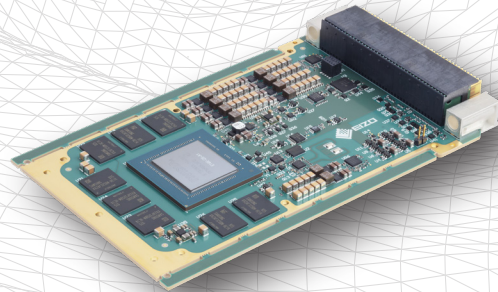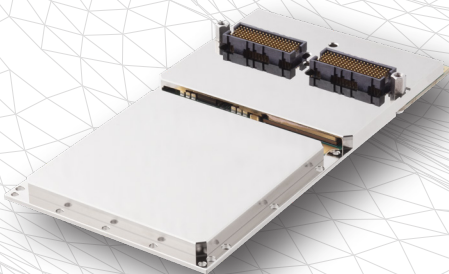![EIZO]

EIZO Rugged Solutions
Product Catalog

RUGGED VISUAL TECHNOLOGY FOR EVERY
MISSION

Experts in Rugged Graphics, Monitors, Video, and Computing Solutions

Contents

Company Overview

EIZO Rugged Solutions offers a wide range of commercial off-the- shelf (COTS) electronic hardware products targeted at video capture, processing, display, compression, streaming, recording, video format conversion, video encoding, GPGPU computing, Artificial Intelligence (AI), and data archiving.

With customizable options designed to meet diverse specifications, our line of military-grade monitors provides defense and naval systems with a reliable LCD display for precise visual data. Since 1987, we have committed to providing innovative products to markets including defense, avionics, aerospace, ISR (intelligence, surveillance, and reconnaissance), and ATC/ATM (air traffic control/management).

EIZO Rugged Solutions develops and manufactures XMC, VPX, and PCIe form factor electronic hardware products with capabilities such as multi-format display and raw video capture, GPGPU processing, encode/decode, streaming, and recording. Using industry-leading GPU technology from NVIDIA and AMD, EIZO's products support advanced GPGPU computing, artificial intelligence, deep learning, data archiving and multi-format conversion. Built to withstand extreme temperatures, shock, and vibration, all EIZO products are designed to meet MIL-STD-810 standards for product reliability and longer product life cycles.

We are global leaders in designing innovative embedded graphics solutions to satisfy specific customer requirements. From designing graphics processing units (GPUs) and high compression encoders to FPGA targeted special graphics/imaging algorithms, EIZO Rugged Solutions offers industry knowledge and product customizations designed to meet the needs of your project.

Military & Aerospace Industries

Rugged and Ready – EIZO Rugged Solutions provides a wide range of embedded computing COTS products to the world's leading defense companies. We work closely with customers and partners alike to meet the needs of the ever-changing battlefield, ensuring your project is equipped with the latest cutting-edge GPU technology on the market.

Military & C5ISR

By implementing the latest GPU technology, we provide the Military and C5ISR market with an all-in-one solution for video capture, process, encode, decode, display, and video streaming.

Aerospace

Our embedded computing solutions provide operators with the ability to view critical information, have increased situational awareness leading to enhanced mission effectiveness.

Naval

Empowering port and shipboard situational awareness with industry-leading solutions for rugged video capture and processing, military grade monitors, plus radar and display for naval ISR, AIV, VSD, VMS, and ATC applications.
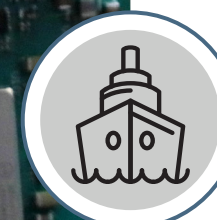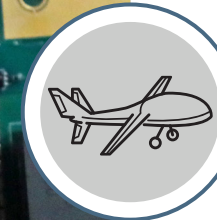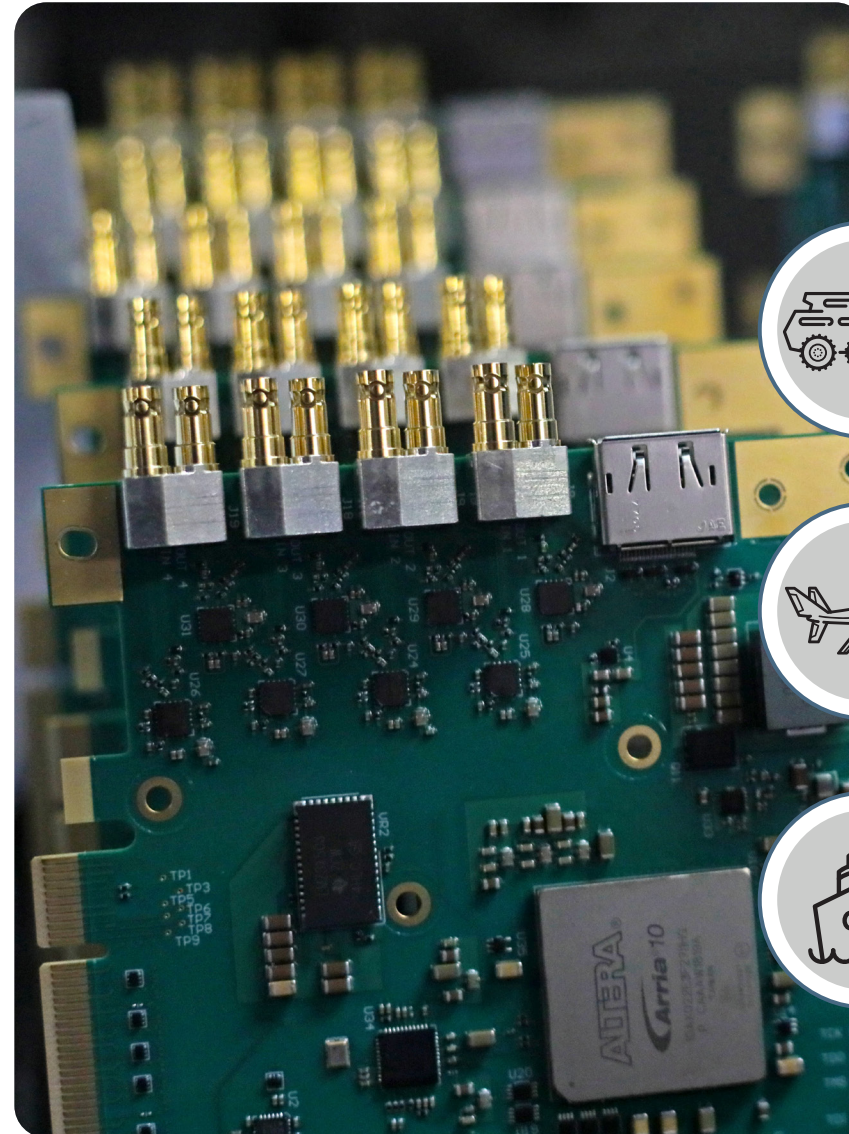
Rugged Monitors
Military-Grade LCD Monitors

The Talon series of COTS (commercial off-the-shelf) rugged LCD monitors offers a range of sizes, screen resolutions, and feature sets for displaying highly detailed rugged applications such as those used in naval display systems, target tracking, mission/ground control centers, and airborne ISR operations. They are ready to be deployed in extreme environments with ruggedized features such as sunlight readability (optional), water resistance with IP65 (front), built-in heaters (optional), and conformal coating to protect components.

Product Capabilities

Every Talon monitor is developed, manufactured, and tested in-house by expert engineers at EIZO's own facilities, including the main controller boards, auxiliary PCBs, LCD unit, optical bonding, housing, and more.

EIZO carries out vibration, shock, humidity, decompression, and extreme temperature testing at its own in-house durability test center to meet MIL-STD-810 and MIL-STD-461 standards. Be it the latest systems or retrofitting legacy systems, EIZO works closely with you to tailor each Talon monitor to suit your rugged environment. Customization options and added value features include those listed below.

- Panel Size
- Touchscreen production (ISO Class 1 Clean Room)
- Optical Bonding
- NVIS Support
- EMI mesh filter
- Sunlight readability (high brightness variation)
- PCB conformal coating for protecting circuitry in harsh environments

- Heater for protection at low temperatures
- Add or remove interfaces as required
- Customized housing and optional monitor handles
- 19" rack-mountable or VESA mount
- Image enhancement technology
- Picture-in-Picture and Picture-by-Picture
- SwitchLink internal switching management technology (keyboard, mouse, dynamic touch)

Talon RGD2401W
24" Rugged Monitor
1920 x 1200 resolution

Talon RGD2802
28" Rugged Monitor
2048 x 2048 resolution
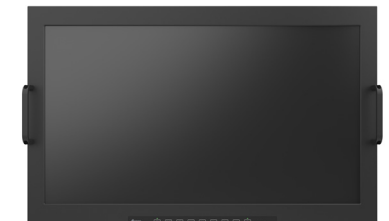
Talon RGD3202W
32" Rugged Monitor
3840 x 2160 resolution

Talon RGD2101W
21.5" Rugged Monitor
1920 x 1080 resolution

Talon RGD2102W
21.5" Rugged Monitor
1920 x 1080 resolution
Gen 3 NVIS Support

Graphics, GPGPU & Video Capture Solutions

Product Capabilities

EIZO Rugged Solutions offers a wide range of highly reliable, rugged COTS XMC and VPX form factor graphics and video solutions for niche markets including aerospace, military, naval, and C5ISR.

Our rugged XMC and VPX products are developed using AMD® Radeon™ GPU or NVIDIA® Ampere, Turing™ or Pascal™ GPU based architecture and support CUDA®/OpenCL™ for applications that require high-end graphics capabilities.

Product Capabilities

- Image Analysis
- Image Enhancement
- 360° Video Stitching
- Sensor Fusion
- AI Inferencing
- Target Detection
- Video Capture & Display
- GPGPU (CUDA®/OpenCL™)
- Video Encoding / Decoding
- Metadata Insertion/Extraction

Video Formats

- Up to 12G-SDI
- DisplayPort
- DVI/HDMI
- RGB (RS-343/RS-170/STANAG 3350)
- VGA
- CVBS (NTSC/PAL/SECAM)
- ARINC 818
- CoaXPress

For the most demanding applications in SWaP-constrained platforms, we work closely with NVIDIA and AMD to provide the most innovative GPU technology for mission-critical applications. As an NVIDIA preferred partner and AMD Embedded Partner, we have unique access to the highest levels of technical support to help meet the demanding design, production, and product lifecycle requirements of embedded systems.

XMC Solutions
NVIDIA-Based XMC Solutions

NVIDIA Quadro P2000 GPU (Chip-down GP107)

4GB GDDR5 Graphics Memory
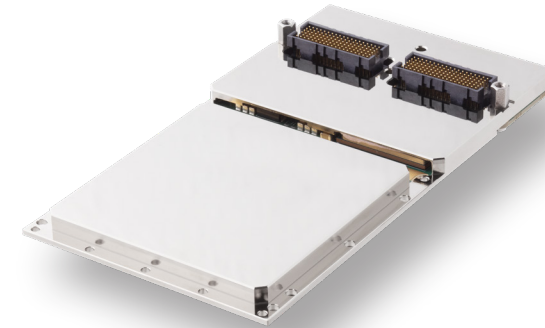
128-bit Memory Interface

96 GB/s Memory Bandwidth

768 CUDA Cores

CUDA 10, OpenCL 1.2, OpenGL 4.5, DirectX 12

H.265 & H.264 Hardware Encoder/Decoder

NVIDIA GPUDirect™ RDMA, NVENC, NVDEC

Condor NVP2100 XMC Series
Rugged XMC Graphics & Video Capture Cards

The Condor NVP2100 Series products are rugged XMC graphics and raw video capture cards based on the NVIDIA Quadro Pascal P2000 GPU (GP107). These cards have a chip-down design and support multiple video inputs and outputs of various format types such as 3G-SDI, DVI, DisplayPort, TV/CVBS/PAL and VGA are supported on front, rear XMC or rear PMC connectors. The Condor NVP2100 XMC series products serve as an all-in-one solution for video capture, process, encode, decode, stream, and display.
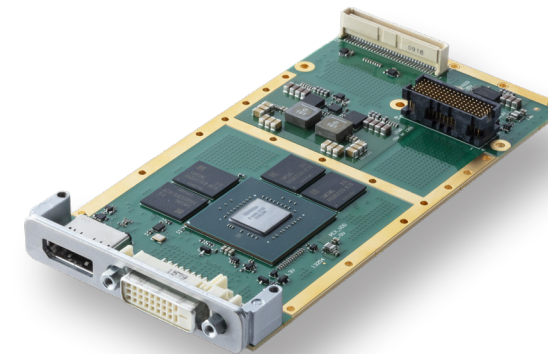
Condor NVP2000 XMC Series
Rugged XMC Graphics & GPGPU Cards

The Condor NVP2000 XMC series are rugged graphics and GPGPU processing cards based on the NVIDIA Quadro Pascal P2000 GPU (GP107). These cards have a chip-down design and support multiple simultaneous video outputs, Front I/O, Rear XMC or Rear PMC.

XMC Solutions

AMD-Based XMC Solutions

AMD Radeon E4690 GPU

512 GB GDDR3 Graphics Memory

128-bit Memory Interface

22.4 GB/s Memory Bandwidth

320 Shader Processors

Up to 384 GFLOPs FP32 Single Floating Point Performance

Supporting OpenGL 3.0 and DirectX 10.1

H.264, VC-1, MPEG-2 Video Decode

Condor 2100 XMC Series
Rugged XMC Graphics & Video Capture Cards

The Condor 2100 is a series of XMC form factor graphics and video capture cards with two customizable Inputs/Outputs. This XMC Series is based on AMD e4690 GPU that supports 2D and 3D graphics and includes hardware acceleration of H.264 and VC-1 HD video as well as MPEG-2, enabling multiple HD video streams. This series offers air cooled or conduction cooled product variants.

Condor 2000 XMC Series
Rugged XMC Graphics Cards

The Condor 2000 XMC Series is a set of graphics and GPGPU processing cards with two multi-function video outputs. This XMC Series is based on AMD e4690 GPU that supports 2D and 3D graphics and includes hardware acceleration of H.264 and VC-1 HD video as well as MPEG-2, enabling multiple HD video streams. This series offers air cooled or conduction cooled product variants.

XMC Solutions
AMD-Based XMC Solutions

AMD Radeon E8860 GPU

2 GB GDDR5 Graphics Memory

128-bit Memory Interface

72 GB/s Memory Bandwidth
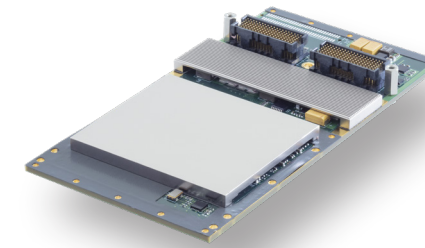
640 Shader Processors

Up to 768 GFLOPs FP32 Single Floating Point Performance

Supporting OpenGL 4.2, DirectX 11.1 and Shader 5.0

H.264 Hardware Decoder UVD 4.0 (Unified Video Decoder)

H.264 Hardware Encoder VCE 1.0 (Video Codec Engine)

Condor 4000 XMC Series
Rugged XMC Graphics Cards

The Condor 4000 is a series of XMC form factor graphics and GPGPU processing cards with six customizable multi-function video outputs. The product has digital (DVI/DisplayPort) and analog (VGA) video outputs available from the front panel or rear XMC (Pn6) or PMC (Pn4) I/O connectors. This series offers air cooled or conduction cooled product variants.
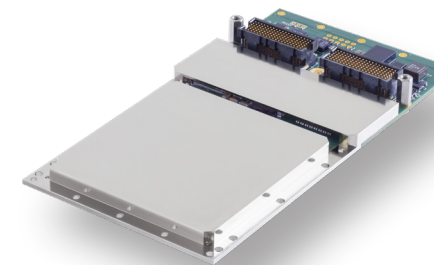
Condor 4107xX
Rugged XMC Graphics & Video Capture Card

The Condor 4107xX is a conduction cooled XMC graphics and video capture card based on the AMD Radeon E8860 GPU with two 3G/HD/SD-SDI, one DisplayPort and one VGA or RGsB (STANAG 3350, RS-343) video output. The card is available in conduction cooled with rear XMC I/O on Pn6.

Condor 4108xX
Rugged XMC Graphics & Video Capture Card

The Condor 4108xX is an XMC graphics and GPGPU processing card with two DisplayPort and two ARINC 818 compatible outputs, along with two ARINC 818 compatible inputs. This XMC card can simultaneously capture and display two simultaneous ARINC 818 compatible video streams that include frame header, container header, video, and ancillary data. The card is available in conduction cooled with rear XMC I/O on Pn6.

Company Capabilities

Rugged Products with Extensive Capabilities

Built to withstand extreme temperatures, shock, and vibration, all our products are designed to meet MIL-STD-810 standards for product reliability and longer product life cycles. We understand that SWaP (Size, Weight, and Power) and thermal management is critical to product success, so our engineering team works closely with customers to develop tailored rugged solutions for every project's individual needs. We pride ourselves on taking the time to fully understand your project goals to offer an innovative solution for mission-critical application.

- ✔ **Image Analysis**
- ✔ **Image Enhancement**
- ✔ **360° Video Stitching**
- ✔ **Sensor Fusion**
- ✔ **AI Inferencing**

- ✔ **Target Detection**
- ✔ **Video Capture & Display**
- ✔ **GPGPU (CUDA®/OpenCL™)**
- ✔ **Video Encoding/Decoding**
- ✔ **Metadata Insertion/Extraction**

Ruggedized Products for Air, Land, Sea, and Space

VPX Solutions
NVIDIA-Based VPX Solutions

NVIDIA Ampere A2000 GPU
8 GB GDDR6 Graphics Memory with ECC memory
128-bit Memory Interface; 192 GB/s Memory Bandwidth
2560 CUDA Cores
80 Tensor Cores
20 RT Cores
CUDA 10, CUDA-X, OpenCL 1.2, OpenGL 4.5, DirectX 12

NVIDIA Turing RTX 5000 GPU
16 GB GDDR6 Graphics memory
256-bit Memory Interface; 448 GB/s Memory Bandwidth
3072 CUDA Cores
384 Tensor Cores
48 RT Cores
CUDA 10, CUDA-X, OpenCL 1.2, OpenGL 4.5, DirectX 12
H.265 & H.264 Hardware Encoder/Decoder
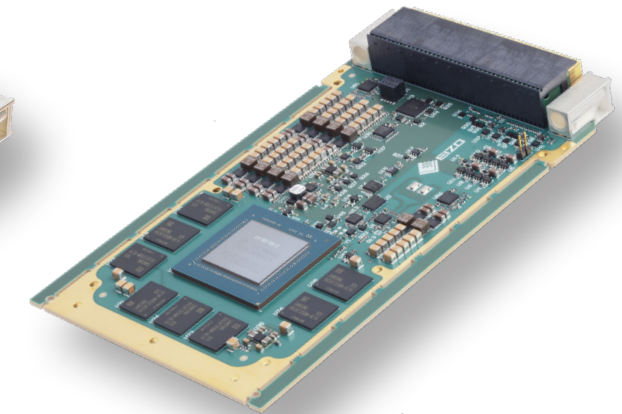NVIDIA GPUDirect™ RDMA, NVENC, NVDEC

NVIDIA Turing RTX 3000 GPU
6 GB GDDR6 Graphics memory
192-bit Memory Interface; 336 GB/s Memory Bandwidth
1920 CUDA Cores
240 Tensor Cores
30 RT Cores
CUDA 10, OpenCL 1.2, OpenGL 4.5, DirectX 12
H.265 & H.264 Hardware Encoder/Decoder
NVIDIA GPUDirect™ RDMA, NVENC, NVDEC

VPX Solutions
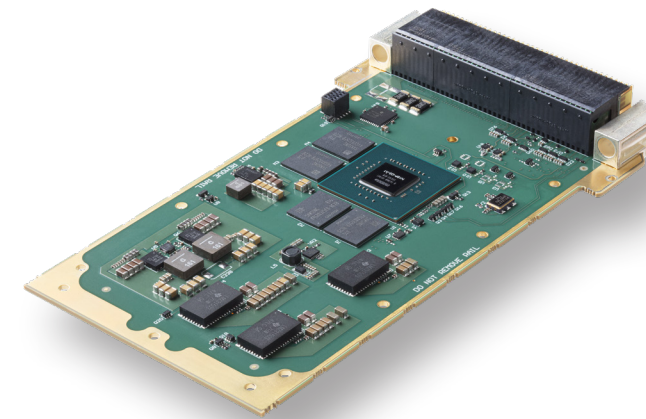
Condor GR5-P2000   Condor GR5-RTX5000

Condor GR5 3U VPX Series
Rugged 3U VPX Graphics & GPGPU Cards

The Condor GR5 3U VPX series support 3G-SDI, DisplayPort and Single-Link DVI-D video outputs. This series of cards support multiple variants of NVIDIA-based GPUs: NVIDIA Ampere A2000 GPU, NVIDIA Quadro RTX 5000 GPU, NVIDIA Quadro RTX 3000 GPU, and the NVIDIA Quadro P2000 GPU. These cards feature a rugged chip-down design with thermally efficient heatsink technology, is available in air cooled or conduction cooled, and with rear I/O.

The Condor GR5S-RTX5000 is a SOSA-aligned version of the card that supports SOSA slot profiles SLT3-PAY-1F1U1S1S1U1U2F1H-14.6.11 and SLT3-PAY-1F1U1S1S1U1U4F1J-14.6.13 .

VPX Solutions
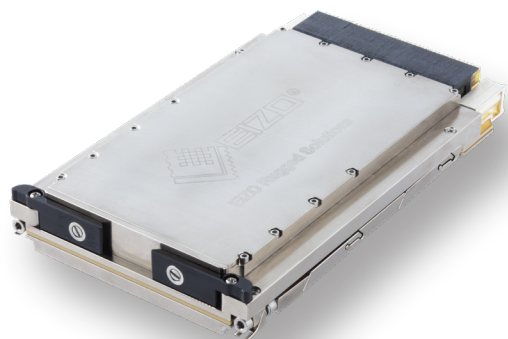
Condor GR4 3U VPX Series
### *Rugged 3U VPX GPGPU & Video Capture Cards*

The Condor GR4 3U VPX series of graphics, GPGPU, and video capture cards support four 3G-SDI video inputs/output and one DisplayPort output using the NVIDIA Turing RTX3000. Along with built-in H.265 (HEVC) / H.264 (MPEG4 AVC) hardware based encode and decode, the card also supports SDI VANC KLV metadata insertion and extraction. The Condor GR4 3U VPX products serve as an all-in-one solution for video capture, process, encode, decode, stream, and display. The card is available in air cooled or conduction cooled with thermally efficient heatsink technology and rear I/O.

## Condor GR2 3U VPX
Rugged 3U VPX Graphics & GPGPU Cards

The Condor GR2 3U VPX series of graphics and GPGPU processing cards support three customizable video outputs of DisplayPort++ and Single-Link DVI-D formats. This series of 3U VPX cards support multiple variants of NVIDIA-based GPUs: NVIDIA Quadro RTX 5000 GPU or NVIDIA® Quadro RTX 3000 GPU (TU106 Turing Architecture).
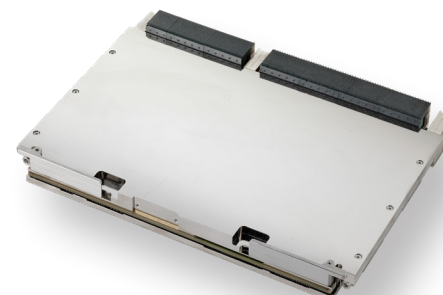
## Condor XR1 6U VPX Series
Rugged 6U VPX Graphics & GPGPU Card

The Condor XR1 series is an OpenVPX 6U form factor graphics and GPGPU processing card offering eight rear IO DisplayPort++ video outputs (four per GPU). The Condor XR1S offers four front I/O DisplayPort++ video outputs and is designed to the SOSA-aligned profile: SLT6-PAY-4F2Q1H4U1T1S1S1TU2U2T1H-10.6.4. These cards support dual GPU processing using either the NVIDIA Quadro RTX 5000 GPU or NVIDIA Quadro RTX 3000 GPU.
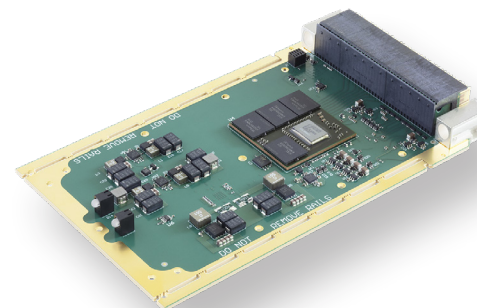
Condor 4000 3U VPX
Rugged 3U VPX Graphics Card

The Condor 4000 3U VPX is a graphics, GPGPU, and video capture card based on the AMD Radeon E8860 GPU, supporting six multi-format video outputs. This 3U VPX card has built-in video decoders to enable dual HD decoding of H.264, VC-1, MPEG4 and MPEG2 compressed video streams. The Condor 4000 3U VPX is offered in air cooled or conduction cooled variants.
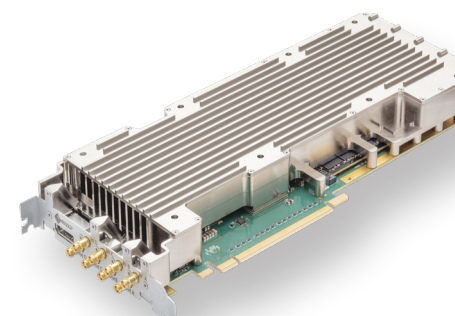
Condor GR4 PCIe
Rugged PCIe Video Capture & GPGPU Card

The Condor GR4 PCIe is a graphics & GPGPU card with four 3G-SDI inputs/outputs and metadata insertion/extraction. This Condor GR4 PCIe card supports multiple variants of NVIDIA-based GPUs: NVIDIA® Quadro RTX® 5000 GPU or NVIDIA® Quadro RTX® 3000 GPU. This product serves as an all-in-one solution for video capture, process, encode, decode, stream, and display.

Rugged Video Encoder

Rugged Video Encoder

Tyton VS2X

The Tyton VS2X is a powerful stand-alone rugged H.265 (HEVC) / H.264 video/audio encoding and streaming solution, with CoT/KLV metadata support. The Tyton VS2X is capable of encoding four 3G-SDI, HD-SDI or SD-SDI video inputs simultaneously with low latency using the highly versatile and widely used video encoding standards H.265 (HEVC) and H.264 (MPEG-4 AVC). With low power consumption, Tyton VS2X is non-intrusive and feature rich. Tyton's 8 dynamic encoding engines can create multiple individually configured encoded video streams per input. This hardware is fully ruggedized to MIL-STD-810, MIL-STD-461, and IP67 standards.

Rugged Video Splitter

Rugged Video Splitter

Hydra 1004R

The Hydra 1004R is a military-grade 1x4 video splitter designed to operate in harsh environments. This product supports up to 12G-SDI, HD-SDI or SD-SDI video inputs which is split into four outputs for viewing or distribution. Signal regeneration (Re-clocked) ensures that the video quality is not compromised. All connectors including power are front-facing for ease of mounting. This device requires low power and is SWaP optimized, resulting in longer product life cycles. This hardware is fully ruggedized to MIL-STD-810, MIL-STD-461, and IP67 standards.

Rugged Video Converters

Rugged Video Converters

The Adapt Series

Customers often need to support several legacy monitors with various input formats. Support of such monitors may require special graphics/video boards, incurring NRE, long lead-times, etc. Alleviating the need for board re-designs, the Adapt video format converters enable the use of the newer off-the-shelf rugged graphics cards with DisplayPort outputs to support DVI or VGA.

The Adapt Series of video format converters enable conversion of DisplayPort into traditional DVI or VGA video formats. Two versions of products are available – rugged and industrial grade. The rugged product meets military level shock and vibration (MIL-STD-810) requirements and can operate in extended temperature environments (-40°C to 85°C). The industrial-grade product only supports extended temperature of -40°C to 85°C. Power to the active device is available on the DisplayPort cable, no external power is required.

Adapt Converters allow you to equip modern, off-the-shelf graphics cards with the connectors needed to support legacy monitors without incurring additional NRE and long lead times for board re-designs. The Adapt products can also be customized to support other connector types, such as male or female gender or circular connectors such as MIL-DTL-38999.

Adapt DVI   Adapt VGA

Product Variants

Adapt DVI   Adapt VGA   Adapt R-DVI   Adapt R-VGA

Radar & Camera Acquisition, Processing, Tracking, and Display Solutions


Radar Processing

Cambridge Pixel is an award-winning developer of radar and camera acquisition, processing, tracking and display solutions for naval, ATC, security and maritime applications.

EIZO Rugged Solutions is the sole distributor in North America (USA & Canada) of Cambridge Pixel's hardware and software solutions for sensor processing and display. Flexible and modular product design allows system integrators to select the components they need and build them into their solution or in many cases choose a ready-made application.


Custom configurable modular software solutions for radar and video acquisition, processing and display for system integrators and developers to build into their own solution.

- Radar scan conversion
- Tracking (from primary or IFF)
- Sensor fusion
- Radar video distribution
- Recording and replay
- Simulation
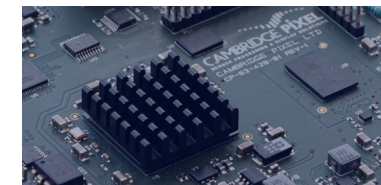
Radar interface hardware for use with many different types of radar, from small marine radars to large air surveillance and from legacy military radars to modern solid state radars.

- PCI, PCIe, PMC radar input cards
- Analog to network radar converters
- Synchro to parallel or ACP/ARP
- Analog radar video output cards
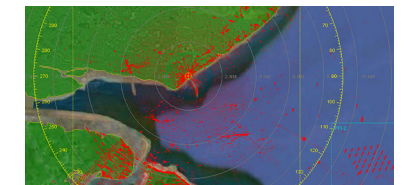
Radar and video display solutions available as complete applications for Windows.

- Radar Display
- Maritime Surveillance
- Air Situation Display
- Video Surveillance Display
- Unmanned surface Vessel Display
- Maritime Display Framework
- Custom Applications

Partners

NVIDIA is a key player in high-end graphics cards for the gaming and professional markets, for GPGPU, AI and Deep Learning applications. NVIDIA has teamed up with EIZO to bring their latest GPU technology to the defense and related rugged markets. NVIDIA's GPU based products, developed by EIZO Rugged Solutions, have been very successful and have already been deployed on very large programs. With long term commitment to the market by both NVIDIA and EIZO, customers will benefit from long product life cycles. NVIDIA works very closely with EIZO during the design phase and even provides design reviews to ensure that the products live up to NVIDIA's high standards and reputation. EIZO Rugged Solutions is a preferred solution provider of NVIDIA based products.

AMD brings the performance of desktop graphics to embedded applications with the AMD Radeon™ Embedded Graphics processors. Delivering exceptional 3D graphics and multimedia performance, AMD's GPU technology also offers low power options and long term availability. EIZO's products based on AMD GPU's support RTOS such as VxWorks and Integrity in collaboration with another partner company.

The Open Group Sensor Open Systems Architecture™ (SOSA) Consortium aims to create a common framework for transitioning sensor systems to an open systems architecture, based on key interfaces and open standards established by industry-government consensus. Originally an initiative under The Open Group Future Airborne Capabilities Environment™ (FACE) Consortium, the SOSA Consortium enables government and industry to collaboratively develop open standards and best practices to enable, enhance, and accelerate the deployment of affordable, capable, interoperable sensor systems.

With over 33 years of experience in developing graphics and video solutions, EIZO Rugged Solutions brings a wealth of technical expertise to the SOSA Consortium with the aim to help drive and contribute to the standards. As a provider of both NVIDIA and AMD GPU based products for GPGPU, AI, video processing, and display, the company has always been an avid promoter of open architecture solutions and rugged COTS that benefit the market with options as well as backward compatibility, contributing to long product lifecycles.

Contact Us

EIZO Rugged Solutions
442 Northlake Blvd Altamonte Springs, FL 32701, USA
+1 (407) 262-7100
Toll Free: 800-330-8301

General Information: ers-info@eizo.com
Talon Product Sales: talon@eizo.com
Condor Product Sales: condor@eizo.com