|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Present State | | | | | Next State | | | | | FF Inputs | | | | |
| sA0 | A1 | A2 | A3 | A4 | A0(t+1) | A1(t+1) | A2(t+1) | A3(t+1) | A4(t+1) | D(A0) | D(A1) | D(A2) | D(A3) | D(A4) |
| 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 |
| 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 |
| 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 |
| 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| 1 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| 1 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |

D(A1)

D(A0)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 00 | 01 | 11 | 10 |
| 000 | 0 | 0 | 0 | 0 |
| 001 | 0 | 0 | 0 | 0 |
| 011 | 0 | 0 | 1 | 0 |
| 010 | 0 | 0 | 0 | 0 |
| 100 | 0 | 0 | 0 | 0 |
| 101 | 0 | 0 | 0 | 0 |
| 111 | 0 | 0 | 0 | 0 |
| 110 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 00 | 01 | 11 | 10 |
| 000 | 1 | 1 | 1 | 1 |
| 001 | 1 | 1 | 1 | 1 |
| 011 | 1 | 1 | 0 | 1 |
| 010 | 1 | 1 | 1 | 0 |
| 100 | 1 | 1 | 1 | 1 |
| 101 | 1 | 1 | 1 | 1 |
| 111 | 1 | 1 | 1 | 1 |
| 110 | 1 | 1 | 1 | 1 |



D(A2)



D(A3)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 00 | 01 | 11 | 10 |
| 000 | 0 | 0 | 0 | 0 |
| 001 | 0 | 0 | 0 | 0 |
| 011 | 0 | 0 | 0 | 0 |
| 010 | 0 | 1 | 0 | 0 |
| 100 | 0 | 0 | 0 | 0 |
| 101 | 0 | 0 | 0 | 0 |
| 111 | 0 | 0 | 0 | 0 |
| 110 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 00 | 01 | 11 | 10 |
| 000 | 0 | 0 | 0 | 0 |
| 001 | 0 | 0 | 0 | 0 |
| 011 | 0 | 0 | 0 | 0 |
| 010 | 0 | 1 | 0 | 1 |
| 100 | 0 | 1 | 0 | 0 |
| 101 | 0 | 0 | 0 | 0 |
| 111 | 0 | 0 | 0 | 0 |
| 110 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 00 | 01 | 11 | 10 |
| 000 | 1 | 1 | 1 | 1 |
| 001 | 1 | 1 | 1 | 1 |
| 011 | 1 | 1 | 1 | 1 |
| 010 | 1 | 1 | 1 | 0 |
| 100 | 1 | 0 | 1 | 1 |
| 101 | 1 | 1 | 1 | 1 |
| 111 | 1 | 1 | 1 | 1 |
| 110 | 1 | 1 | 1 | 1 |

D(A4)



# EQUATIONS:



D(A0) = A0.’A1.A2.A3.A4

D(A1) =A1’ + A3’ + A0 + A2’.A4 + A2.A4’

D(A2)=A0’.A1.A2’.A3’.A4



D(A3)=A0’.A1.A2’.A3’.A4 + A0’.A1.A2’.A3.A4’ + A0.A1’.A2’.A3’.A4



D(A4)=A2 + A0’.A1’ + A3.A4 + A1.A3’ + A0.A4’