

# **SundanceDSP Introduces Polar-VPX: The Most Secure SoSA Aligned VPX Board In The Market, with Advanced Features for Demanding Applications**

**Reno, Nevada – 4, November 2024** – SundanceDSP, a leading innovator in embedded computing solutions, today announced the launch of the Polar-VPX, a feature-rich 3U VPX board powered by the Microchip PolarFire® SoC FPGA. This industry-leading device delivers exceptional security, performance, and efficiency for a wide range of demanding applications in defense, intelligence, communications, and more.

## **Unmatched Security with PolarFire SoC FPGA**

SundanceDSP takes a groundbreaking step forward by introducing the Polar-VPX, the **first SOSA-aligned VPX board ever to leverage the security-focused Microchip PolarFire SoC FPGA**. This innovative combination elevates VPX technology to a new level, providing unparalleled protection for mission-critical applications in defense, intelligence, and other security-sensitive sectors.

“In today's ever-evolving threat landscape, robust security is paramount for embedded systems,” said Dr. Nory Nakhaee, CEO of SundanceDSP. “The Polar-VPX, built with the industry's most secure FPGA-SOC, the PolarFire, provides unparalleled protection for mission-critical applications.”

## **Microchip's Commitment to Security**

Microchip, a leader in FPGA technology, shares SundanceDSP's dedication to security. “Our ongoing partnership with SundanceDSP exemplifies Microchip's commitment to providing power-efficient and highly secure solutions,” said Shakeel Peera, vice president of marketing and strategy for Microchip's FPGA business unit. “The PolarFire architecture delivers industry-leading security features that help meet the demanding requirements of VPX applications in defense and other safety-critical sectors”

## **PolarFire FPGA's Integrated Security Features Optimized for VPX**

The PolarFire SoC FPGA boasts a comprehensive suite of security features ideally suited for VPX environments:

- **Secure Boot:** This mechanism safeguards the integrity of the boot process, ensuring only authorized firmware is loaded onto the device. This prevents unauthorized tampering and malicious code execution.

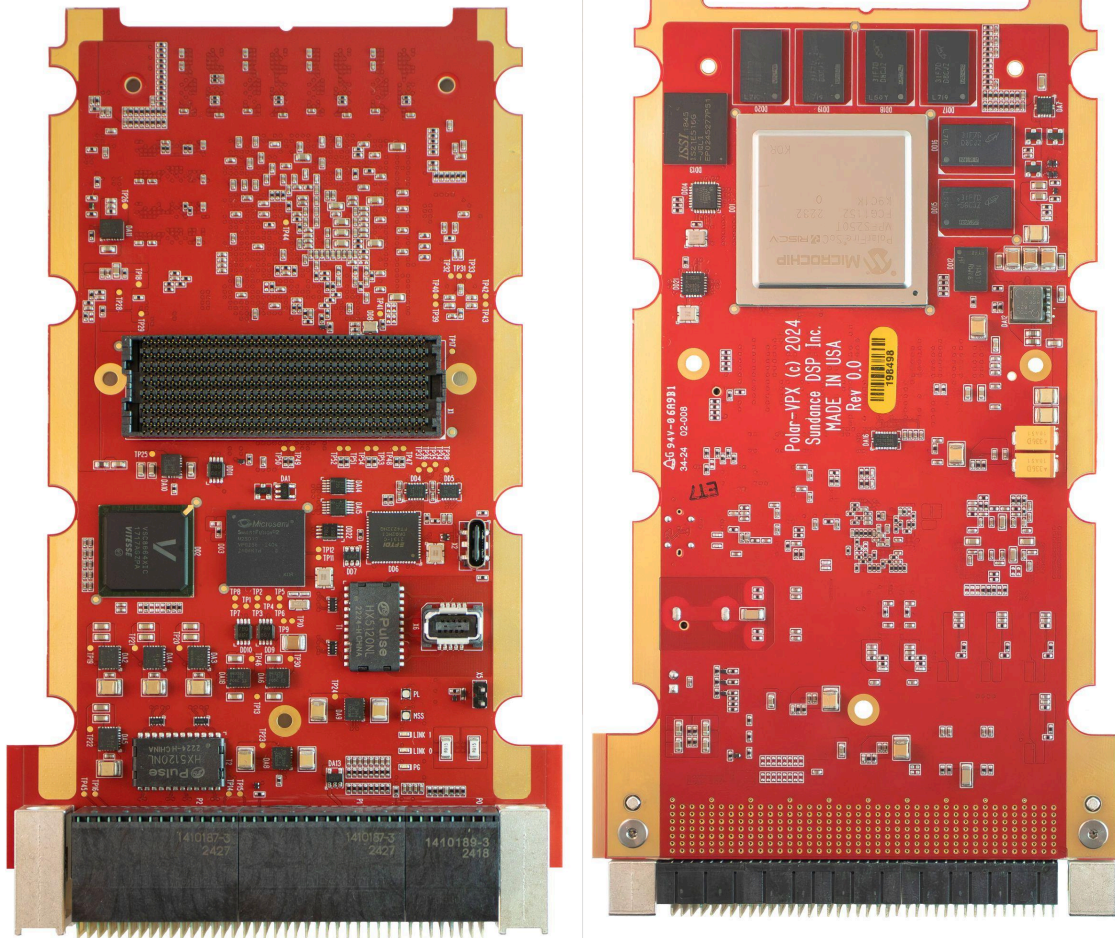
- **Hardware Authentication:** Built-in hardware authentication capabilities enable secure communication and verification between different components within the VPX system. This mitigates risks associated with unauthorized access and man-in-the-middle attacks.
- **Physical Unclonability (PUF):** This unique feature generates a fingerprint specific to each PolarFire device. This fingerprint can be used for secure device identification and anti-counterfeiting measures, crucial for protecting sensitive systems from unauthorized use.
- **Secure Key Storage:** The PolarFire architecture incorporates secure key storage enclaves to safeguard encryption keys and other sensitive data. This prevents unauthorized access to critical information and ensures data confidentiality.

These integrated security features, combined with the inherent security benefits of the VPX form factor, make the Polar-VPX an ideal platform for building highly secure embedded systems for demanding applications.

### **Beyond Security: A Feature-Packed Powerhouse**

The Polar-VPX comes standard with the MPFS250T variant of the PolarFire SoC and can be configured with the MPFS460T based on order requirements. The system boasts an impressive array of features beyond its top-tier security, including:

- 4GB of 32-bit wide DDR4 memory for the main processing system (MSS)
- 8GB of 64-bit wide DDR4 memory for the FPGA fabric
- 16GB of eMMC 5.1 flash storage
- 10/100/1000 Ethernet PHY with RGMII interface
- SOSA-compliant enclosure with both conduction and air-cooled specifications
- Integrated blanking plate for SOSA compliance (note: FMC+ port access is not available from the front panel when using the enclosure)
- USB-C UART/JTAG and Harting iX industrial ethernet connectors



Polar-VPX front and back

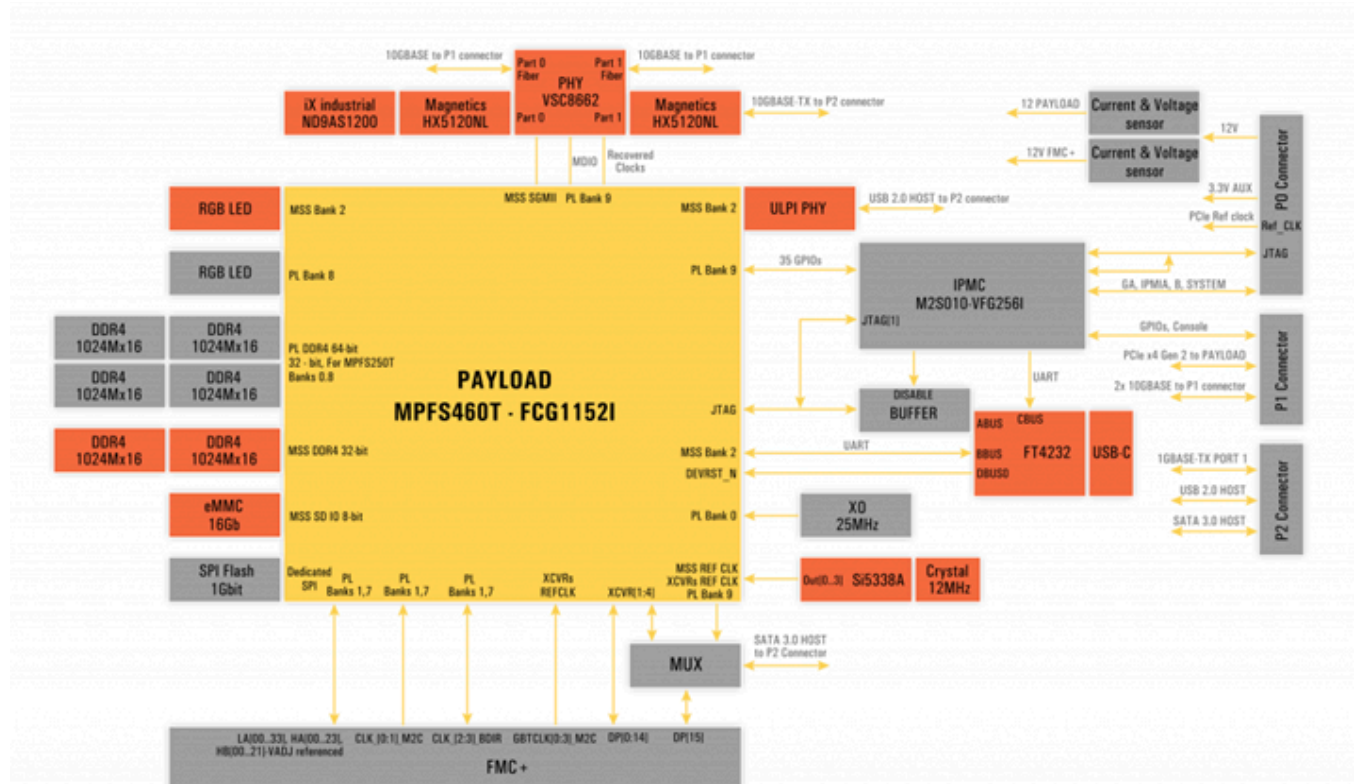
## SOSA Alignment for Seamless Integration

The Polar-VPX adheres to SOSA (System Open Standards for Architecture) guidelines, ensuring seamless interoperability with other VPX devices in a system. This facilitates simpler integration and reduces development time.

## When Installed in a Compatible Chassis

When housed in a compatible 3U chassis with slot profile SLT3-PAY-1F1F2U1TU1T1U1T14.2.16, the Polar-VPX's capabilities expand even further. Users gain access to:

- 4 lanes of PCIe for high-speed communication
- High-speed networking via an SGMII PHY
- SATA for data storage
- Robust backplane connection with a multitude of GPIOs



Polar-VPX Block Diagram

## Diverse Applications Across Industries

The Polar-VPX's exceptional combination of security, performance, and versatility makes it ideal for various applications across numerous industries, including:

- **Defense and Intelligence:** Secure data processing, encryption, and real-time communication for military and intelligence gathering applications.
- **Communications:** High-performance networking equipment for advanced communication infrastructure.
- **Machine Learning and Automation:** Powerful processing capabilities for edge-based machine learning and industrial automation tasks.
- **Aerospace and Avionics:** Reliable and secure operation in demanding aerospace environments.
- **Industrial Automation and Control:** Robust and secure control systems for industrial processes.
- **Medical and Scientific Instrumentation:** Secure data acquisition and processing for medical devices and scientific instruments.
- **5G Infrastructure and Networking:** High-bandwidth and low-latency operation for advanced 5G networks.

- **Automotive ADAS and Connectivity:** Secure and reliable processing for automotive Advanced Driver-Assistance Systems (ADAS) and connectivity modules.

### **A Perfect Fit for Edge Computing Deployments**

The Polar-VPX's compact form factor, low power consumption, and robust security features make it a perfect choice for edge computing deployments. Edge computing requires powerful processing capabilities at the network's periphery, often in harsh environments. The Polar-VPX excels in these demanding edge applications.

The SundanceDSP Polar-VPX represents a significant leap forward in VPX board technology. Its unparalleled security features, exceptional performance, and rich set of functionalities make it an ideal solution for a wide range of demanding applications across various industries. With the Polar-VPX, developers can build secure, reliable, and high-performance embedded systems for the most critical tasks.

### **Availability**

The SundanceDSP Polar-VPX is available for order now. For more information or to discuss your specific application requirements, please contact our technical sales team at [sales@sundancedsp.com](mailto:sales@sundancedsp.com)