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AS1-EVK Getting Started Guide

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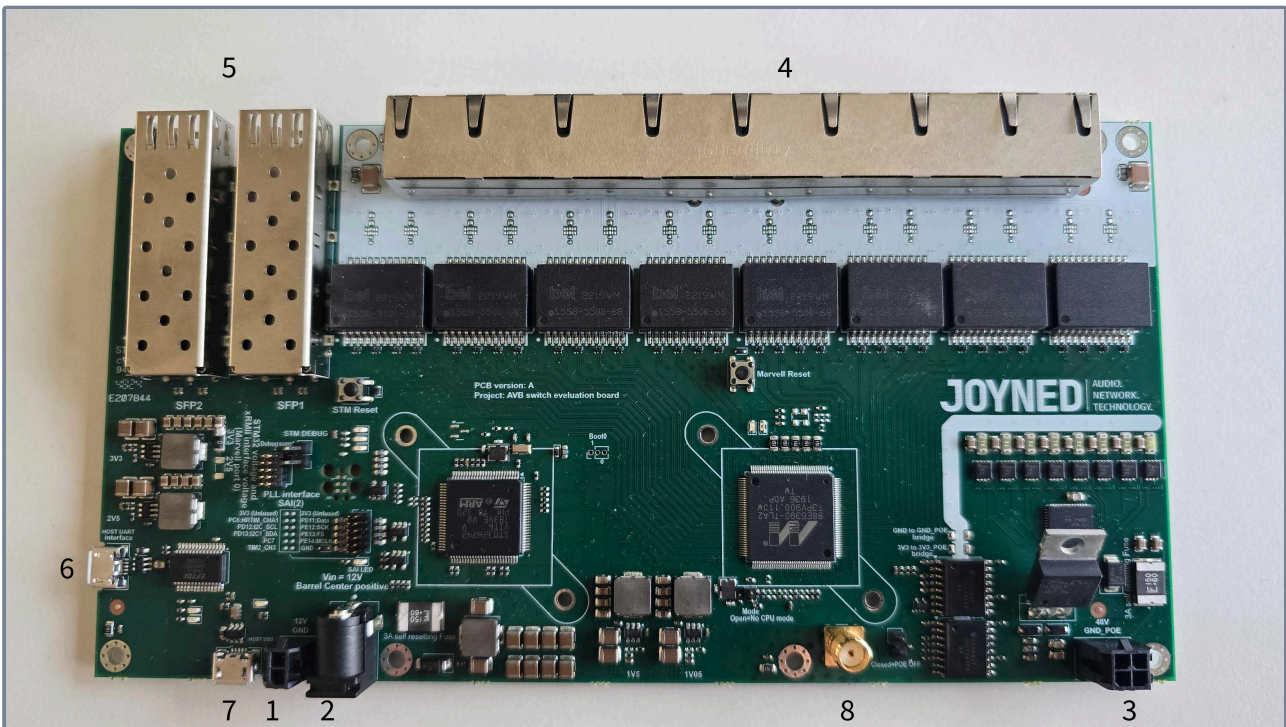
Overview

The AS1-EVK is a reference design for a VLAN-aware AVB switch with the following features:

- **8 Gigabit Ethernet (RJ45) Ports** with PoE/PoE+
- **2 SFP Cages** for 1G SM/MM optical Ethernet
- **TI TPS23880 PoE Controller** supporting:
 - IEEE 802.3af/at
 - Two-pair PoE+ up to 30W per port
- **AVB Switch:** Supports IEEE 802.1BA bridge, gPTP synchronization, Milan Standard, and seamless AVB/TSN integration for time-sensitive audio and video over Ethernet.

Connectors & Interfaces

Connector	Interface	Description
[1]	DC Input (System) – Pin Header	9–15V input via 2-pin header (Molex 245132-0210 cable)
[2]	DC Input (System) – Barrel Jack	9–15V input, center-positive
[3]	DC Input (PoE Supply)	40–57V (50–57V recommended for full 30W PoE) via 4-pin header (Molex 245132-0410 or similar cable recommended)
[4]	RJ45 Ethernet Ports	8x 1G PoE/PoE+ Ethernet ports
[5]	SFP Cages	2x for 1G SM/MM optical Ethernet
[6]	USB UART Console	Shell command-line interface
[7]	Native USB	DFU & Shell interface (Host USB)
[8]	1 PPS Output	Programmable output (e.g., N PPS)



Powering the Switch

Single Supply Configuration (Non-PoE Mode):

- Only the **12V system supply** is required
- PoE functionality will be disabled
- Connect via: and only one of those can be used at the time
 - **Barrel jack [2]** → **Center-positive (+)** and outer shell (-)

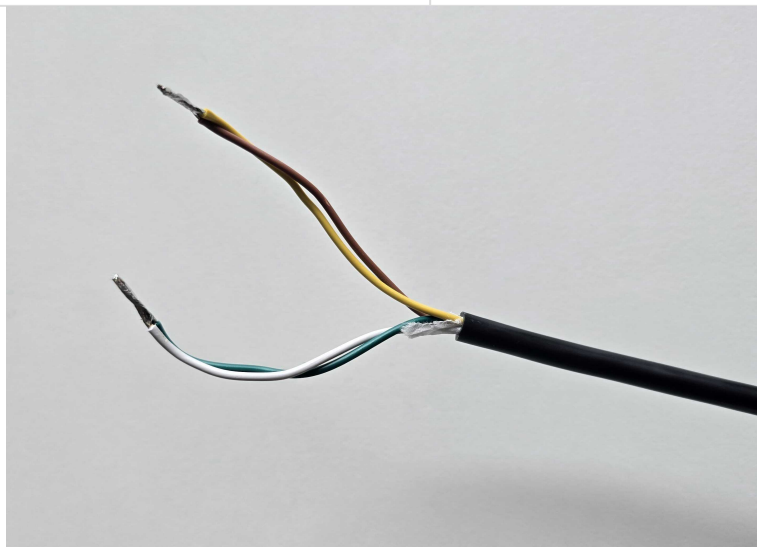
⚠ *Warning: Reversing polarity may damage the board.*

PoE Mode (Two Supply Configuration) :

- **PoE Supply (connector [3]):**
 - Required for PoE operation
 - Voltage: **50V–57V** for 30W per port operation (consider the total power budget of your supply)
 - This is an example of a suitable PSU: <https://www.digikey.at/de/products/detail/mean-well-usa-inc/RID-125-1248/7705994?s=N4IgtTCBcDallwA4BsSC0BmAnJgLKgCgClgC6AvkA>
 - **PoE supply** must be applied **no later** than the the 12V system supply. If it is provided too late the switch will operate without PoE.
 - Use **4-pin header [3]**, compatible with a **Molex 245132-0410** cables.

🔌 PoE Wiring (Header [3]):

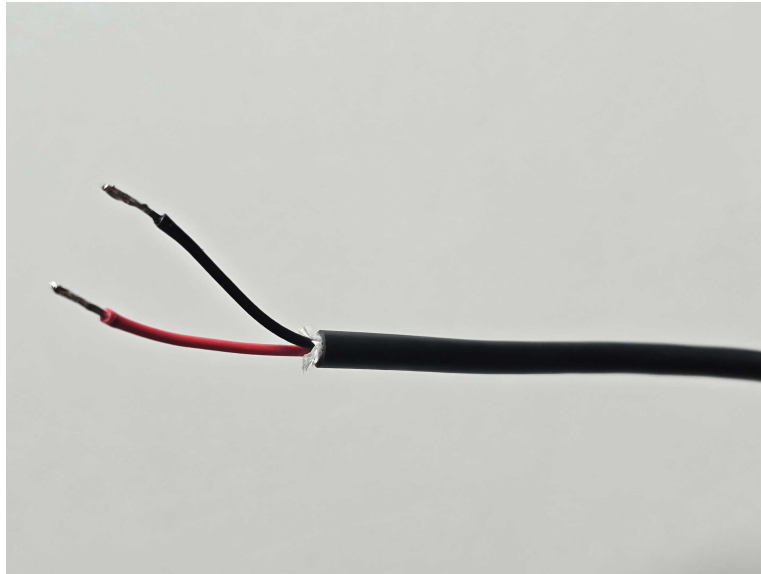
Wire Color	Function
White	+58V
Green	+58V
Yellow	GND
Brown	GND



- **System Supply (12V connector):**
 - 2-pin header [1], using **Molex 245132-0210** cable

🔌 System Supply Wiring (Header [1]):

Wire Color	Function
Red	+
Black	GND



| ⚠ *Warning: Reversing polarity may damage the board.*