



Overview of ARINC 818 Test Suite



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GRT Complete Life-Cycle Support

- Successfully completed more than 100 ARINC 818 projects
- ISO 9001/AS 9100 Quality Management Systems

Most Capable Tools + GRT Expertise = Project Success & Lowest Life Cycle Cost

Planning

Design

Testing

Validation

Production Support

Depot Maintenance

Frame Grabbers - Graphics Generators

Capture or Create an ARINC 818 Video Stream, DVI Converter

Velocity Series

- ARINC 818 speeds up to 10 Gbps
- PCIe x8, Gen 3
- Throughput at least 4GBps
- High-Speed Coax (6G)
- HDMI 1.4 interface

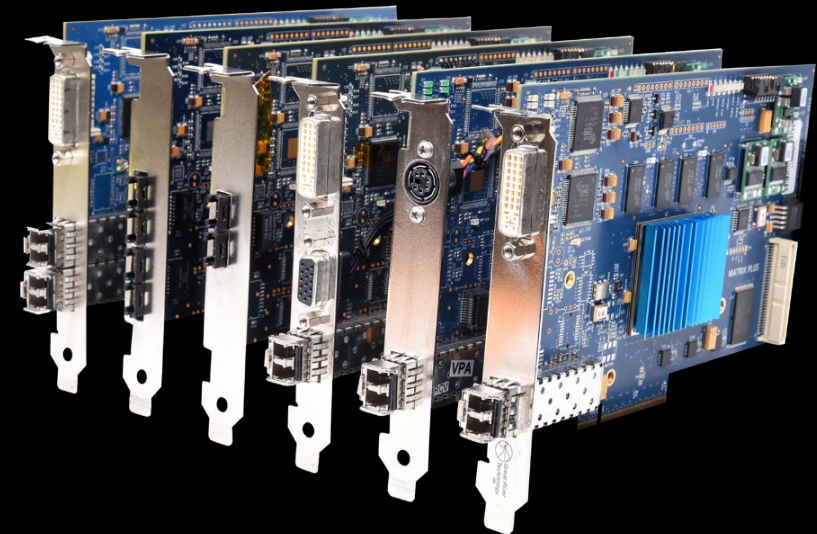
Velocity Plus

- Multiple format support

Velocity XI

- In-field configurable

❖ Frame grabbers also available in XMC form factor



ARINC 818 Test Software

Builds on GRTs ARINC 818 Test standard features:

ARINC 818 Receiver

- Capture and Display Video Stream to GUI
- Capture and Convert Video Steam to DVI
- Examine Container & Frame header

ARINC 818 Transmitter

- Load Image and Transmit as ARINC 818
- Upload/Edit header
- Add Scrolling Line
- Convert DVI to ARINC 818

New Built-in Features

- Image Compare
- Regions of Interest
- Pixel info from image
- Play video files

SDK to integrate Matrix card into test environments

Scripting support - TAL (Test Automation Language)

ARINC 818 Xf Tuner – Universal Transmitter

Applications

- Implementation of interface control document (ICD)
- Display/receiver development
- Error Injection
- Robustness testing
- Qualification testing
- Creation of a library of protocols that can be loaded to the Tuner card

Features

- Link rates up to 4.25 Gb/s, with 10 Gb/s expected soon
- Protocol adjustments in real time
- Error injection options
- Object 0 management

Environment

ARINC 818 Xf Tuner is available as an option or upgrade to GRT's Titan and Europa systems.

The screenshot displays the ARINC 818 Xf Tuner software interface. The window title is "ARINC 818 Xf Tuner (v2.00) - Card 0 is Open". The interface is divided into several sections:

- Left Panel (Configuration):** Contains fields for Mode Name (2G_XGA_RGB), Link Speed (2.125), Horizontal Active (1024), Vertical Active (768), Pixel Packing Format (RGB 8:8:8), Target Frame Rate (60), Calculated Frame Rate (60.004445), Fiber Channel Frame Per Line (2), Inactive Lines Pre-SOFI (7), Inactive Lines Post-SOFI (23), Obj0 Data Long Words (L.W) (4.000000), and Class OS (Class 1). Buttons for "Send to Card" and "Calculate" are at the bottom.
- Top Panel (Actions):** Includes icons for "Save protocol to file", "Load protocol from file", "Load image to card", "Header View", "TX", "Test Pattern", "One Shot", and "Line Scroll". A "Card 0 is ready" status indicator is on the right.
- Center Panel (Timing Diagram):** A Gantt chart showing frame timing. It includes labels for "SofI to SofI (first) = 480.332000 (µs)", "Video Line Time 20.884000 (µs)", "EOFI to SOFI = 149.232353 (µs)", and "16.665432 (ms)". Frames are labeled FC 0 through FC 1536. A legend identifies SOFI, EOFI, SOFI, and EOFI.
- Bottom Right Panel (Image):** A thumbnail of the "Loaded Image: 1024 X 768" showing a landscape scene.

Red arrows point to specific features: "Save protocol to file", "Load protocol from file", "Load image to card", "Graphically view critical timing parameters", "Adjust and calculate protocol in real time", and "View thumbnail of image to be transmitted".

HS SAM Gen II - Stand Alone Module



Features and Options

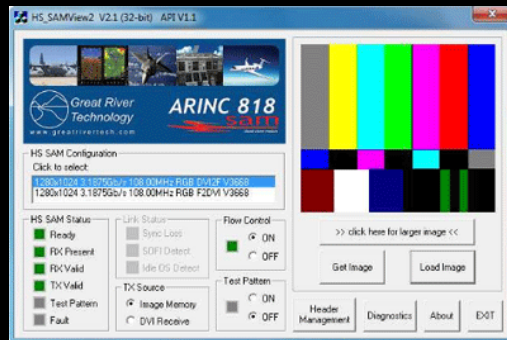
- ARINC 818 to DVI converter
- DVI to ARINC 818 converter with line-spy capability
- Up to 4.25Gbps
- USB port (2.0 required)
- Channel health indicators
- 24VDC with switching adapter for 100-120VDC @ 50-60 Hz

Standard connectors available:

- Fiber optic 1310nm single mode
- Fiber optic 850nm multimode
- FCN copper
- High-speed coax

Optional feature:

- Mounting bracket



HELIOS: Multi-Channel ARINC 818 - HDMI Converter System

Features:

- Supports 4, 8, or 12 channels
- 19 inch 1U rack
- 120 VAC (28 VDC option)
- A818 link rates from 1x to 8x
- Remote Based controls (LAN)

Applications

- Pilot Training Simulators
- Cockpit Development
- Flight Test Recording of ARINC 818
- Factory Test of ARINC 818 Equipment



ARINC 818 Switches

- Link rate support up to 8X
- ARINC818-2 compliant smart switching
- Unicast, multi-cast and broadcast modes
- Remote command and control



Pantera 4x4 Switch

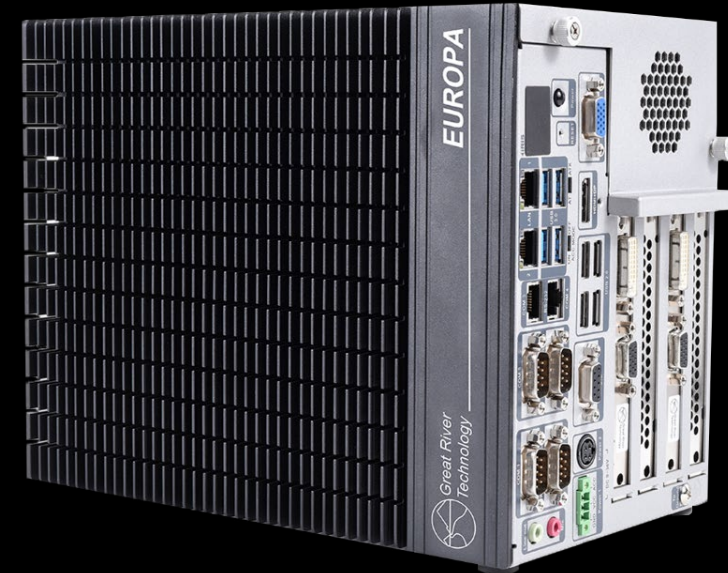
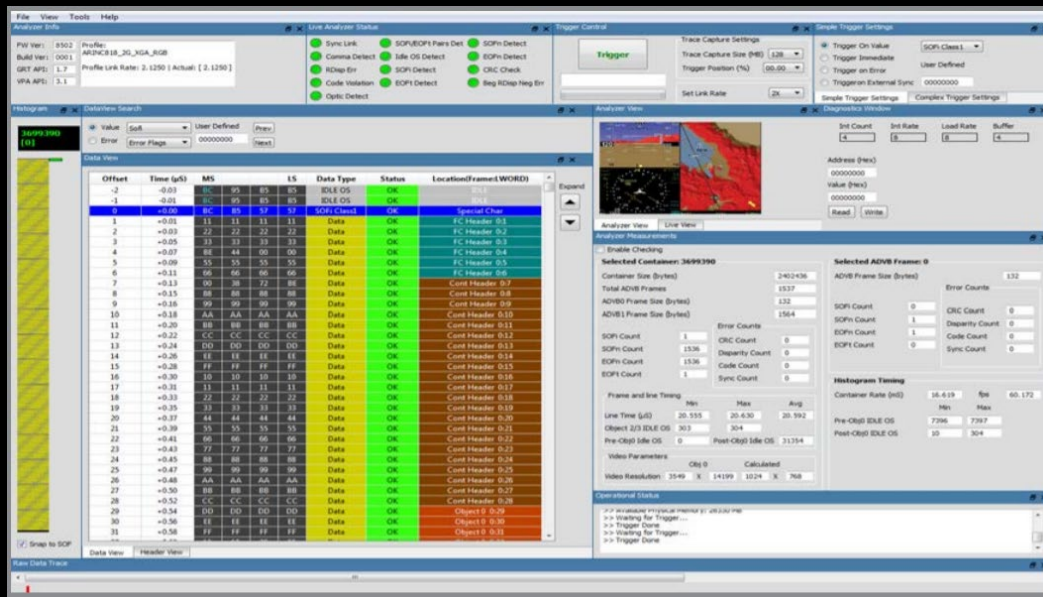


Rugged 10x10 Switch



Spider 19" Rack-mounted 10x10 Switch

VPA Gen III - ARINC 818 Video & Protocol Analyzer



- Supports 1X, 2X, 3X, 4X, 5 Gbps, 6X, 8X, 10 Gbps
- In depth analysis of protocol and timing
- Live video with Frame Grabber Functionality
- Up to 8 GB trace captures
- Complex triggers
- Profile generator

Systems

TITAN

- Rugged 19" rack mount
- Up to 16 PCIe slots

Applications

- Flight testing
- Simulation of ARINC 818 systems
- ATE testing



EUROPA

- Compact and portable
- Up to 4 PCIe slots

Applications

- Design and Development
- Qual testing



Recorders

EUROPA SYSTEM



TITAN SYSTEM



Capacity

ARINC 818 recording channels

1

1-8

Terabyte storage

1-2

10-24

Applications

Cockpit simulation labs

X

Engineering development

X

X

Qualification testing

X

X

Flight tests

X

X

Factory production

X

Maintenance and repair

X

Flight simulators/pilot training

X

Options (availability depends on configuration)

Video capture

X

X

Video conversion

X

X

Video record/playback

X

X

Video playout

X

Video generation

X

X

Protocol analysis

X

X

Robustness testing

X

X

Remote control

X

X

Compression

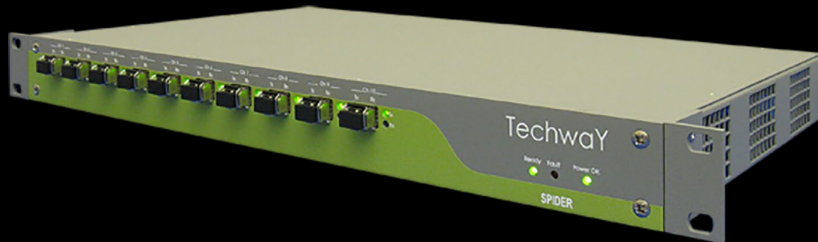
X

Data removal

X

*Total cards, including GPS, RAID, video, and GRT cards.

GRT ARINC818 Test Suite



Offset	Time (uS)	MS	LS	Data Type	Status	Location (Framed WORD)
-2	-0.01	85	85	IDLE OS	OK	-2
0	+0.00	85	53	SOPI Count	OK	Typical Char
1	+0.01	11	11	Data	OK	FC Header 0.1
2	+0.01	22	22	Data	OK	FC Header 0.2
3	+0.01	33	33	Data	OK	FC Header 0.3
4	+0.01	44	44	Data	OK	FC Header 0.4
5	+0.01	55	55	Data	OK	FC Header 0.5
6	+0.11	66	66	Data	OK	FC Header 0.6
7	+0.11	77	77	Data	OK	Cont Header 0.7
8	+0.11	88	88	Data	OK	Cont Header 0.8
9	+0.11	99	99	Data	OK	Cont Header 0.9
10	+0.11	AA	AA	Data	OK	Cont Header 0.10
11	+0.20	BB	BB	Data	OK	Cont Header 0.11
12	+0.22	CC	CC	Data	OK	Cont Header 0.12
13	+0.24	DD	DD	Data	OK	Cont Header 0.13
14	+0.26	EE	EE	Data	OK	Cont Header 0.14
15	+0.28	FF	FF	Data	OK	Cont Header 0.15
16	+0.30	10	10	Data	OK	Cont Header 0.16
17	+0.31	11	11	Data	OK	Cont Header 0.17
18	+0.33	22	22	Data	OK	Cont Header 0.18
19	+0.35	33	33	Data	OK	Cont Header 0.19
20	+0.37	44	44	Data	OK	Cont Header 0.20
21	+0.39	55	55	Data	OK	Cont Header 0.21
22	+0.41	66	66	Data	OK	Cont Header 0.22
23	+0.43	77	77	Data	OK	Cont Header 0.23
24	+0.45	88	88	Data	OK	Cont Header 0.24
25	+0.47	99	99	Data	OK	Cont Header 0.25
26	+0.48	AA	AA	Data	OK	Cont Header 0.26
27	+0.50	BB	BB	Data	OK	Cont Header 0.27
28	+0.52	CC	CC	Data	OK	Cont Header 0.28
29	+0.54	DD	DD	Data	OK	Cont Header 0.29
30	+0.56	EE	EE	Data	OK	Cont Header 0.30
31	+0.56	FF	FF	Data	OK	Cont Header 0.31



Next Recommended Videos

- Overview of ARINC 818 Standard & Protocol
- Why ARINC 818?
- Please review the in-depth product videos in the academy to further understand each product.
- If more detail is still needed on specific products, please visit our website at GreatRiverTech.com or reach out to us at info@ARINC818-Academy.com