SHIRATECH KNOWTION

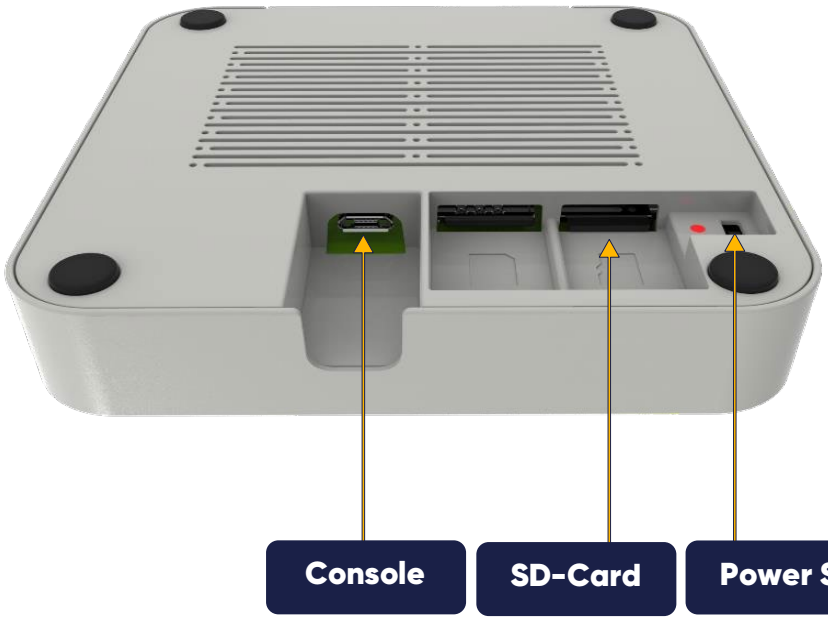
IoT Gateway

Quick Start Guide

Quick Start

Follow these instructions to start using your IoT-Box:

1. Download the IoT-Box Debian image from www.shiratech-knowtion.com/iot-gateway
2. Extract the file and flash the image to an SD card (using Win32DiskImager or any other similar tool).
3. Insert the SD card to the IoT-Box.



4. Connect the IoT-Box to your PC using a micro USB cable via the Console micro USB connector and turn the power switch on.
5. Connect to the IoT-Box via the serial interface (using TeraTerm/Putty or any similar tool) with a 115200 baud rate.
6. Type:

```
~$: nmtui
```

to launch the Wi-Fi settings and connect to Wi-Fi. Once Wi-Fi connection has been established you may update and upgrade the Debian OS using:

```
~$: sudo apt-get update
```

```
~$: sudo apt-get upgrade
```

7. Test Bluetooth connectivity using the following commands:

```
~$: hciconfig
```

```
~$: hciconfig hci0 up
```

```
~$: hcitool scan
```

8. To locate Low Energy Bluetooth devices (BLE), use the following command (after executing the first two config commands in the previous step):

```
~$: hcitool lescan
```

9. In /usr/shiratech/demo/v1.1 folder you will find an Azure IoTC connectivity demo application. In order to run the demo, you may refer to the readme file located in this folder.
10. /usr/shiratech/SPI/ contains the leds.sh test script:

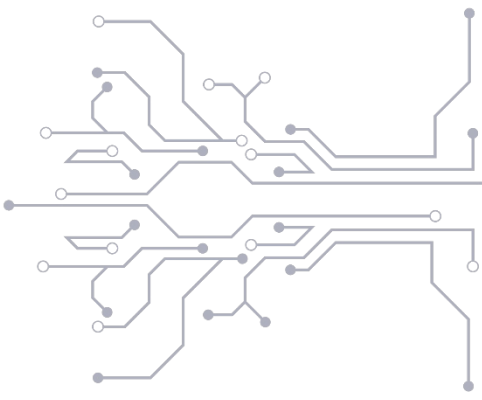
```
~$: ./leds.sh red
```

lights up the LED's in red. (green/blue/off also apply).

```
~$: ./leds.sh
```

(without a parameter) will print the leds.sh script usage instructions.

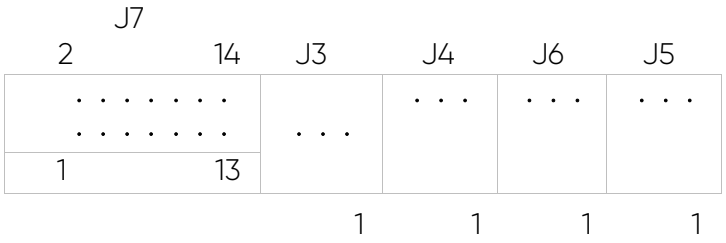
11. /usr/shiratech/BG96/ contains test scripts for the BG96 modem.



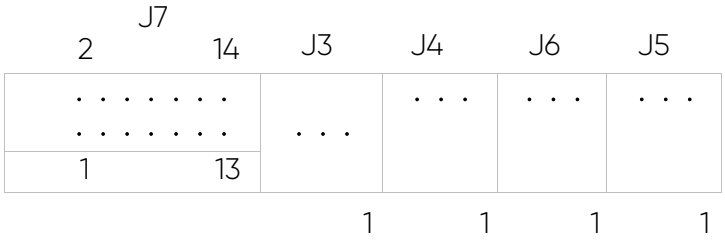
Power Switch and LED Indication

LED Color Status	Power Switch Position	Battery Status
	Off	Full
	Off	Charging
	On	Charging
	On	Full

Expansion Connectors



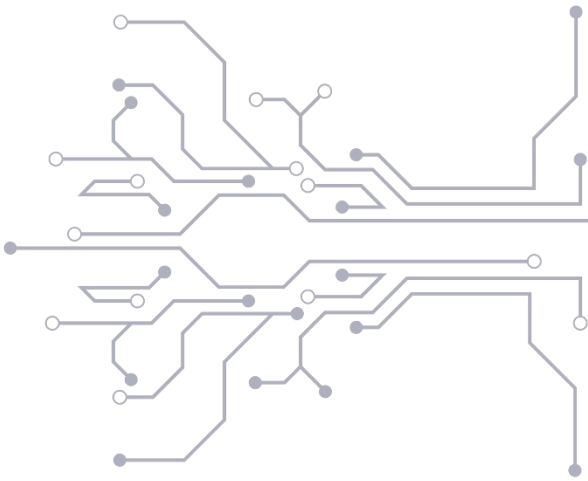
LABEL	CONNECTOR #	PIN #	PIN NAME	FUNCTION	CPU I/O PIN	VOLTAGE LEVEL
DI2-DI1	J5	1	GND	Ground		GND
		2	DI-1	Digital Input 1	PG4	5V
		3	DI-2	Digital Input 2	PG5	5V
AI1-AI2	J6	1	GND	Ground		GND
		2	AIN-2	Analog Input 1	PC3	1.8V
		3	AIN-1	Analog Input 2	PC0	1.8V
DO2	J4	1	DIGO2_CMN2	Relay 2 common	PB10	30VDC, 1A
		2	DIGO2_NC	Relay 2 normally close		
		3	DIGO2_NO	Relay 2 normally open		
DO1	J3	1	DIGO1_CMN1	Relay 1 common	PI0	30VDC, 1A
		2	DIGO1_NC	Relay 1 normally close		
		3	DIGO1_NO	Relay 1 normally open		



J7 Pin Number	Connector Pin Name	CPU I/O Pin	Pin Type	Voltage Level
1	I2C2_SDA	PH5	Digital	1.8V
2	SPI4_SCK	PE12	Digital	1.8V
3	I2C2_SCL	PH4	Digital	1.8V
4	SPI4_MISO	PE13	Digital	1.8V
5	UART8_CTS	PG10	Digital	1.8V
6	SPI4_NSS	PE11	Digital	1.8V
7	UART8_TXD	PE1	Digital	1.8V
8	SPI4_MOSI	PE6	Digital	1.8V
9	UART8_RXD	PE0	Digital	1.8V
10	Vbat_out		Power	5V
11	UART8_RTS	PG7	Digital	1.8V
12	Vbat_out		Power	5V
13	GND		Ground	GND
14	GND		Ground	GND

IoT-Box Key Features

- CPU – STM32MP157 MPU
- LTE – Quectel BG96
- WIFI/ BLUETOOTH – Murata LBEE5KL1DX RF TXRX MOD
- Air Quality Sensor– CCS811 – (By AMS) - Ultra-Low Power Digital Gas Sensor
- 2 X Microphones IM69D130 (Infineon) High performance digital XENSIVTM MEMS microphones
- Built-in chargable battery Li-Ion 1 AH
- 11 x RGB digital LED line



External GPIO interface

- 2 X DI (OPTOISOLATOR 3.75KV)
- 2 X DO (30VDC – Max 1A)
- 2 X AI (4mA-20mA)

External digital sensor interface

- 1 X I2C
- 1 X SPI
- 1 X UART
- 1 x USB OTG interface (For charging and communication)

SHIRATECH KNOWTION

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