2022 Digital IC Design

Homework 4: Edge-Based Line Average interpolation

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| NAME | | 陳柏維 | | | | | | |
| Student ID | | P76101283 | | | | | | |
| **Simulation Result** | | | | | | | | |
| Functional simulation | Pass or Fail | | Gate-level simulation | Pass or Fail | Clock  width | 20 | Gate-level simulation time | 41589329 |
|  | | | | |  | | | |
| **Synthesis Result** | | | | | | | | |
| Total logic elements | | | | | 2423 | | | |
| Total memory bit | | | | | 0 | | | |
| Embedded multiplier 9-bit element | | | | | 0 | | | |
|  | | | | | | | | |
| **Description of your design** | | | | | | | | |
| 就找出它的規律並且分成四個階段   1. Read : 除了第一次的Row1要進行特殊處理之外，其他基本上就是把data\_in的資料儲存起來而已。為了節省空間這邊只用一個512大小的暫存器，並且前半後半輪流寫入。 2. Write : 就是把第一步讀取的東西寫入到記憶體中，沒有特別好註解的 3. Calculate : 就是根據第一階段中的兩Row值根據題目規則做計算並且存入一個256大小的暫存器中。 4. Write : 把第三階段算出來的東西，直接存入到記憶體中，跟第二階段其實是同個東西 只是做了一點條件判斷。 | | | | | | | | |

*Scoring = (Total logic elements + total memory bit + 9\*embedded multiplier 9-bit element) (longest gate-level simulation time in ns)*