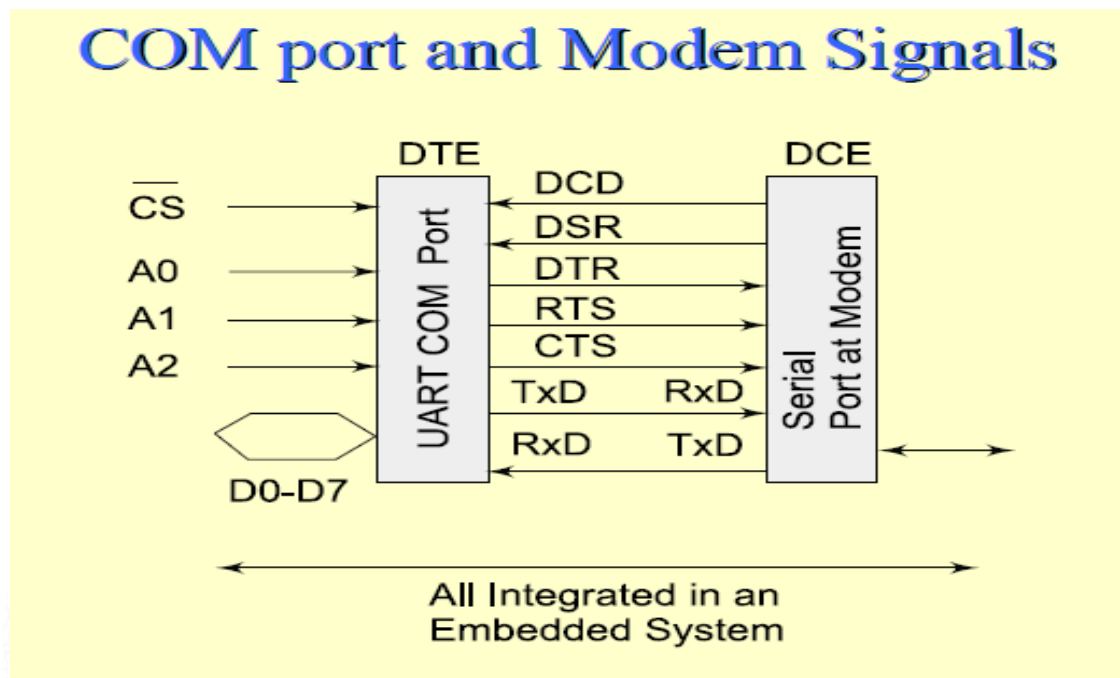


2.4 COMMUNICATION PROTOCOLS



1. Communication Protocols

1. Protocol

A protocol is a standard adopted which tells the way in which the bits of a frame must be sent from a device (or controller or port or processor) to another device or system [Even in personal communication we follow a protocol – we say Hello! Then talk and then say goodbye!]

A protocol defines how are the frame bits :

- 1) Sent – synchronously or Iso synchronously or a synchronously and at what rate(s)?
- 2) Preceded by the header bits? How the receiving device address communicated so that only destined device activates and receives the bits?
[Needed when several devices addressed though a common line (bus)]
- 3) How can the transmitting device address defined so that receiving device comes to know the source when receiving data from several sources
- 4) How the frame- length defined so that receiving device know the frame – size in advance
- 5) Frame-content specifications –Are the sent frame bits specify the control or device configuring or commend or data
- 6) Are there succeeding to frame the trailing bits so that receiving device can check the errors, if any in reception before it detects end of the frame

A protocol may also define:

- 7) Frame bits minimum and maximum length permitted per frame

8) Line supply and impedances and line-Connectors specifications

Specified protocol at an embedded system port or communication device IO port bits sent after first formatted according to a specified protocol which is to be followed when communicating with another device through an IO port or channel

Protocols

- _HDLC ,Frame Relay , for synchronous communication
- _For a synchronous transmission from a deviceport–RS232C,UART,X.25,ATM,DSL and

ADSL

- _For networking the physical devices in telecommunication and computer networks–

Ethernet and token ring protocols used in LAN

Networks Protocols in embedded network devices

- _For Bridges and routers
- _ Internet appliances application protocols and Web protocols –HTTP (hypertext transfer protocol), HTTPS (hyper text transfer protocol Secure Socket Layer),SMTP (Simple Mail Transfer Protocol),POP3 (Post office Protocol version3),ESMTP(Extended SMTP),

File transfer , Boot Protocols in embedded devices network

- _TELNET(Tele network),
- _FTP(file transfer protocol),
- _DNS(domain network server),
- _IMAP4(Internet Message Exchange Application Protocol)and
- _ Boot (Bootstrap protocol).Wireless Protocols in embedded devices network
- _ Embedded wireless appliances uses wireless protocols– WLAN 802.11,802.16,Bluetooth,ZigBee, WiFi, WiMax,

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