

# **Aries 6 Smart DSP Retimer CEM Add-in Card (Equinox 6)**

## **Product Brief**

Asteralabs is a worldwide leader in purpose-built connectivity solutions for AI and cloud infrastructure. It is at the forefront of software-defined architectures that are both scalable and customizable. With PCIe®, CXL®, and Ethernet-based semiconductor solutions, Asteralabs addresses data, memory, and networking bottlenecks while fostering trusted partnerships with hyperscalers and the broader data center ecosystem.

---

## 1. Introduction

Aries 6 Smart DSP Retimer CEM add-in card (Equinox 6) is designed for seamless in-system evaluation of the Aries 6 Smart DSP Retimer and interoperability testing with major PCIe 6.x and CXL 3.x hardware vendors. The full-height add-in card (AIC) has a x16 PCIe 6.x CEM-compliant edge connector to plug into a PCIe 6.x host system and features a x16 PCIe 6.x CEM straddle mount connector to install a PCIe CEM-compliant endpoint AIC. With seamless plug-and-play operation, the root complex (e.g. CPU) and endpoint (e.g. GPU) will automatically form a link through the Aries 6 Smart DSP Retimer on power-up and de-assertion of PERST#. COSMOS suite for extensive Link, Fleet and RAS Management comes integrated with C and Python SDKs for rapid integration and customization of advanced in-band (PCIe) and out-of-band (I2C/I3C) diagnostics.

Refer to *Aries PCIe®/CXL® Smart DSP Retimer Product Brief* for more details.

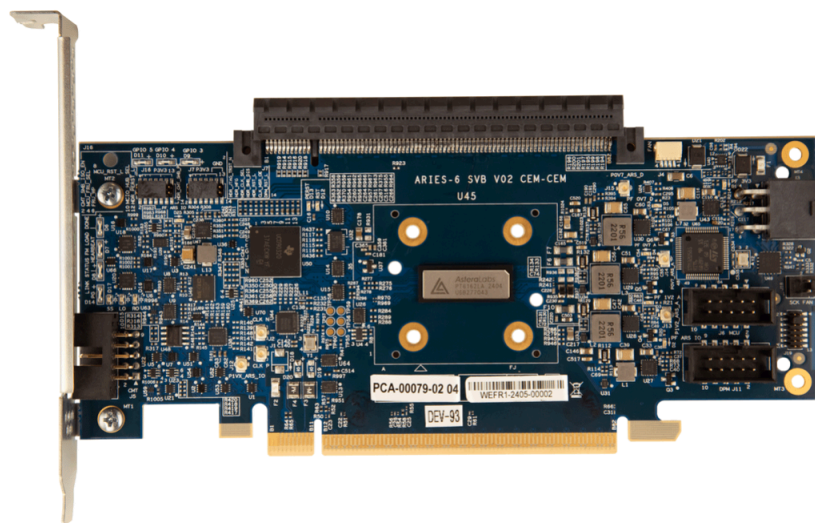
## 2. Technical Information

Feature	Specification
<b>Part Number</b>	EQUINOX6-REVA
<b>Form Factor</b>	Standard full-height, three-quarter-length, single slot width PCIe AIC (PCIe CEM R6.0.0, Draft 0.7)
<b>Retimer</b>	Aries 6. Refer to <i>Aries PCIe®/CXL® Smart DSP Retimer Product Brief</i> for more details.
<b>Connectors</b>	PCIe CEM 6.x (v 0.7) x16 edge finger, PCIe CEM 6.x (v 0.7) x16 straddle mount
<b>LED Indicators</b>	Yellow: Retimer reset, PCIe fundamental reset Orange: Retimer heartbeat, link status Green: Power good, firmware load done
<b>Bifurcation Options</b>	1x16, 2x8, 4x4, 8x2, others available via COSMOS embedded software
<b>Debug Headers</b>	3.3 V SMBus (Retimer), 3.3 V I2C (EEPROM), 3.3 V SPI (Flash)

## 3. Applications

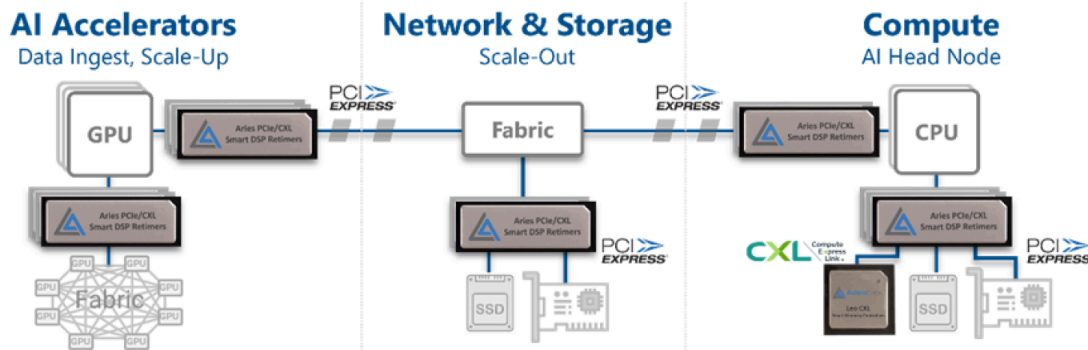
- Design and evaluation of Aries 6 Smart DSP Retimer for AI accelerator baseboard, AI headnode, general purpose servers, CXL memory disaggregation, storage, and other PCIe/CXL based system.
- Equinox 6 AIC extends PCIe signal reach for rapid system deployment allowing easy plug-and-play implementation for GPUs, NICs, switches, and other topologies that utilize a standard CEM slot.

*Figure 3-1 Equinox 6 Add-in Card*



## 4. AI Server Platform Application

The Aries PCIe®/CXL® Smart DSP Retimer portfolio provides robust PCIe connectivity in AI server platforms with complex topologies, densely packed signals that travel longer distances, and an increasing number of connectors that are utilized to expand configuration optionality.



## 5. Astera Labs' Intelligent Connectivity Platform

The Aries PCIe®/CXL® Smart DSP Retimer portfolio is an integral part of Astera Labs' Intelligent Connectivity Platform. In addition to Aries, there are multiple PCIe, CXL and Ethernet ICs, Modules & Boards that are at the foundation of the platform. Astera Labs' Connectivity System Management and Optimization Software (COSMOS) suite provides extensive Link, Fleet and RAS Management features and diagnostics. Through the combination of software and hardware, the Intelligent Connectivity Platform enables a smart connectivity backbone that is both scalable and customizable for AI and cloud infrastructure.

