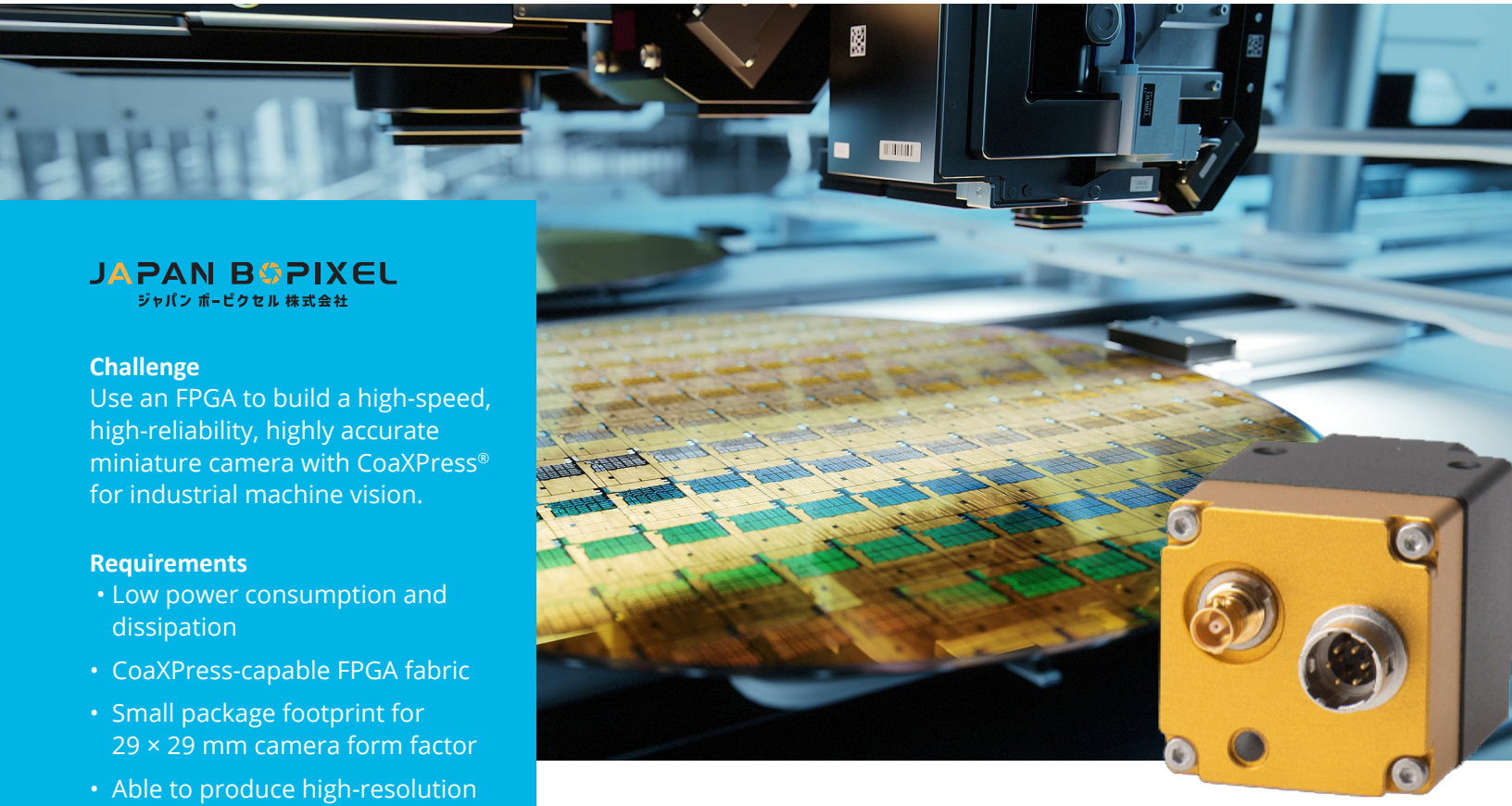
Case Study



JAPAN BOPIXEL
ジャパン ボーピクセル 株式会社

Challenge
Use an FPGA to build a high-speed, high-reliability, highly accurate miniature camera with CoaXPress® for industrial machine vision.

Requirements
- Low power consumption and dissipation
- CoaXPress-capable FPGA fabric
- Small package footprint for 29 × 29 mm camera form factor
- Able to produce high-resolution images at high frame rates
- Able to interface with Sony® Pregius™ and third-generation Pregius S™ technology

PolarFire® FPGAs Power Japan Bopixel's High-Speed CoaXPress® Cameras, Elevating Machine Vision Capabilities

Japan Bopixel designs, manufactures and sells high-speed, high-resolution and high-reliability machine vision cameras to accurately inspect a variety of products including semiconductors, LCD-related parts, automotive parts and pharmaceuticals. These cameras improve the accuracy and productivity of the visual inspection steps commonly performed by humans on manufacturing factory lines, improving the quality of the end products.

Japan Bopixel chose PolarFire FPGAs for its latest miniature machine vision camera, the CoaXPress Series-29mm CXP 1Lane camera featuring Sony Pregius and third-generation Pregius S technology.

Learn more about Japan Bopixel at www.Bopixel.co.jp.

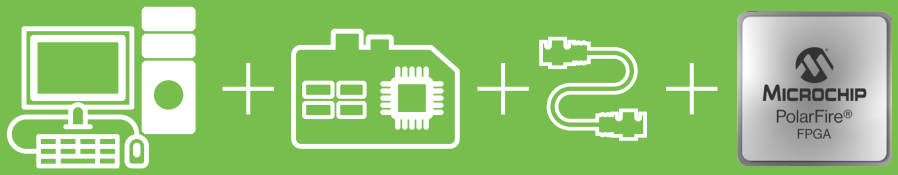
Machine Vision With Low Power and Miniature Footprint

Why Japan Bopixel Chose PolarFire FPGAs

Japan Bopixel's decision to integrate PolarFire FPGAs into its cameras was driven by a strategic need to optimize for low power consumption and compact design without compromising performance. PolarFire FPGAs offer a significant reduction in power usage, cutting consumption by half compared to similar devices. This is a crucial advantage in camera design, where efficient power use is synonymous with longer operational life and less heat generation, leading to greater reliability and user experience.

The small package footprint of PolarFire FPGAs allows Japan Bopixel to deploy a compact camera form factor. This is vital for space-constrained applications; a smaller camera that doesn't sacrifice functionality is more versatile and can be used in a wider range of settings. Cameras with higher pixel counts and frame rates are indispensable in industries where image quality and processing speed are critical.

By choosing PolarFire FPGAs, Japan Bopixel has effectively responded to the market's demand for high-performance, energy-efficient and space-saving camera solutions, ultimately leading to customer delight and potentially increasing market share.

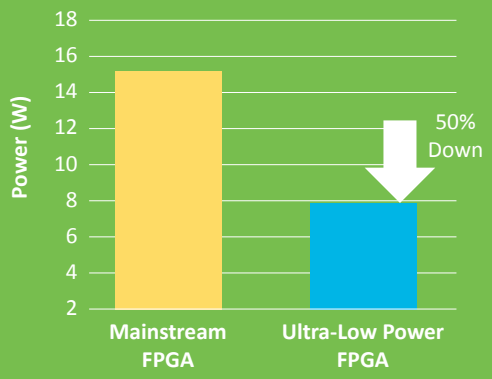


Solve Camera Heat Issues With new Options

JAPAN BOPIXEL is the first camera manufacturer to successfully use an instead of the FPGA used by the Ultra majority Low of camera Power FPGA 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's Marketing Features PolarFire FPGAs as a Key Advantage

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

“We cut our power consumption by nearly half by using PolarFire FPGAs, 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.

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