RB-110 SPI How-To

DMP Electronics Inc.
Robotic Division
May 2011

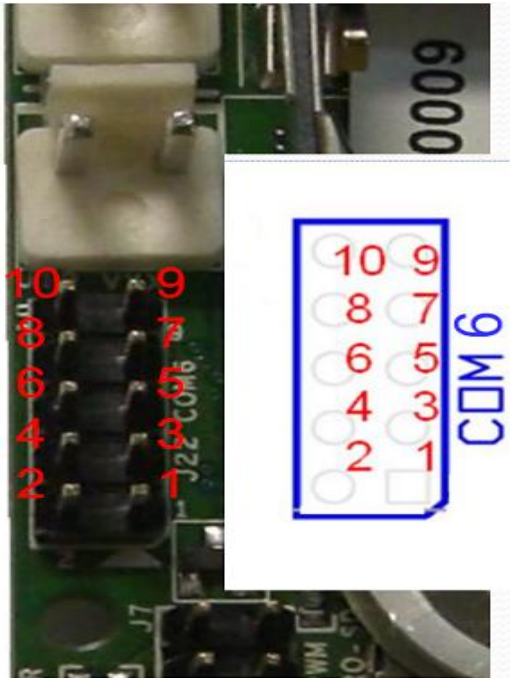
Introduction

- RB-110's COM6 is the second port of RB-110's on-board FTDI FT2232H, which can function as RS-232, SPI, I^2C, …
- In this note, we mention how to use the COM6 as SPI / I^2C interface.

COM6 PIN Definition for SPI / I²C

- The following is COM6 PIN definition when using it as SPI / I²C interface.

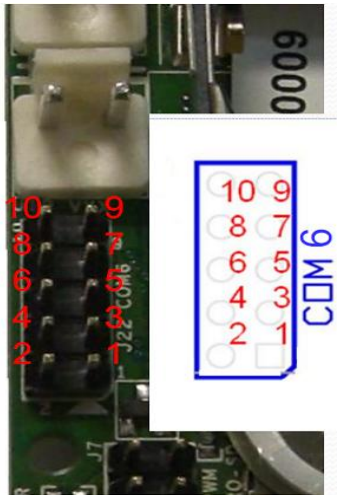
PIN#	Signal Name	PIN#	Signal Name
1	GPIOL2	2	TDI/DO
3	TCK/SK	4	GPIOL0
5	GND	6	GPIOL1
7	TDO/DI	8	TMS/CS
9	GPIOL3	10	GPIOH0

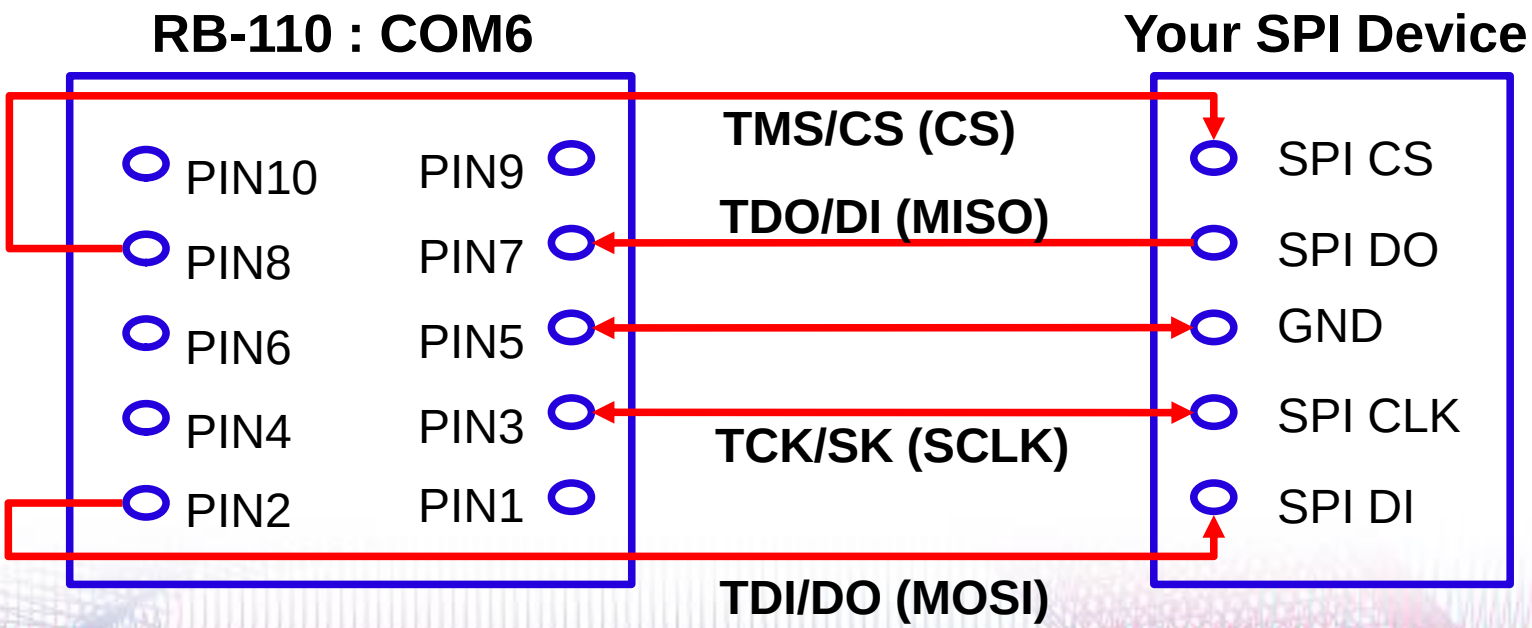


Part 1 : Use COM6 as SPI

PIN Connection

PIN#	Signal Name	PIN#	Signal Name
1	GPIOL2	2	TDI/DO
3	TCK/SK	4	GPIOL0
5	GND	6	GPIOL1
7	TDO/DI	8	TMS/CS
9	GPIOL3	10	GPIOH0





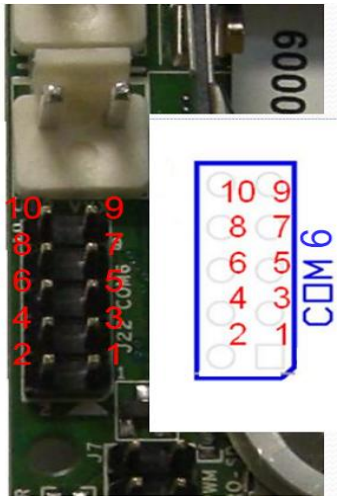
Programming

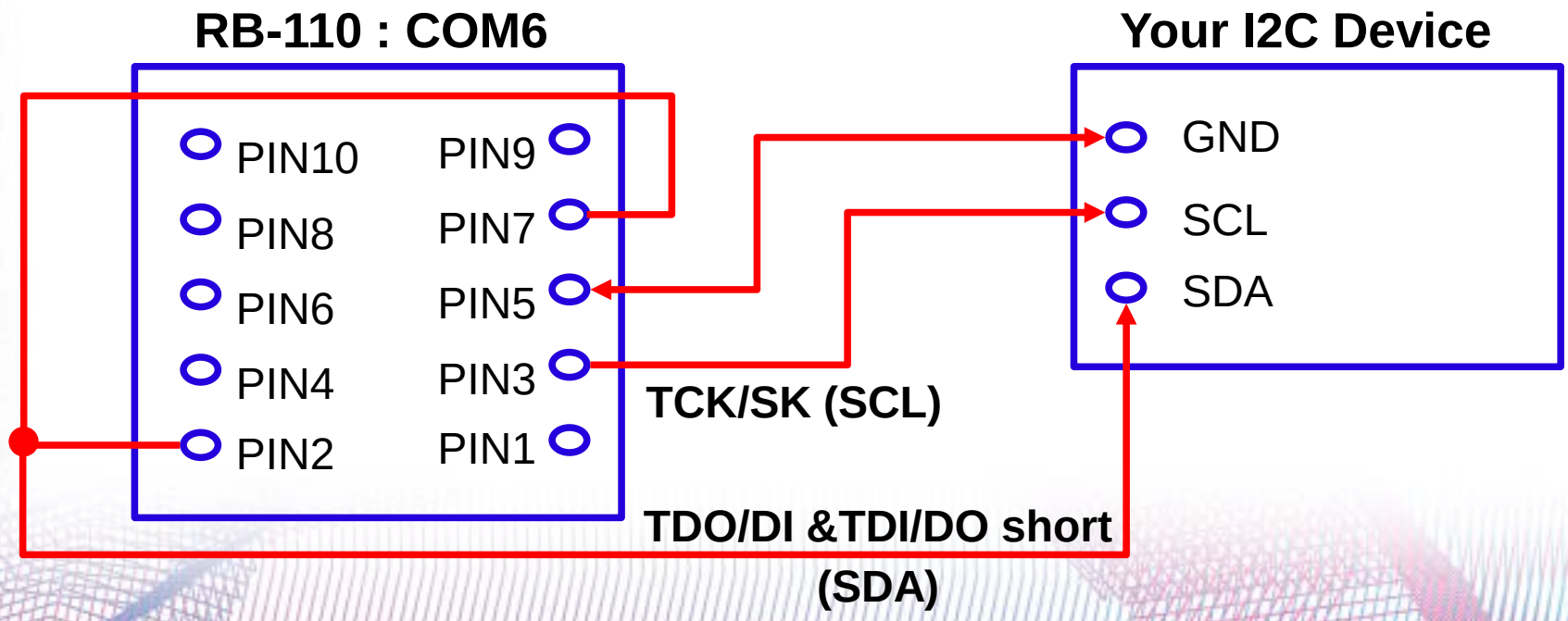
- You should employ FTDI's library to access COM6's SPI function.
  - FTDI's SPI library can be download from: **http://www.ftdichip.com/Support/SoftwareExamples/MPSSE/FTCSPI.htm**
  - FTDI also provides a programming guide for using the library: **http://www.ftdichip.com/Support/Documents/AppNotes/AN_111_Programmers_Guide_for_High_Speed_FTCSPI_DLL.pdf**
- SPI sample code for RB-110 can be found in the **spi-ad7918** directory.

Part 2 : Use COM6 as I^2C

PIN Connection

PIN#	Signal Name	PIN#	Signal Name
1	GPIOL2	2	TDI/DO
3	TCK/SK	4	GPIOL0
5	GND	6	GPIOL1
7	TDO/DI	8	TMS/CS
9	GPIOL3	10	GPIOH0





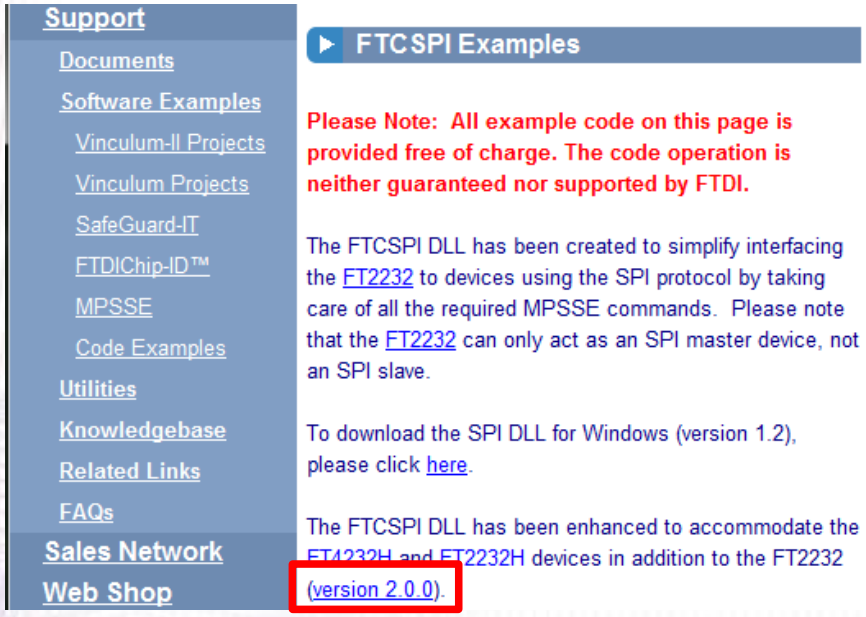
Programming

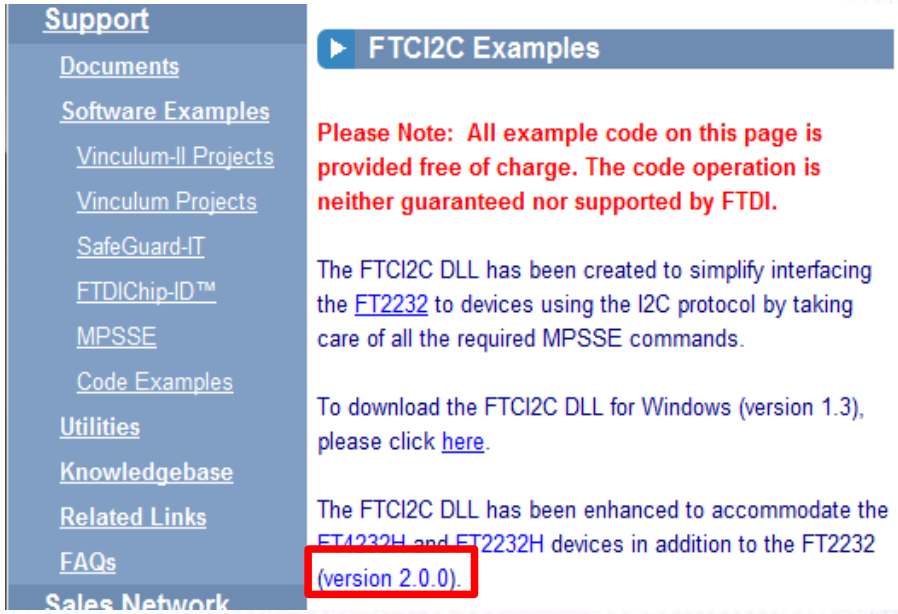
- You should employ FTDI's library to access COM6's I^2C function.
  - FTDI's I^2C library can be download from: **http://www.ftdichip.com/Support/SoftwareExamples/MPSSE/FTCI2C.htm**
  - FTDI also provides a programming guide for using the library: **http://www.ftdichip.com/Support/Documents/AppNotes/AN_109_Programming_Guide_for_High_Speed_FTCI2C_DLL.pdf**
- COM6-I^2C sample code for RB-110 can be found in the **i2c-srf** directory.

Part 3 : Setup FTDI's SPI / I^2C Library in Visual C++ 2005

Step 1

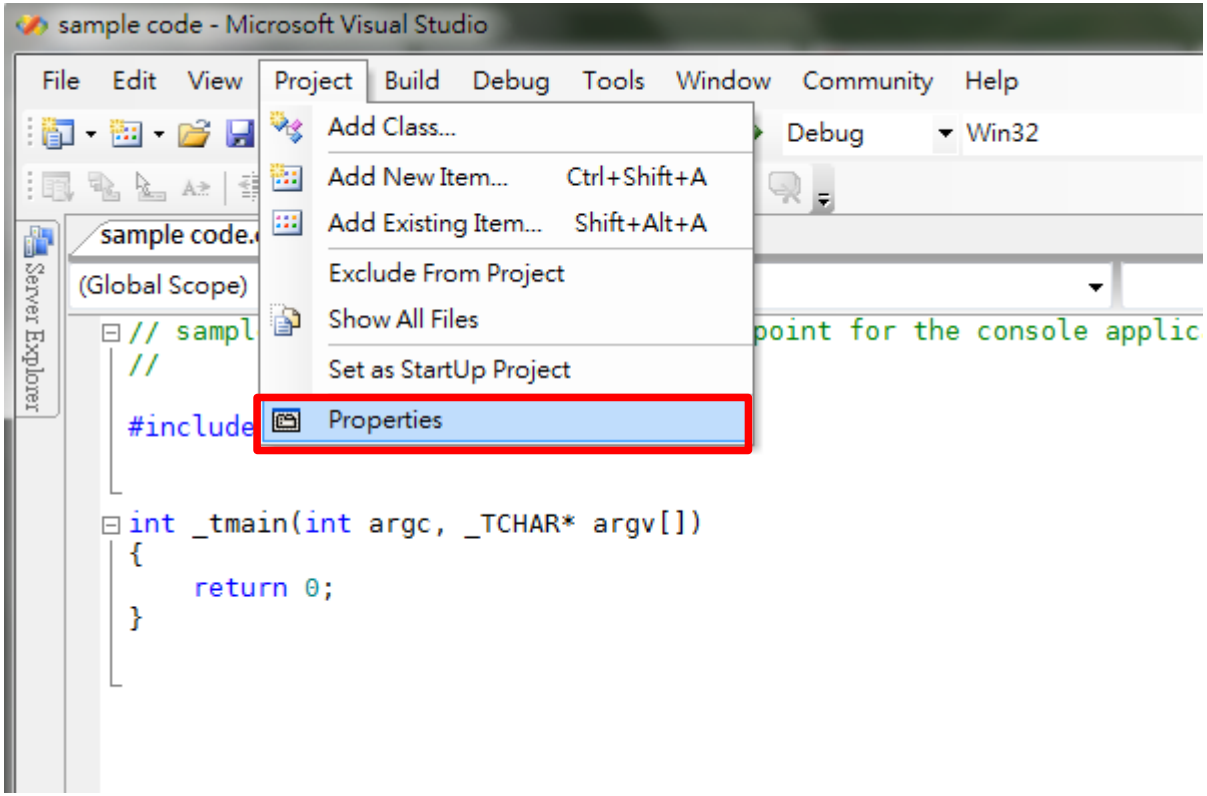
- Download FTDI's SPI / I²C library (**FTCSPI.dll** & **FTDI2C.dll**) and extract their into you computer.
  - Refer to previous pages for download links.





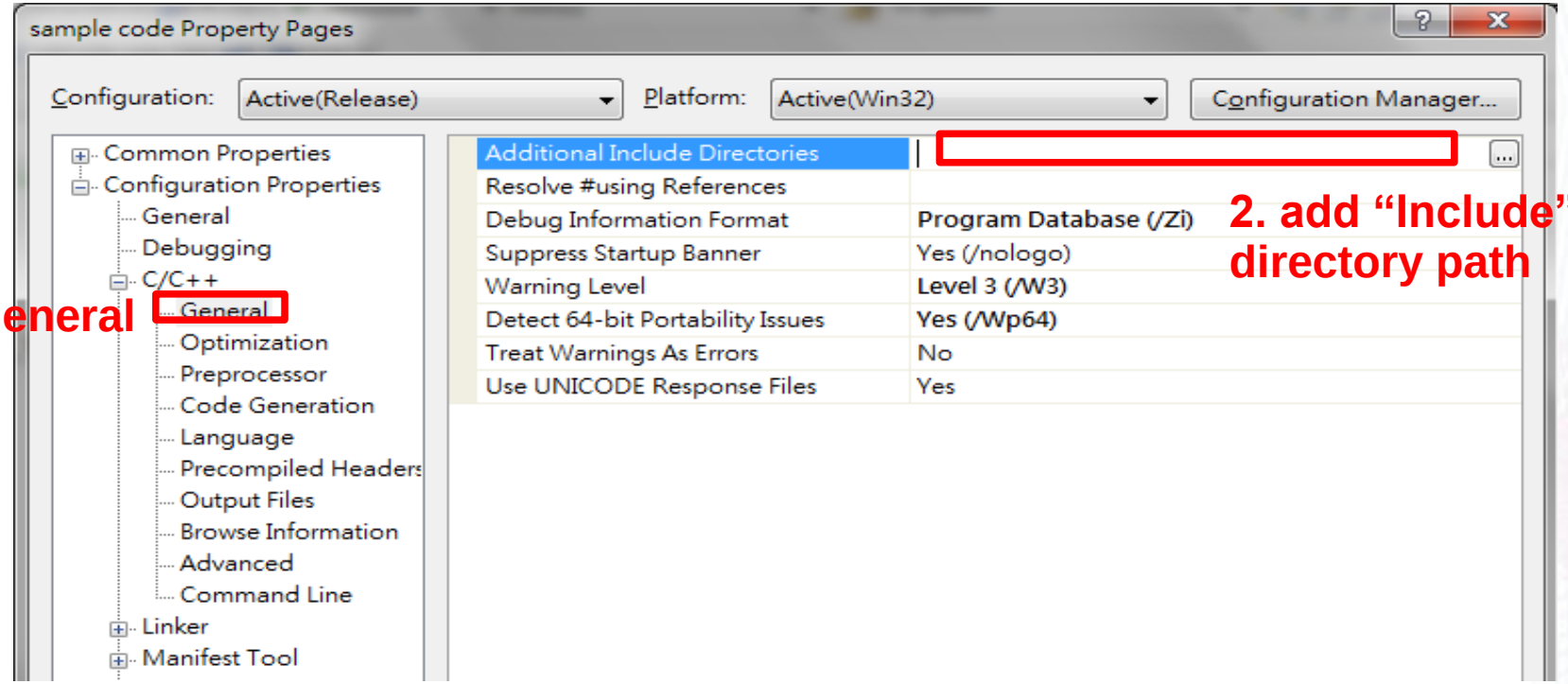
Step 2

- In your VC2005 project, open the “Properties” option.



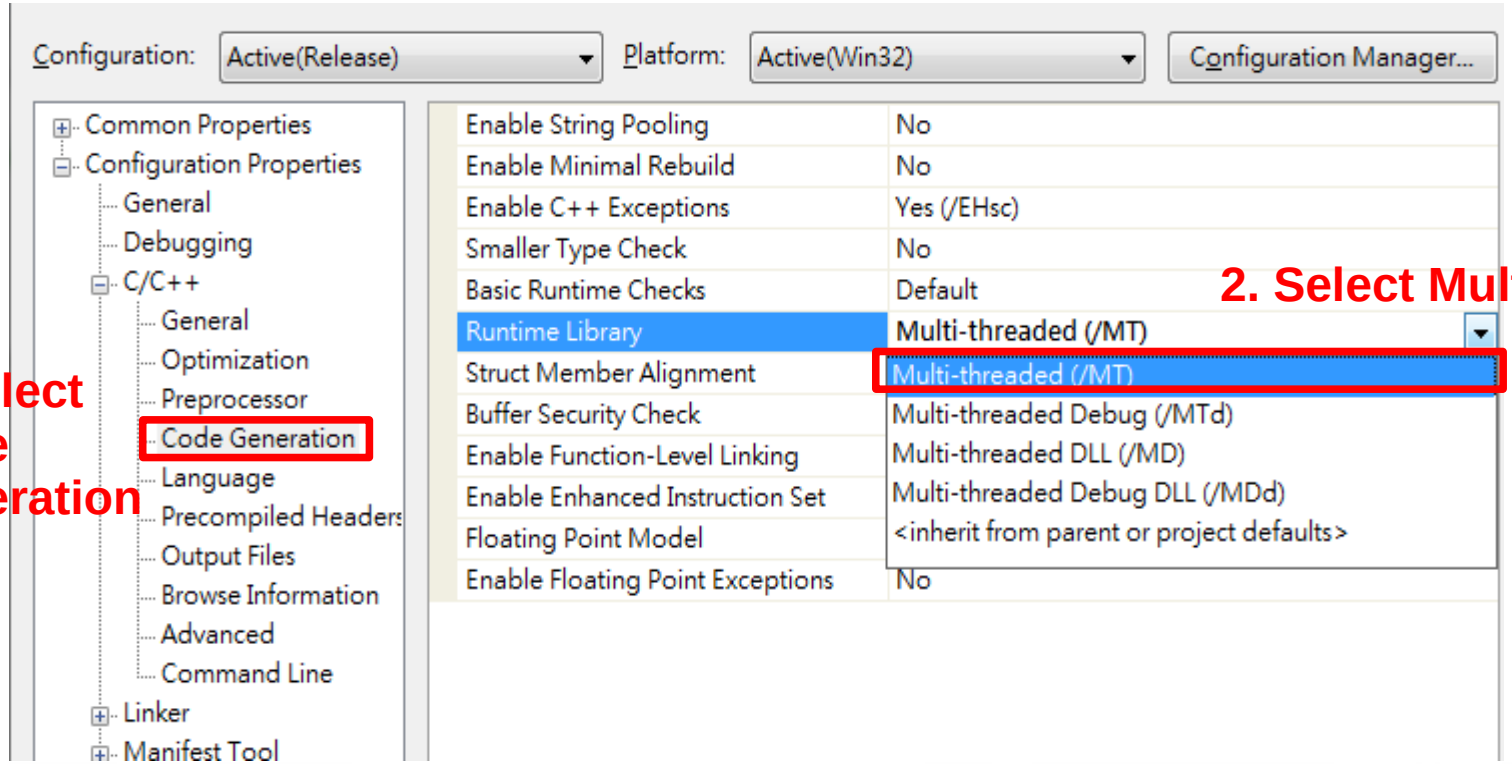
Step 3

- Select “General” option in “C / C++” section.
- Add “Include” directory path of FTDI’s SPI/I^{2}C library.



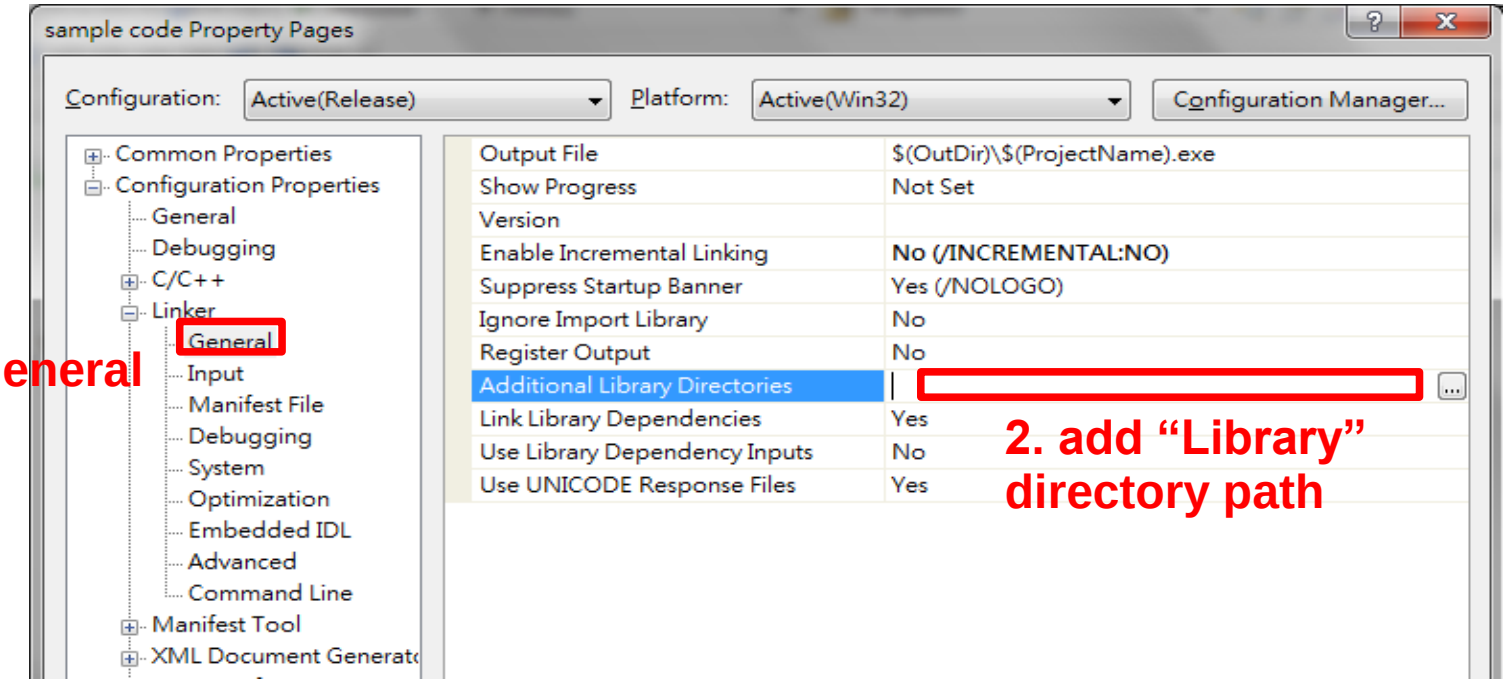
Step 4

- Select “Code Generation” option in “C/C++” section.
- Select “Multi-threaded (/MT)”.



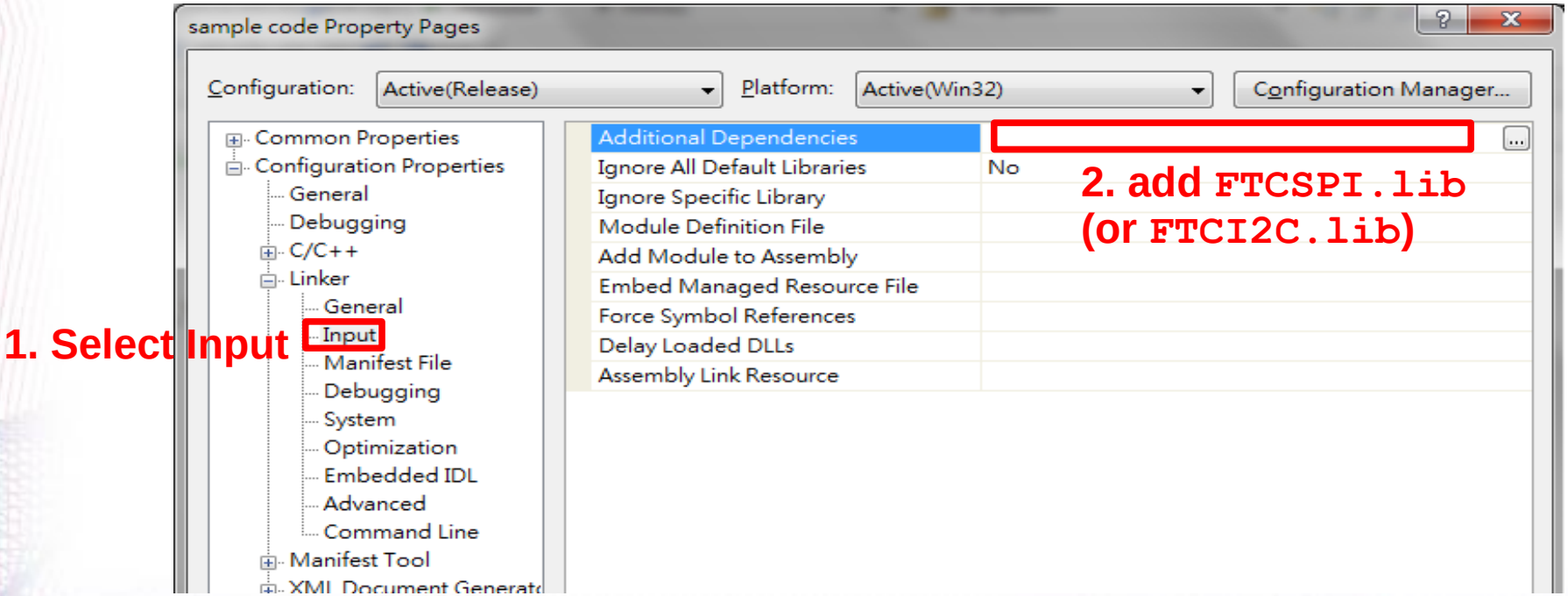
Step 5

- Select “General” option in “Linker” section.
- Add “Library” directory path of FTDI’s SPI/I^{2}C library.



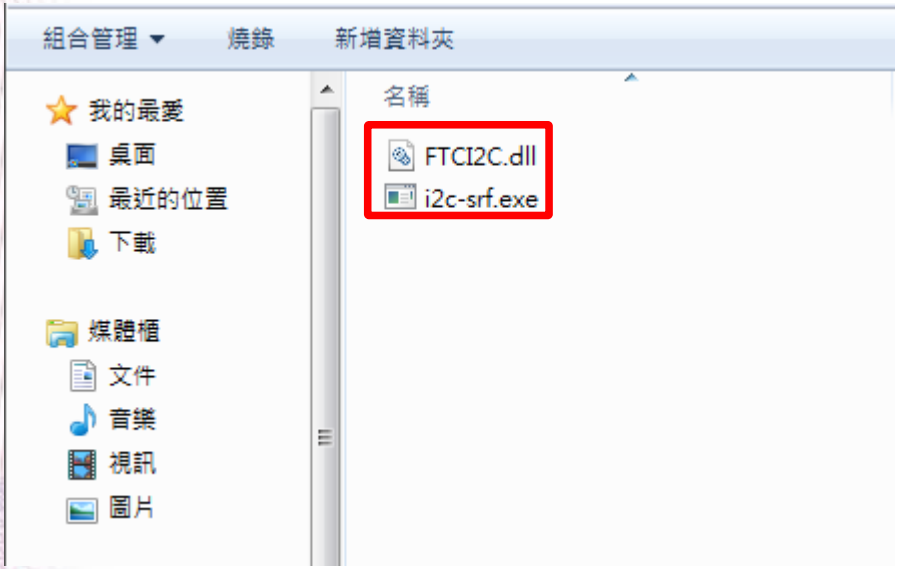
Step 6

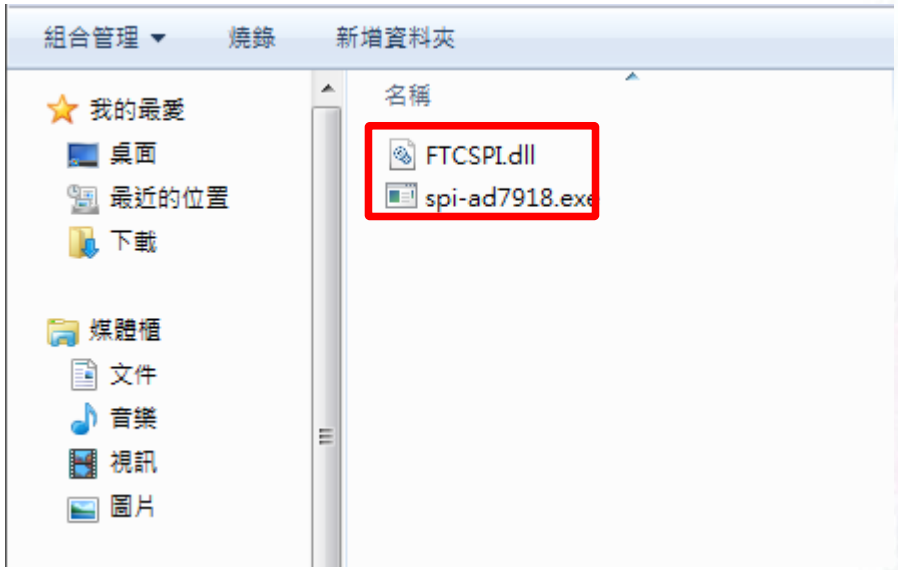
- Select “Input” option in “Linker” section.
- Add **`FTCSPI.lib`** / **`FTCI2C.lib`** of FTDI’s SPI/I²C library into dependency.



Notes

- To run your application, you should put it and **`FTCSPI.dll`** / **`FTCI2C.dll`** of FTDI's SPI/I^{2}C library in the same folder.





The heart of Robotics

Thank You

tech@roboard.com

http://www.roboard.com