## 硬體描述語言設計與模擬

# Homework #3 Title:calculator

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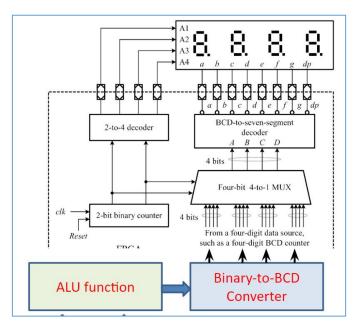
教師:許明華老師

繳交日期:2019/10/26

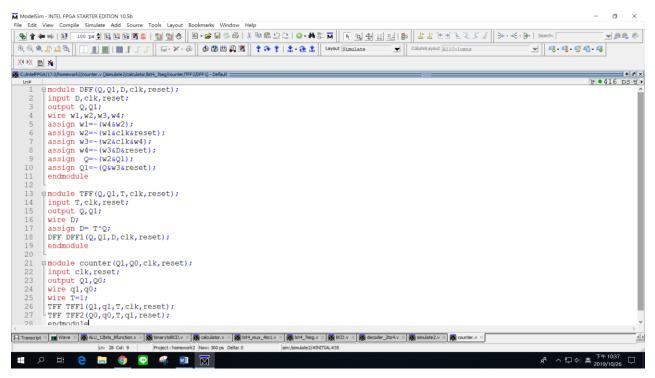
## 

2個12bits的二進制數字,先利用ALU做計算,然後轉為BCD碼,再把BCD碼掃描在七段顯示器上,組成一個簡易的計算機。

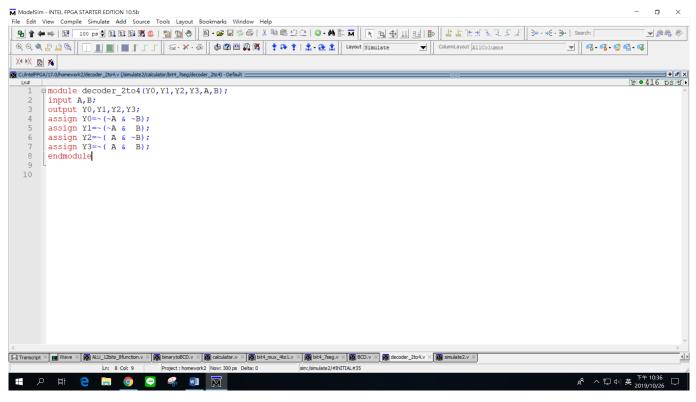
## ┿電路架構



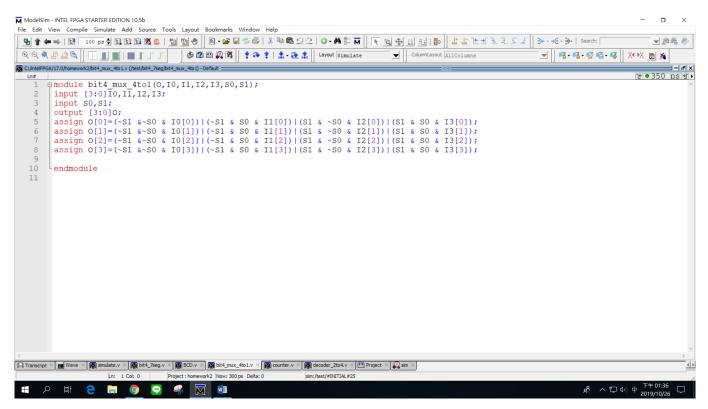
## 



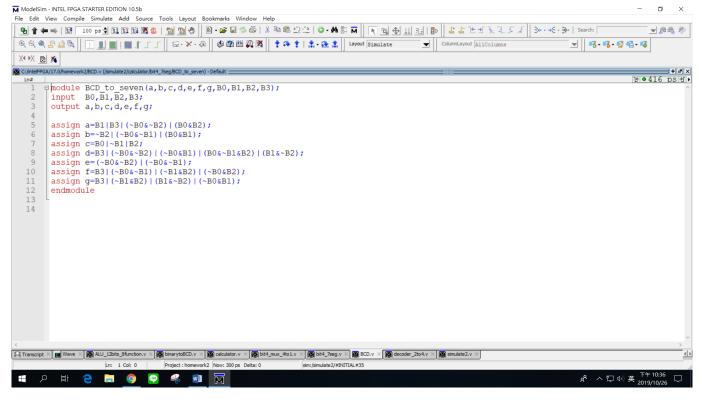
2bit binary counter



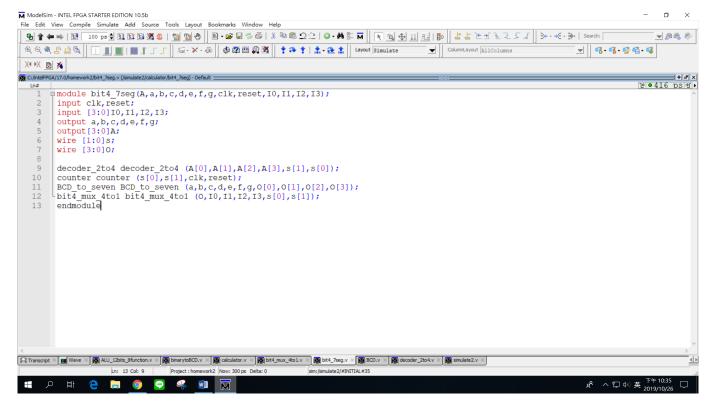
2-to-4 decoder



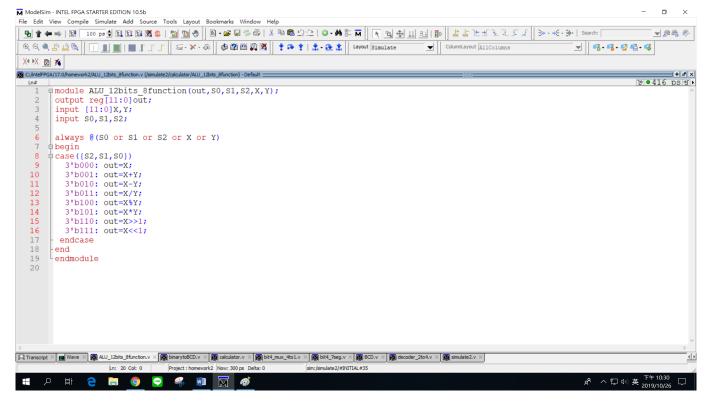
4bits 4-to-1 MUX



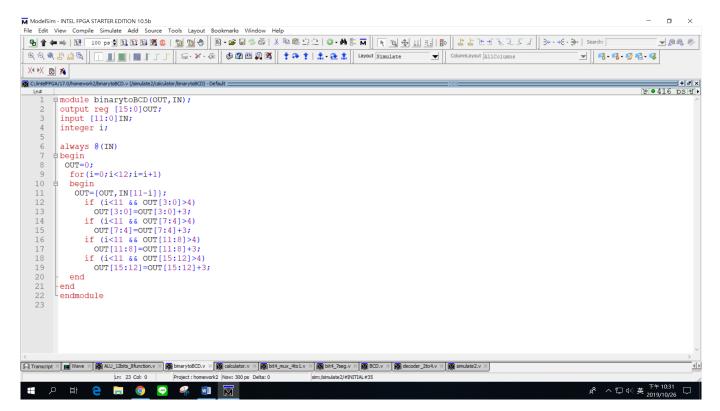
#### BCD-to-segment decoder



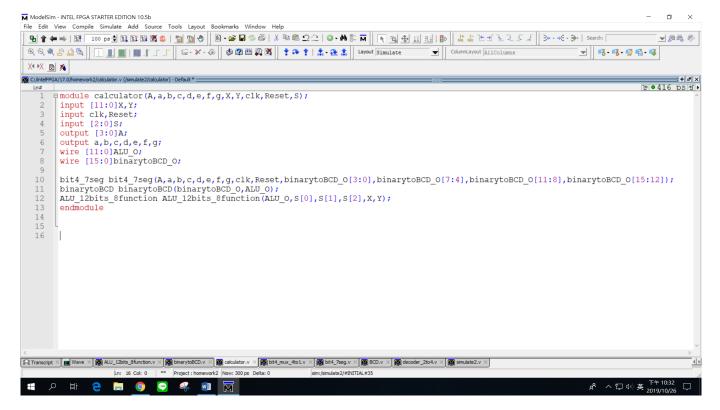
7seg display



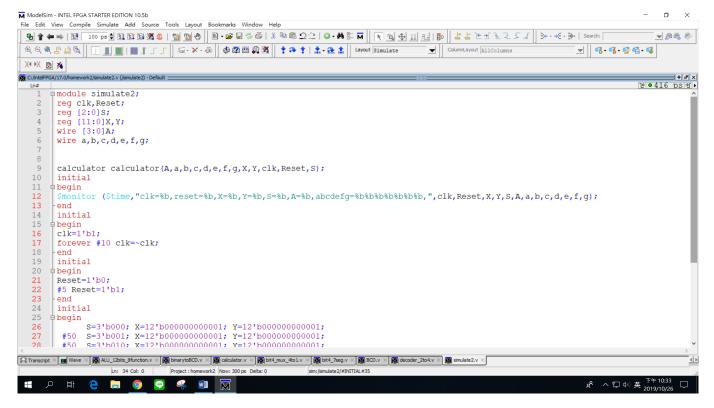
### 12bits 8functions ALU



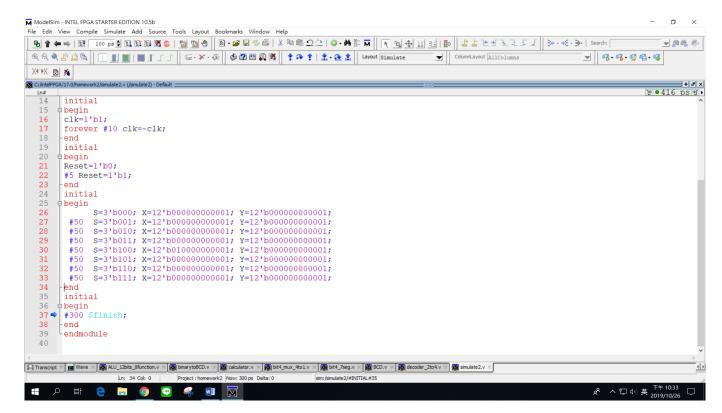
Binary to BCD



#### Calculator

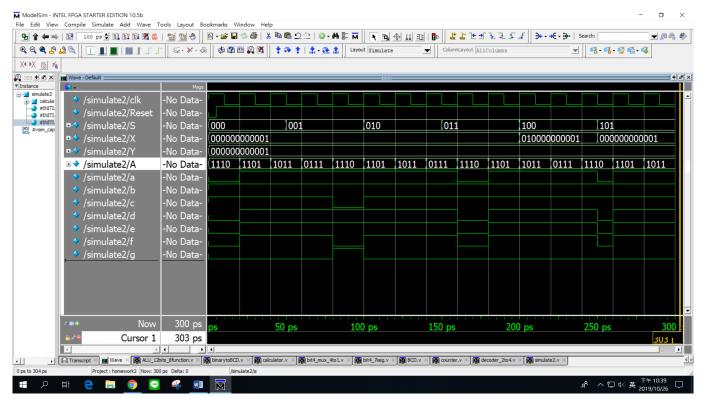


Simulator(上)



Simulator(下)

## ♣執行結果



## ┿心得

經過好幾次的經驗之後,這一次的作業比較得心應手了,雖然有時候還 是會有許多錯誤需要去改正,但是相對之前有進步了許多,寫程式的時 候還是會對一些寫法很陌生,需要查書或是網路,沒辦法直接打出來, 要多加強這方面才行。