Shield2Go Adapter for Arduino
My IoT Adapter

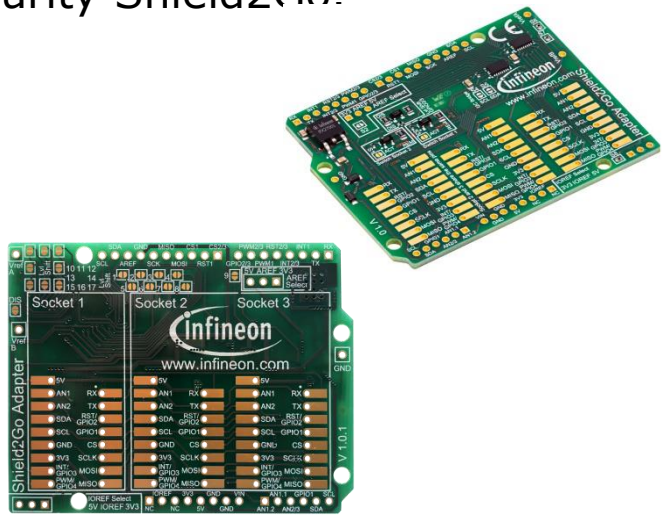
Quick Start
V1.0.1

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.



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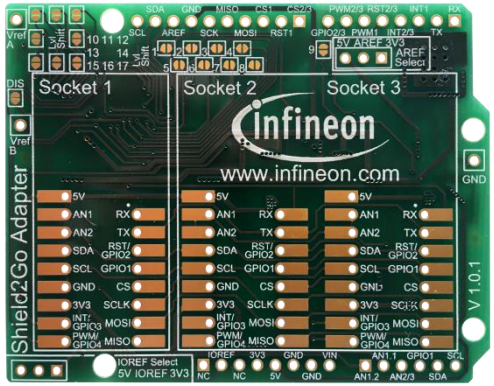
Evaluation Board Notes

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
- OPN MYIOTADAPTERTOBO1



Ensure that appropriate level shifting is set up

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Evaluation Board PCB Details

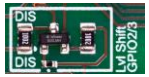
The

Shield2Go Adapter for Arduino

Legend

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

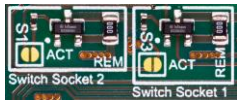
GPIO2/3 Level Shifting



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

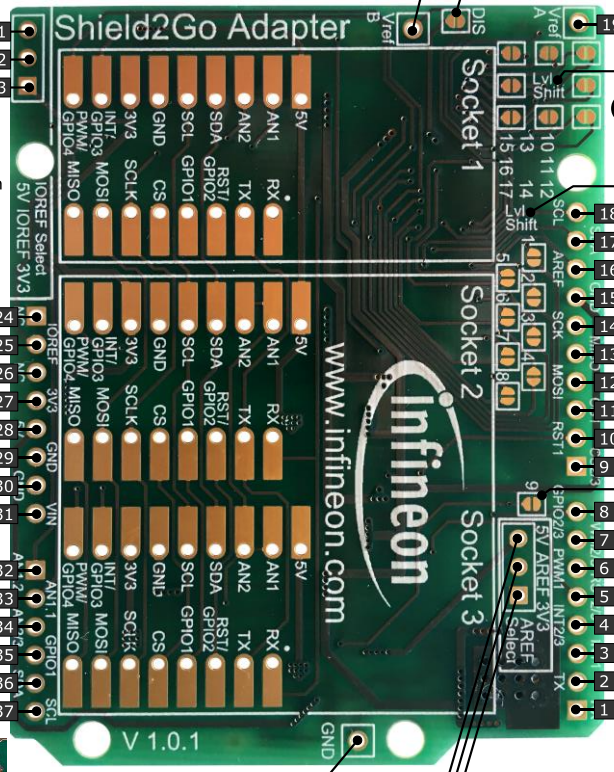
Remove the resistor marked with DIS from the back to disable level shifting and activate solder bridge 9 on the top of the board.

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.

Solder bridge DIS does disable level shifter ICs if soldered. If solder bridges for level shifting are not soldered, pins of sockets are not connected to outer pins. The GPIO2/3 pin is not shifted by the ICs nor affected by DIS.



20	Vref B		IC Reference Level Shift B			
	DIS		Disable Level Shifting			
19	Vref A		IC Reference Level Shift A			
	Lvl Shift		Level Shift Switches			
	Lvl Shift	1	Level Shift Switches			
18	SCL	19	I2C: SCL	15		
17	SDA	18	I2C: SDA	13		
16	AREF		Analog Reference Voltage			
15	GND		Ground			
14	SCK	13	SPI: SCK	10		
13	MISO	12	SPI: MISO	16		
12	MOSI	11	SPI: MOSI	11		
11	CS1	10	SPI: CS Socket 1	17		
10	RST1	9	RST/GPIO2 Socket 1	14		
9	CS2/3	8	SPI: CS Socket 2/3	12		
	GND	1	Level Shift Switch GPIO2/3			
8	GPIO2/3	7	GPIO1 Socket 2/3	9		
7	PWM2/3	6	PWM/GPIO4 Socket 2/3	3		
6	PWM1	5	PWM/GPIO4 Socket 1	4		
5	RST2/3	4	RST/GPIO2 Socket 2/3	8		
4	INT2/3	3	INT/GPIO3 Socket 2/3	2		
3	INT1	2	INT/GPIO3 Socket 1	1		
2	TX	1	UART: TX	7		
1	RX	0	UART: RX	6		

Solder bridges deactivate level shifting for single pins by bridging the level shifter.

GPIO2/3 is not shifted by the level shifter ICs. Please see *GPIO2/3 Level Shifting* on the left side.

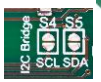
2.54 mm (0.1")

5V	5V	21			
Input/Output Reference Select	IOREF	22			
3.3 V	3V3	23			
Not Connected	NC	24			
Input/Output Reference	IOREF	25			
Not Connected	NC	26			
3.3 V	3V3	27			
5 V	5V	28			
Ground	GND	29			
Ground	GND	30			
Voltage Input	VIN	31			
Analog Pin AN2 Socket 1	14 / AN1.2	32			
Analog Pin AN1 Socket 1	15 / AN1.1	33			
Shared Analog Pin Socket 2/3	16 / AN2/3	34			
5 GPIO1 Socket 1	17 / GPIO1	35			
I2C: SDA	18 / SDA	36			
I2C: SCL	19 / SCL	37			
Ground	GND	38			
5 V	5V	39			
Analog Reference Pin	AREF	40			
3.3 V	3V3	41			

Respective pins of socket 2 and 3 are connected with each other.
Socket 1 does not share any connections.

The reference voltage for level shifting can be changed on VrefA and VrefB if solder bridge S6 for Vref A and S7 for Vref B is soldered.

By default, pin 40 and pin 41 are not connected with pin 18 and pin 19 respectively. Connect solder bridge S4 and S5 on the backside to connect them.



By connecting AREF to the respective voltage pin, the analog reference voltage is changed if solder bridge S2 on back side is soldered.

V1.0.1

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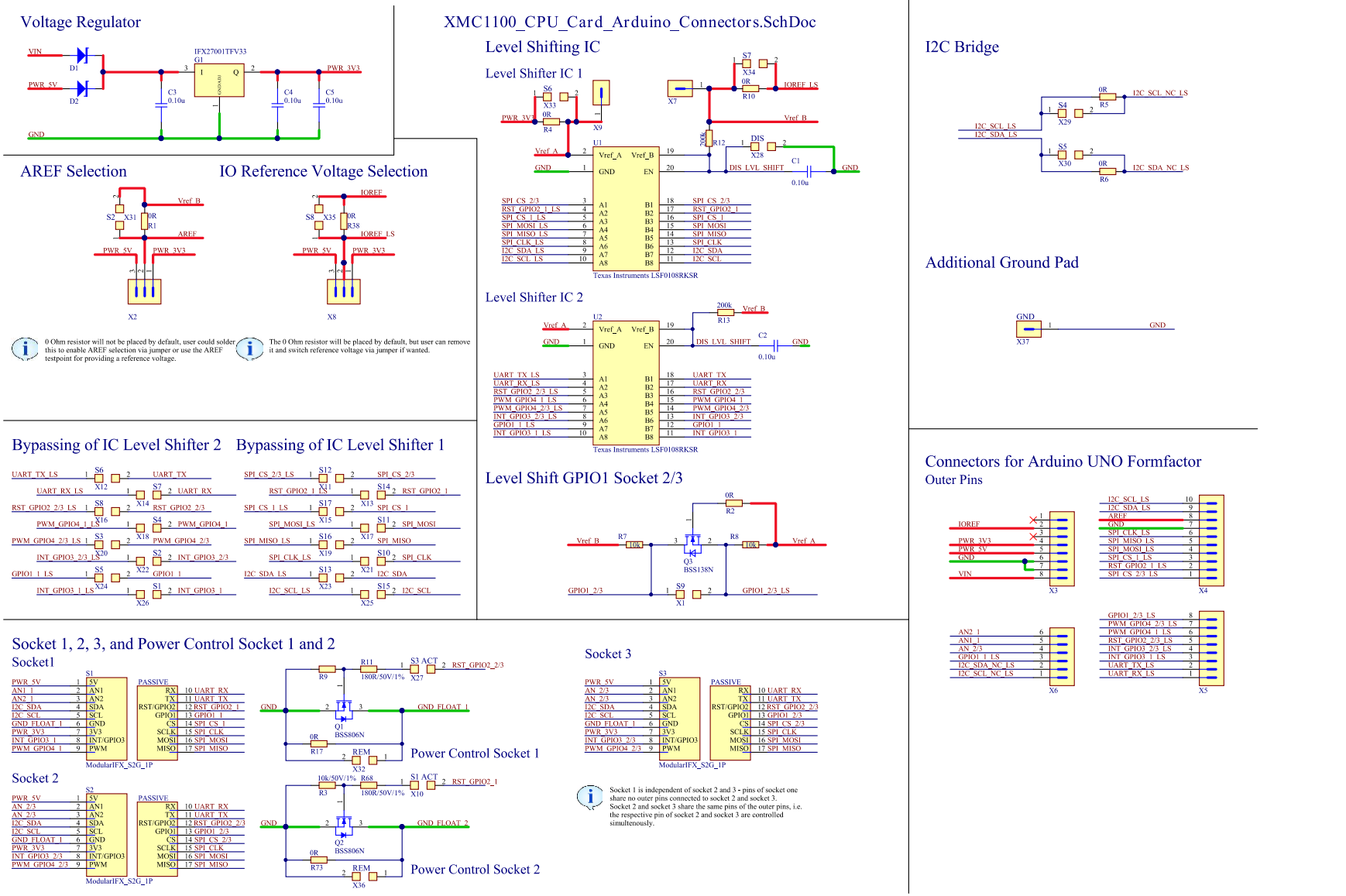
Evaluation Board Schematic



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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

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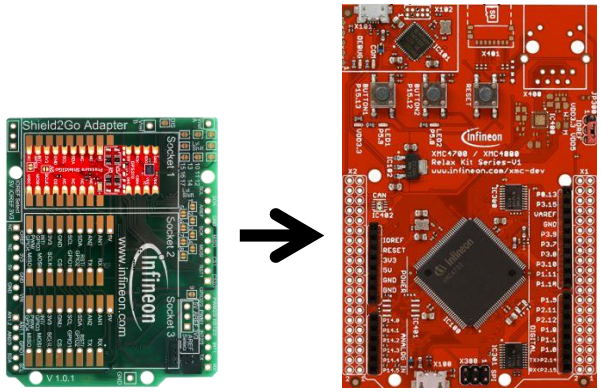
Example with XMC4700 Relax Kit for 5V Shields

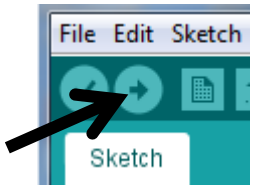
Notes

- 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

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