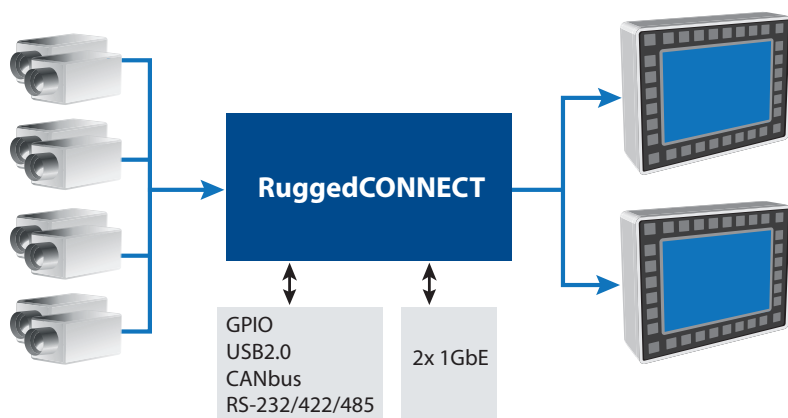


RuggedCONNECT Smart Video Switcher and Plug-in AI for Local Situational Awareness

Pleora's **RuggedCONNECT Smart Video Switcher** platform is a modular, scalable, open approach to real-time sensor networking that helps manufacturers reduce cognitive burden and increase mission-effectiveness for end-users while meeting interoperability and scalability demands in SWaP-C sensitive applications.

Military imaging systems have traditionally used point-to-point interfaces to connect sensors, processors, and displays. This approach adds costs, single-point-of-failure concerns, and challenges future scalability. More critically, it results in complex, difficult to operate systems for an already overburdened crew.

In comparison, RuggedCONNECT converts sensor data from multiple sources into a standardized feed that is transmitted over a low latency, multicast Gigabit Ethernet (GigE) network to endpoints. With all devices connected to a common infrastructure, data can be transmitted to any combination of mission computers and displays. Vehicle crew can view information they need on a single display, and know immediately if something has changed in their environment. Plug-in AI solutions for tank identification and driver awareness further enhance battlefield awareness and decision support.



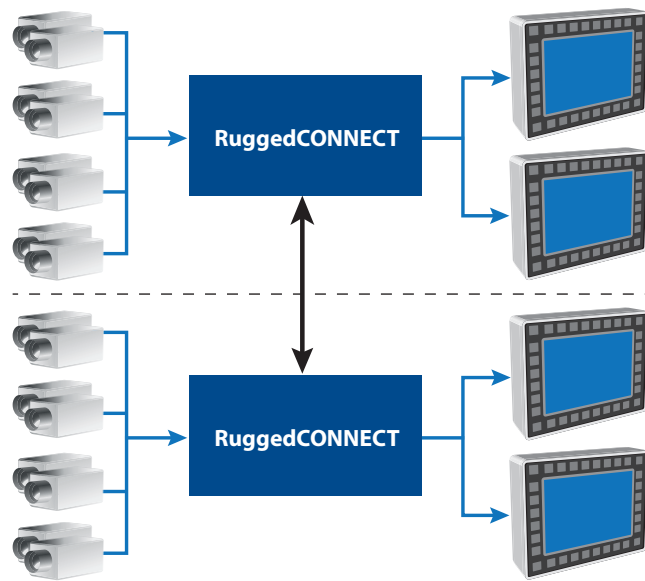
All-in-one rugged Smart Video Switcher for sensor capture, streaming, processing, and display

- Transmit real-time, low latency sensor data across secure networks to processors and displays for advanced warning and effective mission planning
- Crew-centered product design ensures intuitive systems that reduce cognitive burden
- Highly configurable architecture enables NGVA, GVA, and VICTORY compliant vehicle platforms that are rapidly deployable, mission configurable, cost-effective
- Design SWaP-C optimized imaging platforms with full scalability to ensure future capabilities can be incorporated with minimal integration effort
- Plug-in AI solutions for machine learning based tank detection and identification and driver assistance (changing soil conditions, gradients, and obstacles)
- Leverage powerful GPU resources of the NVIDIA Jetson TX2i to add decision-support capabilities — including image fusion, 360 degree stitching, map/terrain overlay, image enhancement to more demanding threat detection and classification

Modular, Scalable, Open Networking Platform

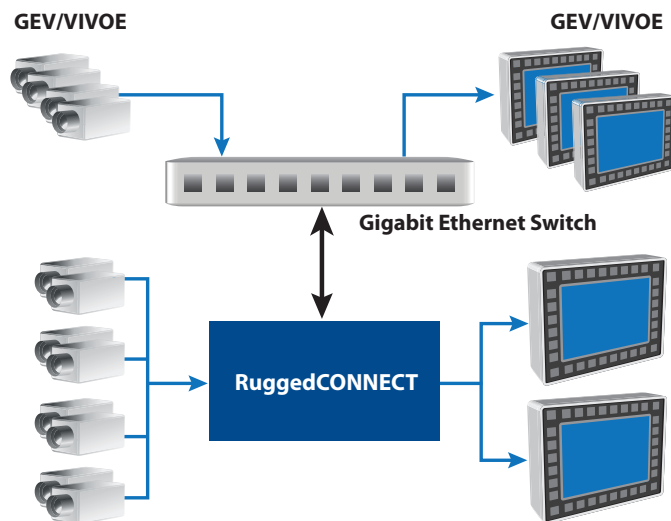
The RuggedCONNECT platform is built on highly configurable architecture to address a complete range of applications — from straightforward camera-to-display systems, to more complex, fully networked applications integrating different sensor and display types, switching, processing, and recording units.

For local situational awareness (LSA) and driver vision enhancer (DVE) applications, the RuggedCONNECT Smart Video Switcher provides an all in-one solution to route video sources to a display or processing unit without going through the network. Leveraging the networking capability of the RuggedCONNECT enables the design of systems incorporating multiple sensors and displays.



GVA and NGVA Sensor Networking Applications

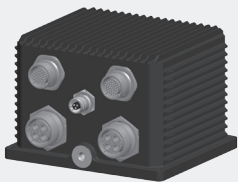
For new vehicle architectures, the RuggedCONNECT Smart Video Switcher is a drop-in solution that provides all the benefits of sensor networking. Meeting video performance requirements outlined in Def Stan 00-082 (VIVOE) and GigE Vision (GEV), manufacturers can design of vehicle electronics platforms that comply with STANAG 4754 (NGVA), Def Stan 23-009 (GVA), and VICTORY guidelines.



The Product Line

RuggedCONNECT Smart Video Switcher

Simple and easy way to integrate cameras and sensors into a real-time network



All-in one unit for video capture, streaming, processing and display

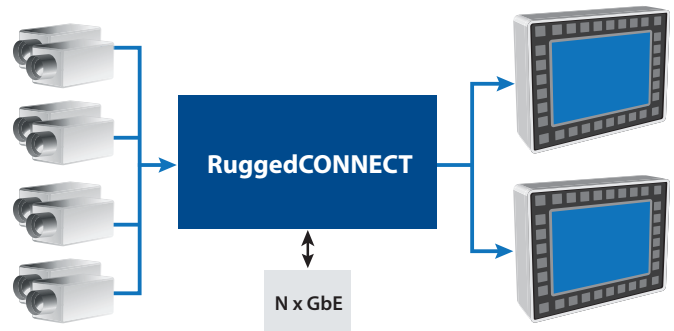
- Video input: 8 channels of RS-170/NTSC/PAL
- Display interfaces: 2 fully independent channels of DVI-D single link
- Dual 1 Gbps Ethernet links with GigE Vision and Def Stan 00-082 support

Highly configurable architecture, cost-effectively evolve to fully networked systems integrating a mix of sensors and displays, switching, and processing

- Sensor input options: HD-SDI, CameraLink, DVI, RGB, STANAG, custom
- Display interfaces: HD-SDI, HDMI, DisplayPort, analog composite
- Point solutions with reduced interfaces and enclosure size to meet demanding SWaP-C requirements

Highly Configurable Architecture

The RuggedCONNECT platform is built on highly configurable architecture, enabling products to address various sensor interfaces, such as HD-SDI, CameraLink, DVI, RGB, STANAG, and display interfaces including VGA, HD-SDI, HDMI, DisplayPort, and analog composite. The product can also be configured to support additional network ports and custom interfaces.



Sensor Formats (with variable mix)

- CVBS
- HD-SDI
- CameraLink
- DVI
- RGB
- Custom

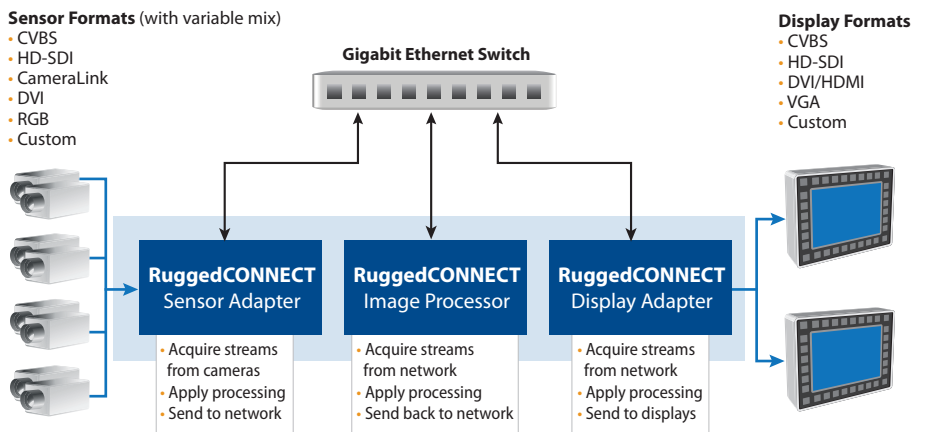
Display Formats

- CVBS
- HD-SDI
- DVI/HDMI
- VGA
- Custom

Point Solutions for SWaP-C Sensitive Applications

For situations with extreme SWaP-C requirements, Pleora can reduce the number of interfaces and overall enclosure size to create scaled down devices, including:

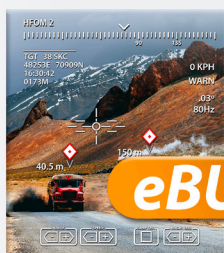
- **Sensor Adaptor:** Acquire sensor streams, apply processing, send to network
- **Display Adaptor:** Acquire streams from network, apply processing, send to display
- **Image Processor:** Acquire stream from network, apply processing, send back to network



SDK for Application Development

eBUS ISR

- Image capture, display, and transmission through simple API portable across Windows and Linux
- Works with GigE Vision and VIOE compliant devices from any vendor
- Preserve existing software investment by using a shared SDK



Plug-In AI for Battlefield Awareness

Tank Detection AI

Machine learning-based AI for C4ISR applications locates and identifies vehicles



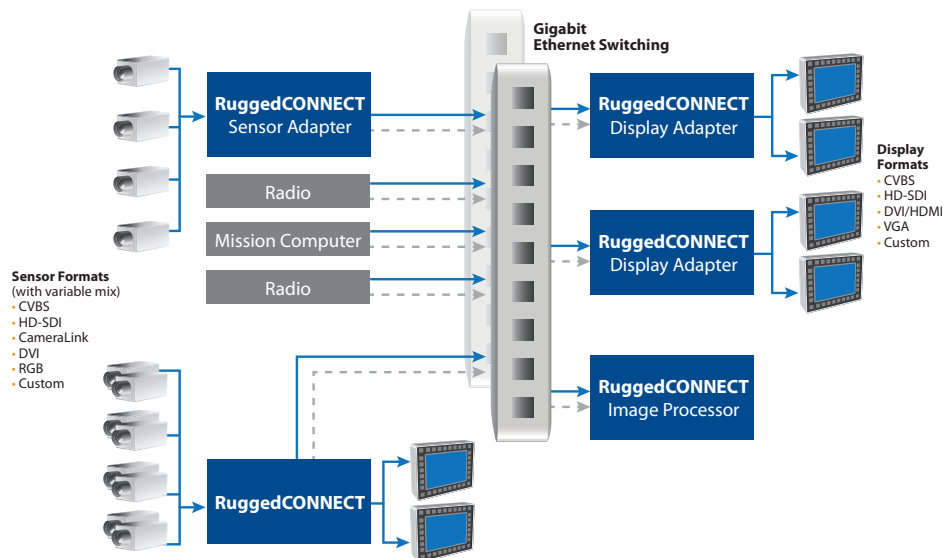
Vehicle/Terrain AI Safety System

Visually alerts driver on changing soil conditions, gradients, and obstacles



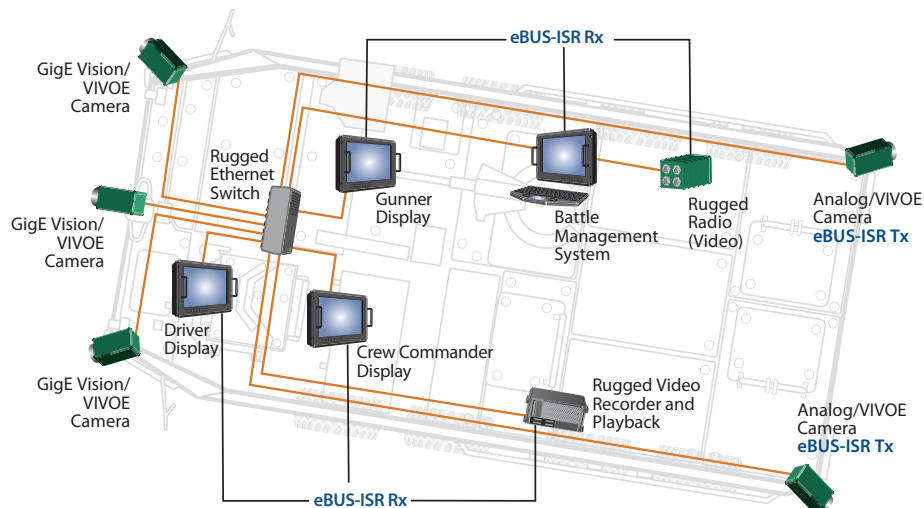
Fully Networked Vetronics System Design

With the scalable, modular RuggedCONNECT platform, manufacturers can cost-effectively evolve to fully networked architectures integrating different sensor and display types, switching, and processing. Dual Ethernet capability provides unmatched system level redundancy capability.



eBUS-ISR for Defense Applications

eBUS-ISR SDK networks ruggedized GigE Vision and VIOVE cameras, sensors, and video equipment from multiple vendors through a comprehensive API that is portable across Linux and Windows operating systems. Building image processing applications on top of eBUS-ISR, users are no longer tied to manufacturer-specific SDKs and can develop systems using any GigE Vision and VIOVE compliant camera or image sensor. By using a shared SDK for all transport functions, designers can preserve existing software investments.



Scalable Platform, Powerful Processing

RuggedCONNECT's highly configurable architecture can host multiple mini-PCIe and M2 daughter cards to address a scalable range of sensor and display interfaces to meet unique application demands, SWaP-C concerns, and easy implementation of future capabilities that increase mission effectiveness with minimum integration effort. Combining the high-performance networking capabilities of RuggedCONNECT with the powerful GPU resources of the NVIDIA Jetson TX2i, designers can easily add application-specific image processing and graphics overlay decision-support capabilities to reduce cognitive burden and increase mission effectiveness.

