Factory Programming Interface – Home Mini v1 Drop-in PCB

Scope

This document describes the dedicated test pads (TPs) used for factory programming of the ESP32-S3 main MCU and the XMOS XU316 audio processor. All interfaces are provided as unpopulated test pads intended for pogo-pin fixtures.

Powering During Factory Programming

During **both XMOS and ESP32 S3 factory programming**, the board must be powered via the **+5V pin on the XMOS JTAG interface (J3)**. There is no separate power input for ESP programming.

- The +5V supplied on J3 powers the entire board.
- This same +5V rail is used during XMOS programming via JTAG.
- This same +5V rail is also used during ESP32-S3 programming via USB.
- ESP USB D+/D− lines are used for data only and must not be used to power the board.

XMOS Programming – J3 (XMOS JTAG)

J3 is the primary factory interface for programming and recovery of the XMOS XU316 using XTAG4 through JTAG.

- Apply +5V to J3 to power the board.
- VDDIO is provided as VTref (sense only) for JTAG level reference.
- Two GND pads are provided for reliable pogo pin contact.

ESP32-S3 Programming – ESP USB Test Pads

ESP32-S3 is programmed using the internal ROM USB bootloader. USB D+/D-, BOOT and RESET signals are exposed via dedicated test pads on J5.

- Board must be powered via +5V on XMOS JTAG (J3).
- Hold ESP_BOOT low and toggle RESET to enter flashing mode.
- Flash firmware via USB D+/D−.

Notes

- All interfaces are test pads only; no headers are assembled.
- The XTAG/DEV (J4) pads are for development use only and not required for factory programming.