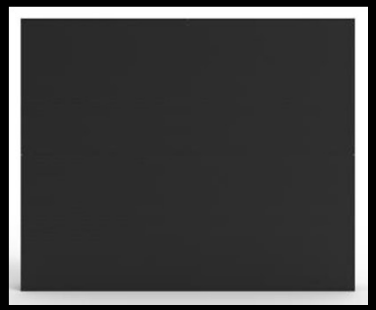
Example: P2.0

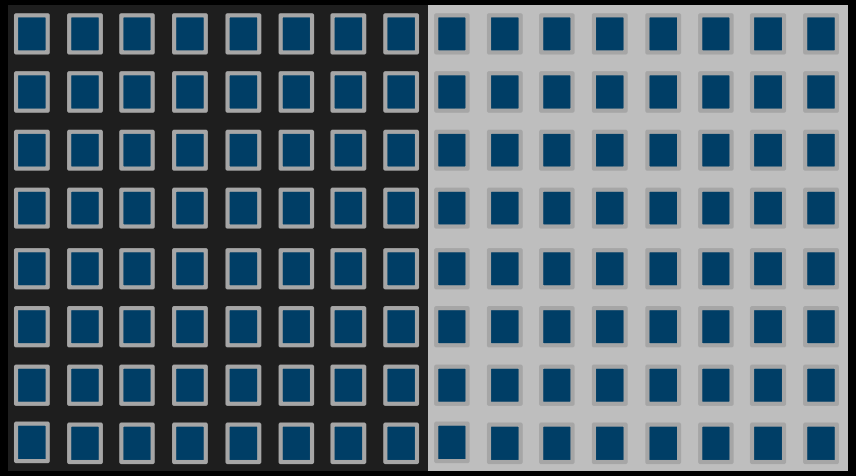


ACHIEVING TRUE BLACKS WITH DV LED

ny? The original technology wasn't built for it!

- For outdoor environments, the key concern is brightness.
- For indoor environments, the key concern is contrast and imag[illegible] qua[illegible]
- LEDs are coated in a black resin epoxy. A shade is inserted between the LEDs - this allows DV LED to achieve true blacks and a crisp image by eliminating reflectance





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Pitch Classifications

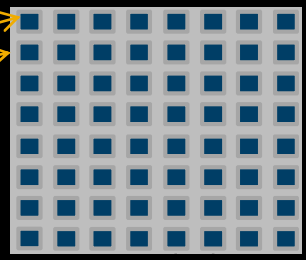
What is the Terms Used to Describe the Pitch Density of fine Pitch LED:

- Pitch is the distance in mm between centers of each SMD LED (or pixel)
- P2.0 LED display = 2mm Pitch = 2mm between the centers of each pixel

Type Of Pixel Pitch:

PITCH TYPE	SPECIFICATION
Standard Pitch	> 4.0 mm
Fine Pitch	1.6 to 3 mm
Ultra Fine Pitch	<1.6 mm

ch = Distance between center for Pixels in mm



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Estimating Minimum Viewing Distance

his depends on who you ask:

- LED-only vendors understate this distance
- Beware of “Optimal Viewing” distances
- Retina distance: Distance a person with 20/20 vision cannot see pixels
  4.0mm = 45ft, 1.5mm = 17ft
- 10x Rule: Shorthand calculation is 4.0mm x 10 = 40ft, 1.5mm x 10 = 15ft
- Comfortable viewing distance for typical content is usually half of retina distance
- Customer’s content, application, perception and budget are final determinants

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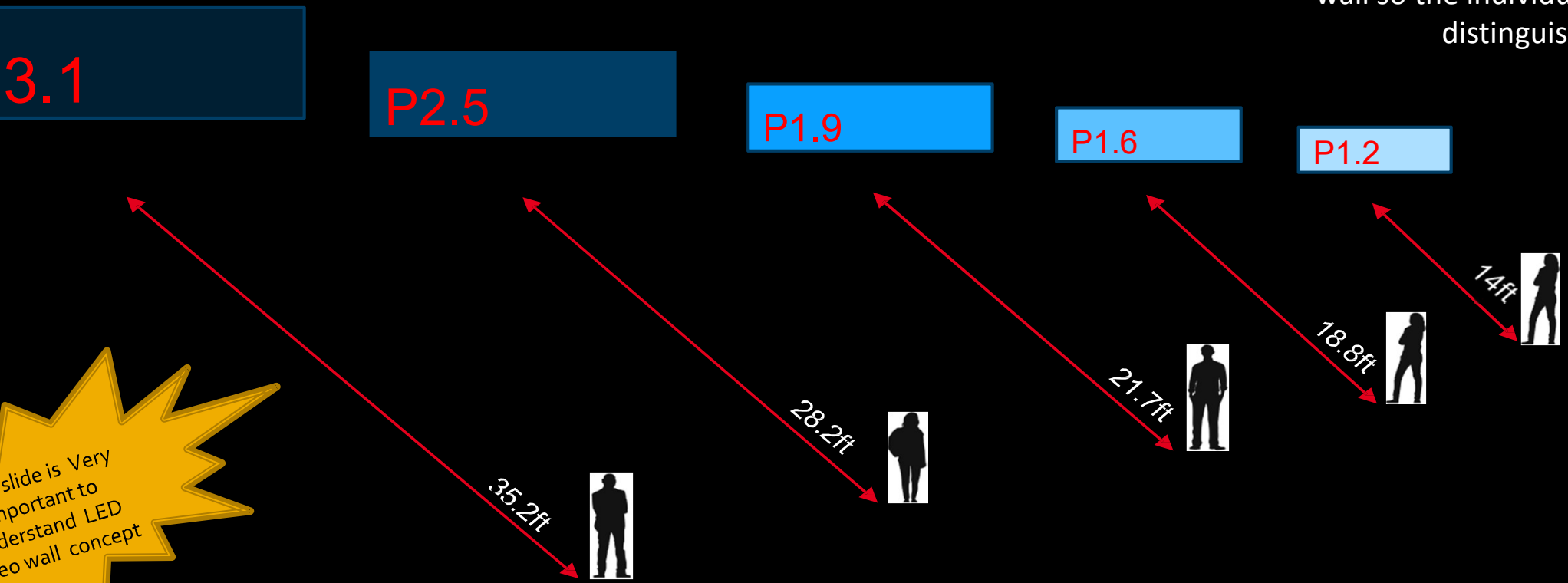
RETINA DISTANCE

Retina Distance

Distance a person with 20
must stand away from
wall so the individual p
distinguishabl



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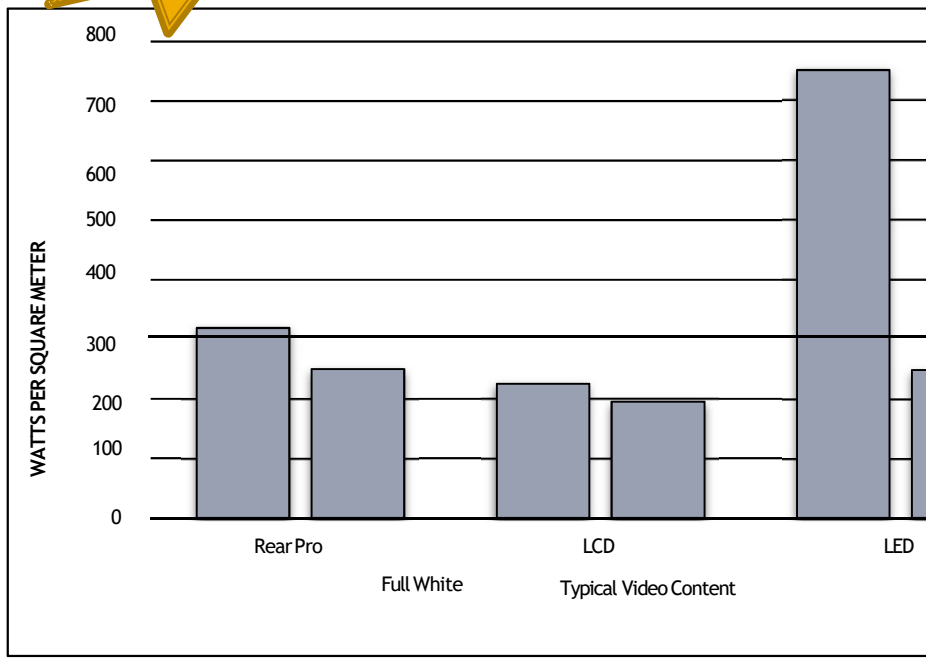
Power Considerations

- Power and BTU stats can be VERY misleading with fine pitch LED
- Fine Pitch LED has the POTENTIAL to use a lot of power but almost never does
- Content has a large impact on fine pitch LED power usage when compared to LCD
- Brightness can be fixed for more predictable energy usage
- Power-commissioning for fine pitch LED
- BTU planning for fine pitch LED

This slide is consuming more power as compare to previous one because of content



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Mounting Arrangement of Video wall

Front Serviceable Video wall Mount

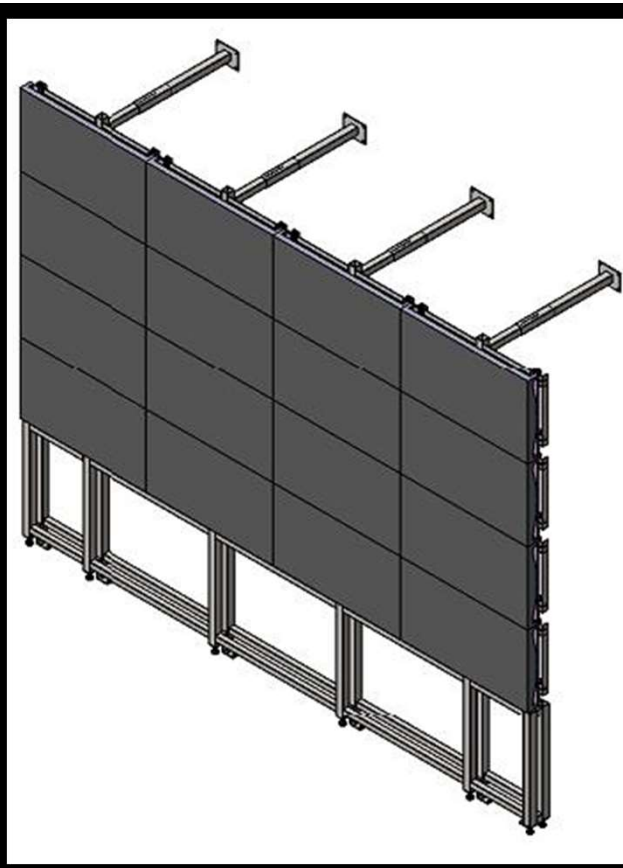
- Flip Out Service Design

Front Serviceable Floor Mount

- Flip Out Service Design
- Anchored to floor or lift

Rear Serviceable Floor Mount

- All service and adjustments must be done from the rear
- Faceted (curved) designs available



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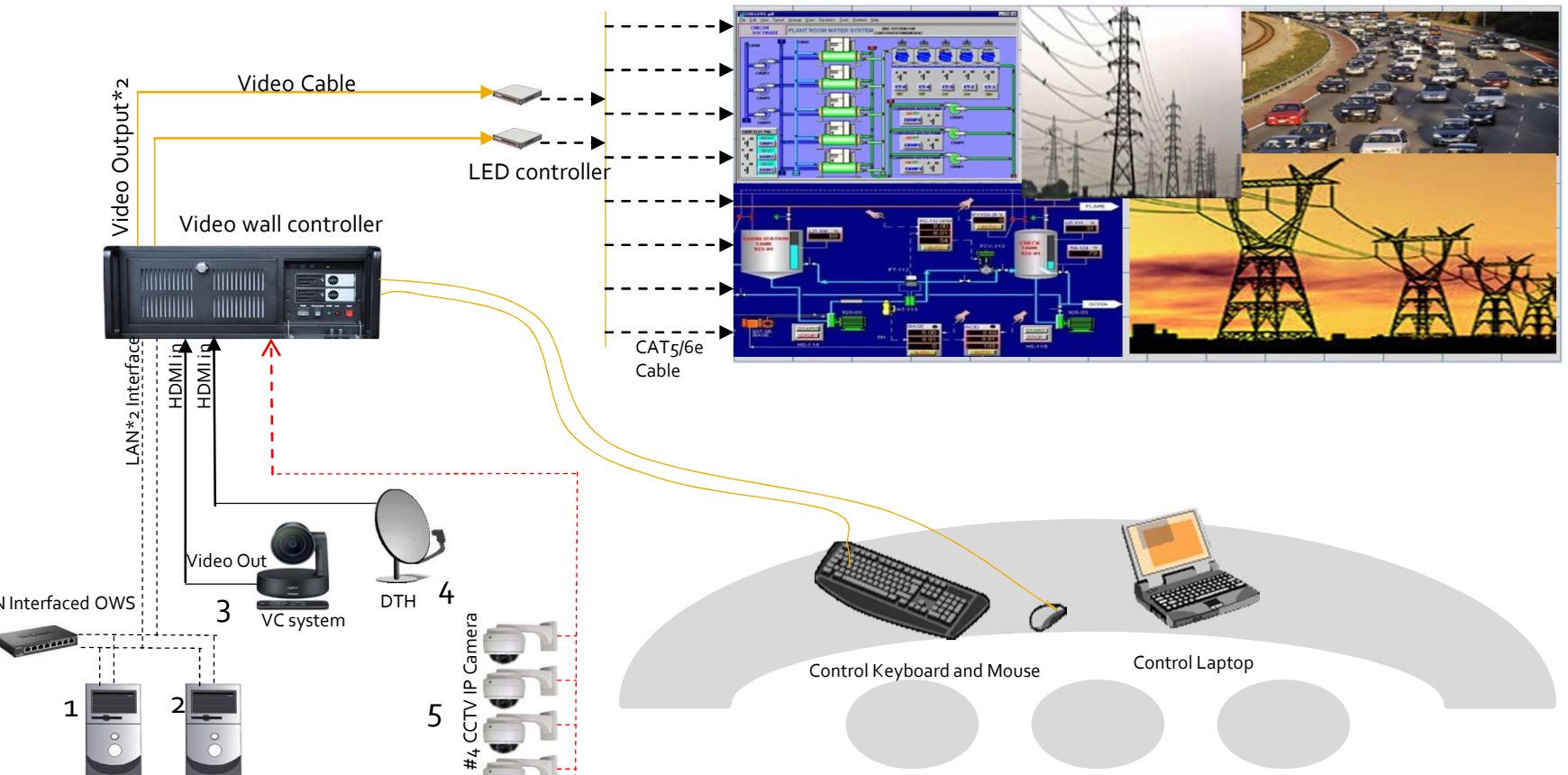
Video wall Connectivity

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2


3


4


5


6

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Applications

Atrium & Architectural

Auditoriums

Broadcast On-Air

Conference Rooms & Decision Rooms

Control Rooms

Corporate Lobbies & Common Areas

Museums

Retail

Universities

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INSTALLATIONS

At NTPC Scope Complex

Video wall Size : 1.6mm Pitch 9.6 meter x 1.8 meter

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公安大数据-消防
截止到12月份
全省17地市接警起火分布
全省年内接出警及火灾对比
年内火灾起数分月同比
2015
2016
全年内火灾分类
今年各月份火灾和接出警总数

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Payload Operations Integration Center
NASA Marshall Space Flight Center
NASA

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今日值班
值班
人员
电话
局领导
李建伟
13678348951
值班领导
喻平文
13903389213
110值班长
周峻
13594983721
122值班长
陈华东
13860635410
12
未处理警情
今日警情摘要
成都市各分局警情占
成都市公安局
地铁分局
高新分局
鹰眼
CHENGDU MUNICIPAL PUBLIC SECURITY BUREAU
12
26
4957
今日警情摘要
成都市各分局警情占比图
单位
已处理
处理中
未处理
最新警情

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Время доклада: 00:04:


ГК ВКС
ГБУ МО РФ
НАЦИОНАЛЬНЫЙ ЦЕНТР
УПРАВЛЕНИЯ ОБОРОНОЙ
РОССИЙСКОЙ ФЕДЕРАЦИИ

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Questions?

Thank You !!