

## uart.c – PIC UART Communication C Code

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### module function prototypes:

```
// initialize the uart module (9600 baud)
void init_uart(void);

// are we ready to transmit a byte
char transmitBufferEmpty(void);

// transmit a byte
void transmit(char c);

// are we ready to receive a byte
char receiveBufferFull(void);

// read a received byte
char receive(void);
```

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### pseudo code:

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```
void init_uart(void)
    set baud rate in SPBRG, SPBRGH
    set SYNC = 0 for asynchronous mode
    set BRGH = 1 for high speed baud rate (dependent on SPBRG, SPBRGH, clock)
    set TXEN = 1 to enable transmit
    set SPEN = 1 to enable serial port
    set CREN = 1 to enable receive
    ALL OTHER ASSOCIATED REGISTER BITS LEFT CLEAR
end init_uart
```

---

```
char transmitBufferEmpty(void)
    return the status of TXIF (1 if transmit buffer empty, 0 otherwise)
end transmitBufferEmpty
```

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```
void transmit(char c)
```

```
    TXREG = c
```

```
end transmit
```

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```
char receiveBufferFull(void)
```

```
    return the status of RCIF (1 if receive buffer is full, 0 otherwise)
```

```
end receiveBufferFull
```

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```
char receive(void)
```

```
    return contents of RCREG
```

```
end receive
```

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