



CAN RECEIVER

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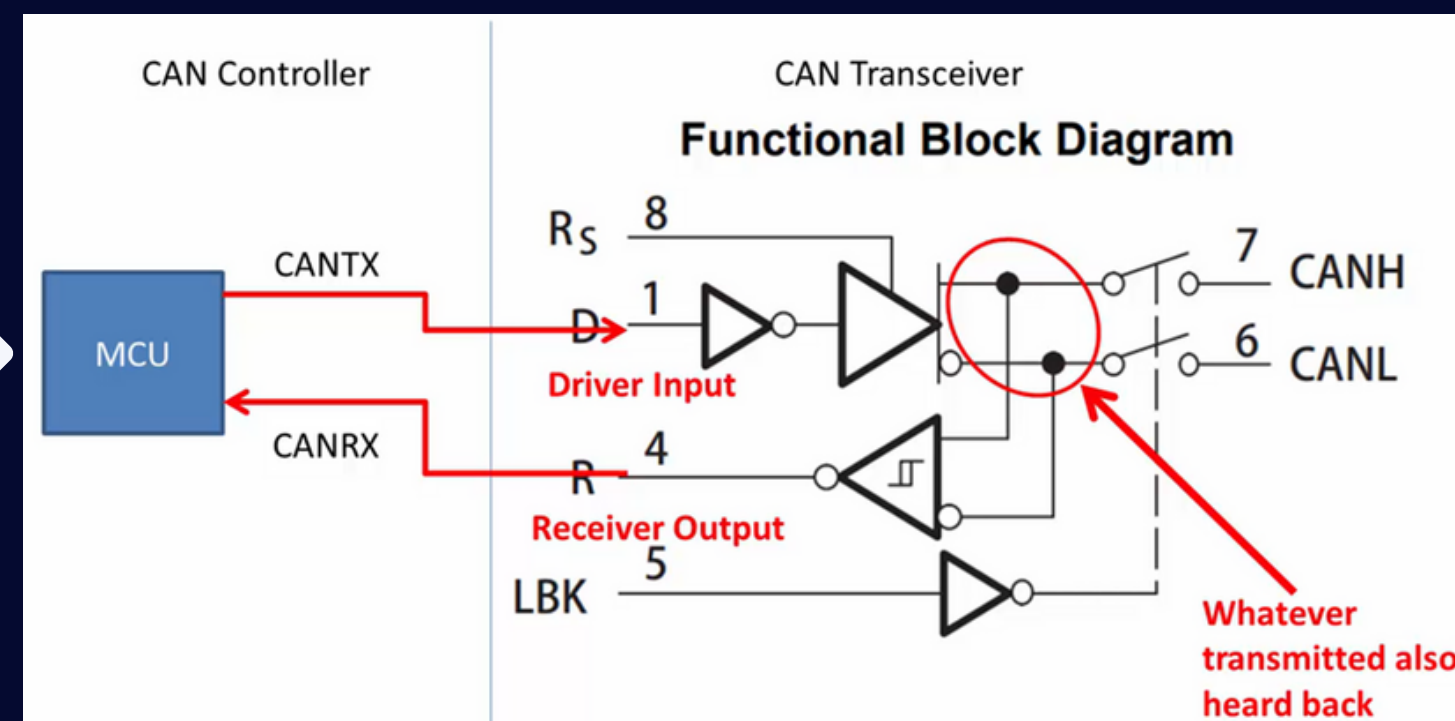
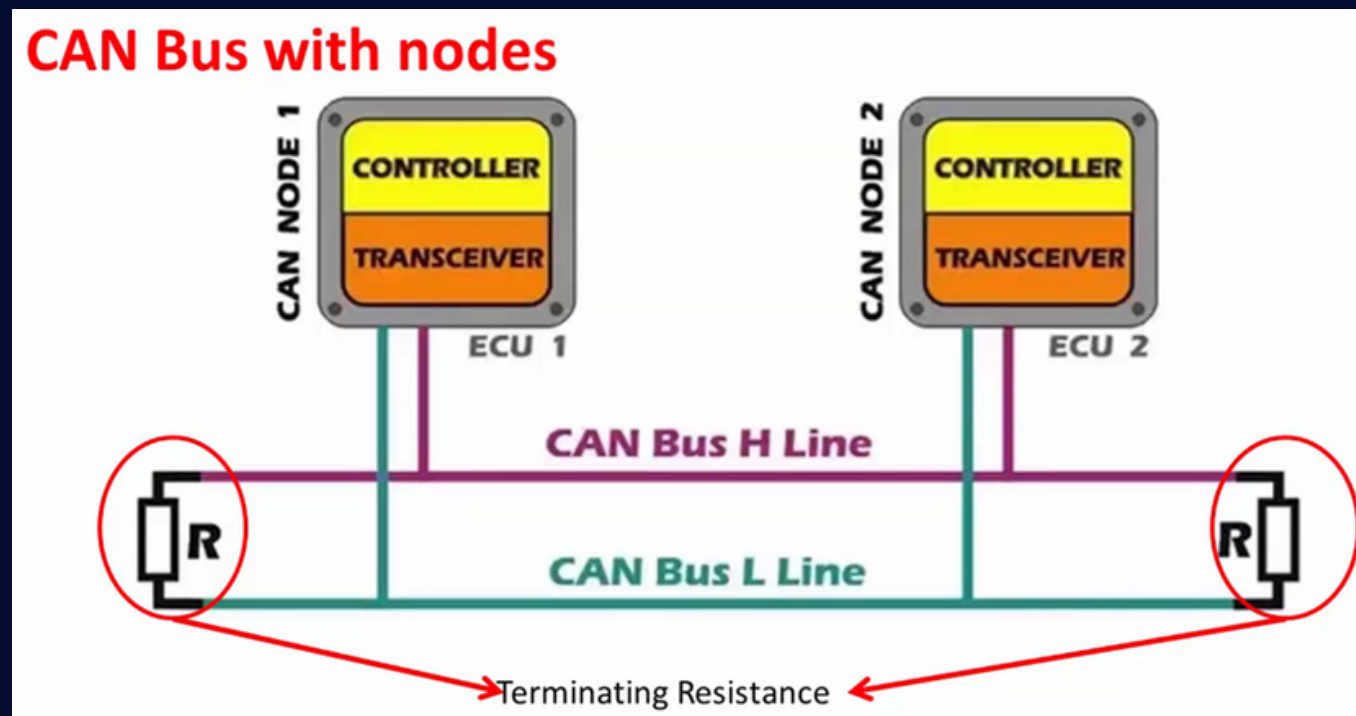
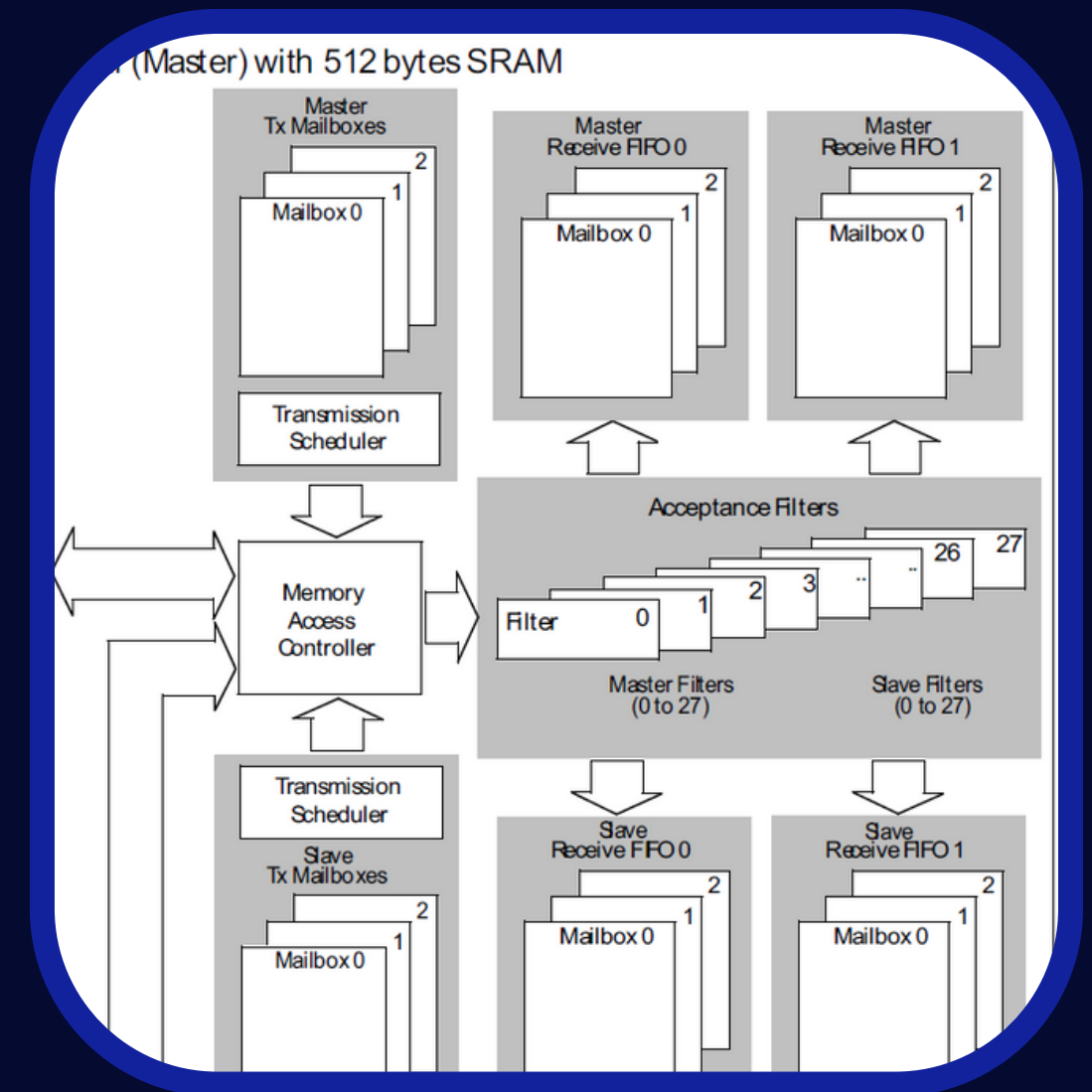
FEATURES

- 2 receive FIFOs with 3 stages
- Scalable filter banks:
 - 28 filter banks shared between CAN1 and CAN2
- Identifier list feature
- Configurable FIFO overrun
- Time Stamp on OF reception

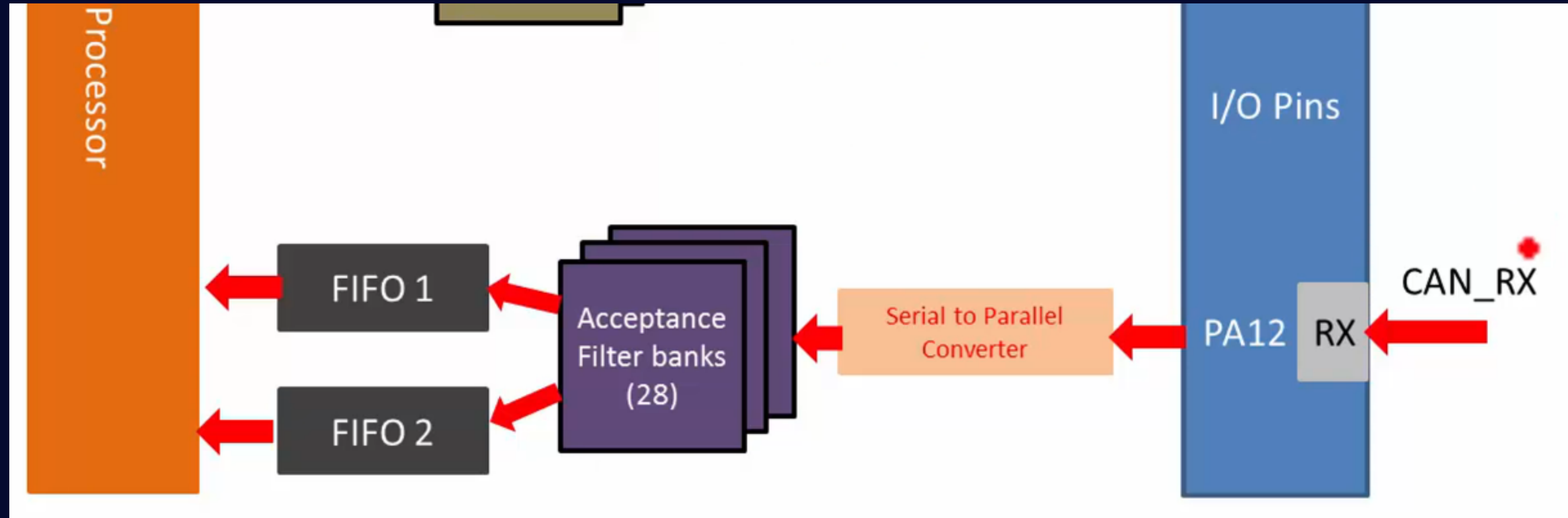
RX PATH

To understand reception we need to know the **PATH** that a message takes from the **BUS** to the **MCU**.

CAN BUS -> TRANSRECIVER -> CAN CONTROLLER (bxCAN)



The bxCAN RX PATH - Filtering

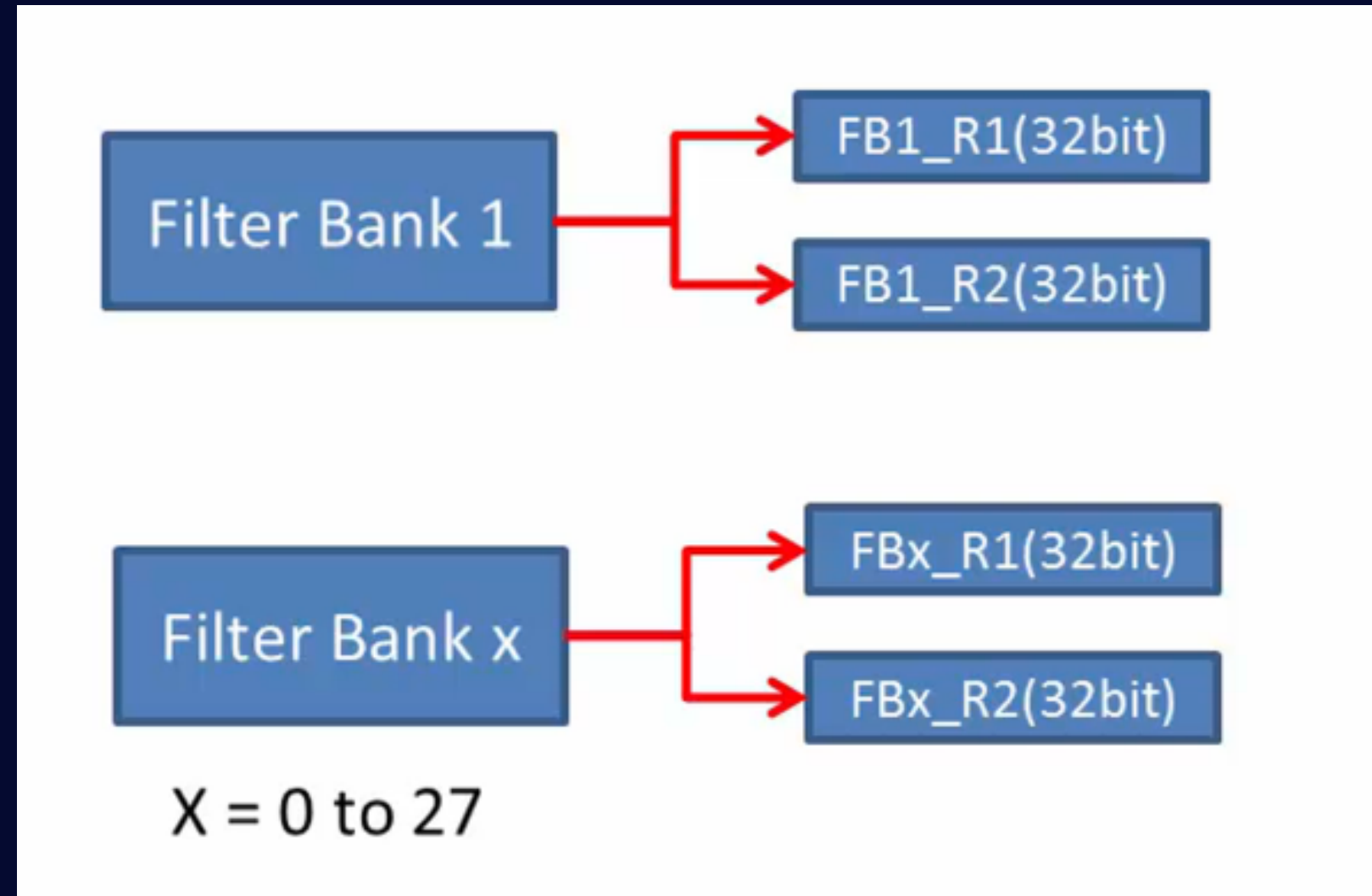


Filter banks is a hardware mechanism that can be programmed to ignore and discard certain CAN frames and allow other to pass on to the FIFOs.

There are 28 filter banks for CAN1&2 each with 2 32-bit registers

Filtering Banks are also used to prevent saturation of the CPU

The bxCAN RX PATH - Filtering



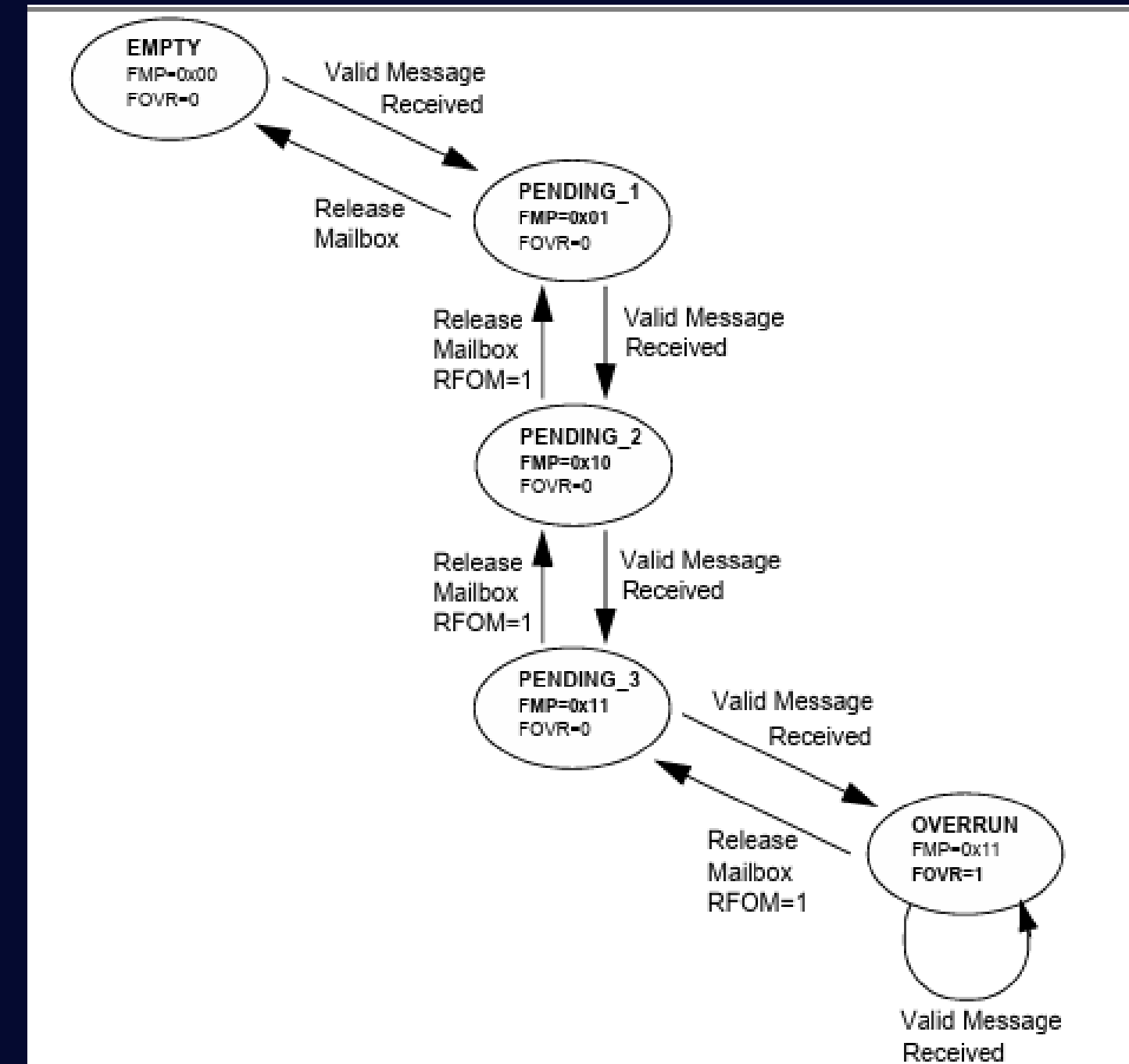
*There are 28 filter banks for CAN1&2 each with **two** 32-bit registers*

Examples:

- *Accept only extended id frames*
- *Accept only identifiers with hex value 0x02*

FIFO

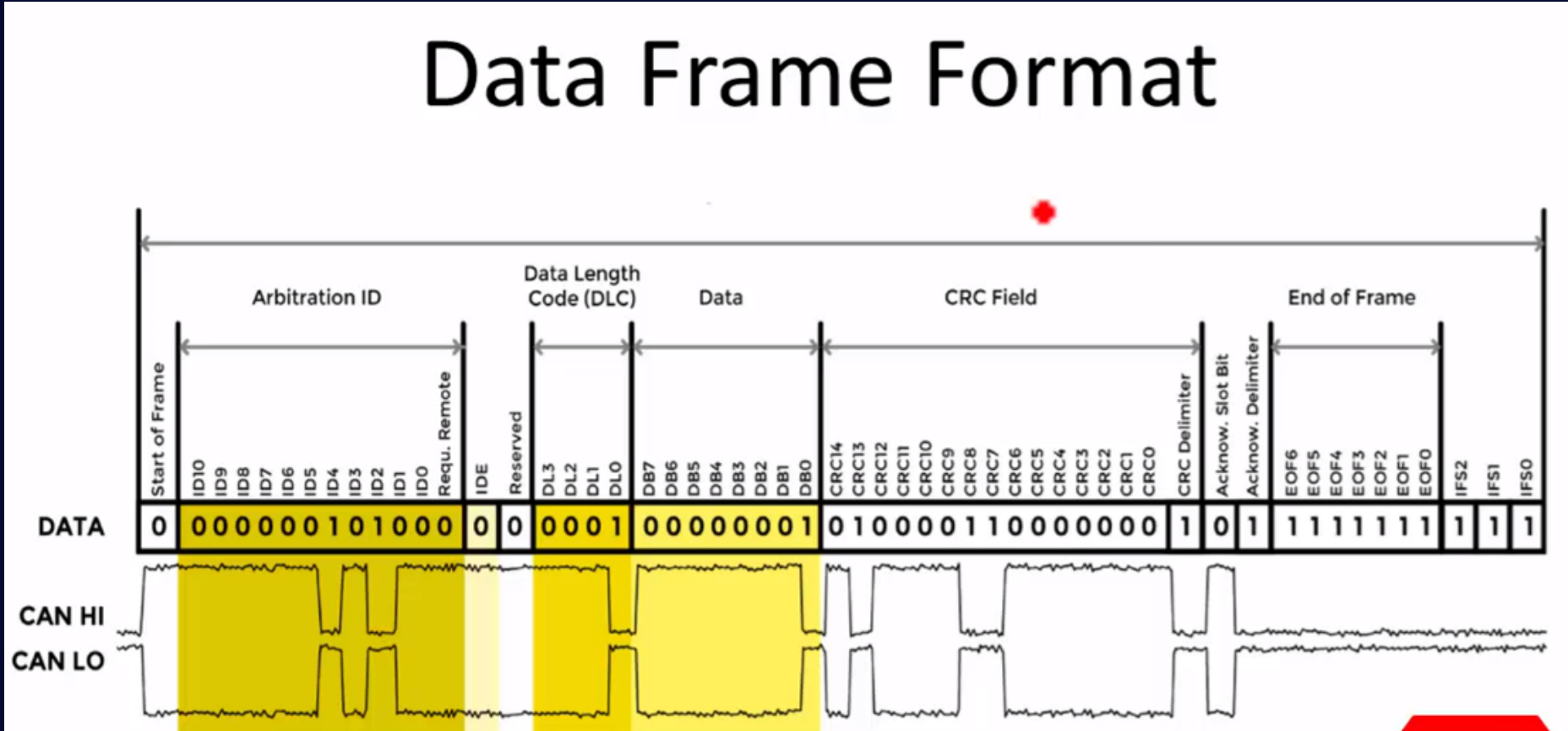
- For receiving we have 2 FIFOs (First in-First Out), these are used to store incoming messages.
 - 3 complete messages can be stored at each
 - Managed completely by hardware.
 - Reception Handling is more complex than the Transmission
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- The application accesses the messages stored in the FIFO through the FIFO output mailbox.
 - The important bit is the acknowledge field
 - When a message is stored, it becomes available in the FIFO output mailbox.
 - Once the software handles the message, the software must release the FOM, activating the CAN_RFR Reg to make the incoming message available.



- We can say that a message is valid when recieved according to the CAN protocol.
- The acknowledge field is controlled by the recieving node, the state of this field will tell us the outcome.
- The important bit is the acknowledge field

Offset to receive mailbox base address (bytes)	Register name
0	CAN_RIxR
4	CAN_RDTxR
8	CAN_RDLxR
12	CAN_RDHxR

- Depending on which register the mailbox is stored, we have a different offset to set to the software to read.





THANK YOU