

*Frontier Electronic Systems provides real-time, efficient, and cost-effective camera video distribution for a wide array of government and military applications. Our LAN Video Distribution System (LVDS) distributes camera video data over an open architecture LAN to Open Architecture Computer Equipment (OACE) compliant digital display consoles.*

### Video Interface and Processing

LVDS architecture allows for direct encoding from standard analog video or RGB video.

The system is designed using Video Interface Modules (VIM) for encoding video. VIMs are implemented in a 6U Single Slot VMEbus form factor and provide conversion from analog or digital signal video inputs to an open architecture Internet Protocol (IP), delivered over an Ethernet LAN.

These VIMs may be housed in existing VMEbus card cages within existing equipment cabinets or within remote, independent enclosures located near the video source.

Each VIM can provide encoding for composite or component signals. The digitized video combines with appropriate external data in IP packets and outputs via a gigabit fiber optic or a Category 6 copper Ethernet interface. VIMs are hot-swappable.

### VIM Specifications

- Component or composite video encoding
- Gigabit Ethernet fiber optics or Category 6 copper output
- IGMP v3 multicasting
- Configurable compression
- Configurable frame decimation
- Resolutions up to 1280 x 1024
- Frame rates up to 60 fps
- JPEG 2000 format

### Distribution Network

Distribution of video data with LVDS is accomplished in a publish/subscribe scenario using the multicast capabilities of a gigabit Ethernet LAN switch, replacing the specialized video matrix switch.

The number of ports on the switch is dependent on the complement of cameras and display consoles supported. The capacity of the gigabit Ethernet LAN switch can be tailored to specific installation requirements.

### Video API

A Video API connects to, receives, and decodes IP multicast video encoded by the VIMs. The Video API also allows a client to select the desired video source subscription to receive at any time.



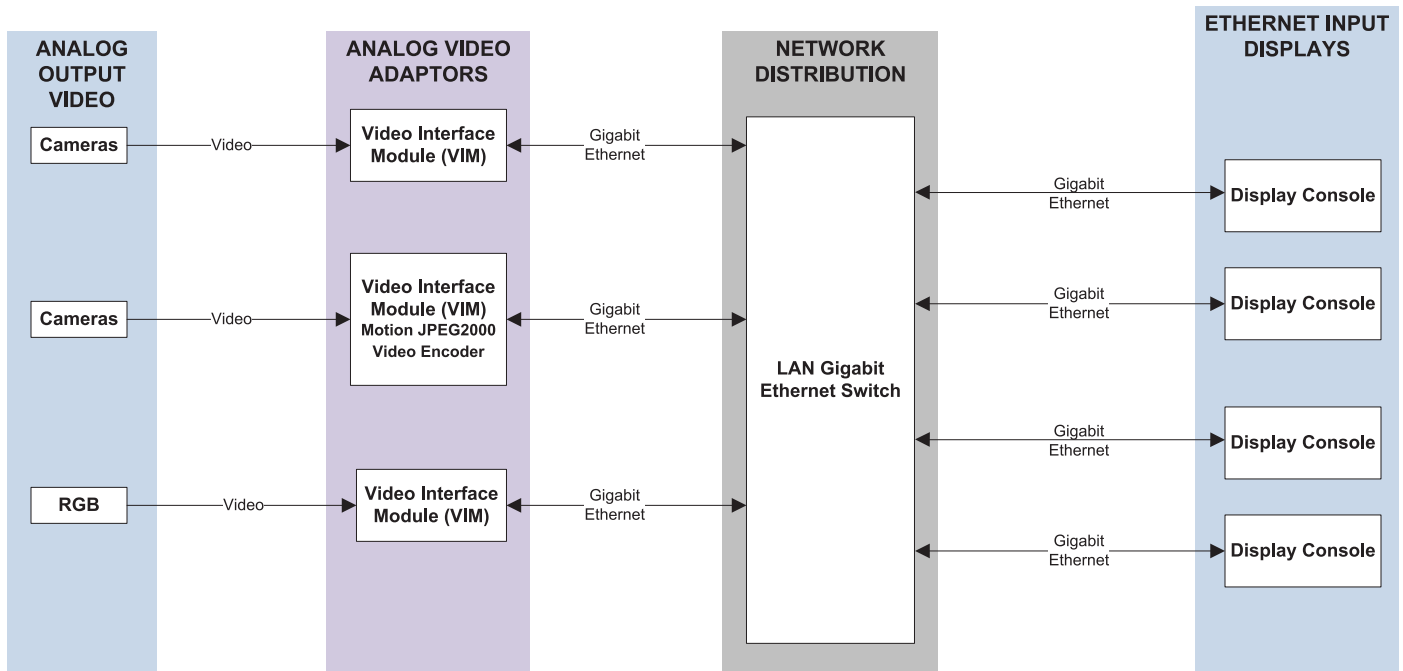
## Streaming JPEG 2000

Streaming JPEG 2000 has several features that make it a superior choice for security surveillance and provides better compressed image quality. Since each frame is compressed independently, streaming JPEG 2000 does not rely on the previous frame to display a full image. Nor does it require a reference frame to rebuild the video after switching or experiencing an interruption in the video stream. This allows for faster switching times and near real-time viewing not achievable with MPEG format. The visual image quality provided by JPEG 2000 is significantly better than the image quality provided by MPEG-compressed images.

Although JPEG 2000 provides a substantial increase in compression performance when compared to JPEG, the real advantage of JPEG 2000 is the significant flexibility of the compressed data stream. The data stream obtained after compressing an image with JPEG 2000 is easily scalable. Truncating the data stream at any point allows the image to be displayed at a lower resolution.

## Key Features of LVDS

- Streaming JPEG 2000 compression
- Software-based decoding
- Extreme low latency
- Direct interface to existing cameras and display consoles
- Modular, scalable architecture
- Built-in test capability
- Designed for shipboard environment
- Multicast—any camera to any display



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