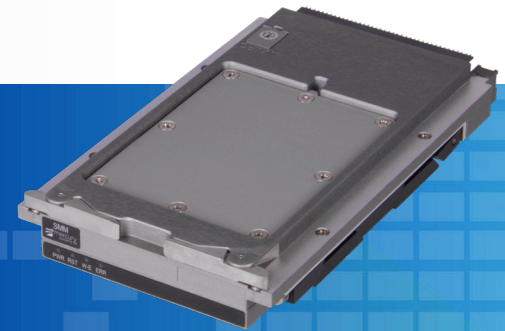


# Ensemble® SMA-301

VITA 46.11 System Management & System Portal Module

- Whole system management, in/out-of-band
- VITA 46.11 subsystem & SNMP access from a single location
- Terminal server & host Mercury system portal management GUI
- Dynamic interfaces - Serial (RS232), USB, Ethernet, UART, IPMB
- Redundancy, test & debug features for reliability



EnsembleSeries SMA-301 system management assemblies are standalone 3U OpenVPX modules that access, monitor and control subsystem management capabilities within integrated OpenVPX processing subsystems. SMA-301 assemblies contain a VITA 46.11 chassis manager (ChMC) microprocessor module and an ARM-based system manager. Compatible capabilities are built-in to all Mercury OpenVPX subsystems and building blocks including x86 hosts, power supplies and fan modules and switches.

Rugged EnsembleSeries SMA-301 system management assemblies consist of two components. The first is a 3U carrier running system management and monitoring applications within a Linux environment. The second, mounted to the carrier is a VITA 46.11 ChMC daughter card that provides access to out-of-band IPMC processing subsystem devices.

System network management protocol (SNMP) software polls mechanical, hardware and software/OS metrics and triggers actions via commands over an Ethernet network. For out-of-band, standard interfaces and third-party compatible system management, SMA-301 modules have full VITA 46.11 capability.

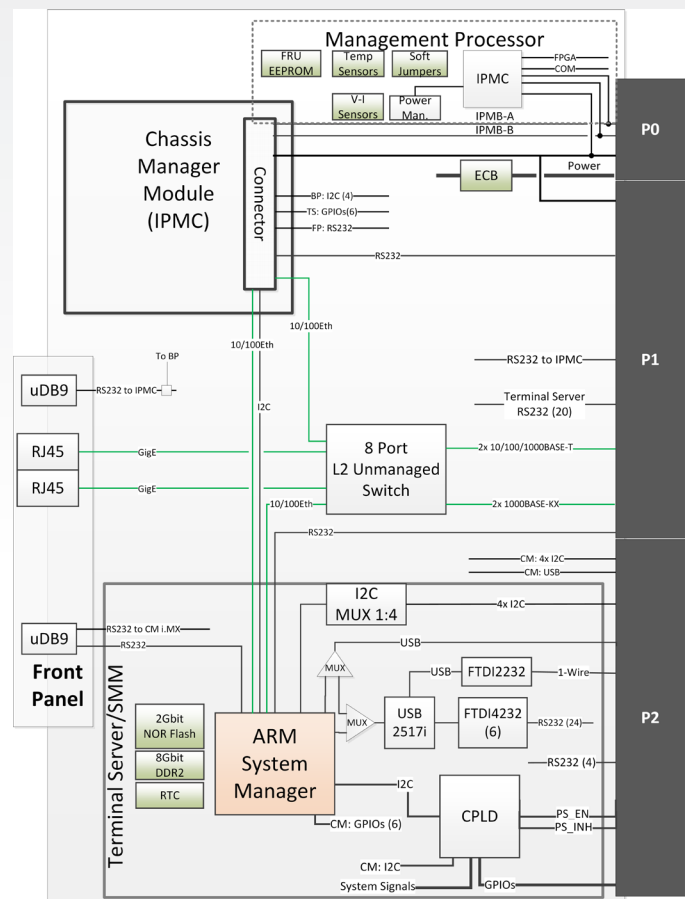
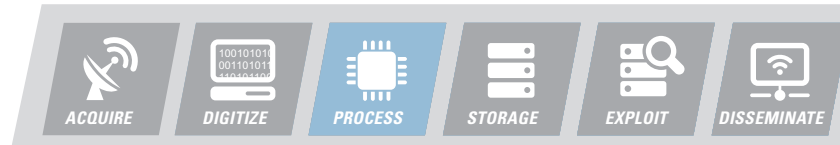


Figure 1 – SMA-301 Functional Block Diagram

Mercury Systems is a leading commercial provider of secure sensor and mission processing subsystems. Optimized for customer and mission success, Mercury's solutions power a wide variety of critical defense and intelligence programs.



## VITA 46.11 Functionality

Via the chassis manager, SMA-301 modules implement the advanced system management functionality architected in the OpenVPX standard to remotely manage alarms, and monitor hardware and health status information. EnsembleSeries SMA-301 modules connect to the subsystem's backplane PO I2C bus and its intelligent platform management controller (IPMC) to access all the modules in a subsystem and perform the following actions:

- Read sensor values
- Read and write sensor thresholds, allowing an application to react to thermal, voltage, or current variations that exceed those thresholds
- Reset the entire module
- Power up/down the entire module
- Retrieve module field replaceable unit (FRU) information

## Application Environment:

EnsembleSeries SMA-301 assemblies deliver a management and monitoring environment that is more efficient and less intrusive than a simple VITA46.11 instance, enabling smarter features to be developed including:

- VITA 46.11 compliant tier-1 system management
- Automated processor power scaling on temperature thresholds
- System fault warning and indicators of impending fault
- Recalibration of system configuration in different system modes

Mercury system portal (MSP) delivers a data center style "single pane of glass", graphical user interface (GUI) for managing and monitoring the subsystem. MSP datasheet and documentation are available separately.

## Peripheral Support

SMA-301 system management assemblies support a wide array of peripheral interfaces for subsystem-wide communication and monitoring. These interfaces include UARTs, I2C, USB, Ethernet MACs, SPI, and NAND.

All external interface boot options, except for JTAG, support the option to use encryption. All external interface boot options support either 1.8V or 3.3V signaling, except for JTAG and USB, which must operate at 3.3V signaling levels.

## Specifications

### System Manager Processor

Freescale i.MX287 ARM CPU  
1 Gigabyte DDR2-800 SDRAM  
Terminal server – 24 connections  
Storage for VITA 46.11 FRU data

### I/O Interfaces

Front-panel  
2 x 1 10/100/1000Base-T Ethernet (RJ45)  
Single dual port DB9 for IPMC(2), SMM, CMM

Backplane  
2 x 10/100/1000Base-T  
2 x 1000 Base-BX  
UARTs, USB, Ethernet MACs, SPI, NAND, I2C

### Mechanical

3U OpenVPX, single width (1-inch)

Module packaging:  
Conduction-cooled (L3)  
Others by request

### Compliance

OpenVPX system standard (VITA 65) encompasses:  
VITA 46.0, 46.6, 46.11, and VITA 48.2

Please refer to Mercury publication "Rugged Embedded Packaging and Next Generation Cooling" for specific ruggedness levels and cooling options.

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