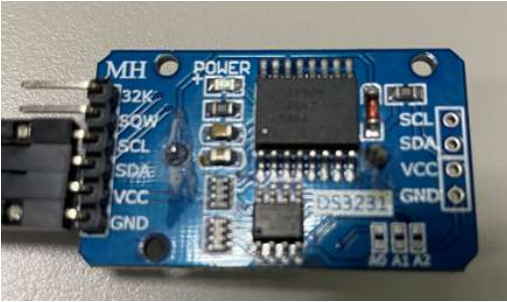


# I2C

## Requirements

- DS3231 RTC module



### 1. Config the /dtoverlay/config.txt by adb commands.

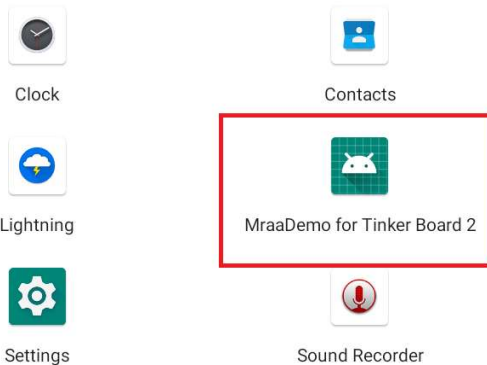
- a. Pull the config.txt file for edit
  - adb root
  - adb remount
  - adb pull /dtoverlay/config.txt
- b. Edit the config.txt on PC to the following status

```
intf:fiq_debugger=off
intf:uart0=on
intf:uart4=off
intf:i2c6=on
intf:i2c7=on
#intf:i2s0=on
#intf:spdif=on
intf:spi1=on
intf:spi5=on
intf:pwm0=on
intf:pwm1=on
intf:pwm3a=on
#intf:test_clkout2=on
```

- c. Push the file to device
  - adb push config.txt /dtoverlay/
- d. Reboot the system
  - adb reboot

### 2. Install the MraaDemo app by the following commands and then open it

- a. Install apk commands
  - adb install -r MraaDemo\_TinkerBoard2.apk
- b. Open MraaDemo\_TinkerBoard2 app
  - Select app icon



- I2C PINS

5:32

MraaDemo for Tinker Board 2

	GPIO number	Function2	Function1	GPIO	Pin#	Pin#	GPIO	Function1	Function2	GPIO number
1 Io Map			VCC3.3V_IO		1	2		VCC5V_SYS		
2 Gpio	73	I2C6_SDA		GPIO2_B1	3	4		VCC5V_SYS		
3 I2c	74	I2C6_SCL		GPIO2_B2	5	6		GND		
4 Pwm	8	TEST_CLKOUT2		GPIO0_B0	7	8	GPIO2_C1	UART0_TXD		81
5 Spi		GND			9	10	GPIO2_C0	UART0_RXD		80
6 Uart	83	UART0_RTSN		GPIO2_C3	11	12	GPIO3_D0	I2S0_SCLK		120
	85	SPI5_TX		GPIO2_C5	13	14		GND		
	84	SPI5_RX		GPIO2_C4	15	16	GPIO2_C6	SPI5_CLK		86
		VCC3.3V_IO			17	18	GPIO2_C7	SPI5_CSN		87
	40	UART4_TXD	SPI1_TXD	GPIO1_B0	19	20		GND		
	39	UART4_RXD	SPI1_RXD	GPIO1_A7	21	22	GPIO3_D4	I2S0_SDO3		124
	41		SPI1_CLK	GPIO1_B1	23	24	GPIO1_B2	SPI1_CSN		42
		GND			25	26	GPIO0_A6	PWM3A_IR		6
	71	I2C7_SDA		GPIO2_A7	27	28	GPIO2_B0	I2C7_SCL		72
	126	I2S0_SDO1		GPIO3_D6	29	30		GND		
	125	I2S0_SDO2		GPIO3_D5	31	32	GPIO4_C2	PWM0		146
	150	PWM1		GPIO4_C6	33	34		GND		
	121	I2S0_FS		GPIO3_D1	35	36	GPIO2_C2	UART0_CTSN		82
	149	SPDIF_TX		GPIO4_C5	37	38	GPIO3_D3	I2S1_SDI0		123
		GND			39	40	GPIO3_D7	I2S1_SDO0		127

- I2C Test Screen

7:23

MraaDemo for Tinker Board 2

Please select the Bus and Device Address:

Bus: I2C6    DevAddr: 0x53    CONFIRM

2. Test the I2C6 by DS3221 RTC module

a. Connect the cables pin by pin: Reference the following color



VCC3.3V_IO	1
up 58K GPIO2_B1/SPI2_RXD/CIF_HREF/I2C6_SDA/G30 / 1.8V	3
up 58K GPIO2_B2/SPI2_TXD/CIF_CLKIN/I2C6_SCL/H26 / 1.8V	5
up 89K GPIO2_D1/SDIO0_CLKOUT/TEST_CLKOUT/AG7 / 1.8V	7
GND	9

b. Select the app i2c item and then you can get the following screen

- The 0x68 is the slave address of DS3231 rtc module

Please select the Bus and Device Address:

Bus: I2C6    DevAddr: 0x68    CONFIRM

c. Press the "CONFIRM" button and then you can get the following screen about "READ" and "WRITE" functions

Please select the Bus and Device Address:

Bus: I2C6    DevAddr: 0x68    CONFIRM

Please select the operation you want:

READ    WRITE

- d. Write the value to the register "0x03" of DS3231 for test
- Press the "WRITE" button --> Enter the register address "0x31" and value "0x01" to the text
  - > Press the CONFIRM button

Please select the Bus and Device Address:

Bus: I2C6    DevAddr: 0x68    CONFIRM

Please select the operation you want:

READ    WRITE

Please enter the address and value to write:

address: 0x03

value: 0x01    CONFIRM

- e. Read the the register "0x03" value of DS3231
- Check the "Read out value": 1 --> Pass
  - : 0 --> Fail

Please select the Bus and Device Address:

Bus: I2C6    DevAddr: 0x68    CONFIRM

Please select the operation you want:

READ    WRITE

Please enter the address to read:

0x03    CONFIRM

Read out value: 1

### 3. Test the I2C7 by DS3221 RTC module

- a. Connect the cables pin by pin: Reference the following color



	VCC33_I/O	17	18	AER	GPIO2_C7/SOI/OO_D3/SPI5_CSNO	up 87K
up 58K	GPIO1_B0/SPI1_TXD/UART4_TX	19	20	GND		
up 58K	GPIO1_A7/SPI1_RXD/UART4_RX	21	22	AL1	GPIO3_D4/I2SO_S0I1SD03	down 60K
up 58K	GPIO1_B1/SPI1_CLK/PMCU_ITAG_TCK	23	24	H35	GPIO1_B2/SPI1_CSNO/PMCU_ITAG_TMS	up 58K
	GND	25	26	H36	GPIO0_A6/PWM3A_IR	down 95K
up 58K	GPIO2_A7/VOP_D7/CIF_D7/I2C7_S0A	27	28	H30 / 1.8V	GPIO2_B0/VOP_CLK/CIF_VSYNC/I2C7_SCL	up 58K

- b. Select the app i2c item and then you can get the following screen
- The 0x68 is the slave address of DS3231 rtc module

Please select the Bus and Device Address:

Bus: I2C7    DevAddr: 0x68    CONFIRM

- c. Press the "CONFIRM" button and then you can get the following screen about "READ" and "WRITE" functions

Please select the Bus and Device Address:

Bus: I2C7    DevAddr: 0x68    CONFIRM

Please select the operation you want:

READ    WRITE

- d. Write the value to the register "0x03" of DS3231 for test
- Press the "WRITE" button --> Enter the register address "0x31" and value "0x01" to the text
  - > Press the CONFIRM button

Please select the Bus and Device Address:

Bus: I2C7    DevAddr: 0x68    CONFIRM

READ    WRITE

Please select the operation you want:

Please enter the address and value to write:

address: 0x03  
value: 0x01    CONFIRM

- e. Read the the register "0x03" value of DS3231
  - Check the "Read out value": 1 --> Pass
  - : 0 --> Fail

Please select the Bus and Device Address:

Bus: I2C7    DevAddr: 0x68    CONFIRM

READ    WRITE

Please select the operation you want:

Please enter the address to read:

0x03    CONFIRM

Read out value: 1

#### 4. The I2C verify completely!