Ensemble 6000 Series OpenVPX
High-End, Wide-Aperture, Embedded Radar Application

Your Challenges
Aerospace and defense systems depend upon high-power, wide-aperture radar applications to detect and track objects on the battlefield and deliver actionable information to the warfighter. These applications face serious challenges with too much data, not enough analysts, lack of insight, and the dire consequences of undetected IEDs leading to loss of life.

Your Solution Requirements
The volume of incoming sensor data is growing exponentially as radar technology continues to advance. Deployment of the processing solution close to the sensor requires a high degree of ruggedization. Multiple I/O streams (made up of both legacy and next-generation protocols) must be integrated with the signal processing solution. As the data rates increase and requirements for new capabilities become manifest, platform scalability is difficult to achieve with older technologies.

Our Approach
Let our Services and Systems Integration Group extend your engineering organization’s capabilities and complement your design and development process. The Mercury SSI group gives you access to our longstanding experience and our deep knowledge of technology selection, system integration, software performance, and multi-vendor integration. Our engineers are experts at board design and development (including non-standard form factors), thermal analysis, algorithm, middleware, and BSP driver development. We work with you to design, develop, and/or implement the right solution for your needs without vendor bias, becoming a cost-effective, real-time extension of your team, and enabling you to maximize your resources and minimize your time to deployment.

Our Unique Solution
The Ensemble™ 6000 Series dense processing solutions have been developed in accordance with OpenVPX™ design principles. The Ensemble IO Mezzanine Series IOM-140 SFPDP (Serial Front-Panel Data Port) XMC module bridges radar in-phase and quadrature-phase (I&Q) data on to the high-speed serial RapidIO® fabric, allowing incoming data to flow directly to any arbitrary processor without the need to buffer the streams locally.

Multiple physical planes for data, control, and system management can easily scale to handle the most challenging radar problems. Numerous standard I/O sites allow easy integration of a variety of mezzanine cards to support any required interfaces. The Ensemble 6000 Series is available at various levels of ruggedization, including air-cooled and conduction-cooled formats.

Ensemble™ 6000 Series OpenVPX™ products deliver a complete, standards-driven, scalable solution that can handle the most challenging needs of radar applications.

Specifications
- Operating temperature: -40°C to +71°C
- Humidity: 0 - 100%
- Vibration (shock): 50g, z-axis; 80g x-y axes; 11 ms half sine
- Operating altitude: 0-70,000 ft
- Salt/fog: 10% NaCL
- Weight: <250 lb
- System power: 2000W
- Ruggedization: Conduction-cooled
**Components and Chassis Elevation**

- 20 Radar I&Q Channels over Fiber SFPDP
- 10 Slot OpenVPX

**System Configuration**

- VPX 1
  - Expansive Plane
- VPX 2
  - Expansive Plane
- VPX 3
  - Expansive Plane
- VPX 4
  - Expansive Plane
- VPX 5
  - Expansive Plane
- VPX 6
  - Expansive Plane
- VPX 7
  - Expansive Plane
- VPX 8
  - Expansive Plane
- VPX 9
  - Expansive Plane
- VPX 10
  - Expansive Plane

- Data Plane
- Control Plane
- IPMC

**Ensemble 6000 Series OpenVPX**

- Ensemble 6000 Series OpenVPX SFM6100 Module
  - Quantity: 1
- Ensemble 6000 Series OpenVPX HCD6410 Module
  - Quantity: 4
- Ensemble IO Mezzanine Series IOM-140 sFPDP XMC
  - Quantity: 5
- Ensemble 6000 Series OpenVPX HCD6220 Module
  - Quantity: 5