

# STM32H7 SMART INDUSTRIAL DEVELOPMENT BOARD

Model: H743IIT6 • 480MHz Cortex-M7 Core



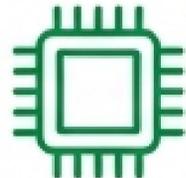
480MHz  
Frequency



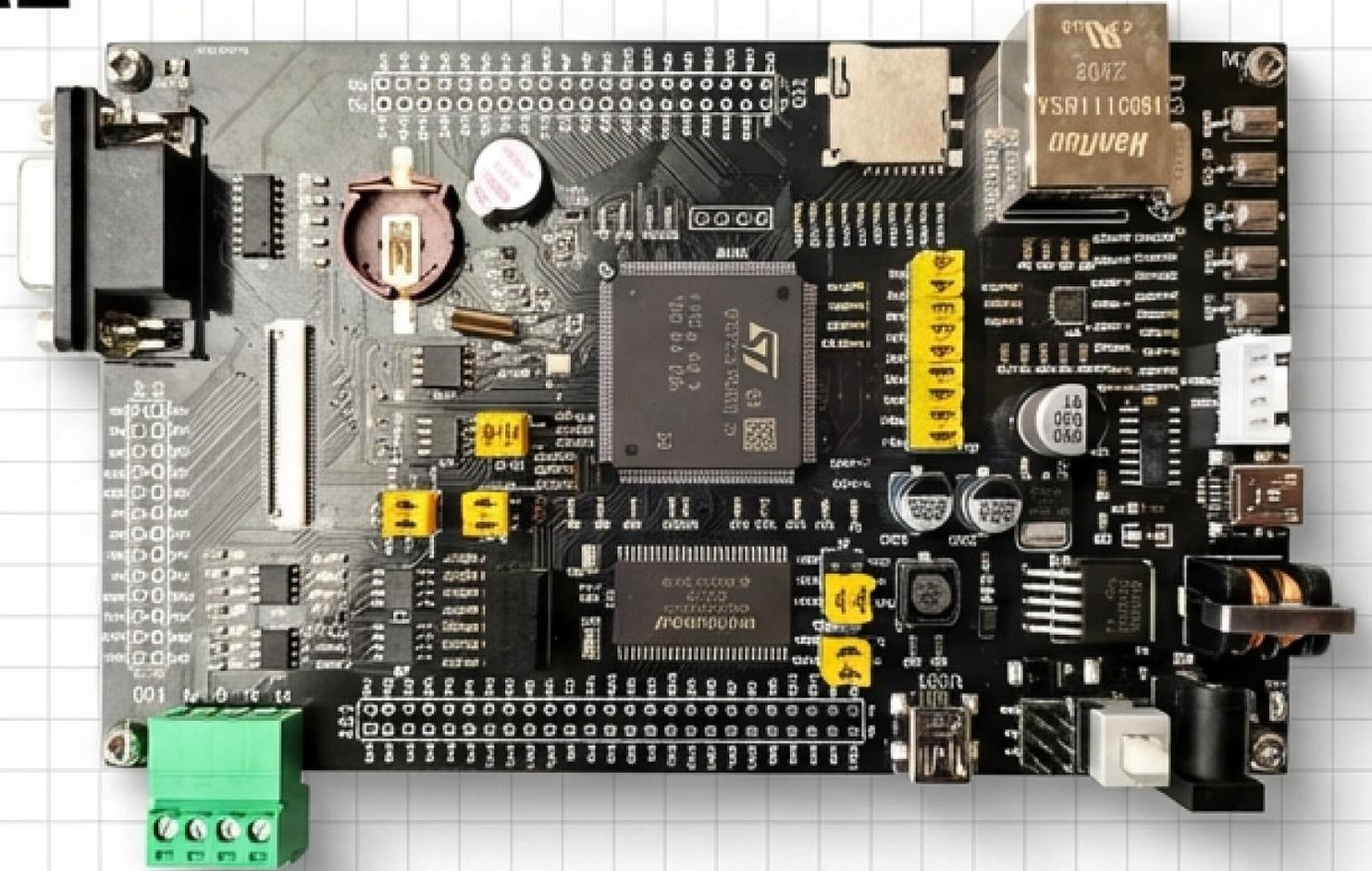
Fully Isolated  
CAN/RS485



Independent  
Network & USB



>120 GPIOs  
Accessible



# SIX CORE SYSTEM ADVANTAGES

## High Performance

STM32H743IIT6 Core running at 480MHz frequency.

## Industrial Comms

Fully isolated Power & Signal for both CAN and RS485 interfaces.

## Massive Memory

2M Internal Flash + 16M External SPI Flash + 32M SDRAM (1060K).

## Visual Interface

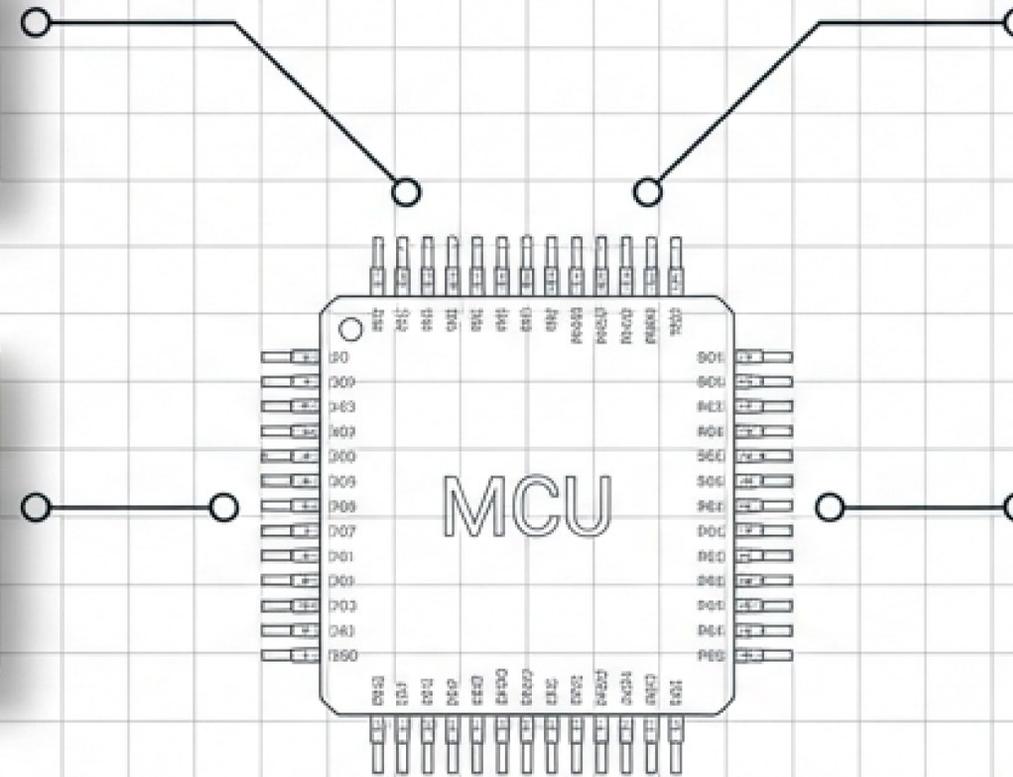
Supports direct RGB Screen connection & Serial Screen interfaces.

## Flexible Storage

Onboard Mini SD Card slot & EEPROM for data logging.

## Extensive IO

Over 120 GPIO ports brought out; functional blocks are independent.



# CORE PROCESSING & MEMORY ARCHITECTURE

## MCU:

STM32H743IIT6  
(Cortex-M7)

## SDRAM:

W9825G6KH (32M  
Capacity)

## System Specs

Core Speed:  
480MHz

Total Flash:  
18MB

Total RAM:  
32MB + Internal

## EEPROM:

24C02 (256B)

## SPI Flash:

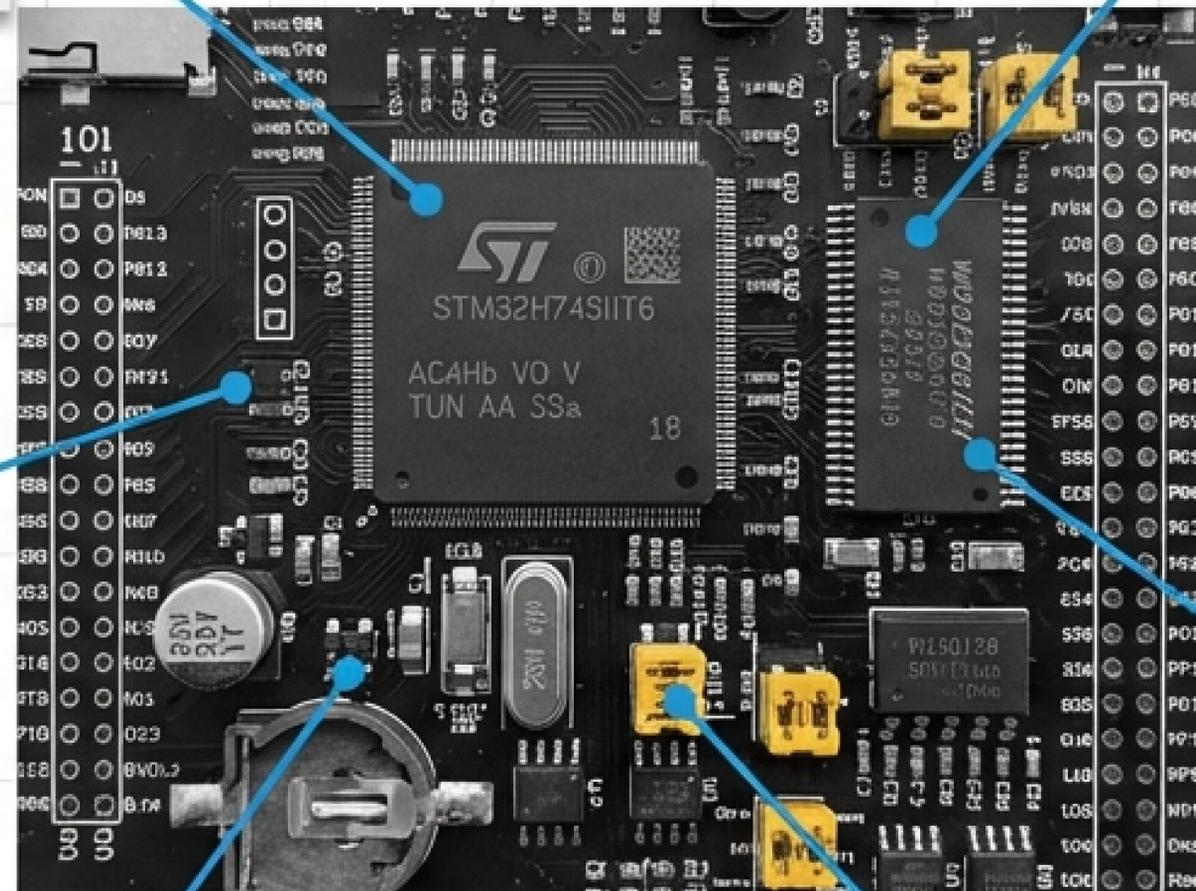
W25Q128 (16M  
Capacity)

## 25M Active

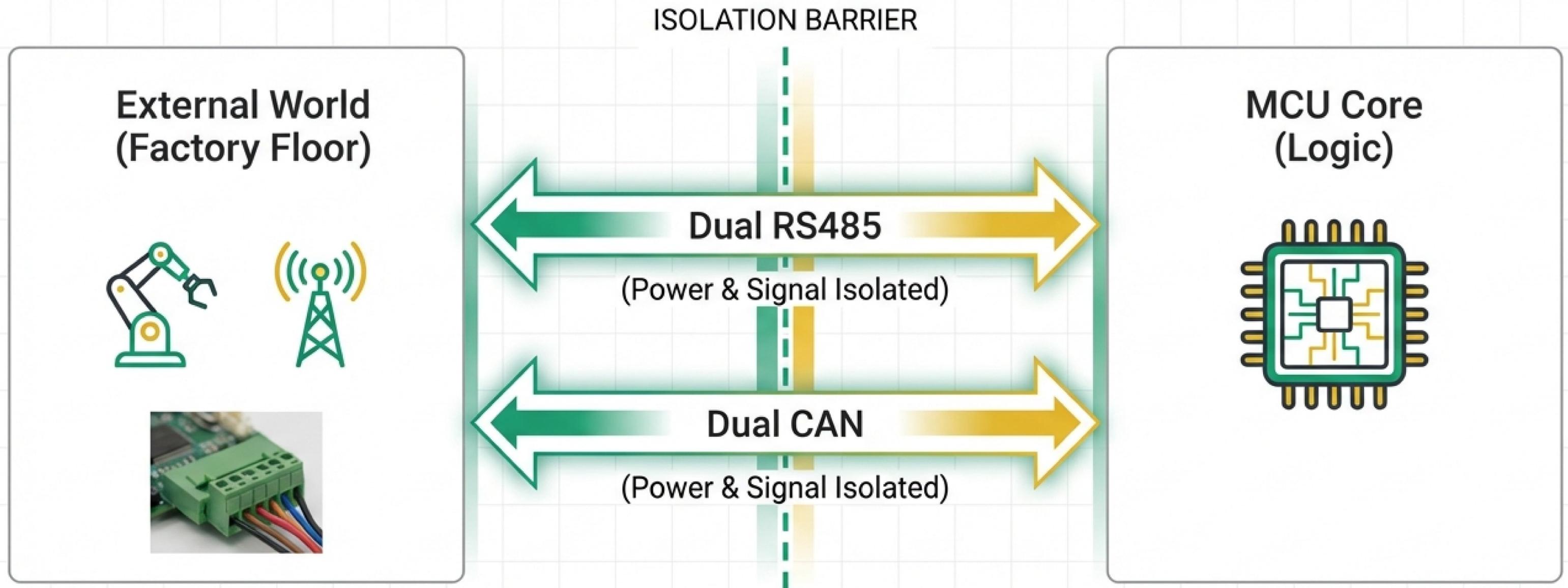
Crystal Oscillator

## RTC Battery

RTC Battery Backup



# INDUSTRIAL COMMUNICATION & GALVANIC ISOLATION



## Speed

Up to 1MHz Transmission Rate

## Ethernet

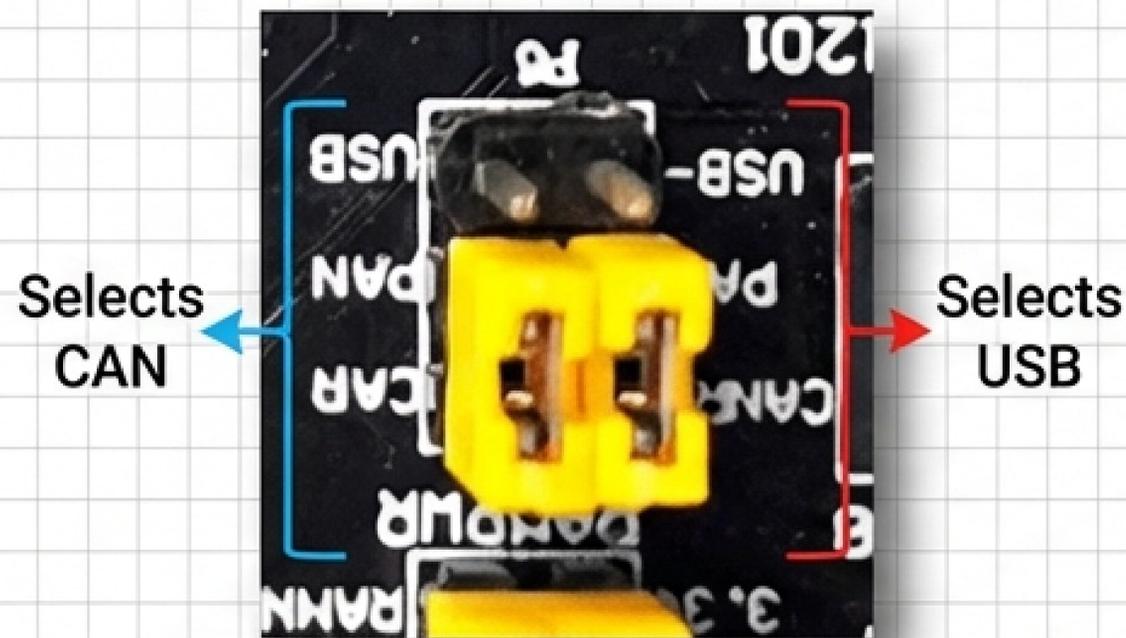
LAN8720 Onboard Interface (10/100M)

## USB

Integrated CH340 USB-to-Serial + USB Slave

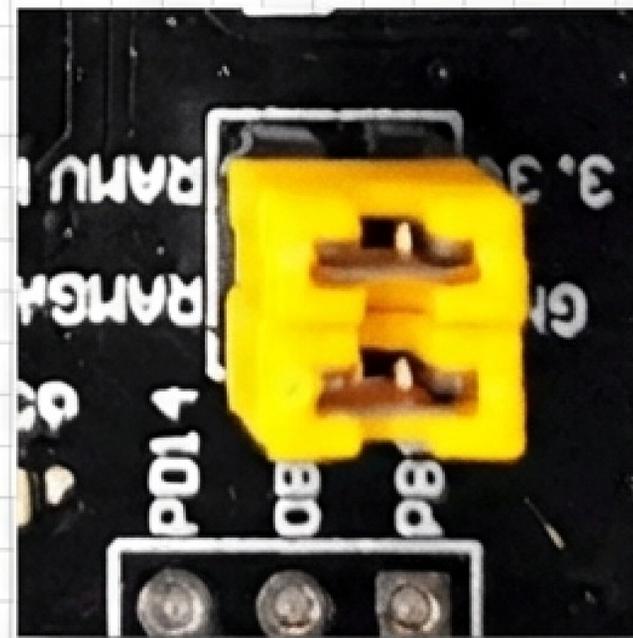
# DYNAMIC RESOURCE ALLOCATION (JUMPER CONFIGURATION)

## CAN vs. USB Selection



User selects active interface via jumper position.

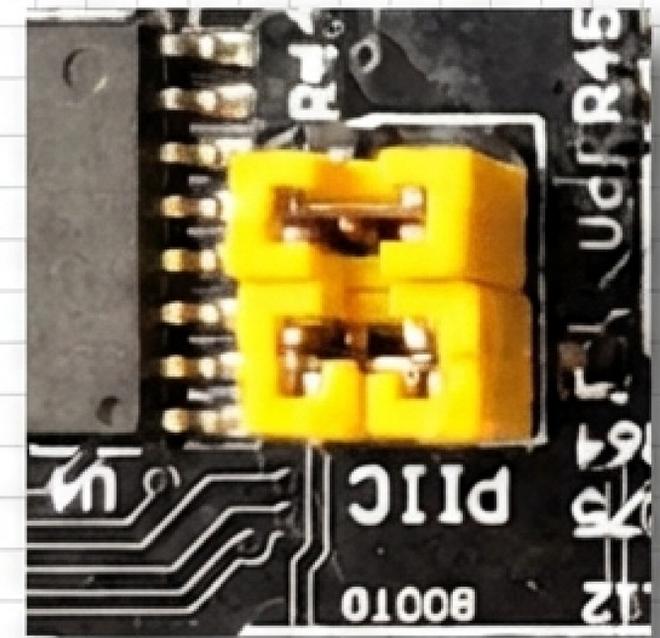
## SDRAM vs. GPIO



Jumpers INSTALLED = 32M SDRAM Active.

Jumpers REMOVED = Pins released as independent GPIOs.

## EEPROM/IIC vs. GPIO

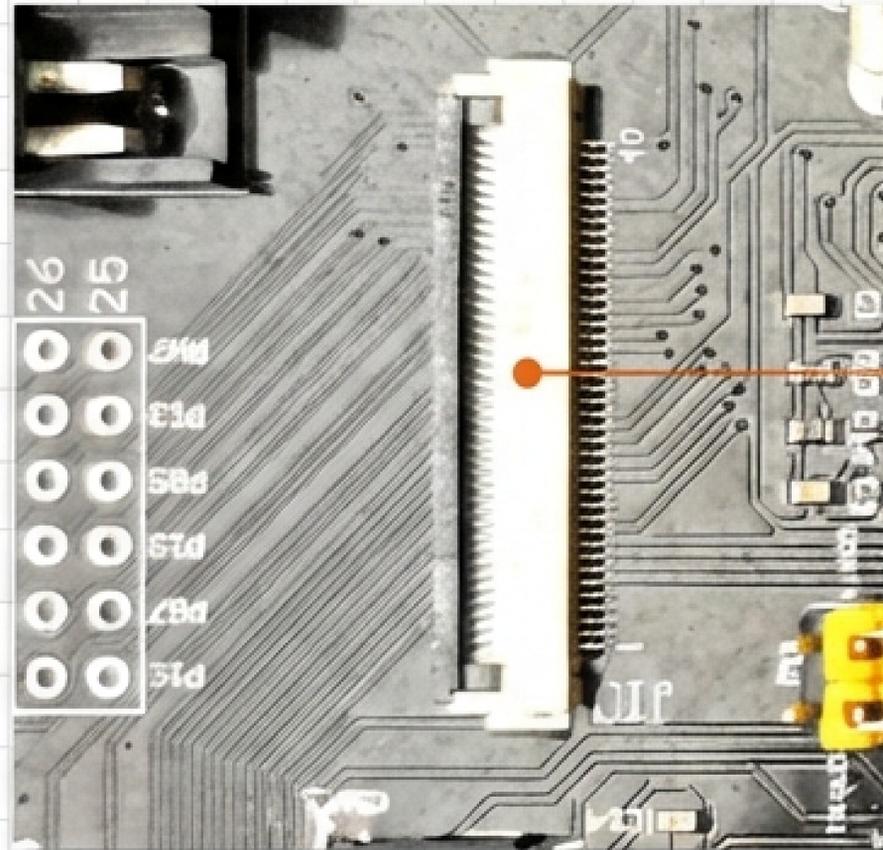


Jumpers INSTALLED = EEPROM connected.

Jumpers REMOVED = Standard GPIO usage.

# DISPLAY INTERFACES & HIGH-SPEED STORAGE

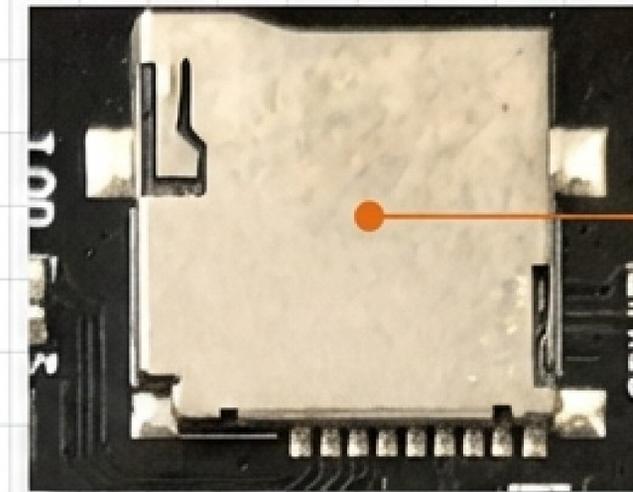
## Visual Output



40-PIN RGB Interface

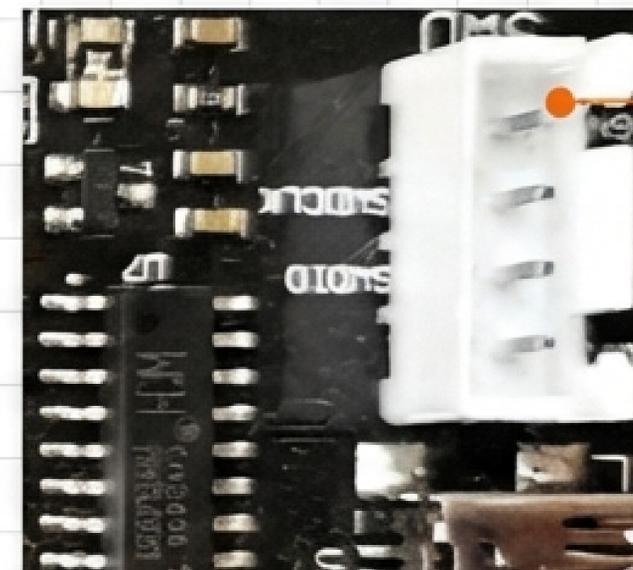
- **RGB Interface:** 40-Pin FPC for direct LCD connection.
- **Serial Screen:** Dedicated header for serial display modules.
- **Application:** Ideal for HMI (Human-Machine Interface) development.

## Data & Debugging

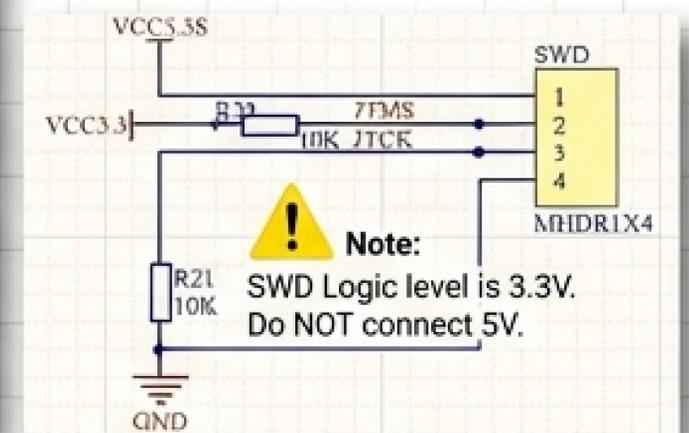


SD 小卡

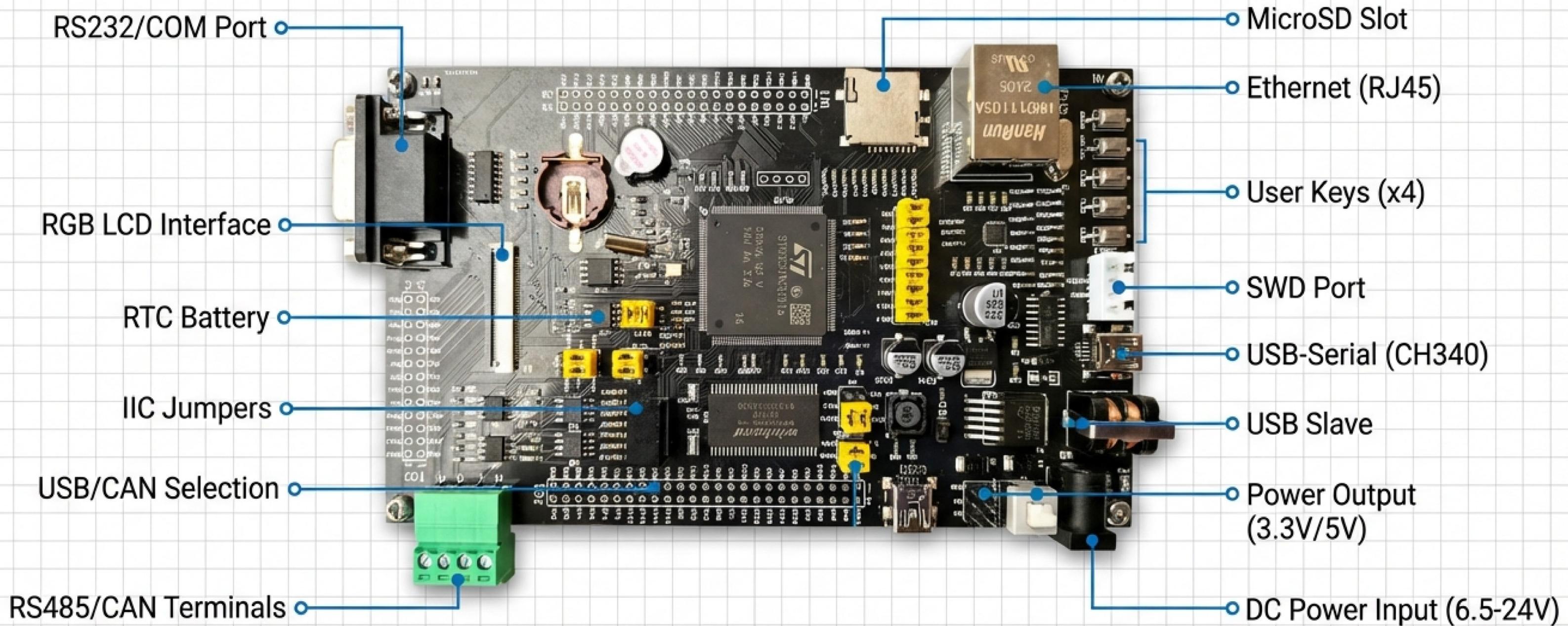
- **MicroSD Slot:** High-speed storage (up to 24MB/s).
- **SWD Port:** Standard simulation/download interface.



SWD 下载口

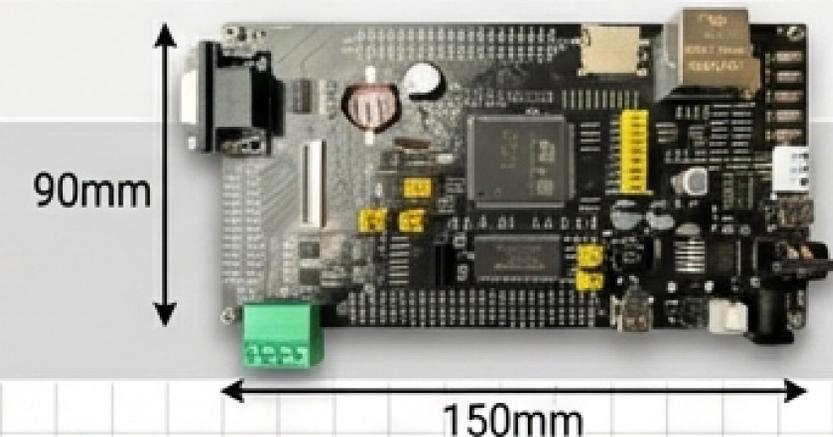


# HARDWARE INTERFACE MAP



# TECHNICAL SPECIFICATIONS SUMMARY

| FEATURE             | SPECIFICATION                                            |
|---------------------|----------------------------------------------------------|
| MCU Core            | ARM Cortex-M7 (STM32H743IIT6) @ 480MHz                   |
| Memory Architecture | 2M Internal Flash + 16M SPI Flash + 32M SDRAM            |
| Power Supply        | DC 6.5V - 24V Input (Standard 5.5mm Jack)                |
| Power Consumption   | Standby ~0.6W                                            |
| Operating Temp      | -40°C to +75°C (Industrial Range)                        |
| Communication       | 1x Isolated CAN, 1x Isolated RS485, Ethernet, USB-Serial |
| Digital IO          | >120 Channels available (Soldering required)             |
| DAC Output          | 12-bit Output (0-3.3V)                                   |
| Dimensions          | 90mm x 150mm                                             |



# PIN DEFINITION REFERENCE: SYSTEM & COMMUNICATION

**IMPORTANT:** Default delivery requires soldering for pin headers.

| PIN           | FUNCTION          | NOTES                                                                |
|---------------|-------------------|----------------------------------------------------------------------|
| PA1, PA2, PA7 | Network (LAN8720) | RMII interface. Can be independent IO if <b>PWK jumper removed</b> . |
| PA11, PA12    | USB / CAN         | Shared lines. Select function via <b>P6 Jumper</b> .                 |
| PA13, PA14    | Debug (SWD)       | JTMS/SWDIO and JTCK/SWDCLK.                                          |
| PA9, PA10     | UART1             | Default connection to CH340 (USB-to-Serial).                         |
| PB0, PB1      | LED Indicators    | PB0=Green, PB1=Red.                                                  |
| PB2           | BOOT1             | Boot selection configuration.                                        |

# PIN DEFINITION REFERENCE: MEMORY & STORAGE (FMC/SDIO)

| PIN GROUP                    | FUNCTION       | USAGE NOTES                                          |
|------------------------------|----------------|------------------------------------------------------|
| PC8 - PC12                   | SD Card (SDIO) | D0-D3, SCK, CMD lines.                               |
| PC0, PC2, PC3                | FMC Control    | SDNWE, SDNE0, SDCKE0.<br>Shared with SDRAM.          |
| PD0, PD1, PD8-10,<br>PD14-15 | FMC Data Bus   | Data lines D0-D3, D13-D15.<br>Shared with SDRAM/LCD. |
| PE7 - PE15                   | FMC Data Bus   | Data lines D4-D12.<br>Shared with SDRAM/LCD.         |
| PF0 - PF5, PF12-15           | FMC Address    | Address lines A0-A9.                                 |

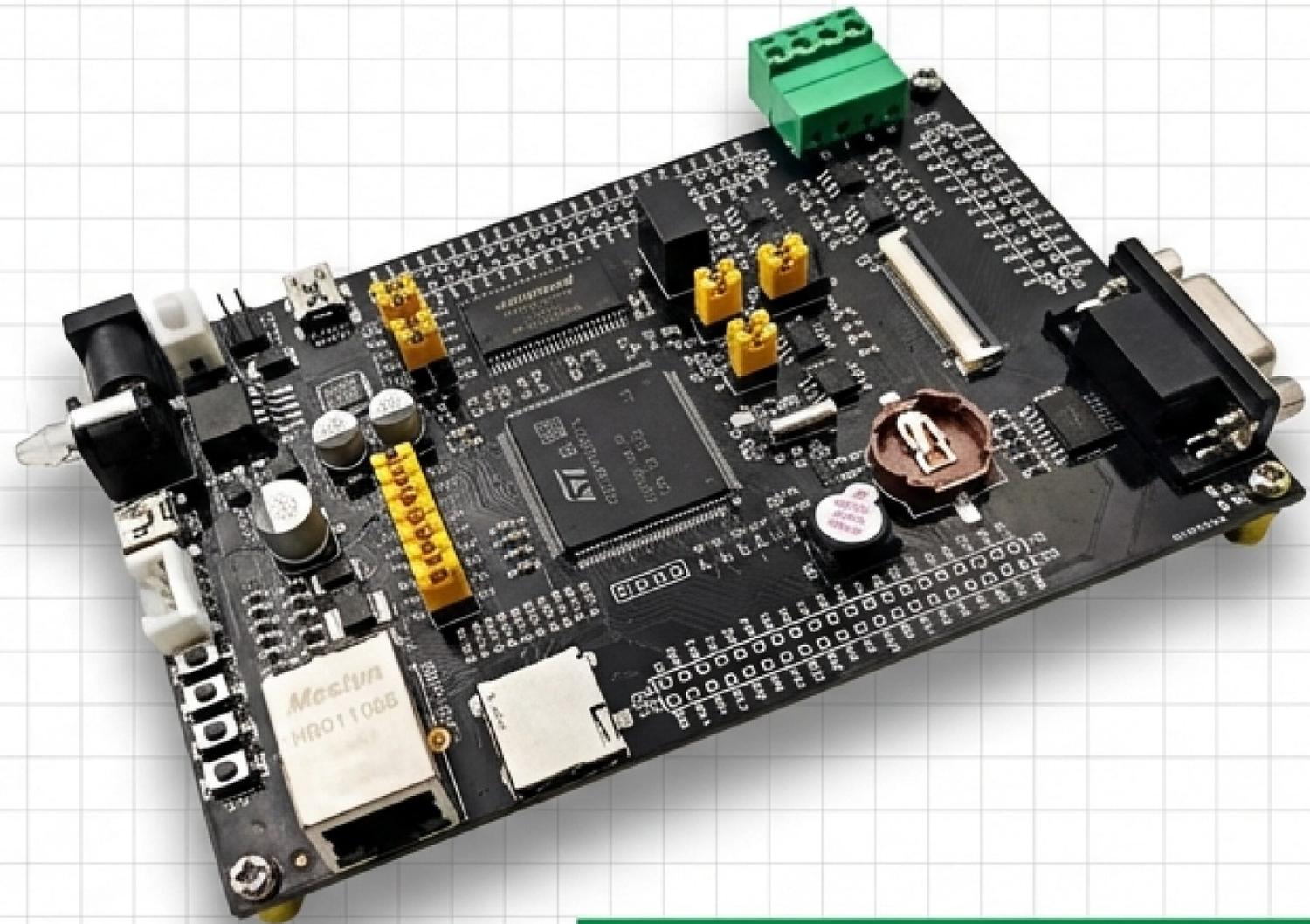
**NOTE:** All SDRAM pins can serve as independent IOs if the RAMPWR/Address jumpers are removed.

# PIN DEFINITION REFERENCE: DISPLAY & PERIPHERALS

| PIN                  | FUNCTION      | DESCRIPTION                                          |
|----------------------|---------------|------------------------------------------------------|
| PF6 - PF9            | SPI Flash     | CS, SCK, MISO, MOSI for W25Q128.                     |
| PF10, PG6, PG7, PG11 | LCD Control   | DE, R7, CLK, B3 lines.                               |
| PH9-15, PI0-7        | LCD Data      | RGB Data lines (R3-R6, G2-G7, B4-B7).                |
| PI9, PI10            | LCD Sync      | VSYNC, HSYNC.                                        |
| PH6, PH7, PI3, PI8   | Touch Screen  | SCK, PEN, CS for Touch Controller.                   |
| PH4, PH5             | IIC Interface | SCL, SDA (EEPROM). <b>Remove PIIC jumper for IO.</b> |

# APPLICATION & USAGE SCENARIOS

- Primary Applications
  - Industrial Automatic Control Systems
  - High-Speed Signal Acquisition & Processing
  - Smart Terminal Control (HMI)
  - Engineering Verification & Prototype Development



**ENHANCED PERFORMANCE.  
UNCOMPROMISED STABILITY.**