

Aries PCIe[®] Smart Redriver

Portfolio Brief

Asteralabs (NASDAQ: ALAB) provides rack-scale AI infrastructure through purpose-built connectivity solutions. By collaborating with hyperscalers and ecosystem partners, Asteralabs enables organizations to unlock the full potential of modern AI. Asteralabs' Intelligent Connectivity Platform integrates CXL[®], Ethernet, NVLink Fusion, PCIe[®], and UALink[™] semiconductor-based technologies with the company's COSMOS software suite to unify diverse components into cohesive, flexible systems that deliver end-to-end scale-up, and scale-out connectivity. The company's custom connectivity solutions business complements its standards-based portfolio, enabling customers to deploy tailored architectures to meet their unique infrastructure requirements. Discover more at www.asteralabs.com

Benefits and Features

- PCIe 7 operation up to 128 GT/s per lane with backward-compatible PCIe rates
- 8-channel unidirectional configurations for space-constrained applications and 16-lane bidirectional configurations for scale-up applications
- Extends channel reach by 18+ dB at 32 GHz
- Ultra-low pin-to-pin latency: <50 ps
- Supports hot plug and flexible link bifurcation
- Unique adaptive equalization and eye measurement with a peak-detection alert
- Smart temperature-compensating EQ to counteract temperature drift on the system channel
- Transparent to PCIe link training for seamless interoperability
- Connectivity System Management and Optimization Software (COSMOS) suite for fleet-wide link management and diagnostics
- Host management and diagnostics through I2C; firmware loading through SPI Flash
- Pin compatible PCIe 7 retimer and redriver

Applications

- Server and high-performance compute
- PCIe riser add-in cards
- Active copper (ACC) cabling
- AI accelerator baseboards and backplanes
- High-performance workstations

Product Family Information

Part #	PCIe Gen	Config	Package Size	Status	Compatibility
PD7080L	PCIe 7.0	8-Ch, Unidirectional	7.5 x 10.5 mm	Sampling	Seamless hardware and software upgradability utilizing industry standard footprints and COSMOS
PD7162L	PCIe 7.0	16-L, Bidirectional	22 x 22 mm	Sampling	

Description

Aries Smart Redrivers are low-power, analog signal-conditioning devices designed to integrate seamlessly between a root complex and endpoint(s) in PCIe systems. The Aries 7 PCIe Smart Redriver supports PCIe 7 up to 128 GT/s and is backward-compatible with previous PCIe generations.

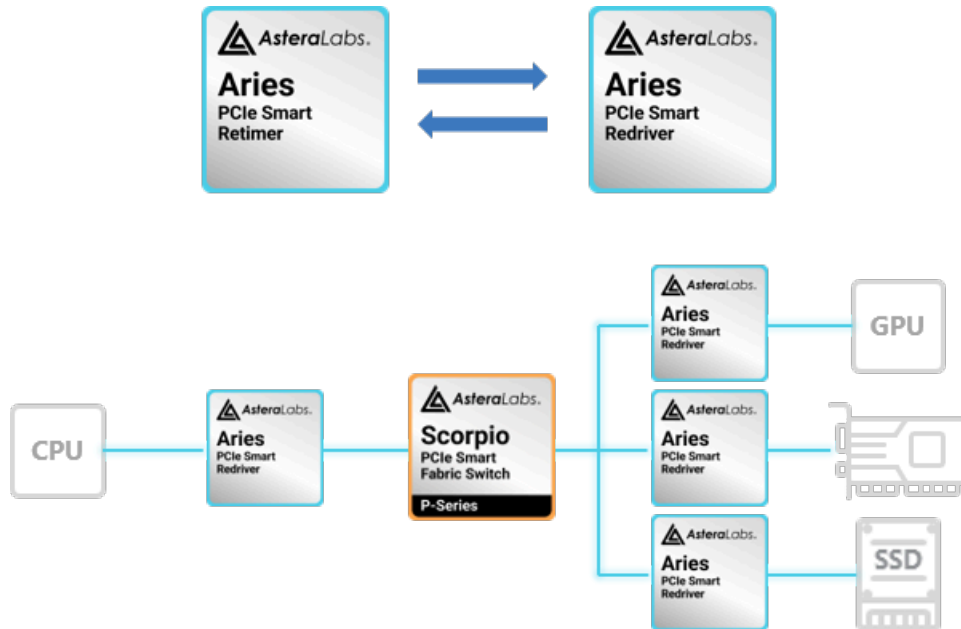
The Aries Smart Redriver uses adaptive equalization, integrated eye monitoring, and temperature-compensating EQ to optimize signal quality across PCB traces and cables. It is transparent to PCIe link training and supports flexible link bifurcation.

Integrated diagnostics including peak detection, signal monitoring, and COSMOS software integration, simplify tuning, validation, and monitoring.

Aries Smart Redrivers consist of 8-channel unidirectional and 16-lane form factors. The 8-channel form factor allows a compact design with minimal supporting circuitry and a single power supply to reduce overall solution size, making the Aries Smart Redriver ideal for space-restricted and low-power applications such as server backplanes and riser cards.

AI Server Platform Applications

The Aries PCIe Smart Redriver portfolio provides robust PCIe connectivity for AI server platforms with complex topologies, longer reach requirements, and multiple connector configurations across CPUs, PCIe switches, GPUs, accelerators, and SSDs.



Astera Labs Intelligent Connectivity Platform

The Aries PCIe® Smart Redriver portfolio is an integral part of Astera Labs' Intelligent Connectivity Platform. In addition to Aries, there are multiple PCIe, CXL and Ethernet ICs, Modules and 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.

