

# SofTec Microsystems IDB-ST72F521 Evaluation Board For STMicroelectronics ST72F321 and 521 FLASH Families

## User's Manual

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### 1. Introduction

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#### Overview

The IDB-ST72F521 Evaluation Board demonstrates the capabilities of the ST72F321 and 521 FLASH microcontrollers. The IDB-ST72F521 Evaluation Board can be used as a standalone application or with an emulator system, such as inDART-STX, through an ISP connection.

#### Board Features

The IDB-ST72F521 Evaluation Board has the following hardware features:



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#### Important

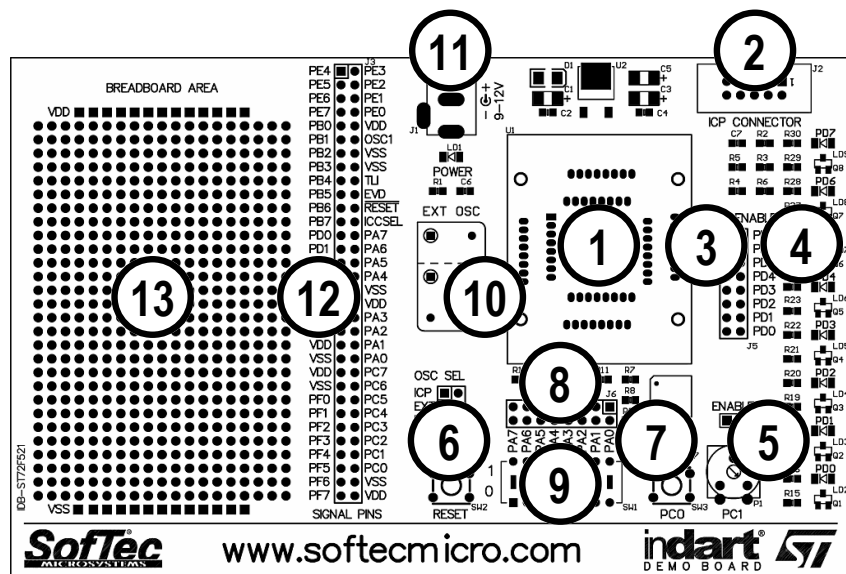
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1. An ST72F521 microcontroller (in QFP64 package—in addition, you can also use any of the ST72F32X and 52X family devices);
2. A standard ICP connector;
3. Eight jumpers to connect/disconnect each of the eight LEDs to/from their respective Port D pins;
4. Eight high-efficiency (low-current) LEDs connected to Port D;
5. A potentiometer, together with a jumper to connect/disconnect it to/from PC1;
6. A push-button switch connected to RESET;
7. A push-button switch, together with a jumper to connect/disconnect it to/from PC0;
8. Eight jumpers to connect/disconnect each of the eight DIP-switches to/from their respective Port A pins;
9. Eight general-purpose DIP-switched connected to Port A.
10. A provision for an external oscillator, together with a jumper to select the microcontroller's external oscillator, internal RC oscillator or the clock source from the ICP connector's OSC\_CLK pin;
11. A connector for a 9-12 V, 200 mA power supply;
12. A connector area to access the I/O pins of the microcontroller for expansion prototyping;
13. A prototyping area.



The IDB-ST72F521 Demo Board

## Supported Devices

The IDB-ST72F521 Evaluation Board supports the following QFP64 (14 x 14) devices:

- ST72F321;
- ST72F521;
- And any future 32X/52X pin-to-pin compatible device.

### Recommended Reading

- ST7 Family 8-Bit MCUs Programming Manual;
- ST7 Family Data Sheets;
- inDART-STX for ST7 User's Manual;
- inDART-STX for ST7 User's Manual Addendum.

## 2. Getting Started

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### Overview

The IDB-ST72F521 Evaluation Board can be used in conjunction with a ISP-based emulator/programmer, such as SofTec Microsystems' inDART-STX In-Circuit Debugger/Programmer.

If you use the evaluation board with SofTec Microsystems' inDART-STX, a sample application is provided. The sample application configures the A/D peripheral to convert on the A/D channel connected to the potentiometer and displays the results on the LEDs.

You can use inDART-STX together with STMicroelectronics Visual Debug (STVD7) to debug the application by, for example, execute the program step by step and watching how the microcontroller registers vary.

### Preliminary Operations

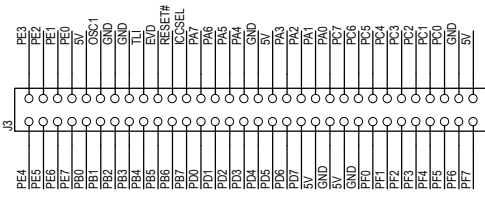
Before to try out the sample application, you must verify that both the inDART-STX and the evaluation board are correctly set up.

1. Ensure that inDART-STX is connected to the PC (via the USB cable) and to the demo board (via the ISP connector).
2. Make sure that the "OSC SEL" jumper (J4) on the demo board selects the "ICP" position.
3. Make sure that all of the "LED ENABLE" jumpers (J5) and the "POTENTIOMETER ENABLE" jumper (J8) are inserted.
4. Make sure that the sample device is in the appropriate socket on the board. Finally, power up the evaluation board. The power connector accepts 9-12 V DC, 200-mA wall plug-in power supply with a 2.1 mm pin and sleeve plug with positive in the center and sleeve as ground. Upon powering up the board, the green "POWER" LED turns on.

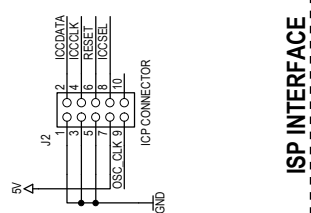
### Running the Sample Application

1. Run the STVD7 user interface.
2. From the STVD7 main menu, choose **File > Open Workspace**. Select the "**adc.wsp**" workspace file that is located under the "**\Program Files\SofTec Microsystems\inDART-STX\ST7\STVD7\Samples\Asm\521\Adc**" directory. Click "**Open**".
3. The application has already been assembled and the executable file generated. From the main menu, choose **Debug > Start Debugging**.
4. From the main menu, select **Debug > Run**. The program will be executed in real-time. Please note that the "BUSY" LED on the inDART-STX unit turns on.

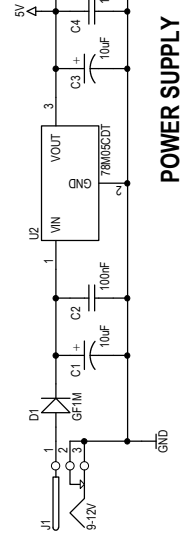
5. By rotating the potentiometer on the demo board, you affect the results of the A/D conversion, and the binary value of each conversion is displayed on the LEDs.
6. When you want to stop the sample application, select **Debug > Stop Program** from the STVD7 main menu.



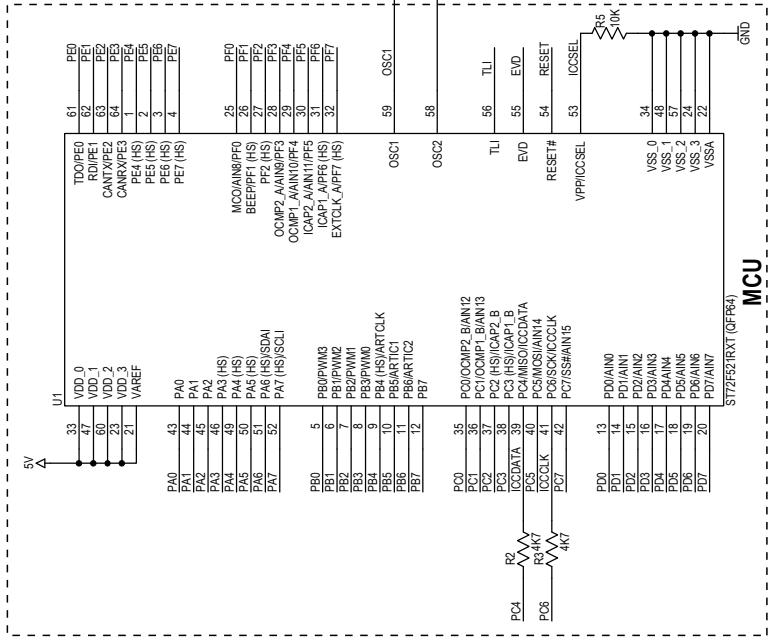
**SIGNAL PINS**



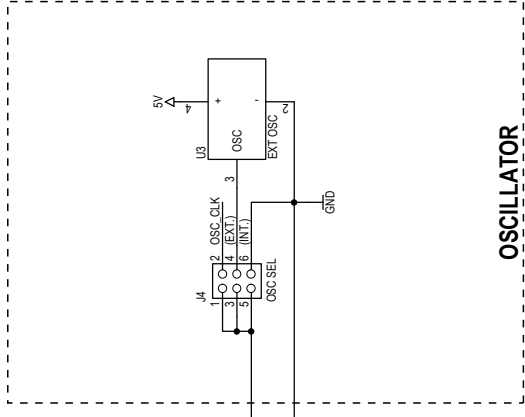
**ISP INTERFACE**



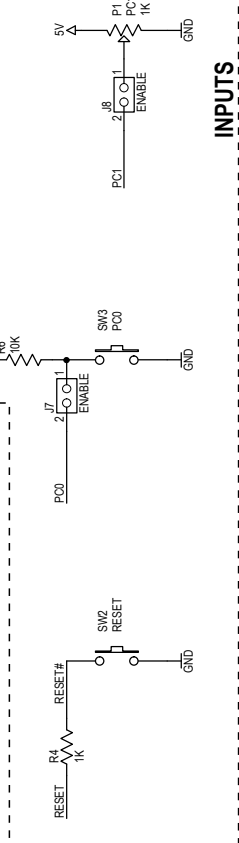
**POWER SUPPLY**



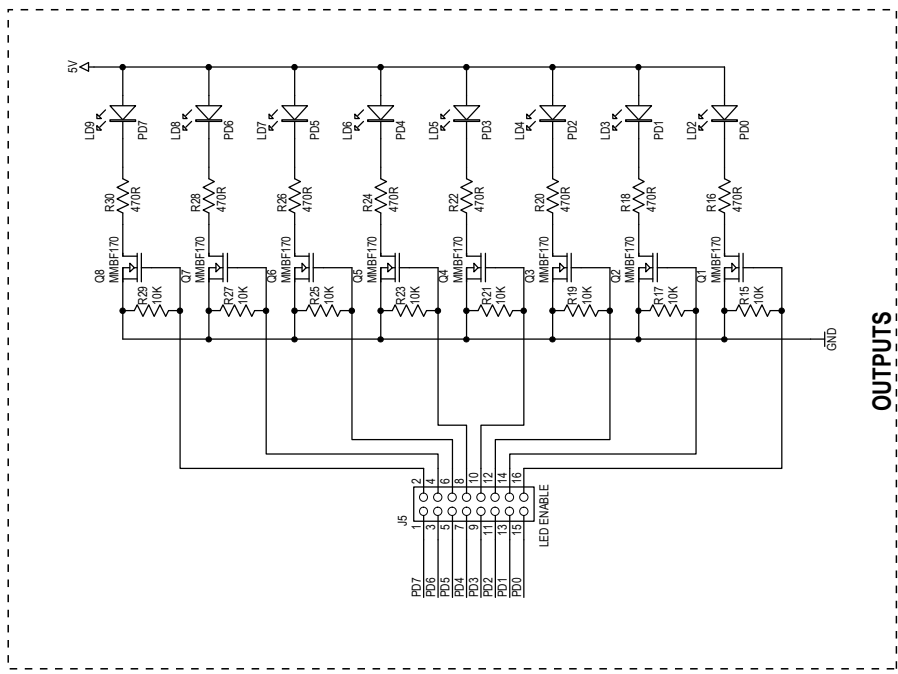
**MCU**



**OSCILLATOR**



**INPUTS**



**OUTPUTS**

