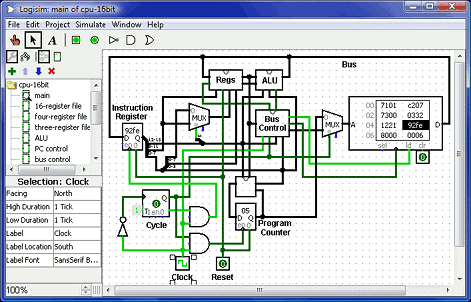
**LOGISIM:**

内容概览：



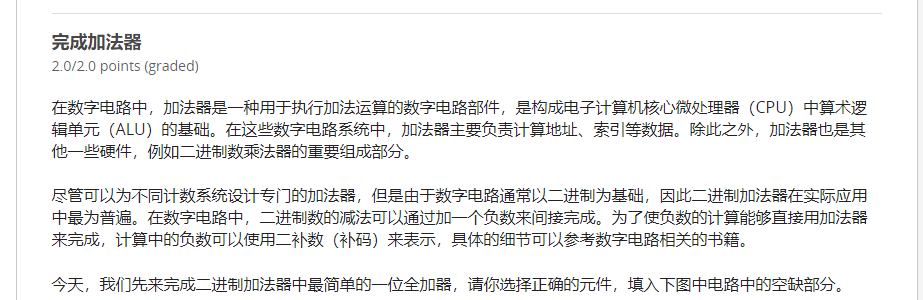
顶层的CPU即视图

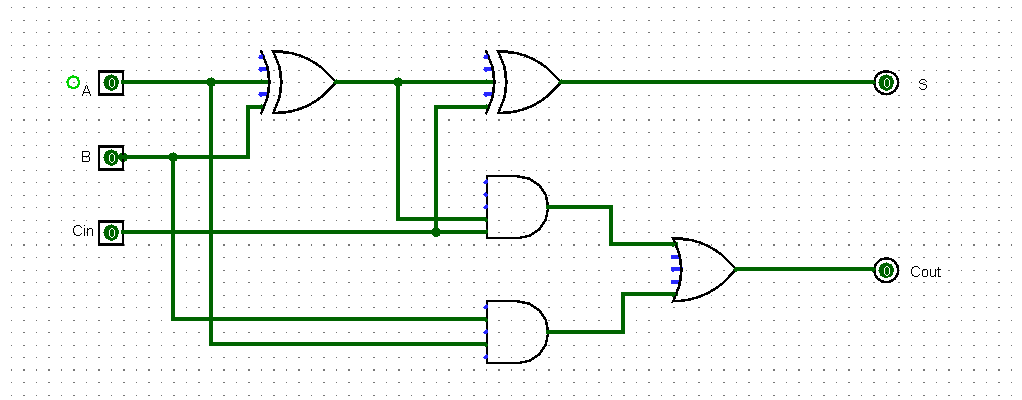
LOGISIM门电路：

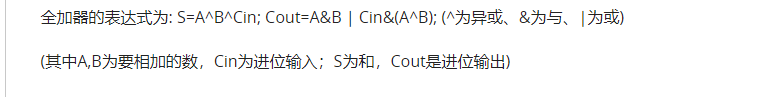
异或门：



全加器：



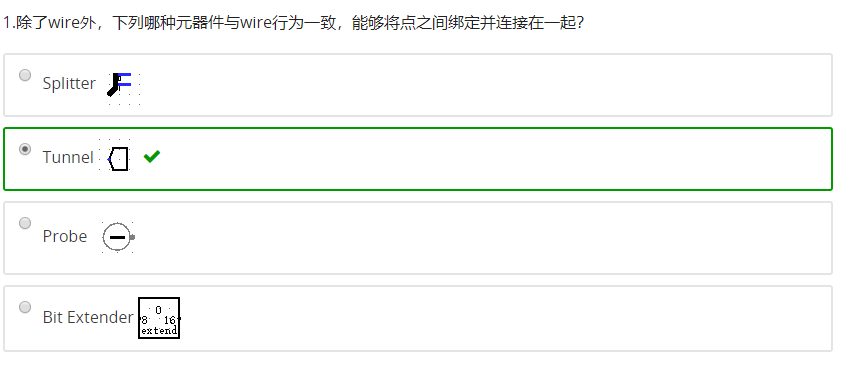




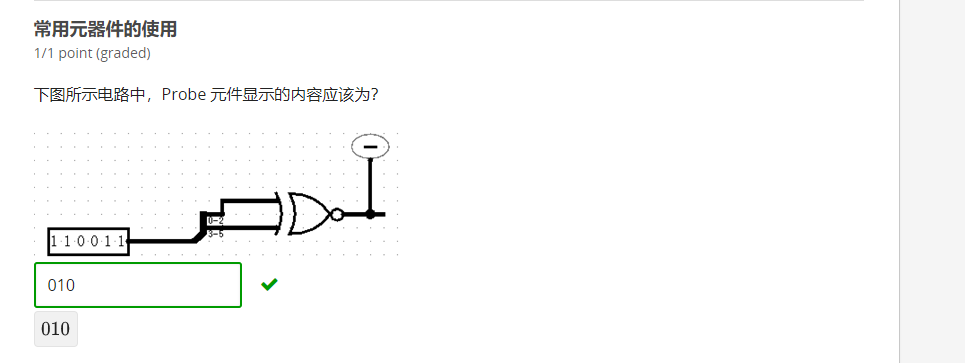
**负数的补码实现查阅相关书籍**

认识相关元件：

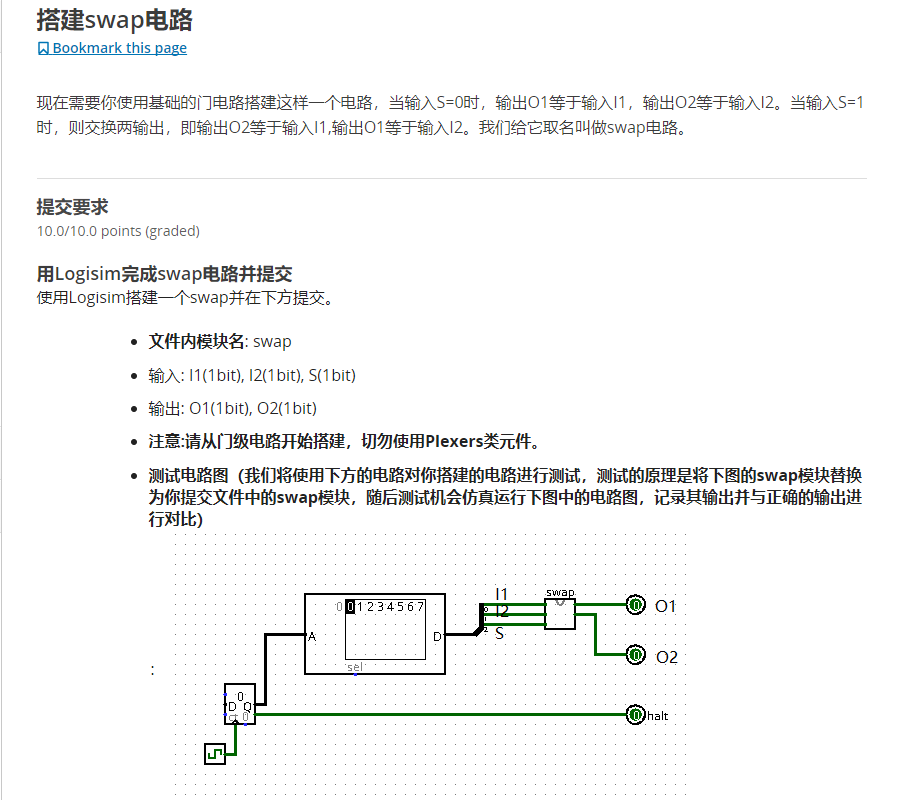
Tunnel：

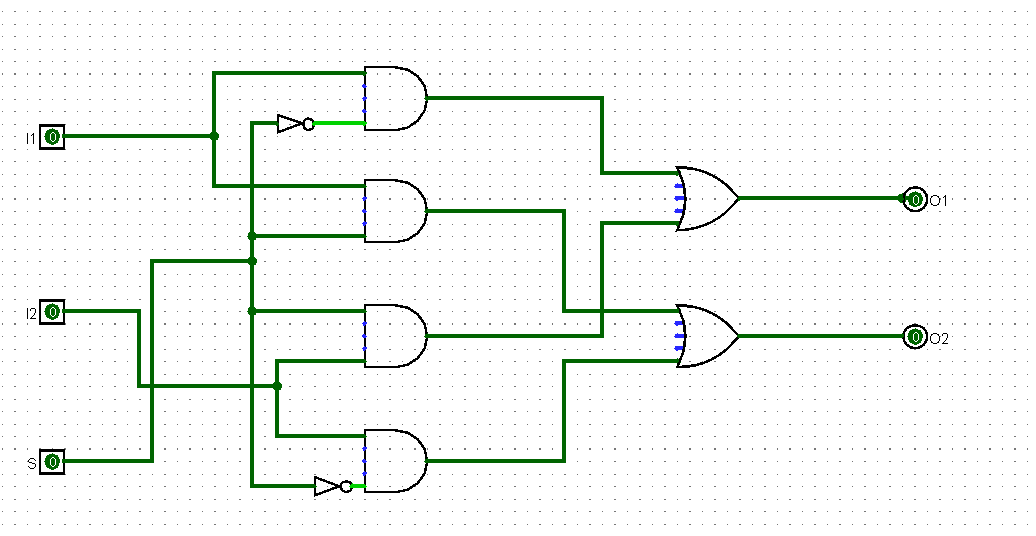


Splitter:



搭建swap电路：





**O=(I1∩S)∪(I2∩~S)**

认识电路线颜色：



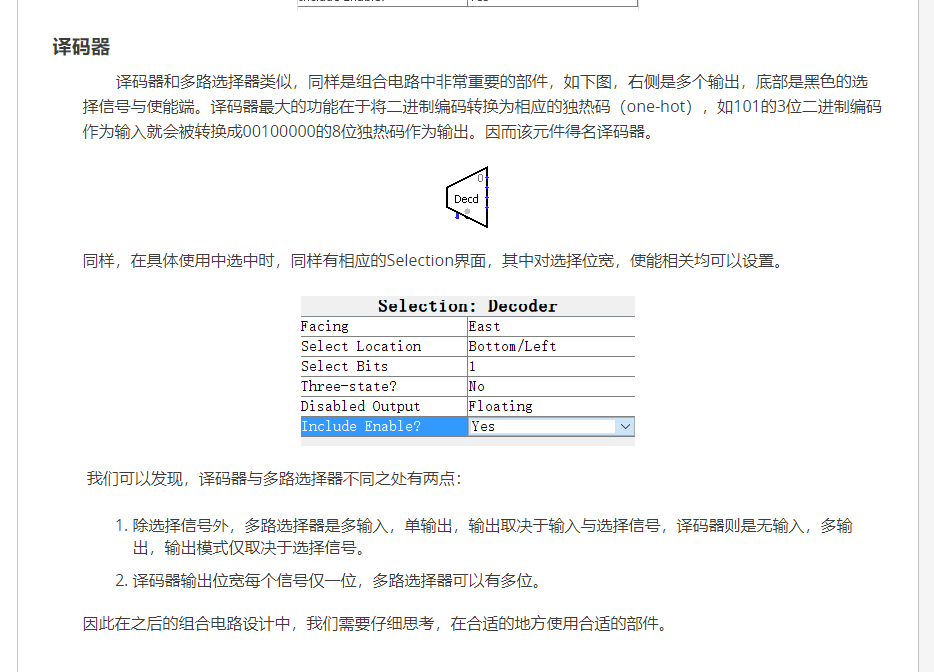
多路选择器：

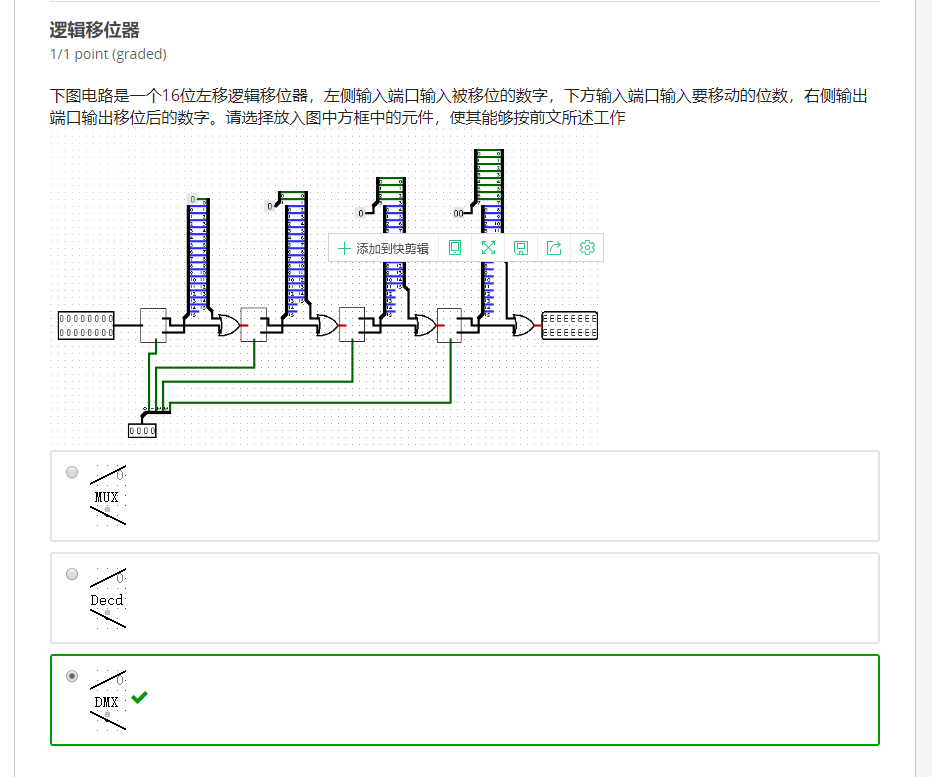


多路分配器：



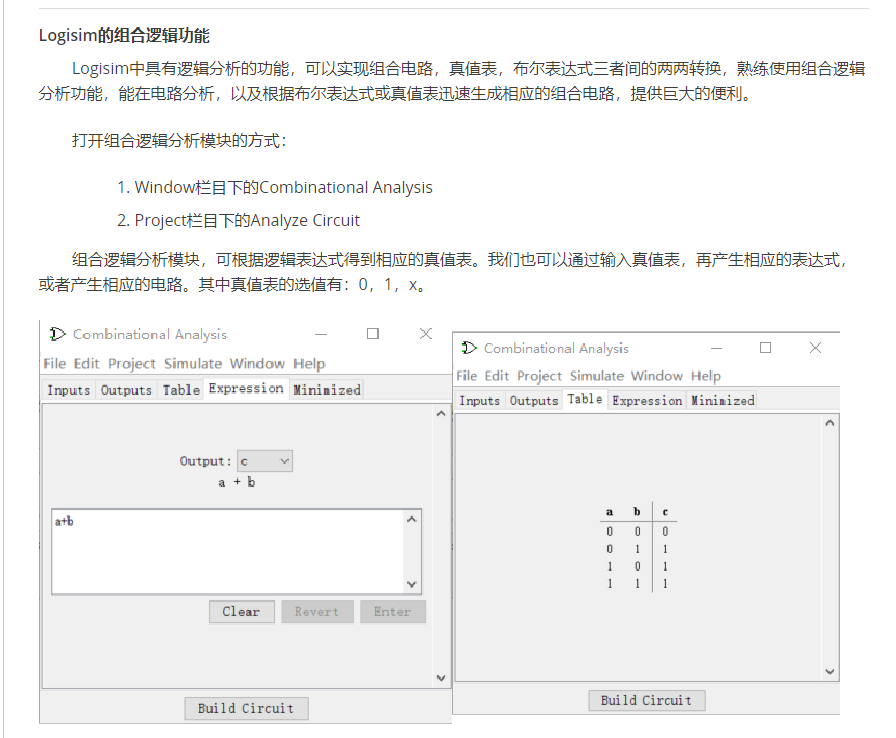
译码器：

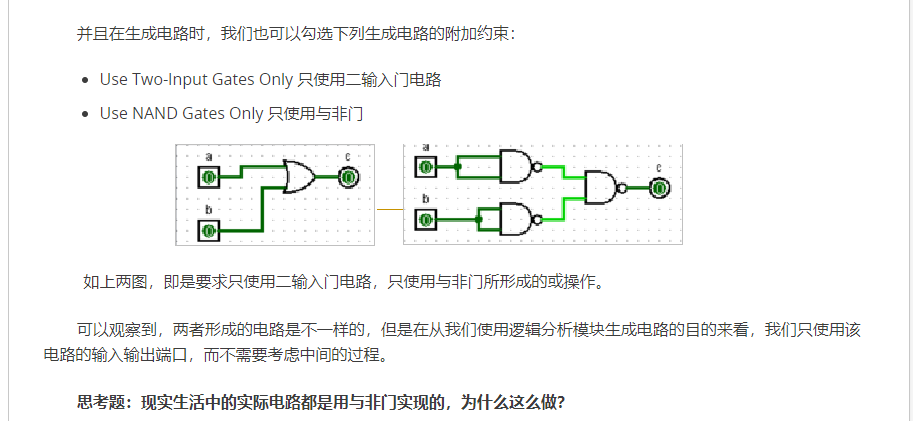


逻辑位移器：

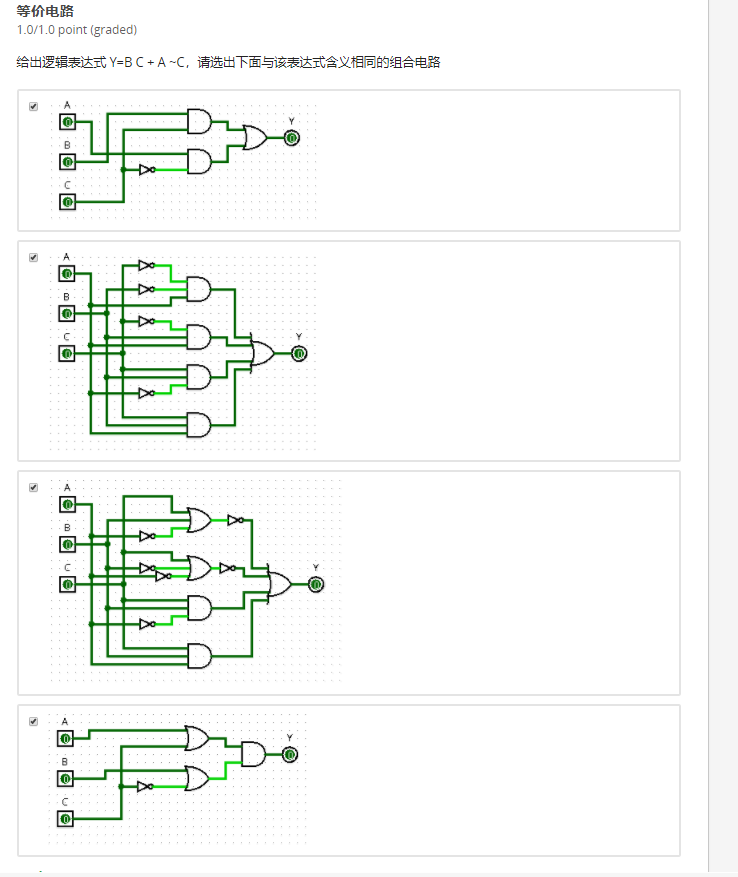
本质是通过多路分配器决定是否要经过1,2,4,8的组合的移位。

Logisim的组合电路：





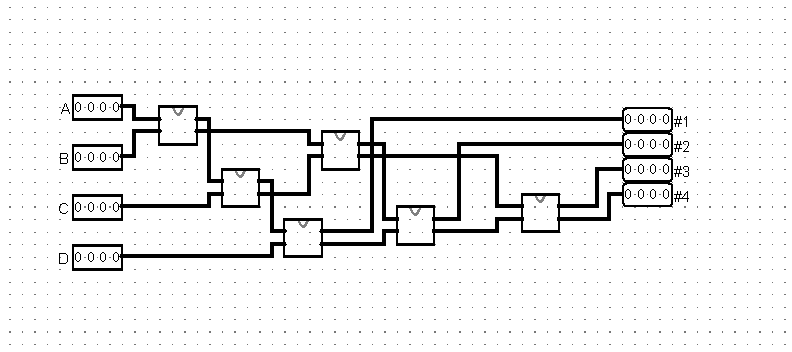
分析复杂电路：

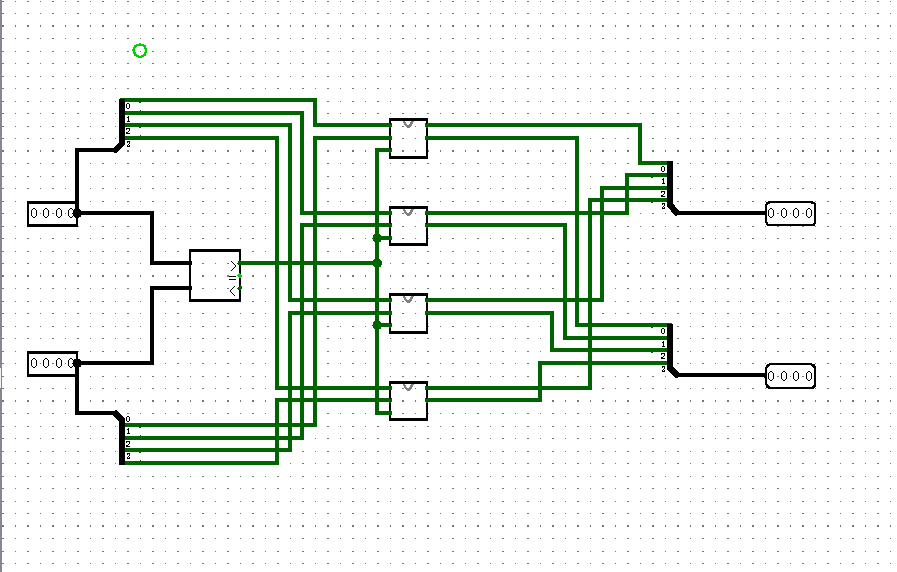


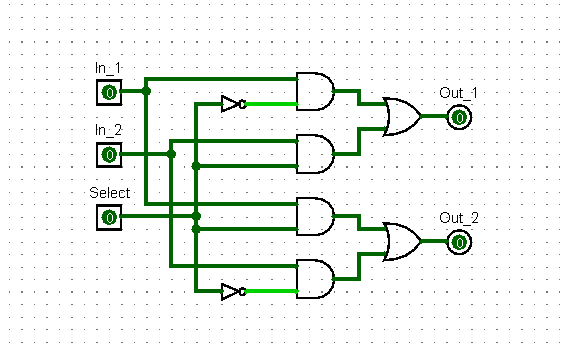
写出表达式，进行化简

排序电路：





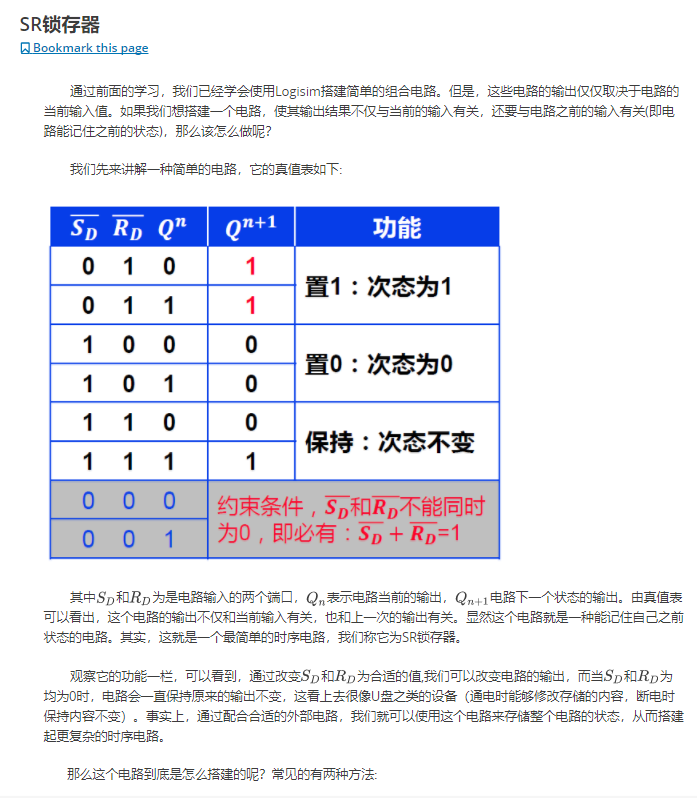


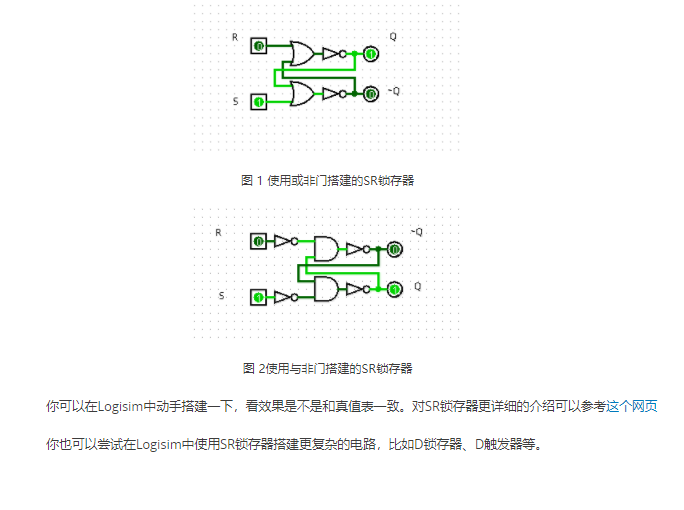


用一位swap搭四位swap，然后用冒泡排序

Logisim时序逻辑电路：

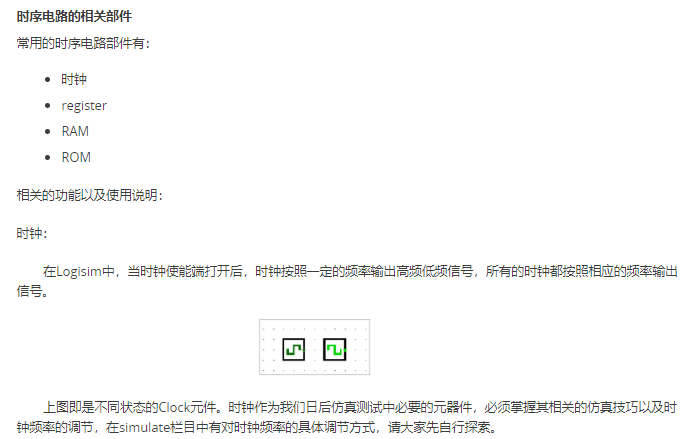
SR锁存器：

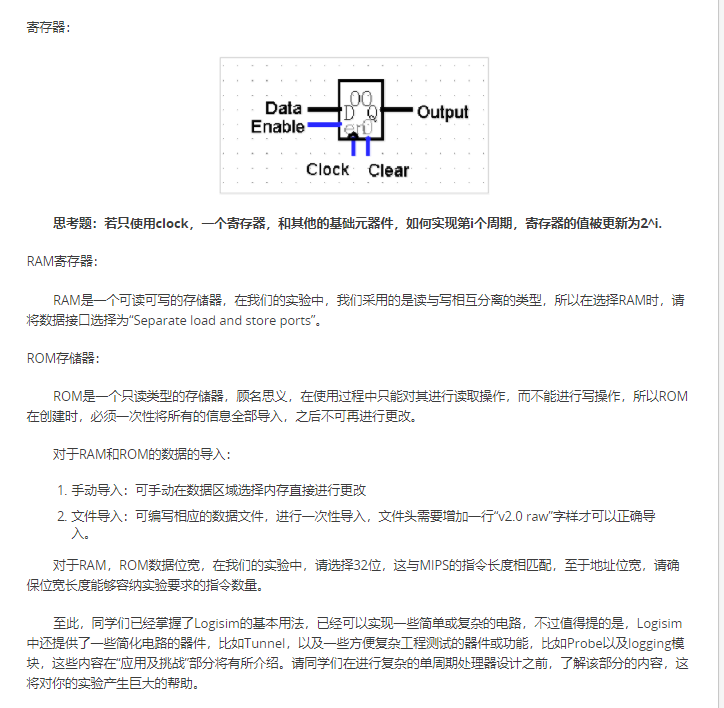




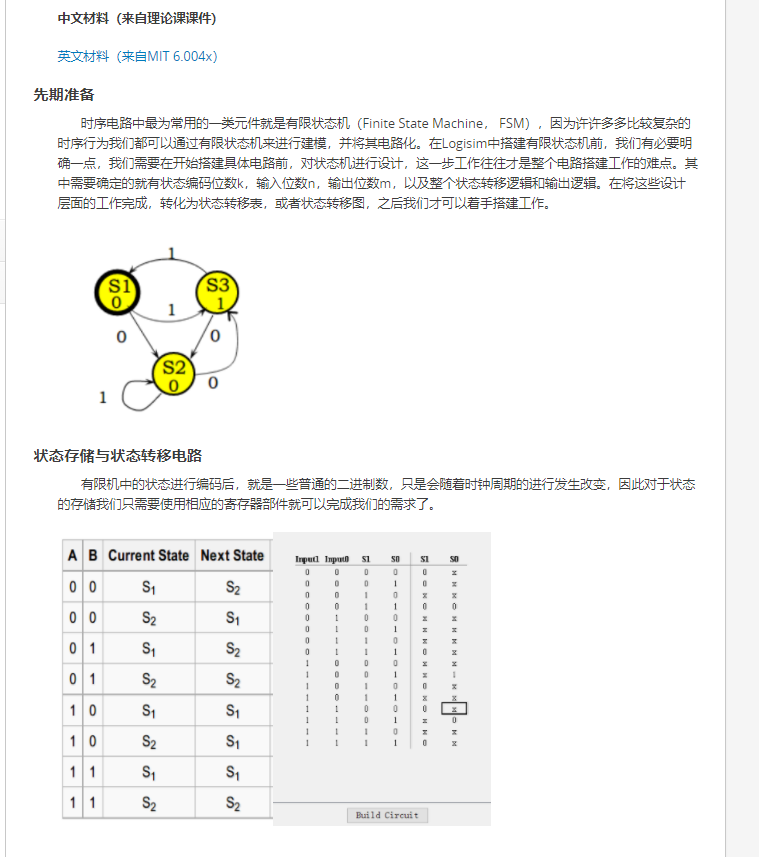
**查看书籍《数字设计和计算机体系结构》**

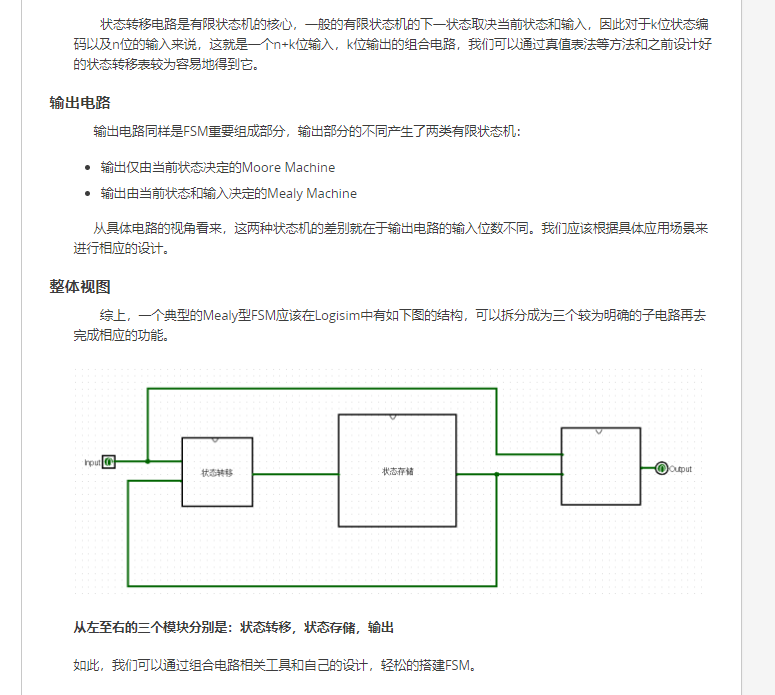
时序电路相关的部件：





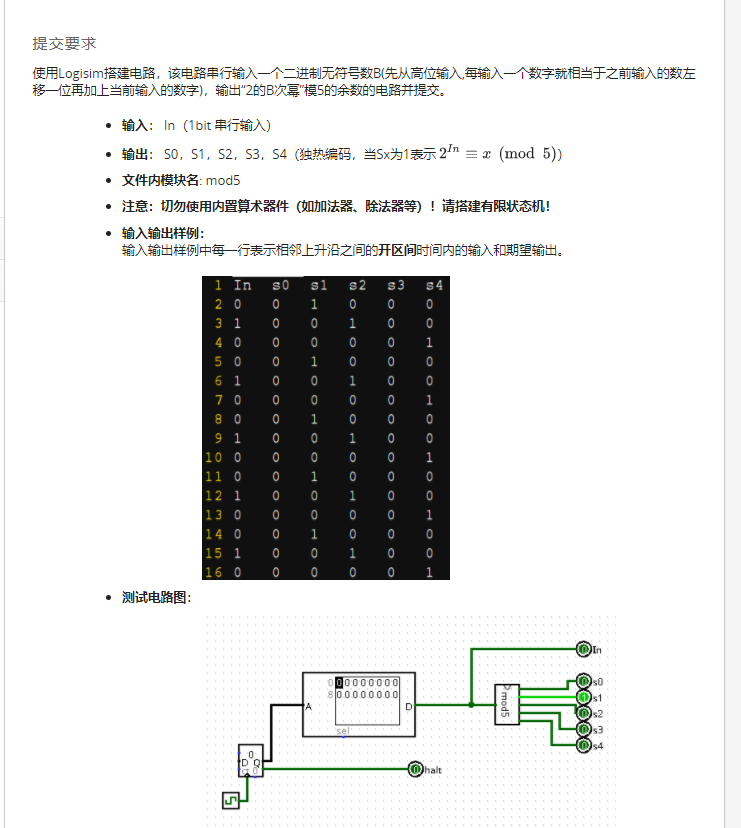
有限状态机：



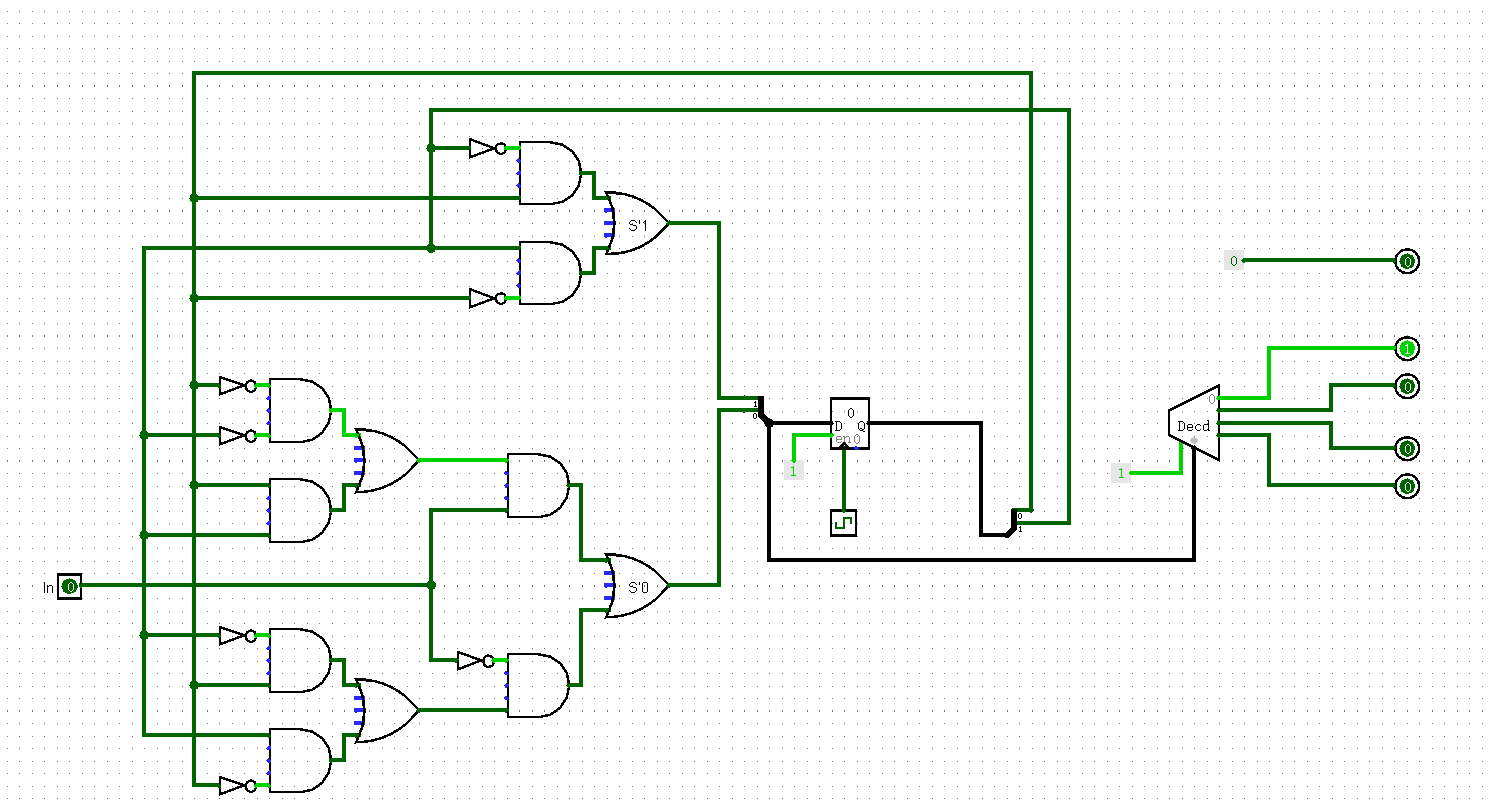


**看《数字设计和计算机体系结构》补充**

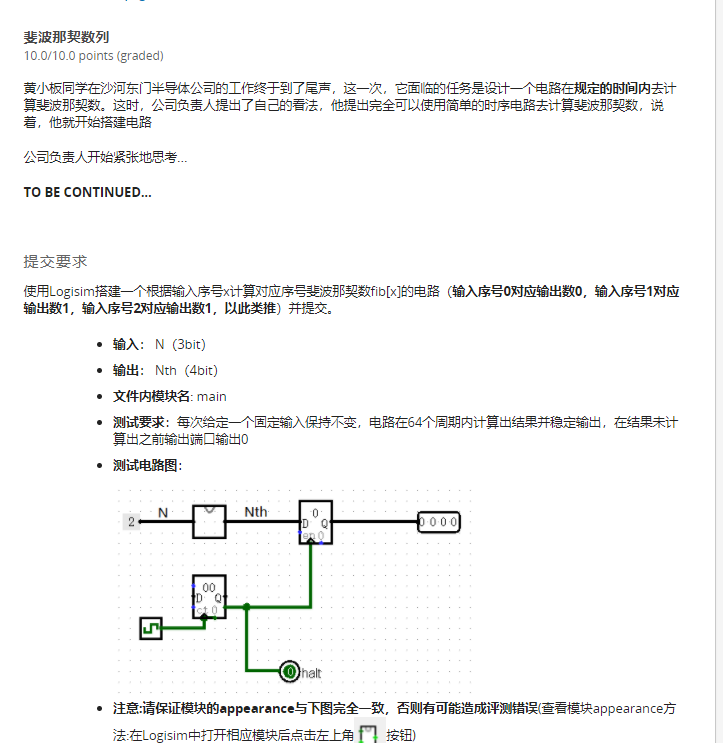
2^n mod 5:

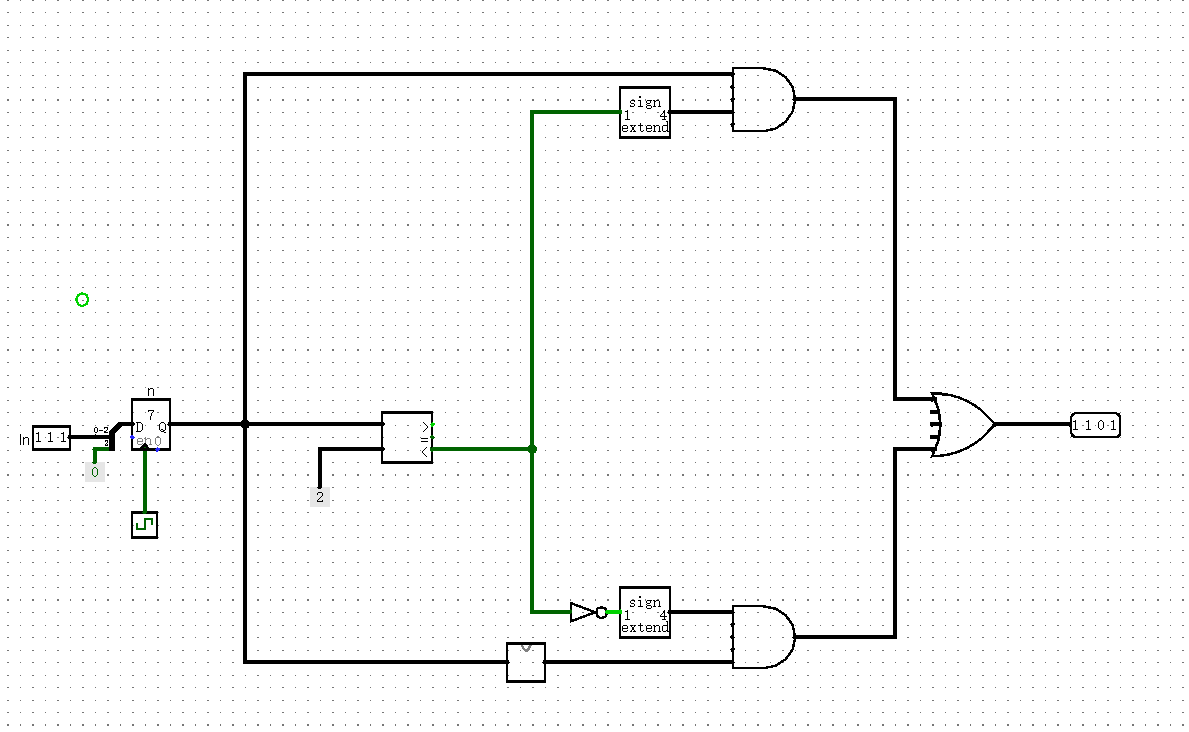


1. 确定好状态
2. 确定真值表
3. 用格雷码确定表达式
4. 构建电路
5. 注意是Moore 还是 Mealy



斐波那契数列：

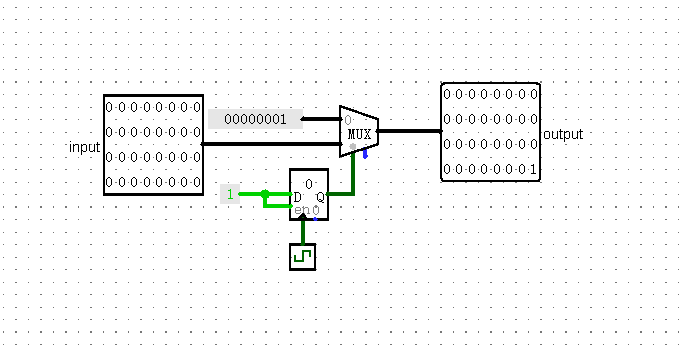




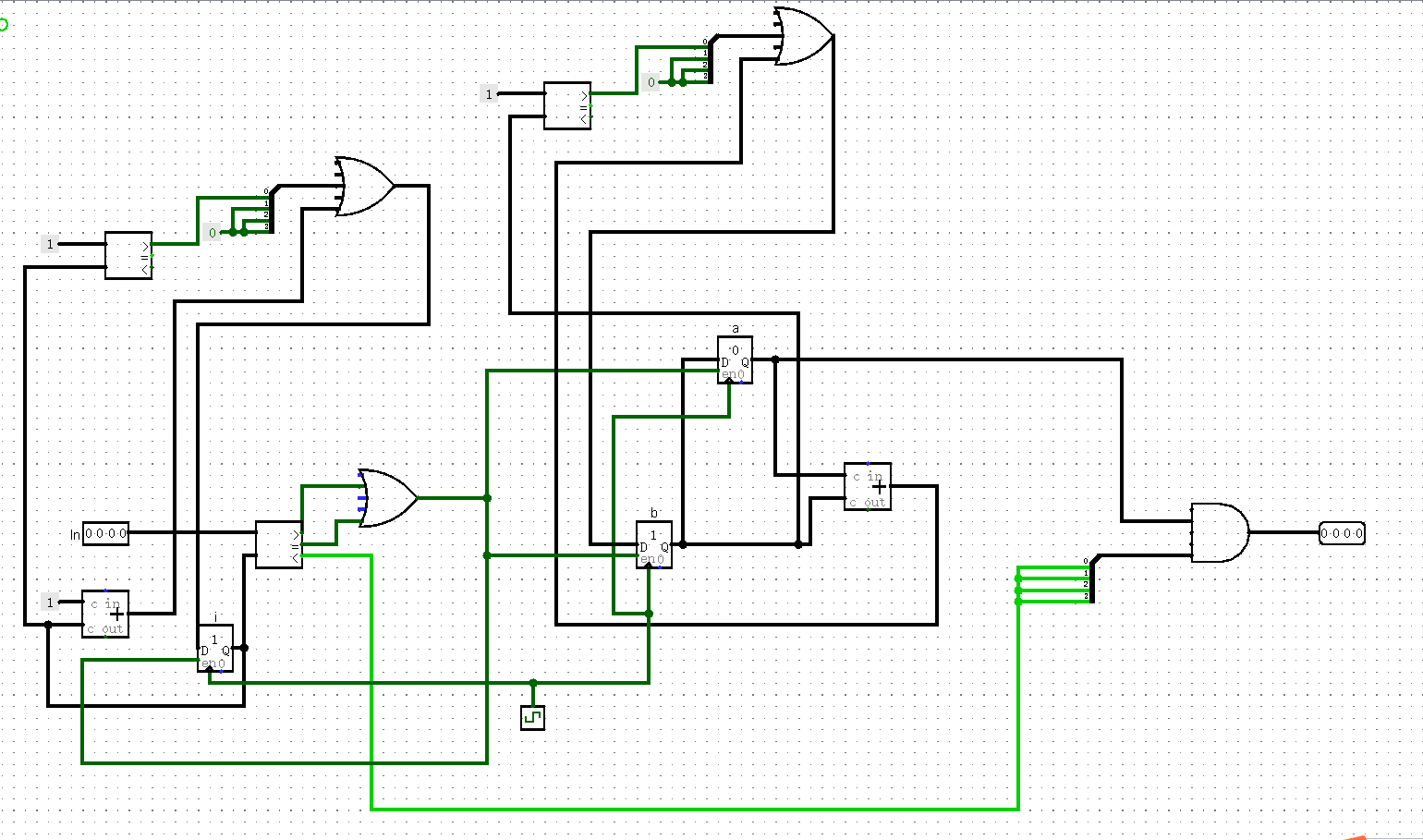
if(input<2)

output=input;

else

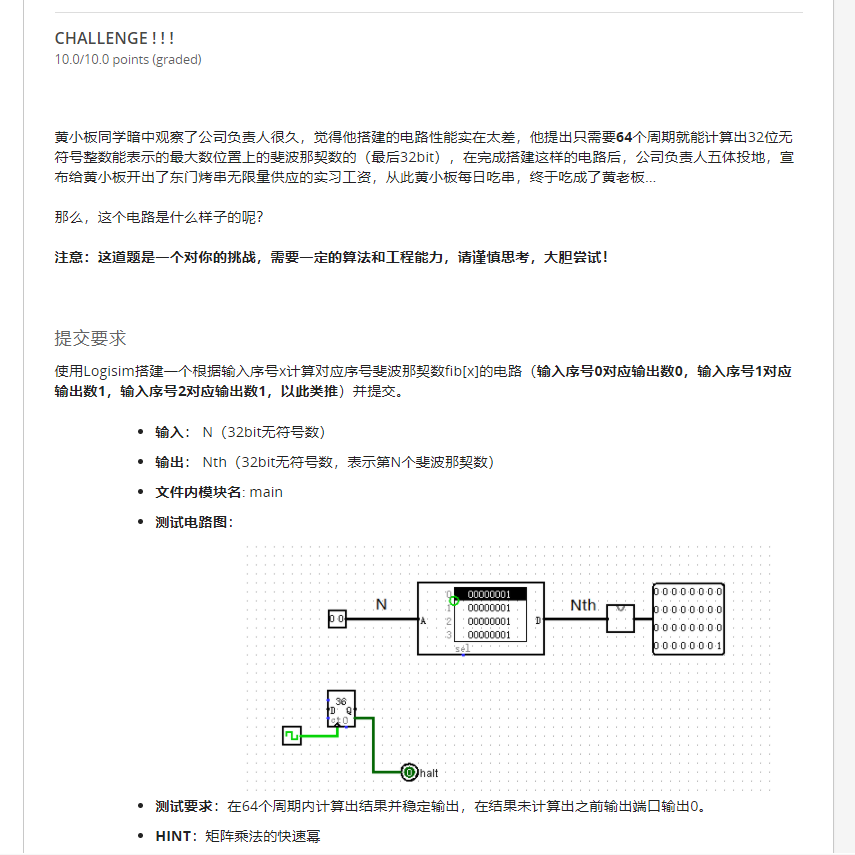
output=fibo(input);

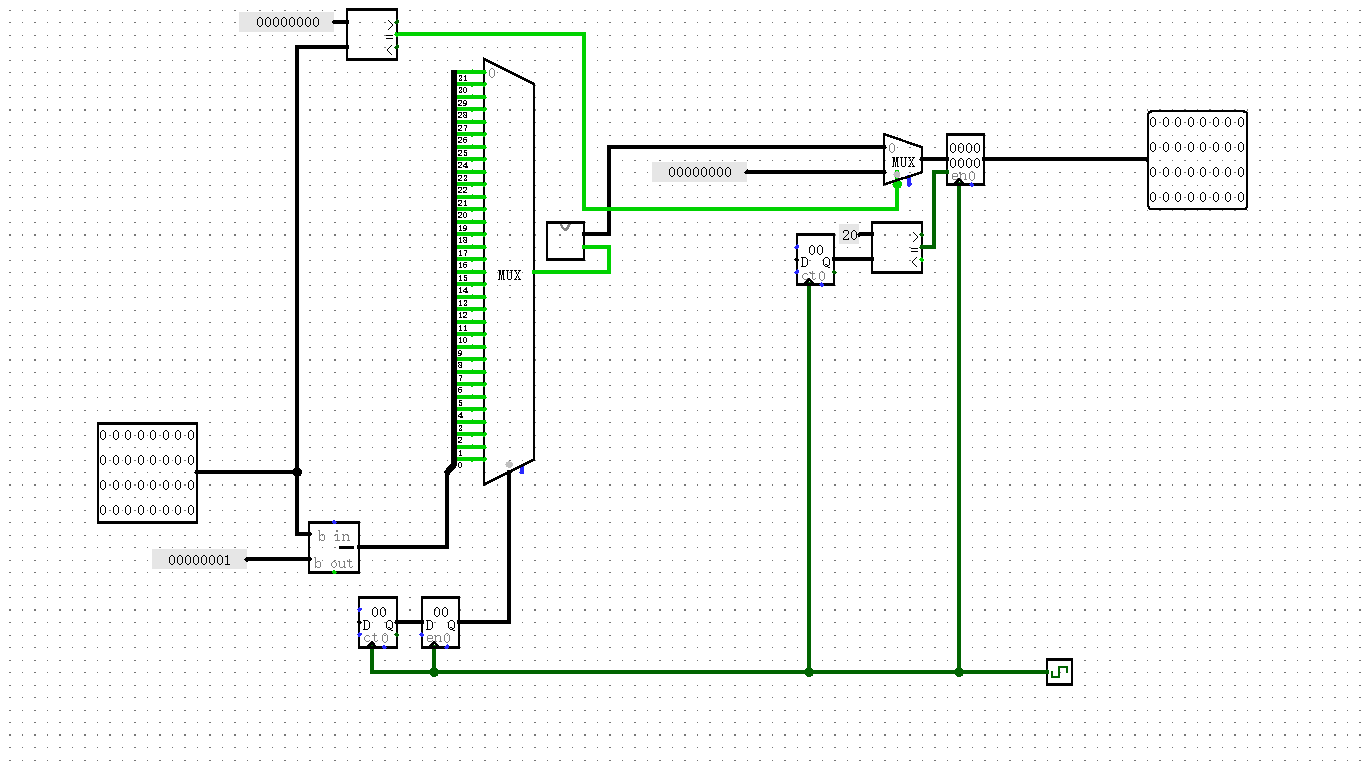
**remember this value circuit**



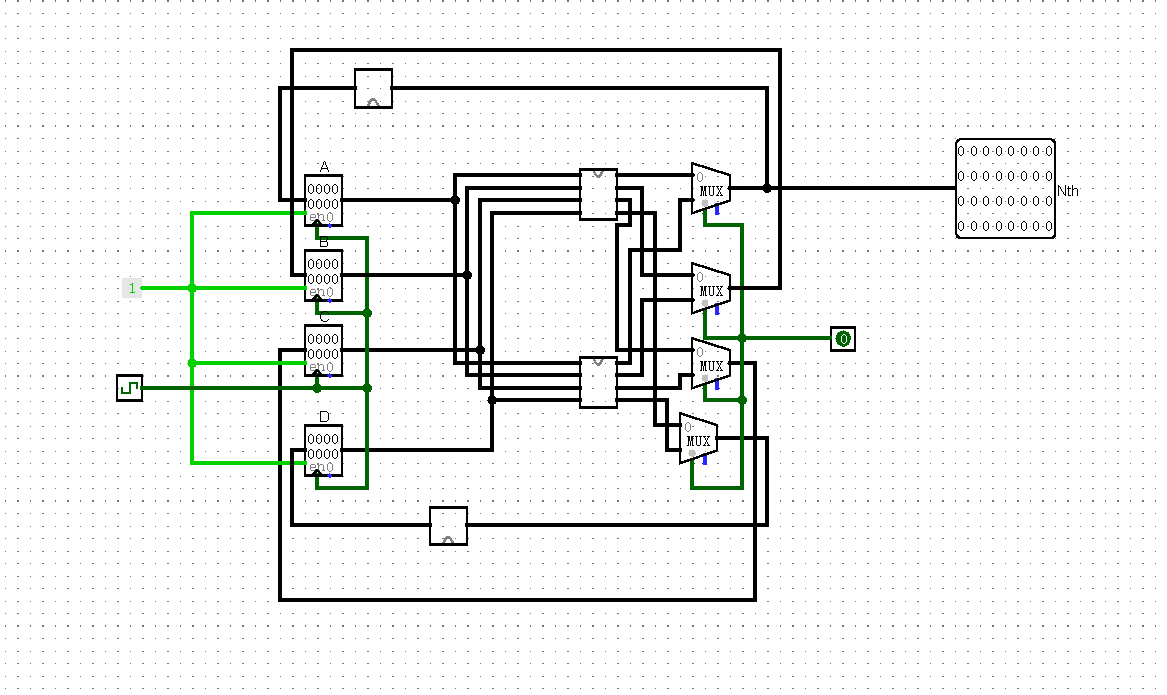
**Ugly,perhaps we should change the register as counter.And use the value circuit to initial register b,and use the bit extender to control the output.**

斐波那契数列之矩阵快速幂：





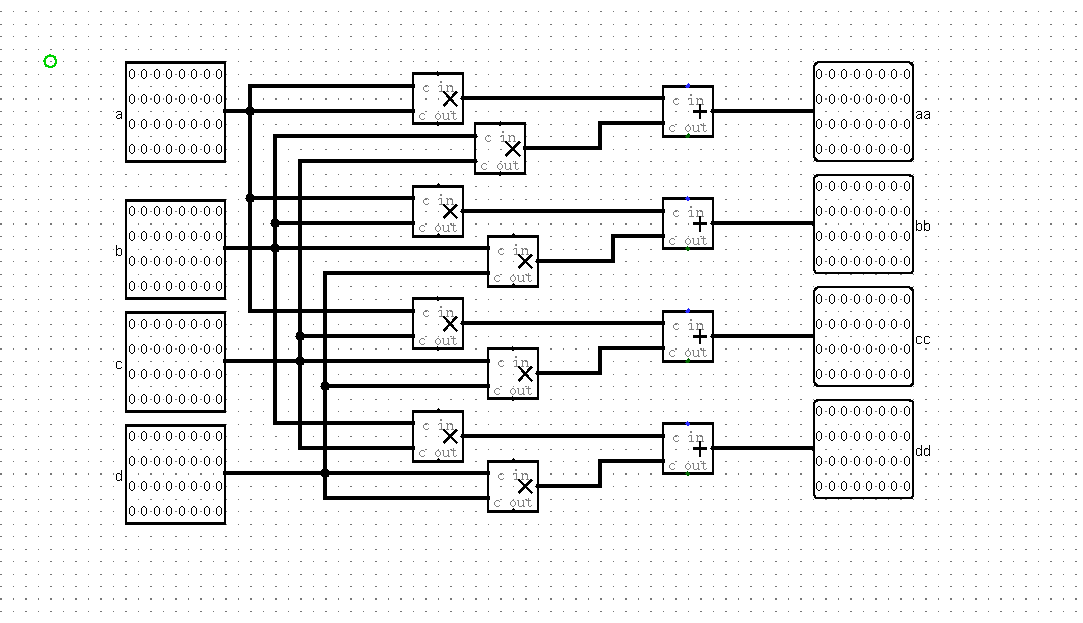
**we can use the bit selector to take place of the MUX.**



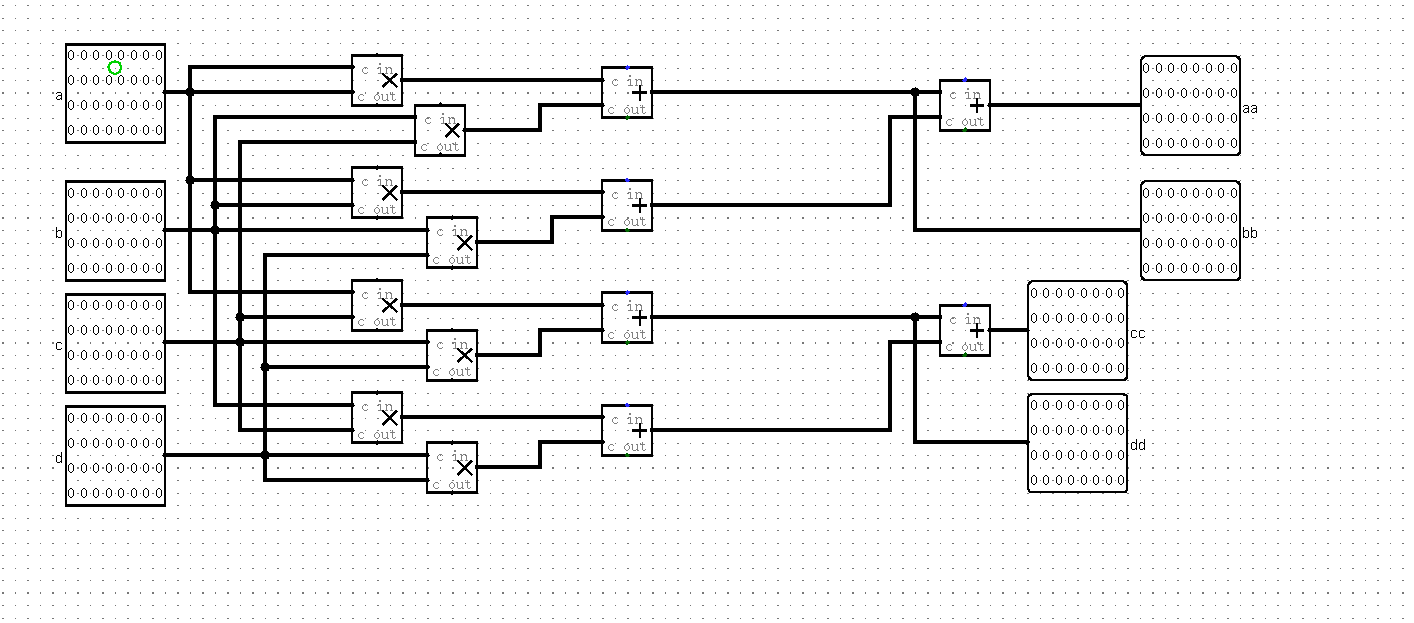
**The upper is self\_pow,the lower is left\_multiply.**

**if input is 0,select the self\_pow,else select tht left\_multiply.**

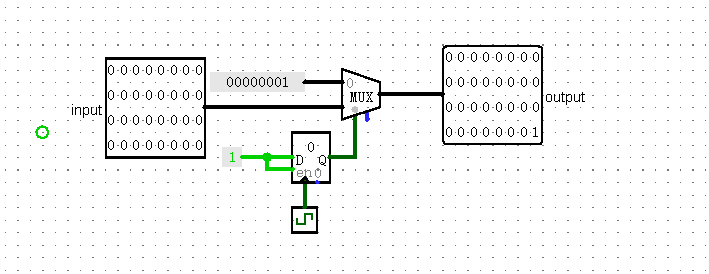
**self\_pow:**



**left\_multiply:**



**value：**



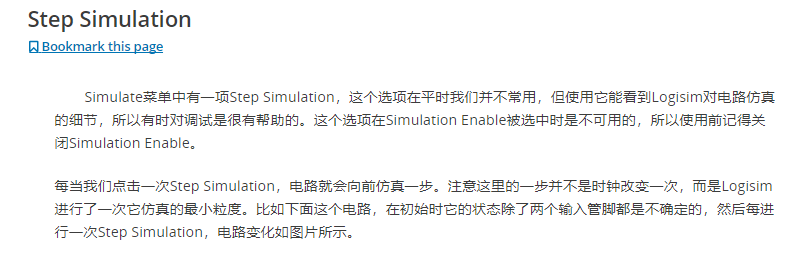
Logisim 仿真与测试：

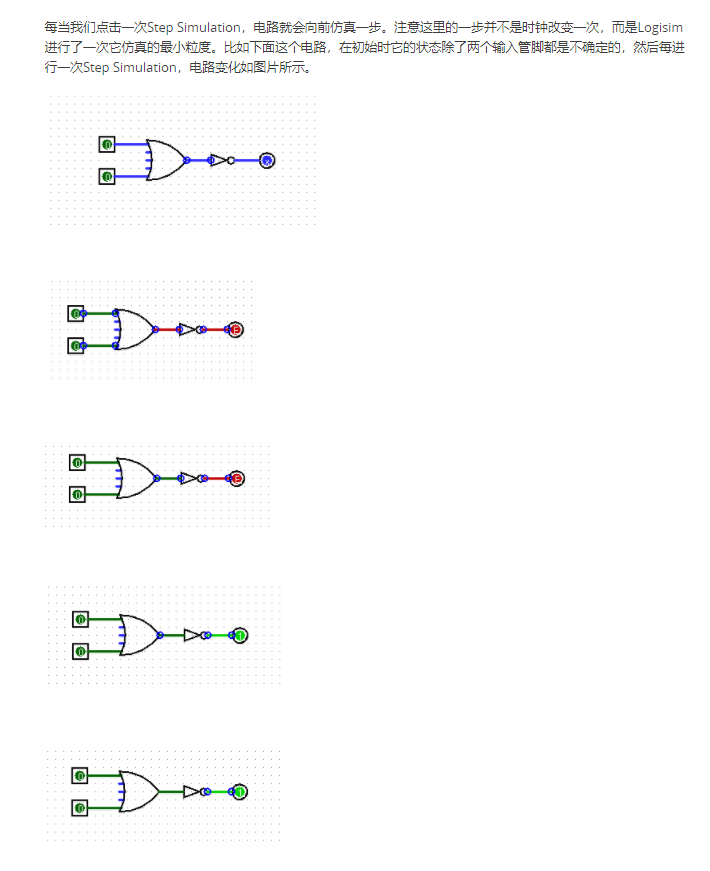


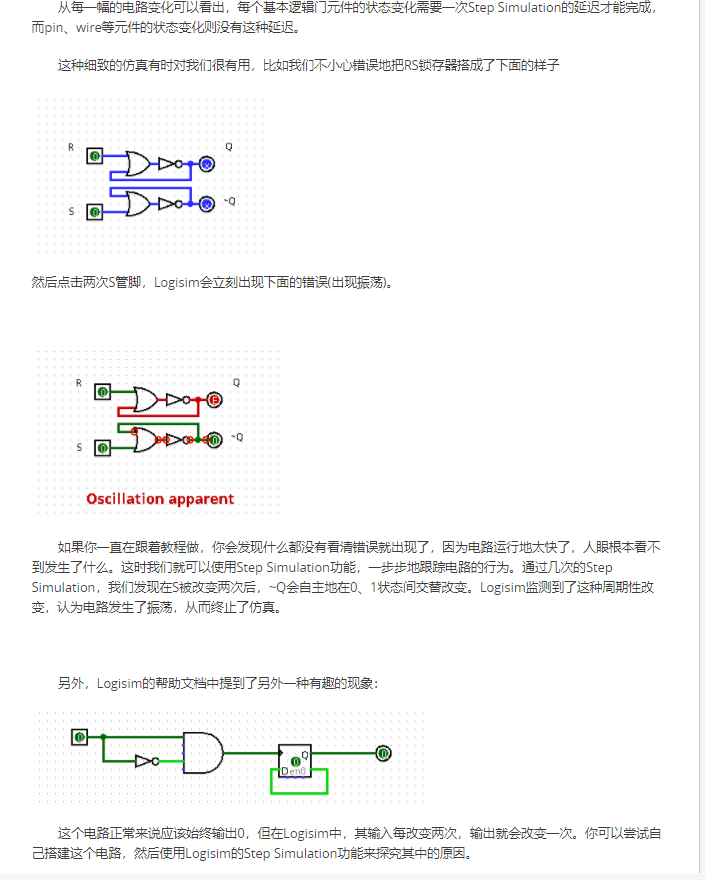
ctrl+T 每次使时钟电位改变一次

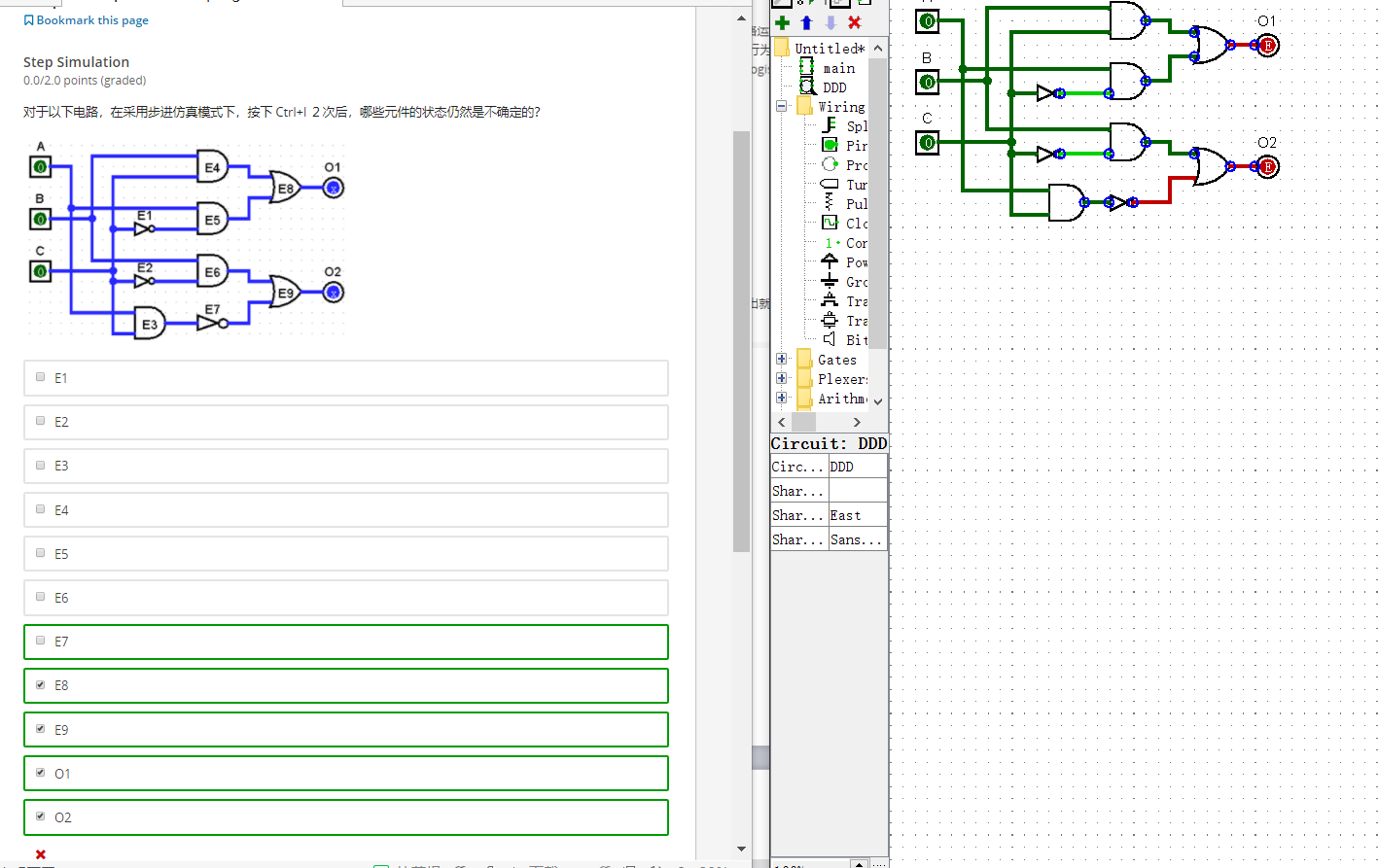
ctrl+K 使时钟电位连续改变

Step Simulation:







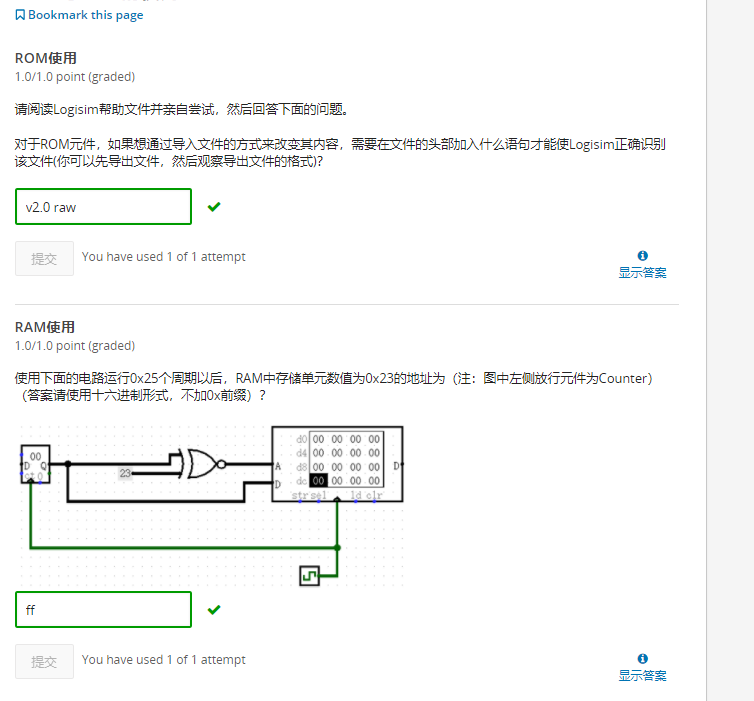


看输出的wire是否确定来判断元件状态是否确定

子电路的调试：

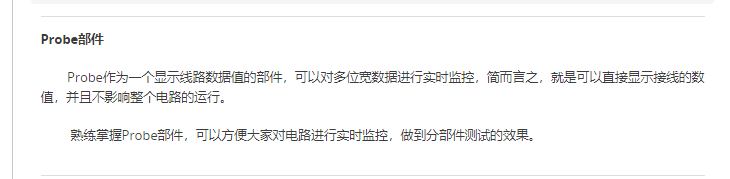
一般情况下在子电路中不能直接改变输入管脚的值，但可以在子电路中直接进行修改。

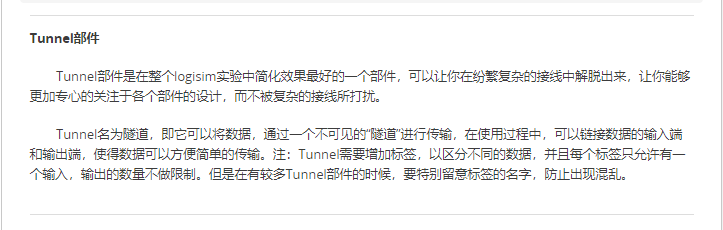
ROM和RAM的使用：



v2.0 raw

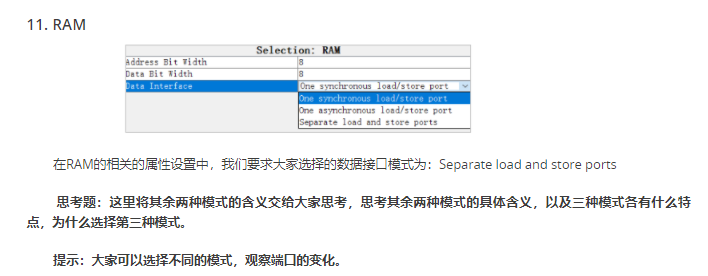
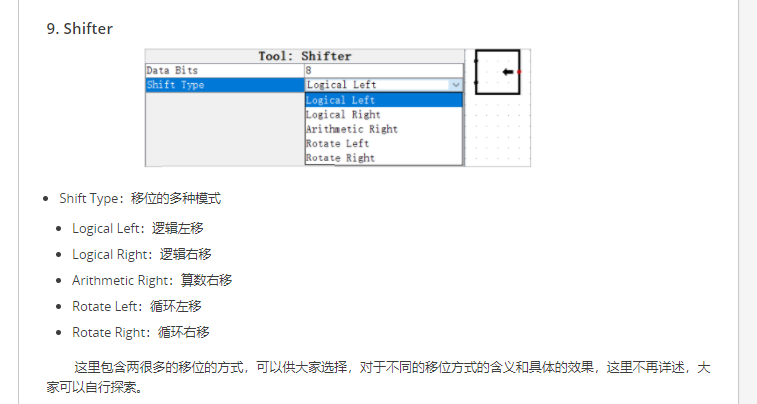
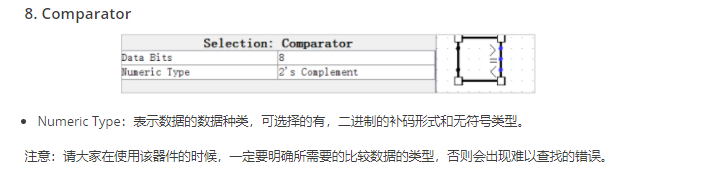
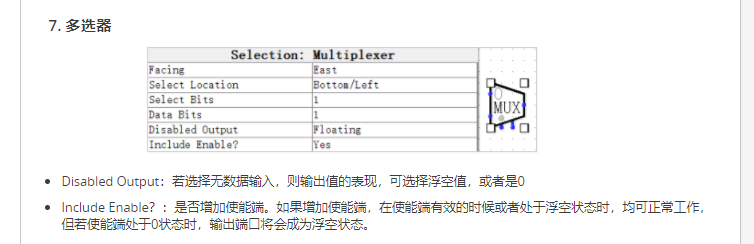
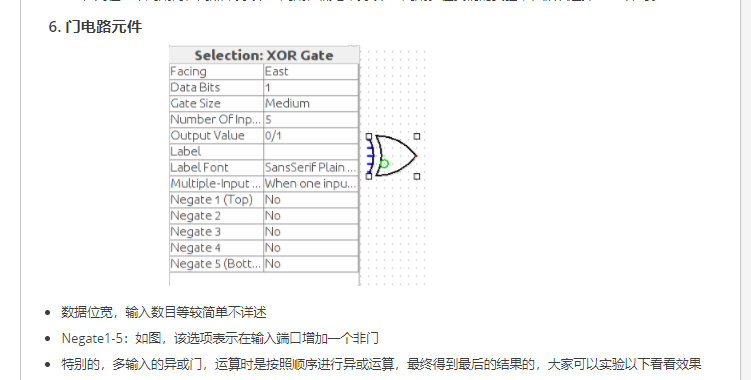
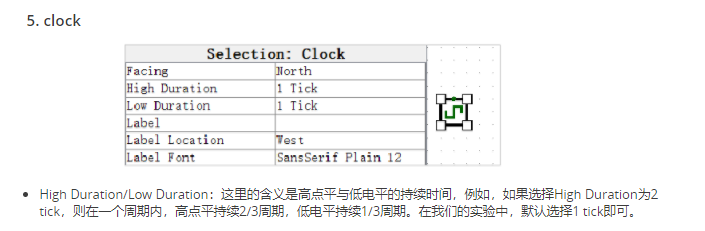
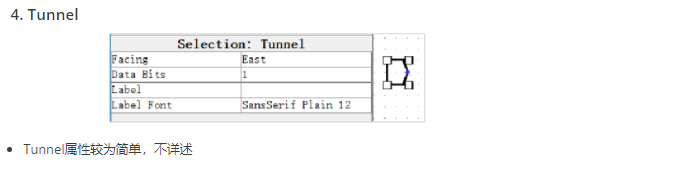
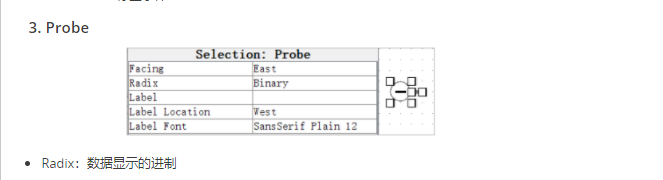
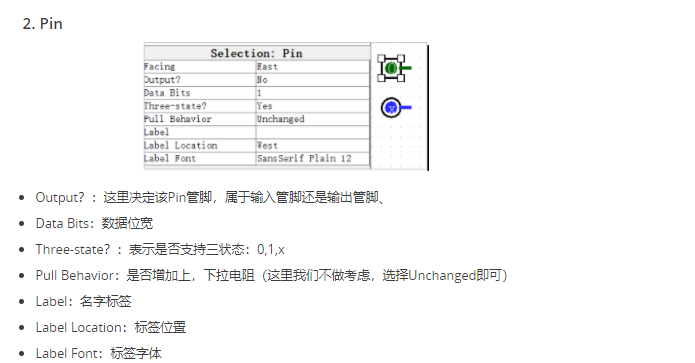
认识部件：

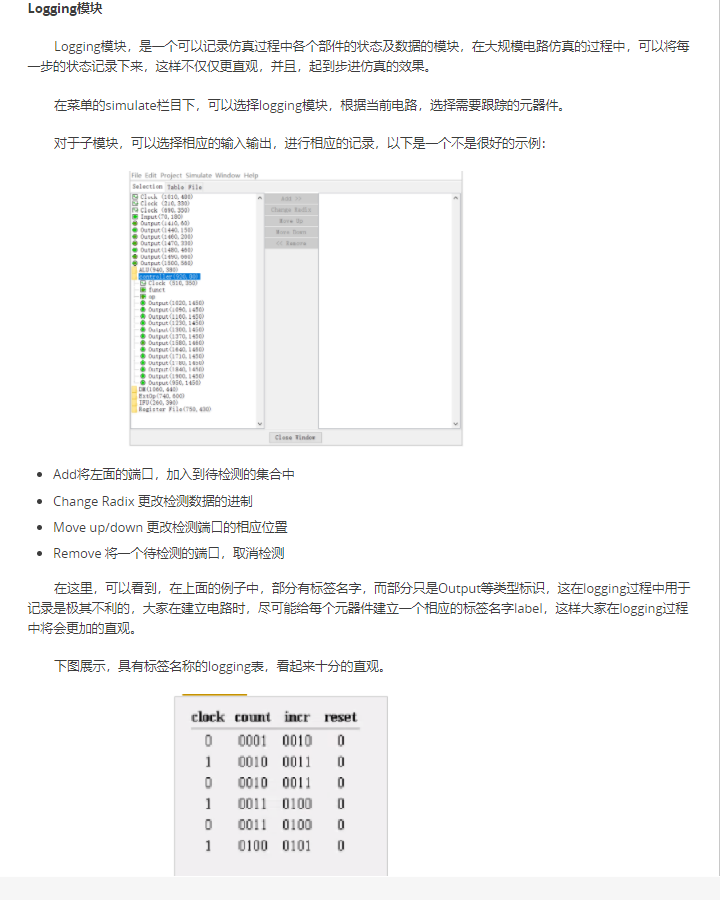




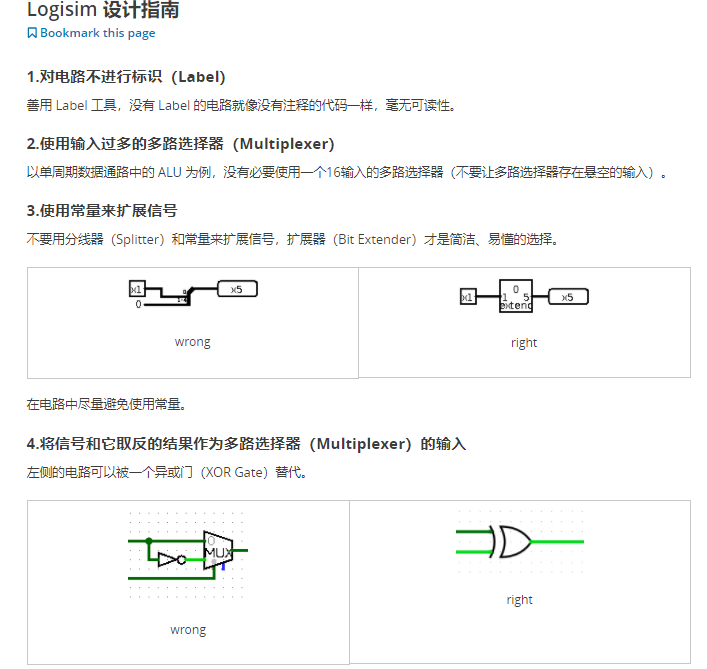


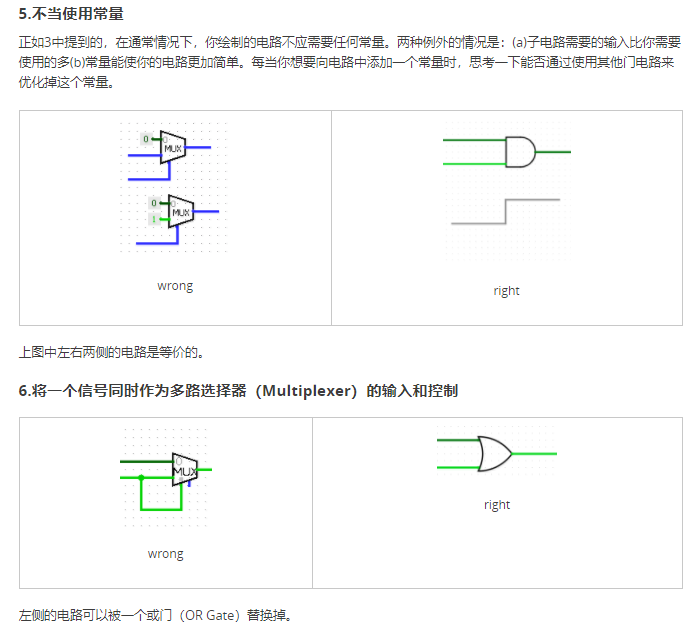


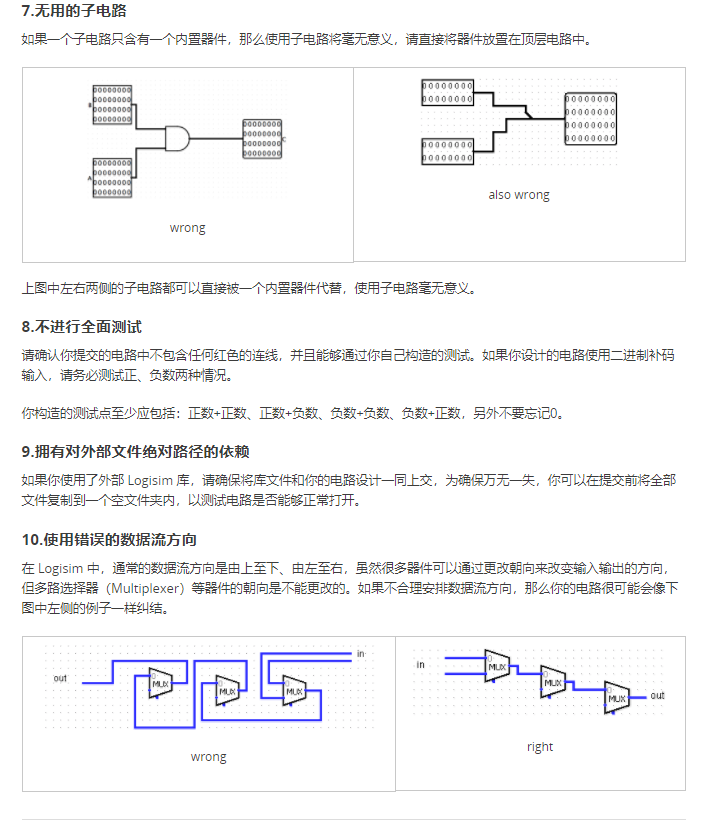




Logisim设计指南：







**构造测试点：正数+正数、正数+负数、负数+负数、负数+正数 and 0**