For the assembly code, the baud rate parameter is assumed to be stored in the r17:r16 Registers.

Assembly Code Example[1]

```
USART_Init:
  ; Set baud rate
  out   UBRRnH, r17
  out   UBRRnL, r16
  ; Enable receiver and transmitter
  ldi   r16, (1<<RXENn)|(1<<TXENn)
  out   UCSRnB,r16
  ; Set frame format: 8data, 2stop bit
  ldi   r16, (1<<USBSn)|(3<<UCSZn0)
  out   UCSRnC,r16
  ret
```

C Code Example[1]

```
#define FOSC 1843200 // Clock Speed
#define BAUD 9600
#define MYUBRR FOSC/16/BAUD-1
void main( void )
{
...
  USART_Init(MYUBRR)
...
}
void USART_Init( unsigned int ubrr)
{
  /*Set baud rate */
  UBRR0H = (unsigned char)(ubrr>>8);
  UBRR0L = (unsigned char)ubrr;
  Enable receiver and transmitter */
  UCSR0B = (1<<RXEN0)|(1<<TXEN0);
  /* Set frame format: 8data, 2stop bit */
  UCSR0C = (1<<USBS0)|(3<<UCSZ00);
}
```

Note: 1. See "Code Examples" on page 7.

More advanced initialization routines can be made that include frame format as parameters, disable interrupts and so on. However, many applications use a fixed setting of the baud and control registers, and for these types of applications the initialization code can be placed directly in the main routine, or be combined with initialization code for other I/O modules.

## 17.6 Data Transmission – The USART Transmitter

The USART Transmitter is enabled by setting the *Transmit Enable* (TXEN) bit in the UCSRnB Register. When the Transmitter is enabled, the normal port operation of the TxDn pin is overridden by the USART and given the function as the Transmitter's serial output. The baud rate, mode of operation and frame format must be set up once before doing any transmissions. If syn-