



SIGNAL

VISION

SYSTEM

www.techway.fr

TECHWAY PIONEERS ADVANCED ELECTRONICS SOLUTIONS FOR SIGNAL AND VIDEO ACQUISITION AND PROCESSING.

Our company is a recognized specialist in high-speed signals and images acquisition.
Our expertise is focused on real-time processing.

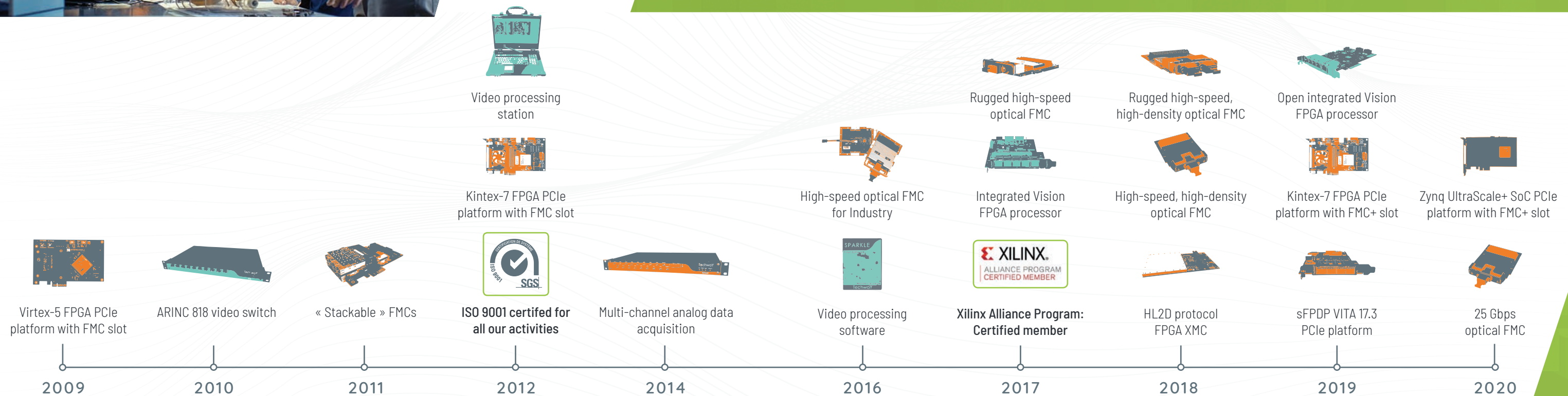
We simplify high-end technologies' adoption by designing ready-to-use embedded solutions that reduce R&D time and cost to system integrators. Our products are of the highest quality, designed with our know-how in the field gained over 15 years.

Based on the latest **FPGA** technologies, our modular and versatile products are the result of engineering activities and R&D efforts carried out in close collaboration with our Defense and Avionics customers.

All our solutions meet international standards and are designed to adapt to the widest range of industrial environments. Our goal is to provide the industrial sectors – Defense, Avionics and Industrial Production – with advanced cost-effective solutions.
We provide the highest quality of customer service and support before, during and after sales.

OVERVIEW

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FPGA MEZZANINE CARDS (FMC)

100% compliant with VITA 57.1 & VITA 57.4 standards

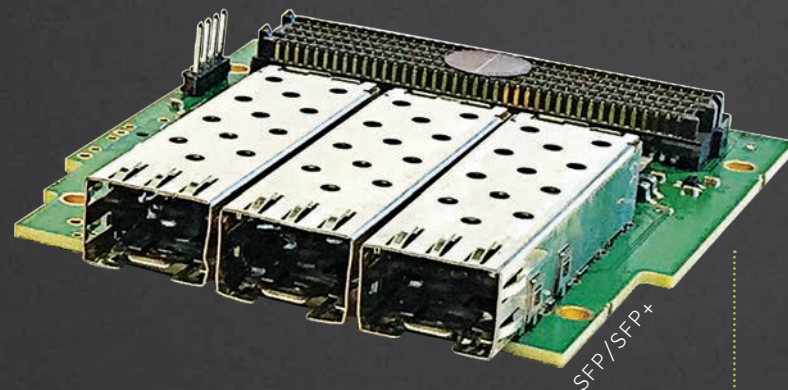


ANALOG

- Up to 8 channels
- Up to 125 MHz

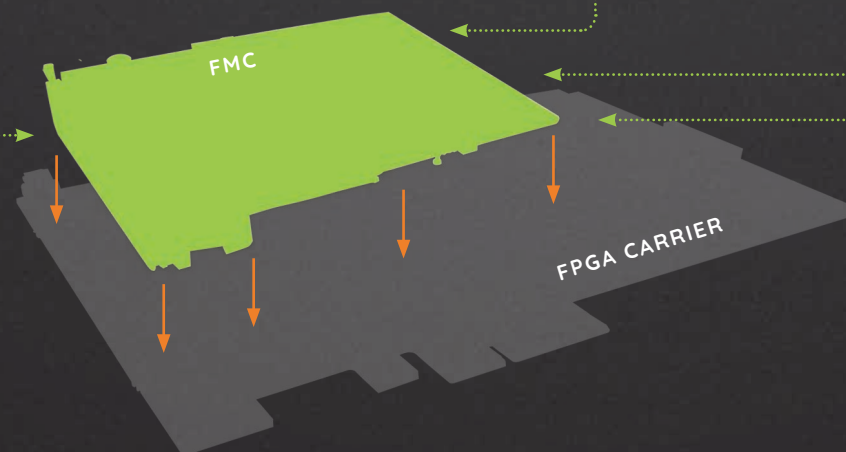
VIDEO

- 3 or 4 cages
- Up to 10 Gbps



DIGITAL

- Up to 4 cages
- Optical or copper links

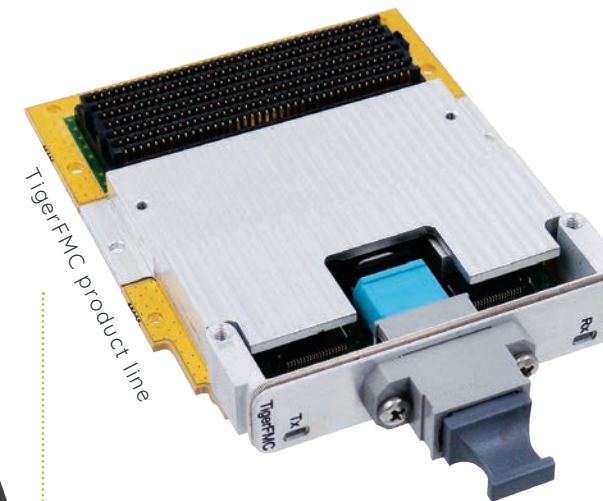


HIGH-SPEED OPTICAL

Support all communication protocols

Several protocols on one board at the same time

Front or rear connexion



Industrial range

- Up to 12 optical links @ 12 Gbps
- SAMTEC FireFly™ technology
- MTP or MT ferules connexion
- Temperature range: -20°C → +70°C

Rugged range

- Up to 24 optical links @ 12 Gbps
- RADIALL D-Lightsys® technology
- MTP or C-MTITAN connexion
- Temperature range: -40°C → +85°C



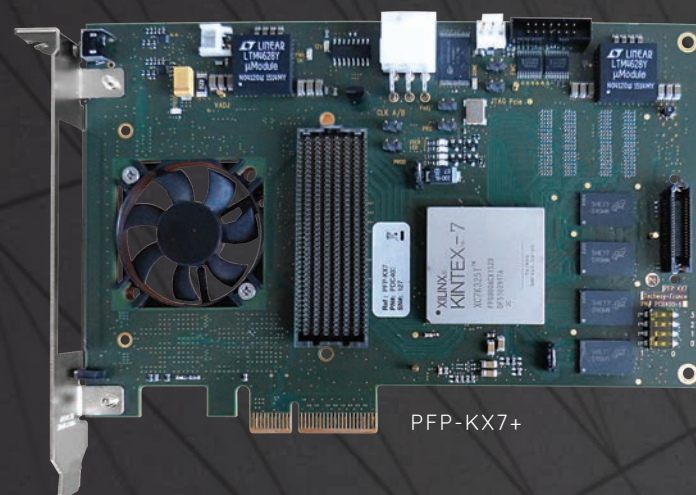
CoaXPress, GigE Vision, 10GbEth, ADC, DAC, sFPDP, SpaceWire, JESD

FPGA-PROCESSING BOARDS WITH FMC INTERFACE

Open architecture thanks to FMC or FMC+ interface

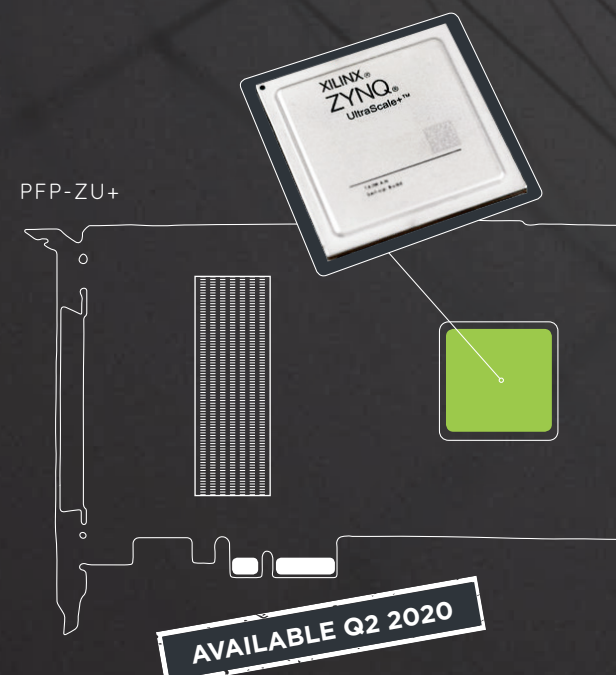
FPGA TECHNOLOGY

- Xilinx Kintex-7 FPGA
- FMC or FMC+ connector
- PCIe x4 Gen2
- DMA scatter / gather



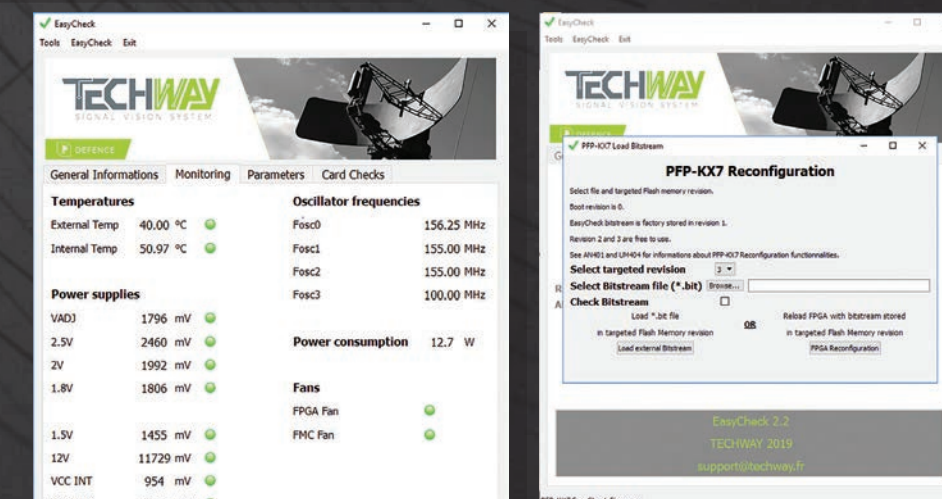
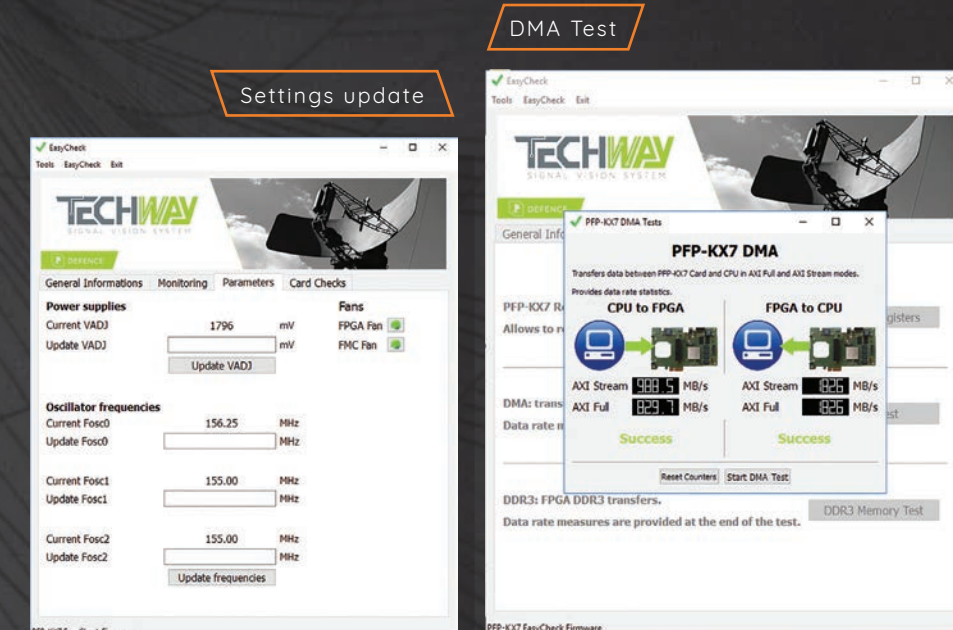
SoC TECHNOLOGY

- Xilinx Zynq UltraScale+ System on Chip
- ZU7CG & ZU11EG SoC
- FMC+ connector
- FireFly™ optical slot
- PCIe x4 Gen3
- DMA scatter / gather



ADVANCED DEVELOPMENT TOOLS FOR FPGA BOARDS

Optimize FPGA solutions integration in an equipment



- TECHWAY Development Kit
- FPGA Development Kit
- Software Development Kit
- Dedicated support for TECHWAY's products

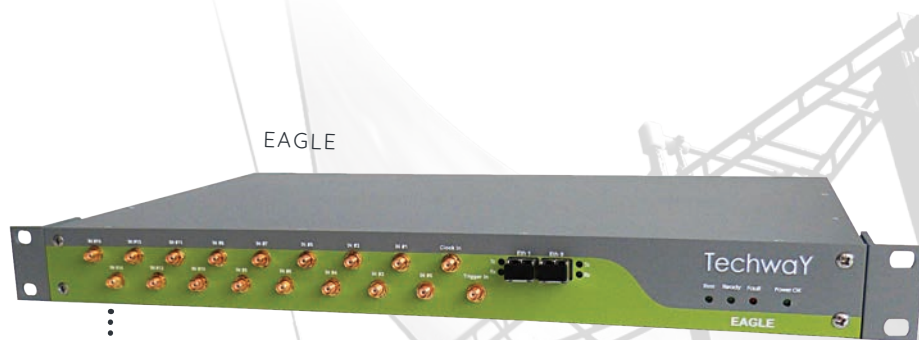
RADAR, COMINT, SIGINT, Satellite test bench, Communications, GNSS equipment

MULTI-CHANNEL ACQUISITION SYSTEMS WITH INTEGRATED FPGA-PROCESSING

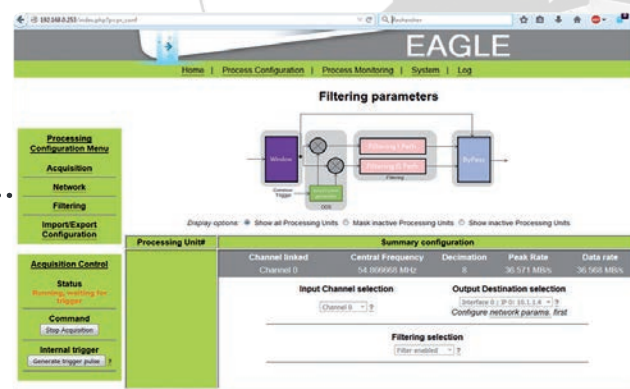
Ready-to-use and easy-to-configure systems

ANALOG ACQUISITION SOLUTIONS

- Analog to 10GbEth converter
- Multi-channel acquisition system
- Integrated FPGA processing
- Pre-programmed filters
- WEB/SNMP interface for CMD/CTRL
- 10GbEth output



ETHERNET



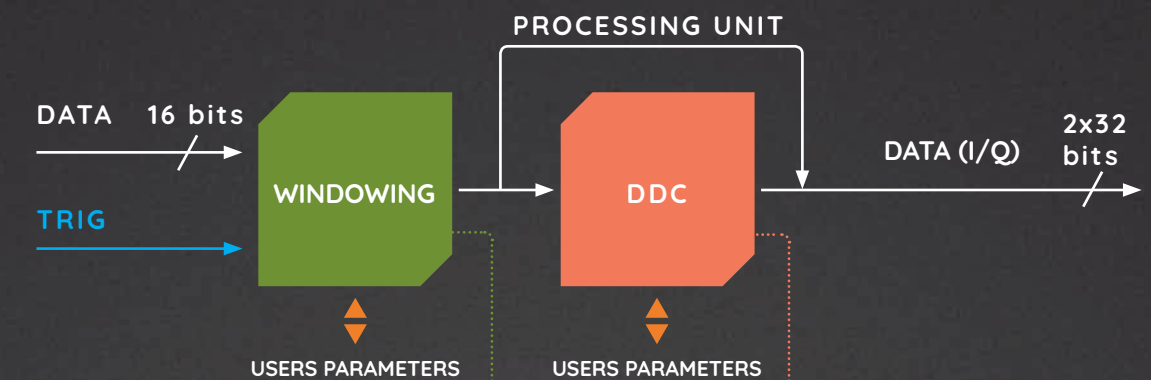
COST-EFFECTIVE SOLUTION

EASY-TO-USE

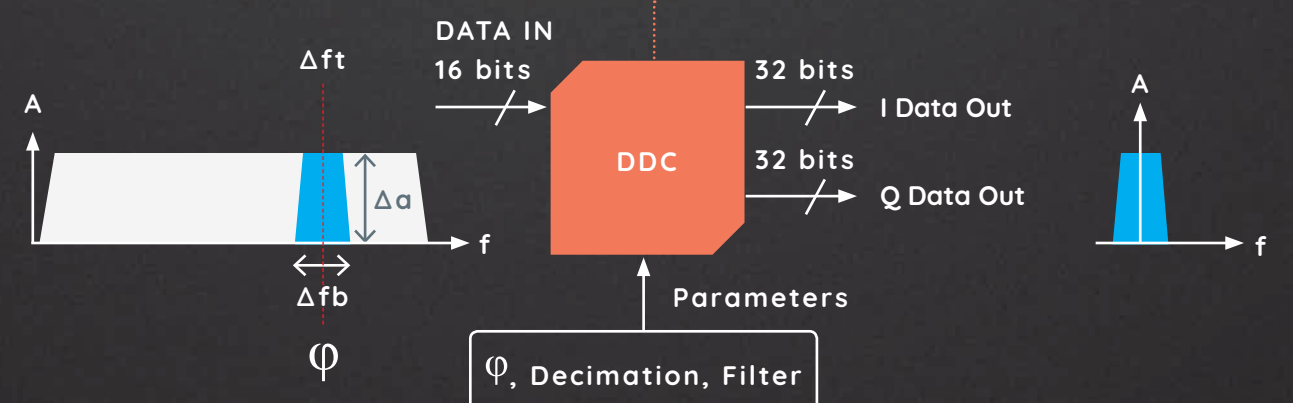
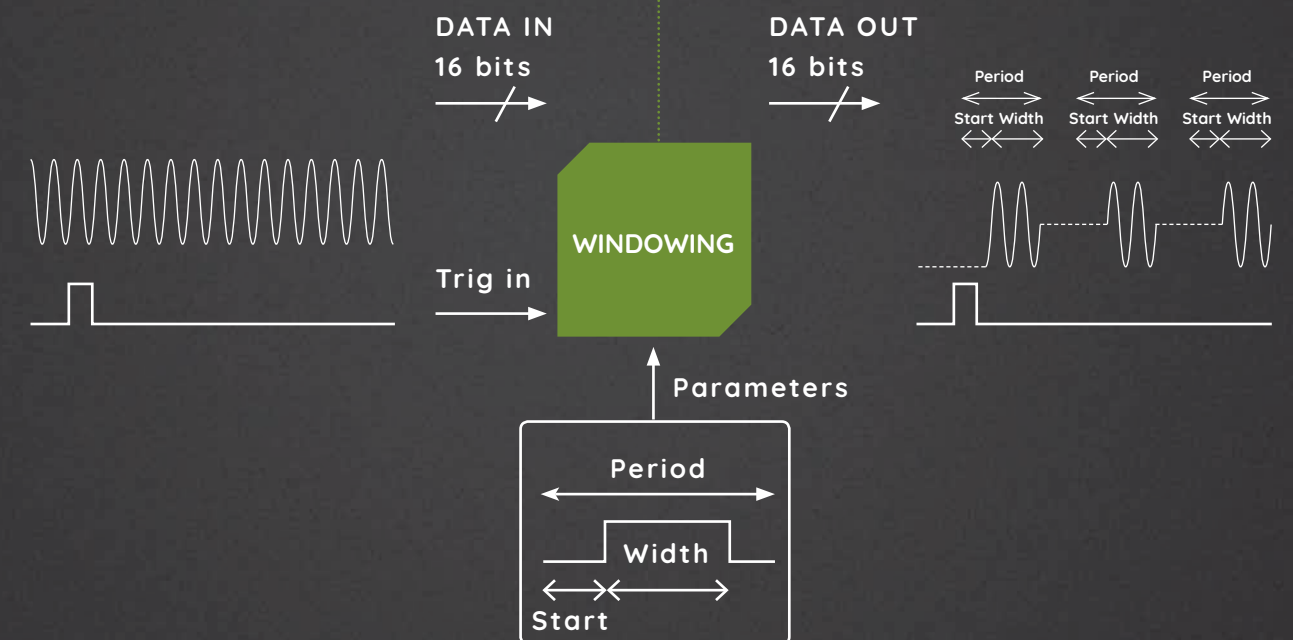
REDUCE R&D COST AND TIME

CUSTOMIZABLE

FPGA PROCESSING UNIT



Example



LVDS, 10GbEth, ADC, DAC, ARINC 818, SpaceWire, Aurora



AVIONICS

- Test bench
- Development
- Test and measure
- Prototyping
- Simulation
- Video generation
- Display development

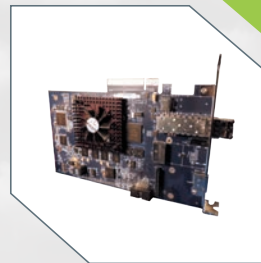
- Flight test / FTI
- Avionics video
- Aircraft production
- Mission computer
- High-resolution and high-speed recording



ARINC 818
full product
line



Embedded
systems



FPGA boards

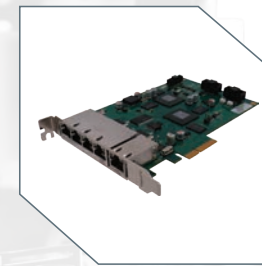


INDUSTRY

- Machine Vision
- Camera inspection
- Measurement
- Quality control
- Edges, patterns, colors, objects detection
- Non-destructive testing
- Deep learning

- Simulation system
- Telecommunications
- GRID

- Seismology
- Geological analysis
- Scientific research
- Beamforming



Vision FPGA
processors



Integration



High-speed
optical
interfaces



DEFENCE

- Embedded computing
- Electronic warfare
- RADAR
- SONAR

- High-speed communication
- Co-processing
- Data-recording
- Optronics
- Video acquisition
- Video processing
- Multi-channel data-acquisition



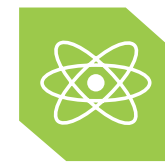
FPGA
Mezzanine
Cards



FPGA
versatile
platforms



Integrated
ready-to-use
solutions



NUCLEAR

- Nuclear power plants maintenance
- Live core inspection
- Fuel assemblies identification
- Fuel assemblies gap measurement
- S-Hole verification
- FME activity

- Shutdown operations for loading and unloading of nuclear fuel
- Non-destructive control



Filtering
softwares



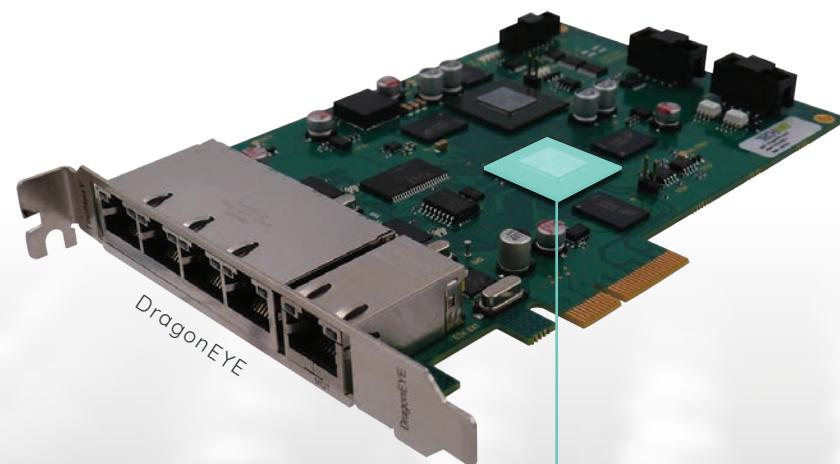
Video
inspection
tools

INTEGRATED VISION PROCESSOR PLATFORM

Patent pending #1908759

Frame grabber and FPGA-based image processing

- PCIe x4 Gen2
- Up to 4 GigE Vision cameras
- Onboard FPGA
- Real-time processing
- GigE Vision switches
- Windows & Linux support



Open FPGA

- Processing unit: Filter, Bayer, ...
- Real-time
- Low latency

85% Open resources
Dedicated for your application

COST-EFFECTIVE

OPEN TO
CUSTOMIZATION

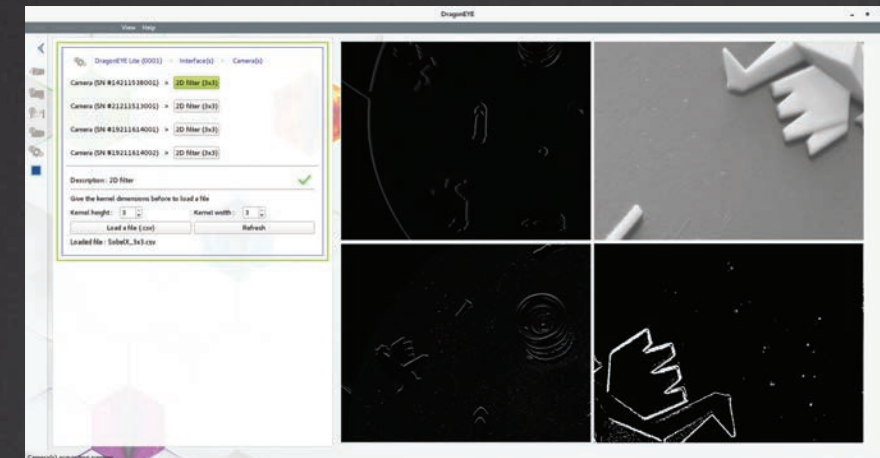
CPU-FREE
SOLUTION

DETERMINISTIC

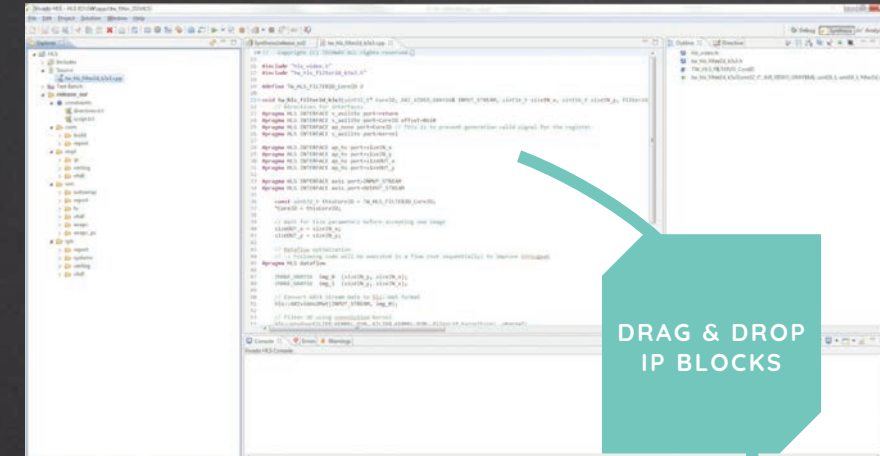
INCLUDED DEVELOPMENT KIT

- TECHWAY support
- Firmware development kit
- Software development kit
- Xilinx Vivado IP Integrator compliant

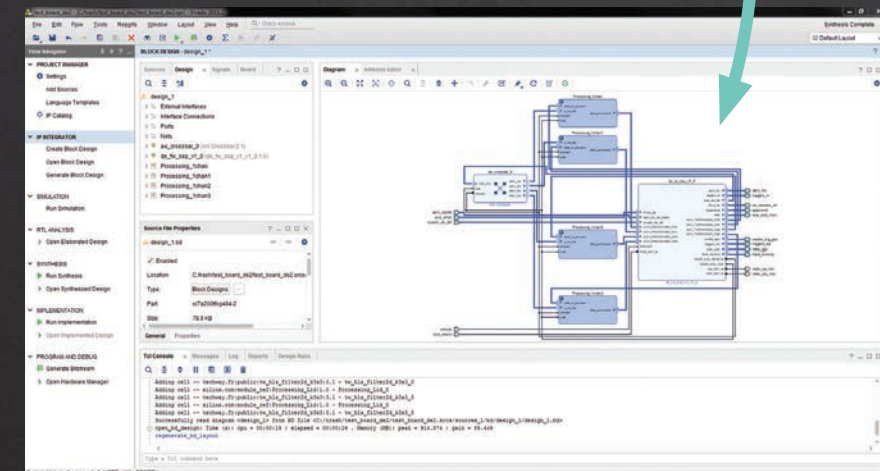
GUI: User-friendly starting GUI



Vivado HLS interface: Xilinx IP creation accelerator (C and C++)



IP integrator: Xilinx block-based IP Integration tool



Deep learning, 3D, High-resolution applications, Multi-camera applications



ARINC 818 SOLUTIONS

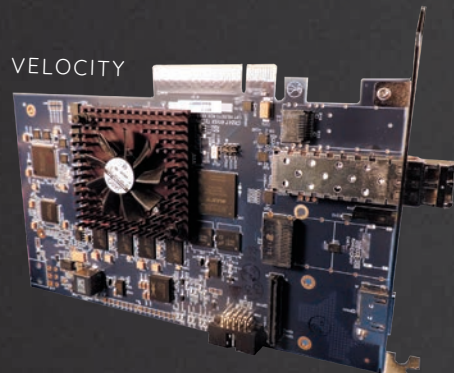
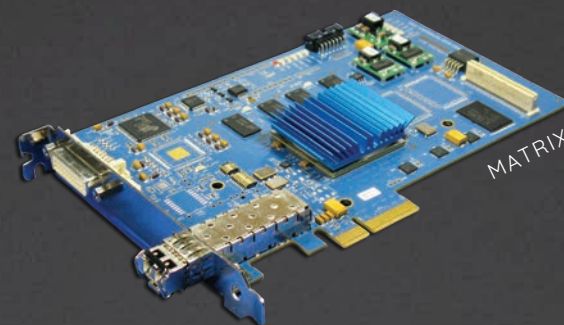
Development tools for test bench

GENERATION

ACQUISITION

CONVERSION

- PCIe or XMC boards
- ARINC 818 / DVI conversion
- Up to 4.25 Gbps
- Up to 15 ICD



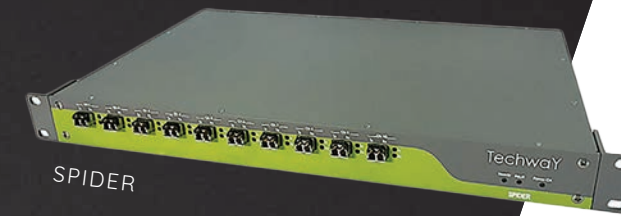
- PCIe boards
- ARINC 818 / DVI / HDMI conversion
- Up to 8.5 Gbps
- Up to 15 ICD

- Stand-alone conversion module
- ARINC 818 / DVI / VGA

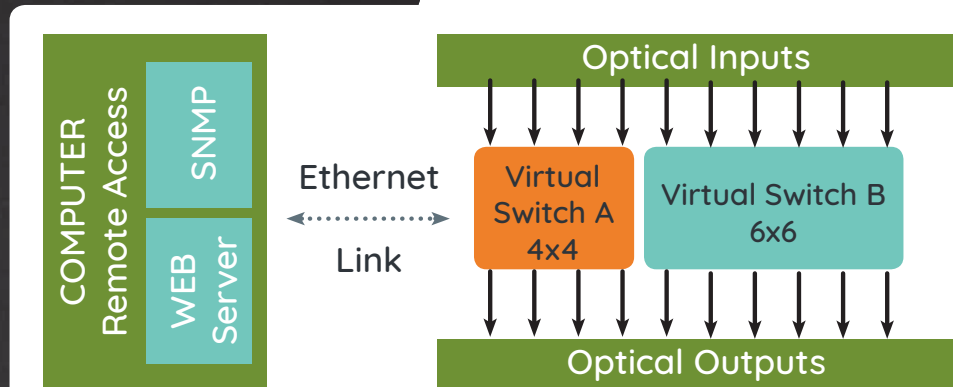


- 3 channels converters
- ARINC 818 / DVI

SWITCHES



- 10 inputs / 10 outputs
- Up to 4.25 Gbps
- WEB/SNMP for CMD/CTRL
- Double rate virtual configuration



- 4 inputs / outputs
- Up to 4.25 Gbps
- Only one rate



TUNER

ANALYZER

- In-depth analysis of ARINC 818 protocol
- Implement any ICD quickly for ARINC 818 research
- Robustness testing

XF TUNER



- In-depth analysis of ARINC 818 protocol up to 8.5 Gbps
- Analysis of link timing

Development, Simulation, Test, Laboratory, Engineering

ARINC 818 SOLUTIONS

Rugged and flyable solutions for Avionics

- Compressed or uncompressed recording
 - ARINC 818 playback
 - Up to 8 hours of recording
 - IRIG or GPS datation

RECORDERS



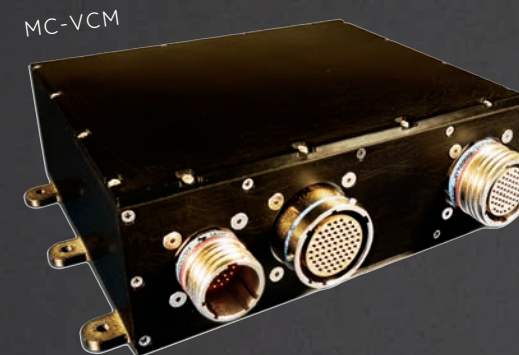
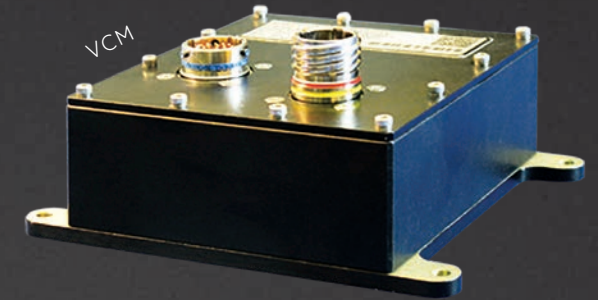
- Rugged compact systems
- 1 to 2 channels
- Development, robustness testing & flying test

- Recording and debrief station
- 5 to 16 channels
- Multi-ICD
- Customizable



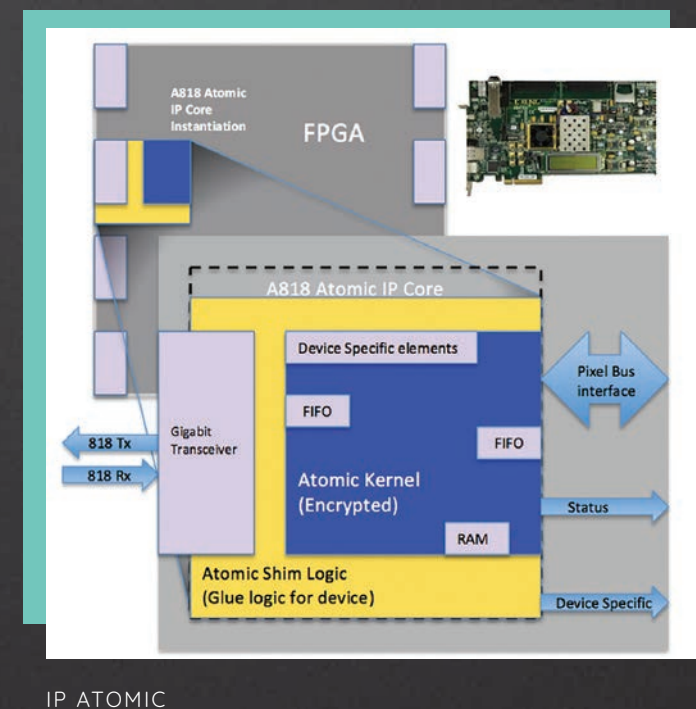
FLYABLE

- Rugged flyable converter
- ARINC 818 / DVI / VGA / Analog
- DO-160 & DO-254



- Multi-channel flyable converter
- ARINC 818 / Multiples protocols
- DO-254

- DO-254 IP Core
- Reception ARINC 818 IP
- Transmission ARINC 818 IP
- Complete package: development tool and support



INTEGRATION KNOW-HOW

COTS product customization on specification

RECORDING SOLUTIONS

Fitting with your needs:

- Channels' number
- Storage capabilities
- Compressed / Uncompressed
- Dating: NTP, IRIG, GPS
- Replay/playback station
- All form factors: 1U to 4U or transportable station
- Use: development, mission feedback
- All protocols



ARINC 818

10GbETH

sFPDP

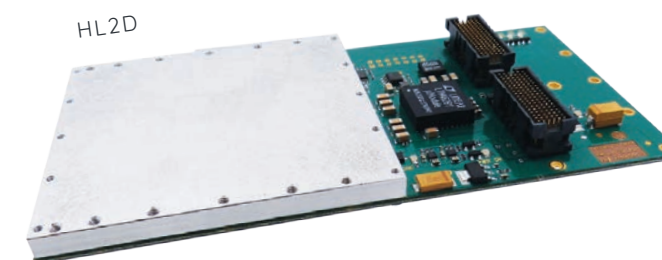
GigE VISION

CAMERA LINK

COAXPRESS

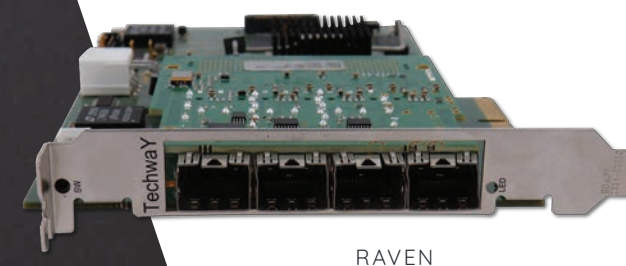
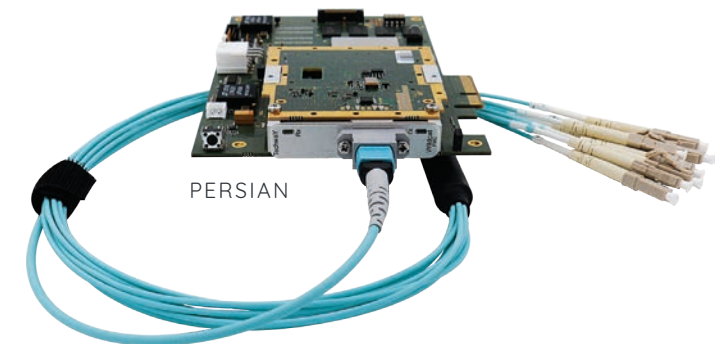
PROJECT INTEGRATION

- Multi-channel LVDS acquisition
- 48 channels
- Open FPGA for user
- 10G pre-programmed IP



- 4 HOTLink II Data channels
- PCIe x4 Gen2
- Rugged optical connectors
- Gigabit Ethernet I/O interfaces

- Optical development platform
- PCIe x4 Gen2
- For development or qualification
- Up to 4 full duplex links @ 10 Gbps
- All protocols
- Stand-alone or PC mode



- 4 sFPDP channels
- PCIe x4 Gen2
- VITA 17.3 compliant
- Open FPGA architecture
- Windows and Linux drivers
- Serial FPDP example design

Development, Simulation, Test, Laboratory, Engineering

TECHWAY

SIGNAL VISION SYSTEM



AVIONICS



DEFENCE



INDUSTRY



NUCLEAR



✉ info@techway.fr

☎ +33 (0)1 64 53 37 90

19 Avenue de Norvège
91140 Villebon sur Yvette
FRANCE



www.techway.fr