Great River Technology
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Advanced Video and Data Systems

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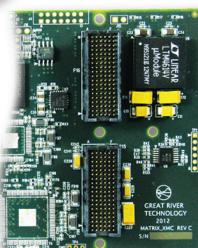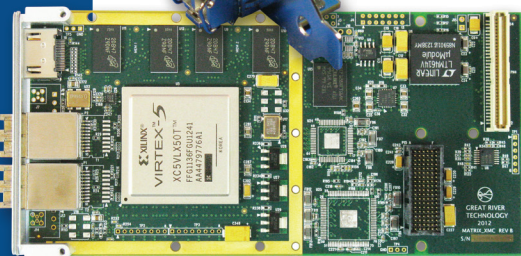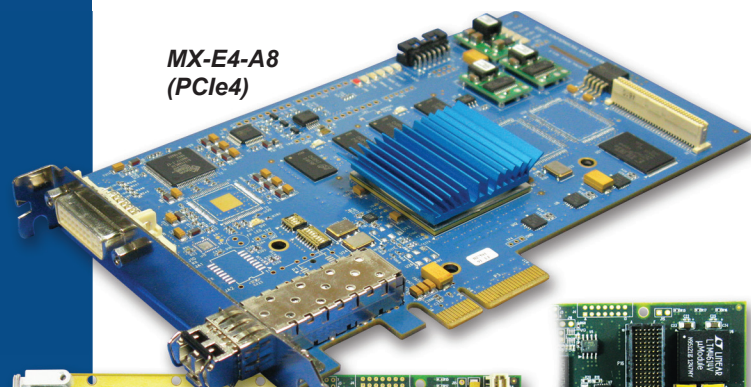
Revision G

Matrix Series ARINC 818 Cards

GRT Matrix Series PCIe4 and XMC cards support interfaces from 1 to 4 Gb/s. A single card can function as a receiver and a transmitter for ARINC 818. We configure cards to match your system's link speed, image resolution, and pixel format.
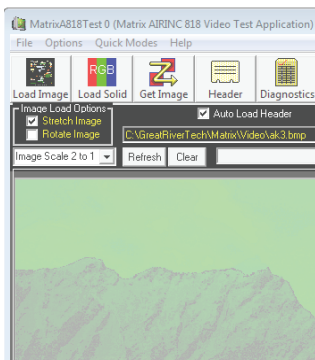
MX-E4-A8 (PCIe4)

MX-X4-A8 (XMC) options

Applications

- LAD and conventional display development
- Avionics video
- ATP for production displays
- Cockpit simulations
- Video generation
- High-speed video recording

As an ARINC 818 receiver

Matrix cards can capture ARINC 818 video to the software GUI and permit real-time viewing of embedded ARINC 818 data. The cards have a dedicated video port (VGA or DVI, depending on your specification) to view the incoming ARINC 818 video on a monitor.

Test application

GRT ships **MatrixA818Test** software with all Matrix ARINC 818 cards. Configure and test ARINC 818 systems. Diagnose the health of your links.

The software enables selection of ARINC 818 transmit and receive modes, and loading and retrieving images.

Status indicators afford quick checks of link synchronization, presence of SOFi, EOFt, and idle oredered sets. They will detect any 8b/10b and CRC errors.

A scrolling one-pixel horizontal line provides a convenient way to visually confirm live video on the ARINC 818 receiver.
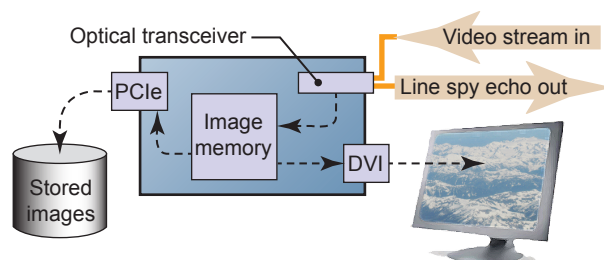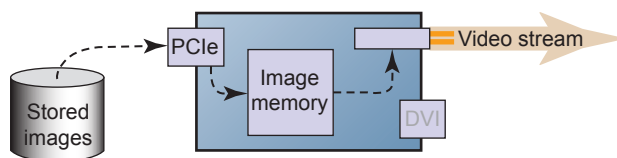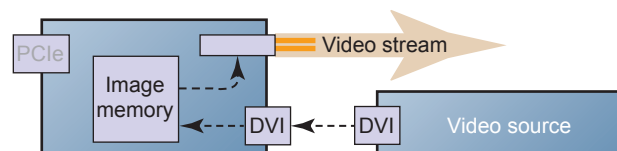
As an ARINC 818 transmitter

Load test images and embedded header data into the Matrix card and transmit using the test application.

## As an ARINC 818 converter

GRT can factory configure Matrix as a converter for DVI to ARINC 818 or ARINC 818 to VGA.


Matrix Plus cards

See GRT's separate datasheet for Matrix Plus Series cards, factory configurable for up to 15 ICDs.

Matrix LAD (large area display)

Empowering ARINC 818-2: In recent years, GRT developed new capabilities for ARINC 818 systems. Our Matrix LAD card can drive left/right links for a large area display, while a separate ARINC 818 link for data only feeds back touchscreen coordinates (see diagram below). These and other Matrix innovations by GRT became new standards in ARINC Specification 818-2.
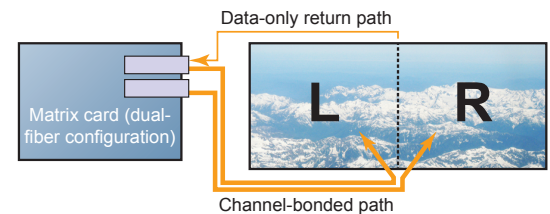
A dual-fiber card (D3 or D8) can light a touchscreen LAD.
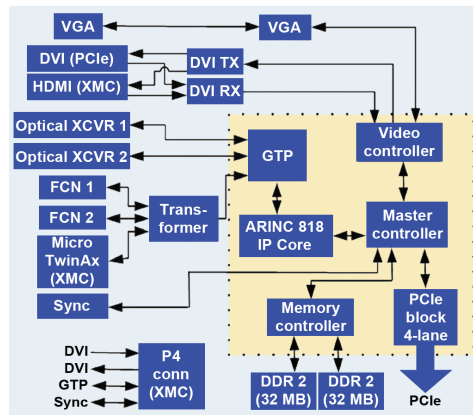
Matrix card block diagram.

Software Development Kit

An optional Windows- or Linux-based Software Development Kit (SDK) enables faster development of real-time image and data acquisition systems, camera and sensor emulators, video generators, or other video-intensive applications. The SDK includes a user guide, sample code, and four hours of technical support. For other operating systems, contract GRT.

GRAVity software applications can be ported to Matrix cards with minimal effort. Custom software applications are available.

For those using LabVIEW™ to develop systems with Great River cards, we also offer an SDK with sample and functional code that can be quickly customized.

Specifications

All Matrix ARINC 818 Cards

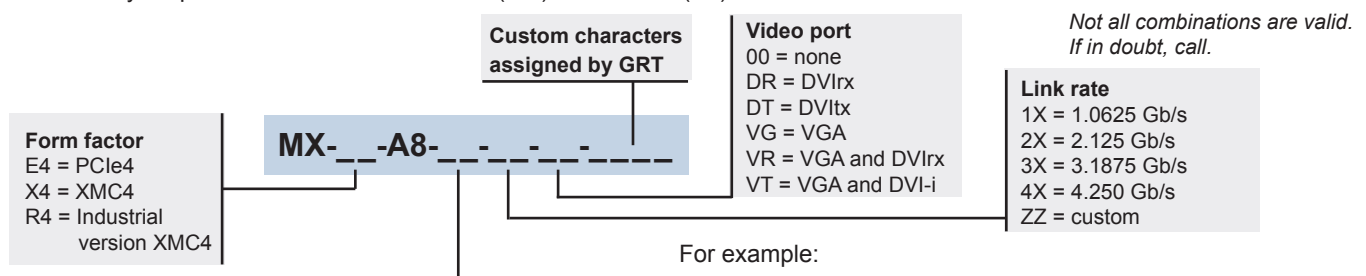|	
Standards	FC-PH Revision 4.3 ARINC 818 (818-2 ADVB high data rate)
Memory	500 MB plus throughput
Power requirement	8W (2.66A @ 3.0V)
Operating System	Windows XP, 32-bit; Windows 7, 32- and 64-bit; Linux (call for kernels supported); VxWorks support available

Matrix PCIe4 ARINC 818 Cards

Form factor	PCIe half length
Connectors	DVI; optional VGA
Operating temp.	0–50°C (32–122°F)

Matrix XMC ARINC 818 Cards

Form factor	14.9 x 7.4cm (5.8" x 2.9"); stack height: 1.0cm (0.39"); conduction cooled
Connectors	HDMI; optional VGA
Operating temp.	0–70°C (32–158°F)
	Industrial version: -40–85°C (-40–185°F)

How to buy

Determine your part number for Matrix Series (MX) ARINC 818 (A8) cards as follows:

Custom characters assigned by GRT

MX-__-A8-__-__-__-____

Form factor
E4 = PCIe4
X4 = XMC4
R4 = Industrial version XMC4

Video port
00 = none
DR = DVIrx
DT = DVItx
VG = VGA
VR = VGA and DVIrx
VT = VGA and DVI-i

Not all combinations are valid. If in doubt, call.

Link rate
1X = 1.0625 Gb/s
2X = 2.125 Gb/s
3X = 3.1875 Gb/s
4X = 4.250 Gb/s
ZZ = custom

Interface
C1 = FCN copper
C2 = Dual FCN
D3 = Dual Fiber 1310nm
D8 = Dual Fiber 850nm
MT = MTA, with XMC only

O3 = Fiber 1310nm single mode
O8 = Fiber 850nm multi mode
P4 = Rear I/O (PN14)
RO = Rear I/O (P16)
SA = SMA, with PCIe4 only

For example:

MX-E4-A8-SA-4X-DT-0000 or **MXE4A8SA4XDT0000**

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