

Rwanda ODM Access Switch PAM4



Overview

The unique, low-cost and low-power solution is optimized for Data Center Interconnect (DCI), Metro Aggregation and Distributed Access at distances up to 80 km and leverages the newly standardized PAM4 signal modulation in QFSP28 form factor transceivers. Ara features eight 200Gbps/channel PAM4 host electrical interfaces, and an octal 200Gbps/lane PAM4 optical interface with integrated high-swing laser-modulator. Oslo, Norway – 13 December 2018 – Smartoptics, a leading provider of open optical networking solutions, today announced its new, cost optimized, fully automated 100G DWDM solution (<https://connect.com/sb-stepping-up-to-100g-dwdm-free-download>). This solution provides open 100G DWDM. PAM4 is a four-level pulse amplitude-modulated signal, which can be electrical or optical. Previous generations of serial data standards used non-return-to-zero (NRZ) encoding, rendering bits distinct high- and low-level. 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. We then demonstrate a switch-pluggable, 4.5 W, 100 Gbit/s, silicon-photonics-based, PAM4, QSFP-28 module to transport Ethernet data directly over DWDM for layer 2/3 connection between switches at data center. This document examines key technologies used in constructing LinkX cables and transceivers for 100G-PAM4, 50G-PAM4, and 25G-NRZ -modulation based interconnects used to create 800G, 400G, 200G, 100G and 25Gb/s aggregate data rates. The following technologies are used in various combinations to.



Article Content

Oct 06, 2025

How Rwandans can benefit from new Pan-African card scheme

People banking with I& M Bank Rwanda and Bank of Kigali will soon be able to own PAPSSCARD, the continent's first Pan-African card scheme, allowing them to transact across borders using local ...

May 03, 2026

PAM4: Pulse Amplitude Modulation Explained | Keysight

Learn how to measure PAM4 signals for high-speed digital networking applications.

Oct 04, 2025

Open Data Manager

Open Data Manager (ODM) provides access to data in archive files for programs that use the Open Database Connectivity (ODBC) or Java™ Database Connectivity (JDBC) Application Programming

Apr 12, 2026

Rwanda's RSwitch launches eKash to drive financial

Rwanda today officially launched eKash, the flagship platform of the Rwanda National Digital Payment System (RNDPS), marking a transformative

Jul 01, 2025

Pluggable IO interface technology driving 224G PAM4

DesignCon 2023 attendees saw several new 200+G PAM4 per-lane copper and optical products demonstrations. For example, TE Connectivity

Mar 09, 2026

With PCIe 6.0 You Have to Move from NRZ to PAM4.

A move from NRZ to PAM4 with PCIe 6.0 was inevitable. PAM4 effectively doubles the data rate without demanding extra link bandwidth at the

May 09, 2026

Whitebox Edge Switch (P4): ASIC, PAM4 Retimers

Deep dive into P4 whitebox edge switches: match-action ASIC pipeline, PAM4 SerDes/DSP, retimers, timing, and power/thermal telemetry.

Feb 27, 2026

Central Bank to Standardize Cashless Payment Systems for ...

The National Bank of Rwanda (BNR) plans to connect the country's various cashless payment systems by 2025, a move expected to reduce transaction costs. The initiative, known as the

Nov 20, 2025

Rwandan Startup Ecosystem | Eoptolink demos industry-first 1.6T

The transceiver uses an advanced (8:4) PAM4 DSP bridging an 8×200G electrical interface to a 4×400G optical interface. Compared to previous-generation 1.6T DR8 architecture, the solution reduces

Jun 30, 2025

Rwanda National Digital Payment System – Access to Finance Rwanda

Expand access to affordable, relevant digital financial services for underserved segments including women and other marginalized groups and accelerate DFS usage by strengthening the Rwanda

Mar 15, 2026

RSwitch teams with ETF to enable financial access in Rwanda

Rwanda-based payment solutions company RSwitch has teamed with fintech EFT to enable Rwandans to access their money across all technological platforms.

Nov 29, 2025

QSFP28 PAM4 DWDM: A Solution for Extending

By combining four-level pulse amplitude modulation (PAM4) with dense wavelength division multiplexing (DWDM) technology, these transceivers

Apr 12, 2026

AN 835: PAM4 Signaling Fundamentals

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 Gbps data

Jan 22, 2026

Marvell Ara PAM4 Optical DSP

Ara is manufactured with advanced 3nm process technology that delivers improved power efficiency while doubling the total bandwidth of the module to 1.6Tbps utilizing established OSFP/QSFP-DD

Jul 16, 2025

PAM4: Pulse Amplitude Modulation Explained | Keysight

Pulse amplitude modulation builds upon this concept by encoding data across multiple voltage levels. PAM4 uses four levels. A PAM4 signal can

Mar 26, 2026

Water Access Rwanda

We provide water access services to locate groundwater, drill boreholes, install solar pumps, install water filters, and other projects for unlimited safe water access.

Sep 28, 2025

Silicon Photonics-Based 100 Gbit/s, PAM4, DWDM Data Center

We then demonstrate a switch-pluggable, 4.5 W, 100 Gbit/s, silicon-photonics-based, PAM4, QSFP-28 module to transport Ethernet data directly over DWDM for layer 2/3 connection between switches at

Oct 30, 2025

COM Simulation and Analysis for 200Gbps/Lane Chip-to-Module

Possibility of increased SerDes performance and functionality (200G baseline shown in P.6)?

Aug 06, 2025

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

Nov 16, 2025

Key Technologies

This document examines key technologies used in constructing LinkX cables and transceivers for 100G-PAM4, 50G-PAM4, and 25G-NRZ -modulation based interconnects used to

Jan 20, 2026

PAM4 Transmission Experiment and Scalability Simulations on Multi ...

We demonstrate a multi-wavelength selective crossbar switch with up to two wavelength switching capability per crosspoint. The switch has a mean path loss of 2.

Feb 10, 2026

PAM4 Modulation | How is Transforming Optical

In this blog, we take a higher-level look at PAM4, the modulation scheme that makes short distance 400G networking possible, and discuss how

Nov 29, 2025

Equity Bank Rwanda, RSwitch Launch eKash Platform

Equity Bank Rwanda, operating since 2011 with a network of 46 branches and over 1.3 million customers, will integrate eKash across its platforms, including mobile apps and internet banking.

Jul 07, 2025

Precision OT touts patents, upcoming PAM4 Access

Optical transceiver and related active/passive optical components supplier Precision OT says its Advanced Engineering Group has seen its work rewarded with nine

Jun 19, 2026

PAM4 Basics: Modulation, Signaling and Encoding

Explore The Fundamentals of PAM4 Modulation, Signaling and Encoding. Plus, Compare PAM4 to NRZ and Find Helpful Eye Diagrams. Visit To

Sep 16, 2025

Rwanda: Beyond Connections | Energy Access Diagnostic Report

It's focus on expanding energy access also applies to increasing access to improved cookstoves (ICSs). Rwanda has gained support from multiple development partners to help it reach its energy access

Jul 08, 2025

Smartoptics announces automated low-cost 100G DWDM PAM4

The unique, low-cost and low-power solution is optimized for Data Center Interconnect (DCI), Metro Aggregation and Distributed Access at distances up to 80 km and leverages the newly standardized

Oct 02, 2025

What Is PAM4? Understanding NRZ and PAM4 Signaling

What is PAM4? NRZ vs PAM4: both transmit bytes of data over coax, fiber, or PCB trace, but each uses a different method & has pros/cons.

Nov 27, 2025

RSwitch signs partnership with EFT to empower

Rwanda: Thursday 7 th July 2022: RSwitch, the national e-payment switch of Rwanda, has announced a new partnership with African fintech giant

Mar 21, 2026

PAM4 Signal Modulation and Digital Signal Processing-Based Detection ...

In addition, some single-channel 100 Gbit/s short-distance access experiments have been published. These experiments use PAM4, PAM8 internal modulation or external modulation scheme

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