Driver Modes

TMC 2208 STEP/DIR Mode

By default, the SKR mini v1.1 board is configured for STEP/DIR mode this mode needs all of the pins are closed. For Example

TMC 2208 UART Mode

UART offers a mode where better control of the drivers, allowing the user to set motor current, set steps and more.

Configure the board as shown below

Remove Pin Jumpers marked in RED

You then need to make the following adjustments to your Marlin 2.0 configuration to enable UART Mode

In the Board Pins header File

pins_BTT_SKR_MINI_V1_1.h

```
//
// TMC2208 UART
//
// Pins for TMC2208 UART
#define X_PIN_UART PC10
#define Y_PIN_UART PC11
#define Z_PIN_UART PC12
#define E0_PIN_UART PC14

#if HAS_DRIVER(TMC2208)
  #define X_SERIAL_TX_PIN    X_PIN_UART
  #define X_SERIAL_RX_PIN    X_PIN_UART
  #define Y_SERIAL_TX_PIN    Y_PIN_UART
  #define Y_SERIAL_RX_PIN    Y_PIN_UART
  #define Z_SERIAL_TX_PIN    Z_PIN_UART
  #define Z_SERIAL_RX_PIN    Z_PIN_UART
  #define E0_SERIAL_TX_PIN   E0_PIN_UART
  #define E0_SERIAL_RX_PIN   E0_PIN_UART
#endif
```

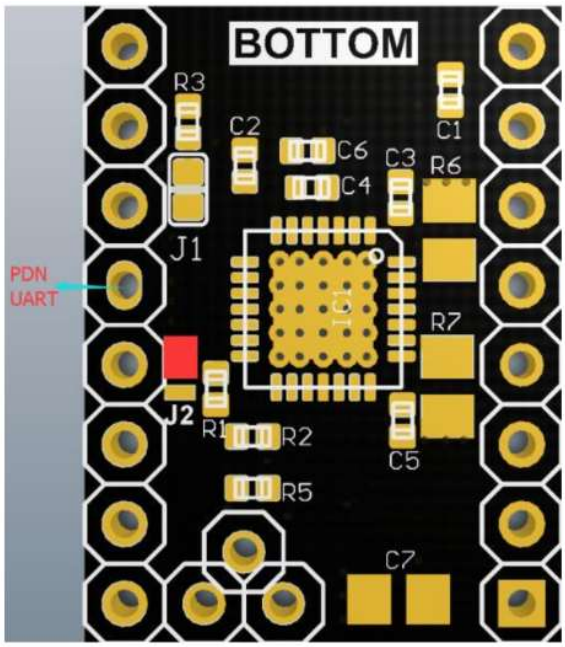
Configuration.h

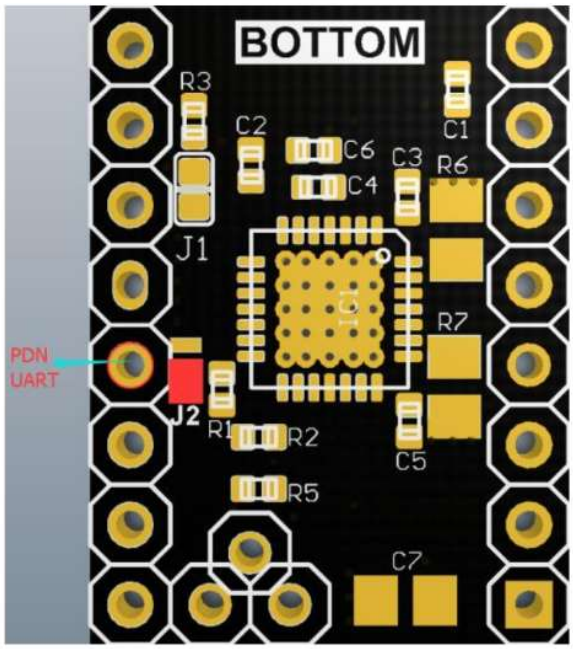
You need to set the driver type in the Configuration.h file

```
#define X_DRIVER_TYPE TMC2208

#define Y_DRIVER_TYPE TMC2208
#define Z_DRIVER_TYPE TMC2208
//#define X2_DRIVER_TYPE A4988
//#define Y2_DRIVER_TYPE A4988
//#define Z2_DRIVER_TYPE A4988
//#define Z3_DRIVER_TYPE A4988
#define E0_DRIVER_TYPE TMC2208
```

FROM each drive you need to hook the signal wire to the jumper (Connect to the marked PDN UART pin) based on where you bridged underneath





Further Links and Information on UART

Testing:

To test that all is well send M122 to board and you should see ok, if you see LOW or HIGH you have a signalling issue.

Troubleshooting:

[Teaching Tech's TMC2208 update and troubleshooting video]

Official Documentation

TMC2208 v3.0 Documentation

Community Links

Issue in tracker for UART - Issue tracking the UART mode and the general lack of documentation on it.

TMC2208 UART on BigTreeTech/BIQU SKR V1.1 and V1.3 Controllers - This Blog has some great general information.

Special Thanks to:

Special thanks to the following github users for their direction and contribution to this guide.

rhialto56
kristapsdravnieks