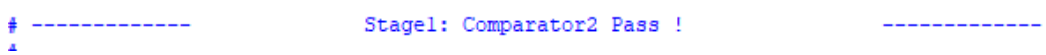
2025 Digital IC Design Homework 1

NAME	童品綸
Student ID	M16131111

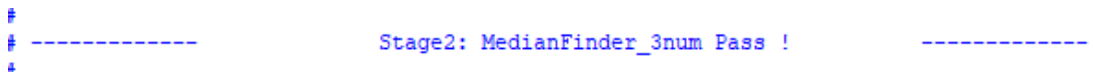
Functional Simulation Result

Stage 1	Pass	Stage 2	Pass	Stage 3	Pass	Stage 4	Pass

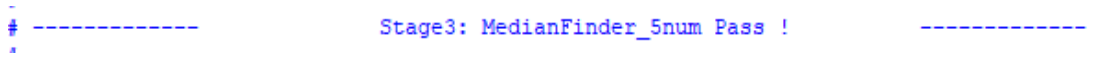
Stage 1



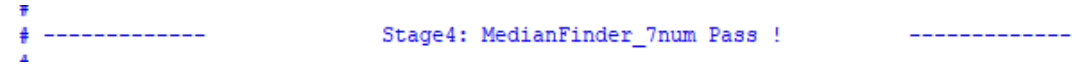
Stage 2



Stage 3

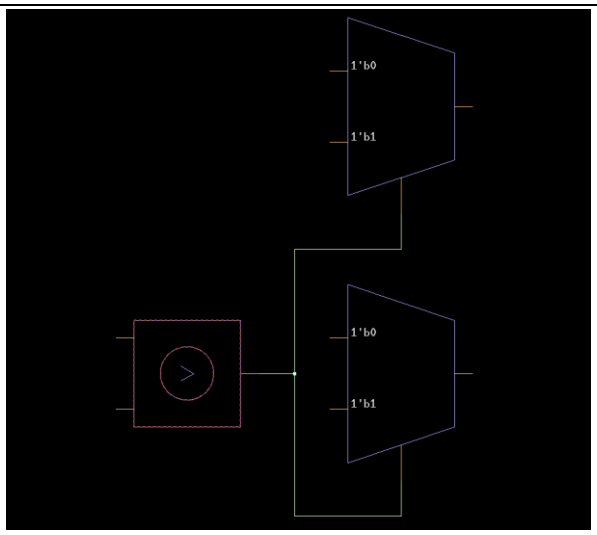


Stage 4

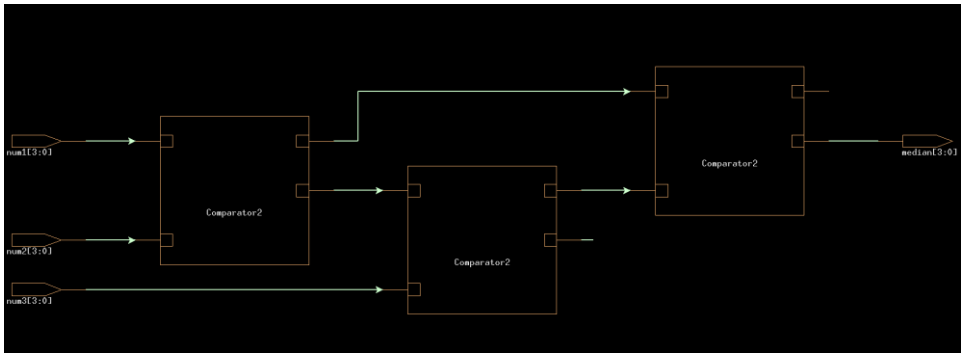


Description of your design

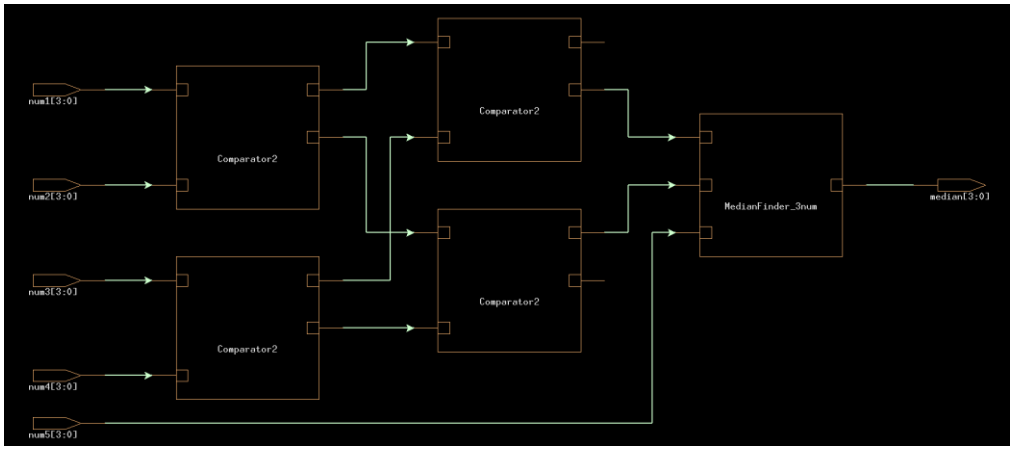
Stage1 之電路是照助教所給之電路圖時做出找輸入大小的電路，但我的控制訊號只用了一個比較器其實就可以完成，如下圖 schematic。



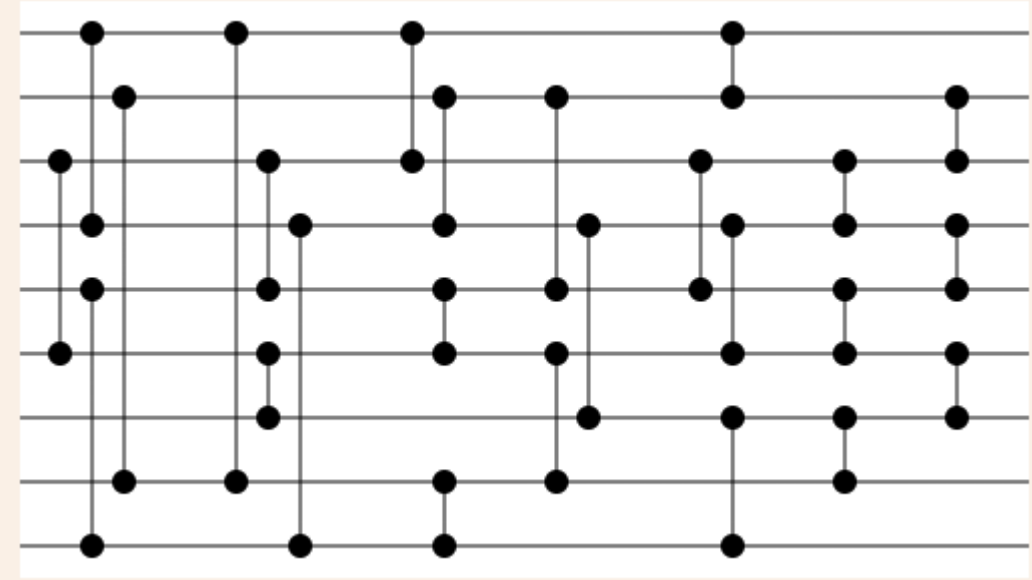
Stage2，則是完全照助教所給電路去 implement RTL code，底下我的 RTL code 之電路 schematic



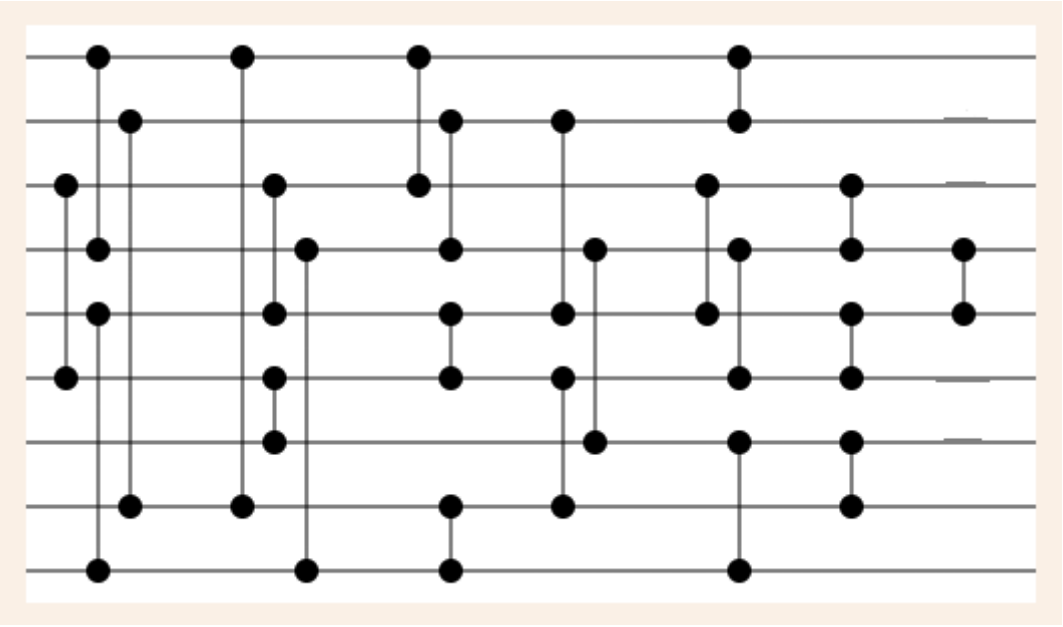
Stage3，也是完全照助教所給電路去 implement RTL code，底下我的 RTL code 之電路 schematic



Stage4，是照底下的 7-input sort network 來進行改良，由於只要取中間值，所以最後一級的三個比較器實際上只需要一個就可以完成



改良後之 schematic 如下圖



而底下為我的 RTL code 之實際 schematic