

Frame Synchronization on the AWR1xxx BOOST boards.

Contents

Introduction	1
Preliminaries :	1
1. Board modification	1
2. API Configuration changes	1
3. Code changes	1
Procedure:.....	2

Introduction

Frame synchronization allows two (or more) devices to transmit in sync with one another. In order to synchronize, one device is configured as the master, and the other device as slave. The slave device receives the AR_SYNC_IN signal from the master device every time the master device begins transmission of a frame.

Preliminaries :

1. Board modification

R165 has to be populated to allow 'Sync pulse' to reach the slave device. (R165 is on top of the board near J1). The newest boards would already have it populated.

The schematic in Figure 2 shows where the resistor R165 is.

2. API Configuration changes

Configure the master as usual.

When configuring the slave, select **hardware triggered mode** in the frame-config API. All other APIs will remain unchanged.

3. Code changes

There is no default pin that brings the frame-start signal out of the device. As a consequence, one of the pins need to be re-mapped to provide the frame-start signal. The following code will remap MCUCLKOUT pin to have frame sync signal.

```
/* Setup the PINMUX to bring out the FRAME START on PADAY */  
  
Pinmux_Set_OverrideCtrl(SOC_XWR16XX_PINN8_PADAY, PINMUX_OUTEN_RETAIN_HW_CTRL,  
PINMUX_INPEN_RETAIN_HW_CTRL);  
  
Pinmux_Set_FuncSel(SOC_XWR16XX_PINN8_PADAY, 0x7); // FRAME-START TO PAD-AY
```

This code can be run in MSS_Init, after the other Pin mux changes.

Procedure:

1. Connect the ground between the two boards.
2. Configure and start the master and the slave.
3. The slave shouldn't be transmitting now. In order to get the slave to transmit, we need to connect (on the AWR1642BOOST boards), MCUCLKOUT pin (i.e 'pin5 of J5 of master') to SYNC_IN (i.e 'pin9 of J6') on the slave.

The slave device should start transmitting now.

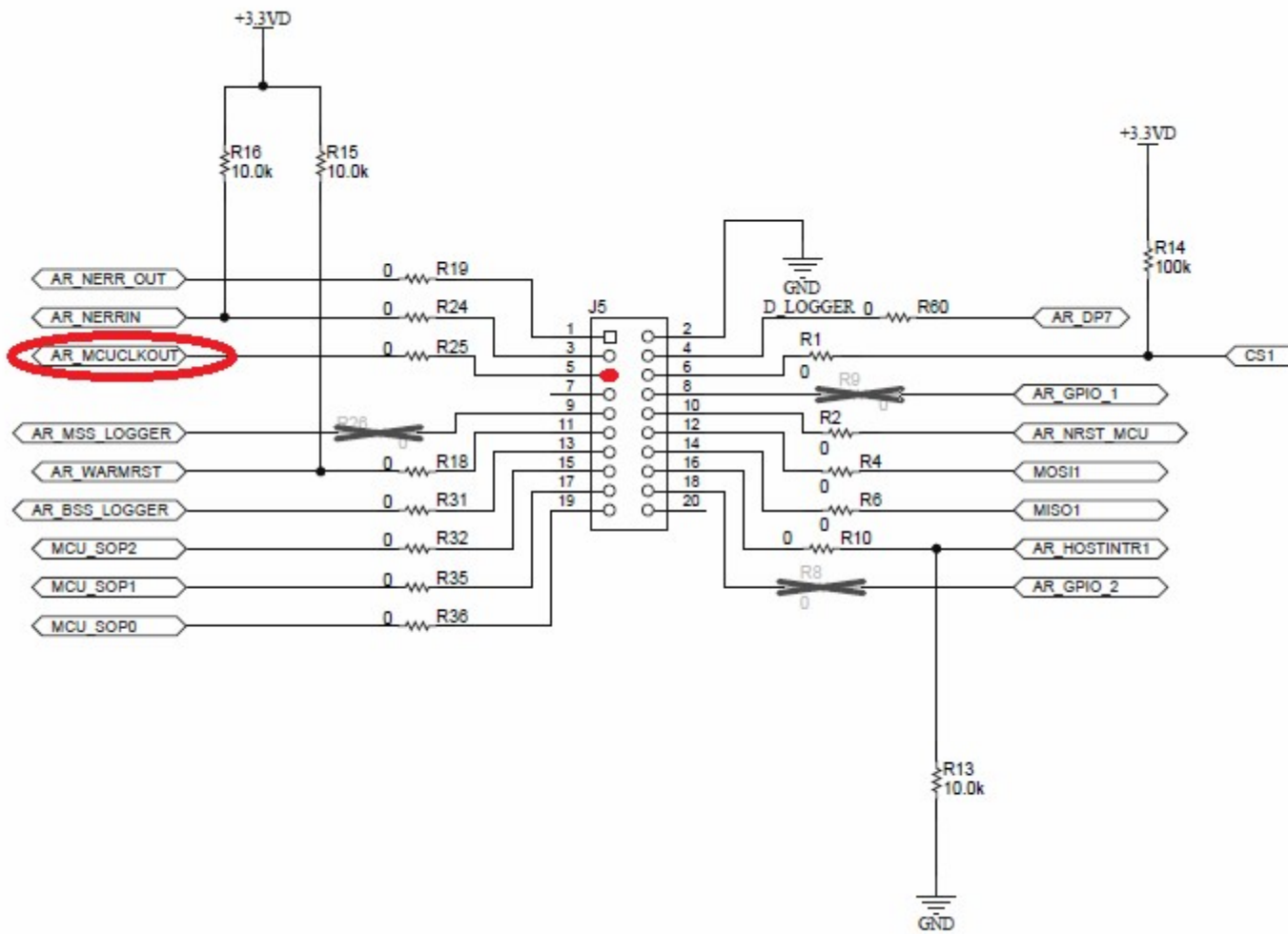


Figure 1 MCUCLKOUT from the master

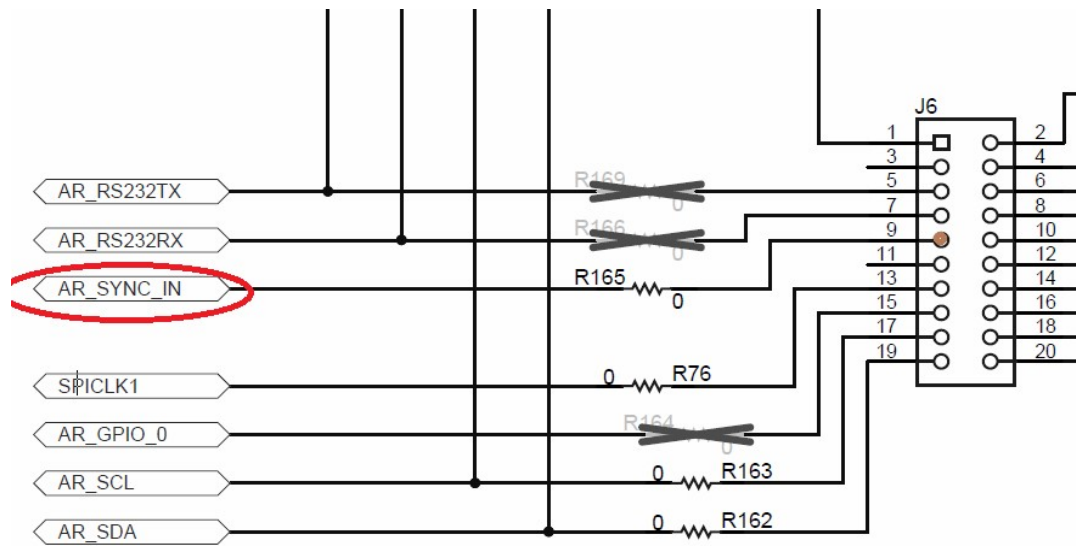


Figure 2 SYNCIN pin from the slave (Also showing the register R165 that needs to be populated)