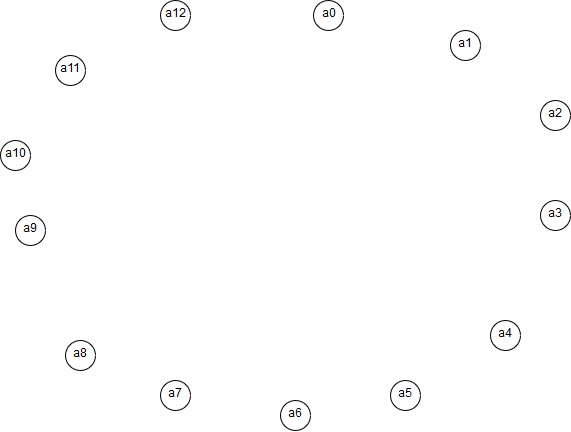
Седов Максим Дмитриевич ИВТ-21

Кодирование внутренних состояний на RS-триггерах



|  |
| --- |
| ~~0 0~~  ~~0 1~~  0 5  0 8  0 11  ~~1 0~~  1 2  2 0  2 3  2 6  3 4  3 9  4 2  4 3  5 7  6 4  6 7  6 12  7 5  7 6  7 8  7 11  8 7  9 7  9 8  9 10  10 9  ~~10 10~~  10 11  11 2  11 5  11 10  12 0  12 4  12 6  12 11 |

|  |
| --- |
| 0 5  0 8  0 11  1 2  2 0  2 3  2 6  3 4  3 9  4 2  4 3  5 7  6 4  6 7  6 12  7 5  7 6  7 8  7 11  8 7  9 7  9 8  9 10  10 9  10 11  11 2  11 5  11 10  12 0  12 4  12 6  12 11 |

**a0 = 0000**

**a1 = 0001**

|  |
| --- |
| 3 4  4 2  4 3  6 4  12 4 |

**M** =

**M4 =**

**M’ =**

B4 = {0,1} = {0000, 0001} W0010 = |0010+0000| + |0010+0001| = 3

C10 = {0010, 0100, 1000} W0100 = |0100+0000| + |0100+0001| = 3

C11 = {0011, 0101, 1001} W1000 = |1000+0000| + |1000+0001| = 3

D14 = {0010, 0100, 1000, W0011 = |0011+0000| + |0011+0001| = 3

0011, 0101, 1001} W0101 = |0101+0000| + |0101+0001| = 3

W1001 = |1001+0000| + |1001+0001| = 3

|  |
| --- |
| 0 5  0 8  0 11  1 2  2 0  2 3  2 6  3 4  3 9  4 2  4 3  5 7  6 4  6 7  6 12  7 5  7 6  7 8  7 11  8 7  9 7  9 8  9 10  10 9  10 11  11 2  11 5  11 10  ~~12 0~~  ~~12 4~~  12 6  12 11 |

**a4 = 0010**

|  |
| --- |
| 6 12  12 0  12 4  12 6  12 11 |

**M12 =**

B12 = {0, 4} = {0000, 0010}

C10 = {0100, 1000}

C14 = {0011, 0110, 1010}

D112 = {0100, 1000, 0011, 0110, 1010}

W0100 = |0100+0000| + |0100+0010| = 3

W1000 = |1000+0000| + |1000+0010| = 3

W0011 = |0011+0000| + |0011+0010| = 3

W0110 = |0110+0000| + |0110+0010| = 3

W1010 = |1010+0000| + |1010+0010| = 3

**a12 = 0100**

**M’’ =**

|  |
| --- |
| 0 5  0 8  0 11  ~~1 2~~  ~~2 0~~  2 3  2 6  3 4  3 9  ~~4 2~~  4 3  5 7  6 4  6 7  6 12  7 5  7 6  7 8  7 11  8 7  9 7  9 8  9 10  10 9  10 11  11 2  11 5  11 10  12 6  12 11 |

|  |
| --- |
| 1 2  2 0  2 3  2 6  4 2  11 2 |

**M’’’ =**

**M2 =**

B2 = {0, 1, 4} = {0000, 0001, 0010}

C10 = {1000}

C11 = {0011, 0101, 1001}

C14 = {0011, 0110, 1010}

D12 = {1000, 0011, 0101, 1001, 0110, 1010}

W1000 = |1000+0000| + |1000+0001| + |1000+0010| = 5

W0011 = |0011+0000| + |0011+0001| + |0011+0010| = 4

W0101 = |0101+0000| + |0101+0001| + |0101+0010| = 5

W1001 = |1001+0000| + |1001+0001| + |1001+0010| = 5

W0110 = |0110+0000| + |0110+0001| + |0110+0010| = 5

W1010 = |1010+0000| + |1010+0001| + |1010+0010| = 5

**a2 = 0011**

|  |
| --- |
| 0 5  0 8  0 11  ~~2 3~~  2 6  ~~3 4~~  3 9  ~~4 3~~  5 7  6 4  6 7  6 12  7 5  7 6  7 8  7 11  8 7  9 7  9 8  9 10  10 9  10 11  11 2  11 5  11 10  12 6  12 11 |

|  |
| --- |
| 2 3  3 4  3 9  4 3 |

B3 = {2, 4} = {0011, 0010}

C12 = {0111, 1011}

C14 = {0110, 1010}

D13 = {0111, 1011, 0110, 1010}

W0111 = |0111+0011| + |0111+0010| = 3

W1011 = |1011+0011| + |1011+0010| =3

W0110 = |0110+0011| + |0110+0010| =3

W1010 = |1010+0011| + |1010+0010| =3

**a3 = 0111**

**M3 =**

**M’’’’ =**

|  |
| --- |
| 0 5  0 8  ~~0 11~~  2 6  3 9  5 7  6 4  6 7  6 12  7 5  7 6  7 8  7 11  8 7  9 7  9 8  9 10  10 9  10 11  ~~11 2~~  11 5  11 10  12 6  ~~12 11~~ |

|  |
| --- |
| 0 11  7 11  10 11  11 2  11 5  11 10  12 11 |

B11 = {0, 2, 12} = {0000, 0011, 0100}

C10 = {1000}

C12 = {1011}

C112 = {0101, 0110, 1100}

D111 = {1000, 1011, 0101, 0110, 1100}

W1000 = |1000+0000| + |1000+0011| + |1000+0100| = 6

W1011 = |1011+0000| + |1011+0011| + |1011+0100| = 8

W0101 = |0101+0000| + |0101+0011| + |0101+0100| = 5

W0110 = |0110+0000| + |0110+0011| + |0110+0100| = 5

W1100 = |1100+0000| + |1100+0011| + |1100+0100| = 5

**a11 = 0101**

**M11 =**

**M’’’’’ =**

|  |
| --- |
| 2 6  6 4  6 7  6 12  7 6  12 6 |

|  |
| --- |
| 0 5  0 8  ~~2 6~~  3 9  5 7  ~~6 4~~  6 7  ~~6 12~~  7 5  7 6  7 8  7 11  8 7  9 7  9 8  9 10  10 9  10 11  11 5  11 10  ~~12 6~~ |

|  |
| --- |
| 0 5  0 8  3 9  5 7  6 7  7 5  7 6  7 8  7 11  8 7  9 7  9 8  9 10  10 9  ~~10 11~~  11 5  ~~11 10~~ |

|  |
| --- |
| 9 10  10 9  10 11  11 10 |

B10 = {11} = {0101}

C111 = {1101}

D110 = {1101}

W1101 = |1101+0101| = 1

**a10 = 1101**

**M10 =**

**MVII =**

**MVI =**

B6 = {2, 4, 12} = {0011, 0010, 0100}

C12 = {1011}

C14 = {0110, 1010}

C112 = {0110, 1100}

D16 = {0110, 1010, 1100}

W0110 = |0110+0011| + |0110+0010| + |0110+0100| = 4

W1010 = |1010+0011| + |1010+0010| + |1010+0100| = 6

W1100 = |1100+0011| + |1100+0010| + |1100+0100| = 8

**a6 = 0110**

**M6 =**

|  |
| --- |
| 0 5  0 8  ~~3 9~~  5 7  6 7  7 5  7 6  7 8  7 11  8 7  9 7  9 8  ~~9 10~~  ~~10 9~~  11 5 |

|  |
| --- |
| 3 9  9 7  9 8  9 10  10 9 |

|  |
| --- |
| 0 5  0 8  5 7  ~~6 7~~  7 5  ~~7 6~~  7 8  ~~7 11~~  8 7  ~~9 7~~  9 8  11 5 |

|  |
| --- |
| 5 7  6 7  7 5  7 6  7 8  7 11  8 7  9 7 |

B7 = {6, 9, 11} = {0110, 1111, 0101}

C16 = {1110}

C19 = {1011}

C111 = {Ø}

D17 = {1110, 1011}

W1110 = |1110+0110| + |1110+1111| + |1110+0101| = 5

W1011 = |1011+0110| + |1011+1111| + |1011+0101| = 7

**a7 = 1110**

**M7 =**

**MIX =**

B9 = {3, 10} = {0111, 1101}

C13 = {1111}

C110 = {1111}

D19 = {1111}

W1111 = |1111+0111| + |1111+1101| = 2

**a9 = 1111**

**M9 =**

**MVIII =**

|  |
| --- |
| ~~0 5~~  0 8  ~~5 7~~  ~~7 5~~  7 8  8 7  9 8  ~~11 5~~ |

|  |
| --- |
| 0 5  5 7  7 5  11 5 |

|  |
| --- |
| ~~0 8~~  ~~7 8~~  ~~8 7~~  ~~9 8~~ |

|  |
| --- |
| 0 8  7 8  8 7  9 8 |

B8 = {0, 7, 9} = {0000, 1110, 1111}

C10 = {1000}

C17 = {1010}

C19 = {1011}

D18 = {1000, 1010, 1011}

W1000 = |1000+0000| + |1000+1110| + |1000+1111| = 6

W1010 = |1010+0000| + |1010+1110| + |1010+1111| = 5

W1011 = |1011+0000| + |1011+1110| + |1011+1111| = 6

**a8 = 1010**

B5 = {0, 7, 11} = {0000, 1110, 0101}

C10 = {1000}

C17 = {1100, 1010}

C111 = {Ø}

D15 = {1000, 1100, 1010}

W1000 = |1000+0000| + |1000+1110| + |1000+0101| = 6

W1100 = |1100+0000| + |1100+1110| + |1100+0101| = 5

W1010 = |1010+0000| + |1010+1110| + |1010+0101| = 8

**a5 = 1100**

**M8 =**

**MXI =**

**M5 =**

**MX =**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Состояние | a0 | a1 | a2 | a3 | a4 | a5 |
| Код | 0000 | 0001 | 0011 | 0111 | 0010 | 1100 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Состояние | a6 | a7 | a8 | a9 | a10 | a11 | a12 |
| Код | 0110 | 1110 | 1010 | 1111 | 1101 | 0101 | 0100 |

**K=41/34 = 1,2**