A-006264: eTSEC may drop bytes in FIFO mode if frame matches a Control Frame ethertype

Affects: ETSEC

Description: When operating in FIFO mode, receive frames are processed as if they do not contain an L2 header unless RCTRL[bit 26]=1. When RCTRL[bit 26]=0, there should be no check for an ethertype field, but if parsing is disabled (RCTRL[PRSDEP]=00) the frame is erroneously checked for an ethertype field. If the 13th and 14th bytes of the frame match the Control Frame ethertype (0x8808), then the 13th-16th bytes of the frame may be dropped.

Note: For MPC8548, RCTRL[bit 26] is always 0 (zero) regardless of user programming.

Impact: The controller may silently drop four bytes starting at the 13th byte of a received frame if the 13th and 14th bytes are 0x88 and 0x08, respectively. This could cause unwanted behavior with upper-layer applications.

Workaround: Set RCTRL[bit 16]=1 when operating in FIFO mode with RCTRL[bit 26]=0. RCTRL[bit 16] is Control Frame Accept (CFA). RCTRL[bit 26] is FIFO Mode Parsing (PRSFM).

NOTE: For products that support L2 headers in FIFO mode, eTSEC does not support control frames in FIFO mode. So, if a user attempts to send a control frame to eTSEC, the same failure may occur – 4 bytes are deleted, but the frame is not dropped.

If PRSFM=1 and the Rx packet stream includes frames with ethertype=0x8808, then RCTRL[CFA] must be set to 1.

Fix plan: No plans to fix