

Shield2Go Adapter for Arduino My IoT Adapter

Quick Start
V1.0.1



Introduction

The Shield2Go Adapter for Arduino is a PCB adapter to connect Infineon's Shield2Go series with the 3rd party Arduino ecosystem like Arduino Uno or the available shields for Arduino Uno form factor.

Infineon's Shield2Go form factor is a comprehensive shield design derived from the XMC 2Go evaluation board. All boards share a common pin out design, i.e. pins are hard coded to specific functions like SPI or I2C. This enables a generic PCB evaluation board design for Infineon's portfolio like the DPS310 Pressure Shield2Go, the TLV493D-A1B6 3DMagnetic Shield2Go, the TLI4970-D050T4 CurrentSense Shield2Go or the OPTIGA™ Trust E Security Shield2Go.

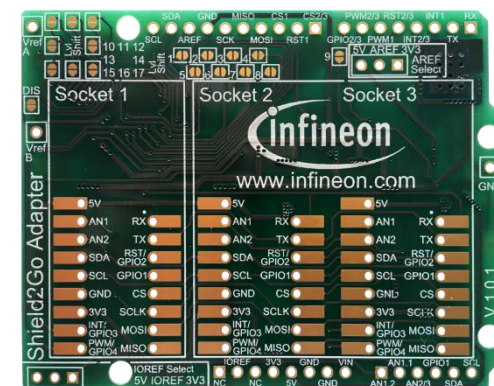
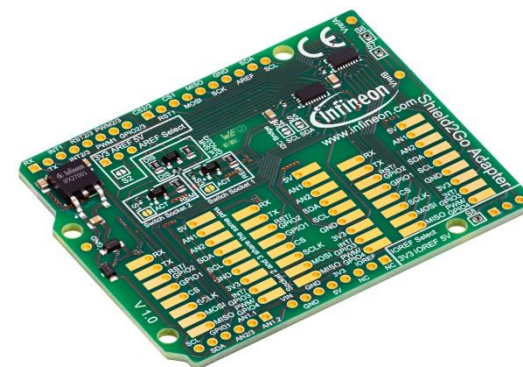
Moreover, easy to use software is available for this adapter to speed up development of the Shield2Go boards and systems compatible with the Arduino ecosystem. All software is released into the public domain and available as open source libraries on GitHub.



Evaluation Board Notes

Information

- Supply voltage is typ. 5.0 V as common voltage for the shields compatible with Arduino Uno
- Level shifting is available to convert the logic level of 5.0 V to 3.3 V of all current Shield2Go boards
- Solder bridges are available to deactivate the level shifting selectively
- Additional pins enable the settings of the reference voltages for level shifting as well as the analog reference voltage
- The Shield2Go adapter for Arduino supports the separate power control of the Socket 1 and Socket 2: both sockets can be switched off and on
- Socket 1 is completely independently controllable while Socket 2 and 3 share pins to the underlying control board
- Socket 1 is completely independently controllable while Socket 2 and 3 share pins to the underlying control board
- OPN MYIOTADAPTERTOBO1



Ensure that appropriate level shifting is set up

Evaluation Board PCB Details

The

Shield2Go Adapter for Arduino

Legend

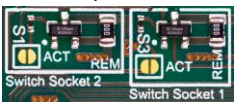
- Information
- Labelling of Pins on Board
- Pin Number in Arduino IDE
- Physical Pin Number
- ⚠ Warning
- i Additional Information
- NC Not Connected
- ▶ Solder Bridge Number to Disable Level Shifting

GPIO2/3 Level Shifting

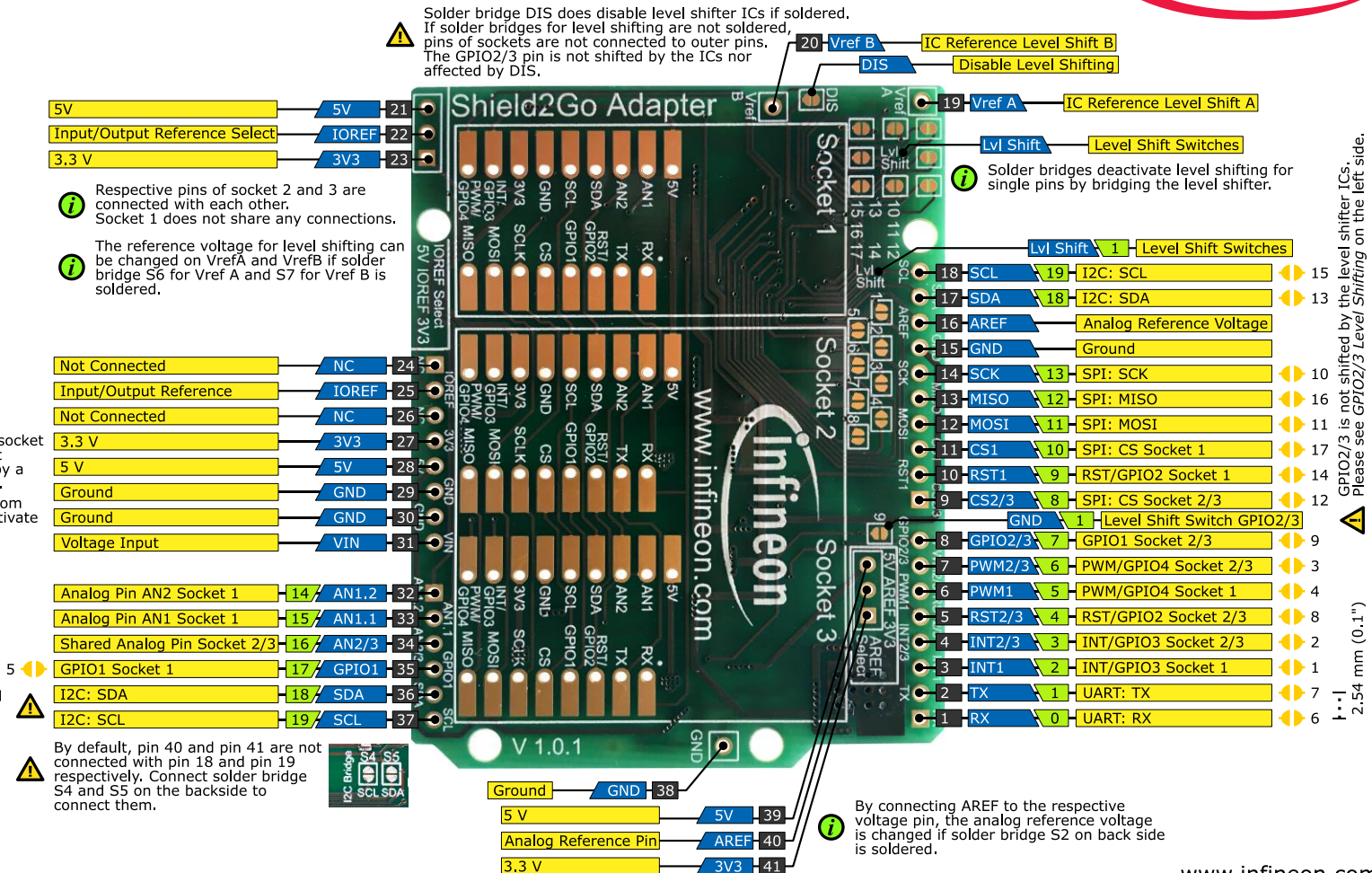
Levels on GPIO2/3 of socket 2 and socket 3 are not shifted by an IC, but by a MOSFET as shown left.

Remove the resistor marked with DIS from the back to disable level shifting and activate solder bridge 9 on the top of the board.

Enable/Disable Sockets

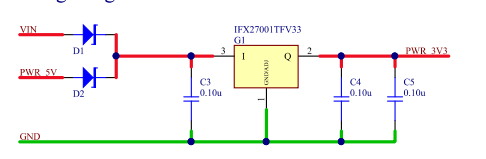


Removing the REM marked resistors and soldering S1 for socket 2 and/or S3 for socket 1 enables control of the sockets: pin RST/GPIO2 of socket 1 controls power for socket 2 and vice versa (on when HIGH, off when LOW). The ground will be disconnected from the sockets.

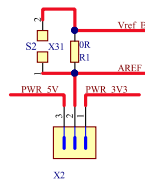


Evaluation Board Schematic

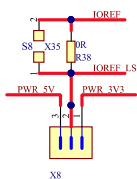
Voltage Regulator



AREF Selection



IO Reference Voltage Selection



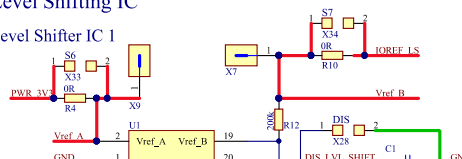
i 0 Ohm resistor will not be placed by default, user could solder this to enable AREF selection via jumper or use the AREF testpoint for providing a reference voltage.

i The 0 Ohm resistor will be placed by default, but user can remove it and switch reference voltage via jumper if wanted.

XMC1100_CPU_Card_Arduino_Connectors.SchDoc

Level Shifting IC

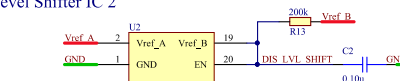
Level Shifter IC 1



SPI_CS_2/3	3	A1	B1	18	SPI_CS_2/3
RST_GPIO2_1_LS	4	A2	B2	17	RST_GPIO2_1
SPI_CS_1_LS	5	A3	B3	16	SPI_CS_1
SPI_MOSI_LS	6	A4	B4	15	SPI_MOSI
SPI_MISO_LS	7	A5	B5	14	SPI_MISO
SPI_CLK_LS	8	A6	B6	13	SPI_CLK
I2C_SDA_LS	9	A7	B7	12	I2C_SDA
I2C_SCL_LS	10	A8	B8	11	I2C_SCL

Texas Instruments LSF0108RKS

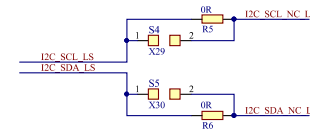
Level Shifter IC 2



UART_TX_LS	3	A1	B1	18	UART_TX
UART_RX_LS	4	A2	B2	17	UART_RX
RST_GPIO2_2/3_LS	5	A3	B3	16	RST_GPIO2_2/3
PWM_GPIO4_1_LS	6	A4	B4	15	PWM_GPIO4_1
PWM_GPIO4_2/3_LS	7	A5	B5	14	PWM_GPIO4_2/3
INT_GPIO3_2/3_LS	8	A6	B6	13	INT_GPIO3_2/3
GPIO1_1_LS	9	A7	B7	12	GPIO1_1
INT_GPIO3_1_LS	10	A8	B8	11	INT_GPIO3_1

Texas Instruments LSF0108RKS

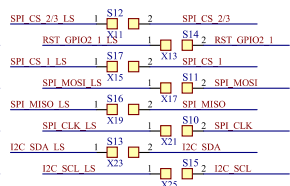
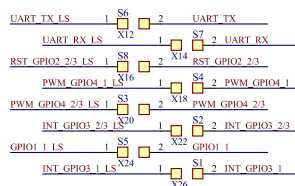
I2C Bridge



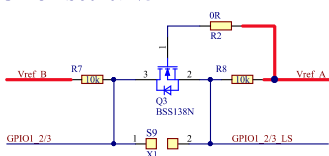
Additional Ground Pad



Bypassing of IC Level Shifter 2 Bypassing of IC Level Shifter 1

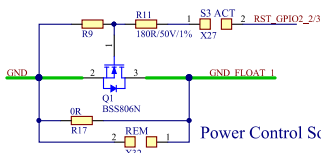
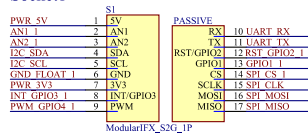


Level Shift GPIO1 Socket 2/3



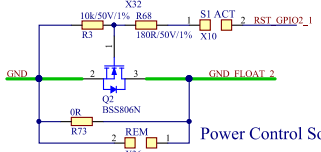
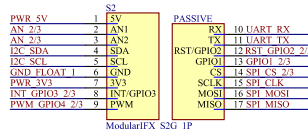
Socket 1, 2, 3, and Power Control Socket 1 and 2

Socket 1



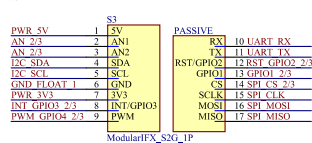
Power Control Socket 1

Socket 2



Power Control Socket 2

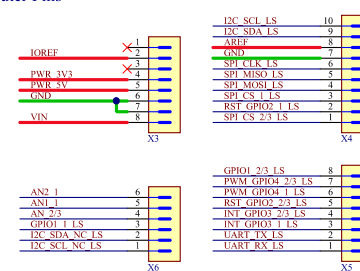
Socket 3



i Socket 1 is independent of socket 2 and 3 - pins of socket one share no outer pins connected to socket 2 and socket 3. Socket 2 and socket 3 share the same pins of the outer pins, i.e. the respective pin of socket 2 and socket 3 are controlled simultaneously.

Connectors for Arduino UNO Formfactor

Outer Pins



Arduino: The Arduino IDE

Arduino IDE



Arduino is a hardware-software prototyping environment IDE developed by arduino.cc:

- Installation Details for Windows:
Click [here](#)
- Installation Details for Linux:
Click [here](#)
- Installation Details for Mac OS:
Click [here](#)
- Installation Details for Portable IDE:
Click [here](#)

Arduino Quick Start

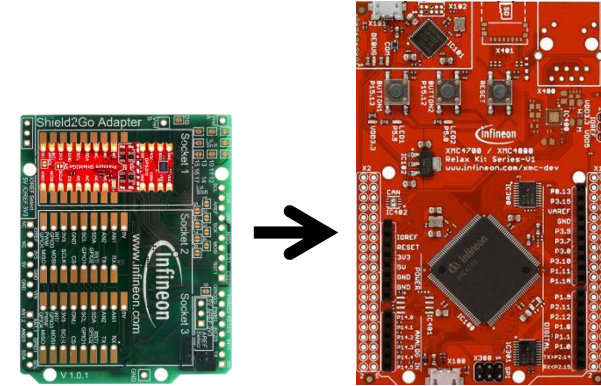
- What is Arduino? Click [here](#)
- Extended information about the Arduino environment. Click [here](#)
- How to import libraries? Click [here](#)
- How to install additional boards? Click [here](#)
- Problems related to Arduino? Click [here](#) for troubleshooting

Example with XMC4700 Relax Kit for 5V Shields



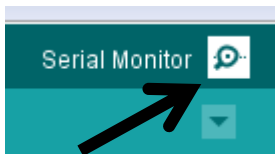
Notes

- The Shield2Go Adapter is directly compatible with the XMC4700 Relax Kit for 5V Shields (compatible with Arduino Uno form factor)
- Stack the Shield2Go Adapter on top of the XMC4700 Relax Kit for 5V Shields with a Shield2Go board of your choice, e.g. DPS310 Pressure Shield2Go as shown right
- Using the [XMC-for-Arduino](#) Arduino integration, the [Arduino examples](#) for the Shield2Go Adapter for Arduino can be directly used



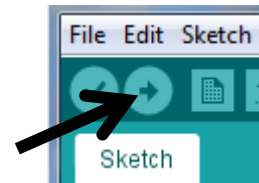
Steps

- Open one of the examples for the Shield2Go Adapter with *File – Open...* and select as board *XMC4700 Relax Kit* - more information can be found [here](#)
- Connect the stacked boards to the PC and press the *Upload* button
- Select the related COM port from *Tools – Port* and open the serial monitor with the set baud rate (see sketch/code with `Serial.begin(<BAUDRATE>);`)



<https://github.com/Infineon/XMC-for-Arduino>

<https://github.com/Infineon/Shield2Go-Adapter-for-Arduino>





Part of your life. Part of tomorrow.

