

Xtreme-ActiveSQX

User Guide

Version 1.0.1



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Introduction

Professional AV solutions require video to be received from a great many different sources and locations. The ability to receive and display video directly from online resources such as CCTV networks and remote desktop applications and combining them with local inputs has become an everyday part of a fully functional video wall display. EMS's Xtreme-ActiveSQX PCIe plug in card is a powerful addition to systems that require a hardware based decoding solution.

The Xtreme-ActiveSQX includes a dedicated processor capable of decoding several IP streams simultaneously via the on-board Ethernet ports. Fully PCIe compatible, multiple Xtreme-ActiveSQX cards can be used in a single system to provide project scalability giving users more processing and more simultaneous decodes.

Unpacking

Note:

All plug-in cards are static sensitive and are packed in anti-static material. Please keep the card in its packaging until you are ready to install.

It is recommended that you do not discard the packing box until you are completely satisfied with the Xtreme-ActiveSQX capture card and it is fully installed and working correctly. We also recommend that you make a note of the serial number of the card in a prominent place before the card is plugged into the computer. This should hasten any query should you need to contact our Technical Support Department. The serial number is displayed on the card itself and the box label.

Hardware Overview

The Xtreme-ActiveSQX is a half-length PCI-Express plug in card with two Gigabit Ethernet input nodes supporting real time decode of multiple IP streams. Using the Xtreme-ActiveSQX decoding technology provides the user seamless integration of IP video to a EMS Wall Controller.

Each Xtreme-ActiveSQX card can capture a bandwidth equivalent to twelve 1920x1080 @30Hz streams on to any wall controller that uses EMS graphics cards. The number of streams the Xtreme-ActiveSQX provides depends on a number of factors such as the decoder profile used.

Each card uses a single PCIe slot, is passively cooled and can easily be added to a system already using EMS technology without the need to change existing configuration or front-end software.

This transparent software model enables the number of supported IP streams to be scaled up quickly according to the user requirements. Xtreme-ActiveSQX also automatically balances the total decoding workload across all Xtreme-ActiveSQX cards in the system, allowing thermal power consumption to be distributed more efficiently.

SQX technology has been designed to work alongside the EMS Xtreme range of capture cards supporting a mixture of local and remote capture feeds on the same display. IP Streams are displayed on the video wall in the same way as captured video sources. SQX functionality is compatible with many existing Xtreme window features.

Models

Xtreme-ActiveSQX



Xtreme-Active-SQX
Dedicated Decoding PCIe Card

Installing Xtreme-ActiveSQX Cards

You are likely to need a flat blade and/or a cross head screwdriver for the installation of the Xtreme-ActiveSQX card; it would be useful to have these to hand before you begin.

- Power down the PC (including peripherals), switch off at the mains and disconnect all the cables connected to the computer, noting the positions for accurate re-connection
- Remove the PC cover
- Locate a vacant PCI Express slot (x4 or higher) on the motherboard and remove the blanking plate (retain all screws)

If you are in doubt consult your motherboard documentation to correctly identify a PCI Express slot. If the card is forced into a 32 or 64 bit PCI or PCI-X slot it will be irreparably damaged when the system is powered up and the warranty will be void.

- Reconnect all cables to the PC then connect Network cables (not supplied) to the Ethernet port on the Xtreme-ActiveSQX capture card
- Power up the PC and commence the software installation

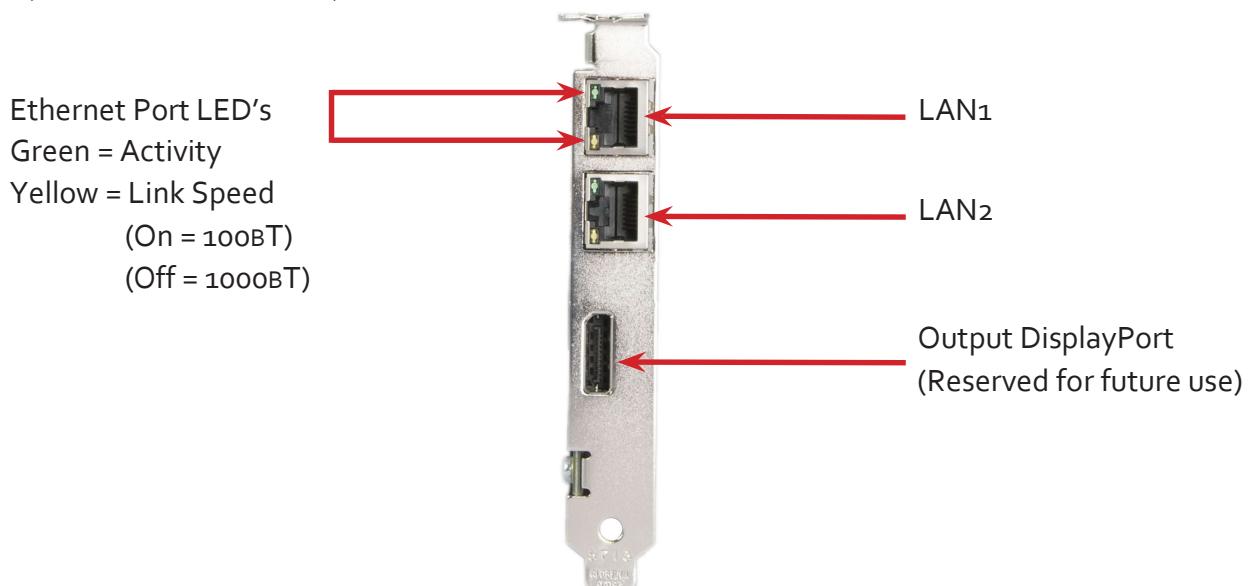
Multiple Xtreme-ActiveSQX cards can be installed into a system providing more processing and more simultaneous decodes.

Note:

The Xtreme-ActiveSQX card is only compatible with systems containing EMS XtremeXtreme graphics cards.

How to Connect Input Sources

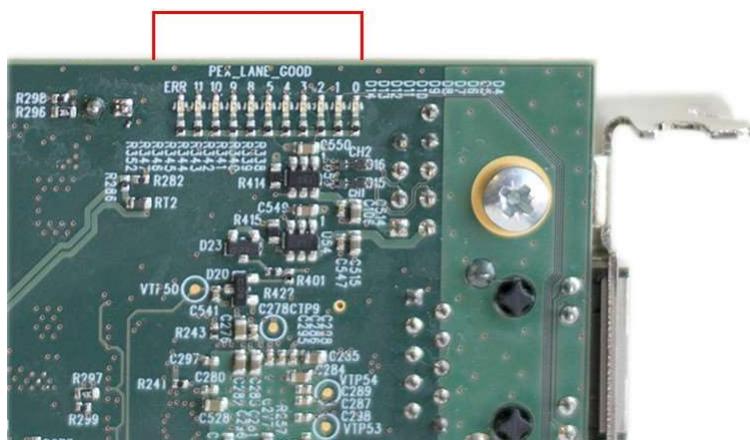
The Xtreme-ActiveSQX card has two Ethernet ports and one currently dormant output DisplayPort connector (reserved for future use).



Connect a network cable into one or both of the Ethernet ports. Care should be taken when connecting a network cable, ensure the cable connector is pushed firmly into the Ethernet port until you hear a definite click. Failure to connect the network cable properly could result in the network connection being lost.

Link LEDs

On the rear of the Xtreme-ActiveSQX are a series of LED's labelled *PEX_LANE_GOOD*.



The green LED's are labelled 0-5 and 8-11 these map to LED's D4 to D13. The LED's indicate the following:

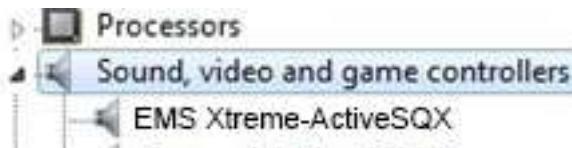
LED	Link Lane	LED Status			Normal Operation
0:	PCI Host Link lane 0	On=Gen 2	Flashing=Gen 1	Off=Link not trained	On - Gen 2
1:	PCI Host Link lane 1	On=Gen 2	Flashing=Gen 1	Off=Link not trained	On - Gen 2
2:	PCI Host Link lane 2	On=Gen 2	Flashing=Gen 1	Off=Link not trained	On - Gen 2
3:	PCI Host Link lane 3	On=Gen 2	Flashing=Gen 1	Off=Link not trained	On - Gen 2
4:	LAN 1 Link lane 0				Flashing - Gen 1
5:	LAN 2 Link lane 0				Flashing - Gen 1
8	ATOM Link lane 0				On - Gen 2
9	ATOM Link lane 1				On - Gen 2
10	ATOM Link lane 2				On - Gen 2
11	ATOM Link lane 3				On - Gen 2

IP Addressing

Out of the box, the Xtreme-ActiveSQX card is configured to accept Dynamic IP addressing. Depending on the topology of your network this may need to be changed to a Static IP address.

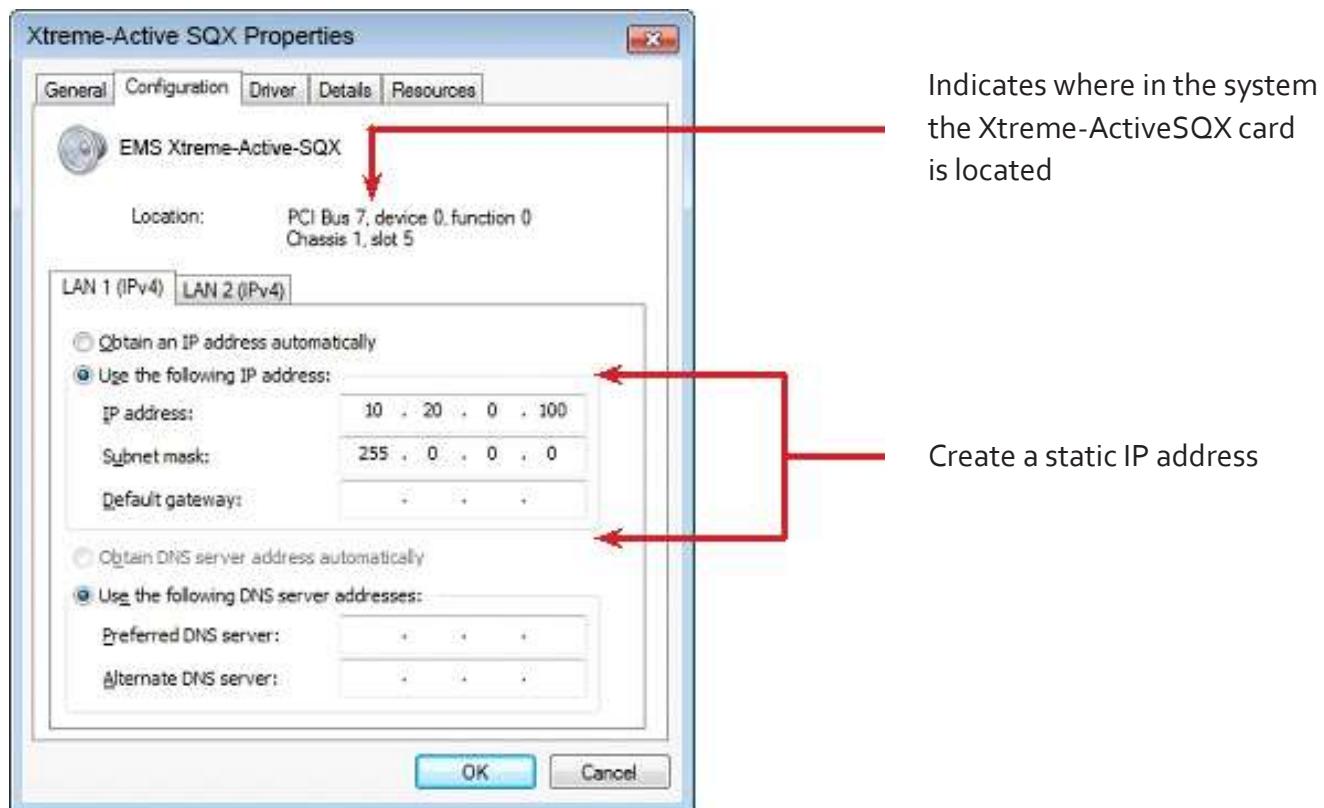
To reconfigure the IP addressing open the Device manager by selecting **System and Security** in the system **Control Panel**. From the **System** menu select **Device manager**.

In the Device Manager expand Sound, video and game controllers and the Xtreme-ActiveSQX card(s) is displayed.



Right click on the EMS Xtreme-ActiveSQX then select properties from the displayed menu. Click on the **Configuration** tab and the Configuration dialogue is displayed.

To configure a static IP address select **Use the following IP address**. The IP address box will be populated automatically with an IP address allocated by the network. You can either keep this IP address as your static address or create one of your own.



LAN1 and LAN2 operate independently therefore, should both require configuring as a Static IP address then this process should be repeated for LAN2 by clicking on the LAN2 tab.

Software Overview

The Xtreme-ActiveSQX requires little configuration to be up and running, the your software should detect the card and allow you to add IP camera windows to your display wall. The card opens a gateway to the network enabling the user to add, configure and modify IP cameras using the EMS SQX software.

The application displays the connected source in a window on your desktop; it has the following features:

- Scales the data to fit in the window
- Ability to set up sources accurately (settings automatically saved)
- Command line interface

Alternatively use the SQXEasySDK.

Note:

The supplied drivers and software require that you are using:

- Windows® 7 64 bit / Server 2012
- CD / DVD ROM Drive

Software Installation

The EMS SQX software (driver and application) is installed by inserting the CD that was shipped with your card into your DVD drive. The installation process should start automatically.

Should the DVD fail to autorun use **Explorer** to browse the CD, locate then double click on **install.exe** file e.g. **d:/install.exe** and click on **Install Software...** and follow the installation wizard instructions as prompted.

Regular software updates are available from our website: www.ems-imaging.com

Firmware Upgrades

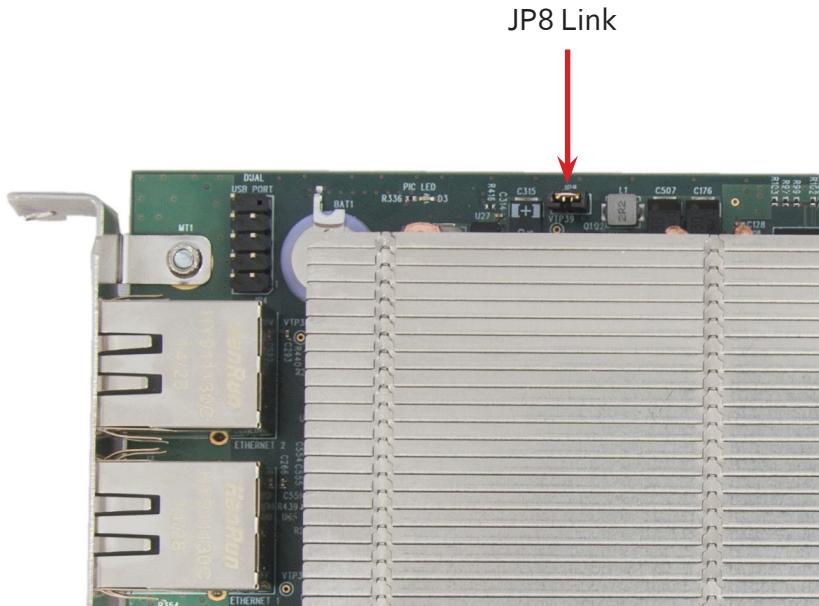
The Xtreme-ActiveSQX cards allow firmware upgrades to be completed on site rather than returning the card to EMS. Whenever a firmware upgrade is performed, the **JP8 Link MUST BE FITTED** on the Xtreme-ActiveSQX card.

To perform the upgrade, follow the step-by-step instructions provided by the upgrade application.

In the unlikely event that something goes wrong during the upgrade process (e.g. System power outage) it is possible to revert to the factory settings by powering down the system, temporarily removing the **JP8** link then powering up the system with the link removed.

Once the system has rebooted, replace the **JP8** link (whilst the system is powered up) and restart the firmware upgrade process.

It should be noted that the latest driver installation program includes an automatic firmware update, if required. Therefore, prior to installing the application and driver, ensure that J8 link is fitted.



Using the card with other EMS products

EMS's SQX technology is compatible with industry standards for video compression and streaming. The Xtreme-ActiveSQX card can be used in EMS wall controller systems along side the Xtreme range of capture cards. Combined with the XtremeHD2-SQX it provides a full decode and encode capability in a single system.

The Xtreme-ActiveSQX is totally integrated within the EMS Wall Control-SQX software enabling IP streams to be configured and displayed anywhere on the display wall with display window functionality such as Carousel that allows you to create a display list of IP streams which can be cycled through and displayed for a specific duration.

Specification

Board Format	PCI Express x4 (electrically) half length, full height, GEN.2 PCIe card. The card can physically be plugged into a X4, X8 or X16 slot.
Connectors (main board)	2 x RJ45 Ethernet ports, 1 x DisplayPort output connector (reserved for future use)
Ethernet	Dual 1000 Base-T Ethernet ports DHCP or static IP support IPv4 and IPv6
Streaming Protocols	HTTP, RTSP & MPEG2-TS support Multicast& Unicast support
Codec Support	<ul style="list-style-type: none"> For the most up to date list of Codec support, download the latest Xtreme-ActiveSQX product datasheet.
H.264 Decode	<ul style="list-style-type: none"> Up to 3 x 4096x2160P @30fps or 6 x 1920x1080p @ 60fps / 12 @ 30fps 50+ D1 @30fps
De-interlacing	Supported
Scaling	Hardware downscaling prior to DMA transfer. 1:1 transfer for upscale after DMA
Video Capture Memory	4GB
H.264 Profiles	Constrained Baseline Profile (CBP) / Main Profile (MP) / High Profile (HiP)
H.264 Levels	Level 3 / 3.1 / 4 / 4.1 / 4.2 / 5 / 5.1 / 5.2
Colour Format	NV12 4:2:0 Support.
DMA Engine	Direct DMA to physical or virtual memory buffers with full scatter-gather support. DMA bandwidth : up to 1.3GB/s.
Carousel	IP Window Carousel supported including the hardware based pre-buffering of IP decodes for smoother playback
Operating System Support	Windows 7 64 bit / Server 2012
Power Requirements	Max current at +3.3V = 1.9A Max current at +12V = 1.9A Average power = 14W
Operating Temperature	0 to 35 °C (32 to 95°F)
Storage Temperature	-20 to 70 °C (-4 to 158°F)
Relative Humidity	5% to 90% non-condensing
Warranty	3 years

We are continuously developing the technology used within our product ranges delivering outstanding innovative solutions, therefore the specifications may change from time to time.

Technical Support

Registered users can access our technical support line using email, and the Support page on the EMS Web Site, usually with a response within 24 hours (excluding weekends).

Via Email

Send an email to support@ems-imaging.com with as much information about your system as possible. To enable a swift response we need to know the following details:

- Specification of the PC - including processor speed
- Operating System
- Application Software
- EMS Hardware / Software
- The exact nature of the problem - and please be as specific as possible.

Please quote version numbers of hardware and software in use wherever possible

Contact

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