

OEM Access Switch PAM4



AI Overview

PAM4-enabled OEM access switches support higher data rates by encoding two bits per symbol, enabling 50G, 100G, 200G, and 400G Ethernet connections in compact, high-density switch designs.

What is PAM4? PAM4 (Pulse Amplitude Modulation 4-level) is a signaling method that encodes two bits per symbol using four distinct voltage levels, effectively doubling the data throughput compared to traditional NRZ (non-return-to-zero) encoding without increasing the channel bandwidth. PAM4 is widely used in modern high-speed Ethernet, including 50G, 100G, 200G, and 400G links, and is compatible with both electrical and optical transmission systems.

OEM Access Switch Features

Modern OEM access switches with PAM4 support are designed for high-density, high-performance networking:

- High Port Density:** Switches can support hundreds of channels, such as 156- or 256-channel configurations, enabling large-scale deployments.
- Ruggedized Design:** Many switches are built for harsh environments, using MIL-DTL-38999 connectors and liquid cooling to maintain performance under extreme conditions.
- Programmable Data Plane:** Whitebox or P4-enabled switches allow line-rate programmability for edge deployments, including traffic classification, telemetry, and policy enforcement.
- Optical Compatibility:** PAM4 switches work with QSFP56, QSFP-DD, and other high-speed optical transceivers, supporting 50G, 100G, 200G, and 400G Ethernet over multimode or single-mode fiber.
- Network Management:** Embedded Web Systems (EWS) or CLI interfaces provide real-time monitoring, RMON statistics, and troubleshooting capabilities.

Use Cases

PAM4-enabled OEM access switches are ideal for:

- Data Centers:** Leaf-spine architectures requiring high bandwidth and low latency for AI, HPC, and big data workloads.
- Edge and Telecom:** Whitebox switches with P4 programmability for 5G and edge computing deployments.
- Military and Industrial Applications:** Ruggedized switches capable of operating in extreme temperatures and harsh environments.
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Article Content

SPC4-E0256EC11C-A0 NVIDIA Mellanox Spectrum-4 51.2 Tb/s

Looking for a Bulk Quantity of SPC4-E0256EC11C-A0? Request a Quote below and one of our sales representative will get in touch with you very soon. Quotes processed weekdays 6:00 am - 6:00 pm

Authorisation concepts in machine automation

Individual (access) authorisations can be assigned for each operator via the RFID-based keys. These can be assigned via identification management

Intel Ethernet Controller E810

Support both 50Gb/s PAM4 and 25Gb/s NRZ (E810-CAM2/ CAM1 only) Dynamic Device Personalization (DDP) with fully-programmable pipeline that can add or modify protocols on-demand,

MS-2404X

Built for harsh environments and wide temperature range application. RSTP, MSTP, ERPS, LACP for Network Redundancy. QoS CoS/DSCP to increase

High Density 50G/400G PAM-4 Capable Rugged

256 channels in total that can support up to 400G (x8) and 50G (x1) interfaces in PAM4 mode Also, complete NRZ support for 50G (x2), 40G (x4), 25G (x1), 10G

BCM81724 Data Sheet

8 × 56 Gb/s PAM-4 Pass-Through mode PHY. It supports both the PAM-4 and NRZ data formats. It supports Retimer, Forward, and Reverse Gearbox modes. It also supports 1G, 10G, 25G, 40G, 50G,

50G PAM4 Technical White Paper

Building on the 50G PAM4 per lane technology, 400GE/200GE/ 50GE interfaces can meet the cost and performance requirements of 5G mobile networks to construct an optimal solution covering the

Understanding IEEE 802.3bs: The 400G Ethernet Standard and Its

Complete guide to IEEE 802.3bs 400G Ethernet standard. Explore technical specifications, PAM4 modulation, optical PMDs, and LINK-PP's compliant 400G transceivers for

400G Optical Transceivers | OEM Compatibility

Takeaway: PAM4 + FEC + the right optical lane design deliver 400G speeds reliably over the distance you need. 400G optical transceivers play a

AN 835: PAM4 Signaling Fundamentals

Introduction This Pulse-Amplitude Modulation 4-Level (PAM4) application note explains PAM4 theory and operation while introducing the Intel® Stratix® 10 TX device capability and the realization of 57.8

Pulse Amplitude Modulation (PAM) | Keysight

PAM4 effectively doubles the data rate for a link bandwidth at the expense of reduced signal to noise ratio (SNR). PAM4 is used in 400GE, 800GE, and 1.6T

SFP 50G Third-Party Compatibility and OEM Alternatives

Third-party SFP56 transceivers bypass the OEM markup, reducing CapEx by 80% to 90% while delivering identical 50Gbps PAM4 performance, provided they are properly coded for the host switch.

156-Channel 50G/400G PAM-4 Rugged Ethernet

Amphenol's Rugged 156-Channel 50G/400G PAM-4 Ethernet Switch Box is conduction cooled and configurable for system connectivity, speeds, port types,

What is the difference between white-box, bare-metal

Basically, white boxes are commodity-based bare-metal switches with a network operating system (third-party or traditional networking vendor)

Access VS Distribution VS Core Switch

□□ Key Differences Access vs Edge: Access = connects internal end devices. Edge = connects the internal network to the external WAN/Internet.

NVIDIA LinkX 400GbE+NDR Combo Main Portfolio (100G-PAM4)

800G OSFP Switch-to-400G BlueField-3 + ConnectX-7 with QSFP112 LinkX cables, transceivers, ConnectX-7 and BlueField-3 DPUs contain both InfiniBand and Ethernet protocols.

Intel® Stratix® 10 TX PAM4 8 x 51Gbps with QSFPDD 1x1 Example

The objective of this this design example is to demonstrate Intel® Stratix® 10 TX PAM4 8x51Gbps channels interfacing with QSFPDD 1x1 module. QSFPDD 1x1 loopback module is used to perform

High Density 50G/400G PAM-4 Capable Rugged

Amphenol's Rugged 256 Channel Ethernet Switch Box is liquid cooled and configurable for system connectivity, speeds, port types, and interoperation with

High Radix SOA-Based Lossless Optical Switch Prototyping for 25

In a development towards high-radix datacenter networks, we demonstrate 25 GBaud PAM4 transmission through a three-stage 8×8 SOA-based lossless optical switch, implemented as a

b) Access Point (Wifi Router):

Managed. Other OEM Access points are not compatible, therefore if user wants to procure Access Point (Wifi router) and join to NIC controller only CISCO Access point will work". These also fall outside the

What is an access switch and how to select access switches?

What is an access switch? Learn the features and applications, and know how to select the right access switch for your network needs. Ruijie Networks' access switches here for you.

Marvell to Demonstrate Industry's First 400G/lane

"Marvell has a long history of innovation in PAM4 connectivity, being the first to demonstrate proven 100G/lane and 200G/lane, and now 400G/lane

LAN Cables Direct/ Home

Pre-terminated assemblies, OEM-compatible optics, and structured cabling. Built to spec with name-brand components - Corning glass, US Conec ferrules, SENKO connectors.

112G and 224G PAM4 SerDes Clocking for Rapid Data Center Switches

800G switches have made significant leaps forward in data networking by leveraging 112G and 224G PAM4 SerDes technology. The 112G PAM4 SerDes is designed to transmit data at 112 gigabits per

BCM87840 7-nm CMOS 400G (4:4) PAM-4 PHY Product Brief

The Broadcom® BCM87840 is the industry's highest-performance and lowest-power single-chip 400GbE PAM-4 PHY transceiver capable of driving four lanes of 106-Gb/s PAM-4 at 53 Gbaud, while

Contact Us

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