

Delta-Sigma ADC Demo Board

Explanation Manual

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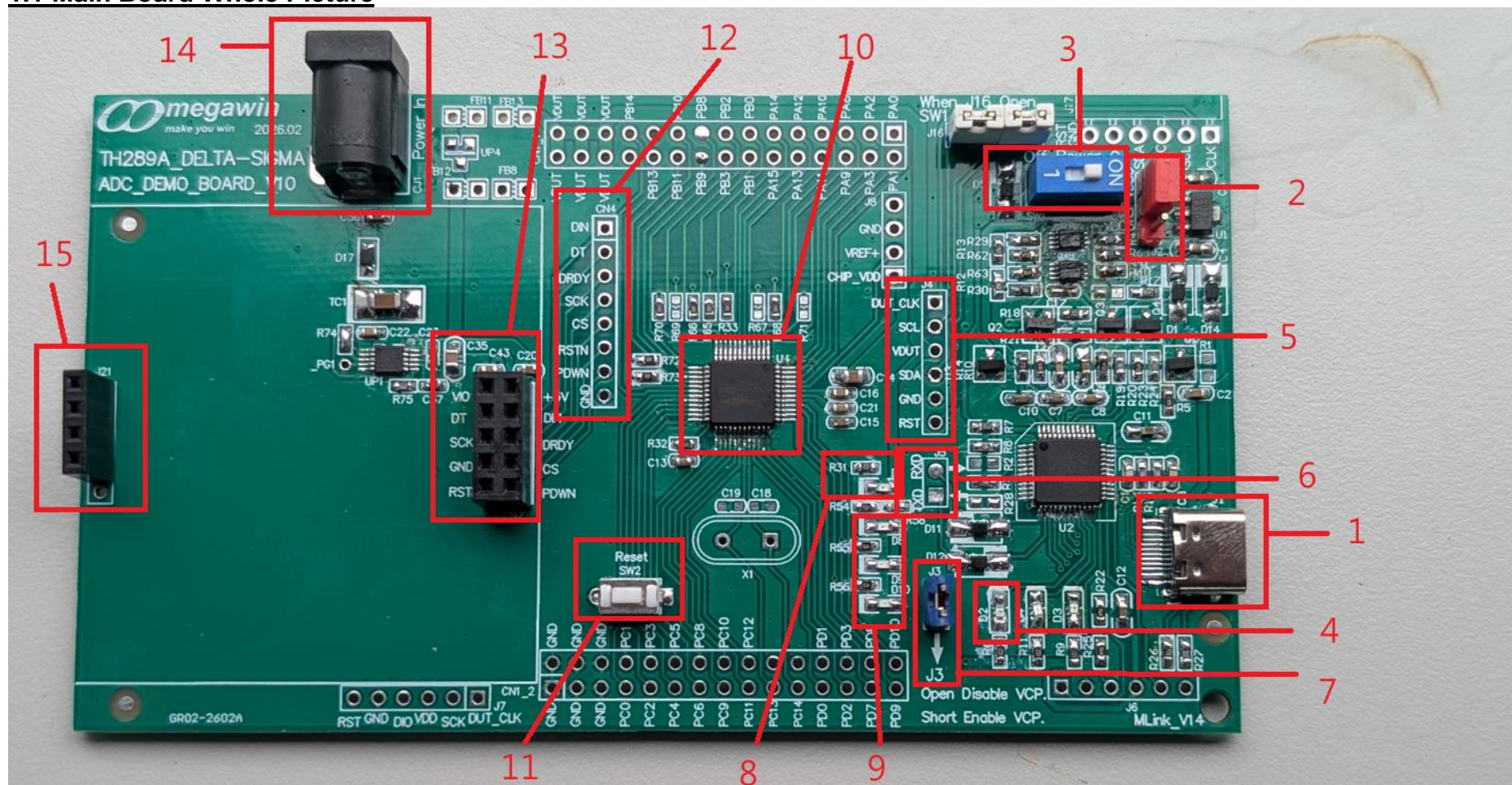
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1. Introduction

The chip is embedded a precision 24-bit analog-to-digital converter and designed to provide high-resolution measurement solutions for the most applications. The converter is implemented a low-noise input buffer, a lownoise programmable gain amplifier (PGA), a 4th-order delta-sigma ($\Delta\Sigma$) modulator and a digital filter. It's designed to easy use for weigh scales and other applications by connecting directly with the external bridge sensor.

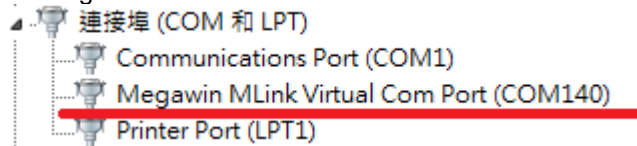
Delta-Sigma ADC Demo Board is main board. User can change daughter board to select MAD2402 or MAD2418.

1.1 Main Board Whole Picture



1.2 Main 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 MG32F02A032 serial.
 - c. VDD3 -- On Board LDO 3.3V Output(U1).
3. SW1: Control U4 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 MG32F02A032.
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.
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:

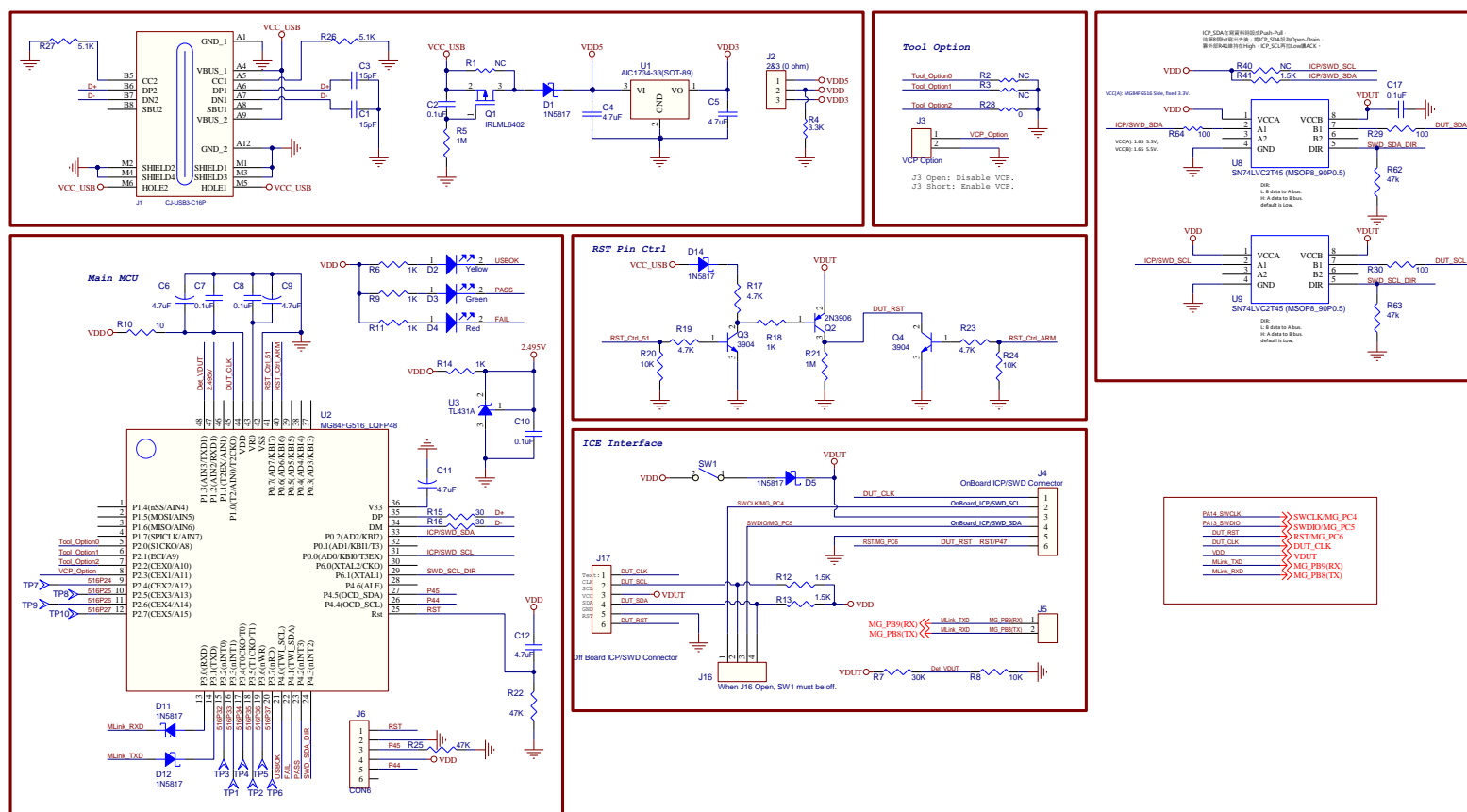
600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 128000, 7200, 14400, 28800...etc bps.

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

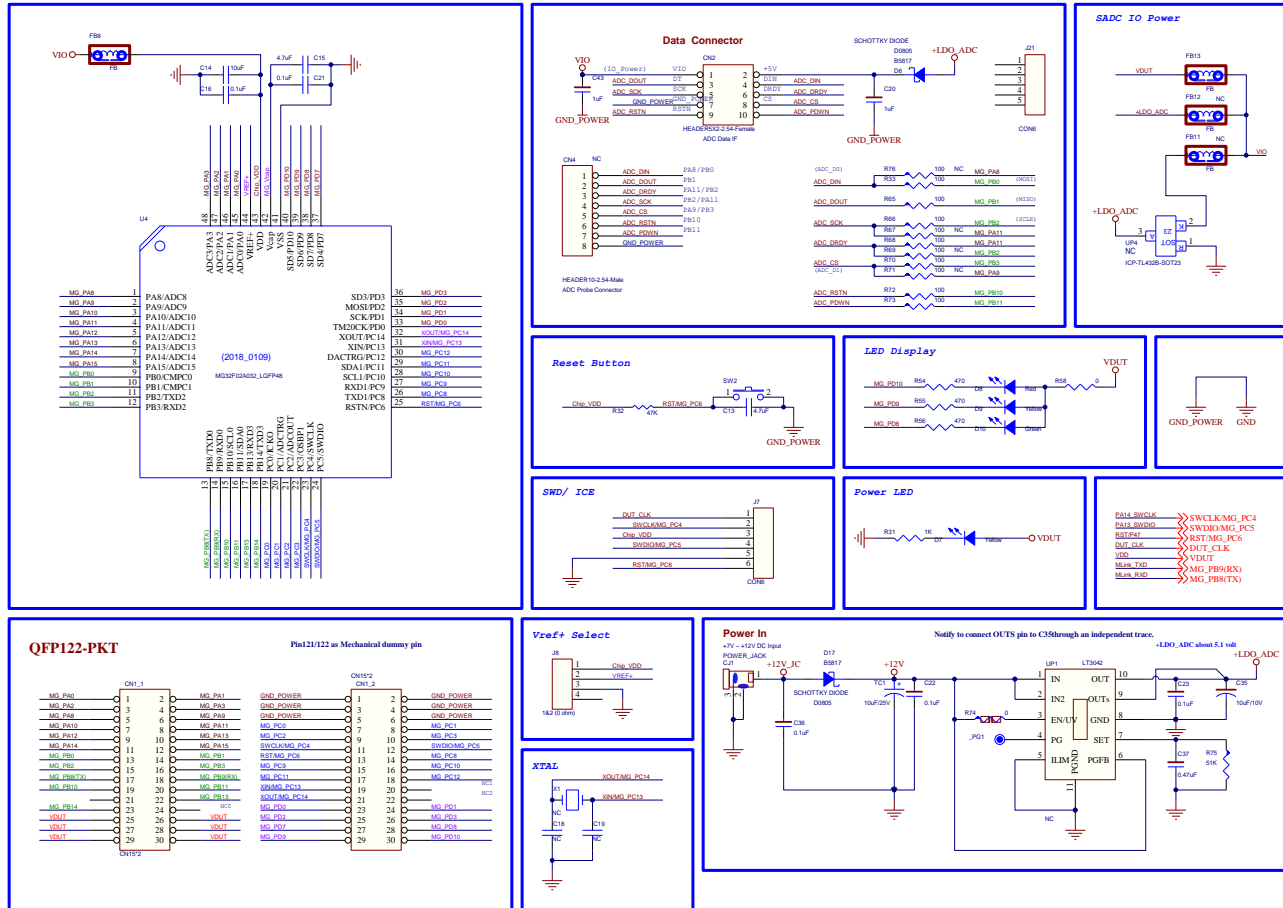
8. D7: Demo board power indicator LED.
9. D8, D9, D10: IO LED.
10. U4: MG32F02A032 LQFP-48 package.
11. SW2: Pressing the button will trigger external reset signal to U4(MG32F02A032).
12. CN4: MAD2418 control signal connector, user can measure signal through the connector.
13. CN2: Delta-Sigma ADC EV board(TH275A_MAD2402 or TH289A_MAD2418) connector.
 - a. When the Mainboard is connected to **TH275A_MAD2402**, **J2 Power Select must be set to VDD & VDD5**.
 - b. When the Mainboard is connected to **TH289A_MAD2418**, **J2 Power Select must be set to VDD & VDD3**.
14. CJ1: DC Jack is need to input 9V.
15. J21: Delta-Sigma ADC EV board brace connector.

1.3 Main Board Circuit

1.3.1 MLink Circuit

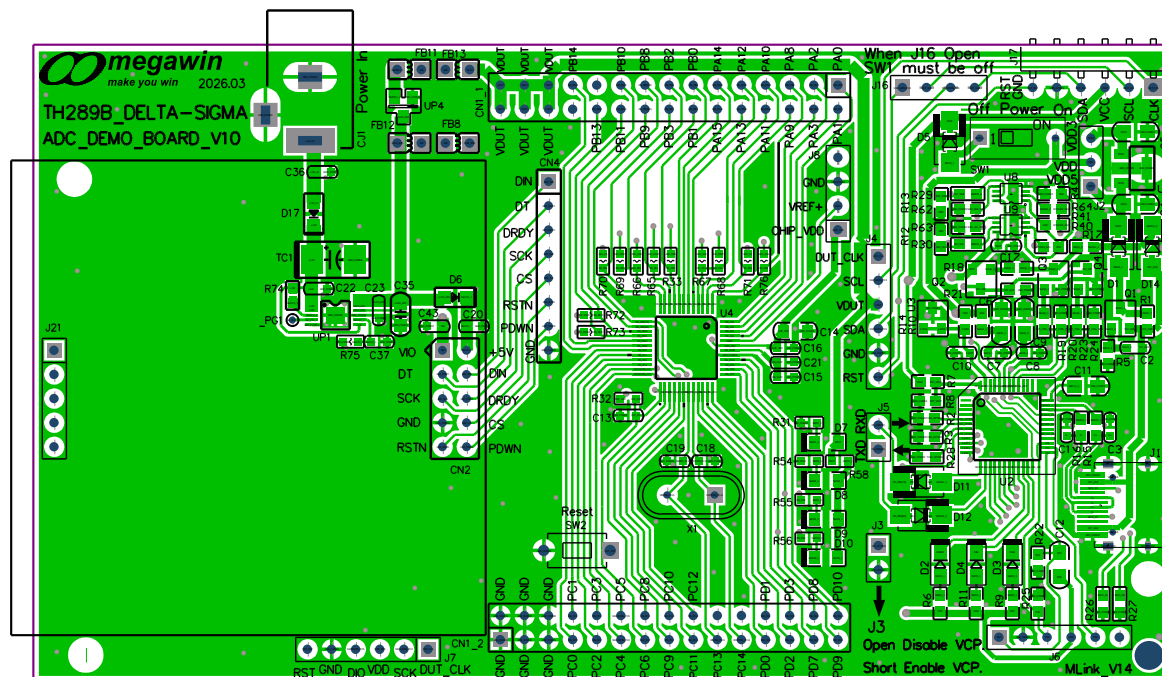


1.3.2 MG32F02A032 Circuit

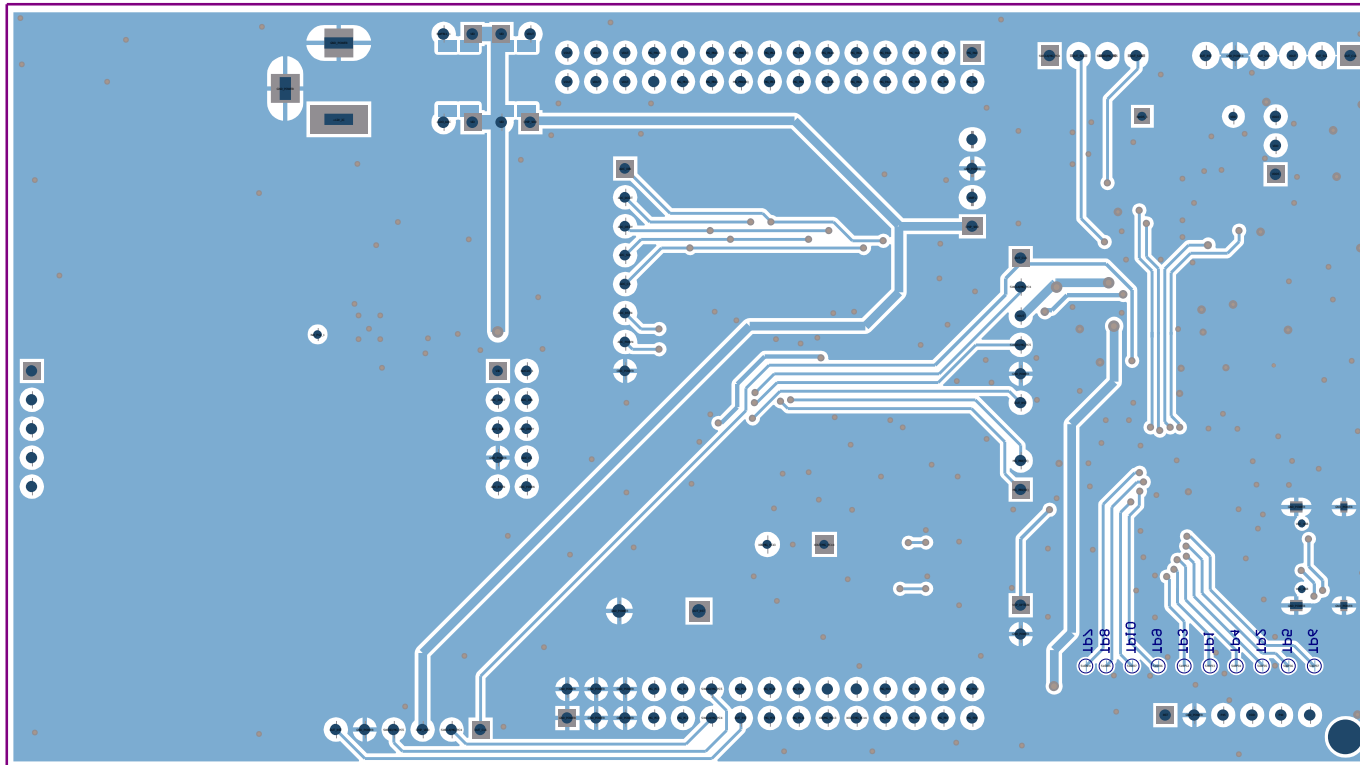


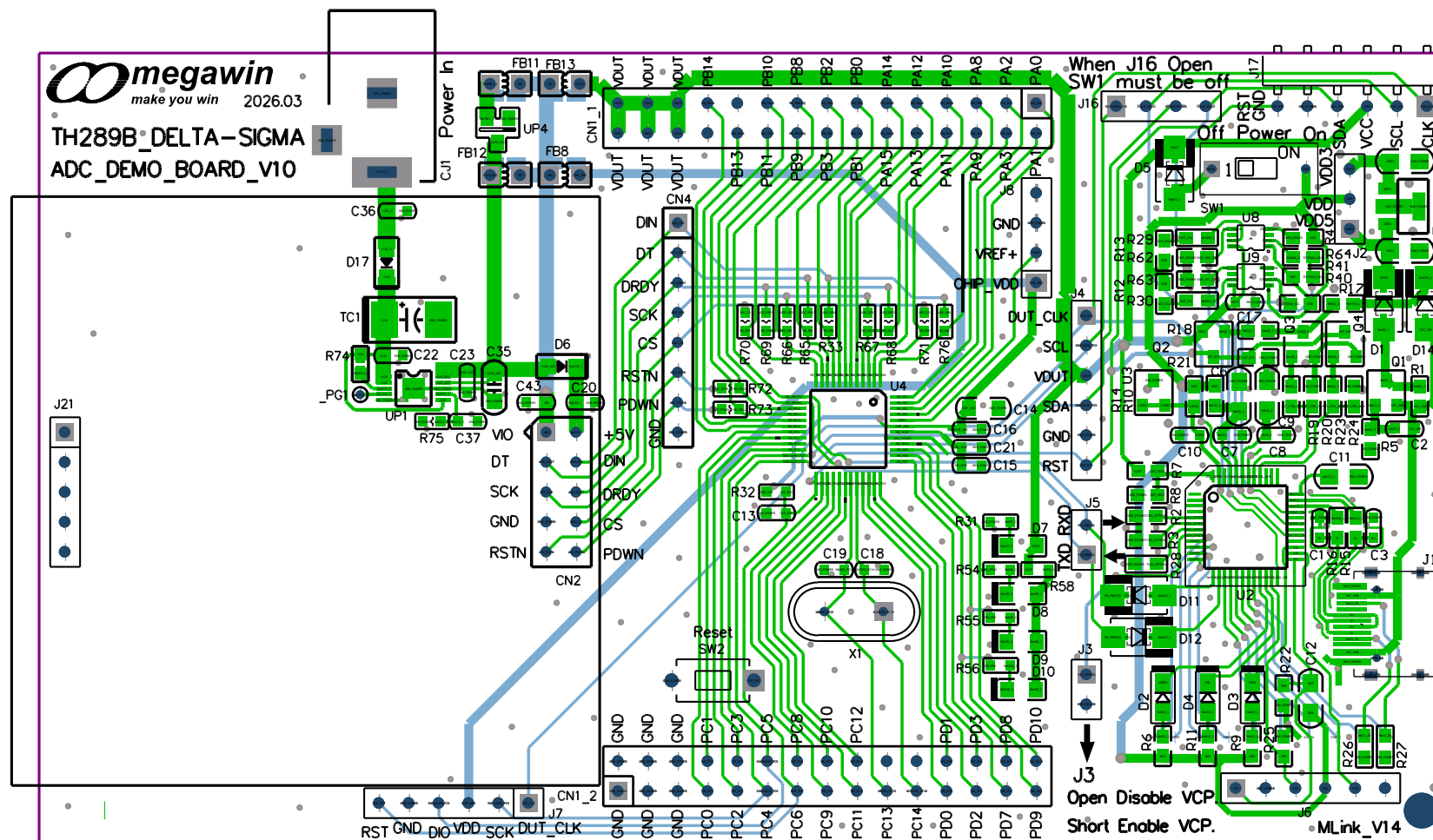
1.4 Main Board PCB

Top



Bottom

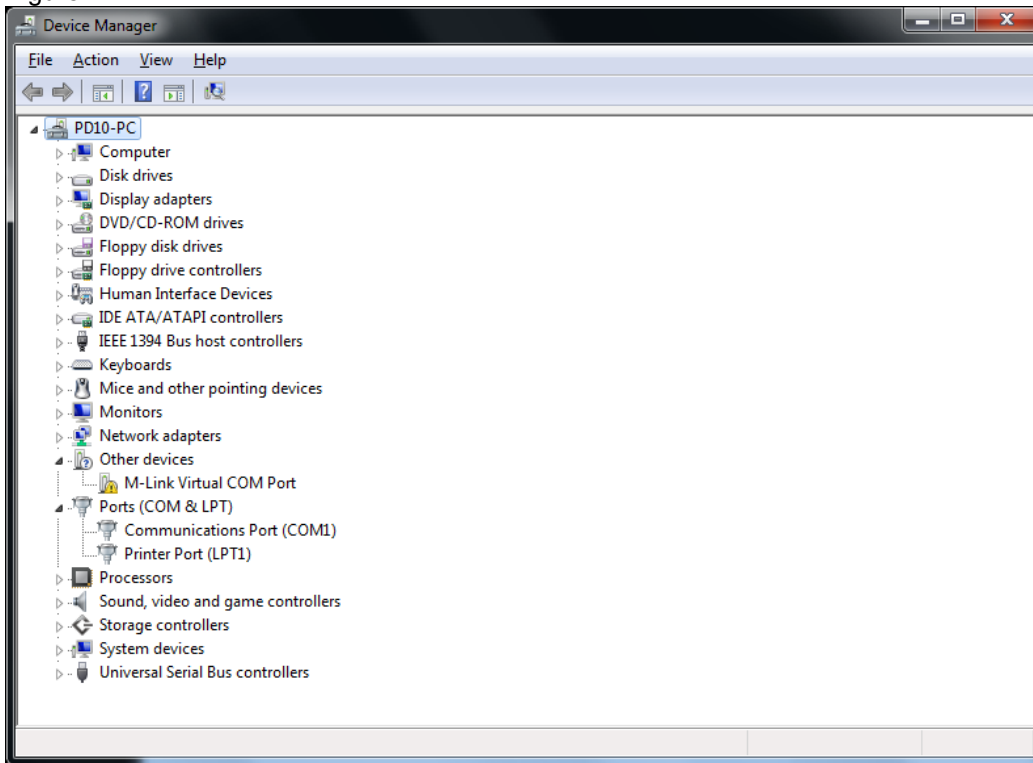




2. Driver Install

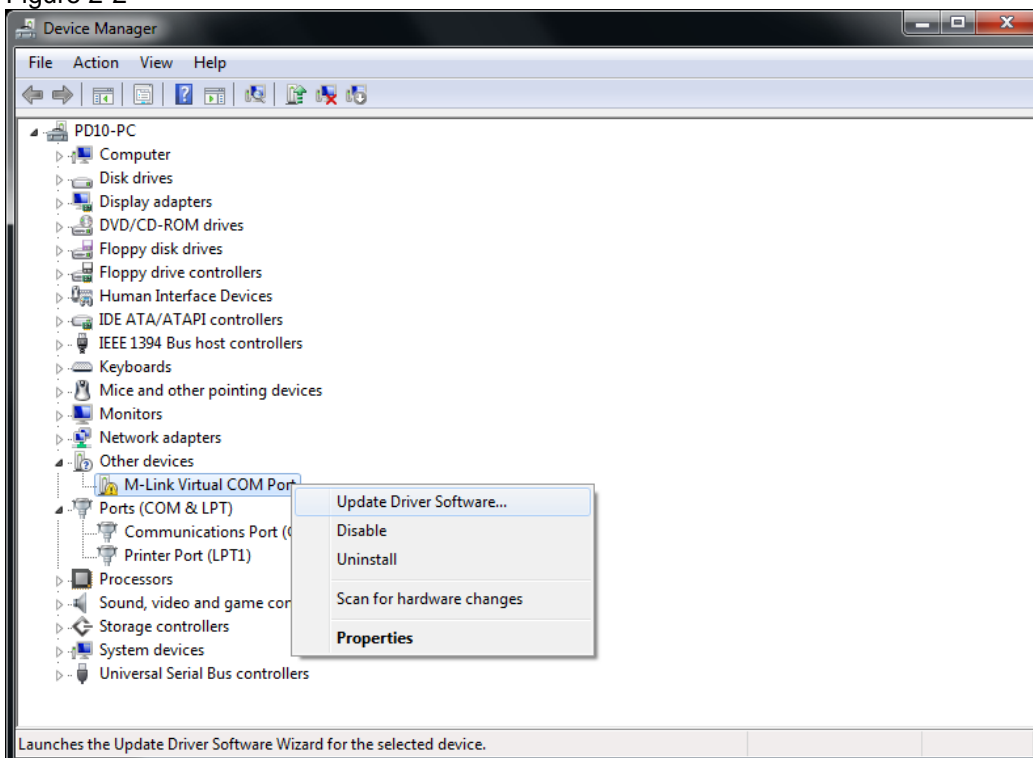
Step 1: The user short J3 plug Delta-Sigma ADC Demo Board into any USB port in a PC, then open Device Manager.

Figure 2-1



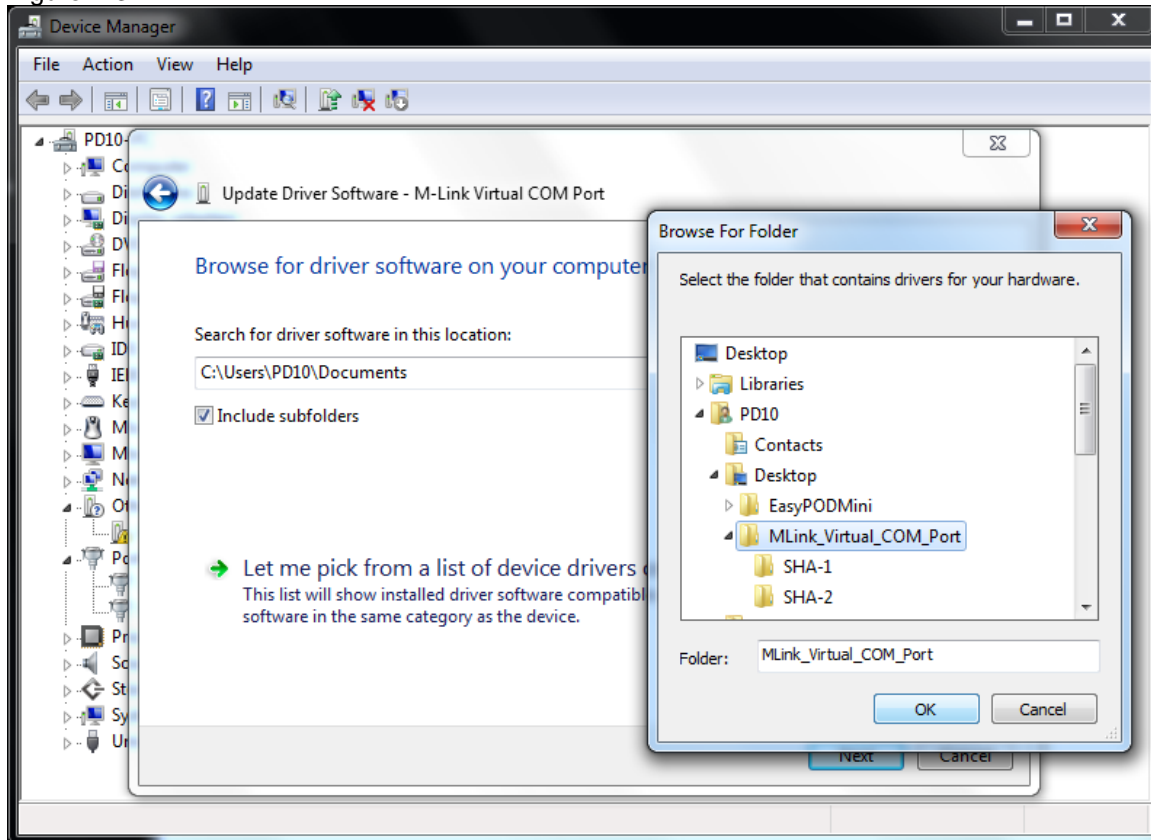
Step 2: Click “Right” key on Megawin MLink Virtual Com Port and “Update Driver Software”...

Figure 2-2



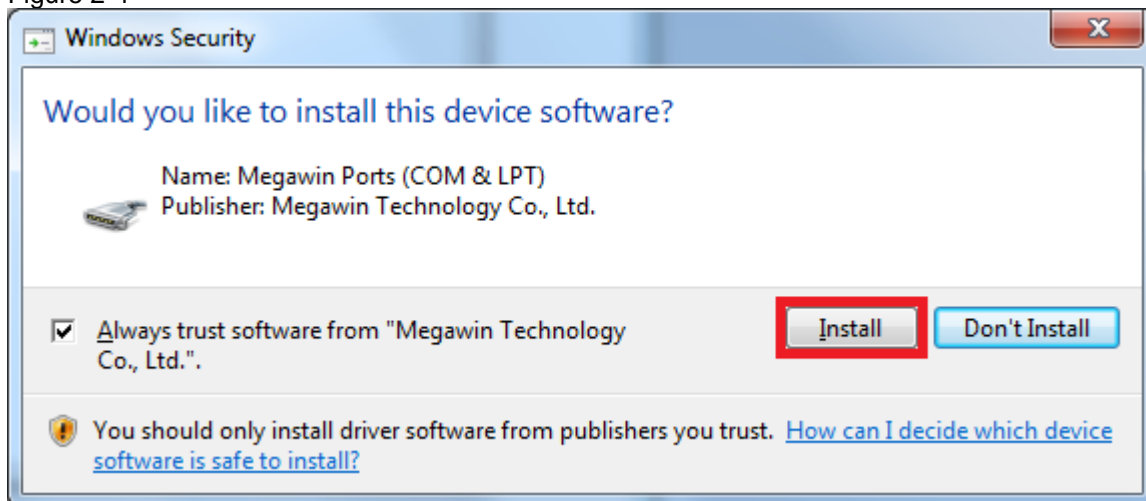
Step 3: Indicate Megawin MLink Virtual Com Port Driver path in the user's PC, OS will select SHA-1 or SHA-2 automatic.

Figure 2-3



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

Figure 2-4



Step 5: The user install driver successfully...

Figure 2-5

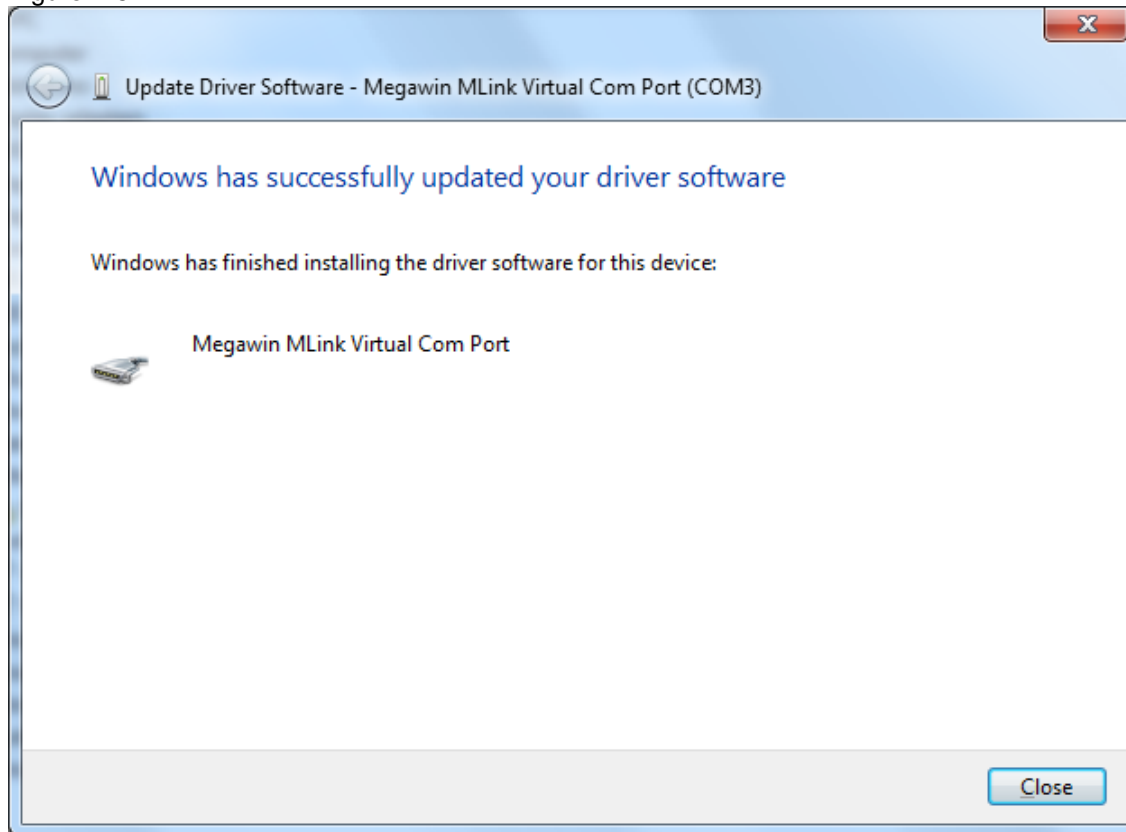
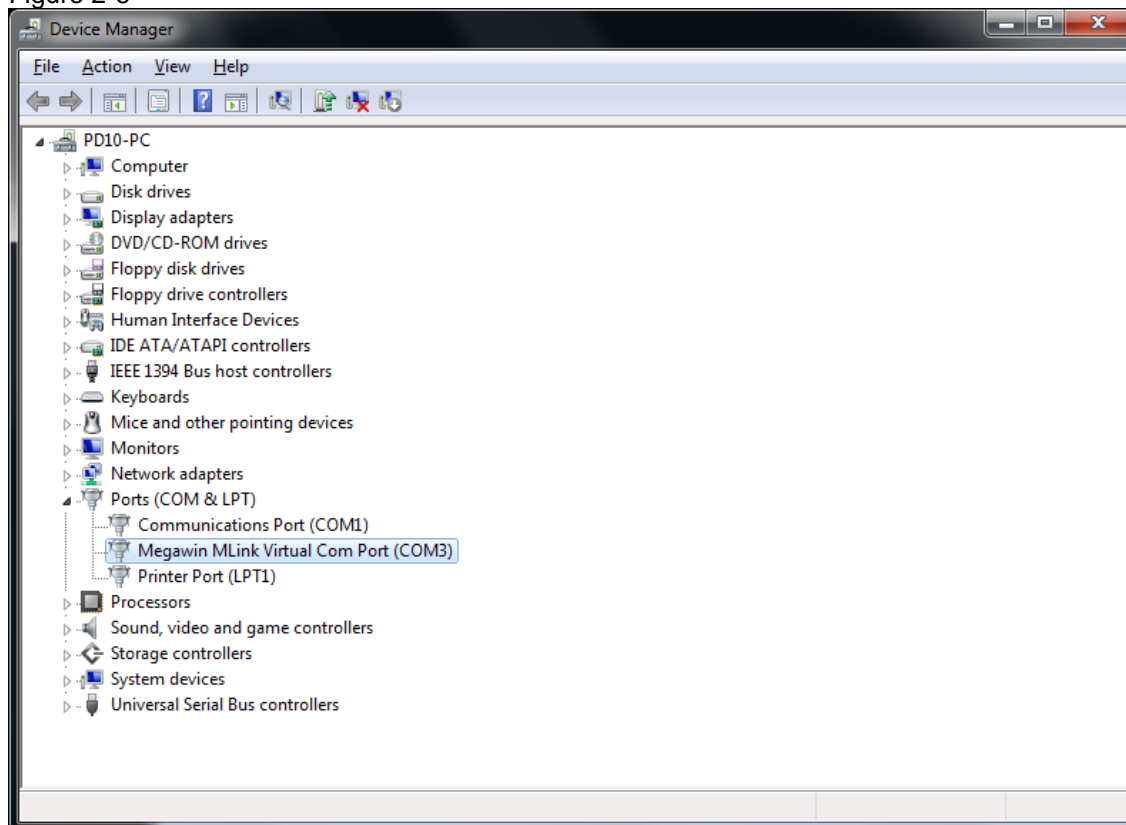


Figure 2-6



3. Revision History

Revision	Description	Date
V1.00	(1) New Create.	2026/04/02

4. Disclaimers

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Right to Make Changes — Megawin reserves the right to make changes in the products - including circuits, standard cells, and/or software - described or contained herein in order to improve design and/or performance. When the product is in mass production, relevant changes will be communicated via an Engineering Change Notification (ECN).