PolarFire® SoC FPGAs for Smart Embedded Vision

A Leading Provider of Smart, Connected and Secure Embedded Control Solutions

Presented by
Johnny Kim, Senior Field Applications Engineer

July 24, 2025

SMART | CONNECTED | SECURE

FPGA Vision and Differentiation

To enable innovation by offering the
most power-efficient programmable solutions

Most Power-Efficient FPGAs

Two Times More Performance Per Watt

Exceptional Reliability

Zero Configuration Upsets

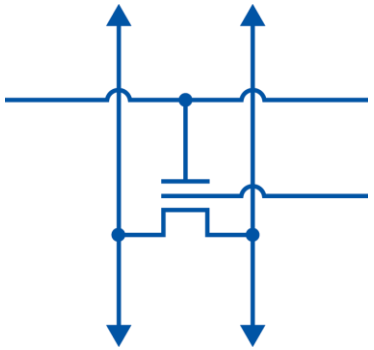
Military-Grade Security

Best Cyber and Anti-Tamper Security

Significantly Lower Power Consumption

By Technology and By Design

Non-Volatile Cell



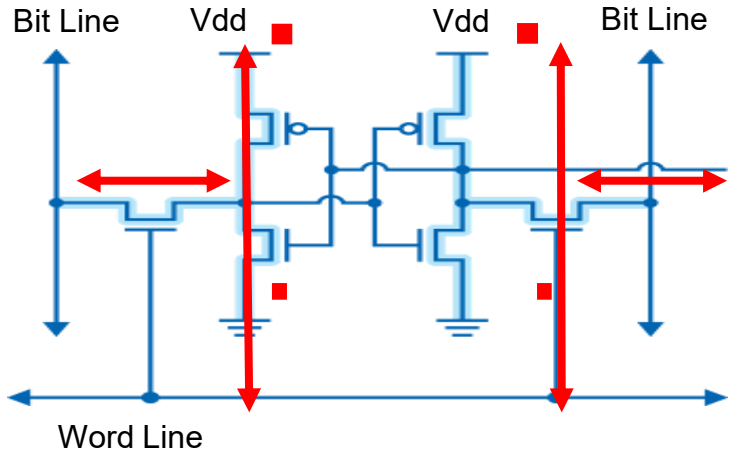
Non-Volatile memory:

retains its state, 1000x lower leakage per cell

Features: designed for LOW POWER

(Transceivers, Microprocessors, etc.)

SRAM Cell



SRAM: must continually re-charge

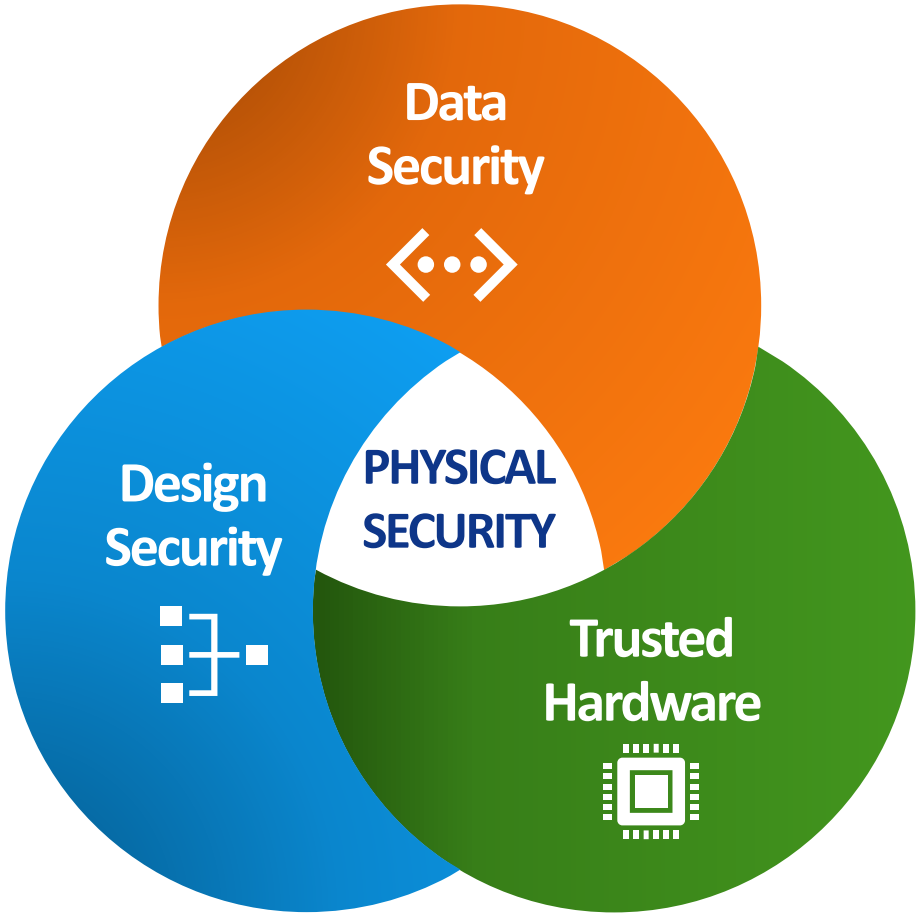
substantial leakage per cell

Features: designed for HIGH-END market

(and re-used for mid-range families)

Total Power Savings of 30-50% vs SRAM FPGAs

Physical Security is Central to Cybersecurity



Information Assurance

- Built-in User Crypto Accelerators
- Built-in Random Number Generator
- PUF Protected Key Storage

Anti-Tamper

- 32 built-in Anti-Tamper Flags
- Bitstream Security
- 14 Device Locks
- Secure Non-Volatile Memory

Trust

- Cryptographically Controlled Supply Chain
- NIST Certified Crypto Accelerators
- PUF and Hardware Root of Trust
- Patent Protected DPA Countermeasures

Dependable Longevity of Supply

MICROCHIP

January 1, 2024

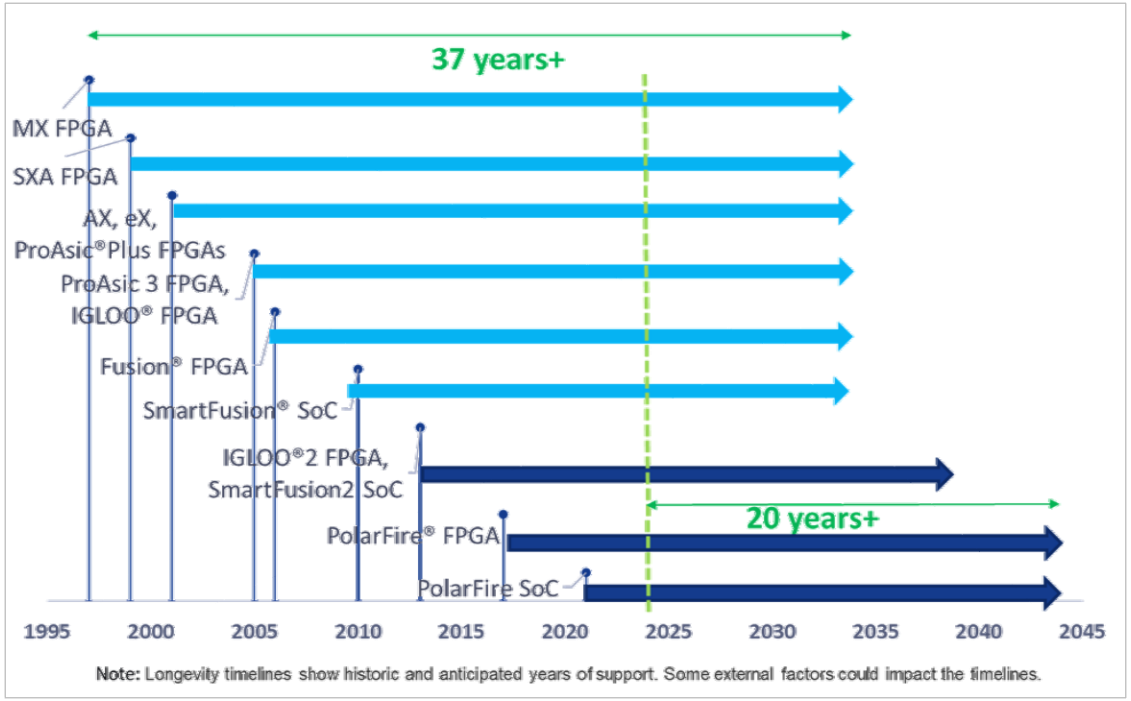
Dear Valued Customer,

Thank you for your continued interest in Microchip products. The purpose of this letter is to address Microchip FPGA product longevity. Below you will find a matrix of device families with data on when parts first shipped and an approximate timeframe that we expect to have wafer availability; please note that this is not a guarantee of availability.

Device Family Name	Microchip Part Number Starts With…	Year First Shipped	Expected Availability from 2024
MX	A40MX, A42MX	1997	10 years
SX	A54SX	1999	5 years
SXA	A54SX_A	1999	10 years
AX	AX	2001	10 years
eX	eX	2001	10 years
ProAsic Plus	APA	2001	10 years
ProAsic 3	A3P, A3PN, A3PL	2005	10 years
Igloo	AGL, AGLN	2005	10 years
Igloo Plus	AGLP	2005	10 years
Fusion	AFS	2006	10 years
SmartFusion	A2F	2010	10 years
SmartFusion 2	M2S	2013	15 years
Igloo 2	M2GL	2013	15 years
PolarFire	MPF	2017	20 years
PolarFire Soc	MPFS	2021	20 years
RTSX-SU	RTSXxxSU	2004	10 years
RTAX-S/SL	RTAXxxxS, RTAXxxxSL	2004	15 years
RTAX-DSP	RTAXxxxD, RTAXxxxDL	2011	15 years
RT ProASIC3	RT3P	2010	15years
RTG4	RT4G150	2015	15 years
RT PolarFire	RTPF	2022	20 years

Note: The expected supply continuity does not apply to EOL'ed products.

Microchip Technology Incorporated 2355 West Chandler Blvd. Chandler, AZ 85224-6199 Main Office 480-792-7200 Fax 480-899-9210



MICROCHIP

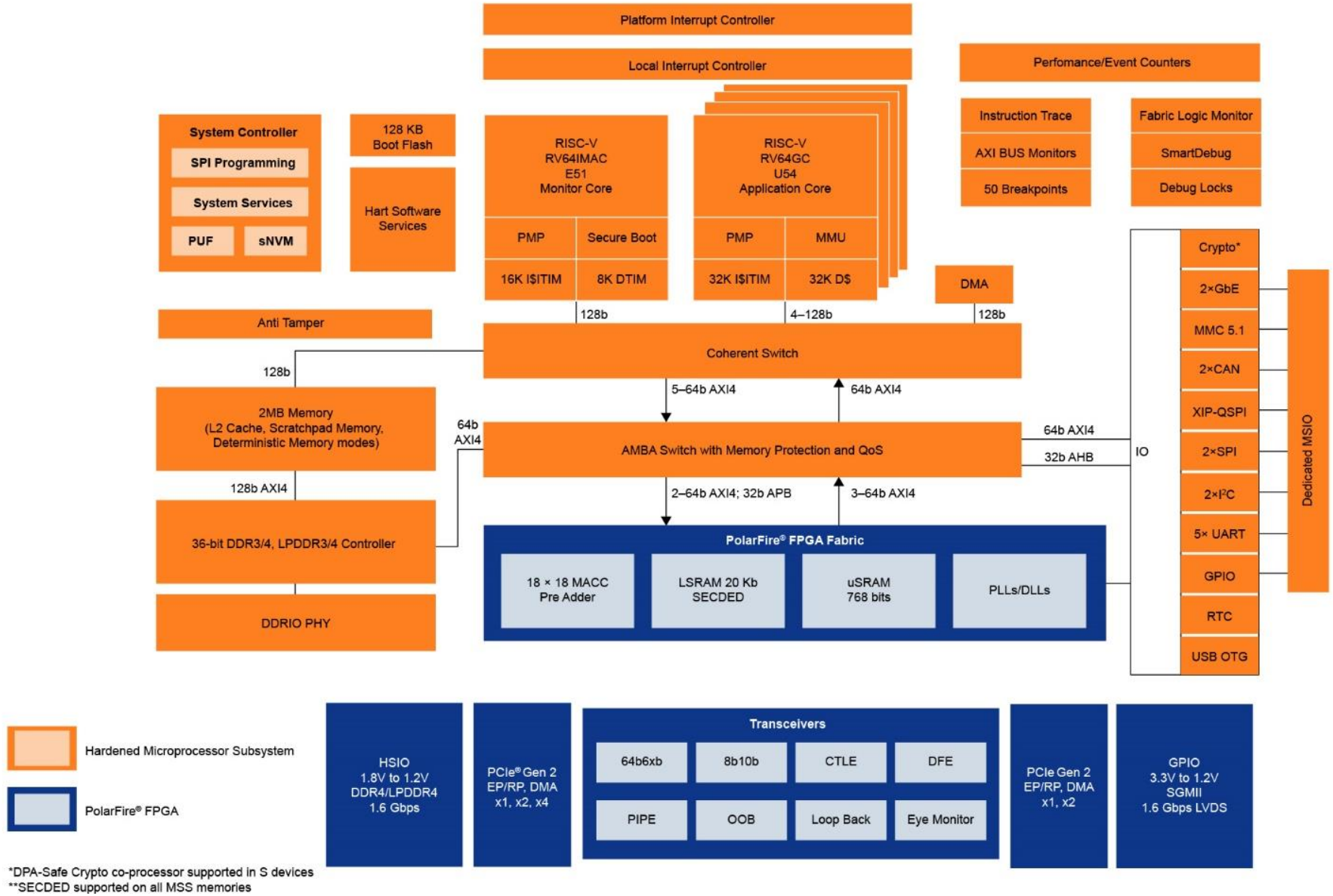
Product Technology Roadmaps

Generation	G3	G4	G5	G6
Products	IGLOO® FPGAs /PROASIC3® FPGAs, others	M2GL, M2S (2013) RTG4 (2015)	PolarFire® (2017) PolarFire SoC (2020) RT PolarFire (2021) RT PolarFire SoC (2024)	PolarFire 2 FPGA (TO CQ1-24) PolarFire 2 SoC RT PolarFire 2 FPGA RT PolarFire 2 SoC
Node	130 nm	65 nm	28 nm	
Non-Volatile	Non-Volatile	Non-Volatile	Non-Volatile	
NV Characteristics	SEU immune, instant on	SEU immune, instant on	SEU immune, instant on	
Low Power	30% less	30-50% less 5G Xcvr: 65 mW	30-50% less total power 12.7G Xcvr: 100 mW	
Partial Configuration	No	No	No	
Security	AES bitstream encryption	PUF, SHA, ECC, DPA, HSM/SPPS	TeraFire F5200B, Dual PUFs, RNG	
Max LE's 4-Input	30K	150K	500K	
DSP/ML	--	240 18x18s	1480 18x18s w/ pre-add	
Data Bandwidth	2.5G	10G	40G	
Processor(s)	Cortex®-M3 100 MHz	Cortex-M3 166 MHz	5 RISC-V Cores 667 MHz	

Shared under NDA

MICROCHIP

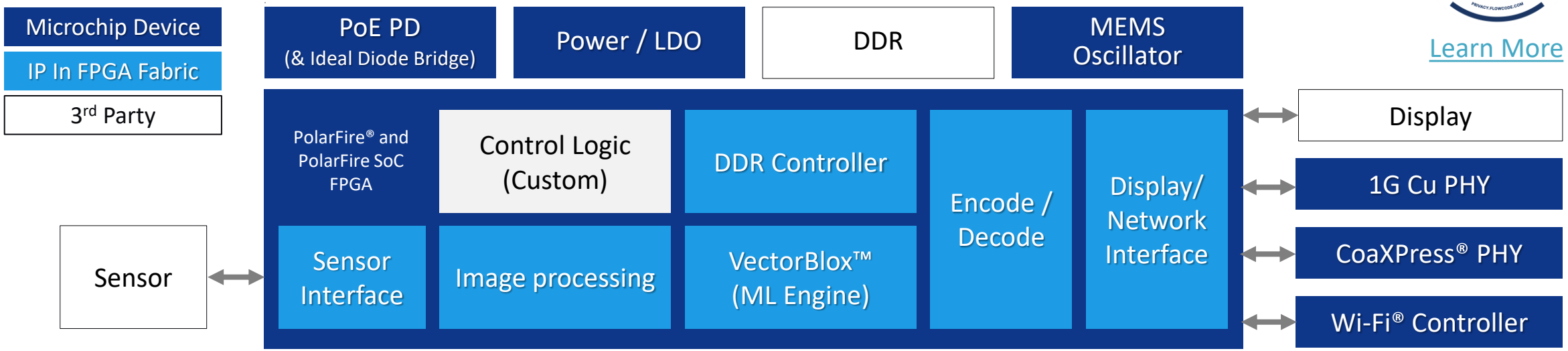
PolarFire® SoC FPGA Architecture



Industrial Machine Vision Solutions

Smart Embedded Vision (SEV)

Learn More



Sensor Interfaces (Rx)
- MIPI CSI-2 Rx (1.5G/ lane)
- SLVS-EC (4.7G/ lane)
- SLVS-EC (10G/ lane)

Display Interfaces
- MIPI DSI GPIO (1080p60)

Security
- HDCP

Image Processing
- Alpha Blending
- Bayer Interpolation
- Sobel
- Display Controller
- Image Edge Detection
- Image Enhancement
- Image Sharpen
- Defect Pixel Detect
- RGB to YCbCr
- YCbCr to RGB
- Test Pattern Gen
- Gamma Correction
- Histogram
- White Balance
- Uncanny Edge Detector

DDR Controllers
- DDR4/ DDR3/ LPDDR3/ LPDDR4

AI/ ML
- VectorBlox™ 2.0 (PolarFire SoC)
- VectorBlox 3.0 (Neuronix Sparsity Removal)

Encode (Decode)
- H.264 (4K60), H.264 (4K60)
- mJPEG (1080p60 demo)

Transport Interfaces
- CoaXPress 6.25 / 12.5G (4 channel)
- 10G MAC / 10G Base K-KR PHY
- 1G MAC / 2.5G MAC
- USXGMII (1/2.5/5/10G)
- HDMI 2.0 Rx (4k30)/ Tx (4K60), HDMI 2.1 Rx/Tx
- MIPI Tx on GPIO (1 Gbps/ lane)
- DisplayPort 1.4 Rx / Tx
- MIPI Tx on SERDES (2.5 Gbps/ lane)
- SDI (270M/ HD / 3G / 6G/ 12G)
- RoCE v2
- Aurora 8B/10B, 64B/66B (Partner + Inhouse)
- USB 2.0, USB3.1 Gen1 & Gen2

Microchip IP | New | In Development | Partner IP

Success Stories in 4K60 Embedded Vision

Virtual Reality

Drive Assist Systems

Drone Vision

Augmented Reality

Medical Vision

Machine Vision

Satellite Vision

Broadcast

Physical Security

Thermal Vision

MICROCHIP

SEV Hardware

PolarFire® Video Kit

MPF300-VIDEO-KIT-NS

PolarFire® SoC Video Kit

MPF250-VIDEO-KIT

+ Linux®
2x 1G Ethernet
MIPI Tx

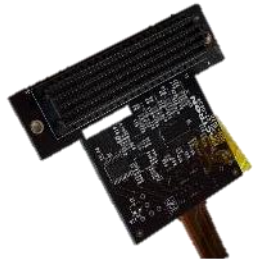
FMC

1G to 10G Ethernet
USXGMII
VIDEO-DC-USXGMII

12.5G
CoaXPress®
VIDEO-DC-CXP

3G, 6G, 12G
Serial Digital Interface
VIDEO-DC-SDI

4.7x 8 Gbps
SLVS-EC FMC
VIDEO-DC-SLVS



2.5x 4 Gbps
MIPI Transmit FMC
VIDEO-DC-MIPITX

8.1 Gbps
DisplayPort FMC
VIDEO-DC-DP

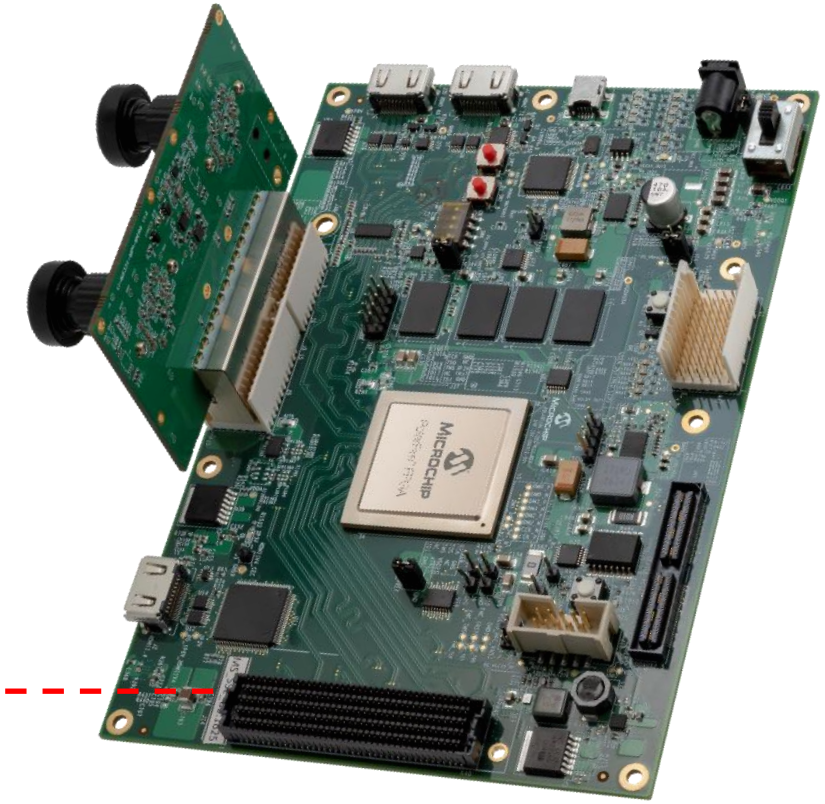
PolarFire® Video Kit

MPF300-VIDEO-KIT-NS

SDI
VIDEO-DC-SDI

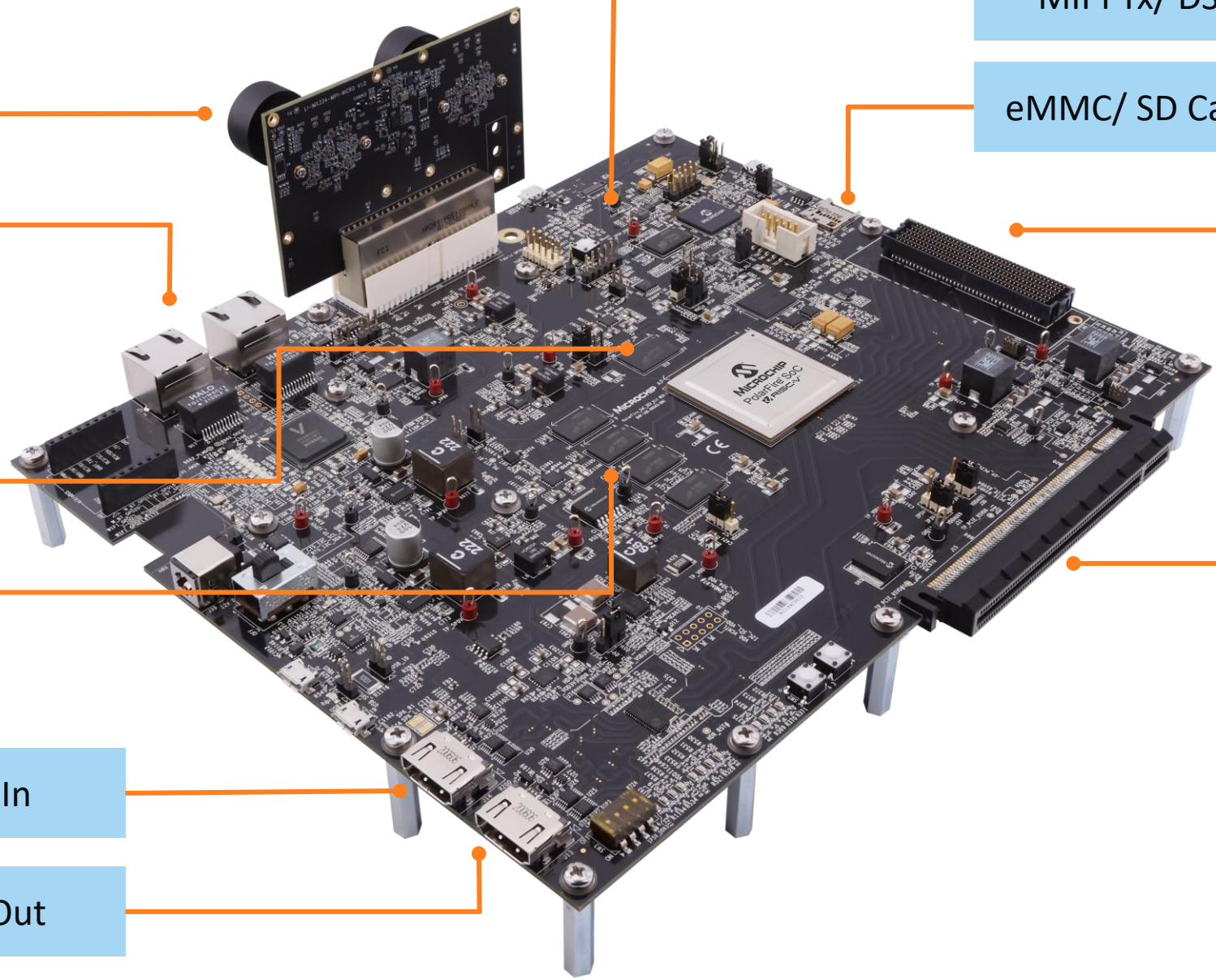
USXGMII
VIDEO-DC-USXGMII

CoaXPress®
VIDEO-DC-CXP



Extend Key Protocols via Hardware Reference Designs

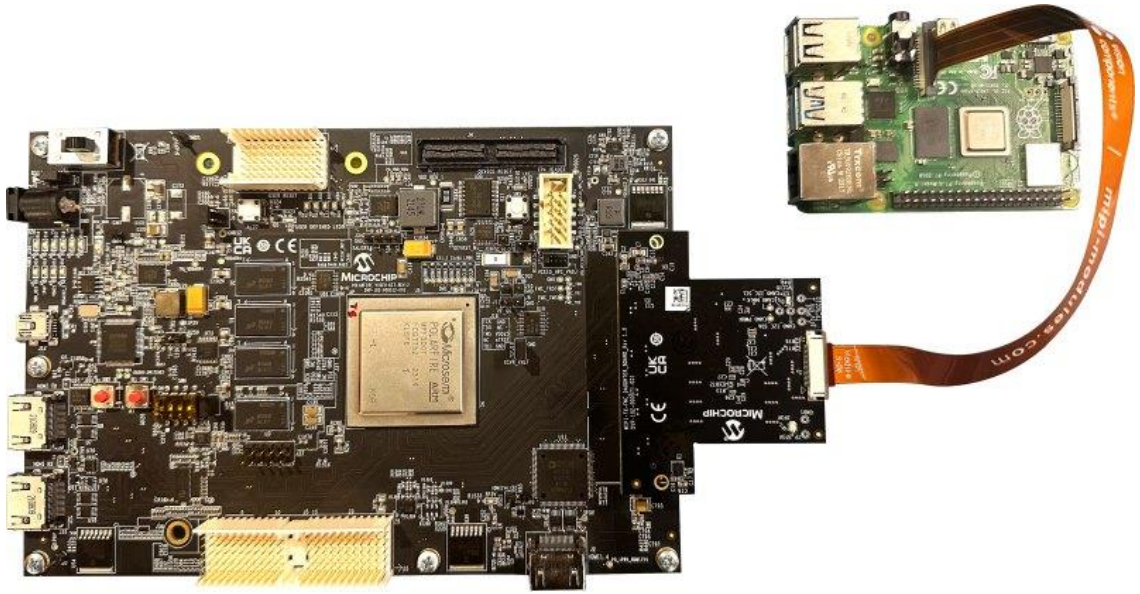
PolarFire® SoC Video Kit

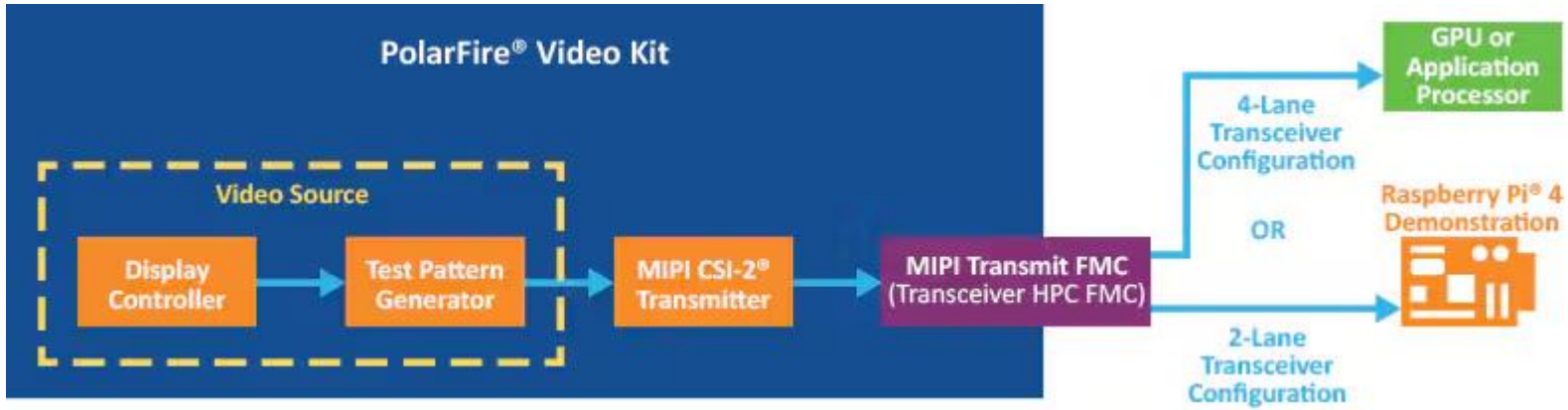


- 2x 4K60 Sensors
- 2x 1G PHY
- MSS LDDR4
- Fabric DDR4
- HDMI In
- HDMI Out
- MIPI Tx/ DSI
- eMMC/ SD Card
- FMC
- PCIe®

VIDEO-DC-MIPITX

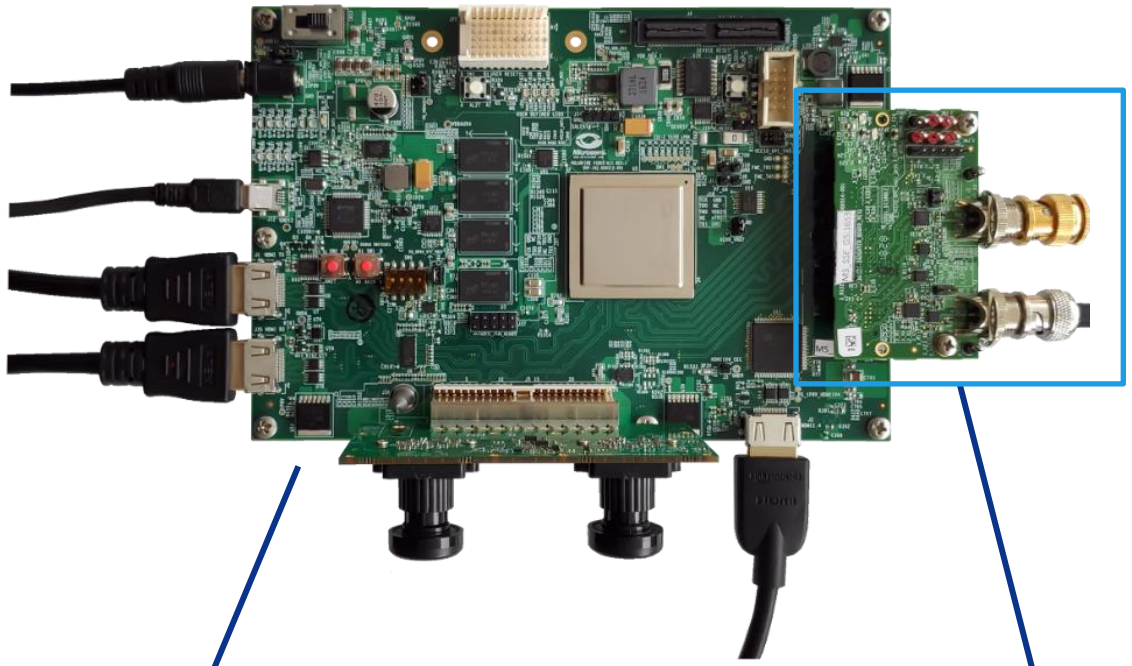
Available Now





AN available

Serial Digital Interface – FMC



MPF300-VIDEO-KIT-NS

SDI FMC*

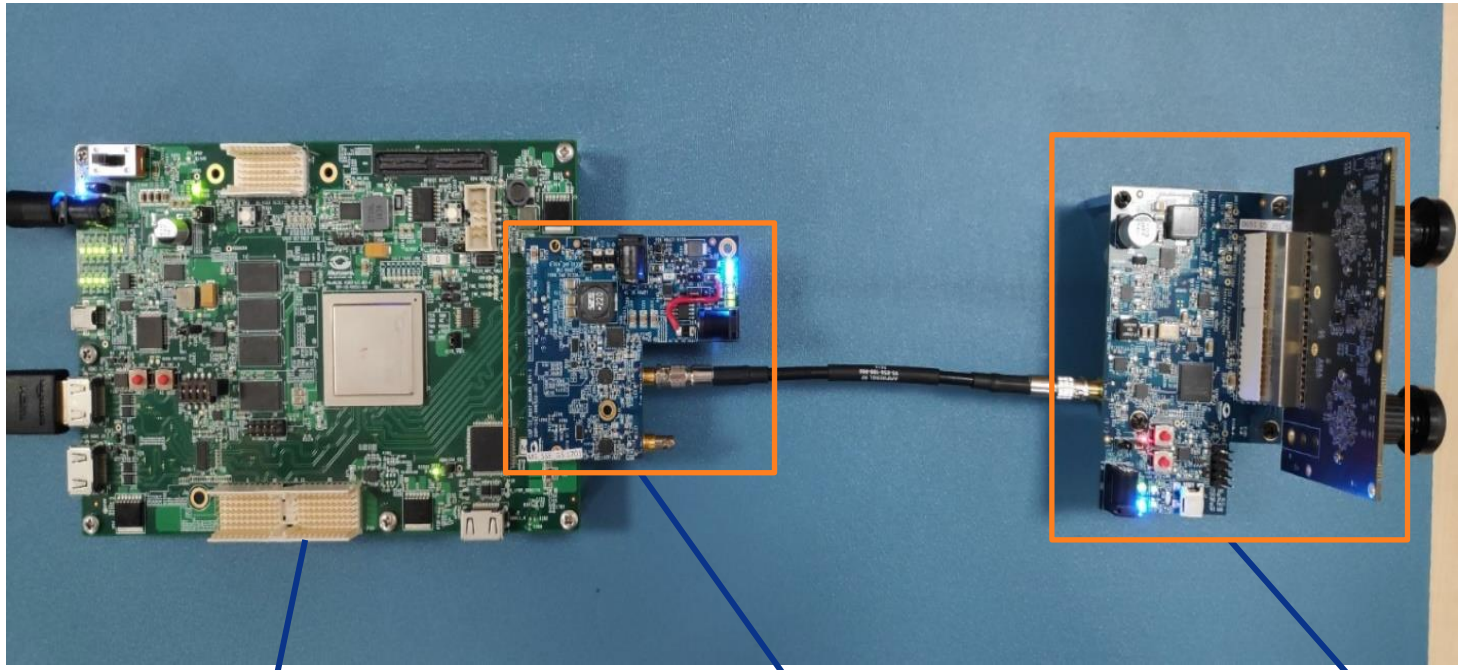
Part Number
VIDEO-DC-SDI

- **SDI Rx and Tx features**
  - 1/3/6/12G Support compliant with SMPTE
  - NRZI decoding and descrambling
  - Word alignment on SDI data stream
  - CRC check on SDI data stream
  - Sync-bit removal from timing reference
  - Payload Identification (VPID)
  - Extracts Timing Reference Signals (TRS)
  - Extracts Line Number (LN) Data

*FMC - FPGA Mezzanine Card or Daughter Card
Connects to a High-pin-count FMC adapter on FPGA eval boards

CoaXPress® 6.25 and 12.5 Gbps

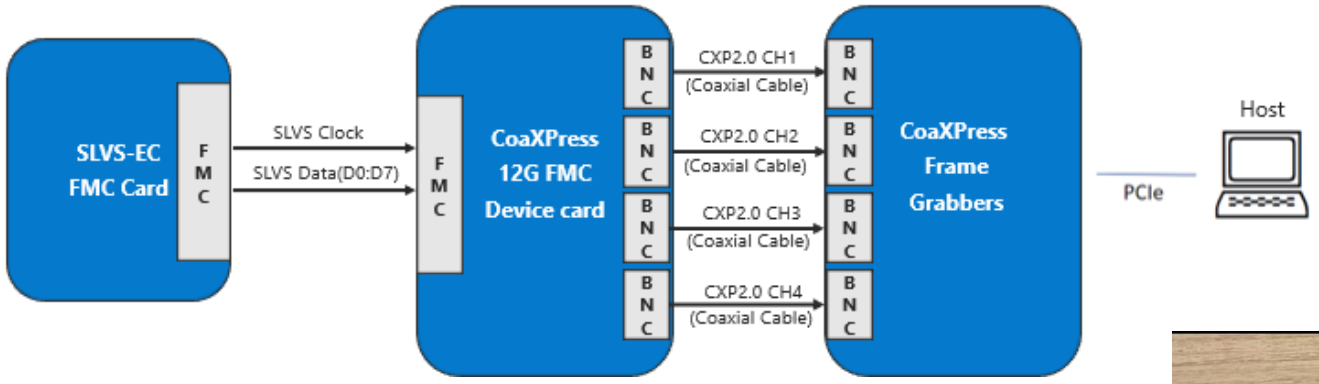
- **Supports 6.25/12.5 Gbps Rx/ Tx**
- **Uses Microchip EqcoLogic 12.5 Gbps CoaXPress PHYs**



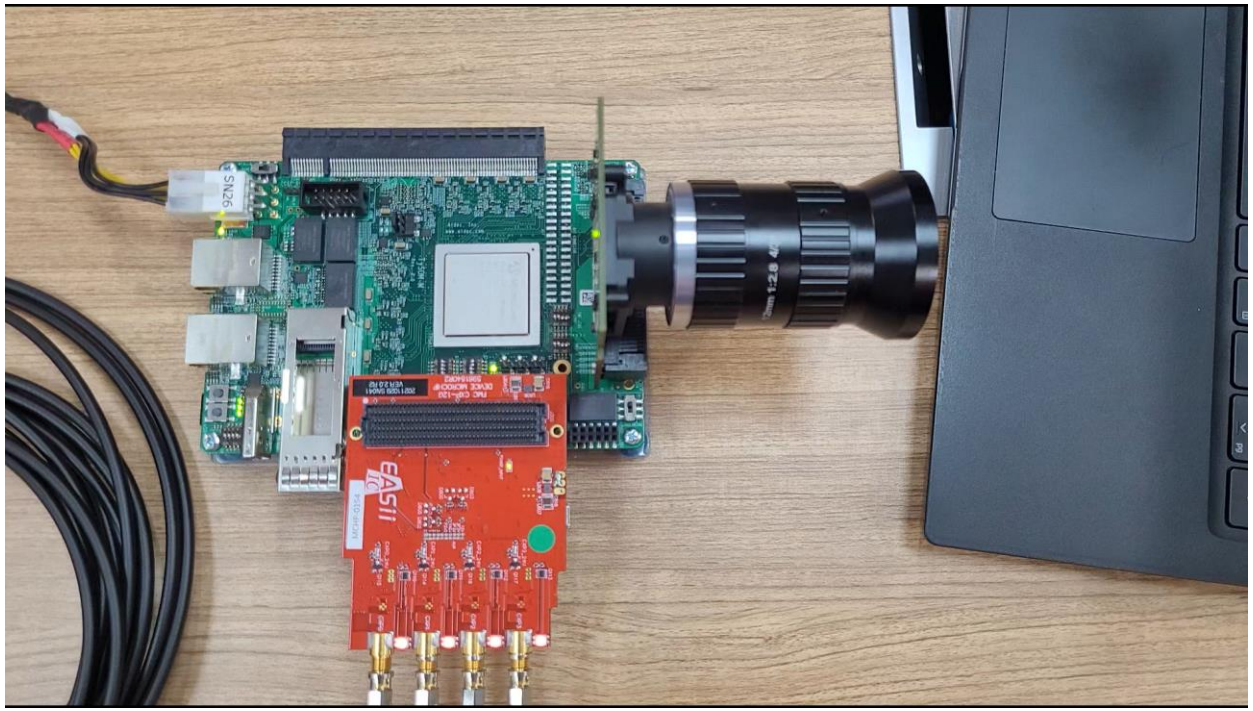
Part Number
VIDEO-DC-CXP

MPF300-VIDEO-KIT-NS	CoaXPress® FMC	CoaXPress DEVICE
MPF300T	EQCO125Rx EQCO125Tx	MPF100T EQCO125Tx

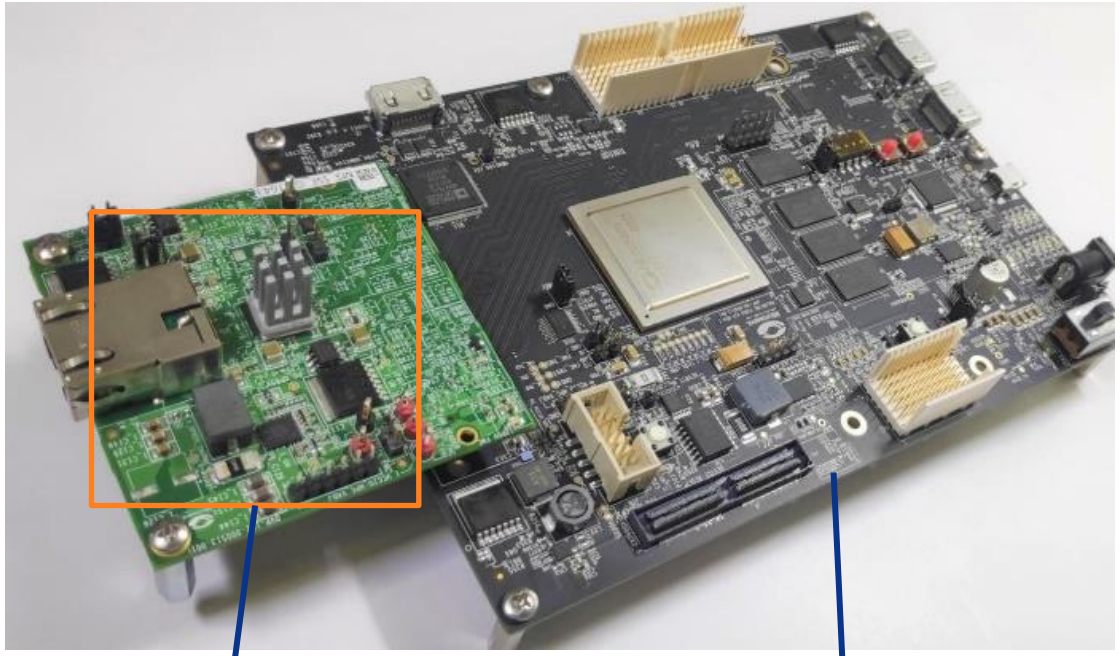
VIDEO-DC-QCXP



- SLVS-EC 2.0 IP available today
- Quad Channel CXP 2.0 available today
- Demo video is available now for customers



USXGMII – FMC Card



USXGMII FMC

MPF300-VIDEO-KIT-NS

Part Number
VIDEO-DC-USXGMII

USXGMII FMC

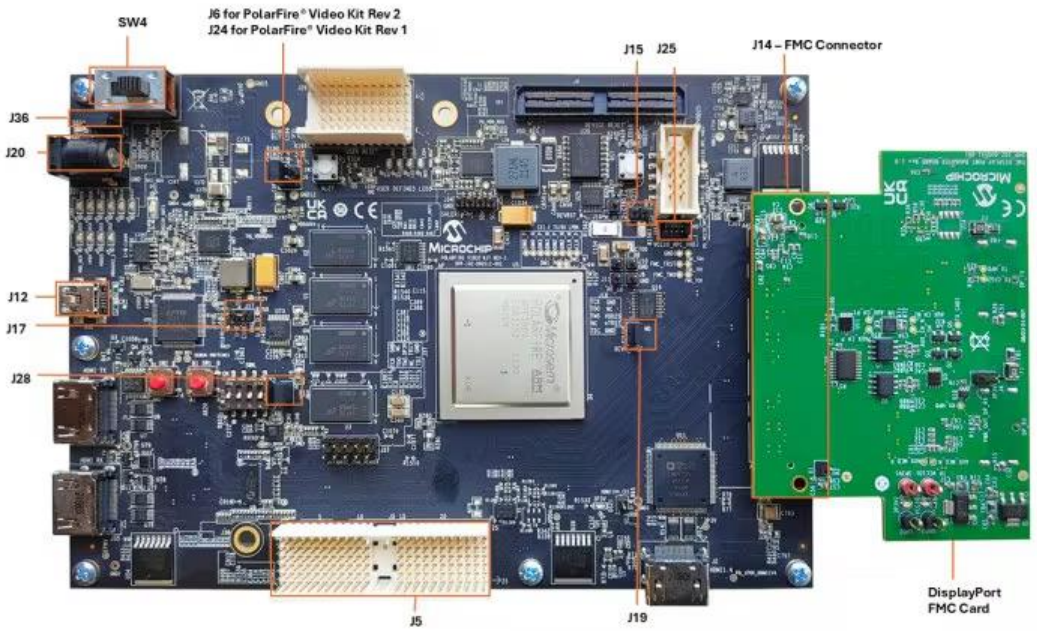
- Works with MPF300-EVAL-KIT
- Supports 1 / 2.5 / 5 / 10G rates
- Supports speed auto-negotiation based on network

GigE Vision

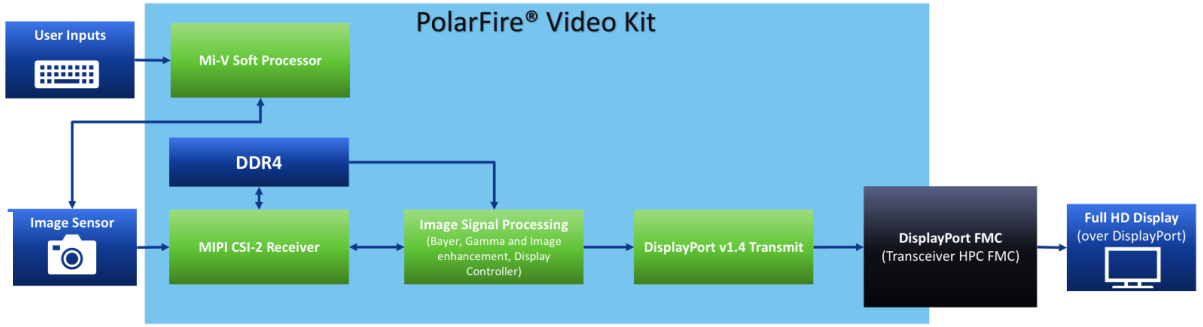
- Adds protocols specific for video
- USXGMII is a building block for GigE Vision
- NRE driven

VIDEO-DC-DP

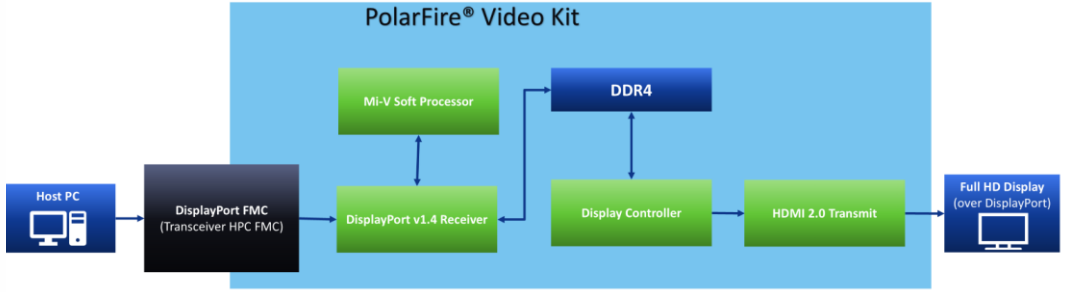
- **Available today**
  - AN4684 (Rx), AN4576 (Tx)



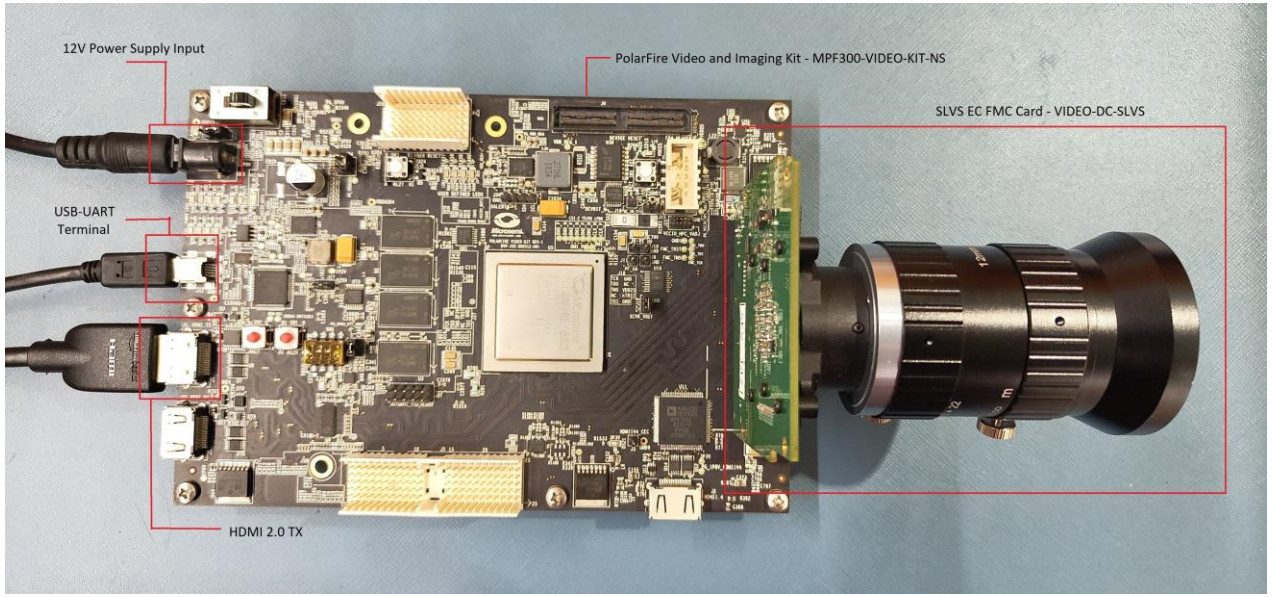
PolarFire® DisplayPort Transmit Design



PolarFire DisplayPort Receive Design



Hardware: SLVS-EC FMC

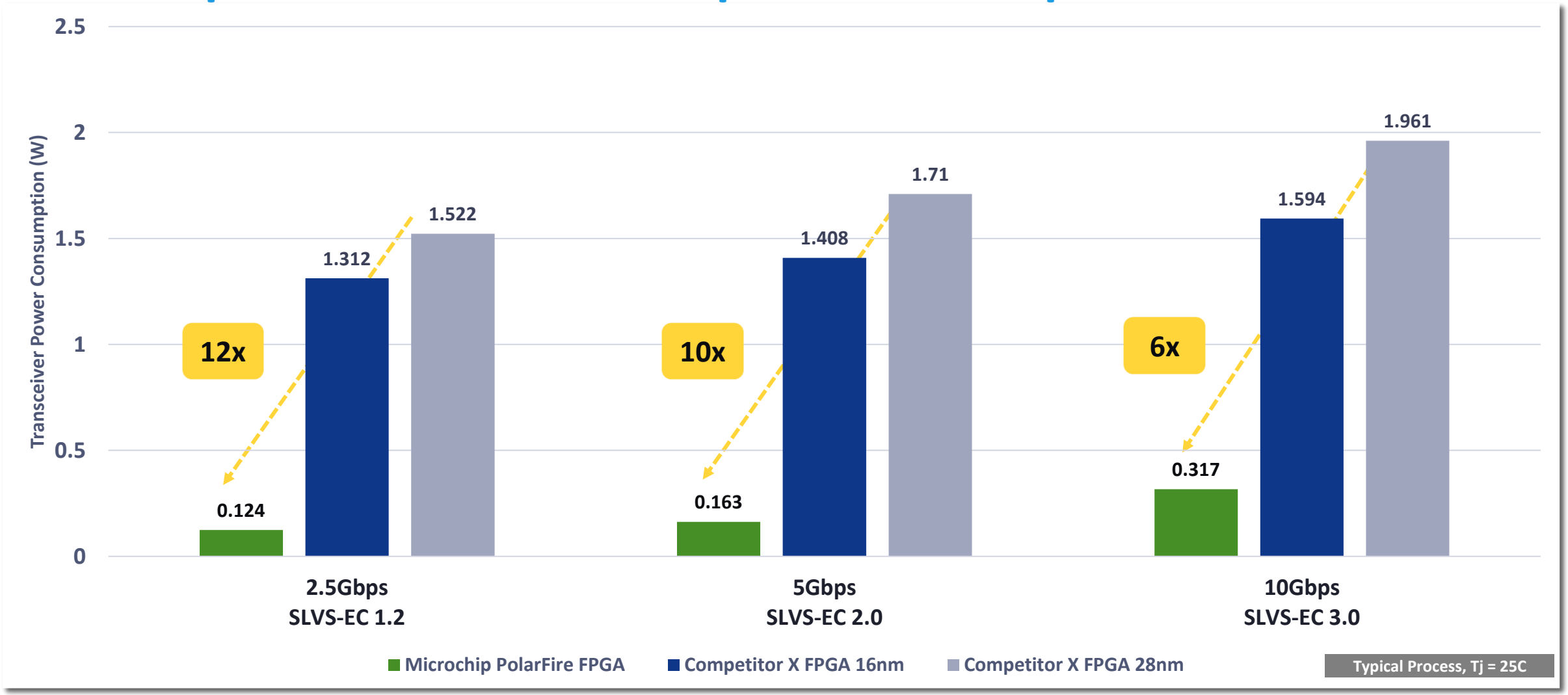


VIDEO-DC-SLVS

Hardware	SLVS-EC FMC Card with PolarFire® Video Kit
Sensor	Sony IMX530
Pixel and Frame Rate	5320 x 4600 24.47 M pixel, Max frame rate of 106 fps
Interface Connector	FMC HPC
Lens Type	4/3” MP C-Mount Fixed Focal Length

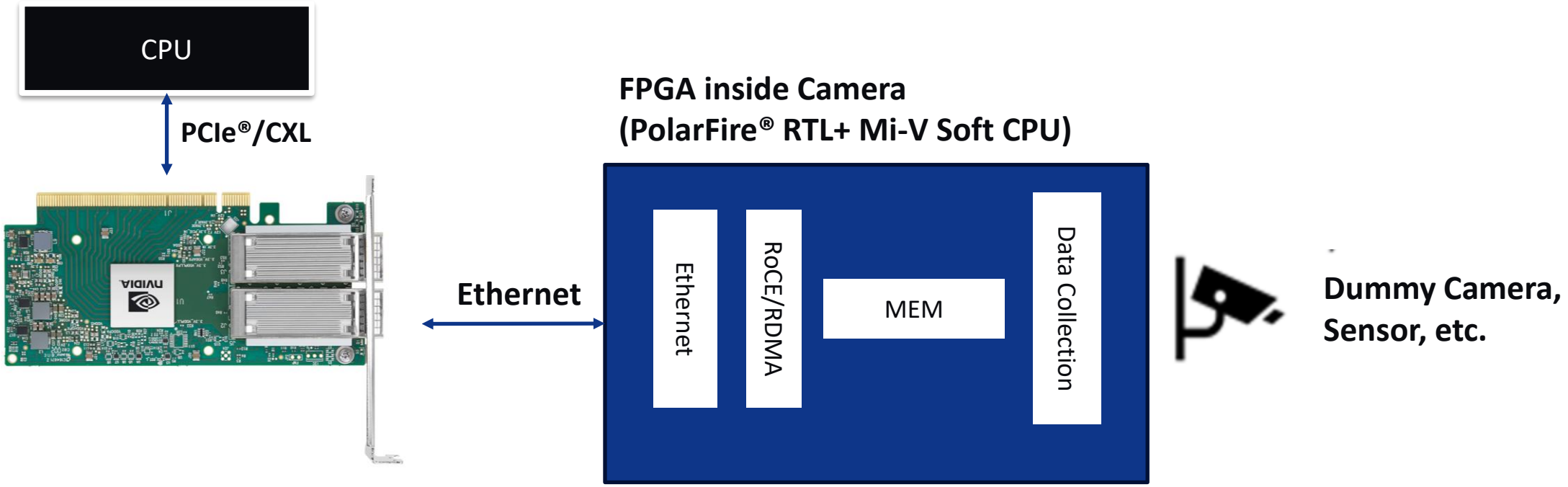
Transceiver Power Consumption (8 Rx Lanes)

Microchip PolarFire® FPGA Outperforms Competitors



RoCE v2

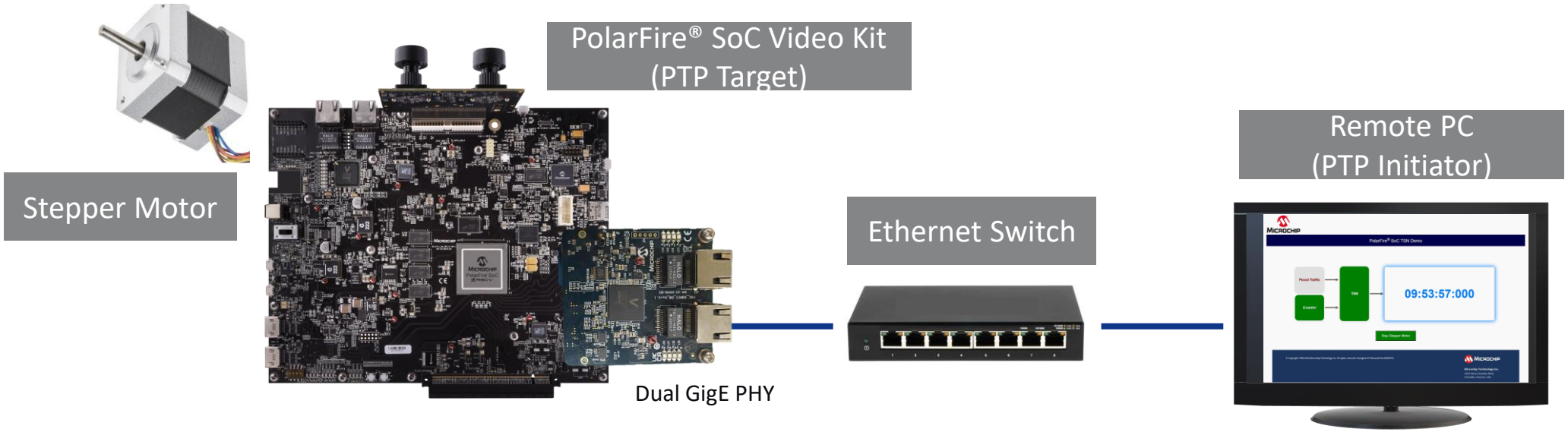
RDMA over Converged Ethernet



Why RoCE v2

- **Remote DMA from Camera into NV Storage**
- **Reduced CPU utilization at host**

PolarFire® SoC TSN (Phase 1)

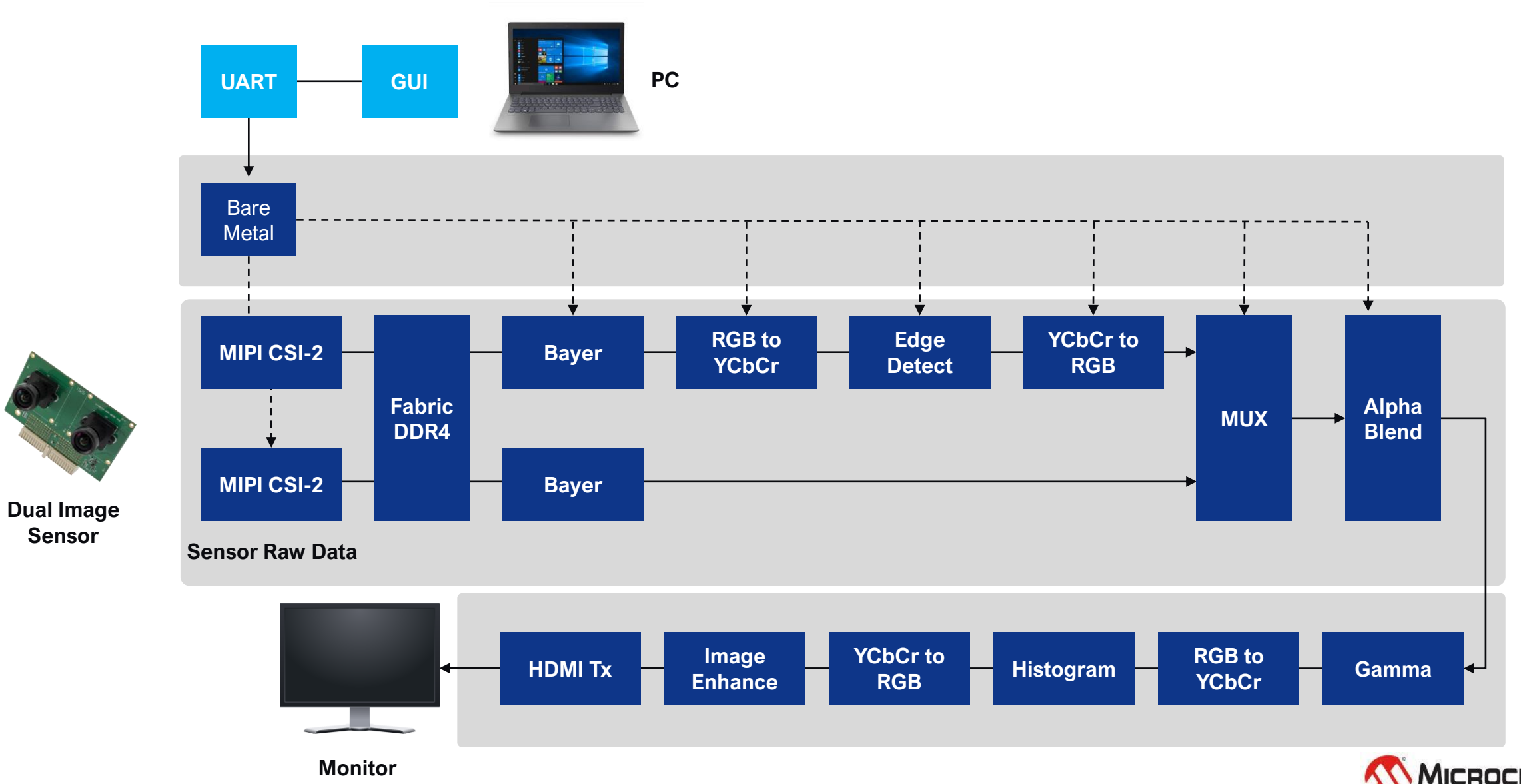


1. **Basic Functionality**: Access the demo webpage, control a counter (start/stop) and a stepper motor (start/stop) independently.

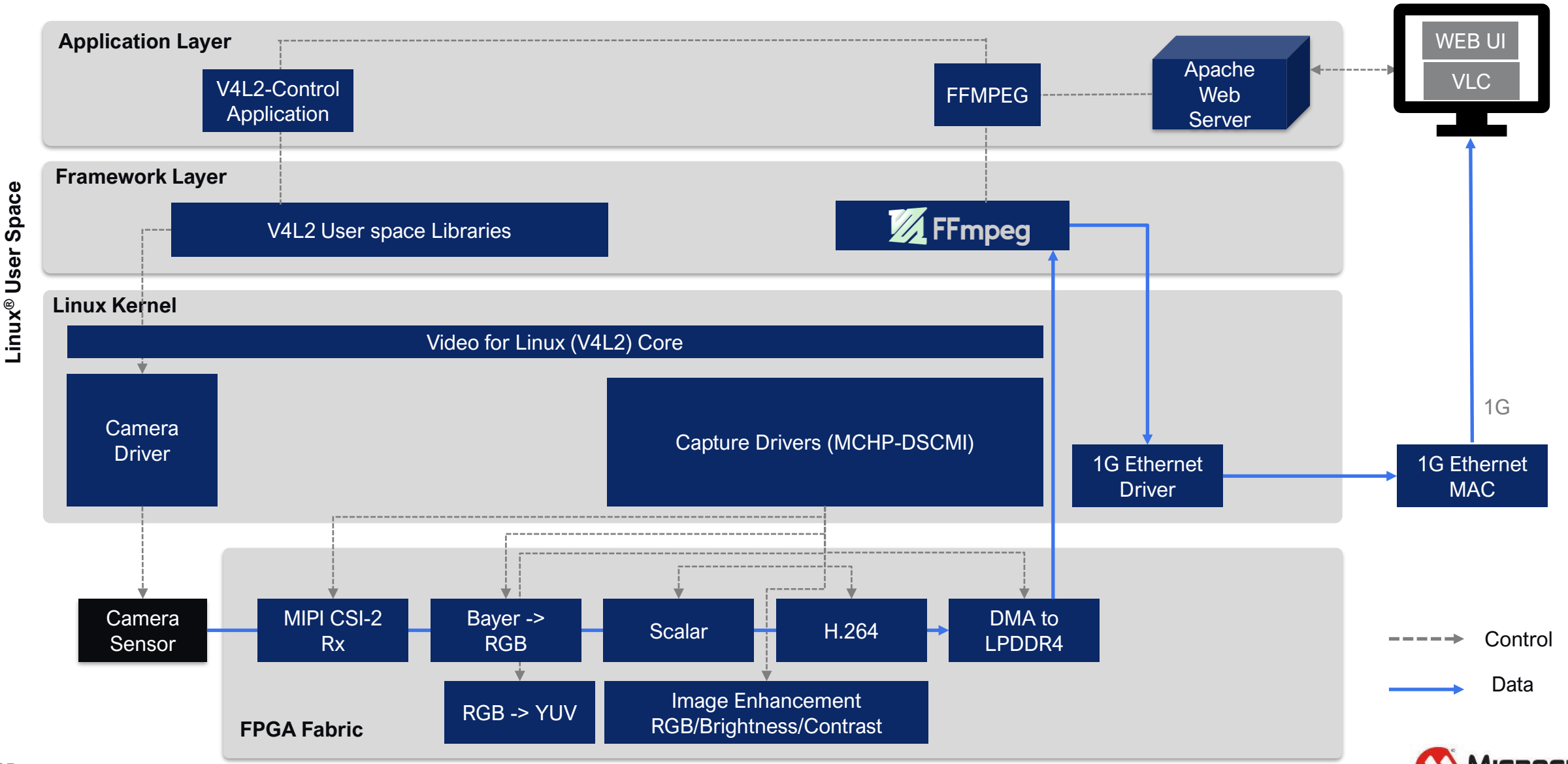
2. **Flood Traffic Impact**: Simulates network congestion. Observe the counter and motor affected (pausing/intermittent operation) during the flood. See how they return to normal after the flood.

3. **TSN Demonstration**: Enable Time-Sensitive Networking (TSN). Verify that the counter and motor operate uninterrupted even during flood traffic, showcasing TSN's prioritization capabilities.

Picture-in-Picture Bare Metal (AN4723)



H.264 Video Streaming over Ethernet (AN4529)



SEV Success Stories

SEV Success Stories

Portable Ultrasound

Telescopic Cameras

Endoscope Camera

MRI Machine

SDI Camera

Robotic Stereo Camera

10G Ethernet Cam

CoaXPress® Camera

Microscope Cameras

SDI Conversion

Night Vision Goggles
Smart Glasses

Thermal Cameras

Design Wins

Wide Array of Medical Applications

In the Hospital

MRI & CT Scan

- Advanced compute

Ultrasound

- Real-time processing

Radiation Therapy

- Zero failures for optimal care & cost control

In the Field

Infusion Pump

- Tamper-and-theft-resistant

Portable Ultrasound

- Cool to skin touch
- Long battery life

In the Doctor's Office

Vet / Animal Care

- Small device size
- Specialized imagery

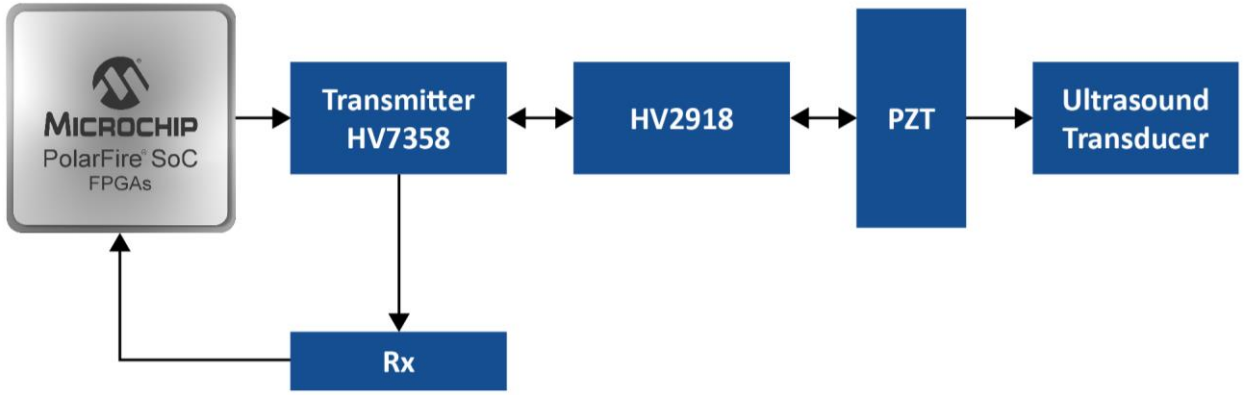
Endoscopy

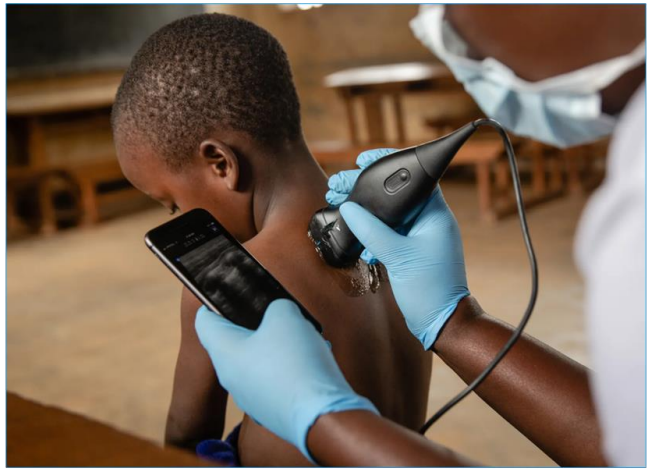
- Power efficiency
- Long-range image processing with CoaXPress®

Success: Portable Ultrasound

Battery Powered Hand-Held Unit

- Lowest power FPGA by client benchmarks
- Enabled larger feature set extensible compute
- Provided thermal safety and better imaging results





"This product would not have been possible without PolarFire."

– Portable Ultrasound Developer

FPGA Functions

- Parallel Processing
- Beam-Form and control
- FIR Filter
- Envelope Detection
- Log Compression
- Brightness
- Histogram EQ
- Noise Filter
- Dynamic Range Control

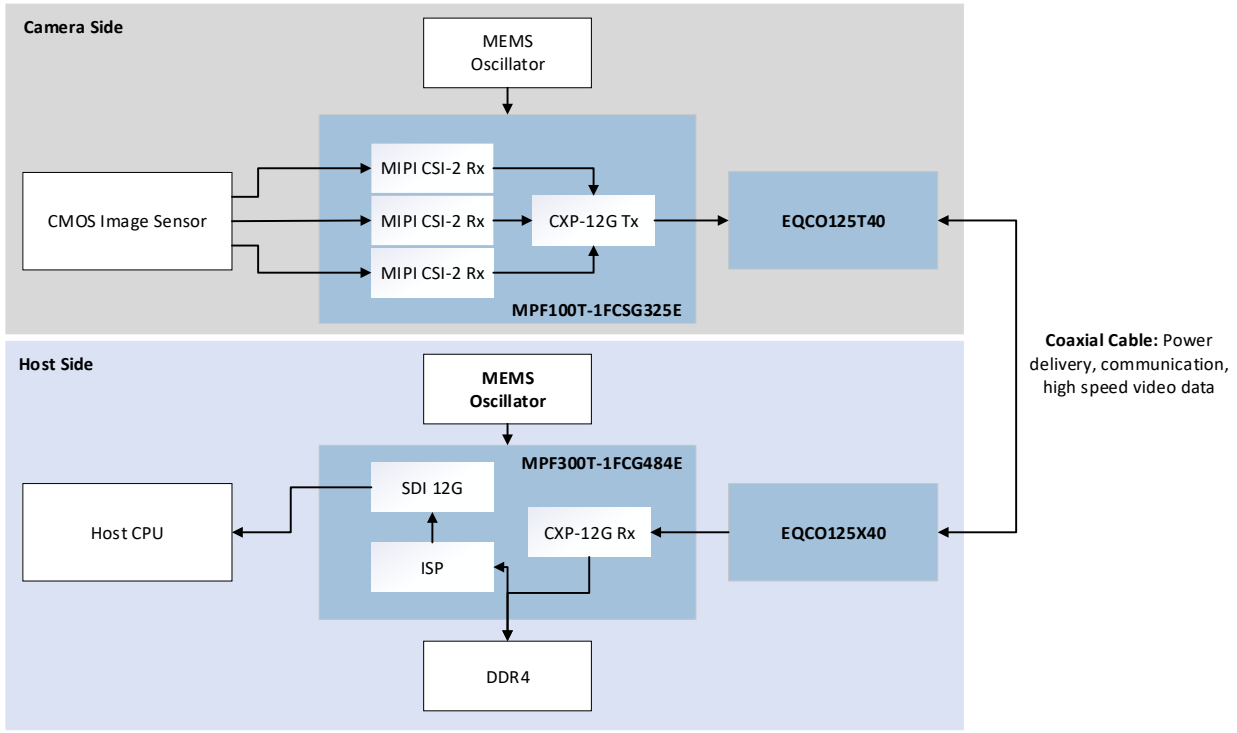
Success: Endoscope Camera – CoaXPress® 12G

Designed for **compact installations**

- PolarFire® FPGA advantage: **Form factors as small as 11x11 with MPF100**

Enable **9 Gbps delivery using a single cable**

- PolarFire FPGA advantage: **CoaXPress2.0 PolarFire Solution supports up to 12.5 Gbps**



NEW PolarFire® FPGA SLVS-EC Solution Overview

Success: Portable ECG Monitor

Battery-powered – 2.5 hours of continuous operation

- PolarFire® FPGA advantage: **lowest power consumption mid-range FPGA**

Can be placed in MRI Machines

- PolarFire FPGA advantage: **Availability of Non-Magnetic Packages**

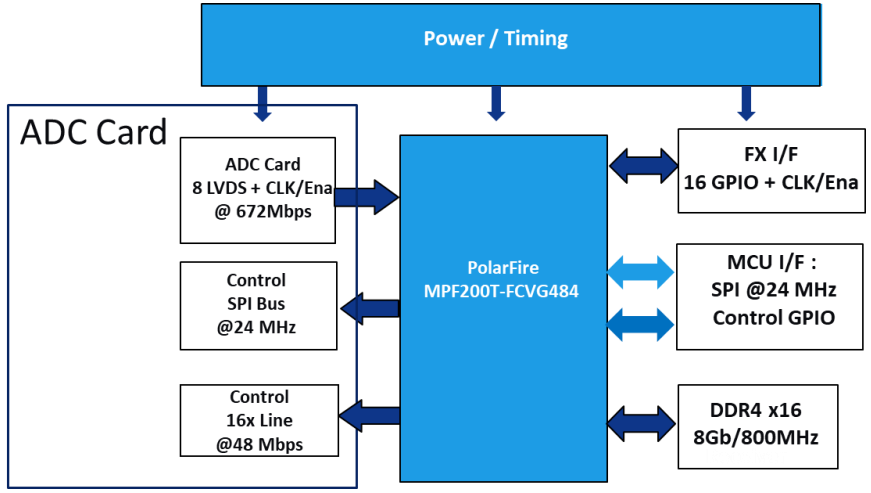
Supply Longevity

- PolarFire FPGA advantage: **Microchip offers Dependable Longevity of Supply**

MICROCHIP

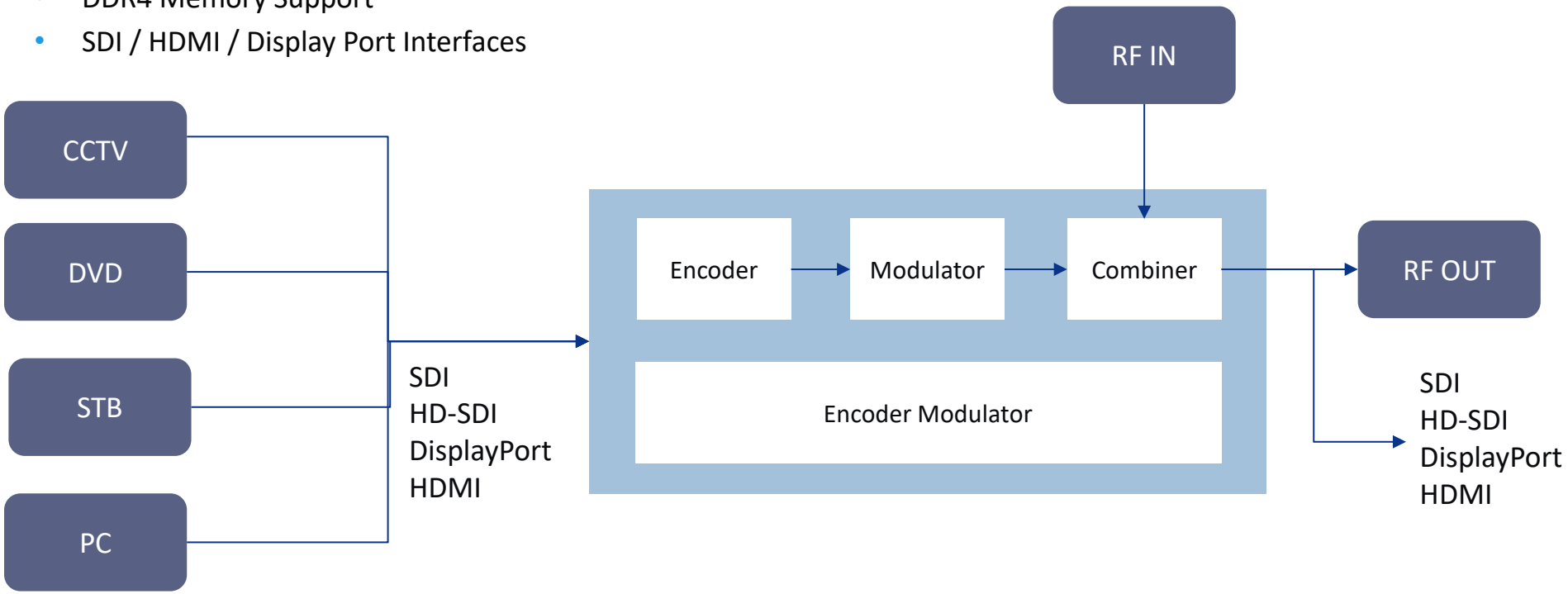
Portable Ultrasound

- **Requirements for PolarFire® FPGA**
  - Low Power - Battery operated
  - MPF200TL- FCVG484E
    - Using Power Screened Parts
  - IOs CMOS -> GPIO and SPI bus/control I/F
  - DDR4 x16 @ 800 MHz
  - LVDS IF @ 672 Mbps to ADC Card
- **Requirements for PolarFire SoC**
  - Cable-less communication over Wi-Fi®
  - Wi-Fi stack running on RTOS



Digital Video Broadcasting (DVB) Modulator (T/C/S)

- **TV/AV Distribution**
  - Hospitals
  - Schools
  - Studio video distribution
  - Surveillance systems
- **PolarFire® Advantages**
  - FPGA Power Consumption
  - DDR4 Memory Support
  - SDI / HDMI / Display Port Interfaces

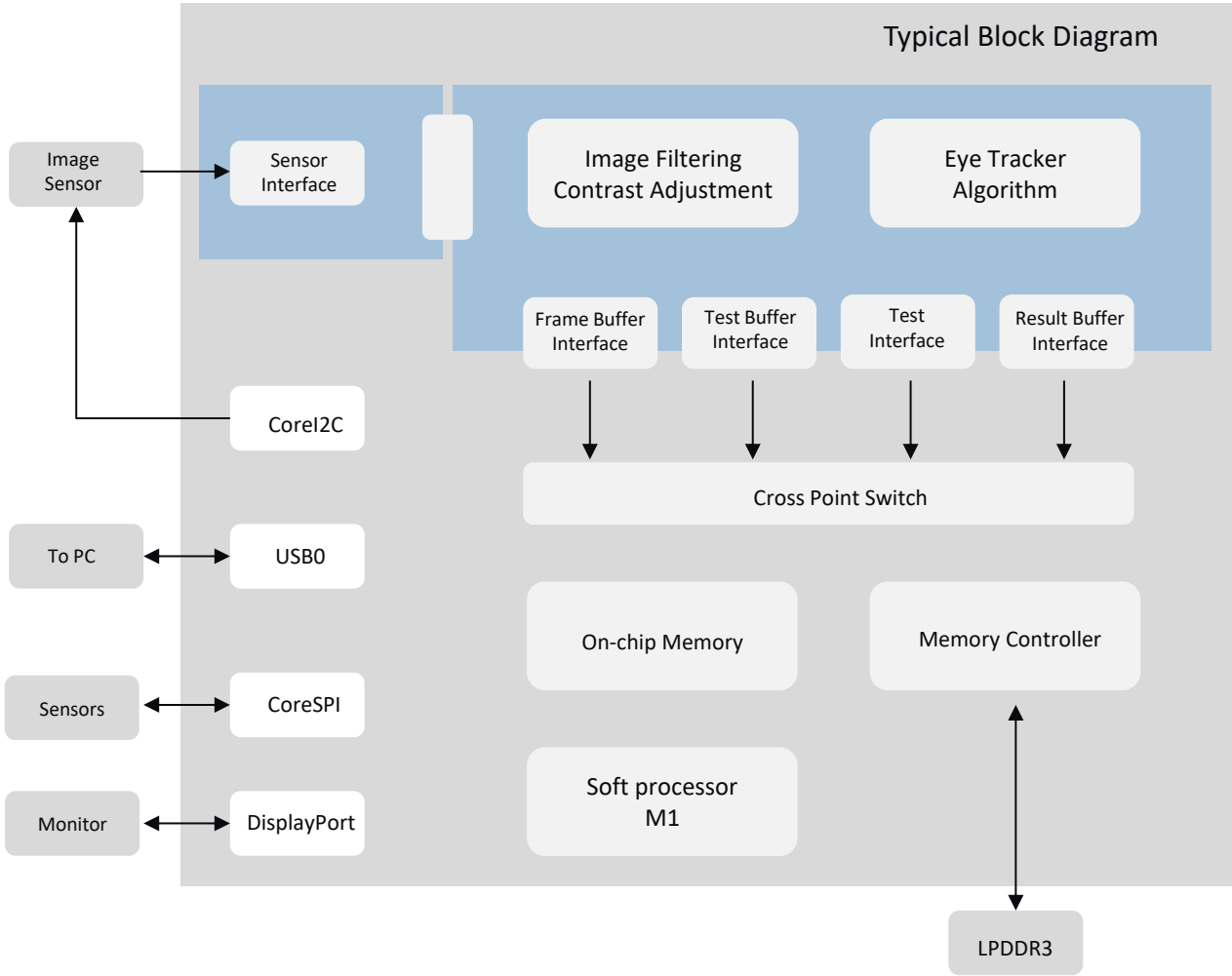


Portable Head-mounted Applications

Eye Tracking in Medical

Stereo vision

Virtual Reality Headset



Case Study

Case Study: CoaXPressx® Cameras

Customer — Japan Bopixel Co., Ltd.

- The Yokohama-based company designs & manufactures machine vision cameras using CoaXPress® & CameraLink
- Their first CoaXPress camera series was released in August 2020
- They combine Japanese design & and quality with speed, cost-competitiveness, and low power to innovate

Use-Case

- Semiconductor wafer pre- and post-process inspections with extremely accurate alignment detection
- Need low camera heat dissipation for improved optics and sensitive semiconductor manufacturing environment

Needs

- Support dramatically higher resolutions and frame rates
- CoaXPress expertise & implementation
- Low-power consumption & dissipation
- High performance in a small footprint for miniaturization

JAPAN BOPIXEL

CoaXPress®

MICROCHIP

Japan Bopixel

CoaXPress®

- 29x29 mm 1 Lane Area Scan Camera
- SONY Pregius 3rd Gen / Pregius S Sensor
- Max of 133.2 fps @ 8.1 MP

CoaXPress® Area Scan Products

Japan Bopixel Portfolio

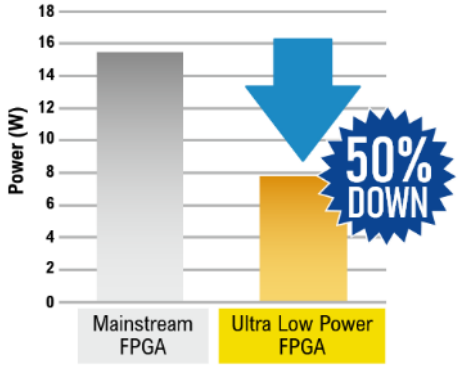
CoaXPress Line Scan Products

Don’t Take Our Word for It…

Japan Bopixel Marketing Features

PolarFire® FPGA as a Key Advantage

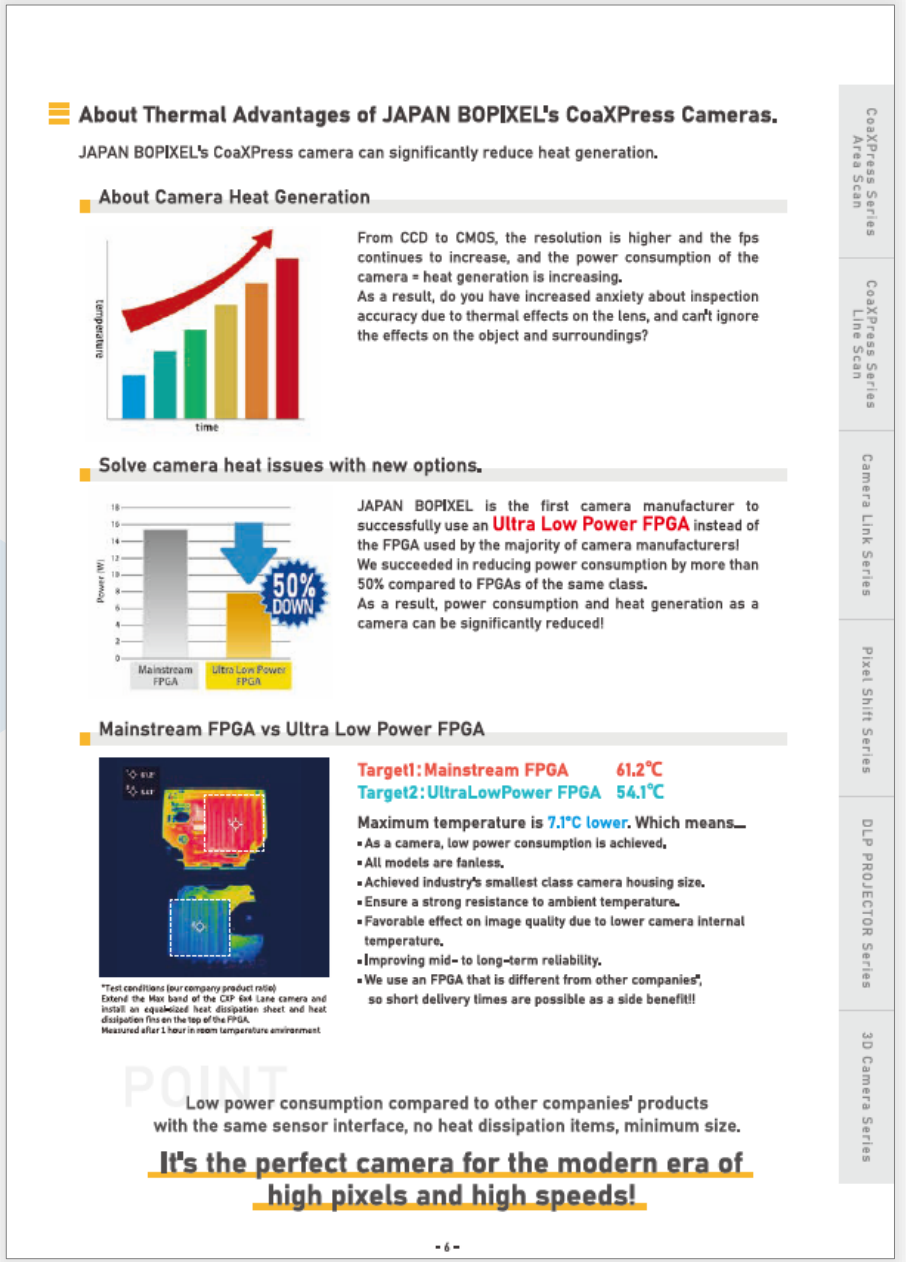
Solve camera heat issues with new options.



JAPAN BOPIXEL is the first camera manufacturer to successfully use an **Ultra Low Power FPGA** instead of the FPGA used by the majority of camera manufacturers!
We succeeded in reducing power consumption by more than 50% compared to FPGAs of the same class.
As a result, power consumption and heat generation as a camera can be significantly reduced!

JAPAN BOPIXEL
ジャパン ボーピクセル 株式会社

Source: Japan Bopixel Machine Vision General Catalog 2023—2024 (2023.12.A)



About Thermal Advantages of JAPAN BOPIXEL's CoaXPress Cameras.

JAPAN BOPIXEL's CoaXPress camera can significantly reduce heat generation.

About Camera Heat Generation

From CCD to CMOS, the resolution is higher and the fps continues to increase, and the power consumption of the camera = heat generation is increasing.
As a result, do you have increased anxiety about inspection accuracy due to thermal effects on the lens, and can't ignore the effects on the object and surroundings?

Solve camera heat issues with new options.

JAPAN BOPIXEL is the first camera manufacturer to successfully use an **Ultra Low Power FPGA** instead of the FPGA used by the majority of camera manufacturers!
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Mainstream FPGA vs Ultra Low Power FPGA

Target1: Mainstream FPGA 61.2℃
Target2: UltraLowPower FPGA 54.1℃

Maximum temperature is 7.1℃ lower. Which means...

- As a camera, low power consumption is achieved.
- All models are fanless.
- Achieved industry's smallest class camera housing size.
- Ensure a strong resistance to ambient temperature.
- Favorable effect on image quality due to lower camera internal temperature.
- Improving mid- to long-term reliability.
- We use an FPGA that is different from other companies', so short delivery times are possible as a side benefit!!

*Test conditions (our company product ratio)
Extend the Max band of the CXP 6x4 Lane camera and install an equalized heat dissipation sheet and heat dissipation fins on the top of the FPGA.
Measured after 1 hour in room temperature environment

POINT

Low power consumption compared to other companies' products with the same sensor interface, no heat dissipation items, minimum size.

It's the perfect camera for the modern era of high pixels and high speeds!

-6-

CoaXPress Series Area Scan
CoaXPress Series Line Scan
Camera Link Series
Pixel Shift Series
DLP PROJECTOR Series
3D Camera Series

MICROCHIP

Why PolarFire® FPGAs?

JAPAN BOPIXEL

Benefits of PolarFire® FPGAs

- Low Power Consumption — PolarFire FPGAs cut power consumption by approximately half compared to comparable products
- CoaXPress®-capable FPGA with small package footprint for compact camera form-factor

PolarFire Enabled Outcome

- Japan Bopixel is the only company in the world to successfully commercialize a compact 29 mm square camera equipped with the latest CoaXPress CXP-12 standard.
- Delighted customers increase their productivity with higher pixel counts and speed compared to cameras using CameraLink or USB3 Vision.

"We cut our power consumption by nearly half by using PolarFire, so we no longer need expensive forced-air cooling or heat dissipation devices. Our CoaXPress series is now faster, more compact, draws less power, generates less heat, and offers more pixels than our competition. Our customers are delighted."

— Hiroyuki Takegoshi, CEO, Japan Bopixel Co., Ltd.

MICROCHIP

Case Study: Veterinary Ultrasound Solution

Customer — Draminski Technology S.A. (Poland)

- Established in 1987, Draminski manufactures specialized equipment designed for livestock breeders, agriculture, and veterinary medicine
- Focused on manufacturing small, light, and portable diagnostic imaging ultrasound scanners.
- The company's presence in the human medicine ultrasonography sector is growing

Use-Case

- Carry-along ultrasound laptop for use on animals in a wide range of sizes (from cats to horses)
- Solution provides veterinarians capability for quick emergency screenings & accurate diagnostics in surgery

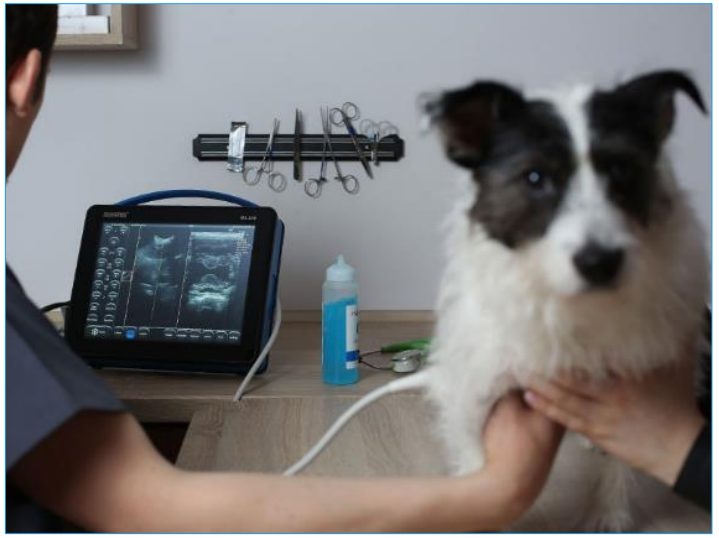
Needs

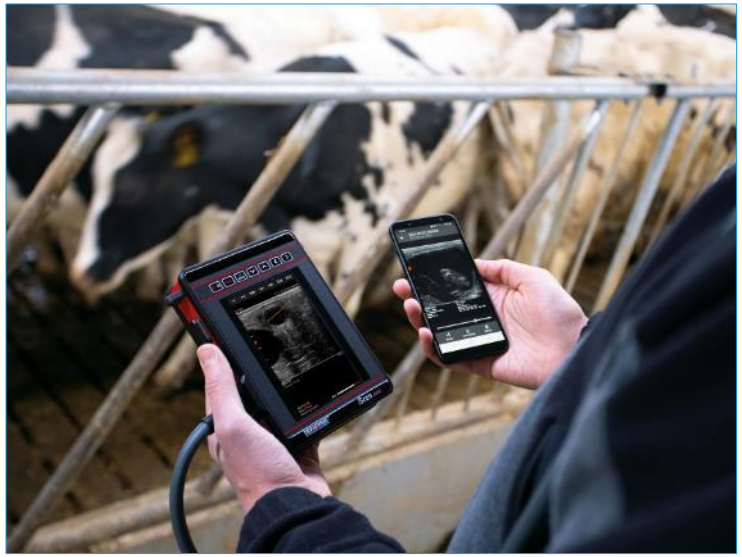
- In a hyper-competitive market, **constant innovation is required**
- Systems are getting **smaller, more accurate, reliable, and with a need to lower power consumption** for longer time between battery recharges

DRAMIŃSKI TECHNOLOGY

MICROCHIP

Draminski Technology S.A.





Customer Requirements for Next-Gen Ultrasound

Battery powered – 2.5 hours of continuous operation

- PolarFire® FPGA advantage: **lowest power consumption mid-range FPGA**

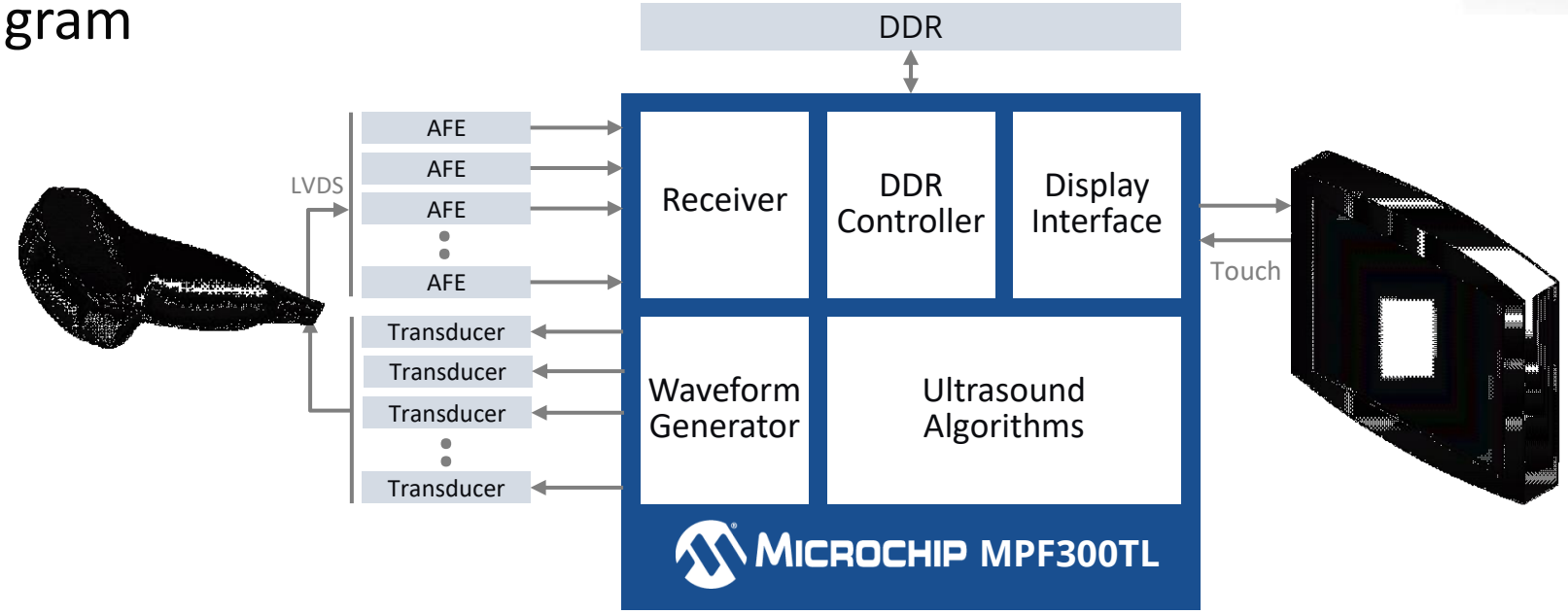
Rugged yet **light-weight design**

- PolarFire FPGA advantage: **small package footprint for PCB optimization**

Cost-effective price point

- PolarFire FPGA advantage: **best low-power + performance in mid-range FP**

Block Diagram



MICROCHIP

Why PolarFire® FPGAs?

DRAMIŃSKI TECHNOLOGY

The Benefits of PolarFire® FPGAs

- **Low Power Consumption:**
  - Significantly lower than AMD Kintex-7 160T
  - Allows customer passive cooling, compared to prior fan-based design, saving cost
- Attractive Price-Point — **PolarFire FPGA costs significantly lower than AMD Kintex-7 for better performance**

Desired Outcome

- Creation of a miniaturized version of ultrasound as an extension of their already successful product portfolio
- Creation of new market possibilities — human ultrasound solutions

"We chose PolarFire because of its low power consumption and price. Our biggest requirement was less energy consumption. With PolarFire passive cooling is possible."

— Mr. Andrzej Wiktorowicz, CEO Draminski Technology S.A.

MICROCHIP

Smart Robotics

Smart Robotics with the PolarFire® Family

IP Available TODAY

IP WIP

Surgical Robots

Industrial Robots

Warehouse Robots

Agricultural Robots

MICROCHIP PolarFire® FPGA

MICROCHIP PolarFire® SoC FPGAs

- OPC UA
- Robotics Operating System (ROS)
- Industrial Machine Vision
- VectorBlox™ (AI/ML)
- Functional Safety
- Motion Control using PolarFire® SoC
- Time Sensitive Networking
- EtherCAT® (Libero® Support)

MICROCHIP

Available

Robotic Operating System – ROS2

The Rise of ROS: Nearly 55% of total commercial robots shipped in 2024 Will Have at Least One Robot Operating System package Installed

May 16, 2019 04:00 AM Eastern Daylight Time

SINGAPORE--(BUSINESS WIRE)--The Robot Operating System (ROS) is a flexible and collaborative open-source framework for building operating systems for robotics. As its adoption continues to grow, ROS is aiming to become the industry standard for robotics middleware. According to **ABI Research**, a market-foresight advisory firm providing strategic guidance on the most compelling transformative technologies, nearly 55% of total commercial robots shipped in 2024, over 915,000 units, will have at least one ROS package installed, creating a large installed base of ROS-enabled robots.

ROS 2™ HUMBLE HAWKSBILL

ROS 2 Humble for the PolarFire® Icicle Kit bringing support for Yocto Honister release.

build basic example BSP for Microchip PolarFire® Icicle Kit

↓

Add ROS 2 Humble meta layer

↓

configure them in Yocto/PetaLinux:

↓

Create a Yocto recipe image including ROS 2 Humble

↓

Build the image

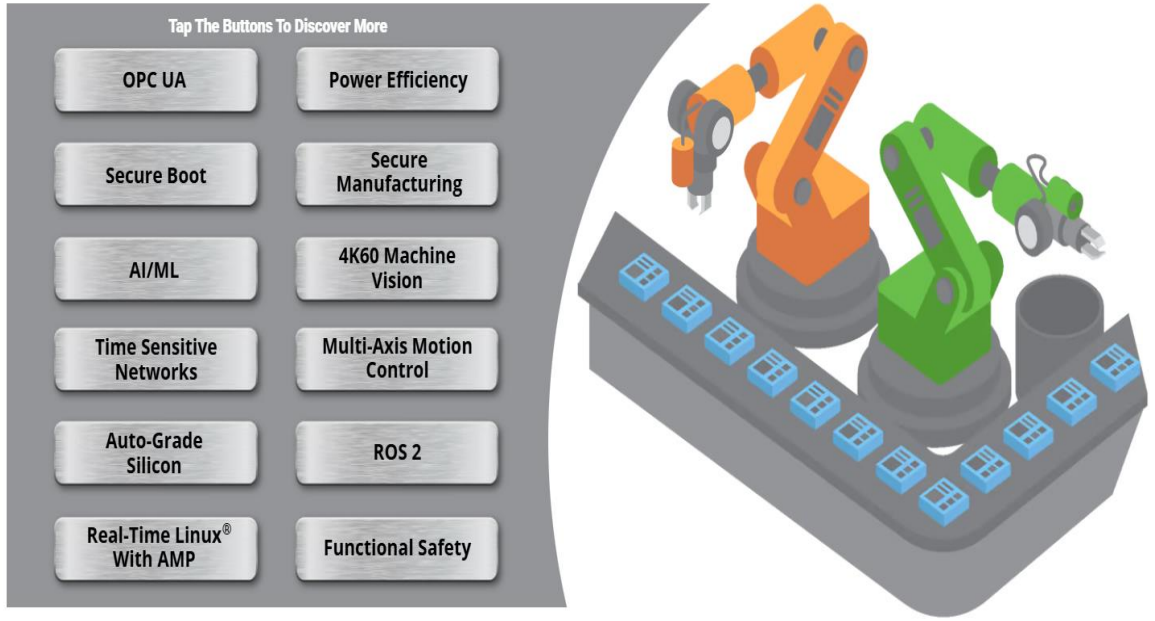
```
MACHINE=icicle-kit-es
bitbake demo-image-ros2
```

Commercial support is available through Acceleration Robotics services

MICROCHIP

FPGAs in Smart Robotics

- OPC-UA: Open Platform Communication- Unified Architecture
- Power Efficiency: 50% lower Power than Competition
- Secure Boot: Security feature that ensures authenticated and trusted software is loaded and executed on the device
- Secure Manufacturing: Differential Power Analysis (DPA) Resistance, NIST-certified cryptographic algorithms, Anti-Tamper.
- AI/ML: VectorBlox™ accelerator Software Development Kit (SDK)
- 4K60 Machine Vision: Smart Embedded Vision (SEV)
- Time Sensitive Networking
- Multi-Axis Motion Control
- Auto-Grade Silicon: Automotive-Qualified with FUSA
- ROS 2: Robot Operating System (ROS) 2
- Real-Time Linux With AMP-Asymmetric Multiprocessing



To know more, visit: https://www.microchip.com/en-us/solutions/industrial/fpga/smart-robotics

VectorBlox™ 2.0 for PolarFire® SoC

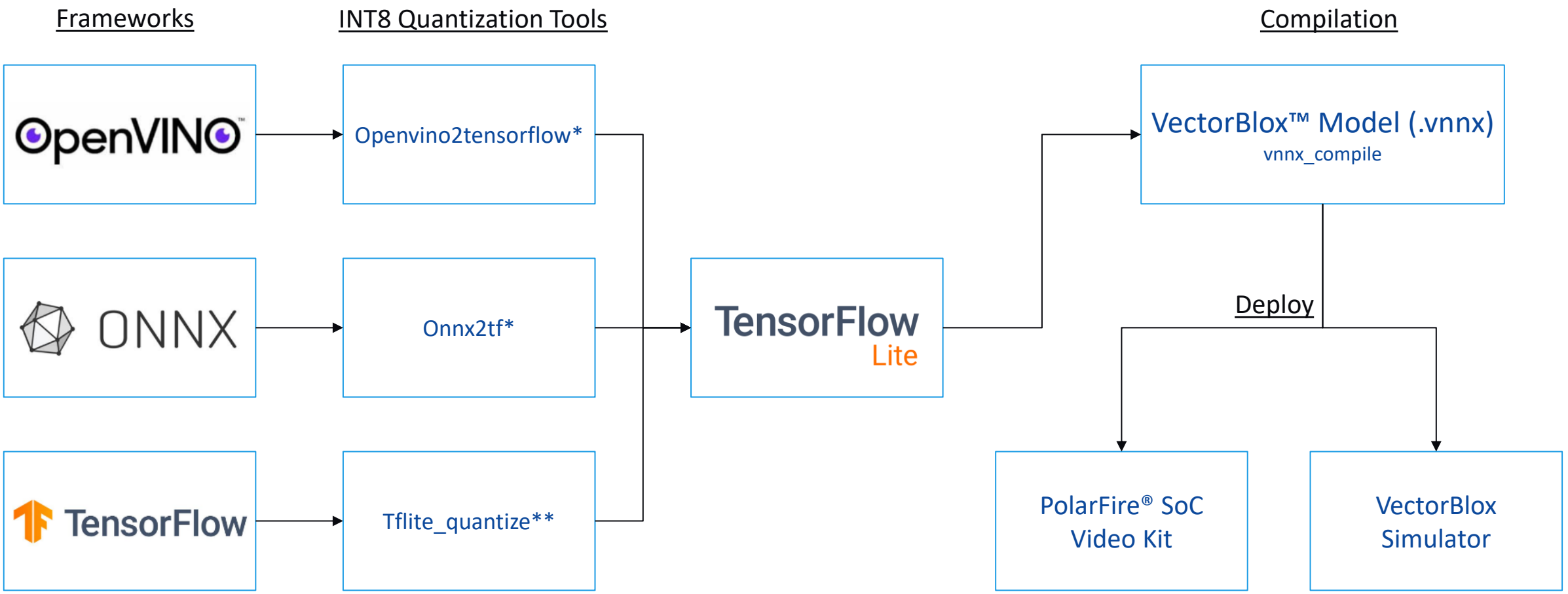
MICROCHIP

VectorBlox™ SDK Enabling Edge AI

PolarFire® SoC Video Kit

Smart Camera

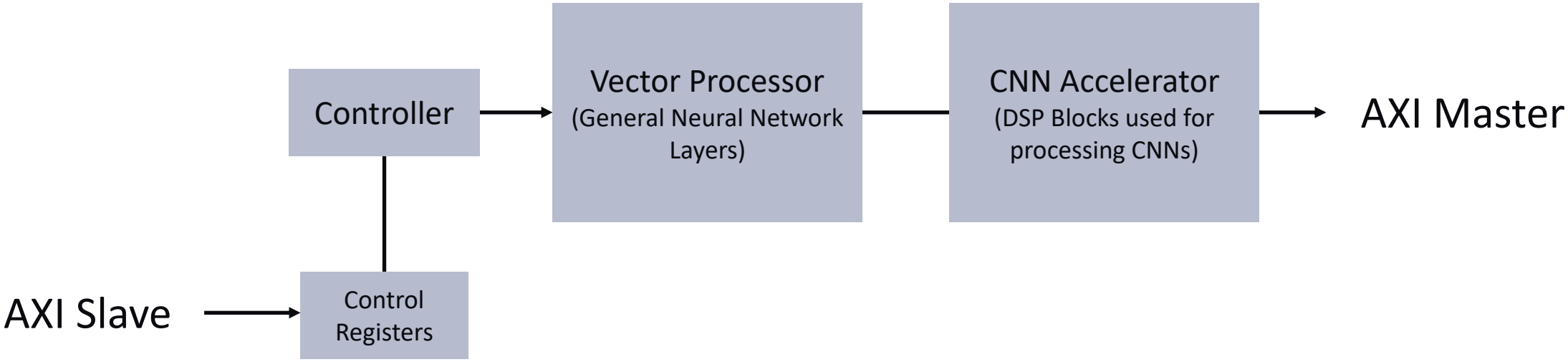
VectorBlox™ 2.0 SDK Quantization Options



* Sourced from PINTO Opensource repo
** Developed In-house

CoreVectorBlox FPGA IP

AI Engine implemented on the FPGA IP Core



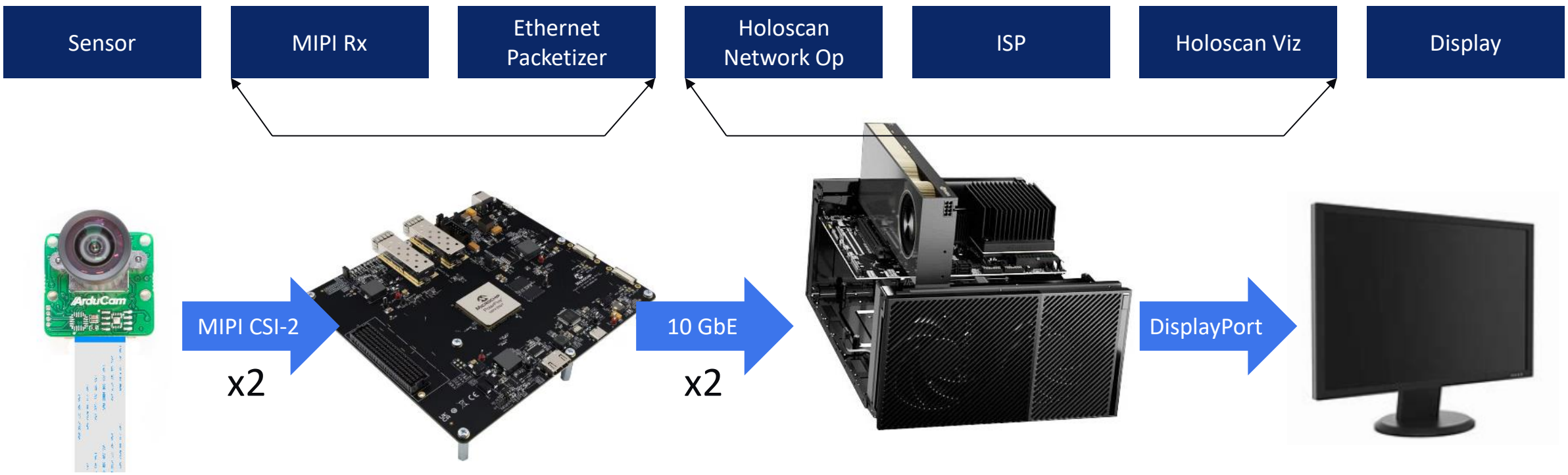
Config	LUTs(K)	DFF(K)	uSRAM	LSRAM	GOPs	MATH	Mobilenet V2 (ms)	Yolo V5n Relu (ms)
V250	40	39.5	232	94	64	84	61	91
V500	57.7	58.4	368	140	128	152	34	50
V1000	94.2	100.1	671	247	256	3.4	18.3	22.63

MICROCHIP

Nvidia PolarFire®
Ethernet Sensor Bridge

MICROCHIP

PolarFire® Ethernet Sensor Bridge Solution



Arducam MIPI Sensor (IMX447)

PolarFire® Ethernet Sensor Bridge

Nvidia Orin IGX Developer Kit, Nvidia Orin AGX Developer Kit

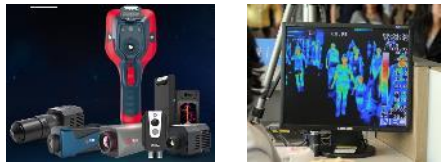
MPF200-ETH-SENSOR-BRIDGE

Medical Campaign Use Case

Ultrasound/ MRI/ CT

Endoscopes

Thermal Cameras



Broadcast Cameras

LVDS/ JESD

SLVS-EC

CoaXPress

MIPI

SDI

Aurora – Partner IP

Functional Safety

MacSeC

PolarFire®/ PolarFire 2 FPGA

VectorBlox™

10G

25G

25G

25G

25G

25G

100G

Cloud / Local Data Center

Intellectual Property

IP Available TODAY

IP with G6

- **75%+ IP coverage for mid-range medical sockets**
- **Most power-efficient platform for portable medical**
- **Partnership with Nvidia** NVIDIA.

MICROCHIP

Nvidia PolarFire® Ethernet Sensor Bridge

Now

MIPI

Future

SLVS-EC

CoaXPress

SDI

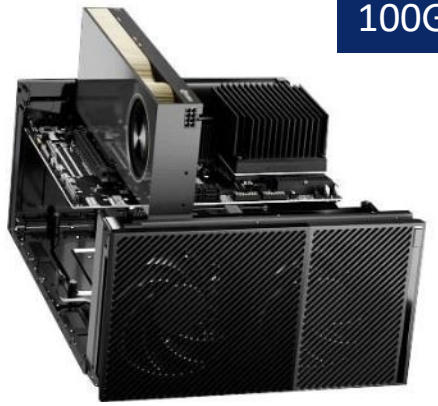
Now

10G

Future

100G
MACSEC

100G



IGX Orin Dev Kit

10G

AGX Orin Dev Kit

- **Existing Solution**
  - MIPI CSI-2 to 10 GbE Ethernet Packet
- **Roadmap of Solutions (Future)**
  - SLVS-EC (Endoscope) : 10G (2nd Solution in development)
  - SDI (Assisted Surgery) => Nvidia Partner Yuan Tech (in development)
  - JESD204B (Software Defined Radio)
  - CoaXPress (Machine Vision)*
  - RoCEv2 with Connect-X6 Dx
  - 1588 Time sync on MIPI

** Design Services*

MICROCHIP

Functional Safety

Functional Safety Roadmap for FPGAs

Available Now

Industrial FuSa	**IEC 61508 –SIL 3**	**IEC 61508 –SIL 3**	**IEC 61508 -SIL 3**
Automotive FuSa		ISO26262	**ISO26262 - ASIL D**

Thank You