LOCKHEED MARTIN

Open Common Video
Daughter card for video systems requiring high reliability in harsh environments
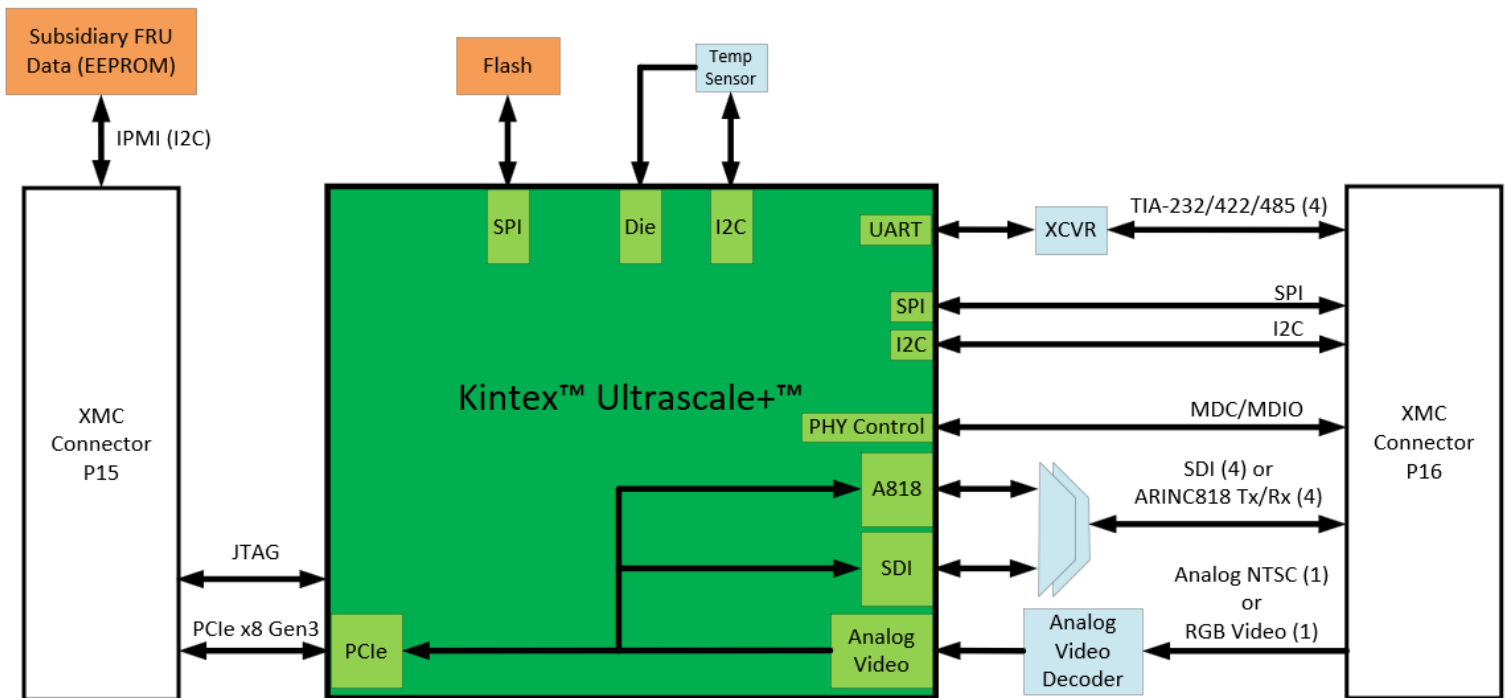

Key Features

- DO-254 and DO-178C Safety Certifiable
- ARINC 818
- SDI
- VITA 42.0/42.3/46.9
- PCIe x8 Gen 3

Applications

- Primary Flight Display
- Medical imaging
- Industrial Automation
- Transportation Systems
- Broadcasting

Overview

The OCV-Safe-M-1 is a Switched Mezzanine Card (XMC) that provides a range of video and serial interfaces for use in avionics, industrial, or commercial display applications.

The OCV-Safe-M-1 is designed to meet the requirements of DO-254 and DO-178C, making it suitable for use in safety-critical avionics applications. The OCV-Safe-M-1 features a range of advanced video processing capabilities, including video decoding, encoding, and formatting, as well as error detection and reporting. The OCV-Safe-M-1 also includes a temperature sensor and provides support for Built-In-Test (BIT) and other diagnostic functions. The OCV-Safe-M-1 is designed to operate in harsh environments.

The OCV-Safe-M-1 is designed to be mounted on a host graphics card and provides a PCIe x8 Gen 3 interface for communication with the host system. The OCV-Safe-M-1 also features multiple video inputs and outputs, including ARINC 818, SDI, and analog video, as well as serial interfaces such as UART, I2C, SPI, and MDIO.

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Subsidiary FRU Data (EEPROM)

IPMI (I2C)

Flash

Temp Sensor

SPI

Die

I2C

UART

XCVR

TIA-232/422/485 (4)

SPI

SPI

I2C

I2C

Kintex™ Ultrascale+™

PHY Control

MDC/MDIO

A818

SDI (4) or
ARINC818 Tx/Rx (4)

SDI

XMC Connector P15

JTAG

PCIe x8 Gen3

PCIe

Analog Video

Analog Video Decoder

Analog NTSC (1) or RGB Video (1)

XMC Connector P16

Power
- 20W Maximum 12V
- <0.1W Maximum 3.3V

Environment
- Operating Temperature: -40°C - +85C
- 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.X Conduction, Air Flow Through, Liquid

Host Interface
- x8 PCIe Gen 3 (DMA based steaming)
- VITA46.11 targeted FRU data interface

Backplane Interface
- Various combinations of:
  - SDI: 4 RX and 4 TX SMPTE-292 and -424
  - ARINC-818-2: 4 RX and 4 TX (Copper)
  - Up to 2560x1024p, 60Hz @ 6.375Gbps
- Wide range of analog input video
- 4x RS232/422/485
- SPI
- I2C
- MDC/MDIO for PHY control or GPIO
- JTAG

Additional Features
- Built in Test
- Potential growth to Display Port input
- Integrates with a Chassis Cross-Point Switch for Dynamic Video Routing

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