

Asynchronous Serial Interfaces

Exercise 1: Is the "Transmit Data" (TxD) signal an input or an output? How about "Receive Data" (RxD)? Is a computer a 'modem' (DCE) or a 'terminal' (DTE)?

- it depends $\left\{ \begin{array}{l} \text{TxD is o/p on a DTE} \\ \text{TxD is i/p on a DCE} \end{array} \right.$

- RxD reverse

- "Computers" can be either:

- PC's are typically DTE's

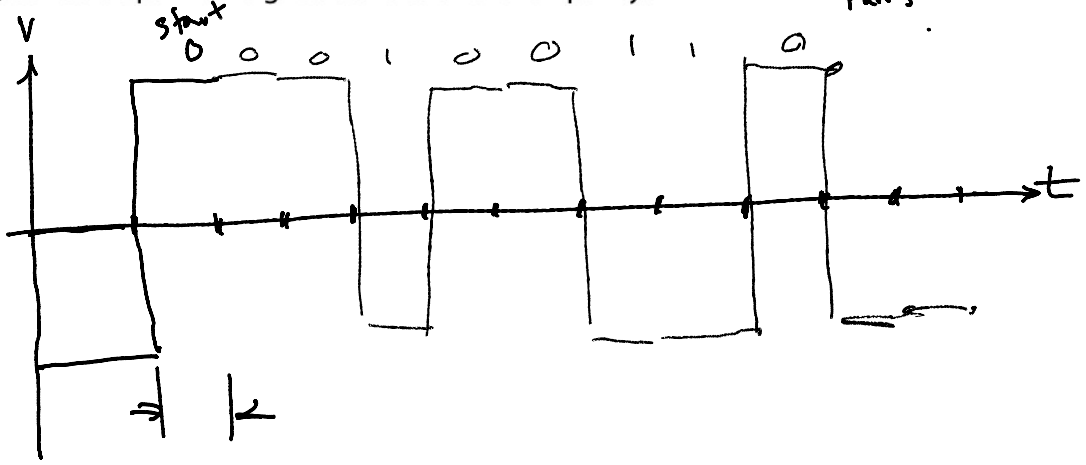
- "mainframes" (aka. servers today)

were DCE's

Exercise 2: Draw the waveform used to send the ASCII character 'd' (hex 64) at 4800 bps with eight data bits and even parity.

0x64 = 0110 0100

parity 0



Exercise 3: Will the parity bit allow the receiver to detect all single-bit errors? All double-bit errors?

yes. \rightarrow a change to 1 bit changes an even number to odd or vice-versa

no \rightarrow a change to 2 bits leaves parity unchanged

Exercise 4: What happens if the receiver's clock is running faster than the transmitter clock?

- sample earlier & earlier on each bit
- if the error is large enough could sample at the wrong time & cause an error.

Exercise 5: What would happen if the receiver was expecting 8-bit characters and the transmitter was sending 7-bit characters? What about the reverse case?

