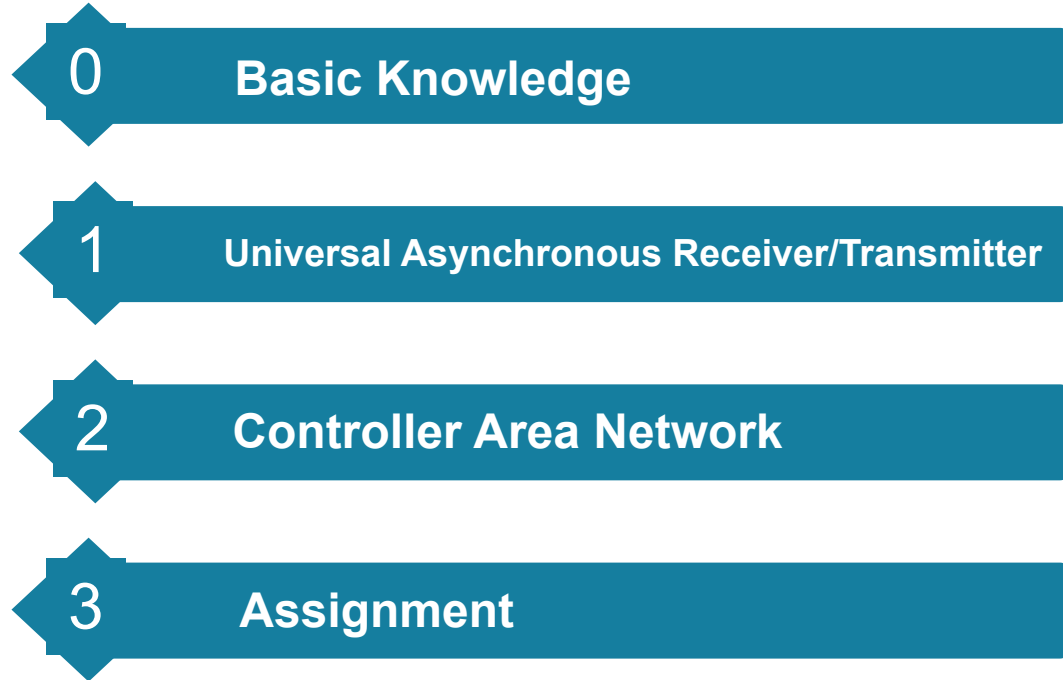


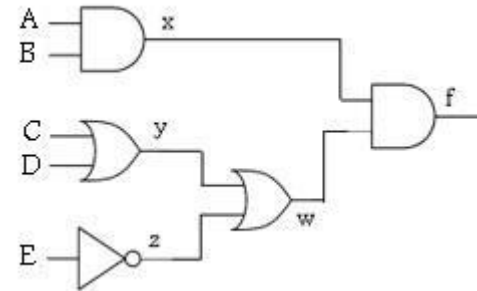
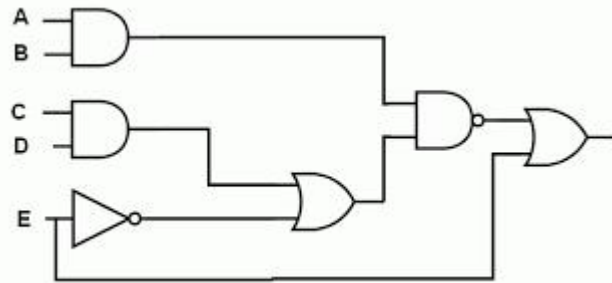
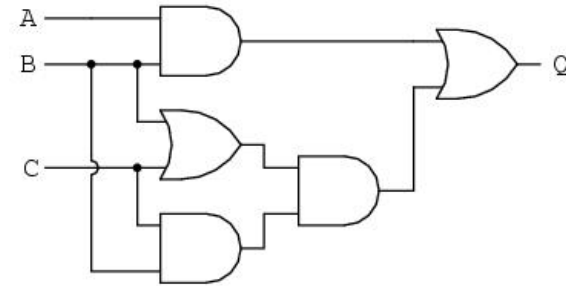
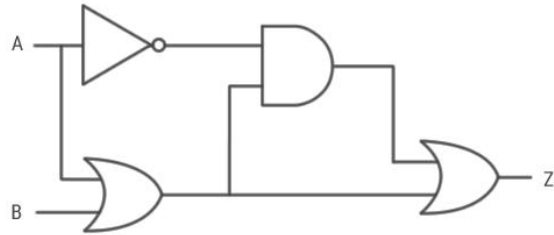


2 - STM32 COMMUNICATION

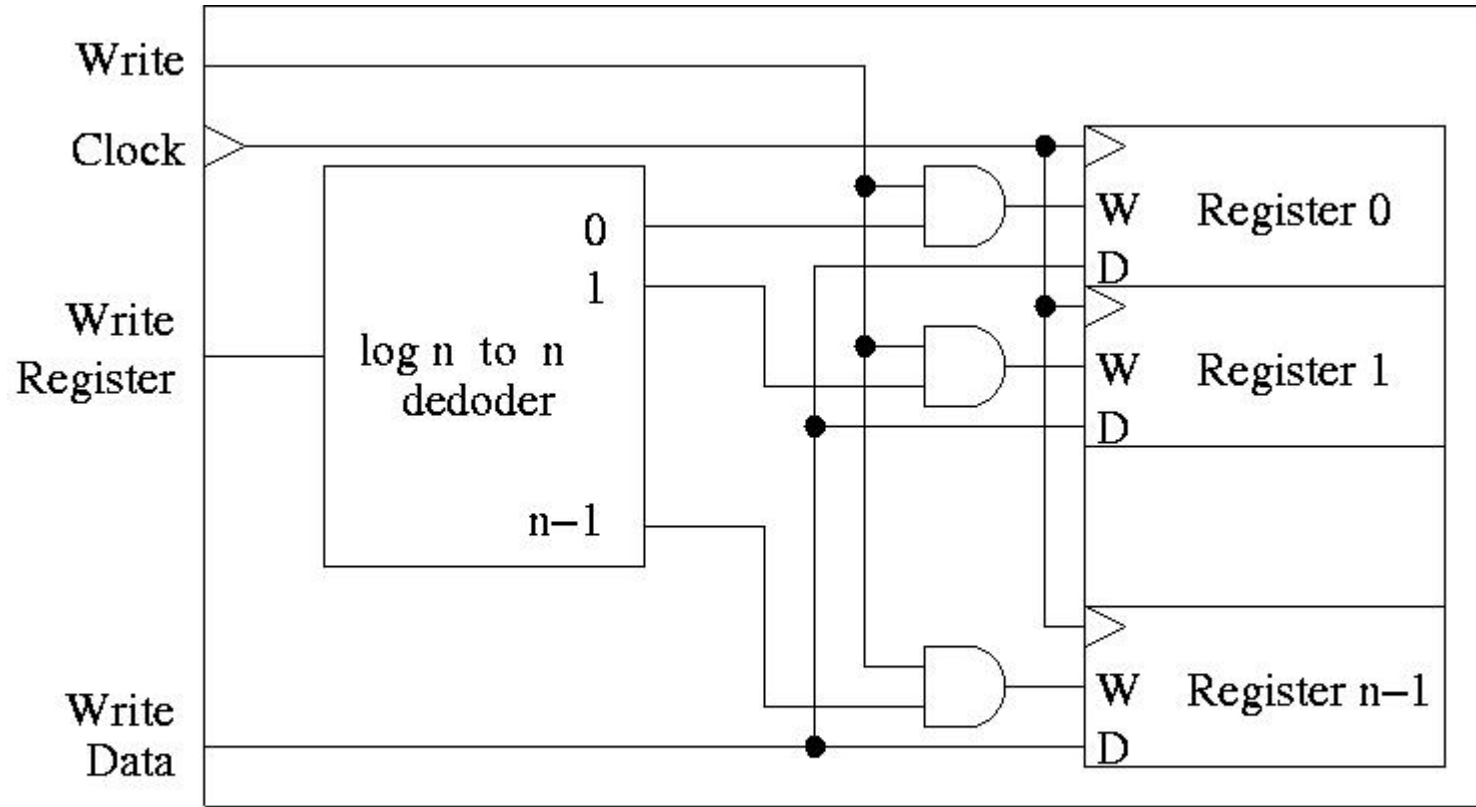
System Design and Intelligent Manufacture
2019 Spring

- 
- 0 Basic Knowledge
 - 1 Universal Asynchronous Receiver/Transmitter
 - 2 Controller Area Network
 - 3 Assignment

Logical circuit

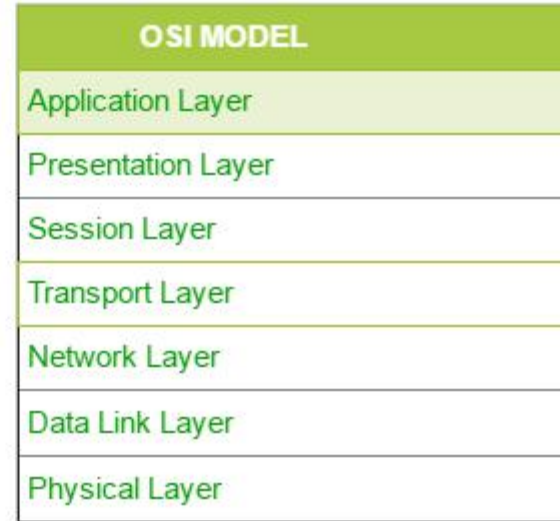
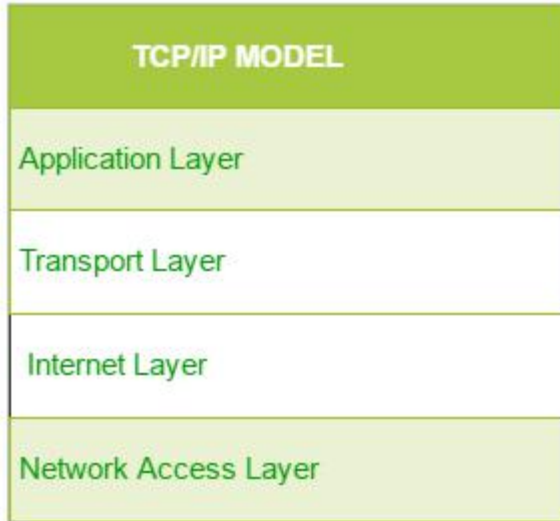


Register

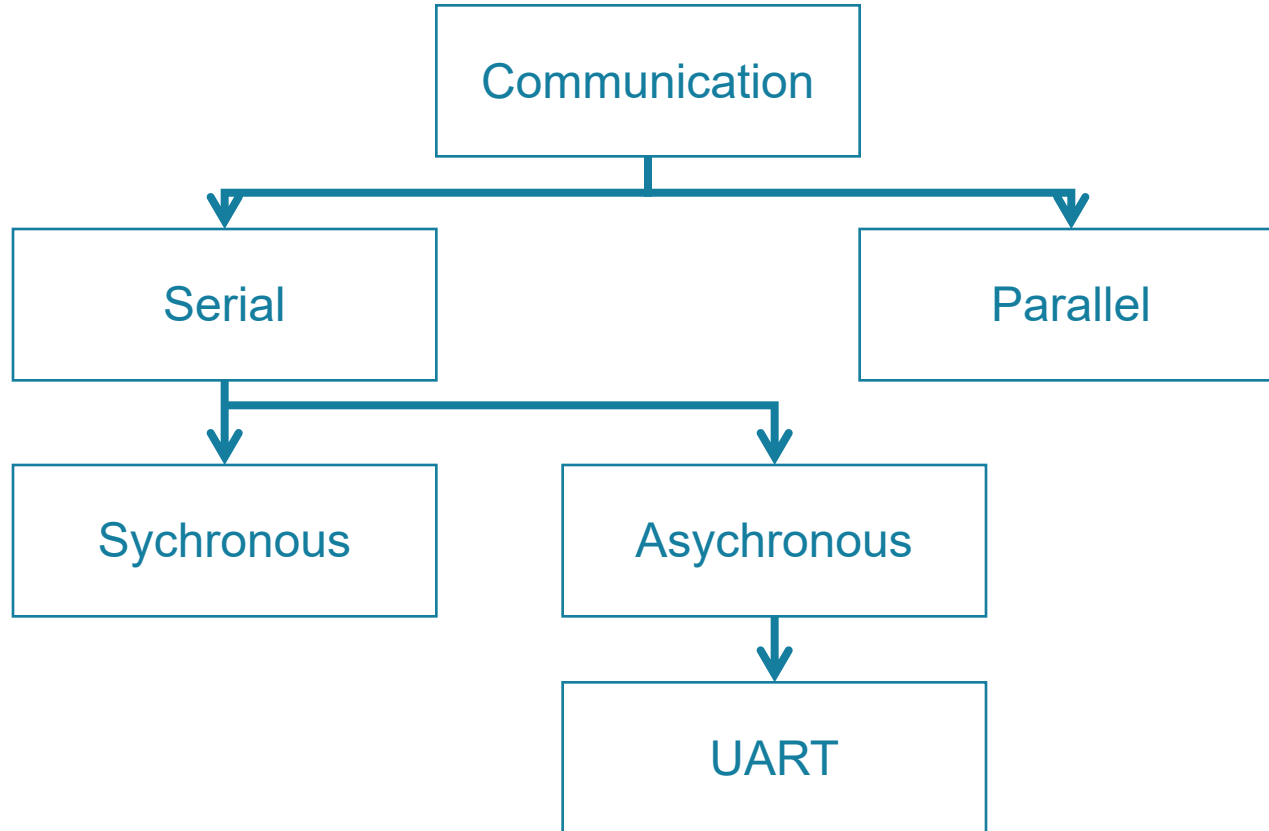


A Write Port

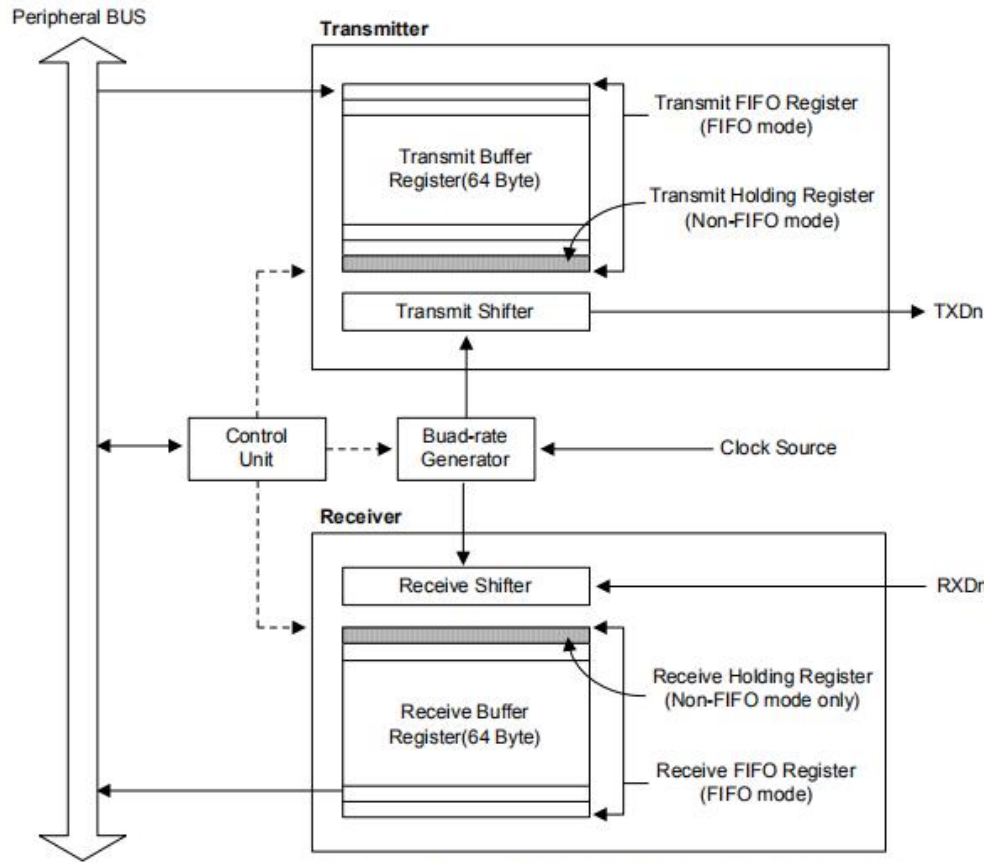
Protocol



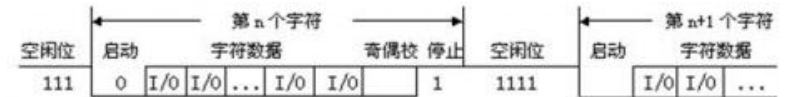
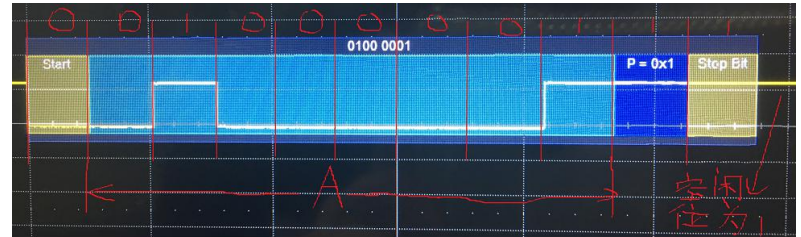
Big Picture



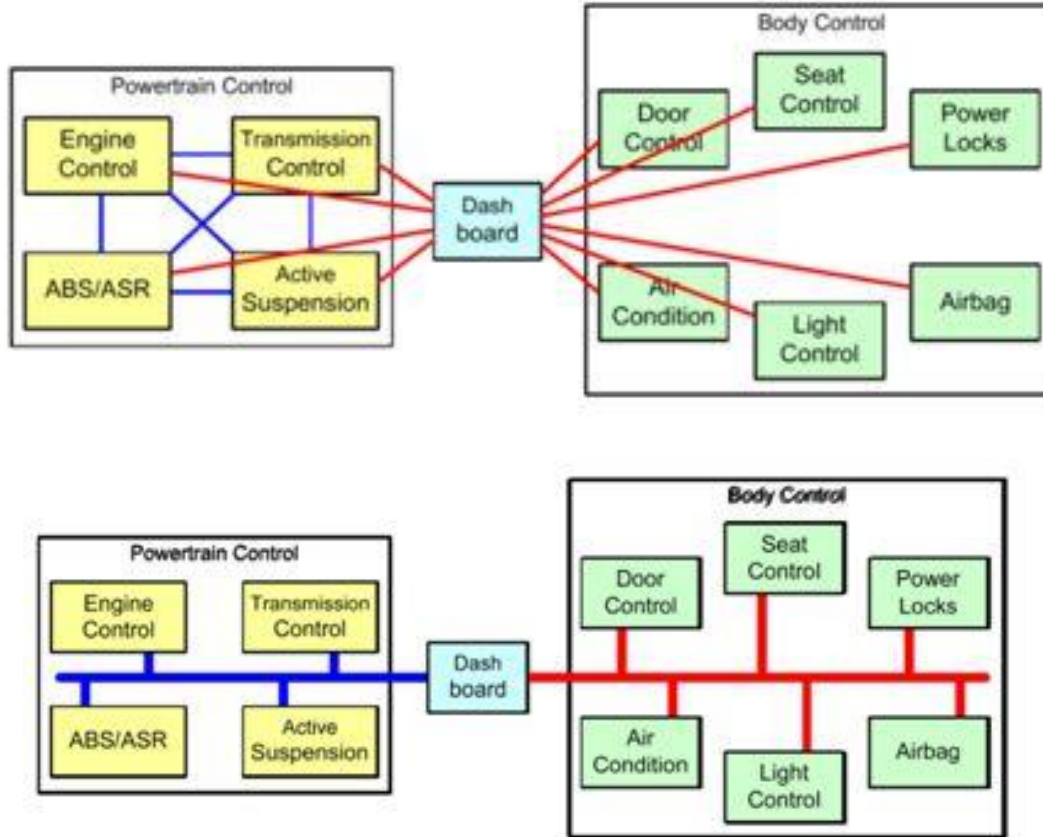
UART

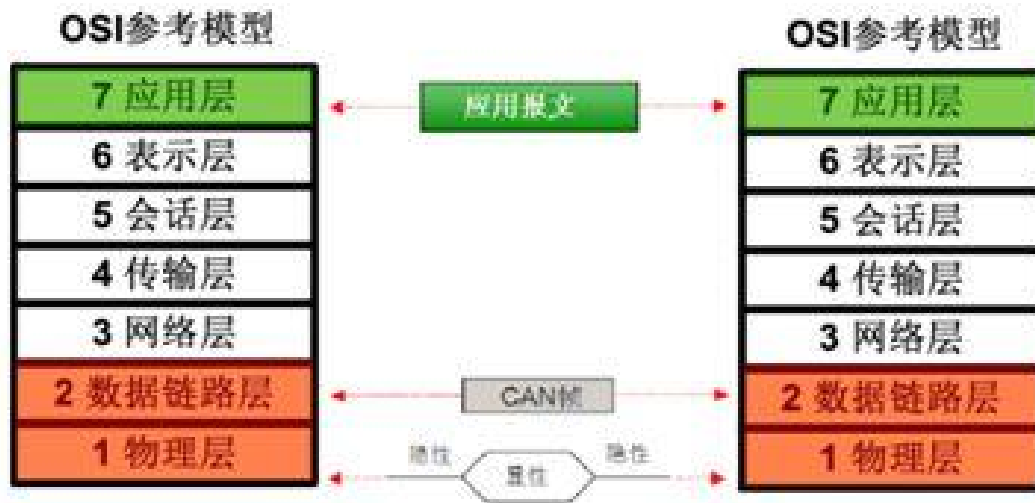


In FIFO mode, all 64 Byte of Buffer register are used as FIFO register.
In non-FIFO mode, only 1 Byte of Buffer register is used as Holding register.

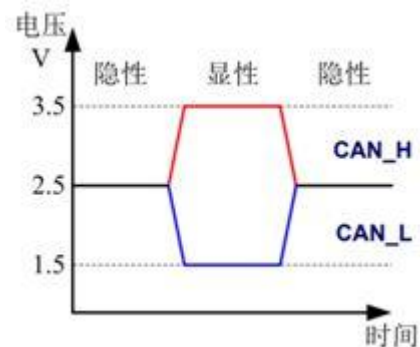


CAN





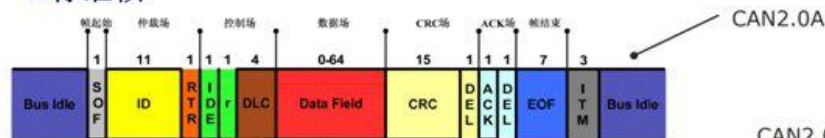
CAN



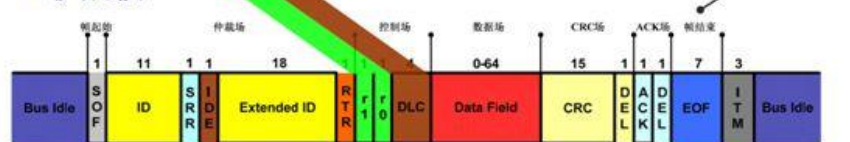
帧	帧用途
数据帧 (Data Frame)	用于发送单元向接收单元传输数据的帧
远程帧 (Remote Frame)	用于接收单元向具有相同 ID 的发送单元请求数据的帧
错误帧 (Error Frame)	用于当检测出错误时, 向其他单元通知错误的帧
超载帧 (Overload Frame)	用于接收单元通知其尚未做好接收准备的帧
帧间隔 (Inter Frame Space)	用于将数据帧及遥控帧与前面的帧分离开来的帧

<https://zhuanlan.zhihu.com/p/32221140>
<https://zhuanlan.zhihu.com/p/32262127>

❖标准帧



❖扩展帧



Assignment

```
37 //循环执行
38 while(1)
39 {
40     if(USART_RX_STA&0x8000) //如果串口接收到数据
41     { //得到此次接收到的数据长度
42         len=USART_RX_STA&0x3fff;
43         printf("\r\n您发送的消息为:\r\n");
44         for(t=0;t<len;t++)
45         {
46             USART_SendData(USART1, USART_RX_BUF[t]); //向串口1发送数据
47             while(USART_GetFlagStatus(USART1,USART_FLAG_TC)!=SET); //等待发送结束
48         }
49         printf("\r\n\r\n"); //插入换行
50         USART_RX_STA=0;
51         flag=1;
52     }else //如果串口没有接收到数据
53     { //计数器自增一
54         times++;
55         if(flag==1)
56         {
57             printf("请输入数据,以回车键结束 :\r\n");
58             flag=0;
59         }
60         if(times%30==0)
61             LED0=!LED0; //闪烁LED,提示系统正在运行.
62         delay_ms(10);
63     }
64 }
```

Assignment

