

## 1. General Description

3G Shield is an expansion board based on the SIM5216E Module, and SIM5216 series module is a multi-frequency HSDPA / WCDMA / GSM / GPRS / EDGE module solution that supports HSDPA data transmission at a speed of no more than 3.6Mbps. 3G Shield can directly replace the SIM5215, compatible with its Hardware and Software. The rich application features of 3G shield, such as supporting embedded LUA script, or TCP/ UDP/ FTP/ HTTP/ HTTPS/ SMTP/ POP3/ MMS and other software features, provide customers with more application flexibility, and greatly facilitate customers to do application integration. Meanwhile, its unique camera interface and video telephony features provide additional value to the monitoring program. The module can be widely used in meters, gateways, automotive telematics, asset tracking and security monitoring solutions.

3G Shield not only inherited the SIM5216E Module all application features, but also expanded many common interfaces, including two camera interfaces, a microphone and a headphone jack, USB port, SIM card interface, SD card interface, as well as the Arduino compatible interface.

Note: When 3G Shield communicates with UART interface by Bee USB Adapter, please pay attention to the connection method: **Bee USB Adapter TX-UART TX, Bee USB Adapter RX-UART RX.**

## 2. **Features**

- Support multiple modules: SIM5216A、SIM5216E、SIM5216J
- Support RTC super capacitor
- Support 3G communication
- Support Micro SD card、SIM card
- Support multiple webcam access: OV7670、OV7690、OV7725、OV2640、AK8856
- Fully compatible with Arduino/ Freaduino
- Can control via AT Command
- SIM5216 Module supporting voltage range: 3.3V-4.2V
- Input Voltage: DC 7-23V
- Dimension: 86mmx57.1mm

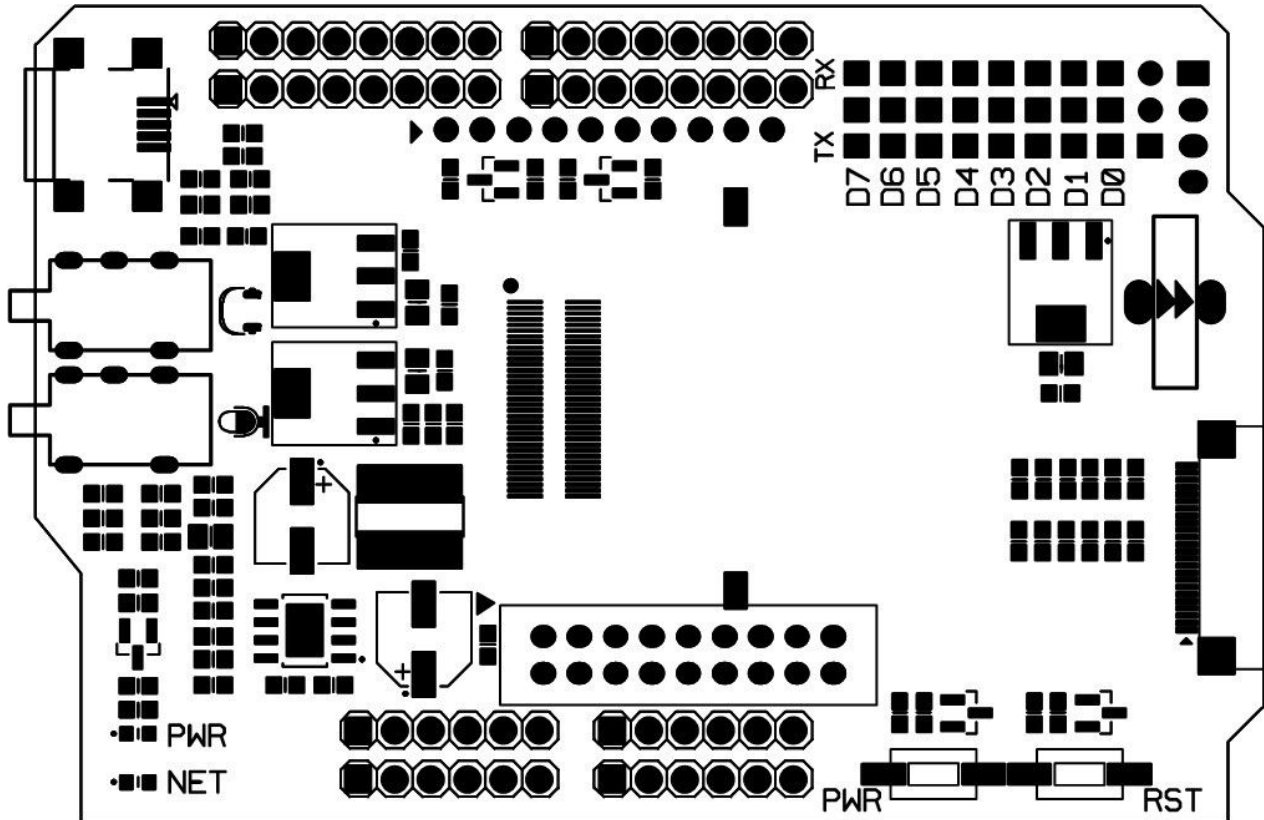
## 3. **Applications**

- Smart home
- Vehicle telematics
- Asset tracking and security monitoring
- Meters, gateways
- Industrial communication

## 4. **Electrical characteristics**

PARAMETER	MIN	TYP	MAX	UNIT
Power Supply Voltage	7	-	23	V
SIM5216 module operating voltage	3.3	3.8	4.2	V
SIM5216 module maximum output current	-	-	2	A

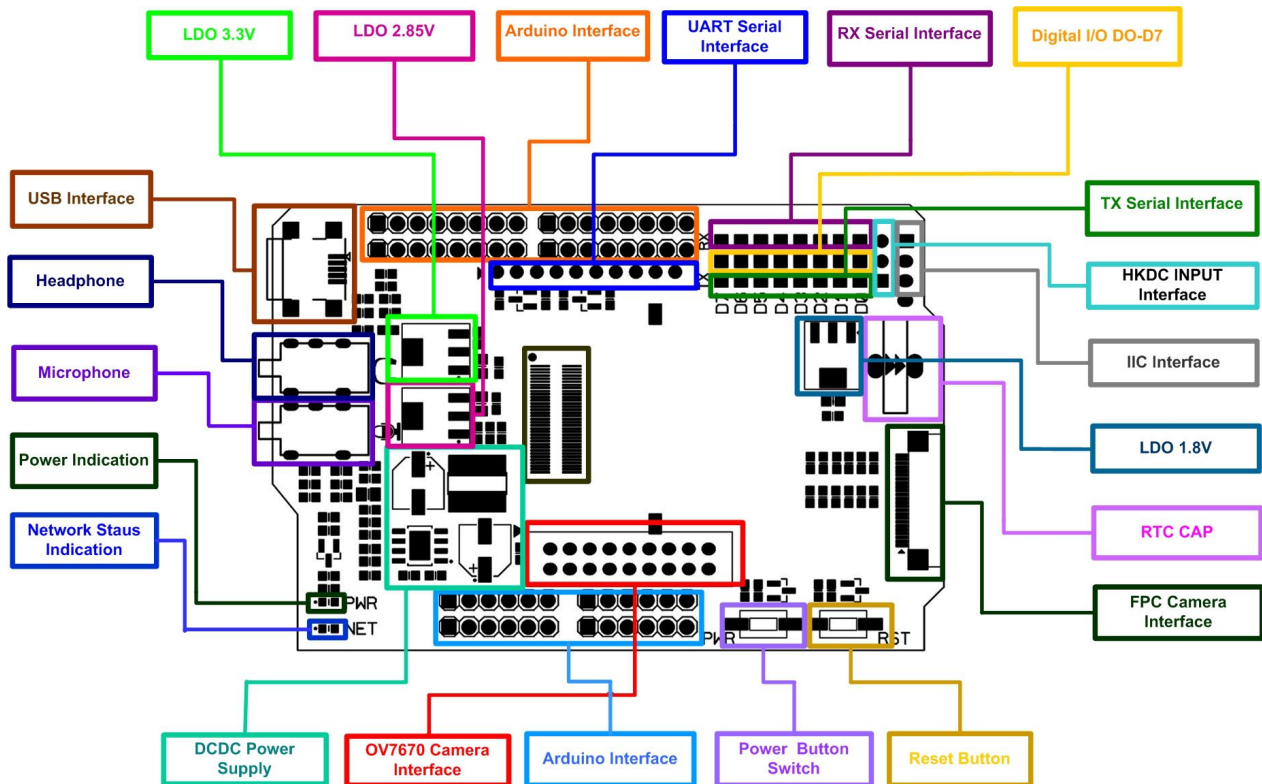
## 5. Pining information



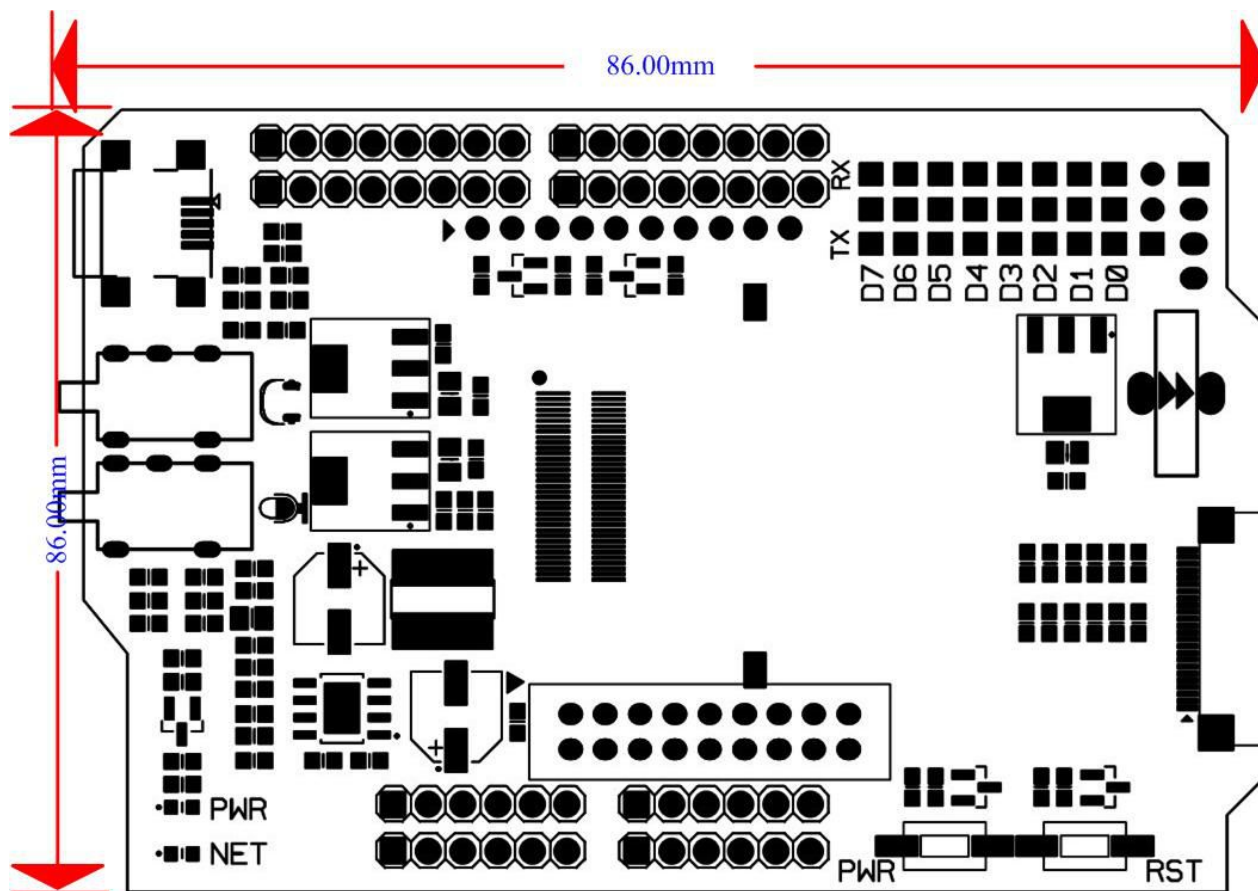
Types	symbol	description
	D0	Communication pin RX
	D1	Communication pin TX
	D2	Arduino Digital Port D2
	D3	Arduino Digital Port D3
	D4	Arduino Digital Port D4
	D5	Arduino Digital Port D5
	D6	Arduino Digital Port D6
	D7	Arduino Digital Port D7
Arduino pin	D8	Control PWR on or off
	D9	Control RST
	D10	SPI Bus EN signal
	D11	SPI Bus MOSI Data Input
	D12	SPI Bus MISO Data Output
	D13	SPI Bus clock signal
	A0	Arduino Analog Port A0
	A1	Arduino Analog Port A1

Types	Symbols	Description
	A2	Arduino Analog Port A2
	A3	Arduino Analog Port A3
	A4	Arduino Analog Port A4
	A5	Arduino Analog Port A5
	RST	Arduino Reset Port
	AREF	Arduino AREF, providing an external AD sampling reference voltage
	VIN	Adapter input power supply
	GND	Power ground
	5V	5V voltage output
<b>Bee Adapter pin</b>	TX	Arduino serial communication TX
	RX	Arduino serial communication RX
	DTR	DTR signal
	3V3	XBee BTBee power supply
	TX	XBee serial port output TX
<b>XBee PIN</b>	RX	XBee serial port input RX
	RST	Connect to MEGA328P reset pin, providing reset when in wireless programming
	DIO	Provide BTBee module high level or low level, used for entering AT Mode
	3V3	Connect to +3.3V power supply
	GND	Connect to GND
	SCK	Connect to IIC_SCK
	SDA	Connect to IIC_SDA
	VS	Connect to CAM_VSYNC
	HS	Connect to CAM_HSYNC
	PCLK	Connect to CAM_PCLK
	XCLK	Connect to CAM_CLK
	D7	Connect to CAM_D9
<b>Camera (2x9)pin</b>	D6	Connect to CAM_D8
	D5	Connect to CAM_D7
	D4	Connect to CAM_D6
	D3	Connect to CAM_D5
	D2	Connect to CAM_D4
	D1	Connect to CAM_D3
	D0	Connect to CAM_D2
	RST	Connect to CAM_RESET
	PWDN	Connect to CAM_STANDBY

### 6. Interface description



## 7. Dimension



## 8. Revision history

REVISION	DESCRIPTION	RELEASE DATE
V1.2	Initial version	9/24/2013

## 9. Contact information

For more information, please visit: <http://www.elec Freaks.com>

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