

## Digital video walls: How to deliver BIG impact with little legwork



# Digital Video Walls

**Digital Signage**  
magazine

**Moderator:**  
**David Keene**  
Executive Editor,  
*Digital Signage Magazine*  
[j davidkeene@gmail.com](mailto:j davidkeene@gmail.com)  
[www.digitalsignageweekly.com](http://www.digitalsignageweekly.com)

**Presenters:**

**Benjamin C. Hardy**  
Sr. Product Specialist,  
NEC Display Solutions of America, Inc.  
[bhardy@necdisplay.com](mailto:bhardy@necdisplay.com)  
[www.necdisplay.com](http://www.necdisplay.com)



**Michael Ferrer**  
Sr. Business Development Manager,  
NEC Display Solutions of America, Inc.  
[mferrer@necdisplay.com](mailto:mferrer@necdisplay.com)  
[www.necdisplay.com](http://www.necdisplay.com)

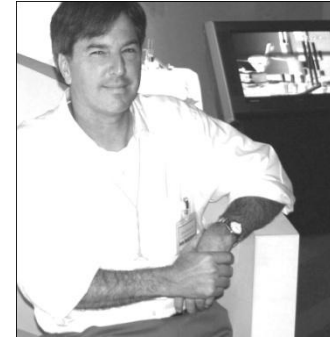


**Michael Dituri**  
Vice President, GAVI  
[michaeld@gavi.com](mailto:michaeld@gavi.com)



# Digital Video Walls

**Digital Signage**  
magazine



**Moderator:**

**David Keene**

**Executive Editor, *Digital Signage* Magazine**

**[j davidkeene@gmail.com](mailto:j davidkeene@gmail.com)**

**[www.digitalsignageweekly.com](http://www.digitalsignageweekly.com)**

**Question and Answer Session at the end  
of the Presentations:**

**... Submit Questions throughout the hour**

# Overview—Why use video walls?

- Maximizes viewing capability of content
  - Captivates audiences
  - Focus goes to the wall
- Gives that ‘wow’ factor



Renaissance Orlando Hotel

16 X461UN's in 4x4

# Designing Video Wall Solutions

Massive 8x7 Video Wall in NYC

WOW  
FACTOR™





# LCD Projector vs. LCD Video Wall

LCD Projector



NEC LCD Video Wall in NYC



Projected image is very dim compared to the LCD Video Wall.

These pictures were both taken through a glass window to show the effectiveness of each technology when glare or a bright environment is an issue.

# Where?

- Corporate Applications



Viacom Lobby  
56 X461UN's in 8x7



Goodrich Corporation  
X461UN 2x2's

# Where?

- Retail Applications



**Bloomingdales, NYC**  
9 LCD4620's 3x3 Portrait

**Zacky's, NYC**  
54 LCD4020's in 3x18





# Where?

- Specialty Applications



**E! News**  
**9 X461UN's 3x3**



**12 X461UN's 4x3**

# Where?

- Specialty Applications



Sondheim on Sondheim

# Video Wall Necessities

---

- Source (PC, Satellite, Blu-ray, etc.)
- Wiring/Hardware
  - Daisy Chaining, Distribution Amps, Switchers, Converters, Hubs, etc.
- Mounting
- Displays
- Color Calibration

# Other Aspects to be aware of

## ■ Ventilation

- For larger video wall deployments or when enclosed, air conditioning or passive air flow may need to be utilized to preserve the life of the display.

## ■ Wall Support

- Make sure building engineer is aware of the extra weight associated with mounts and displays
- Make sure walls are reinforced if necessary.

## ■ Ambient Light Conditions

- Brighter areas cause for a brighter display

## ■ Power



# Questions to Ask...

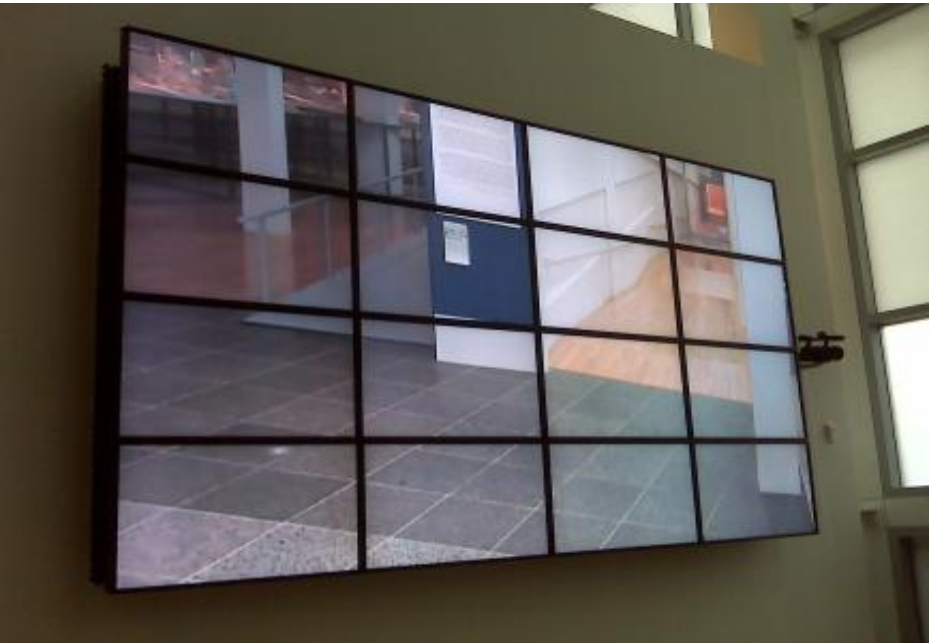
- 1) What's the Video Wall going to be used for? Lobby signage, NOC, Presentation System, Rental Unit
- 2) One large image (across the entire video wall) or multiple sources (one per screen)?
- 3) What sources will you be using? PC, Sat or CATV, BluRay DVD?
- 4) Will there be a control system (AMX, Crestron, PC controller)?
- 5) Who will be using or managing the video wall after it is installed?
- 6) If you're intending to wall mount the video wall, is the existing wall structurally sound? Are you willing to add or reinforce the existing wall structure?
- 7) Do you currently have electric outlets at the location, or can you have outlets added?
- 8) LCD monitors come with different bezel widths, which one looks best for the budget you have?

# Bezel comparison

X462UN

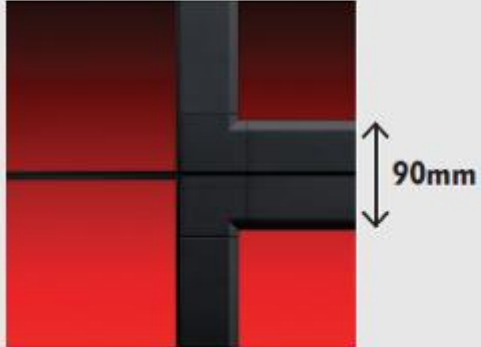


P461

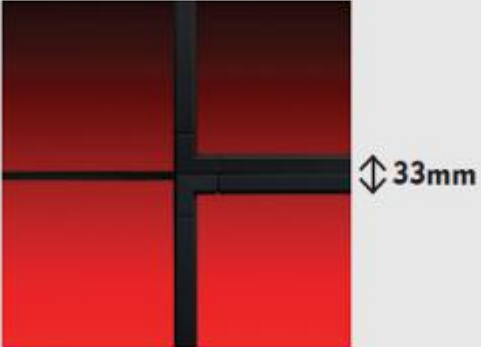


*Image Gap Comparison*

NEC V461



NEC P461



NEC X462UN



# Video Wall Must Haves



# Color Calibration is Key!

Before



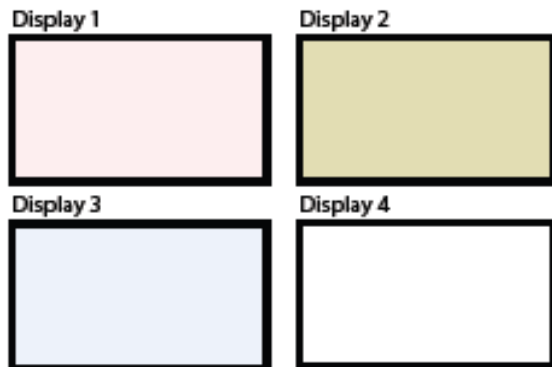
After



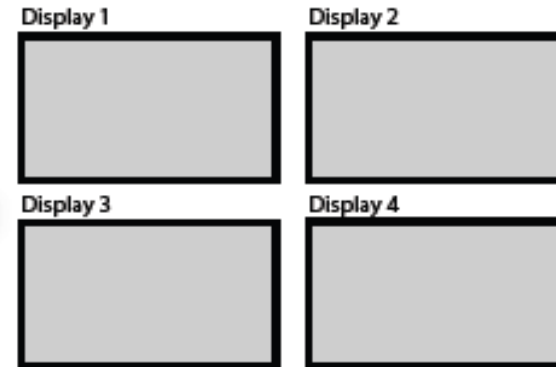


# Display Wall Color Calibration

- Displays can be easily calibrated for color & brightness uniformity across the video wall.
- Highly recommend using digital inputs.
- Analog inputs (VGA, RGBVH, etc) show signal noise degradation. This will make it more difficult to calibrate for uniformity.



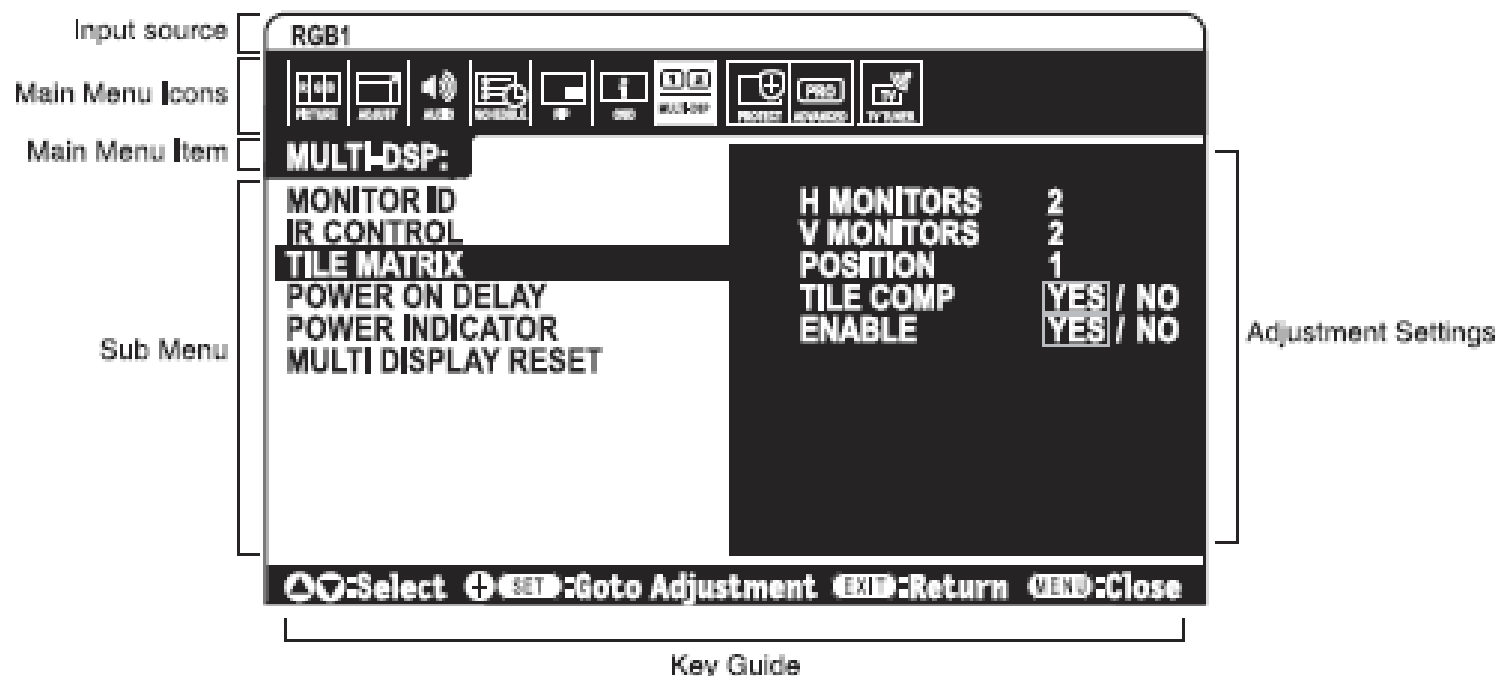
Before Calibration



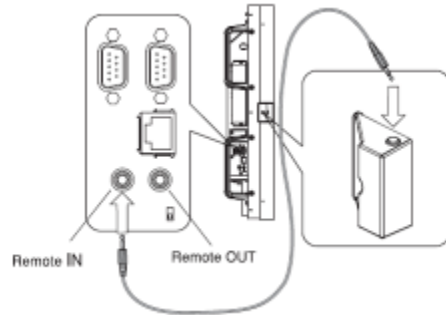
After Calibration

# Easy configuration via OSM - On Screen Menu

The Tile Matrix feature of the NEC Display allows one image to be expanded and displayed over a 2x2 Video Wall setup.\*\* This is accessed through the OSD (On-Screen Display) Controls under the "MULTI-DISP" main menu icon. Under the "Tile Matrix" sub-menu, enable the feature and set the necessary parameters that match the 2x2 Video Wall setup.



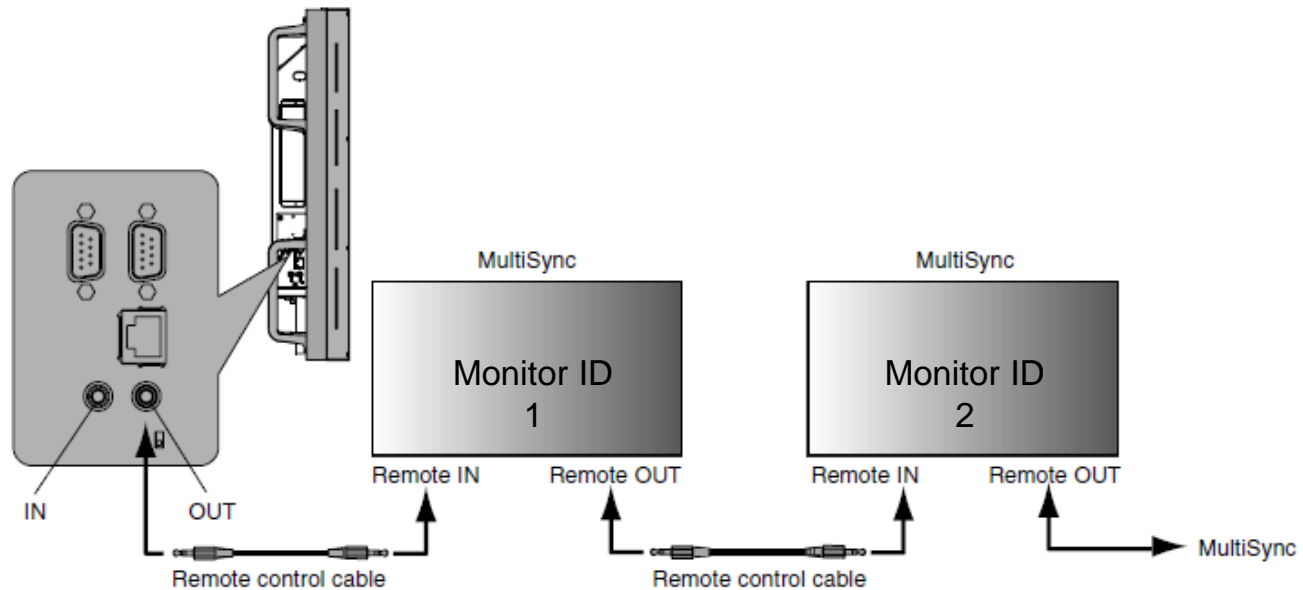
# IR Remote and Sensor Kit



Make sure you setup the Monitor ID for each screen before you connect the daisy chain cables.

## WIRED REMOTE CONTROL FUNCTION

You can control this monitor by connecting REMOTE IN/OUT with Stereo Mini plug cable (3.5 Φ).

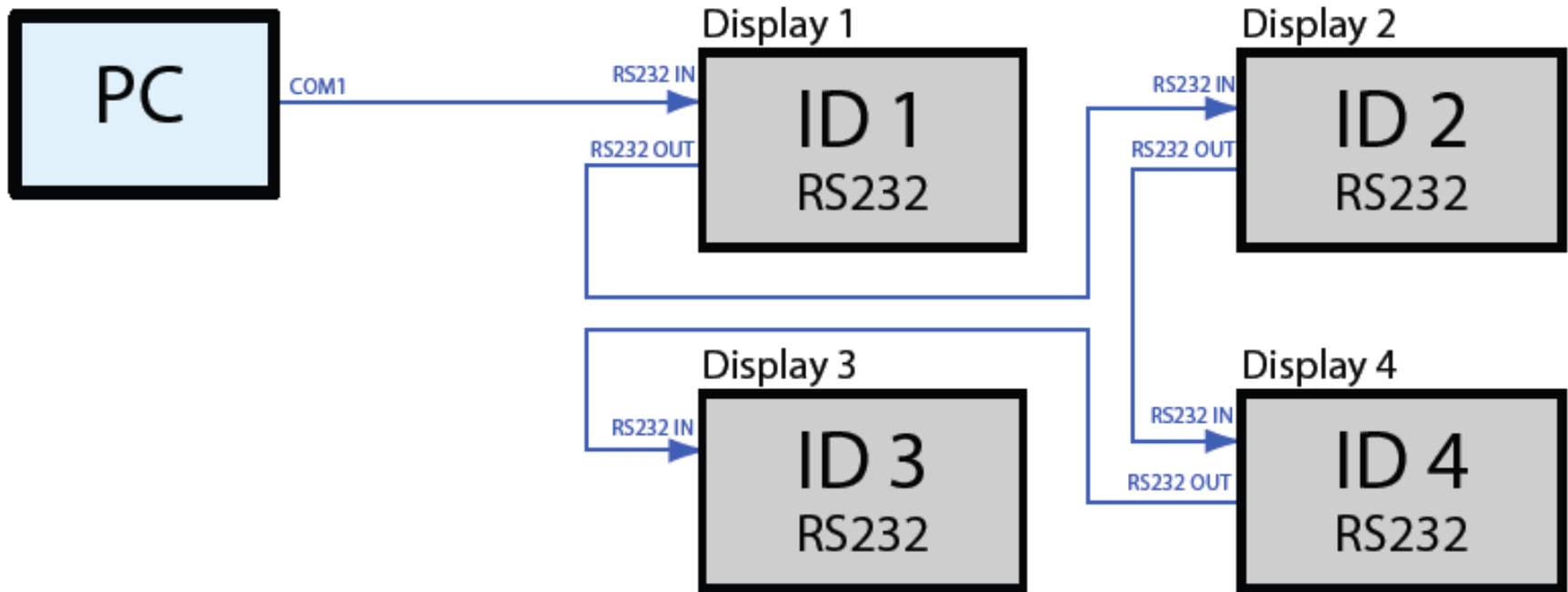


**NOTE:** Turn off the main power switch before connect/disconnect Stereo Mini plug cable.

# RS-232 Control

## Daisy-chained RS232 with one COM port

In this example, the host PC has one RS232 COM port, and all displays are daisy-chained together. Each display must have a unique MONITOR ID since they are all on the same daisy-chain. The RS232 OUT on the first display is connected to the RS232 IN on the next, etc.



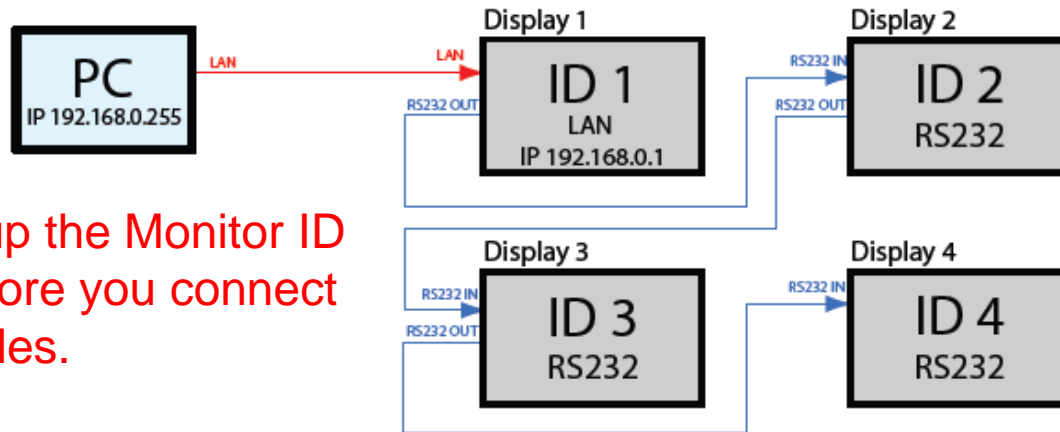
**Note:** The cable connections between displays does not need to follow the same ordering as the ID assignments. In this example the daisy-chain is connected in order 1 - 2 - 4 - 3.

**Make sure you setup the Monitor ID for each screen using the IR Remote before you connect the RS-232 daisy chain cables.**



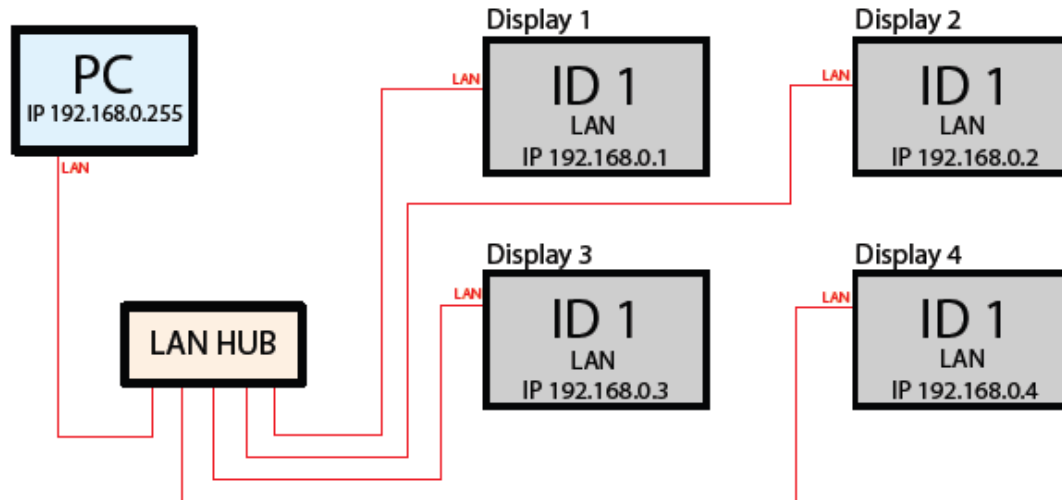
# LAN Control

## ■ Single IP LAN with daisy-chained RS232:



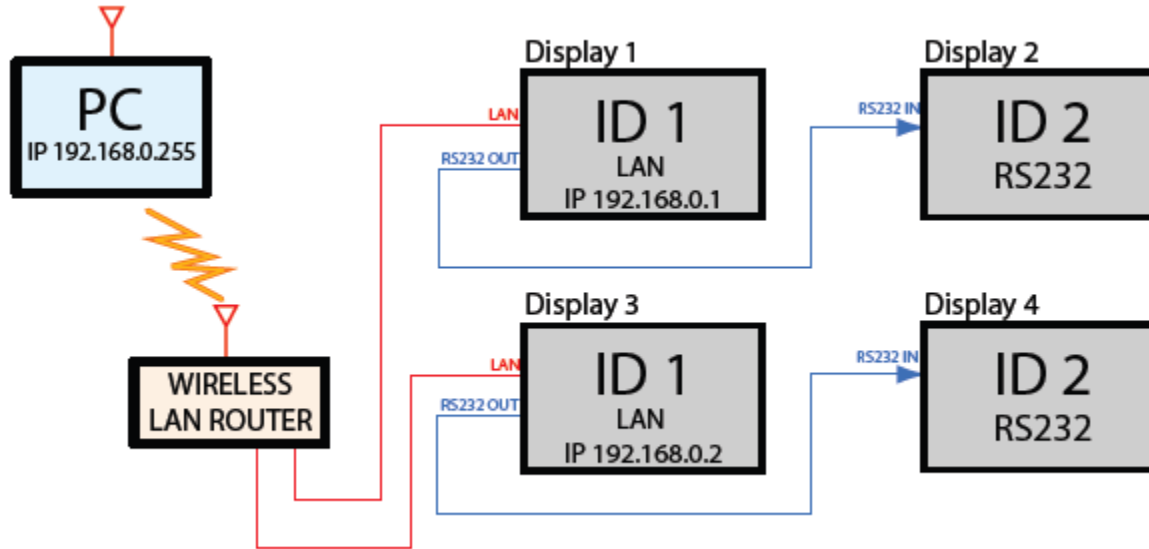
Make sure you setup the Monitor ID for each screen before you connect the daisy chain cables.

## ■ Multiple IP LAN connection:



# LAN Control

- Wireless multi-IP LAN with daisy-chained RS232:



Make sure you setup the Monitor ID and Static IP Address for each screen before you connect the daisy chain cables.

# Video Wall Mounts



# Unistrut might be cheap...Installation Labor is Expensive!



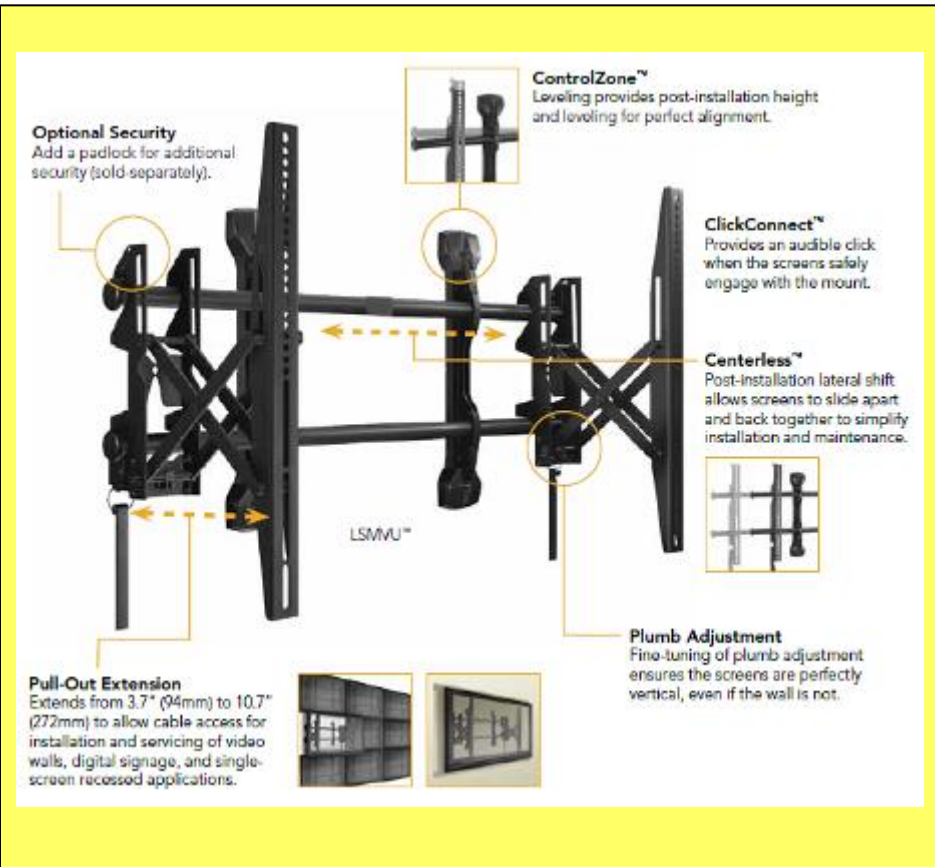
**Unistrut is relatively inexpensive to use as a wall mount.**

**However, it takes 4 technicians to service this video wall.**

**Two people in the front on a lift, and two in the back with socket wrenches.**

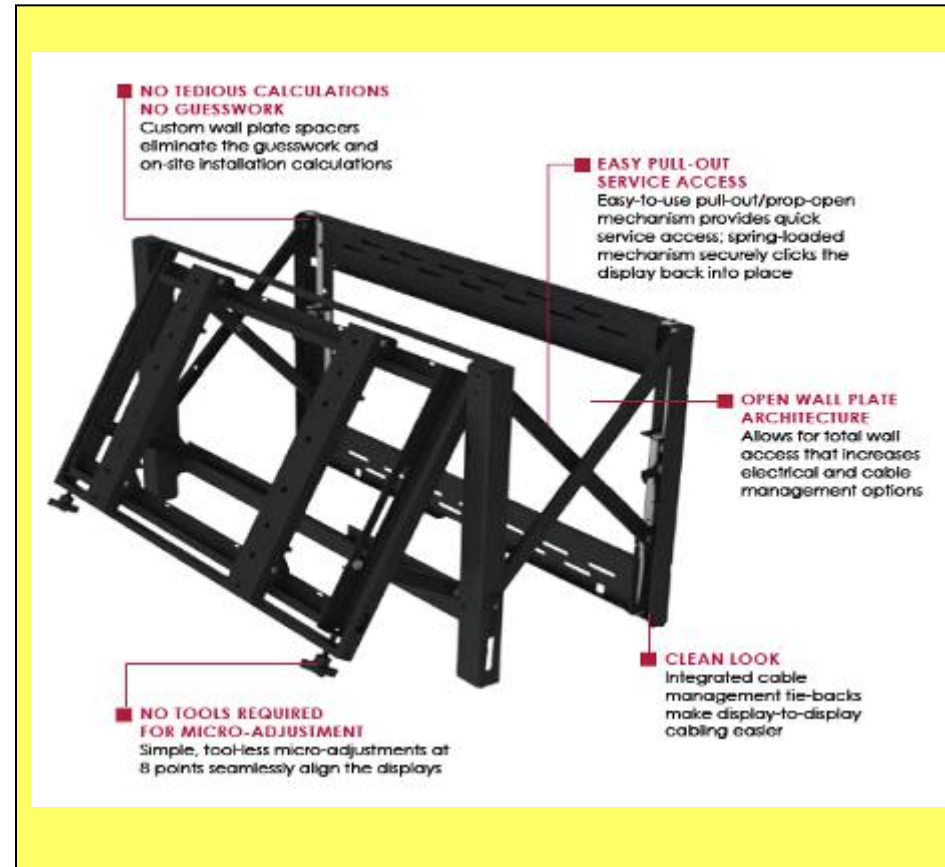
# Video Wall Mounting Solutions (3<sup>rd</sup> Party)

## ■ Chief Manufacturing



Chief LSMVU

## ■ Peerless Mounts

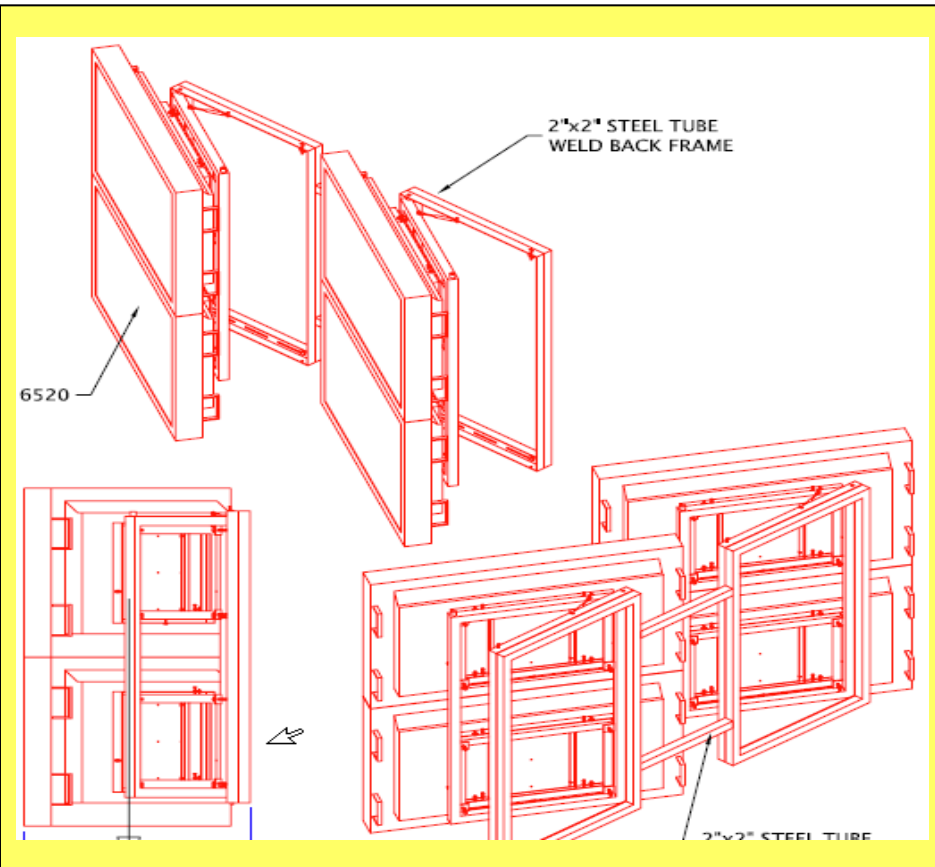


Peerless DS-VW760

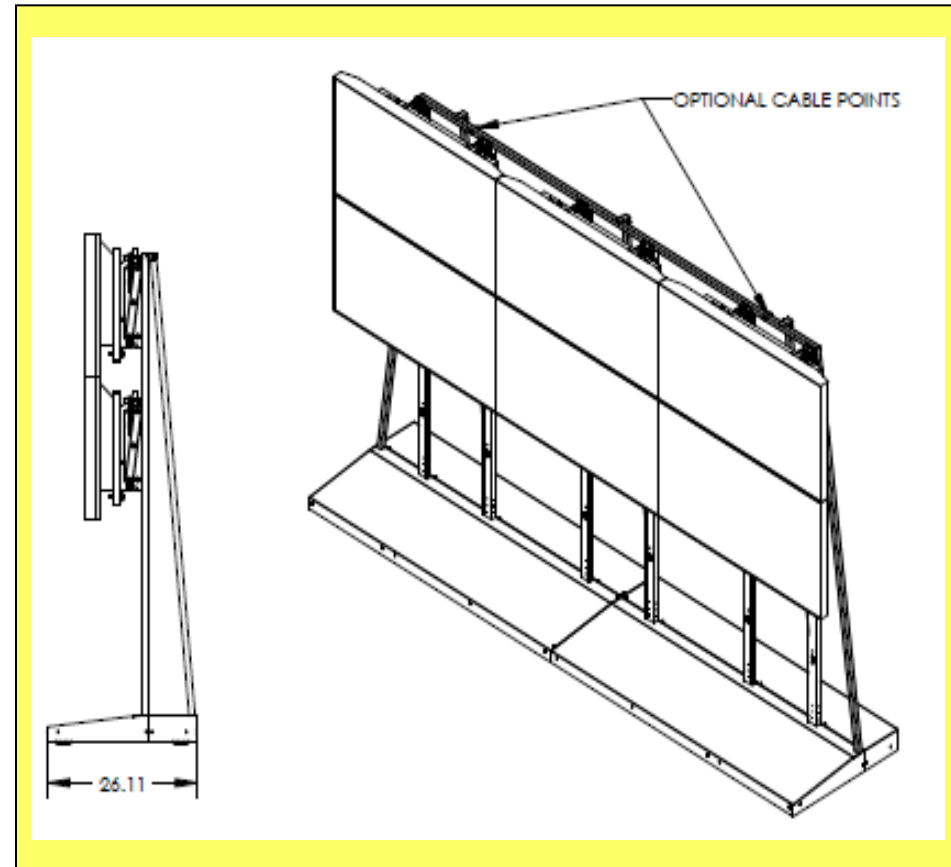


# Video Wall Mounting Solutions (3<sup>rd</sup> Party)

## ■ RPVisual



## ■ Display Devices



# Video Wall Mounting Solutions (3<sup>rd</sup> Party)

- Adaptive Technologies



Fly and aim assembled video wall



Although this might seem more expensive than wall mounts, the flying/hanging system might turn out less, when the costs to modify the existing wall structure are taken into consideration.

# Video Wall Floor Stand Solutions (3<sup>rd</sup> Party)



# Video Wall Signal Flow / Wiring Examples





# 3x3 Video Wall

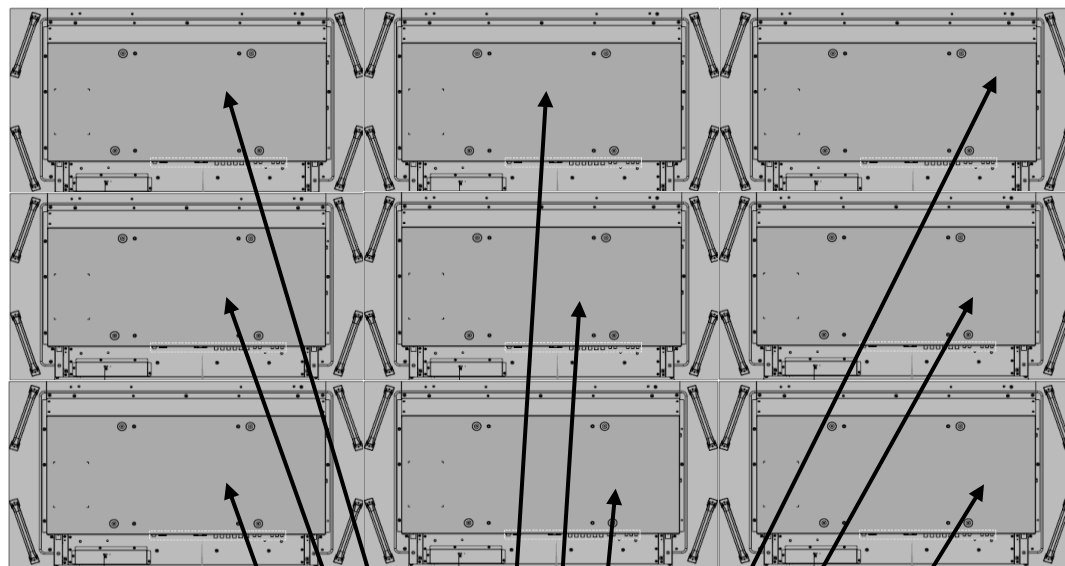


Video wall capable of showing one source per screen, or one large image across all, or any combination in between





# Video wall capable of showing one source per screen, or one large image across all, or any combination in between



CATV#1

Source#2

Source#3

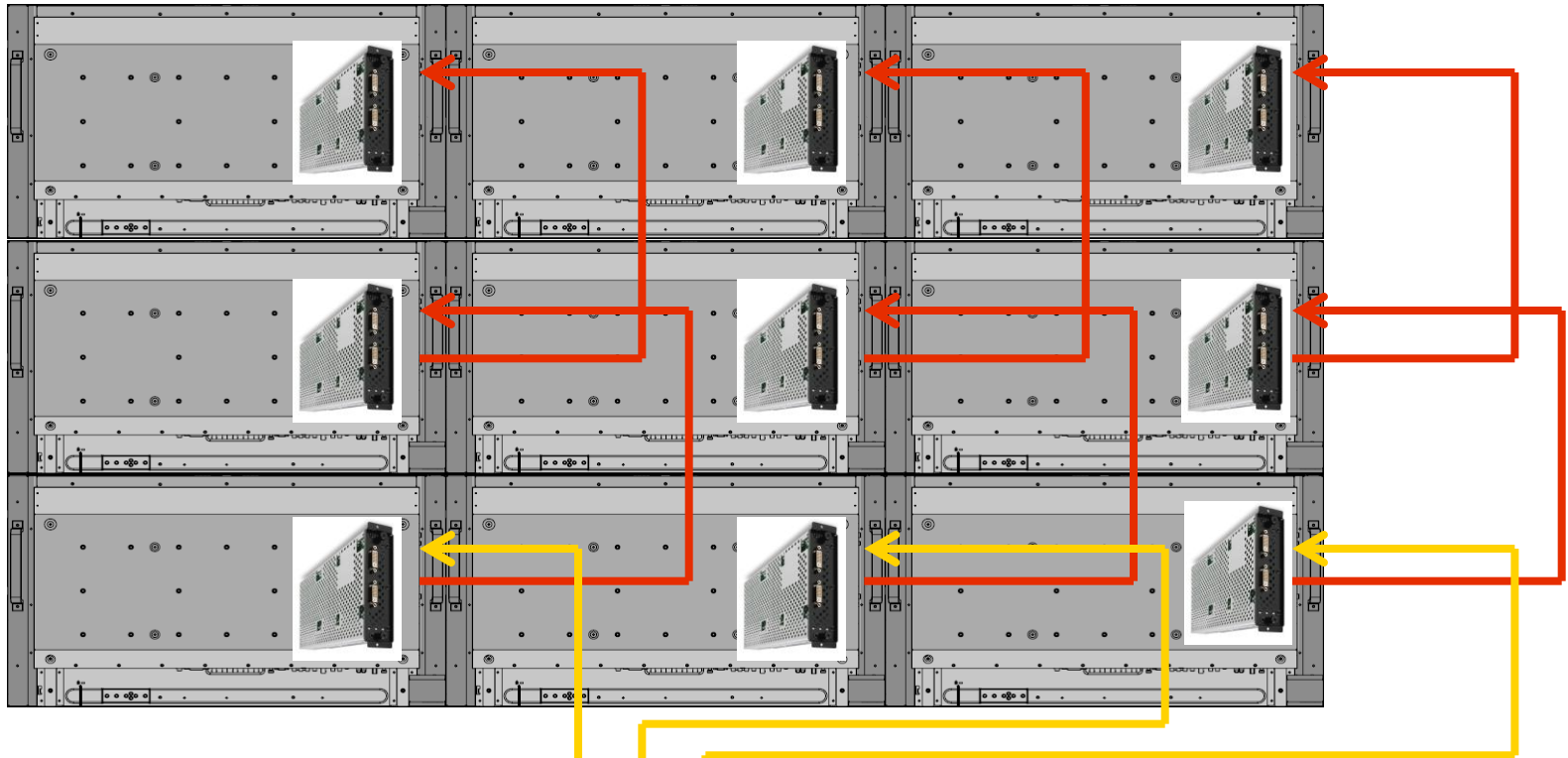
PC#1

Analog Video Matrix Switcher

# 4x4 Video Wall using 52" LCD Monitors for Stadium Signage



# Simple DVI Daisy Chain Wiring/Signal Diagram with DVI DA 3Wx3H Video wall using NEC P461 (Rear View)3



Media Player



DVI  
Signal Booster



DVI-1x4 DA

Note that digital  
signage software  
is not specified

15' DVI Cable



NEC 6' DVI Cable



50' DVI Cable with  
Signal Booster



# X461UN video wall capable of showing four sources or one large image across all

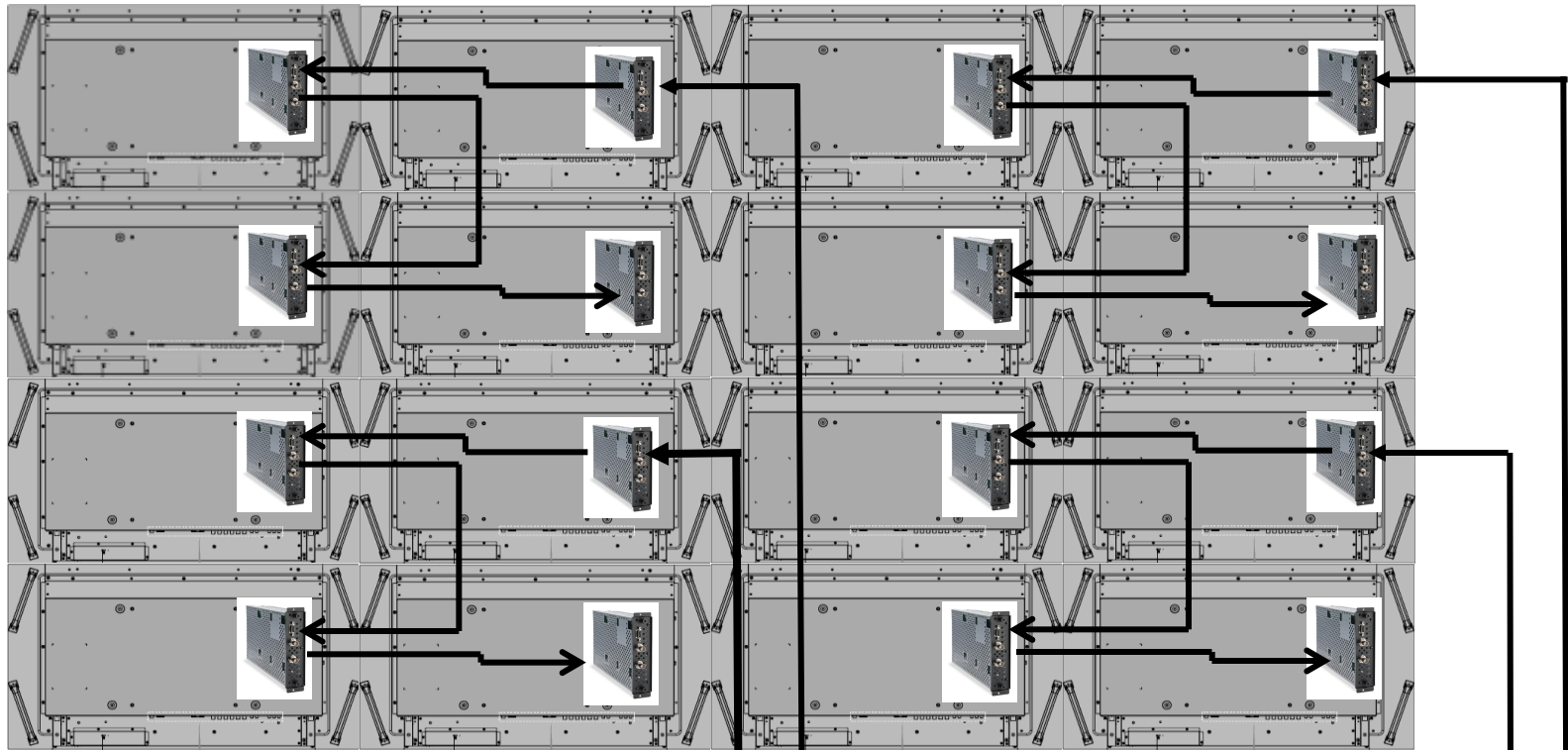




# X461UN video wall capable of showing four sources or one large image across all



SB-L007WU  
HD/SDI Card



- Source #1
- Source #2
- Source #3
- Source #4

Broadcast Switcher  
HD/SDI output



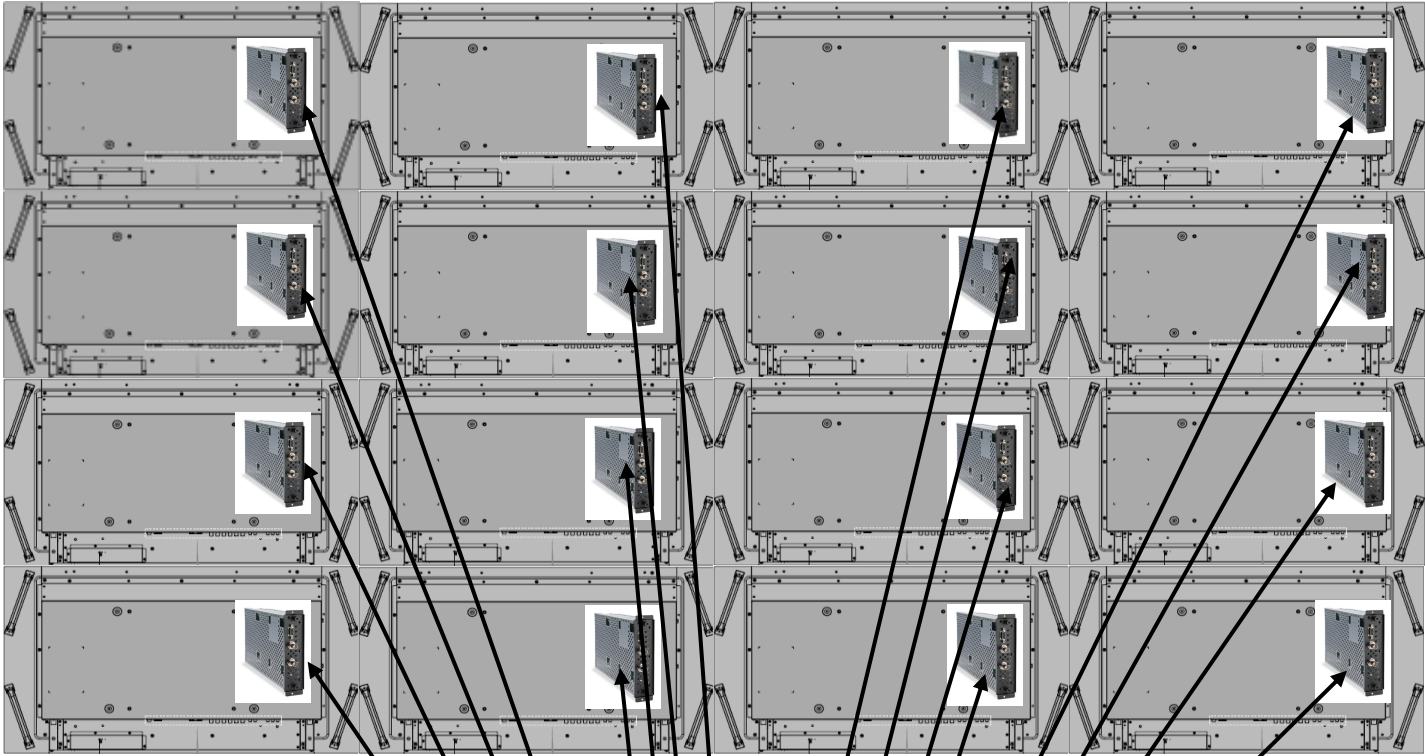
# Video Walls on TV



# X461UN video wall capable of showing one source per screen or one large image across all



SB-L007WU  
HD/SDI Card



- Source #1
- Source #2
- Source #15
- Source #16

Broadcast Switcher  
HD/SDI output

# Network Operations Center Video Walls

## 7x4 video wall for Emergency Operations Center

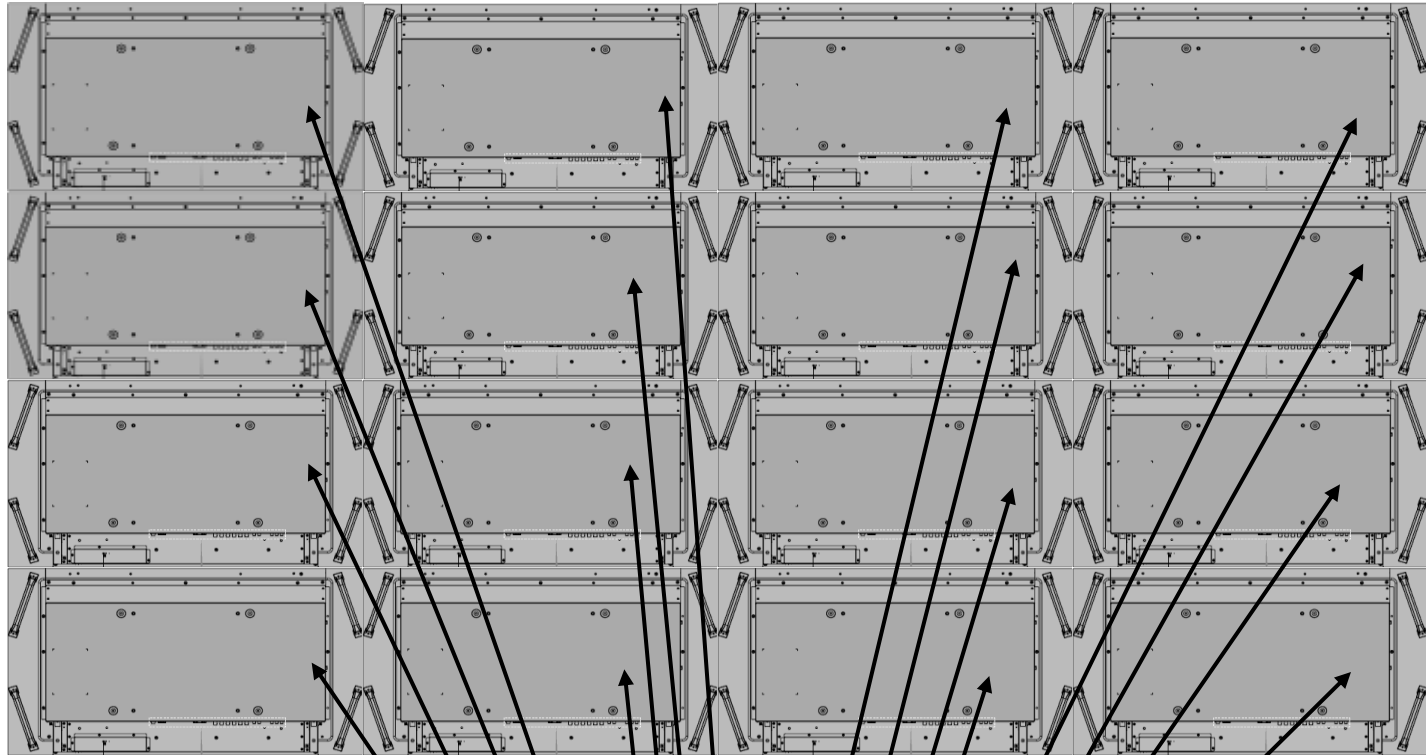




# Classroom or Presentation video wall



# NOC Application: X461UN video wall capable of showing one source per screen or one large image across all



Source #1

Source #2

Source #15

Source #16

Video Wall Processor



# Massive Two Story Video Wall using 40" LCD



# Video Wall (Portrait Mounted Display Array - LCD5220)



# JetBlue Digital Ring using (43) 40" LCDs





# Curved Video Walls



# Outdoor Video Walls

## Custom Outdoor Rated Enclosures





# Financial Exchange



4x4 LCD Video Wall



# Financial Exchange



LCD TICKER





# Video Walls in Retail



# Video Walls in Retail

(120) X461UN per store!!!





# Restaurant Advertising/Menu Board Displays

Before



After



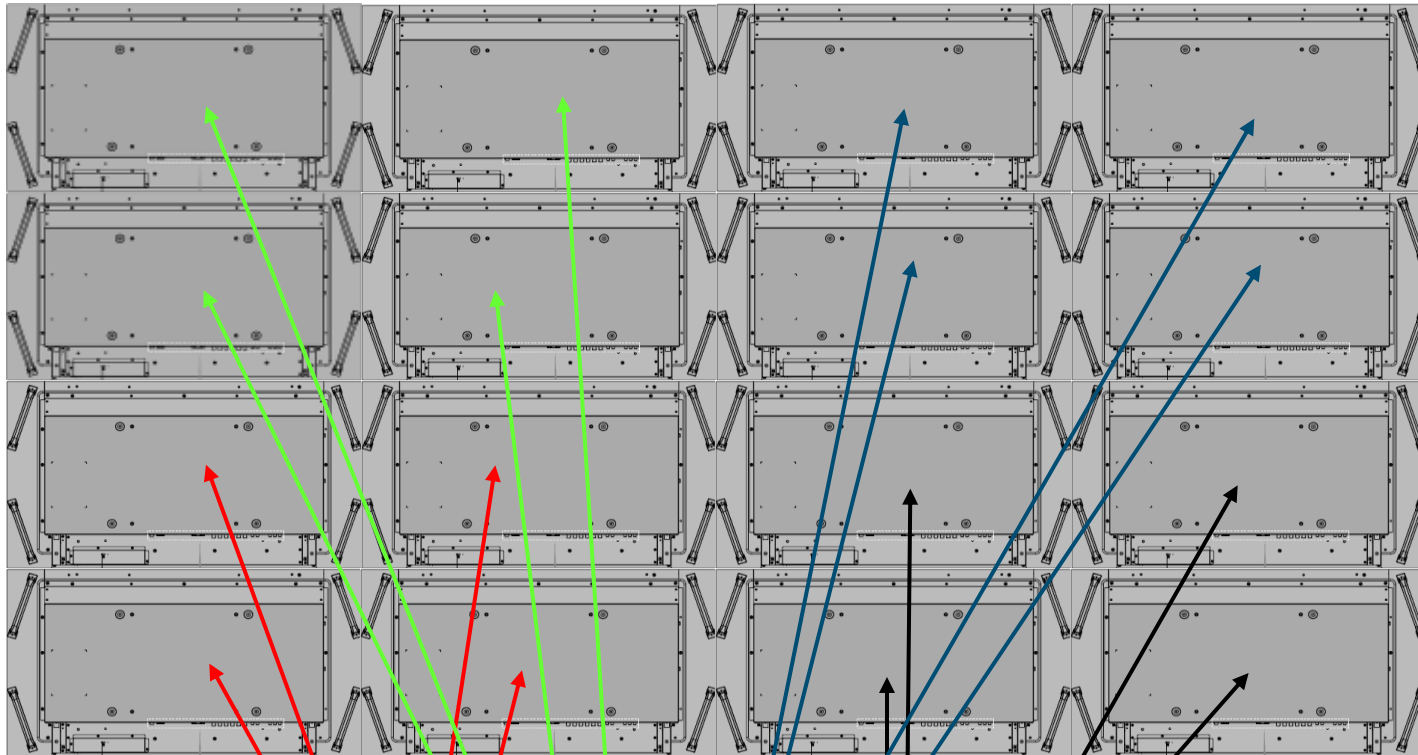


# Live Performance



Pictures courtesy of 'Sondheim on Sondheim' - Roundabout Theatre

# X461UN video wall capable of showing one source per screen, one large image across all, or any combination in between.



PC with Quad DVI Output    PC with Quad DVI Output    PC with Quad DVI Output    PC with Quad DVI Output

Specialized Video Wall Software is needed for this type of application

All Computers are synched together via Gigabit Network Switch

# Hiperwall Software (Alternate to Video Wall Processor)

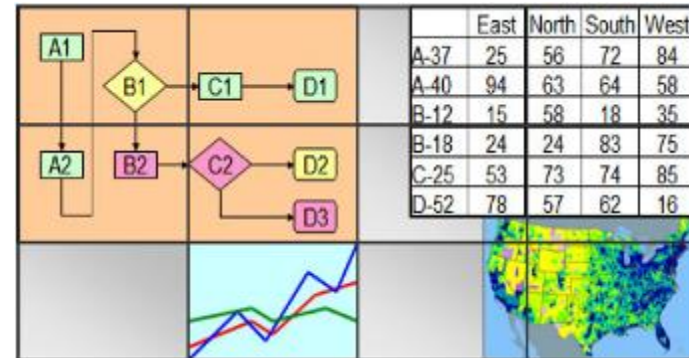
- The new version of the Controller will be available this month and it has many built in scheduling features for digital signage.





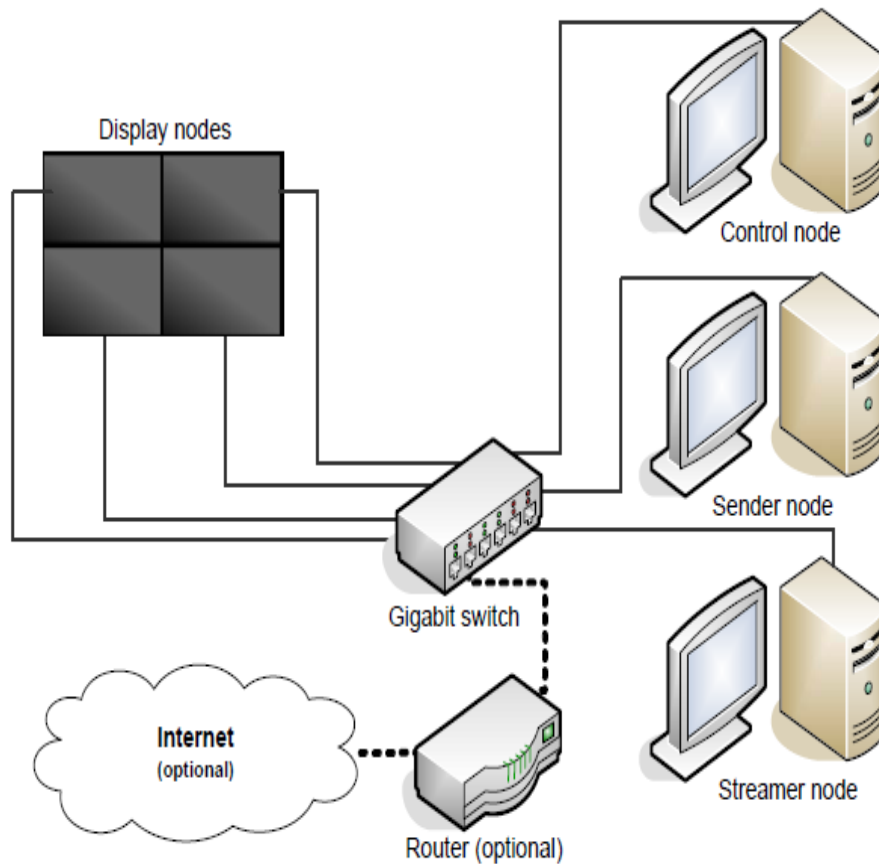
# Hiperwall Cont.

- There are four types of nodes for this software
  - Control
  - Display
  - Sender
  - Streamer



- The Control Node is the computer that determines what is going to be shown on each display
- The Display Node is the player software loaded on each computer allowing it to display content
- The Sender Node is a streaming module that transmits a mirror image of a computers desktop
- A Streamer Node allows you to send a live camera feed or video from a DVD/tuner

# Hiperwall Cont.

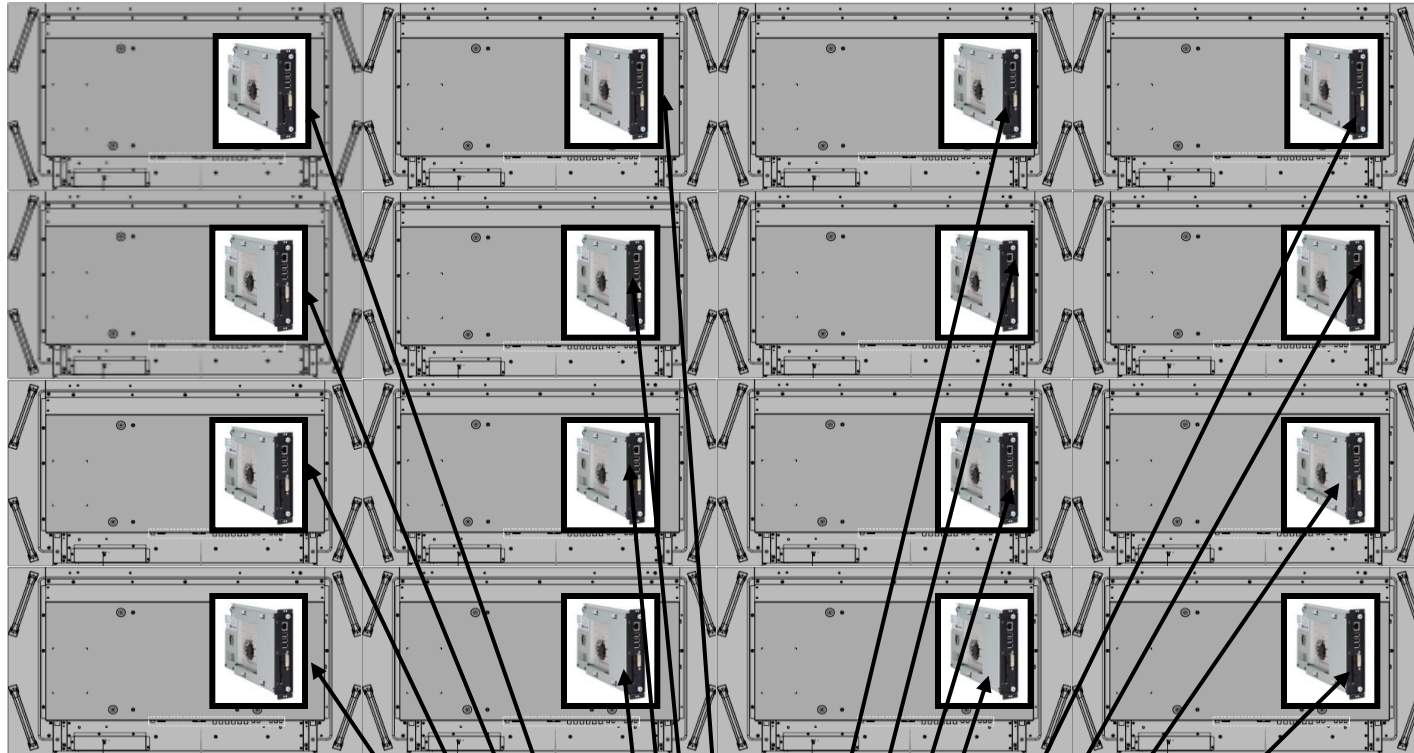


	Number of Nodes
Control	2
Display	4
Sender	1
Streamer	1

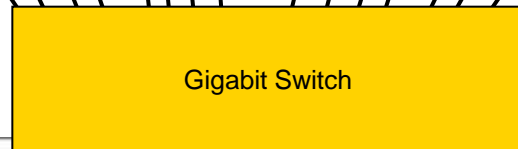


# Video Wall Solutions

## Hiperwall using Plug-in SBC (Single Board Computer)



Plug-in Single Board PC



# Case Study: Cablevision 8x4 Video Wall

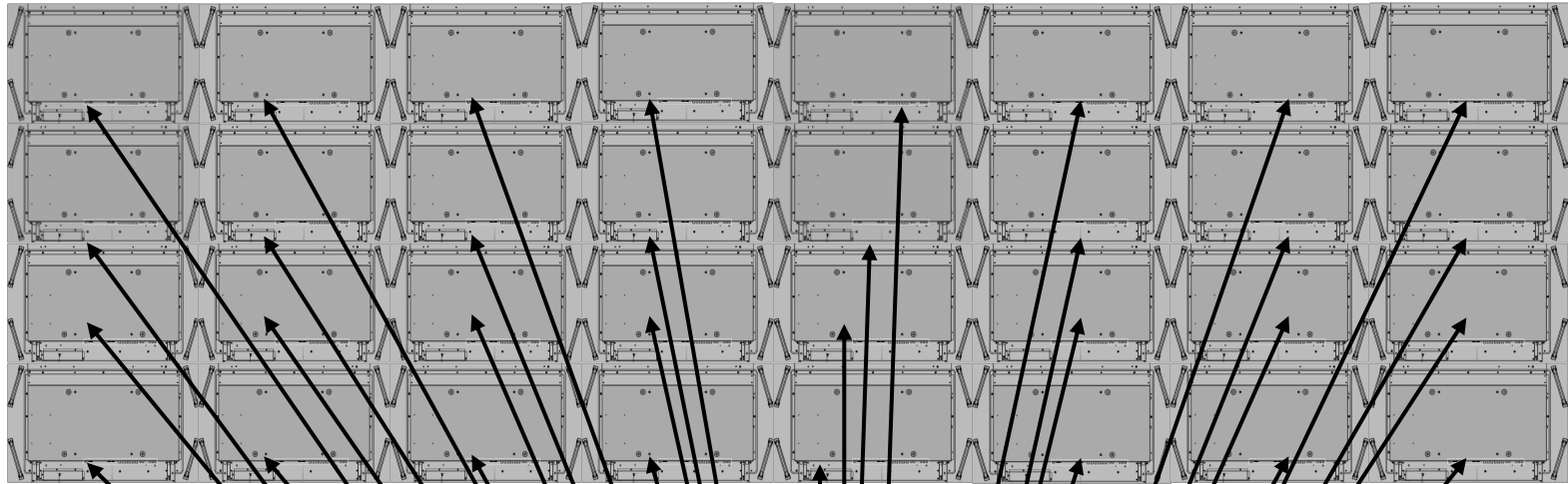
Before



After



# Cablevision 8x4 signal flow



Source #1 CATV

Source #30 CATV

Source #31 DVP

Source #32 PC

DVI Matrix Switcher

# Questions?

Thank you for joining us...