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AS1-EVK Getting Started Guide

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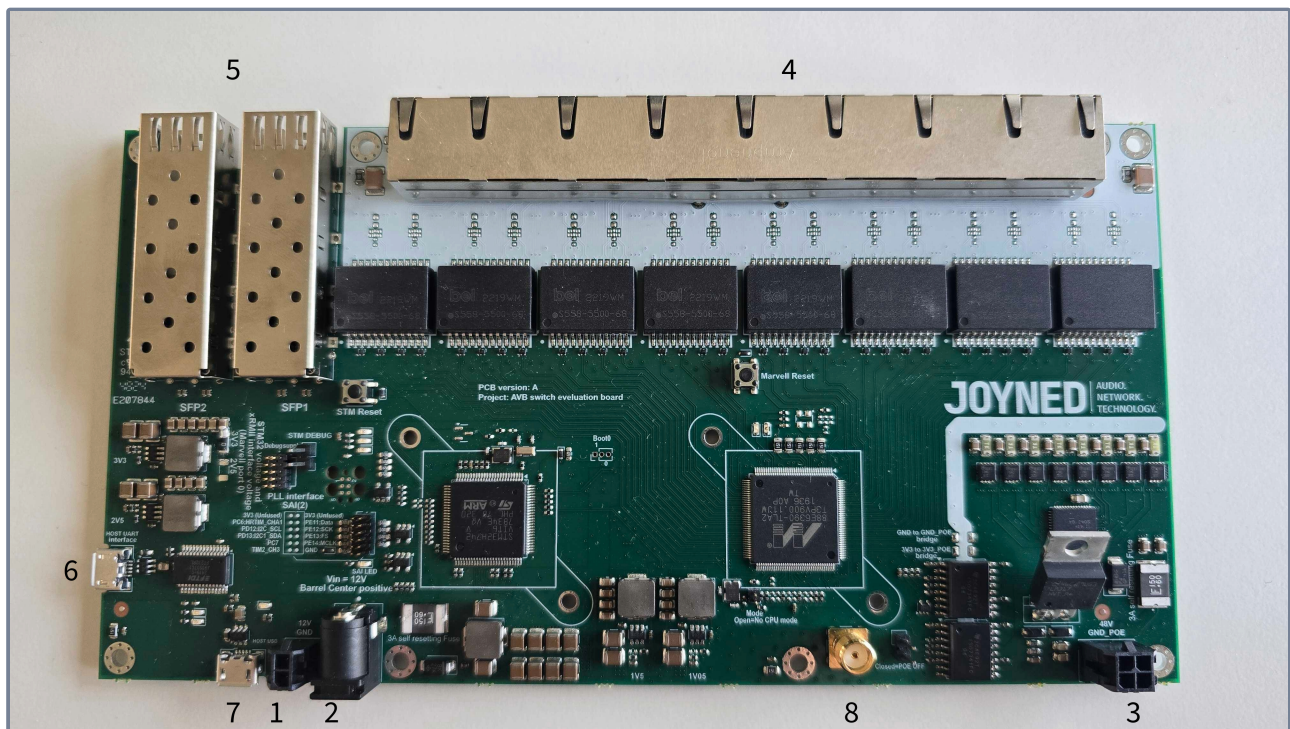
Overview

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) :

The supplied 12V wall wart should be replaced with a dual voltage power 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=N4lgTCBcDallwA4BsSC0BmAnJgLKgcClgC6AvkA>

It supports 88 - 132 VAC / 176 - 264 VAC selected by switch, 50 - 60 Hz

The pinout is defined by:

Terminal Pin No. Assignment

Pin No.	Assignment	Pin No.	Assignment
1	AC/L	5	DC OUTPUT +V2
2	AC/N	6	DC OUTPUT COM1
3	FG $\perp$	7	DC OUTPUT +V1
4	DC OUTPUT COM2		

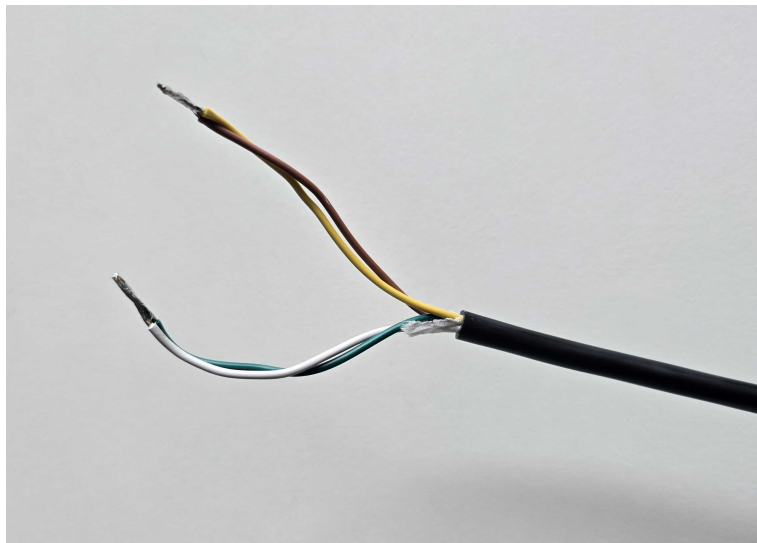
L, N and FG are to be connected with the live, neutral and ground of a standard wall plug. Country specific plugs to be used.

- **Switch PoE Supply (connector [3]):**

- Required for PoE operation
- Voltage: **50V–57V** for 30W per port operation (consider the total power budget of your supply)
- **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]):

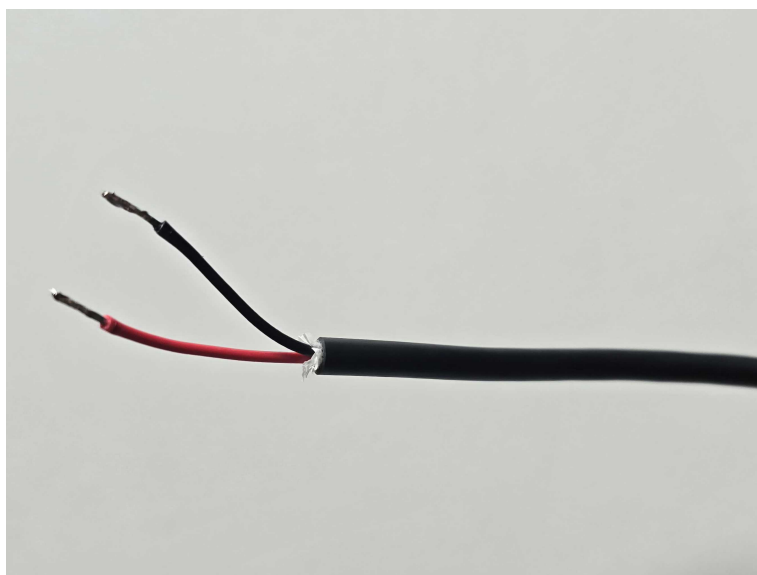
Wire Color	Function
White	+58V (+V2 Meanwell RID-125)
Green	+58V (+V2 Meanwell RID-125)
Yellow	GND (COM2 Meanwell RID-125)
Brown	GND (COM2 Meanwell RID-125)



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

🔌 **System Supply Wiring (Header [1]):**

Wire Color	Function
Red	+ (+V1 Meanwell RID-125)
Black	GND (COM1 Meanwell RID-125)



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