| | Assembly Code Example | C Example | Comments |
|---|---|---|---|
| 1 | `ldi r16, (1<<TWINT)\|(1<<TWSTA)\| (1<<TWEN)`<br>`out TWCR, r16` | `TWCR = (1<<TWINT)\|(1<<TWSTA)\| (1<<TWEN)` | Send START condition |
| 2 | `wait1:`<br>`in r16,TWCR`<br>`sbrs r16,TWINT`<br>`rjmp wait1` | `while (!(TWCR & (1<<TWINT))) ;` | Wait for TWINT Flag set. This indicates that the START condition has been transmitted |
| 3 | `in r16,TWSR`<br>`andi r16, 0xF8`<br>`cpi r16, START`<br>`brne ERROR` | `if ((TWSR & 0xF8) != START) ERROR();` | Check value of TWI Status Register. Mask prescaler bits. If status different from START go to ERROR |
| | `ldi r16, SLA_W`<br>`out TWDR, r16`<br>`ldi r16, (1<<TWINT) \| (1<<TWEN)`<br>`out TWCR, r16` | `TWDR = SLA_W;`<br>`TWCR = (1<<TWINT) \| (1<<TWEN);` | Load SLA_W into TWDR Register. Clear TWINT bit in TWCR to start transmission of address |
| 4 | `wait2:`<br>`in r16,TWCR`<br>`sbrs r16,TWINT`<br>`rjmp wait2` | `while (!(TWCR & (1<<TWINT))) ;` | Wait for TWINT Flag set. This indicates that the SLA+W has been transmitted, and ACK/NACK has been received. |
| 5 | `in r16,TWSR`<br>`andi r16, 0xF8`<br>`cpi r16, MT_SLA_ACK`<br>`brne ERROR` | `if ((TWSR & 0xF8) != MT_SLA_ACK) ERROR();` | Check value of TWI Status Register. Mask prescaler bits. If status different from MT_SLA_ACK go to ERROR |
| | `ldi r16, DATA`<br>`out TWDR, r16`<br>`ldi r16, (1<<TWINT) \| (1<<TWEN)`<br>`out TWCR, r16` | `TWDR = DATA;`<br>`TWCR = (1<<TWINT) \| (1<<TWEN);` | Load DATA into TWDR Register. Clear TWINT bit in TWCR to start transmission of data |
| 6 | `wait3:`<br>`in r16,TWCR`<br>`sbrs r16,TWINT`<br>`rjmp wait3` | `while (!(TWCR & (1<<TWINT))) ;` | Wait for TWINT Flag set. This indicates that the DATA has been transmitted, and ACK/NACK has been received. |
| 7 | `in r16,TWSR`<br>`andi r16, 0xF8`<br>`cpi r16, MT_DATA_ACK`<br>`brne ERROR` | `if ((TWSR & 0xF8) != MT_DATA_ACK) ERROR();` | Check value of TWI Status Register. Mask prescaler bits. If status different from MT_DATA_ACK go to ERROR |
| | `ldi r16, (1<<TWINT)\|(1<<TWEN)\| (1<<TWSTO)`<br>`out TWCR, r16` | `TWCR = (1<<TWINT)\|(1<<TWEN)\| (1<<TWSTO);` | Transmit STOP condition |