2022 Digital IC Design
Final Project

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Functional Simulation Result of LZ77 Encoder

Testing Pattern 0	Pass	Testing Pattern 1	Pass	Testing Pattern 2	Pass

```
# cycle 1d04c, expect(01,02,4) , get(01,02,4) >> Pass
# cycle 1d052, expect(00,00,2) , get(00,00,2) >> Pass
# cycle 1d075, expect(11,01,a) , get(11,01,a) >> Pass
# cycle 1d09a, expect(13,01,8) , get(13,01,8) >> Pass
# cycle 1d0c0, expect(15,01,5) , get(15,01,5) >> Pass
# cycle 1d0e7, expect(17,01,4) , get(17,01,4) >> Pass
# cycle 1d110, expect(19,02,7) , get(19,02,7) >> Pass
# cycle 1d136, expect(0b,02,0) , get(0b,02,0) >> Pass
# cycle 1d13c, expect(00,00,$) , get(00,00,$) >> Pass
# ------------------------------------------------
# --------- Encoding finished, ALL PASS ---------
# ------------------------------------------------
# ** Note: $finish    : C:/Users/User/Desktop/IC HW/final_project/file/tb_Encoder.sv(285)
#    Time: 595505 ns  Iteration: 1  Instance: /testfixture encoder
```

Functional Simulation Result of LZ77 Decoder

Testing Pattern 0	Pass	Testing Pattern 1	Pass	Testing Pattern 2	Pass

```
#   == Decoding string "270"
# cycle 02002, expect 2, get 2 >> Pass
# cycle 02003, expect 7, get 7 >> Pass
# cycle 02004, expect 0, get 0 >> Pass
# ------------------------------------------------------
# -------------- Decoding finished, ALL PASS --------------
# ------------------------------------------------------
# ------------------------------------------------------
# ----- Interpolation finished, result is written out -----
# ------------------------------------------------------
# ** Note: $finish    : C:/Users/User/Desktop/IC HW/final_project/file/tb_Decoder.sv(376)
#    Time: 321040 ns  Iteration: 0  Instance: /testfixture decoder
```

Quality of Interpolated Results

Testing Pattern 0	19.47	Testing Pattern 1	23.00	Testing Pattern 2	22.67

Description of your design

先從測資將 Odd part 讀入並直接寫入 Result Image Memory，再來從最左邊一次從 Odd part 讀上下共 6 個值存入暫存器來計算 Even part(邊緣讀兩個就直接算)，每移動一個單位，這六個暫存器就會向左平移，所以讀好六個值後，之後每次要讀兩個做平移，再利用 3 個 assign 來計算三個 min 值，再從那六個暫存器找最小位置的兩個出來除 2。

Scoring = Pattern 0 PSNR + Pattern 1 PSNR + Pattern 2 PSNR

The higher, the better.