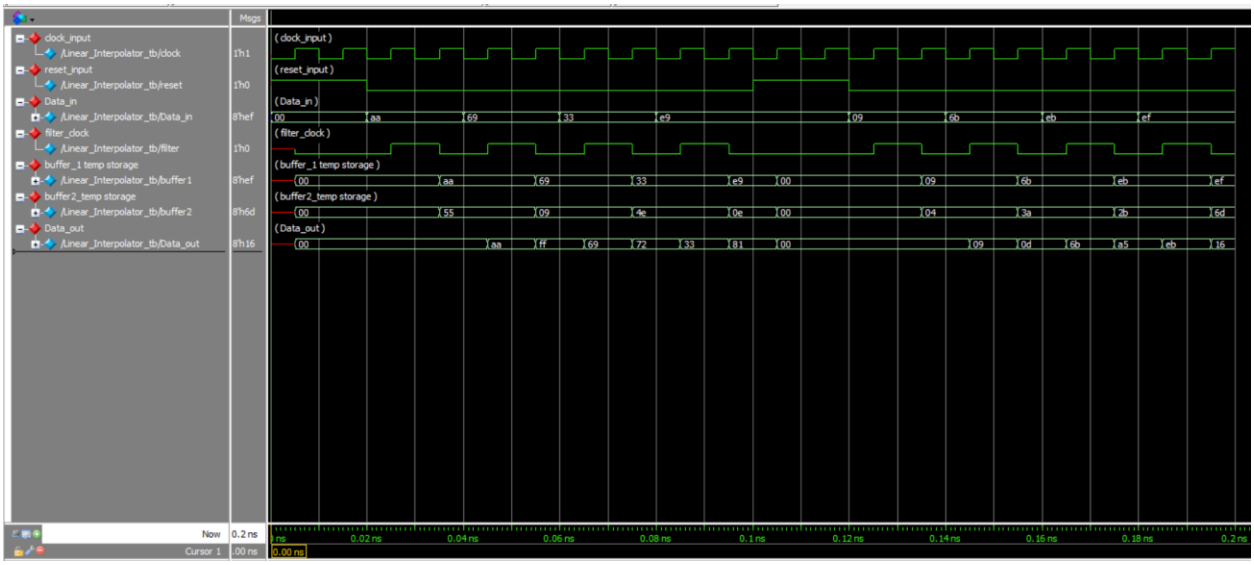
Output table

```
# @ Time =                5 Data_in =   0 Filter = x  Buffer1 =   x  Buffer2 =   x  Data_out =   x
# @ Time =               15 Data_in =   0 Filter = 0  Buffer1 =   0  Buffer2 =   0  Data_out =   0
# @ Time =               25 Data_in = 170 Filter = 0  Buffer1 =   0  Buffer2 =   0  Data_out =   0
# @ Time =               35 Data_in = 170 Filter = 1  Buffer1 =   0  Buffer2 =   0  Data_out =   0
# @ Time =               45 Data_in = 105 Filter = 0  Buffer1 = 170  Buffer2 =  85  Data_out =   0
# @ Time =               55 Data_in = 105 Filter = 1  Buffer1 = 170  Buffer2 =  85  Data_out = 170
# @ Time =               65 Data_in =  51 Filter = 0  Buffer1 = 105  Buffer2 =   9  Data_out = 255
# @ Time =               75 Data_in =  51 Filter = 1  Buffer1 = 105  Buffer2 =   9  Data_out = 105
# @ Time =               85 Data_in = 233 Filter = 0  Buffer1 =  51  Buffer2 =  78  Data_out = 114
# @ Time =               95 Data_in = 233 Filter = 1  Buffer1 =  51  Buffer2 =  78  Data_out =  51
# @ Time =              105 Data_in = 233 Filter = 0  Buffer1 = 233  Buffer2 =  14  Data_out = 129
# @ Time =              115 Data_in = 233 Filter = 0  Buffer1 =   0  Buffer2 =   0  Data_out =   0
# @ Time =              125 Data_in =   9 Filter = 0  Buffer1 =   0  Buffer2 =   0  Data_out =   0
# @ Time =              135 Data_in =   9 Filter = 1  Buffer1 =   0  Buffer2 =   0  Data_out =   0
# @ Time =              145 Data_in = 107 Filter = 0  Buffer1 =   9  Buffer2 =   4  Data_out =   0
# @ Time =              155 Data_in = 107 Filter = 1  Buffer1 =   9  Buffer2 =   4  Data_out =   9
# @ Time =              165 Data_in = 235 Filter = 0  Buffer1 = 107  Buffer2 =  58  Data_out =  13
# @ Time =              175 Data_in = 235 Filter = 1  Buffer1 = 107  Buffer2 =  58  Data_out = 107
# @ Time =              185 Data_in = 239 Filter = 0  Buffer1 = 235  Buffer2 =  43  Data_out = 165
# @ Time =              195 Data_in = 239 Filter = 1  Buffer1 = 235  Buffer2 =  43  Data_out = 235
```

Bitwave



Summary:

- @ reset everything goes to zero exception Data_in, since Data_in is coming from an external source
- when the filter is high perform the following
    - set buffer1 to store the Data_in values
    - set buffer2 to interpolate (average) current Data_in with buffer1
    - set Data_out to be combination of buffer1 and buffer2
- when the filter is low or not active
    - set Data_out to be the current value of buffer1

- The above logic shows that Data_in is always filtered before getting to Data_out. Data_out only reads from buffer1 and buffer2