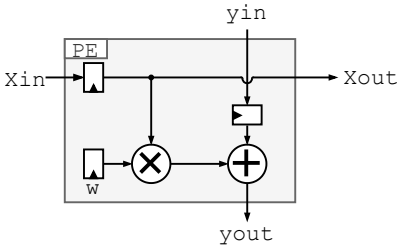



```
Xin  : a bit
Xout : a bit
w    : b bit
yin  : a+b+⌈log2(n-1)⌉ bit
yout : a+b+⌈log2(n)⌉ bit
```

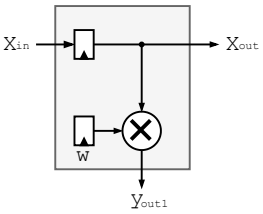
```
Multiplier

input1:a bit
input2:b bit
output:a+b bit

Levels of Logic:
  a+b
```

```
Adder

input1:a+b bit
input2:a+b+⌈log2(n-1)⌉ bit
output:a+b+⌈log2(n)⌉ bit

Levels of Logic:
  a+b+⌈log2(n)⌉
```

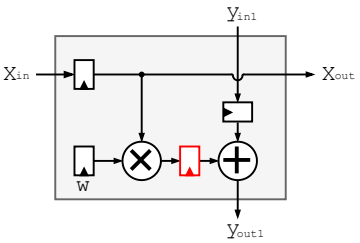
```
n >= 1  (从1开始计数)
t = (a+b+⌈log2(n)⌉) / (a+b+1)
PEmn has ⌈t⌉ states pipeline
Specially, when ⌈t⌉=t
PEmn has Cout
```

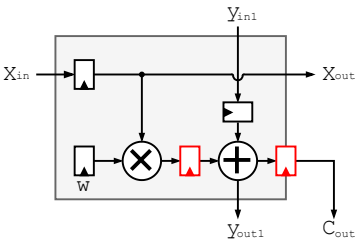
```
Xin  : a bit
Xout : a bit
w    : b bit
yin  : a+b+[log2(n-1)] bit
yout : a+b+[log2(n)] bit

yin1  ... yin[t-1]   : a+b  bit
yout1 ... yout[t-1]  : a+b  bit

yin⌈t⌉  : (a+b+⌈log2(n-1)⌉)%(a+b) bit
yout⌈t⌉ : (a+b+⌈log2(n)⌉)  %(a+b) bit

Cout : 1  bit

yin  = [      yin⌈t⌉  ... yin2  yin1  ]
yout = [ Cout yout⌈t⌉ ... yout2 yout1 ]
```

1 states:

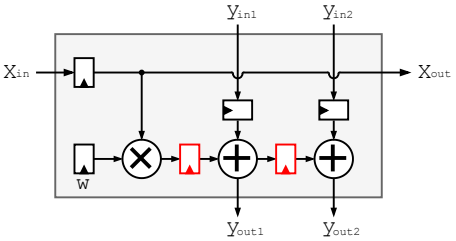


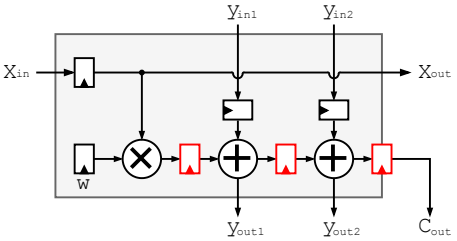
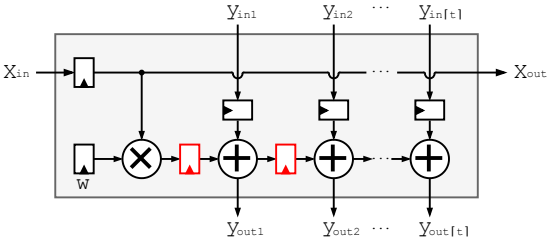
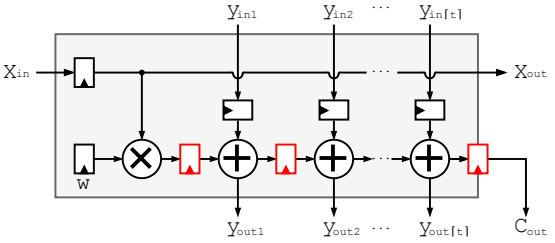
2 states:





3 states:





⌈t+1⌉states: