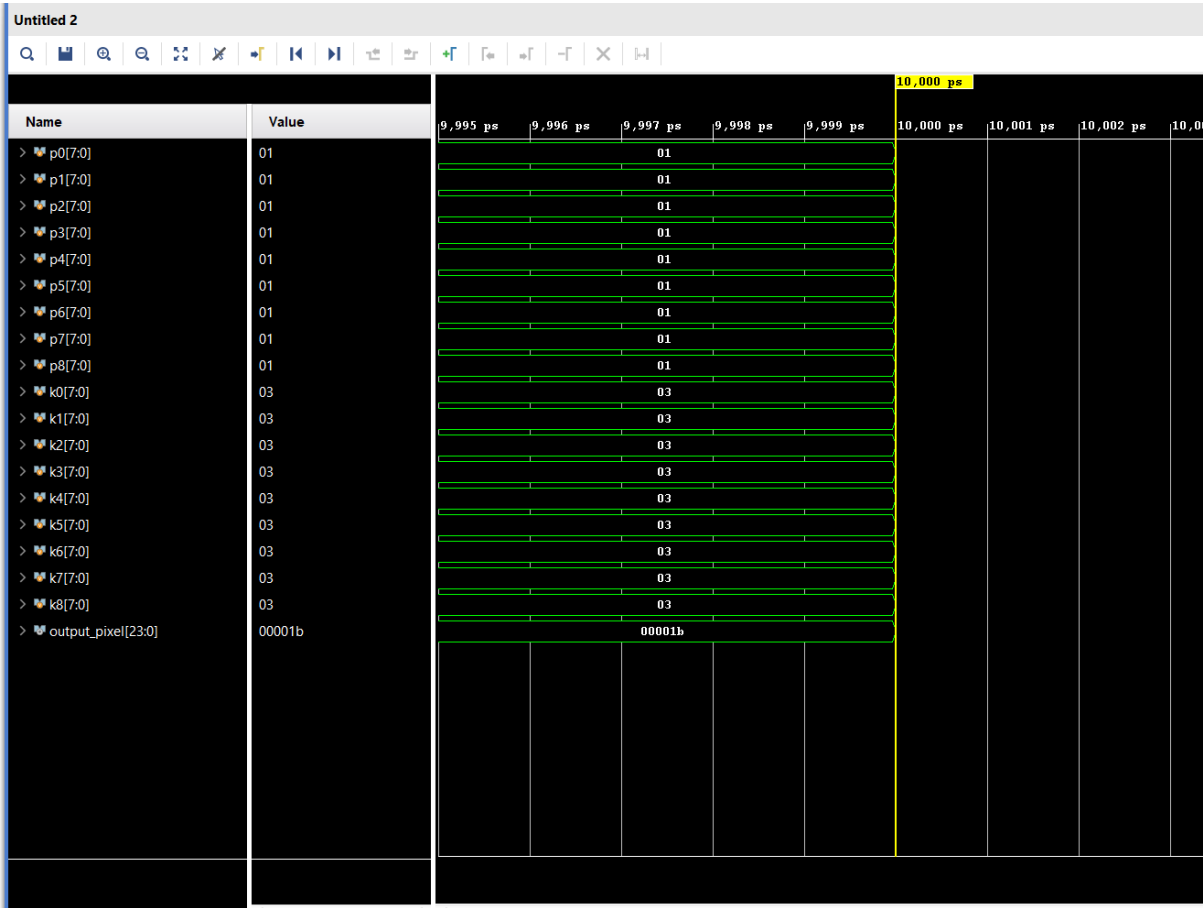
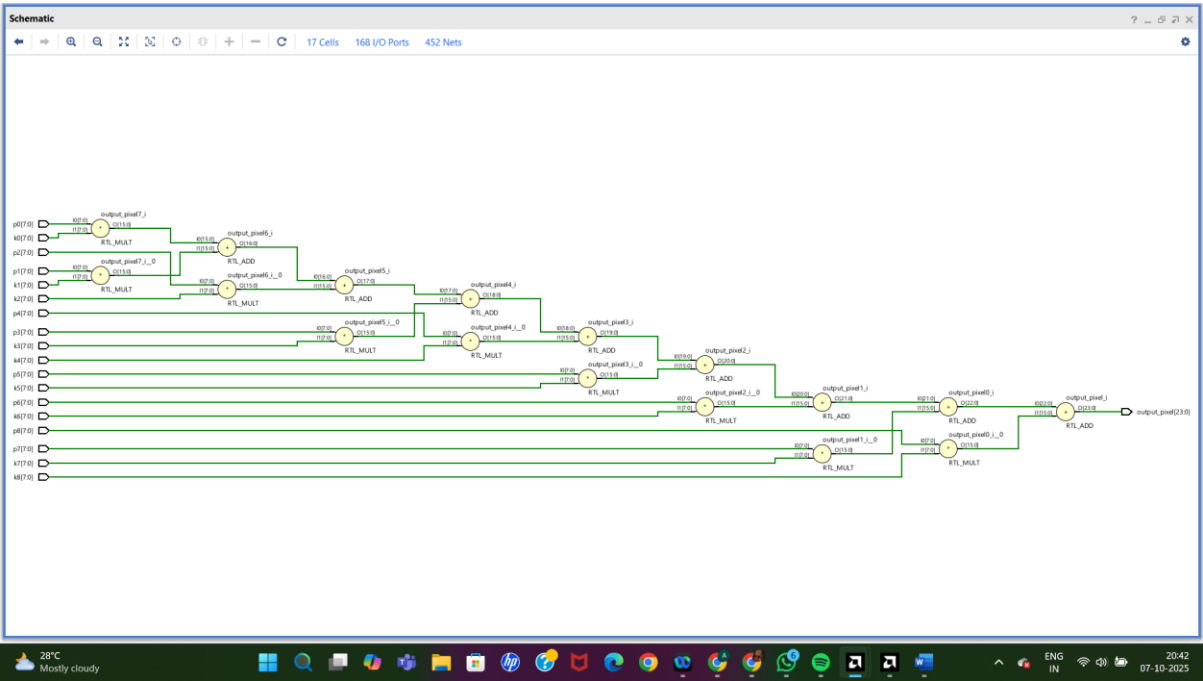


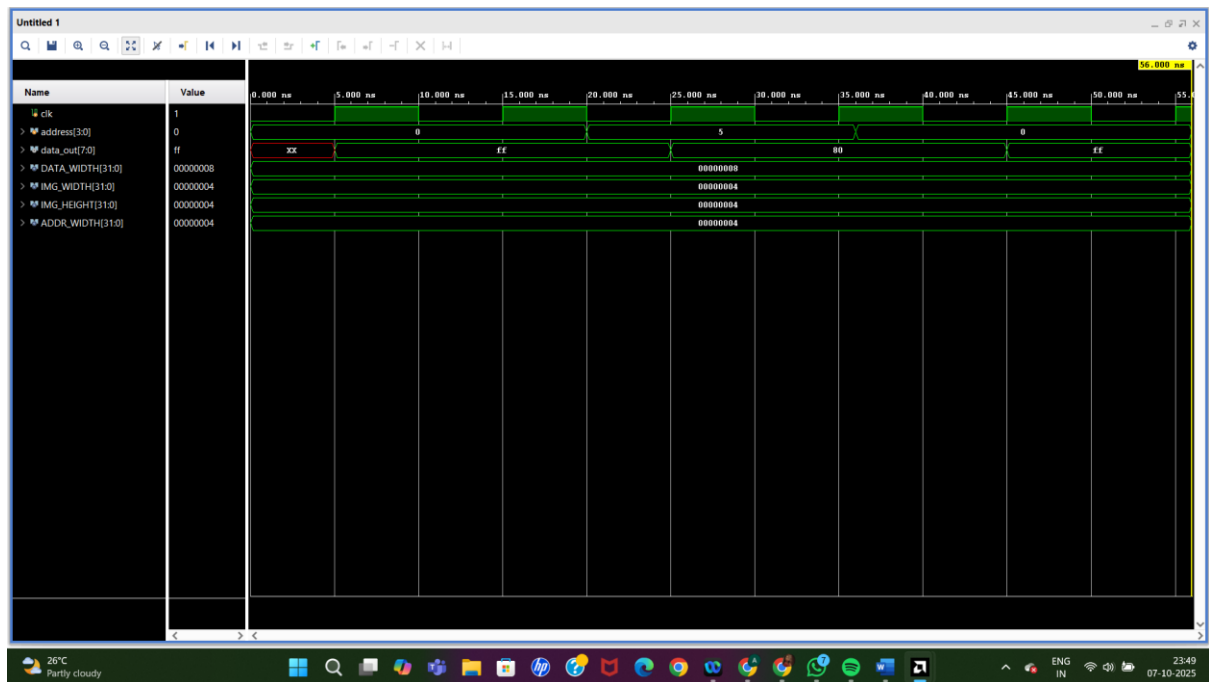
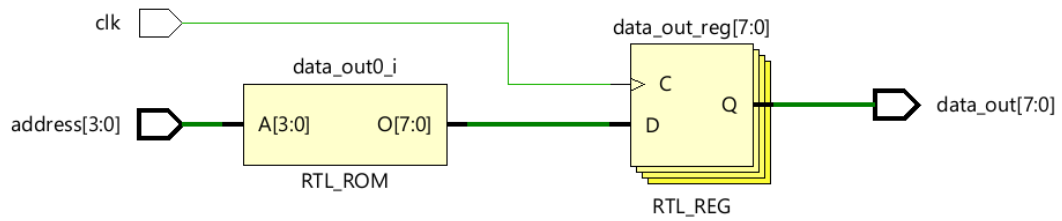
Convolutional Neural Network (CNN) Layer Accelerator

Single pixel convolution

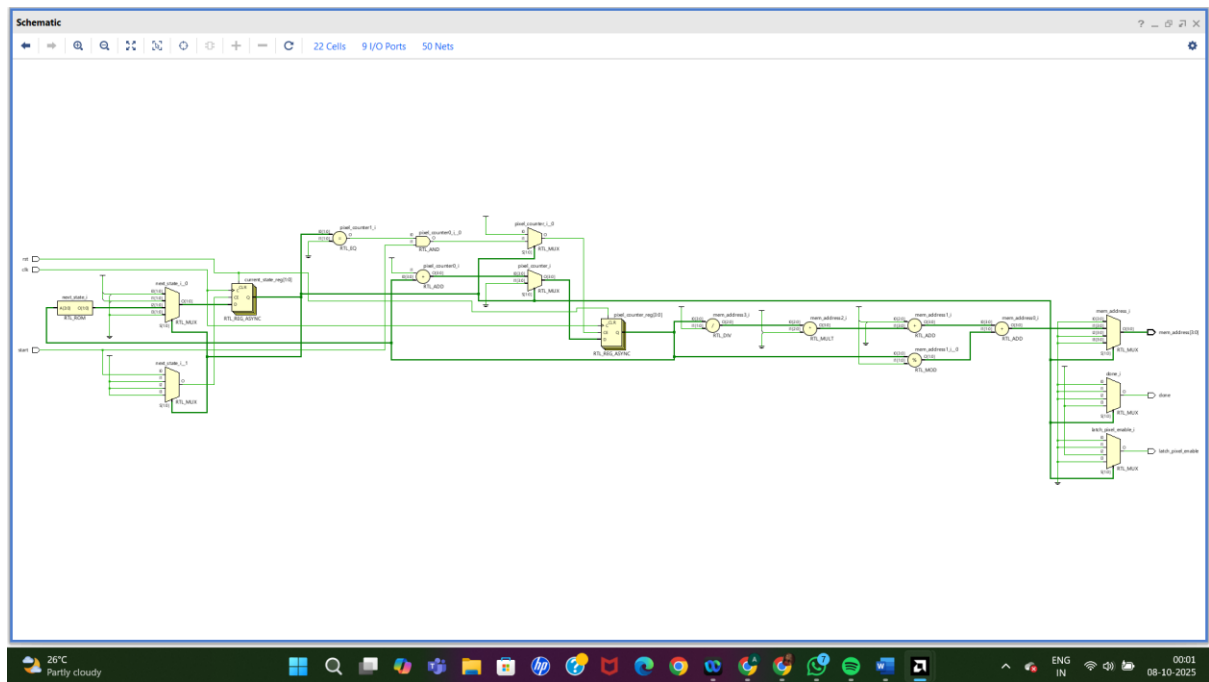


Output in hex, 00001b= 16+11 =27

Image memory



Control Unit



```
# run 1000ns
Time=0 | State=0, Counter= 0, Address= 0, LatchEnable=0, Done=0
Time=35000 | State=1, Counter= 0, Address= 5, LatchEnable=0, Done=0
Time=45000 | State=2, Counter= 0, Address= 0, LatchEnable=1, Done=0
Time=55000 | State=1, Counter= 1, Address= 6, LatchEnable=0, Done=0
Time=65000 | State=2, Counter= 1, Address= 0, LatchEnable=1, Done=0
Time=75000 | State=1, Counter= 2, Address= 7, LatchEnable=0, Done=0
Time=85000 | State=2, Counter= 2, Address= 0, LatchEnable=1, Done=0
Time=95000 | State=1, Counter= 3, Address= 9, LatchEnable=0, Done=0
Time=105000 | State=2, Counter= 3, Address= 0, LatchEnable=1, Done=0
Time=115000 | State=1, Counter= 4, Address=10, LatchEnable=0, Done=0
Time=125000 | State=2, Counter= 4, Address= 0, LatchEnable=1, Done=0
Time=135000 | State=1, Counter= 5, Address=11, LatchEnable=0, Done=0
Time=145000 | State=2, Counter= 5, Address= 0, LatchEnable=1, Done=0
Time=155000 | State=1, Counter= 6, Address=13, LatchEnable=0, Done=0
Time=165000 | State=2, Counter= 6, Address= 0, LatchEnable=1, Done=0
Time=175000 | State=1, Counter= 7, Address=14, LatchEnable=0, Done=0
Time=185000 | State=2, Counter= 7, Address= 0, LatchEnable=1, Done=0
Time=195000 | State=1, Counter= 8, Address=15, LatchEnable=0, Done=0
Time=205000 | State=2, Counter= 8, Address= 0, LatchEnable=1, Done=0
Time=215000 | State=3, Counter= 9, Address= 0, LatchEnable=0, Done=1
Time=225000 | State=0, Counter= 9, Address= 0, LatchEnable=0, Done=0
Test complete.
$finish called at time : 235 ns : File "C:/Users/Anumita Samaddar/cnn_layer_accelerat
```

Convolution accelerator

