

DAC optical module standard



Summary of Content

DAC (Direct Attach Copper) modules are standardized high-speed interconnects that use fixed copper twinax cables with integrated transceivers, following IEEE and SFP/QSFP form factor specifications.

Overview of DAC Modules

DAC modules are copper-based, fixed-length cables with transceivers at each end, designed for short-range, high-speed connections in data centers and enterprise networks. They are commonly used for 10G, 25G, 40G, 50G, 100G, and 400G Ethernet links, providing low latency, low power consumption, and cost-effective connectivity for distances typically up to 5 meters for passive DACs and slightly longer for active variants.

Types and Standards

- Passive DAC:
 - No active electronics; relies on the host device for signal integrity.
 - Typically used for very short links (≤ 5 m).
 - Low cost and minimal power consumption.
- Active DAC (ACC/AEC):
 - Includes signal conditioning electronics to extend reach and improve performance.
 - Can support slightly longer distances than passive DACs.
 - Often used in high-density data centers where signal integrity is critical.

Article Content

Fortinet Transceivers Data Sheet

Cost Effective Transceiver modules can be expensive, especially those with sensitive high-speed optics. Fortinet delivers high-quality

Trade-offs to Consider with DACs, AECs and AOCs

Learn the trades-offs of DACs, AECs, and AOCs; reduce operating costs with the right

In-Depth Guide to 40G QSFP+ Optical Modules, DAC, AOC

40G optical modules are increasingly widely used in data centers. 40G optical modules can reach up to 40Gbps to help data centers

Cisco OSFP 800G Transceiver Modules Data Sheet

It is compliant with IEEE 802.3 800GBASE-VR8 and OSFP MSA module requirements with integrated heat sink.

Cisco 25GBASE SFP28 Modules Data Sheet

The Cisco 25GBASE SFP28 (Small Form-Factor Pluggable) portfolio offers customers a wide variety of high-density

Direct Attach Copper (DAC) Twinax Cables: Passive vs

For high-speed fabrics, combining DAC (short), AOC (medium), and optics (long) offers a

The Most Comprehensive Guide Of Optical Modules

Explore the ultimate guide to optical modules. Learn types, functions, performance metrics

DAC80516 16-Channel, 16-Bit, Voltage-Output DAC With Internal

After a reset event, all the DAC registers are set to code 0x0000, the DAC output amplifiers are powered down, and the DAC outputs

800G Data Center Interconnect Guide: DAC, AEC, AOC & Optical

Standard practice is to stock 2–3% of deployed optical transceivers as spares. For 1,000 optical ports, that's 20–30

Energy-Efficient 8-PAM Optical DAC Design for Visible Light ...

ABSTRACT This paper presents a cost-effective and energy-efficient optical digital-to-analog converter (ODAC) transmitter scheme

Ultra-high-speed optical transmission using digital-preprocessed

The DP-AM-DAC enables us to overcome the bandwidth restriction of CMOS-DACs, which are essential in advanced

Understanding DAC, AOC, and AEC Cables: A Comprehensive Guide

Comprehensive guide to DAC, AOC, and AEC cables: understand specs, applications, and benefits for optimal data

800G Data Center Interconnect Guide: DAC, AEC, AOC & Optical

DAC · ACC · AEC · AOC · Optical Transceivers — the complete engineer's framework for choosing the right

Digital Input Module Options | MSB Technology

Optical/Coaxial Module (S/Pdif) This module is our S/PDIF interface modules. Around since the eighties,

Comparing AOC, DAC, ACC, and AEC Cables for AI and Data Center

In network switching, various connectivity options are available, including optical modules paired with fiber, Active

Complete Guide to 100G Optical Transceivers, DAC & AOC | ...

100G optical transceivers are, by design, standards-based components intended to interoperate across multiple switch and router

SFP+ Types Overview: Optical, Copper, and Direct Attach

SFP+ Types overview: Compare optical, copper, and direct attach modules, their features, distances, and

Precision DAC Selector Guide

Targeted at optical communications including Mach-Zehnder modulator bias control, as well as LED displays, analog output

DAC Cable Selection Guide: SFP28, QSFP28

We will look at what DAC assemblies actually are, how they differ from AOC and pluggable

2026 DAC Guide: High-Speed Direct Attach Cables for AI Fabrics

Learn how passive DACs, active DACs, and AOCs compare to optical modules for 10G–400G links. Using direct

Overview: 400G Transceivers, DACs, and AOCs

400G DACs As opposed to 400G DACs, 400G Active Optical Cables (AOCs) transmit data using fiber optical fibers,

Optical module

An optical module is a typically hot-pluggable optical transceiver used in high-bandwidth data

Small Form-factor Pluggable

Small Form-factor Pluggable Small Form-factor Pluggable connected to a pair of fiber-optic cables Small Form-factor Pluggable

Your Ultimate Guide to DAC Cable - VCELINK

What is DAC Breakout Cable? Before understanding what a DAC breakout cable is, it's essential to know about

What is DAC Cable? The Definitive Guide

What is a DAC cable? A DAC cable is short for direct-attach copper cable. It is a pre-terminated Twinax copper cable

Arista Optics Modules and Cables

All interface speeds, from 1G to 400GE have connectivity options that include Direct Attach copper Cables (DACs), Active Optical

Contact Us

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