Embedded Vision Control System

Embedded Computing System Ensures High Stability
Switch Fabric Architecture with up to 150 Gbps Bandwidth
Real Time Program Preview/Video Playback
Real Time Video Processing at 60 fps
iPad® Control

www.deltadisplays.com
The Most Powerful and Reliable Display Control System

The MiNiCON is a real-time, lossless and fully embedded display wall controller for arrays of projectors, video wall cubes or flat panel displays. Employing cutting-edge embedded computing technology and a switch fabric architecture, the MiNiCON offers up to 150 Gbps of bandwidth, which is capable of supporting multiple high resolution RGB/Video signals and monitors with 24 bits per pixel at a solid 60 frames per second.

The MiNiCON is an embedded computing system rather than a conventional controller, offering higher performance, robustness, security and lower power consumption compared to traditional IPC-based display wall processors. The processor guarantees high quality and real-time display of all inputs under all conditions without dropped frames.
**Advanced Processing Architecture**

MiNiCON has an intelligent high-bandwidth (150 Gbps) backplane architecture, creating a true non-blocking communication infrastructure for high demanding applications. This architecture provides real time, high quality video processing without dropped frames. This Embedded system ensures high reliability and low power consumption. The MiNiCON is packaged in a rack-mount enclosure with replaceable air filters.

**Multiple Input Options, Perfect Video Quality and Flexible Control**

The MiNiCON can display up to 30 screens with a maximum of 48 graphics/56 video inputs. Images can be displayed in any size, anywhere on the display wall. Supported input signals including RGB/DVI, 3G-SDI, analog video and HD video. The Dual DVI-I input card supports input signals up to 1920 x 1200 and component video progressive-scan HD inputs up to 1080p @60 fps. The Quad SD video input card supports standard definition composite and S-Video inputs. The Dual Channel SDI input card can handle two channels 3G-SDI signal inputs with high speed transmission speed up to 2.97Gbps. The Dual Channel HD Video card can handle two channel Full-HD video inputs via HDMI or YPbPr interface. HDMI interface supports HDCP standard. With frame synchronization, motion-adaptive de-interlacing and high-accuracy image scaling, perfect video quality is ensured and screen tearing is eliminated. Display alternatives are completely flexible. Background images, overlapping and picture-in-picture windows can be accomplished without any performance degradation.

**High Reliability and Security**

MiNiCON features high accuracy internal/external frame synchronization and dual redundant power supplies for uninterrupted operation. The combination of the fully embedded design, redundant power supplies and the absence of Windows OS allows for 24/7 operation and provides high reliability and security in the most challenging environment.

**Front Panel Display**

Featuring intelligent sensors and a front panel OLED display, the MiNiCON is able to monitor and display temperature, fan speed, voltage, video card and IP information in real time and react to failures, ensuring safe and reliable operation.
Front Panel Display

IP Address
- IP 1: 192.168.1.23
- IP 2: 192.168.1.65

Slot 1: RGB
- 1: 1024x768, 60Hz, RGB
- 2: 1920x1200, 60Hz, DVI

Slot 10: SD Video (1/2)
- 1: 720x576, 50Hz, CVBS
- 2: 720x576, 50Hz, S-Video

Fan Speed
- 1: 3600 rpm
- 2: 3450 rpm
- 3: 3500 rpm

Error (1/3)
- Slot 1: Boot Failed
- Slot 10: High Temperature
MiNiCON Manager, a client-server based system, allows operators to manage large amounts of sources on video wall displays. The server is directly integrated into the MiNiCON and the client can be installed on PCs running Windows XP/Vista/7.

The client and server communicate using the MiNiCON protocol over a TCP/IP connection. The MiNiCON Manager is a highly intuitive, drag-and-drop interface that allows you to easily control and manage display walls with the way you want. All video sources can be displayed in real time in any size and at any position on the display wall with different static and auto layouts saved and recalled as required. Regardless of video wall size and number of windows, these layouts can be loaded in less than 1 second. The MiNiCON also supports a real-time preview of up to 10 video sources and allows multiple users to control the same display wall simultaneously.

In addition to dynamic window sizing and positioning, smooth zooming within images, custom borders, titling and scheduled layouts and backgrounds, the MiNiCON also supports iPad control over Wi-Fi networks.
The MiNiCON can display up to 30 screens with a maximum of 48 graphics/56 video inputs. Images can be displayed in any size and any position. Supported inputs include RGB/DVI, 3G-SDI, analog video and HD video.

**SD Video Input Card (SD Video / S-Video Input)**
- Supports up to 4 CVBS/S-Video inputs PAL/NTSC formats
- Automatic signal format detection
- Motion-adaptive de-interlacing
- High quality digital image scaling with multi-tap filtering
- 4 independent video decoders with 3D comb filter
- Supports 4 scalable windows per channel

**Display Output Card (DVI-I Output)**
- Dual DVI-I outputs
- Outputs digital (DVI) and analog (RGB) signals
- Supports resolutions up to 1920x1200
- Displays up to 64 video sources per channel
- Supports custom window borders and titles
- High accuracy internal/external frame synchronization
- High quality digital image scaling with multi-tap filter

**RGB Input Card (DVI-I Input)**
- Dual DVI-I Inputs
- Captures digital (DVI) and analog (RGB) signals
- Supports resolutions up to 1920x1200
- Automatic signal format detection for plug-and-play
- Supports 4 scalable windows per channel
- High quality digital image scaling with multi-tap filter
MiNiCON Cards

The MiNiCON can display up to 30 screens with a maximum of 48 graphics/56 video inputs. Images can be displayed in any size and any position. Supported inputs include RGB/DVI, 3G-SDI, analog video and HD video.

HD Input Card (DVI-I Video Input)

- Dual HD Inputs
- Supports resolutions up to 1920x1080p
- High quality image scaling with adaptive multi tap filter
- Motion adaptive de-interlacing
- Supports HDCP

3G-SDI Input Card (3G-SDI Input)

- Dual 3G-SDI inputs
- Supports resolution up to 1920x1080p
- High quality image scaling with adaptive multi tap filter
- Motion adaptive de-interlacing
Flexible Configuration and Control
Using switch fabric architecture, the MiNiCON offers 15 slots, each of which can support any type of input or output video card. The MiNiCON allows complete remote control via Ethernet or RS-232. Users can easily control the MiNiCON from their tablets.

Multi-user Management
The MiNiCON allows 16 different users to manage and control the same video wall simultaneously. Video wall management is further simplified and secured by user permission levels.

Easy Peripheral Control
Peripherals such as matrix switchers and optical engines can be easily controlled through the MiNiCON with no need for complex peripheral settings.

Diverse Input Options
The MiNiCON supports a variety of input types in any combination, including dual channel RGB/DVI inputs, quad channel composite video inputs, dual channel 3G-SDI inputs, dual channel HD video inputs and IP link modules.

High Speed Video Input Detection
The MiNiCON can automatically detect and recognize any video input within 3 seconds and display them on the video wall display within 1 second.

Multiple Signal Connection Modes
The MiNiCON offers 4 signal connection modes to fit different application needs and requirements: direct to cards, matrix to cards, matrix to display wall and direct to display wall.

Window Titles and Borders
The MiNiCON supports custom window borders and tiling, allowing for more effective management of the video wall.

Seamless Switching between Sources
The MiNiCON provides seamless, glitch-free switching between one source and the other, which is ideal when multiple sources are routed through a matrix.

HDCP Support
The MiNiCON is fully HDCP compliant, allowing HDCP-encrypted content to be played on HDCP compliant display devices.

Video Source Duplication
The MiNiCON allows users to duplicate any video source to create 4 identical windows, all of which can be freely sized and placed on the video wall.

Up to 64 Scalable Windows per Display Unit
With the MiNiCON, each display unit can display up to 64 video sources as fully scalable windows in any size and at any position.

Custom Video Source Playlist
The MiNiCON can automatically play a list of video sources at your set interval in any designated window.

Layout Management
The MiNiCON allows users to save up to 1000 layouts and 29 embedded layouts. Multiple layouts can be arranged and combined to create an auto layout, which plays automatically at your set interval and in your preferred order. Embedded layouts operate independently from the MiNiCON Manager software and are automatically loaded after a reboot.

API Interface
MiNiCON protocol and APIs are open and available to third-party developers for custom applications and complete control.
**Scrolling Subtitles**
Users can customize the content and display effect of the subtitles and display up to 4 scrolling subtitles simultaneously.

**Downloadable Backgrounds**
A maximum of 4 background images are supported for each display unit. Images can be displayed across the entire display wall or on a single display unit.

**Edge Overlap Support**
The MiNiCON allows users to easily adjust the overlap width and position between edge blending projectors to create a seamless image.

**Bezel Compensation**
The MiNiCON supports bezel compensation for each display unit, enabling users to easily correct geometric distortion resulting from video wall tiling.

**High Quality De-interlacing and Scaling**
With motion adaptive de-interlacing and high quality image scaling, screen tearing is eliminated and perfect picture quality is ensured.

**1920x1200@60Hz for Input/Output**
The MiNiCON supports both analog and digital input/output resolutions up to 1920x1200 at 60 frames per second.

**High Reliability**
The fully embedded MiNiCON system with redundant, hot swappable power supplies provides high reliability and stability for any 24/7 application.

**Effective Video Source Management**
The MiNiCON supports grouping of video sources for effective management.

**Grid**
Gridlines can be added to the display wall for more effective and accurate layout.

**Window Scaling**
Users can lock the window aspect ratio while scaling and easily restore the original window size.

**Standby Mode**
The MiNiCON features a standby mode which makes power saving easy and efficient.

**Multi Language Support**
The MiNiCON is available in the following language versions: English, Simplified Chinese, Traditional Chinese, Japanese, Korean and Russian.

**Software Versions**
The MiNiCON offers three software editions – Basic, Professional and Ultimate – to satisfy different customer requirements.

**Real Time Preview and Playback**
The user-friendly GUI enables easy control and management of all display windows and allows users to preview all input sources before displaying them on the video wall. MiNiCON supports a preview of up to 10 video sources and playback of all opened windows, all at 15 fps.
System Architecture

DISPLAY WALL

DELTA MiNiCON

REMOTE ACCESS

TOUCH PANEL

NETWORK

RGB/Video Signal

Network Signal

RS232 Signal

HD VIDEO SOURCE

HDMI VIDEO SOURCE

HD SDI SOURCE

SDI VIDEO SOURCE

PC SOURCE

System Architecture
## Specifications

### Chassis
- **Dimensions (HxWxD)**: 177 x 483 x 470 mm (7.0 x 19.0 x 18.5”)
- **Weight**: 15.9 Kg (35 lbs)
- **Front Panel Display**: OLED panel with 256x64 pixels
- **Front Panel LED**:
  - Power: 1x LED, Green
  - Fan: 1x LED, Green/Red
  - Temp: 1x LED, Green/Red
  - Status: 1x LED, Green/Red
- **System Architecture**: Non-blocking Switch Fabric with 150 Gbps bandwidth
- **Slot**: 15 slots (10 Gbps per slot, non-blocking bandwidth)
- **Communication**:
  - 4 x RS-232 Dsub9
  - 2 x Ethernet 1000M RJ-45
- **Touch Panel Support**: IP/RS-232 control protocols
- **External Frame Sync**: 1 x BNC-F

### Dual RGB/DVI Input Card (Optional)
- **Inputs**: Up to 28 inputs
- **Number / Type**: 2 x analog RGB/ DVI per card
- **Format**: Analog RGB with any sync type (composite, separate, sync on green) Digital DVI
- **Clock Rate**: Up to 165MHz
- **Resolution**: 800x600 to 1920x1200
- **Connector**: 2 x DVI-I

### Dual HD Video Input Card (Optional)
- **Inputs**: Up to 28 inputs
- **Number / Type**: 2 x YPbPr/HDMI per card
- **Format**: 576i/50Hz, 480i/60Hz, 576p/50Hz, 480p/60Hz, 1280x720P/60 and 59.94 Hz, 1920x1080/50 and 50.94 Hz, 1920x1080PsF/24 Hz, 1920x1080P/23.98, 24, 25, 50, 59.94, 60 Hz
- **HDCP**: HDCP Support
- **Connector**: 2 x DVI-I

### Dual DVI-I Output Card (Optional)
- **Outputs**: Max 30 analog RGB/digital DVI outputs
- **Number / Type**: 2 x analog RGB/digital DVI per card
- **Clock Rate**: Up to 165MHz
- **Resolution**: 800x600 to 1920x1200
- **Frame Rate**: 60Hz
- **Color**: 16/32 bits per pixel
- **Connector**: 2 x DVI-I

### Operating Range
- **Operating Temperature**: 0°C - 40°C (32°F - 104°F)
- **Non-operating Temperature**: -10°C - 66°C (14°F - 151°F)
- **Humidity**: 10-90%, non-condensing
- **Altitude**: 3,048 m (10,000 feet)

### Electrical Requirements
- **Input Voltage**: 100-240 VAC, auto-ranging power supply
- **Frequency**: 50/60 Hz
- **Power Consumption**: Max 650 Watts

### Quad SD Video Input Card (Optional)
- **Inputs**: Up to 56 inputs
- **Number / Type**: 4 x CVBS/S-Video per card
- **Format**: PAL, NTSC
- **De-interlacing**: Motion adaptive de-interlacing, 3-2 pull down
- **Connector**: 4 x composite BNC-F or S-Video

### Dual 3G - SDI Video Input Card (Optional)
- **Inputs**: Up to 28 inputs
- **Number / Type**: 2 x 3G-SDI per card
- **Format**: 576i/50Hz, 480i/60Hz, 576p/50Hz, 480p/60Hz, 1280x720P/60 and 59.94 Hz, 1920x1080/50 and 50.94 Hz, 1920x1080PsF/24 Hz, 1920x1080P/23.98, 24, 25, 50, 59.94, 60 Hz
- **Interface Standard**: SMPTE 292M & 424M
- **Connector**: 2 x BNC - F