

Chapter 6

XtremeRGB-Ex8

FCC Compliance

Federal Communications Commission Statement

This device complies with FCC Rules Part 15. Operation is subject to the following two conditions:




- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial, industrial or business environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturers instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient or relocate the receiving antenna
- Increase the separation between the equipment and the receiver
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

Warning! Any changes or modifications to this product not expressly approved by the manufacturer could void any assurances of safety or performance and could result in violation of Part 15 of the FCC Rules.

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  			Toxic or Hazardous Substances and Elements						有毒有害物质或元素	
			铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)		
Contents 实装基板			×	○	○	○	○	○	○	
备注 (○ 或 × 的表示意思) ○ : 表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T11363-2006 标准规定的限量要求以下。 × : 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T11363-2006 标准规定的限量要求。										

DECLARATION OF CONFORMITY

Per FCC Part 2 Section 2. 1077(a)



Responsible Party Name: EMS Limited
Address: Leicester, England,
Phone: +44116-2775730

Hereby declares the product:

Product Name: SD Video Capture PCI-e x4 Card
Model Number: XtremeRGB-Ex8 (DGC 144)

Conforms to the following specifications:

FCC Part 15 Subpart (b) Class A Digital Device

Supplementary Information:

This device has been shown to be in compliance with and was tested in accordance with the measurement procedures specified in the Standards & Specifications listed above and as indicated in the measurement report number: 9G2498GUS2

Representative Persons Name: Tony Jones, Operations Director

A handwritten signature in blue ink, appearing to be 'Tony Jones', written in a cursive style.

Signature:

Date: 20 Aug

Introduction – XtremeRGB-Ex8

The XtremeRGB-Ex8 is an eight channel PCI express video capture card. The card supports PAL, NTSC and SECAM in both composite and S-video input formats, supports de-interlaced video capture and allows display at 25/30 frames/sec for real-time video overlays.

The Windows® software provided with the card allows the analog video signal to be captured and displayed on your desktop.

Windows Media Encoder® may also be used to stream video across a network or save the video to disk. Windows Media Player® can be used to display the stream or the video that has previously been saved.

Hardware Overview

The XtremeRGB-Ex8 is an eight channel PCIe capture card and can capture up to 8x 720x576x16bit from eight simultaneous capture channels for real time video overlays.

- Four Lane PCI express video capture card
- Eight simultaneous capture channels
- Support for any mix of NTSC,PAL SECAM
- Eight composite/S-Video video inputs
- 32MB on board frame buffer
- Auto video mode and no-signal detection
- Daisy chain input to output with selectable termination
- High performance DMA with scatter gather
- Data Transfer at 480MB/s
- Supports up to 16 windows with any mix of input channels
- SDK available for OEM customers

Models

XtremeRGB-Ex8

Specification

• Card Format :	4 lane PCI express 110x170mm (approx)
• Connectors:	Two 26 Way D Connectors
• Maximum Capture Resolution:	8x 720x576x16bit
• Frame Buffer Memory:	64MB (updated in real time).
• Supported Video Formats:	PAL, NTSC and SECAM
• Operating System Support:	Windows® XP Professional (x86 and x64), Windows® Server 2003 (x86 and x64), Windows Vista® (x86 and x64), Windows® Server 2008 (x86 and x64) and Windows 7
• Max Number of Cards per System:	16 (128 capture channels)
• Max current at +3.3V:	0.25A
• Max current at +12V:	0.6A
• Operating Temperature:	0 to 35 deg C
• Storage Temperature:	-20 to 70 deg C.
• Relative Humidity:	5% to 90% non-condensing
• MTBF:	100,000hrs

Unpacking

Your packing box should contain the following items:

- XtremeRGB-Ex8
- BNC16 Input Cable
- Installation CD ROM

If there are any discrepancies, you should contact EMS immediately.

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 XtremeRGB-Ex8 video 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.

Installing the XtremeRGB-Ex8 Capture Card

You are likely to need a flat blade and a Phillips head screwdriver for the installation of the capture card; it would be useful to have these to hand before you begin.

Installing the card is a simple process, follow the steps below to be up and running in a few minutes:

- 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 reconnection. Remove the PC cover
- Locate a vacant PCIe (**x4 or above**) slot on the motherboard and remove the backing plate. (retain all screws) **If in doubt consult your motherboard documentation to correctly identify a PCIe (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.**
- Remove the card from its packaging and secure it firmly into the empty PCIe slot. **Extreme care should be taken when securing the card into the slot as some motherboards may have components that impede the siting of the card**
- Screw the card bracket to the back panel of the PC and replace the cover
- Re-connect all cables to the PC
- Connect the BNC16 Input cable
- Power up the PC and commence the software installation

Connections

The XtremeRGB-Ex8 has two 26 Way D- type connectors. Either connector can be used to input video signals using a 16-way splitter cable (provided). The splitter cable consists of 16 BNC sockets numbered 1-16, connected to a 26-way D connector. To connect a video input, connect the Composite/S-Video Luma and Chroma as indicated in the table below.

Input	Composite/S-Video Luma = BNC Connector	Chroma = BNC Connector
1	1	9
2	2	10
3	3	11
4	4	12
5	5	13
6	6	14
7	7	15
8	8	16

Video Passthrough

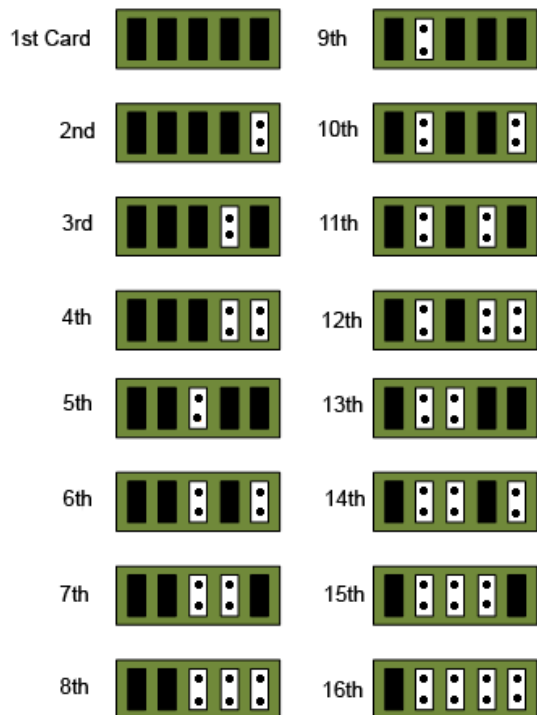
By connecting a second BNC16 Input Cable (available from EMS) to the second XtremeRGB-Ex8 connector it is possible to daisy-chain the video signals to another device. In this case the video will normally be terminated on the downstream device; therefore, the inbuilt terminations on the XtremeRGB-Ex8 should be disabled by removing the links as shown in the following table:

Video Input	Termination Links
1	J2+J6
2	J7+J9
3	J12+J13
4	J10+J11
5	J14+J17
6	J15+J16
7	J18+J21
8	J19+J20

Installing Multiple Cards

Up to 16 cards can be installed in a system providing a maximum of 128 capture channels.

In order to control the order in which the driver uses the cards, it is recommended when installing multiple cards that the J5 links on the XtremeRGB-Ex8 are configured. Each card should be configured as follows:



DirectShow

If you change the link ordering after installation you must run `dplinks.exe`. This program will update the existing input names used by the windows DirectShow interface.

To run the `dplinks` program open the **Run** by clicking on **Start/Run** and type `dplinks` and then press Enter.

The program will run, however no notifications are displayed.

Firmware Upgrades

The XtremeRGB-Ex8 card allow firmware upgrade to be completed on site rather than returning the card to EMS. Whenever a firmware upgrade is performed, **LK4 MUST BE FITTED on the XtremeRGB-Ex8**. 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 LK4 then powering up the system with the link removed. Once the system has rebooted, replace the LK4 link (whilst the system is powered up) and restart the firmware upgrade process.

It should be noted that the driver installation program (Version 01.07.00 and above) includes an automatic firmware update, if required. Therefore, prior to installing the application and driver, ensure that LK4 is fitted.

Software Installation

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

Should the CD 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

Also available on the EMS CD:

- The Release Notes
- Installation instructions.
- Release history
- Known problems
- Troubleshooting
- The application Help File - Instructions on how to use the application. The help file is in **cd:/XtremeRGB Manual/XtremeRGB_help.pdf**

Application Overview

The application displays the video source in a window; it has the following features:

- Scales the video data to fit in the window
- Save a single frame to a file in one of the following formats: BMP, JPEG, GIF, TIFF, PNG
- Print a single frame
- Record and playback captured data using DirectShow
- Maintain the aspect ratio of the displayed video data
- Cropping
- Display text over the video data (on-screen display)
- Command line interface
- Help file documenting all features

Note:

The supplied drivers and software require that you are using:

- **Windows® XP PRO/Server 2003/Server 2008, Windows®Vista or Windows® 7**
- **CD / DVD ROM Drive**

Using the card with other EMS products

The XtremeRGB-Ex8 captures video data and stores it in an on-board video buffer. This data is then copied using bus master DMA to the host system for display, storage or streaming.

When a EMS graphics card is used, the XtremeRGB-Ex8 transfers the data directly to the graphics card thereby increasing performance. The XtremeRGB-Ex8 sends the relevant portions of each captured image to each display channel and instructs each channel to use its graphics engine to render the data. This fully utilises the hardware and dramatically increases performance.

When a Direct3D compatible graphics card is used the data can be transferred direct to the graphics card in a similar manner to the EMS graphics card with the added benefit of non-tearing captures.

When the video data is displayed on a non EMS graphics card, the XtremeRGB-Ex8 sends the data to system memory or direct to the graphics card, dependant on the software used for display.