

# EE2361 - Lecture 27

11/9/16

- HW 4 is due  
solutions later Today
- Exam 2 is Friday 11/11/16  
same format as exam 1  
⇒ closed book, notes  
provided, ~~supplied~~  
calculator permitted

## Exam covers

- ⇒ Timers
- ⇒ Interrupts
- ⇒ Asynchronous Serial Comm
- ⇒ Synchronous Serial Comm

See corresponding material in Di Jaxxo book,  
"Programming 16-bit microcontrollers with C:  
Learning to Fly the PIC24"

$$TICON = 0 \times 8030 = \overset{\downarrow \text{en}}{\underbrace{1000\ 0000\ 01100000}_{\rightarrow 1:256}}$$

$$\underline{F_{cy} = 16\text{ MHz}}$$

↳ look in register  
docs

$$\frac{16\text{ MHz}}{256} = \frac{1}{T_{incr}}$$

PR1  $\leftrightarrow$

PPS

$$2^{16} \times T_{incr} \left( \frac{256}{16\text{ MHz}} \right)$$

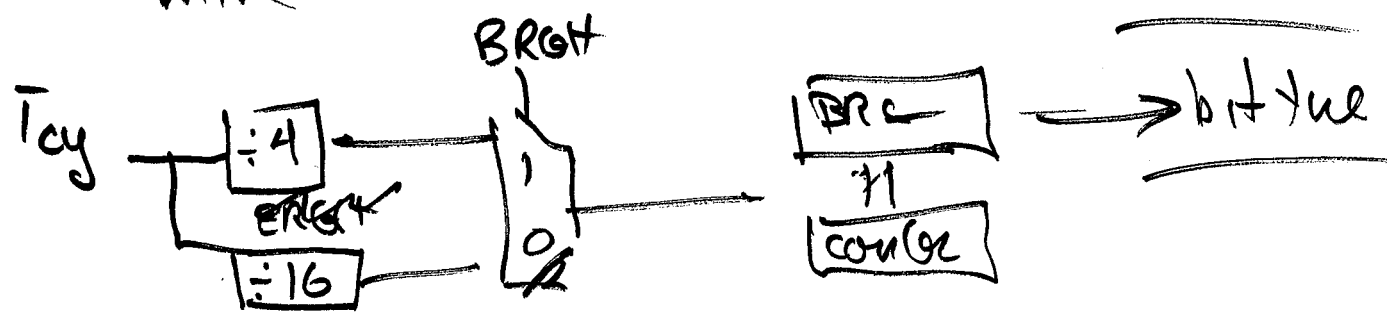
$$= \underline{0 \text{ to } 2^{16} - 1 = 0 \times \text{FFFF}}$$

~~BRC~~

$$\text{Baud Rate} = \frac{F_{\text{osc}} \downarrow F_{\text{cy}}}{4 \cdot (\text{BRC} + 1)}$$

~~Baud Rate~~

max ~~min~~ Baud Rate BRC = 0  
 min ~~max~~ " " BRC = 111



We use binary 2 symbols 0, 1  
each bit time

can have 4 symbols 0, 1, 2, 3

band rate  $\equiv$  bit rate bits/s

in 2361

bit rate = ~~bit freq~~  
frequency

Band with ?



Information across a channel

$$\text{Band} = 115,200$$

$$1 \text{ start} + 8 \text{ data} + 1 \text{ stop bit} = 10 \text{ bits}$$

1 frame

$$11520 \text{ frames/sec}$$

$$10 \frac{\text{bits}}{\text{frame}} \cdot \frac{\text{frames}}{\text{sec}}$$

$$11520 \text{ B/s} \quad \frac{\text{bytes}}{\text{frame}}$$

Wave form (NRZ)

