LOCKHEED MARTIN

Open Common Processor

3U VPX Intel® Core™ i7 1186GRE Safety-Certifiable Time Sensitive Networking, Processing, and Graphics Module Aligned with SOSA™ and HOST Standards
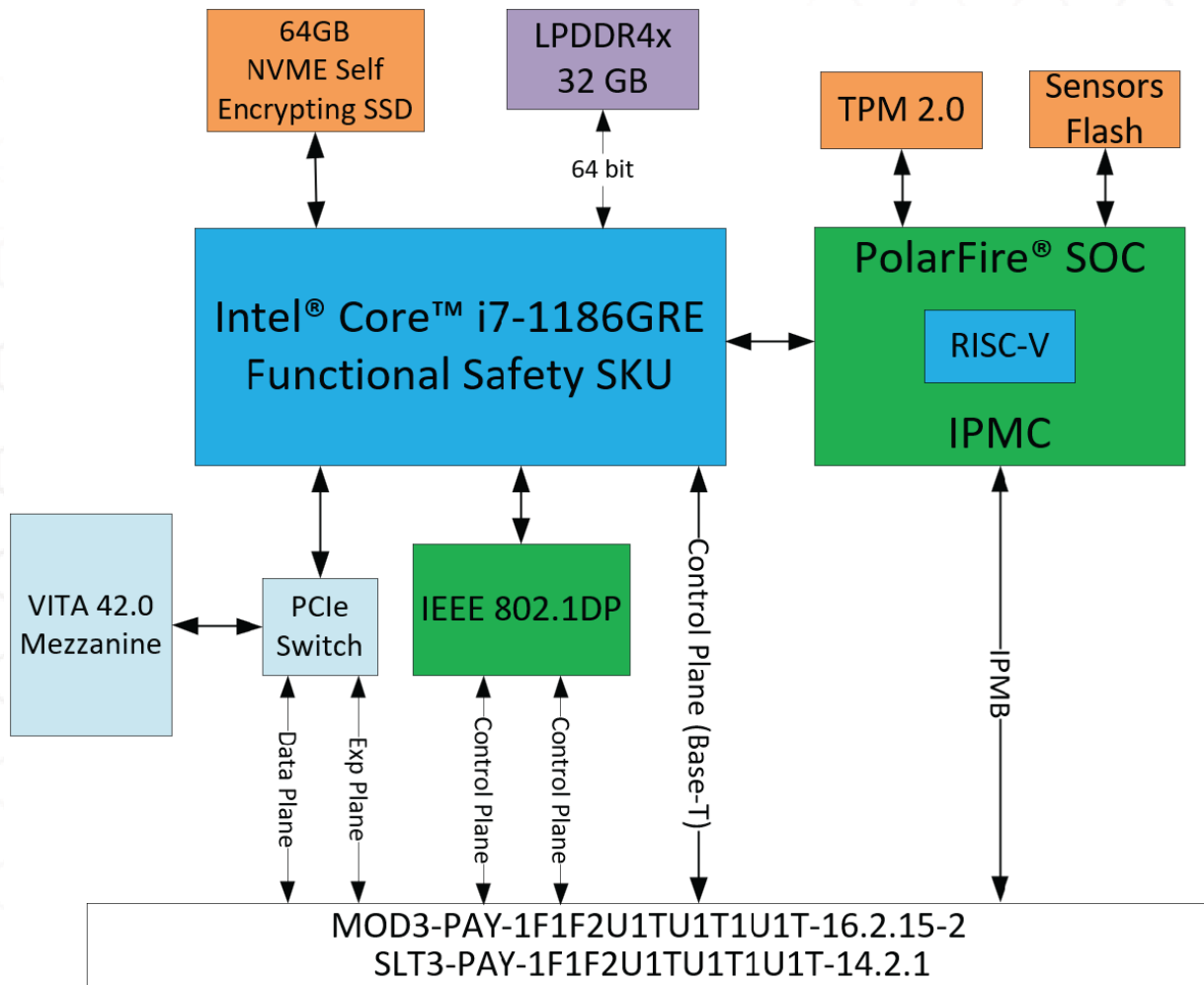

Key Features

- Lynx MOSA.ic™
- IEEE 802.1DP Time Sensitive Networking
- 4 core processor operating up to 1.8GHz and Intel® Iris® Xe Graphics
- 32GB (up to 64) LPDDRx
- 64GB NVMe
- VITA 42.0/42.3/46.9 Mezzanine
- SOSA 3U Profile Aligned
- VITA 46.11 IPMC/ChMC
- DO-254 & DO-178C DAL A
- Trusted/Measured Boot
- Fault tolerant boot support

Applications

- Primary Flight Display
- General purpose computing
- SWaP-C constrained processing and graphics

Overview

The OCP-Safe-3U-1 is a rugged 3U single board computer based on the Intel® Core™ i7 1186GRE (formerly Tiger lake). The OCP-Safe-3U-1 combines a variety of features into a size, weight and power constrained package making it an ideal solution for processing and graphics in safety critical applications.

The OCP-Safe-3U-1 is designed to support various mezzanine sites to provide additional I/O and video/graphics capabilities. It includes memory based display capabilities allowing platforms to transfer graphics over mediums other than display port.

The OCP-Safe-3U-1 accepts firmware supporting IEEE 802.1DP time sensitive networking profile. Multiple partitions can schedule, filter, and prioritize traffic on it's 10Gb deterministic ethernet interfaces.

The OCP-Safe-3U-1 includes a PCIe switch which allows multiple root complex devices to connect together without an additional PCIe switch in the system.

PTPL.info@lmco.com

OCP-Safe-3U-1

LOCKHEED MARTIN

Block diagram showing: 64GB NVME Self Encrypting SSD and LPDDR4x 32 GB (64 bit) connecting to Intel® Core™ i7-1186GRE Functional Safety SKU. PolarFire® SOC with RISC-V and IPMC connecting to TPM 2.0 and Sensors Flash. VITA 42.0 Mezzanine, PCIe Switch, IEEE 802.1DP. Interfaces labeled Data Plane, Exp Plane, Control Plane, Control Plane, Control Plane (Base-T), IPMB, connecting to MOD3-PAY-1F1F2U1TU1T1U1T-16.2.15-2 and SLT3-PAY-1F1F2U1TU1T1U1T-14.2.1

Performance
- Up to 50K Coremarks or 60K DMIPS

Power
- 50W Maximum 12V
- 3.3W Maximum 3.3V_Aux

Environment
- Operating Temperature: -40°C - +74C
- Non-Operating Temperature: -54°C - +85C
- Vibration: VITA 47 Section 4.4.3, Vibration Class V3
- Shock: VITA 47 Section 4.5.1, Operating Shock Class OS1 and 4.5.3 Bench handling shock.
- Humidity: VITA 47 Section 4.6, 100% humidity installed

Cooling
- VITA 48.2 Conduction Cooling
- VITA 48.8 Air Flow Through Cooling
- Commercial Chassis Test Frame

Data Plane
- 4 x1 PCIe Gen3 Interfaces
- One cross domain endpoint (RC to RC)

Expansion Plane
- 1 x4 PCIe Gen3 Interface
- Cross domain endpoint (RC to RC)

Control Plane
- 2 1Gb/10Gb Ethernet Interfaces (Base-KX/KR)
- 1 1Gb Ethernet Interface (Base-T)

Additional Features
- Trusted Platform Module (TPM 2.0)
- Up to 3 RS-232 or 2 RS-422/485 serial ports
- Standard VITA 46.0 discrete signals
- USB 2.0/3.0
- Display port
- SATA

PTPL.info@lmco.com