

**Syn\_flush/**

**remove=0/**

**FSM For Read Logic**

**remove=1&&empty=0**

empty=1  
read\_enabel=0  
read\_addr=7'b0  
rptr=8'b0  
data\_out=0

empty=1  
read\_enabel=0  
read\_addr=7'b0  
rptr=8'b0  
data\_out=0

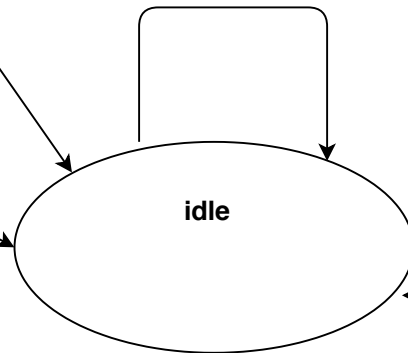
**remove=1&&empty=0**

data\_out=data\_in  
read\_enabel=1  
rptr=previous pointer value+1'b1  
read\_addr=previous address value+1'b1

data\_out=data\_in  
read\_enabel=1  
rptr=previous pointer value+1'b1  
read\_addr=previous address value+1'b1

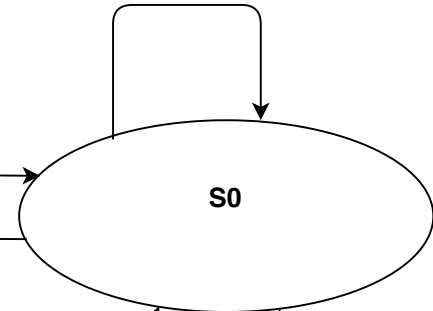
**!reset/**

empty=1  
read\_enabel=0  
read\_addr=7'b0  
rptr=8'b0  
data\_out=0



**rprr=8'b1/**

rprr=8'b0



**remove=1&&empty=0**

data\_out=data\_in  
read\_enabel=1  
rptr=previous pointer value+1'b1  
read\_addr=previous address value+1'b1

**remove=0||empty=1**

read\_enabel=0  
data\_out=0  
read\_addr=7'b0  
rptr=8'b0



**remove=0||empty=1**

read\_enabel=0  
data\_out=0  
read\_addr=7'b0  
rptr=8'b0