DATAWHITE register. The reset value for the DATAWHITE.POLY field is compatible with Bluetooth Low Energy. The initial vector is configured in DATAWHITE.IV.
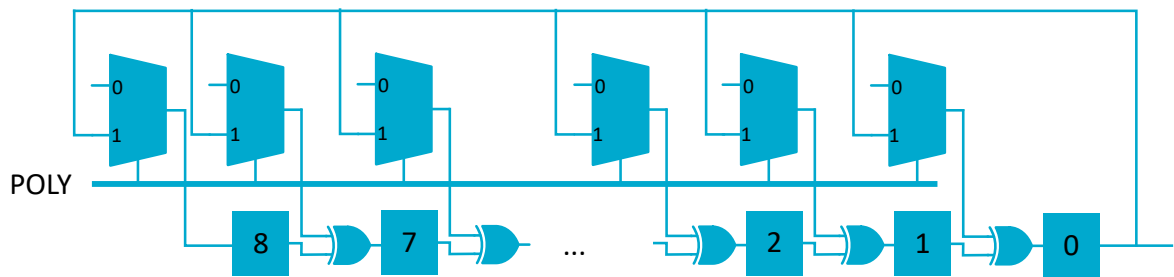

Figure 112: Data whitening and de-whitening

Whitening and de-whitening will be performed over the whole packet except for the preamble and the address fields.

Including the address field in CRC check (CRCCNF.SKIPADDR = Include) is not supported for whitened packets.

8.17.4 CRC

The cyclic redundancy check (CRC) generator in RADIO calculates the CRC over the whole packet excluding the preamble.

The device also supports excluding the address field from the CRC calculation, see the CRCCNF.SKIPADDR register for more information.

The CRC polynomial is configurable as illustrated in the following figure, where bit 0 in the register CRCPOLY corresponds to X^0 and bit n corresponds to X^n. See CRCPOLY on page 545 for more information.
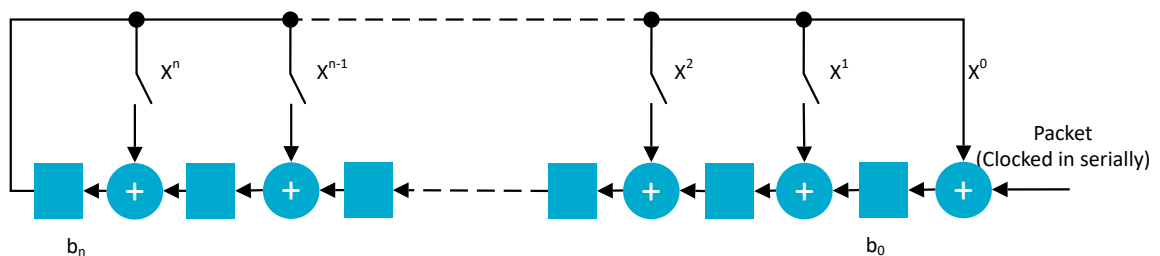

Figure 113: n bit CRC generation

The figure shows that the CRC is calculated by feeding the packet serially through the CRC generator. Before the packet is clocked through the CRC generator, the CRC generator's latches $b_{[0..n]}$ will be initialized with a predefined value specified in the register CRCINIT. After the whole packet has been clocked through the CRC generator, $b_{[0..n]}$ will hold the resulting CRC. This value will be used by RADIO during both transmission and reception. The CPU cannont read latches $b_{[0..n]}$ at any time. However, a received CRC can be read by the CPU via the register RXCRC.

The length (n) of the CRC is configurable, see CRCCNF for more information.

When the entire packet including the CRC has been received, and no errors were detected, RADIO generates the event CRCOK. If CRC errors were detected, the event CRCERROR is generated.

The CRC check status can be read from the register CRCSTATUS after a packet has been received.

8.17.5 Radio states

Tasks and events are used to control the operating state of RADIO when in RX mode or TX mode.

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