

# **MG32F04P032 Evaluation Board**

## **Explanation Manual**

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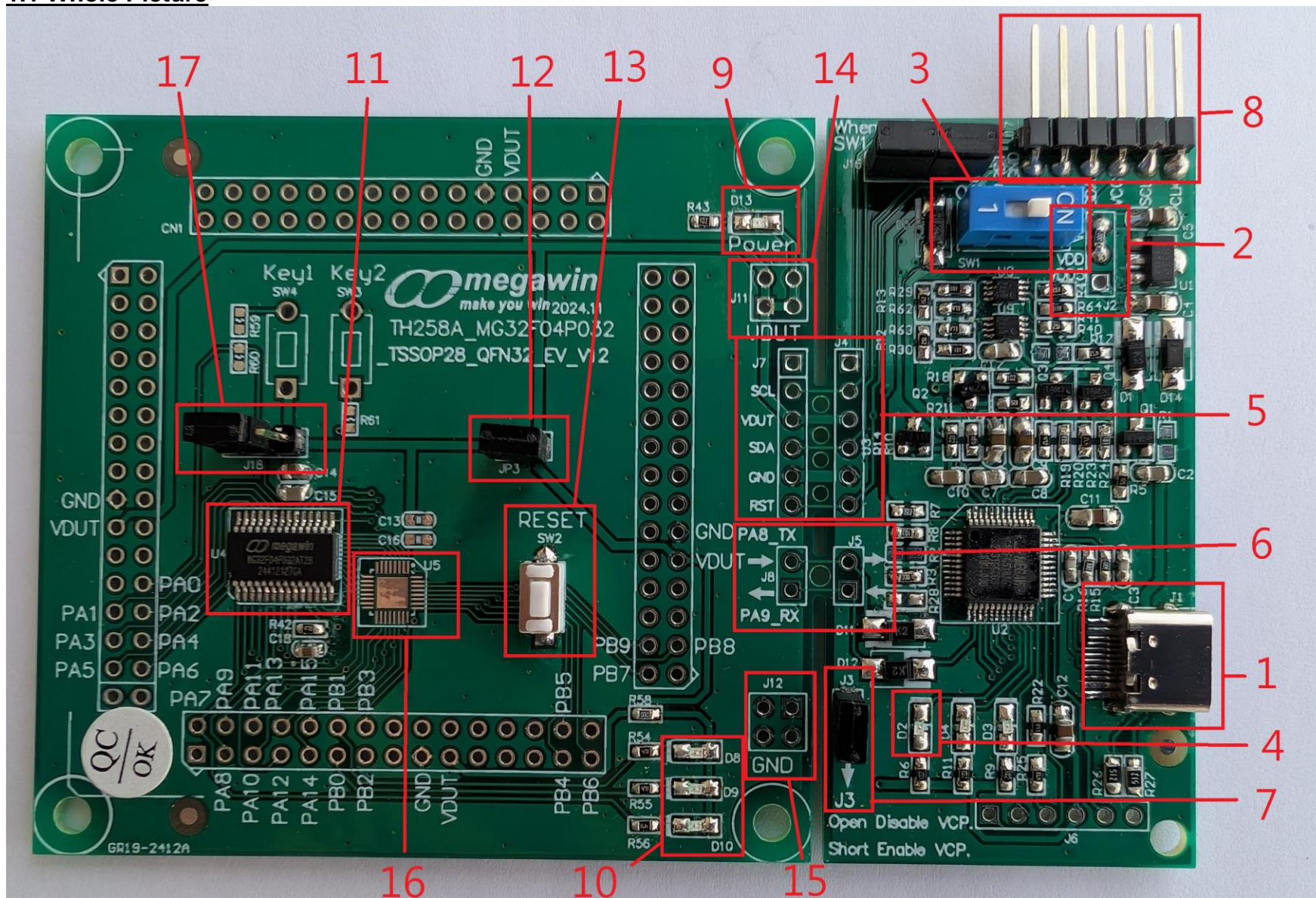
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## 1. Introduction

- Core and system
  - Arm® Cortex®-M0 32-bit MCU
  - Highest operating frequency up to 60MHz
  - Hardware divider (32-bit)
  - 2-channel DMA (Direct Memory Access)
- Memory
  - Up to 32KB Flash program memory
  - Up to 4KB SRAM
  - 3KB independent Flash space available for program or data storage
- Clock, reset, and power management
  - 2.5V ~ 5.5V supply voltage range
  - Power-on reset/Power down reset (POR/PDR), programmable voltage detector (PVD)
  - Built-in 60MHz high-speed RC oscillator with factory calibration
  - 40KHz LSI
- Low power
  - Stop mode with a power consumption of 100uA
- Six timers
  - One 12-bit analog-to-digital converter with a conversion time of 1μs (up to 11 input channels)
  - Conversion range: 0~V<sub>DD</sub>
  - Ten external channels
  - Supports injection mode
  - Supports multiple data buffer groups
  - Supports configuration of sampling time and resolution
  - On-chip temperature sensor
  - On-chip voltage sensor
- Two analog comparators
- Two rail-to-rail operational amplifiers
- One DMA controller with 2 channels
  - Supported peripherals include Timer, ADC, and USART
- Up to 26 fast I/O ports:
  - All I/O ports can be mapped to 16 external interrupts
  - All ports support V<sub>DD</sub> signal input/output
- Seven timers
  - One 16-bit 4-channel advanced control timer (TIM1) with 4-channel PWM complimentary outputs and dead zone generation, hardware phase shifting, and brake functions
  - One 32-bit general-purpose timer (TIM2) with up to 4 input capture/output compare channels
  - Two 16-bit basic timers (TIM3, TIM4) with 1 input capture/output compare channels
  - One 16-bit timer (TIM6) supporting interrupt triggering
  - One independent watchdog timer
  - One SysTick timer with 24-bit decrementing counter
- Debug mode
  - Serial Wire Debug (SWD) interface
- One digital peripheral interface
  - One USART interface supporting UART and SPI communication
- 96-bit unique chip ID (UID)

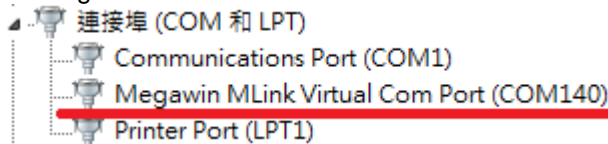
- Available in TSSOP28 and QFN32 packages

## 1.1 Whole Picture



## 1.2 Ev Board Hardware Instruction

1. J1: Micro USB Connector.
2. J2: Power select.
  - a. VDD5 – USB 5V Output.
  - b. VDD – Select 5V or 3.3V to MG32F serial.
  - c. VDD3 -- On Board LDO 3.3V Output(U1).
3. SW1: Control U8 power on/off.
4. D2: PC identify MLink successful when D2 turn ON, but only programming turn ON at Win10.
5. J4: Connector in ICE adaptor(MLink) for connecting with EV board to program MG32F serial.  
J7: Connector in EV board for connecting with ICE adaptor(MLink).
6. J5: Connector in ICE adaptor(MLink) for connecting with EV board to transfer UART data.  
J15: Connector in EV board for connecting with ICE adaptor(MLink).
7. J3: Virtual Com Port function selection, when J3 open and plug out → plug in PC, VCP function is disable. when J3 short and plug out → plug in PC, VCP function is enabled. After installing driver(how to install driver, refer the [2. Driver Install](#)), Device Manager will appear “Megawin MLink Virtual Com Port” as below figure.



“Megawin MLink Virtual Com Port” support as below as baud rate only:

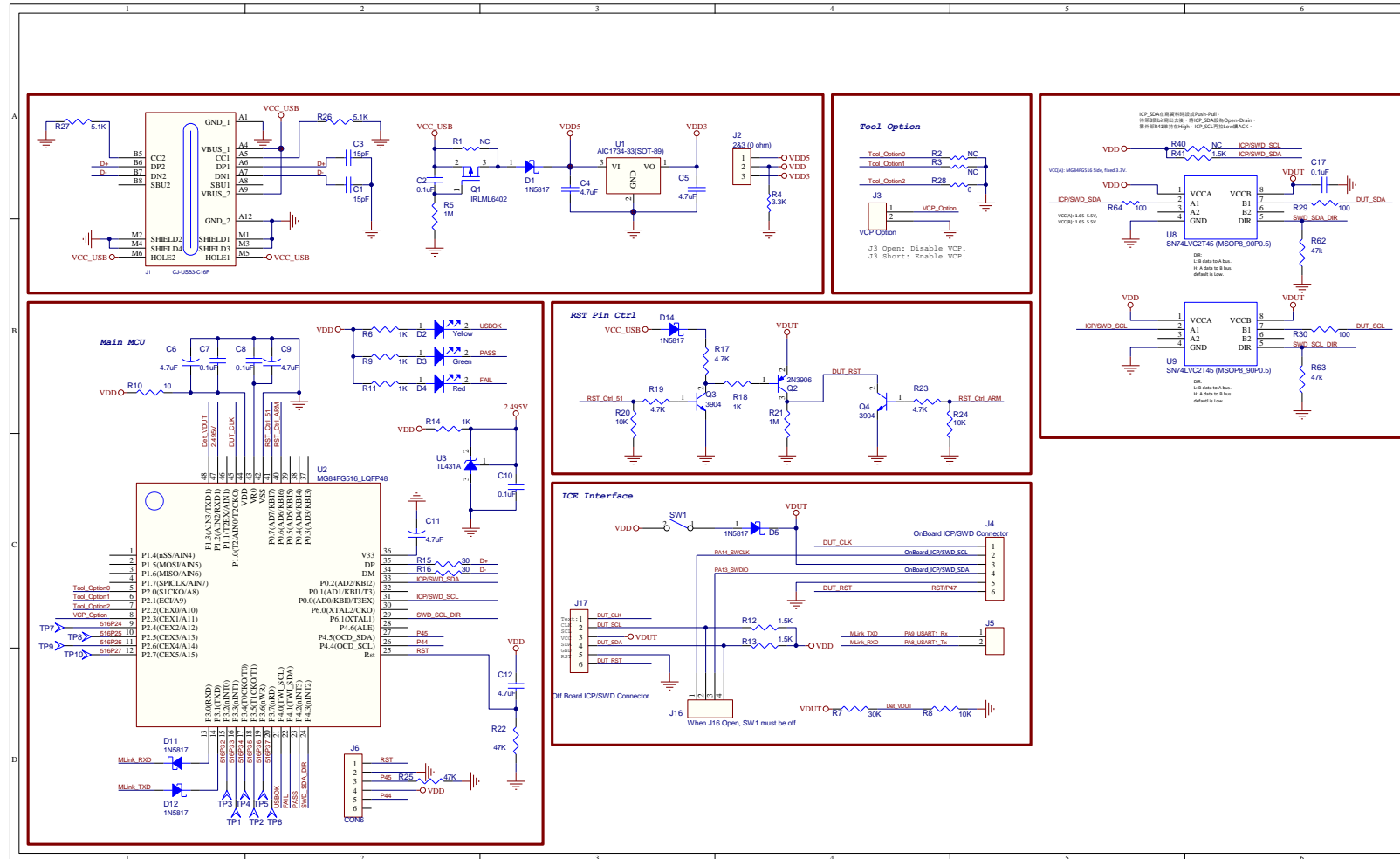
**600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 128000, 7200, 14400, 28800...**etc bps.

“Megawin MLink Virtual Com Port” also support **Stop Bit 1** only.

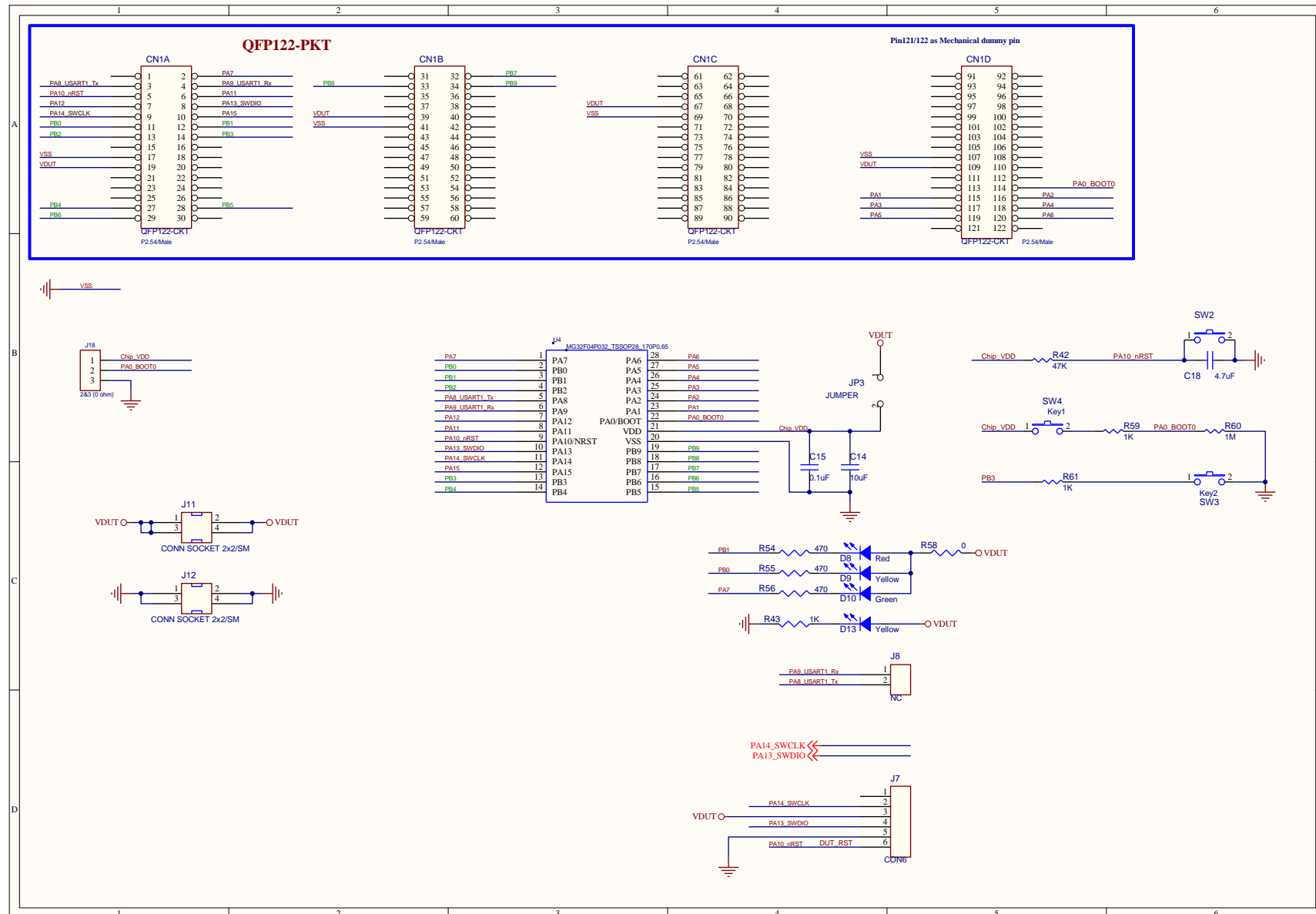
8. J17: When J16 open and SW1 off, MLink can program other DUT board through J17 connector.
9. D7: EV board power indicator LED.
10. D8, D9, D10: SMD LED.
11. U4: MG32F04P032 TSSOP-28 package.
12. JP3: User can measure MG32F04P032 operating current by connecting an ammeter.
13. SW2: Pressing the button will trigger external reset signal to U4(MG32F04P032).
14. J11: EV board VDUT connector.
15. J12: EV board GND connector.
16. U5: MG32F04P032 QFP-32 package.
17. J18: MCU Boot select, it is tied to GND default.

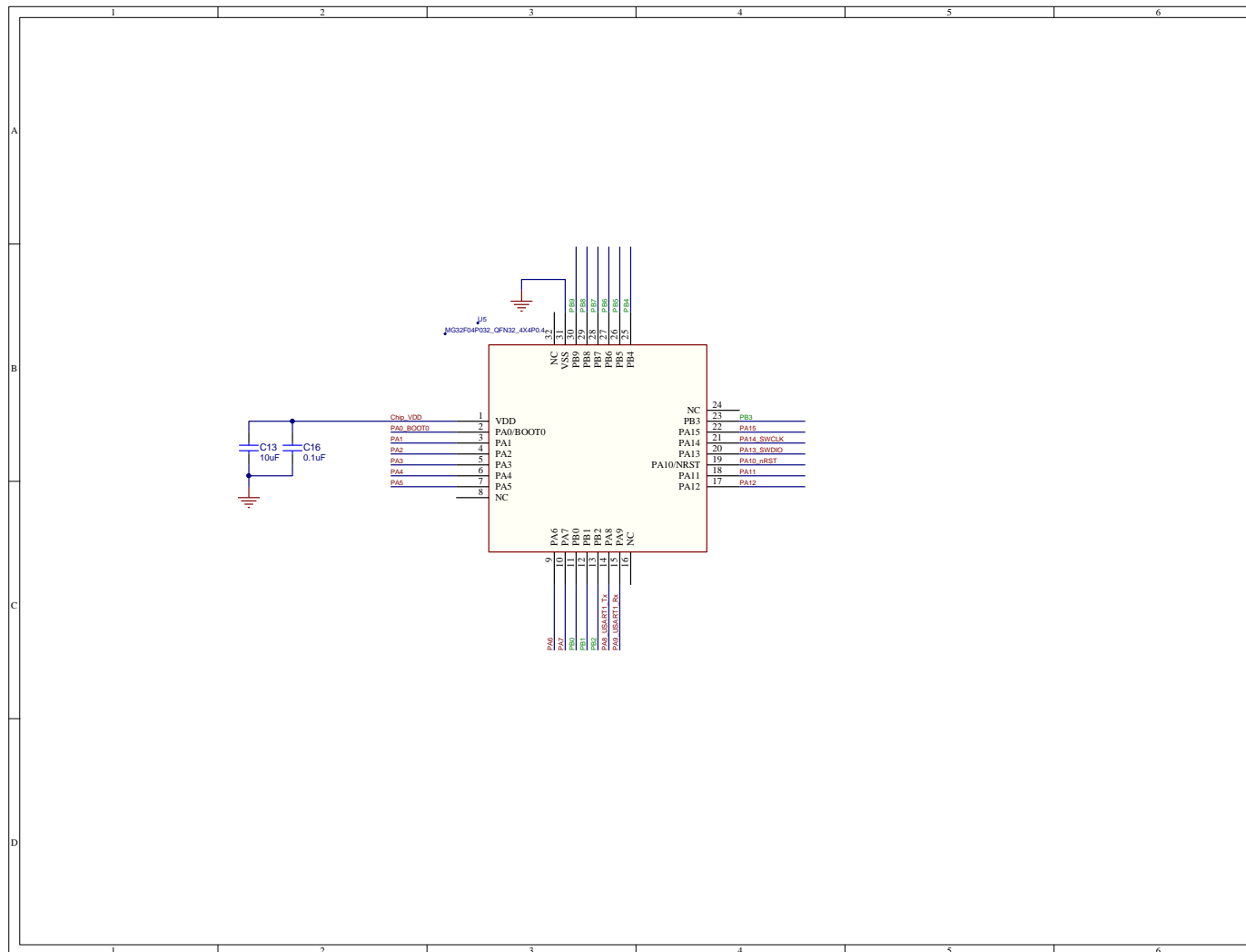
## 1.3 Ev Board Circuit

### 1.3.1 MLink Circuit

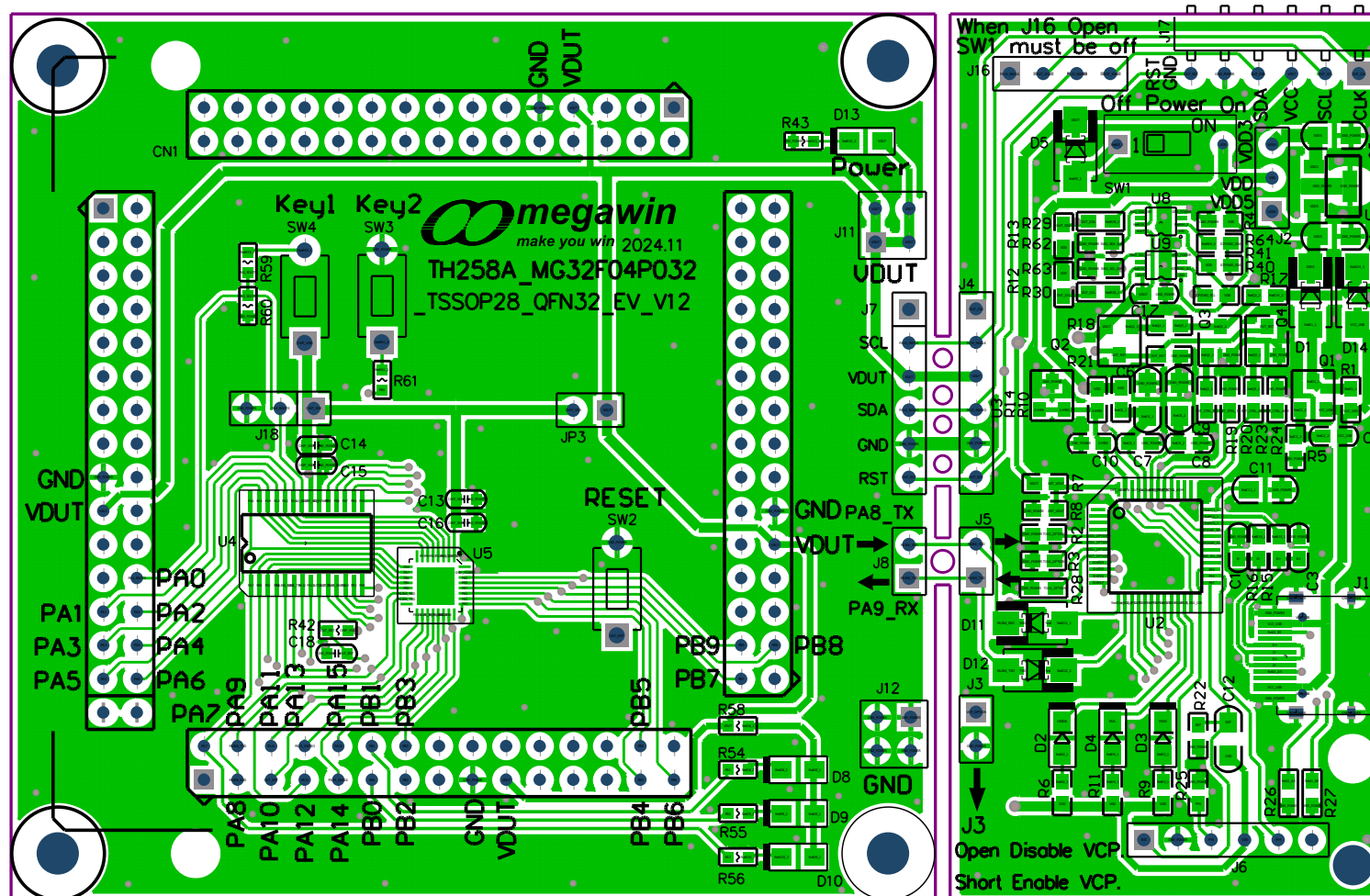


### 1.3.2 MG32F04P032 Circuit

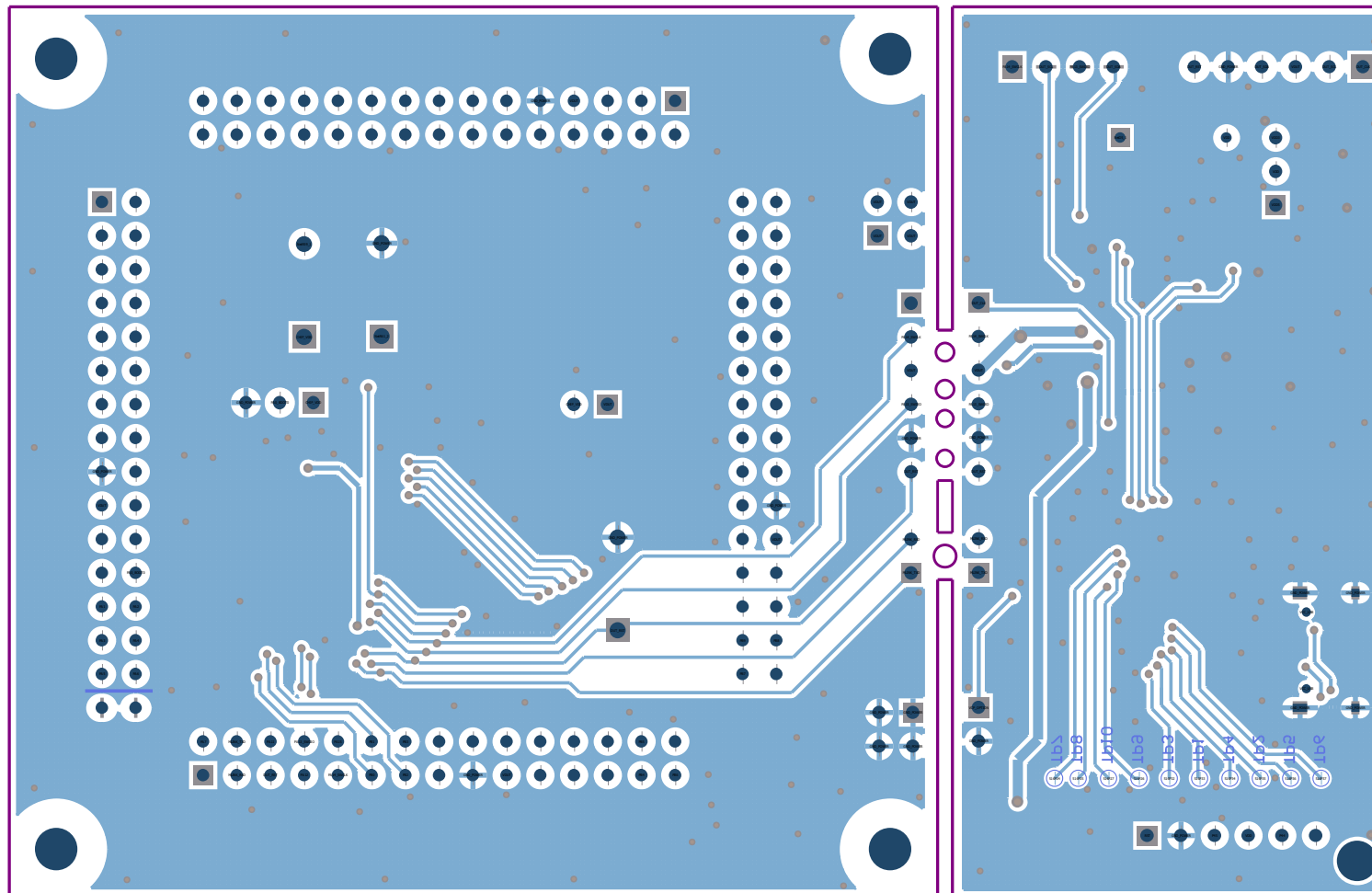


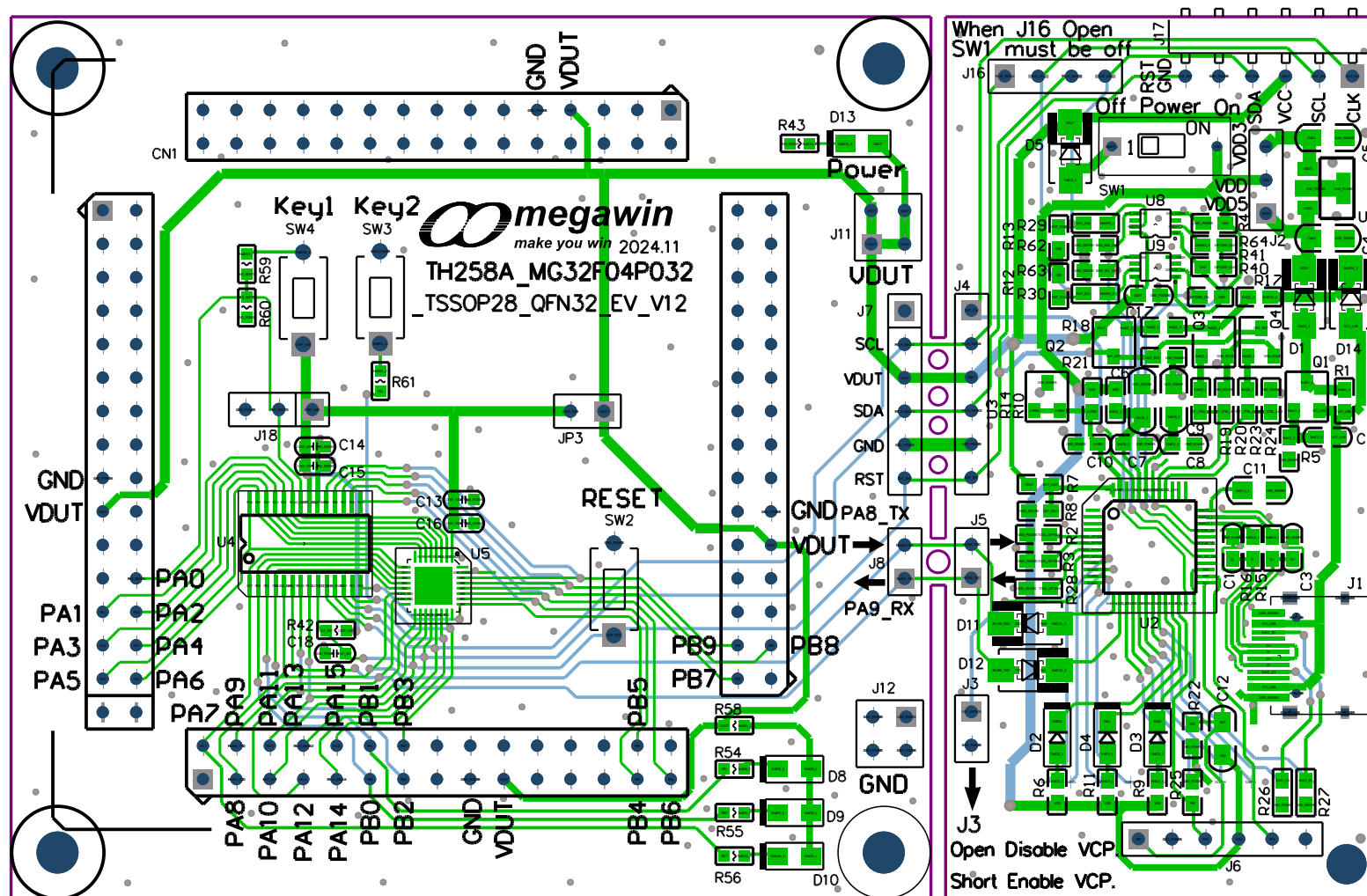


**Top**



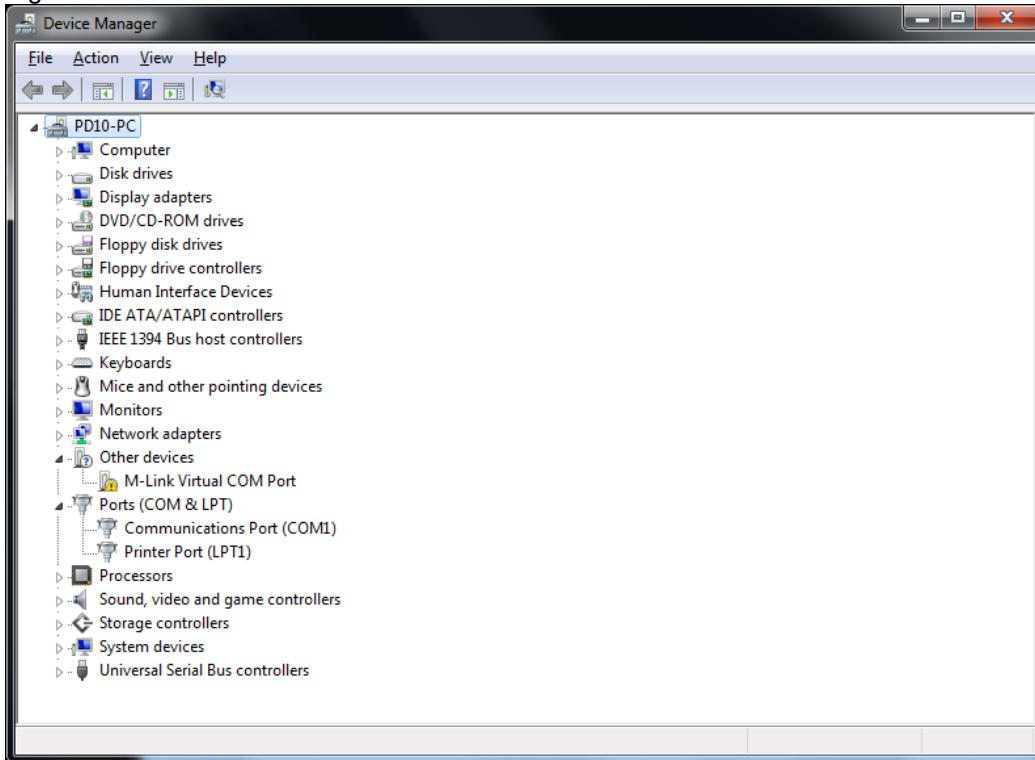
**Bottom**



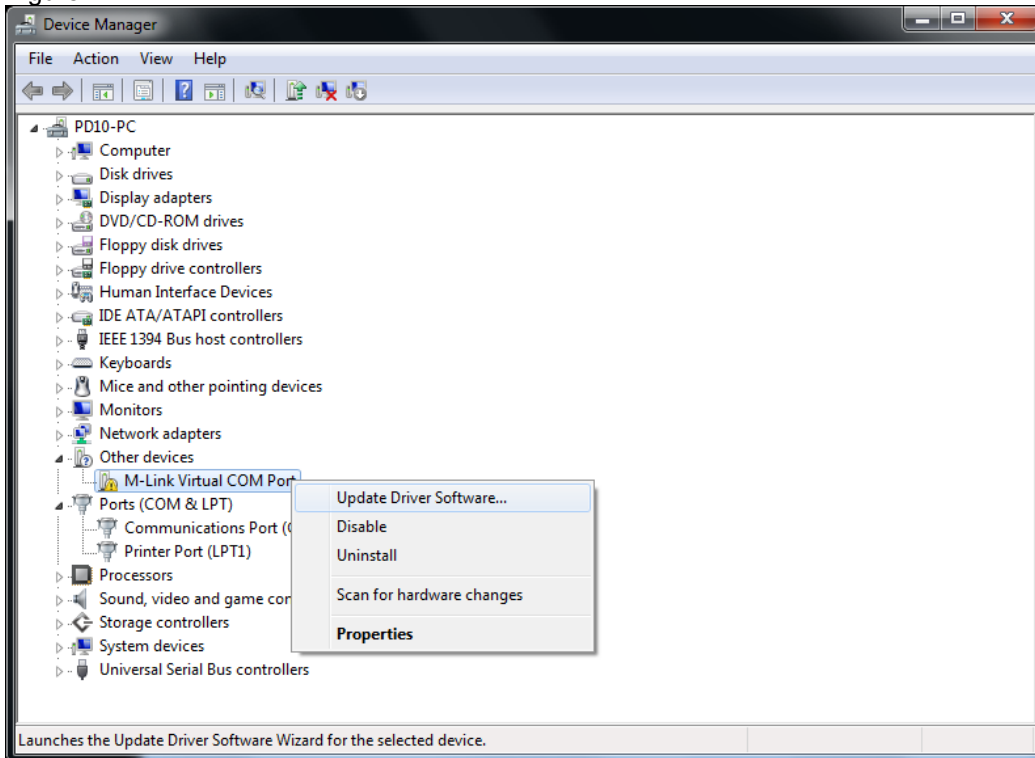


## 2. Driver Install

Step 1: The user short J3 plug MG32F04P032 EV board into any USB port in a PC, then open Device Manager.  
Figure 2-1

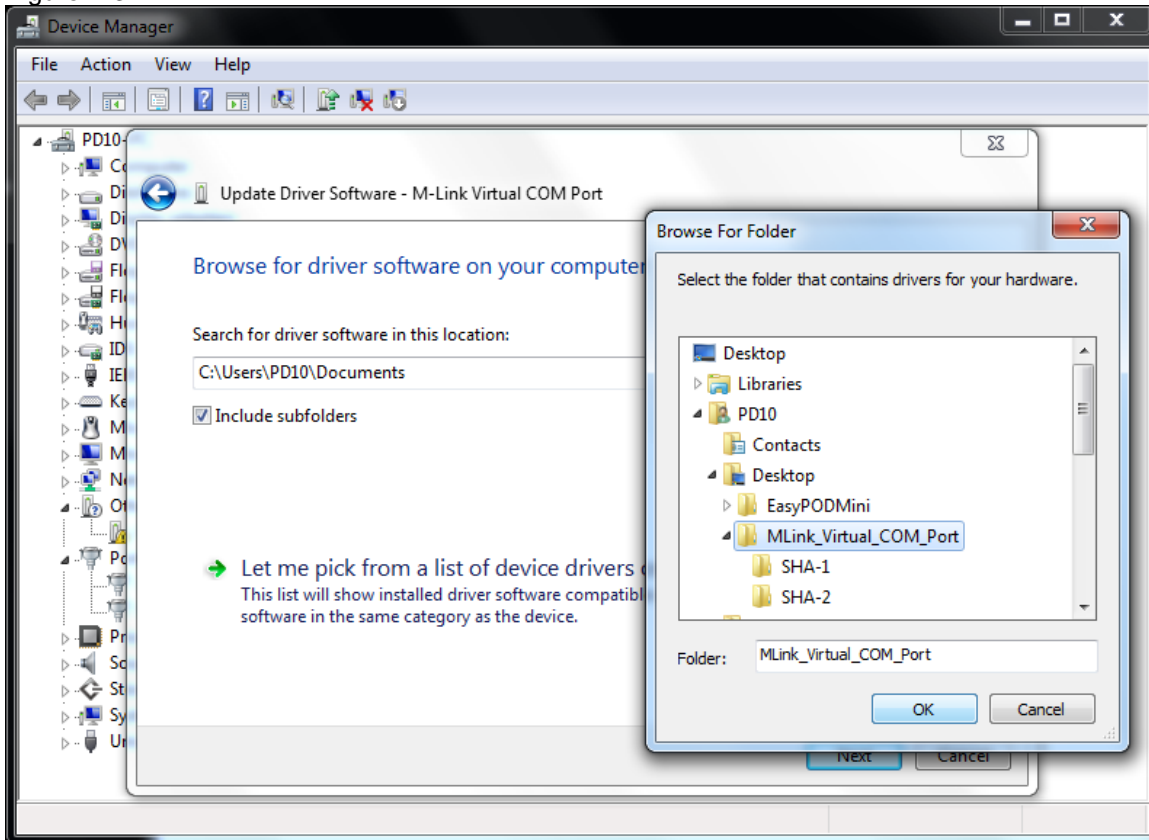


Step 2: Click “Right” key on Megawin MLink Virtual Com Port and “Update Driver Software”...  
Figure 2-2



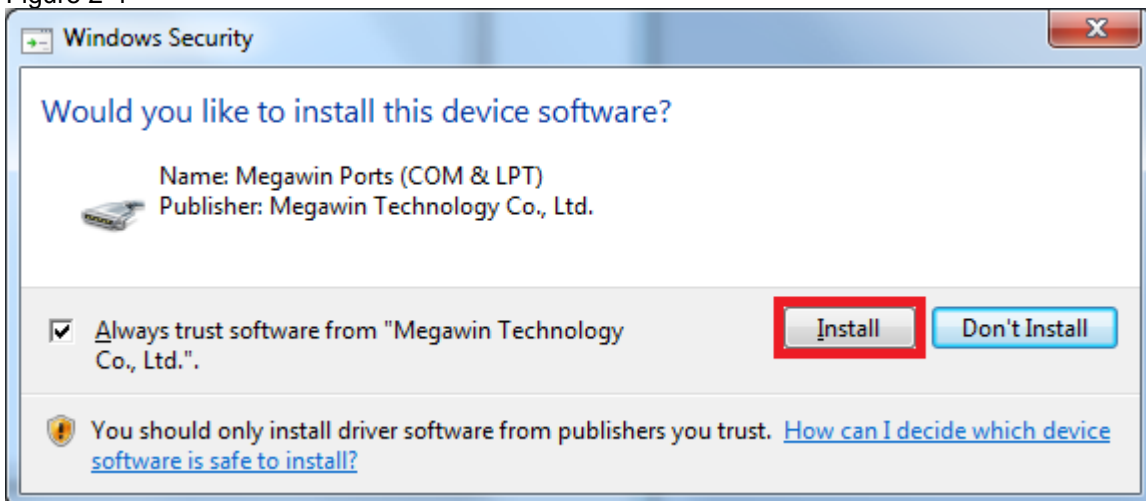
Step 3: Indicate Megawin MLink Virtual Com Port Driver path in the user's PC, OS will select SHA-1 or SHA-2 automatic.

Figure 2-3



Step 4: Click **"Install"** and wait a while.

Figure 2-4



Step 5: The user install driver successfully...

Figure 2-5

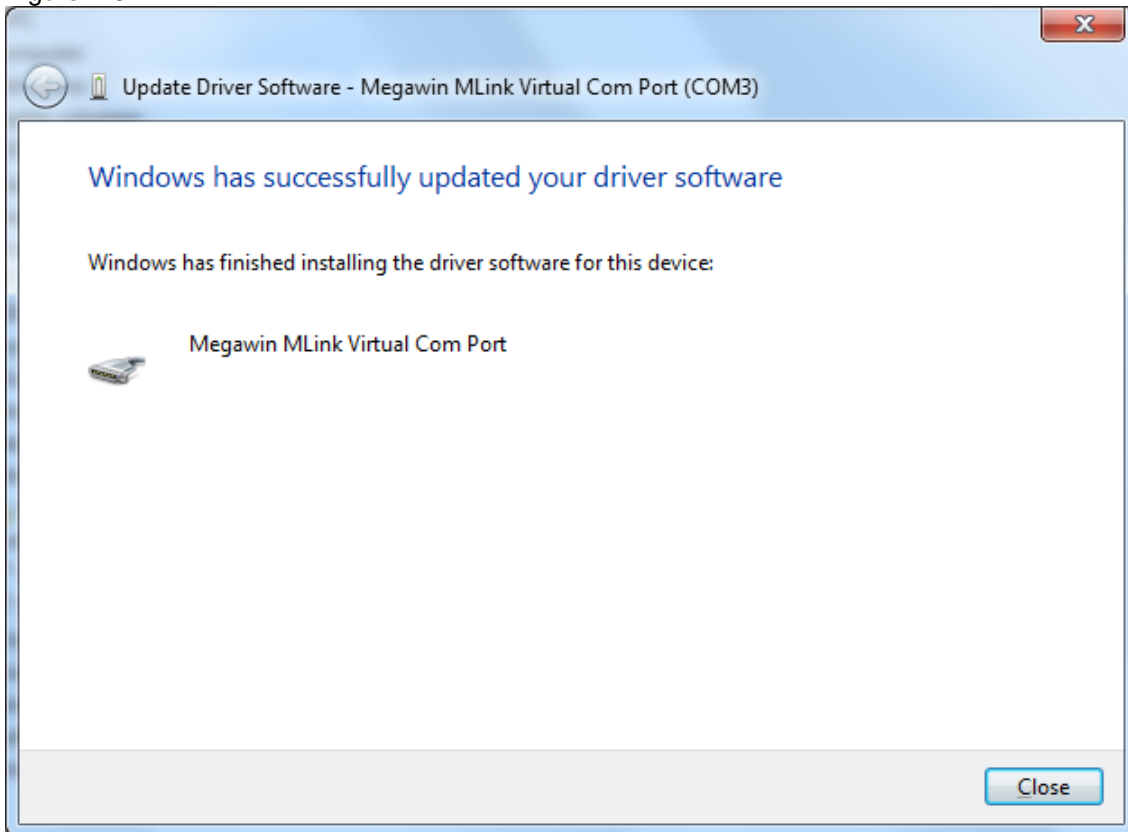
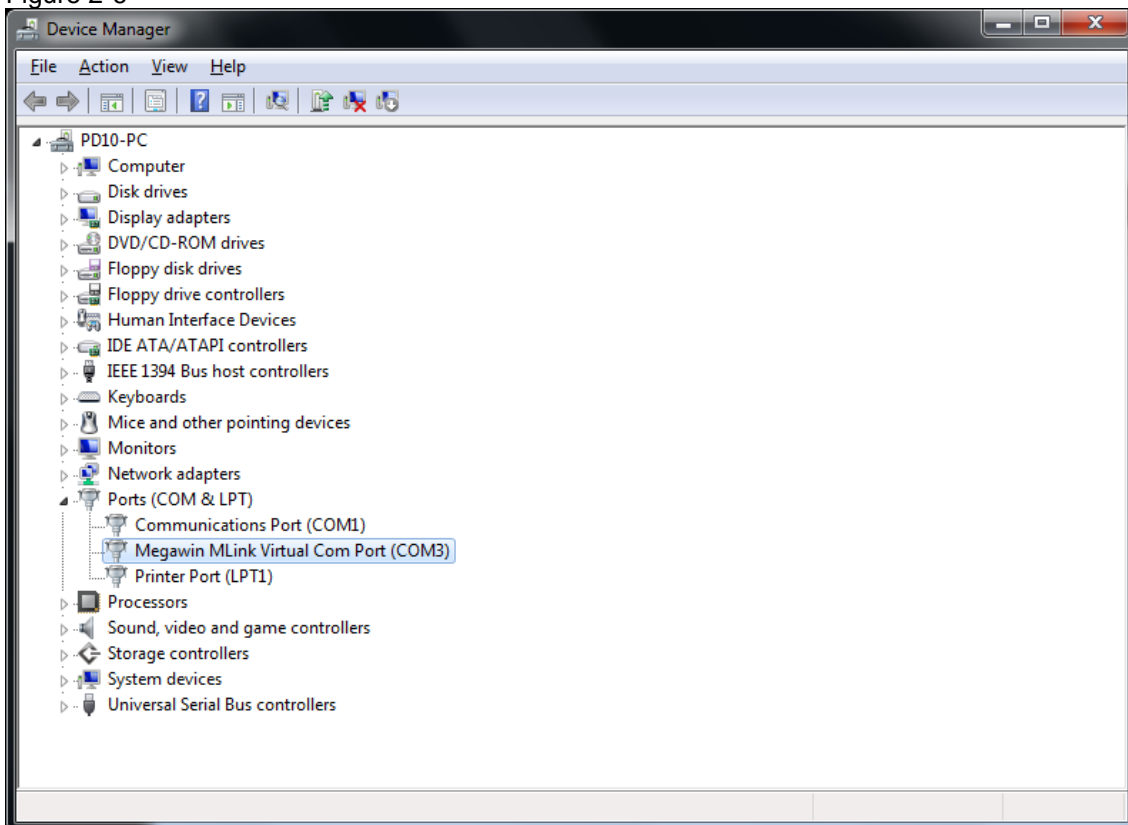


Figure 2-6



### 3. Revision History

Revision	Description	Date
V1.00	(1) New Create.	2024/11/14
V1.01	(1) Update Picture.	2025/05/13

## **4. Disclaimers**

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