

Start-up Configuration

The 8A3xxx device serial ports start in either SPI or I2C mode. Use GPIO9 to select SPI or I2C mode for the serial port that will be used for SPI.

Table 1. GPIO Pin Usage at Start-up

GPIO Number	Function	Internal Pull-up or Pull-down
9	1 = Main serial port uses I2C protocol and Auxiliary serial port uses SPI protocol. 0 = Main serial port uses SPI protocol and Auxiliary serial port uses I2C protocol.	Pull-up
8	Must be high during reset active period.	Pull-up
4	Must be high during reset active period.	Pull-up
3	Must be high during reset active period.	Pull-up

- Ensure that other GPIO pins are set correctly.
- The device will start in single-byte addressing and either I2C or SPI mode if there is no EEPROM or OTP present at start-up. If EEPROM and OTP are present at start-up, addressing and mode may be modified.

Important Considerations

Each serial port can be independently configured for the following settings. These settings can come from register defaults, or from an internal OTP or external EEPROM configuration loaded at reset:

- 1-byte (1B) or 2-byte (2B) offset addressing
 - In 1B operation, the 16-bit register address is formed by using the 7-bits of address supplied in the SPI access and taking the upper 9-bits from the page register. The page register is accessed, no matter what page the serial port is currently on, using an Offset Address on 7Ch–7Fh. It must be access in a single 4-byte burst write transaction. The page register is replicated on every register page to always be accessible.
 - In 2B operation, the 16-bit register address is formed by using the 15-bits of address supplied in the SPI access and taking the upper 1-bit from the page register. Note that this bit will always be ‘1’ for register access, so the page register only needs to be set once in 2B operation. The page register can be accessed, no matter what page the serial port is currently on, using an Offset Address on 7FFDh–7FFFh. It should be accessed in a single 3-byte burst write transaction to set it. The page register is replicated on every register page to always be accessible.
- Data sampling on falling or rising edge of SCLK
- Output (read) data positioning relative to active SCLK edge
- 4-wire (SCLK, SCSb, SDATA, SDO) or 3-wire (SCLK, SCSb, SDATA) operation
 - In 3-wire mode, SDATA is a bi-directional data pin
- Output signal protocol compatibility/drive strength and termination voltage

Read PRODUCT_ID I2C Example

PRODUCT_ID offset for firmware version 4.7 and 4.8 starts at 0xC0.32. This offset may change for a different firmware version.



The following instructions will read the PRODUCT_ID:

Table 2. Read PRODUCT_ID I2C Instructions

Instruction	Description
B6* FF FD 10 20	Set Page Register (*I2C Address is left-shifted one bit.)
B6 C0 32*	Set I2C pointer to 0xC032, *I2C instruction should use “No Stop”.
B7 <read back the data>	Send address with Read bit set.

Read PRODUCT_ID SPI Example

PRODUCT_ID offset for firmware version 4.7 and 4.8 starts at 0xC0.32. This offset may change for a different firmware version.



The following instructions will read the PRODUCT_ID:

Table 3. Read PRODUCT_ID SPI Instructions

Instruction	Description
Command = 0x7C 00 C0 10 20	Set Page Register to 0x2010C000. (Important: This must be written in a single burst. It cannot be broken up into several writes).
Command = 0xB2 <clock out data>	Read from Register 0x32.

Revision History

Revision Date	Description of Change
September 16, 2019	Initial release.



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