4/03/2022

COMMUNICATION MODES

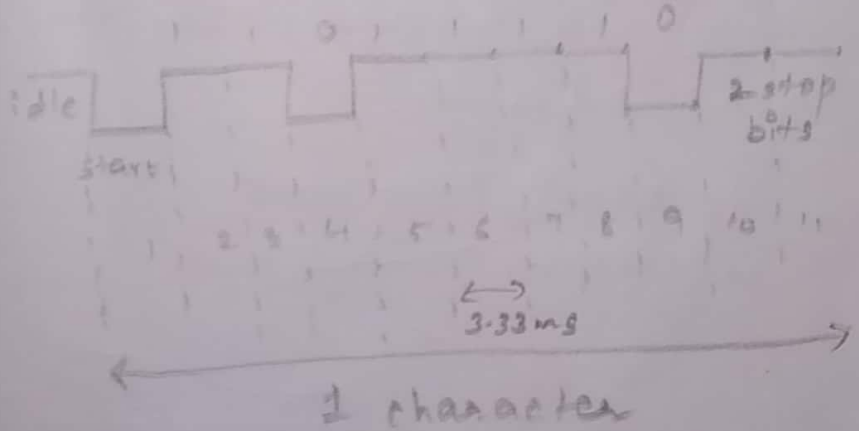
- Simplex
- Half Duplex
- Full Duplex

Asynchronous Transmission

- receiver clock runs unsynchronized w.r.t to incoming signal (RXD)
- Each character is encapsulated between an additional start bit and one (or) more stop bit
- The state of the signal on the transmission line b/w characters is idle state
- start bit → LSB → MSB → stop bit

Calculate Baud rate and character rate for the serial data shown below

A → 1010
B → 1011

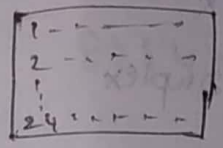


$\frac{1}{3.33\,ms}$ = 300 bits/sec

Baud rate = 11 × 3.33 ms = 36.63 ms to transmit entire byte

Character rate = $\frac{1}{36.63\,ms}$ = 27.3 characters/second

Each line of this, monitor can accomodate 80 characters. How long will it take to fill the screen of such a terminal?

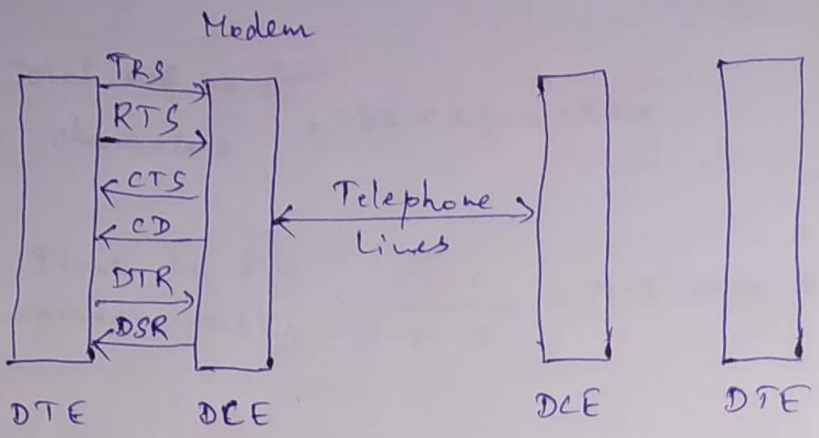


Total no. of characters = $80 \times 24 = 1920$

Time to fill screen full = $\frac{1920}{27.3} = 70.3$ seconds

14/03/22

Transmission Using Modem



RTS → Request To send

CTS → clear To send

CD → carry detect

DTR → Data Terminal Ready

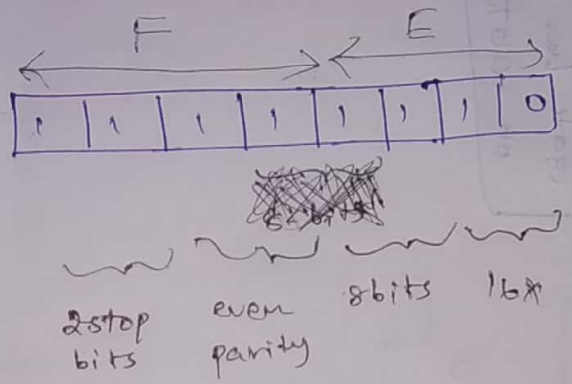
Before sending data to serial transmission there are 2 initialization

1. 8251A Mode word
2. 8251A command word

Reset → mode → command.

FORMAT

Set as 8251 in asynchronous mode as a transmitter and receiver, with even parity enable, 2 stop bits, 8 character length, frequency 160 kHz and baud rate 10 K



SAM → 3 bytes

ALP program

```
start : MOV  AX, 2000H
        MOV  DS, AX
        MOV  SI, 5000H
        MOV  CL, 64H  → 100 bytes  (3 bytes → 03H)
        MOV  AL, FEH
        OUT  70H, AL
        MOV  AL, 11H
        OUT  70H, AL
WAIT :  IN   AL, 70H
        AND  AL, 01H
        JZ   WAIT → transmit is not enabled so wait
        MOV  AL, [SI]
        OUT  71H, AL
        INC  SI
        DEC  CL
        JNZ  WAIT
        MOV  AH, 4CH
        INT  21H
```