

**Table 27-13.** XA1 and XA0 coding.

| XA1 | XA0 | Action when XTAL1 is pulsed   |
|-----|-----|---|
| 0   | 0   | Load Flash or EEPROM Address (High or Low address byte determined by BS1) |
| 0   | 1   | Load Data (High or Low data byte for Flash determined by BS1)             |
| 1   | 0   | Load Command  |
| 1   | 1   | No Action, Idle   |

**Table 27-14.** Command byte bit coding.

| Command byte | Command executed                          |
|--------------|---|
| 1000 0000    | Chip Erase                                |
| 0100 0000    | Write Fuse bits                           |
| 0010 0000    | Write Lock bits                           |
| 0001 0000    | Write Flash                               |
| 0001 0001    | Write EEPROM                              |
| 0000 1000    | Read Signature Bytes and Calibration byte |
| 0000 0100    | Read Fuse and Lock bits                   |
| 0000 0010    | Read Flash                                |
| 0000 0011    | Read EEPROM                               |

## 27.8 Serial programming pin mapping

**Table 27-15.** Pin mapping serial programming.

| Symbol | Pins | I/O | Description     |
|--------|------|-----|-----------------|
| MOSI_A | PD3  | I   | Serial Data in  |
| MISO_A | PD2  | O   | Serial Data out |
| SCK_A  | PD4  | I   | Serial Clock    |

## 27.9 Parallel programming

### 27.9.1 Enter programming mode

The following algorithm puts the device in Parallel (High-voltage) > Programming mode:

1. Set Prog\_enable pins listed in [Table 27-12 on page 279](#) to “0000”, RESET pin to “0” and V<sub>CC</sub> to 0V.
2. Apply 4.5V - 5.5V between V<sub>CC</sub> and GND. Ensure that V<sub>CC</sub> reaches at least 1.8V within the next 20μs.
3. Wait 20μs - 60μs, and apply 11.5V - 12.5V to RESET.
4. Keep the Prog\_enable pins unchanged for at least 10μs after the High-voltage has been applied to ensure the Prog\_enable Signature has been latched.
5. Wait at least 300μs before giving any parallel programming commands.
6. Exit Programming mode by power the device down or by bringing RESET pin to 0V.