

Preventing Learning in the MU9C8248 FDDI Interface

by Ray Parry

In FDDI rings using Transparent Bridging, foreign frames that have been copied on the ring by the bridge need to be stripped from the ring after they've come back around. The MAC chip takes care of the stripping by a variety of approaches, the most common being the use of Void frames prior to issuing the token. The MAC then strips all incoming frames until it recognizes the Void frame it sent out. But the bridge also needs to prevent learning the foreign SA, as if it were a new node on the ring needing to be added to the database. Since the MU9C8248 and MU9C1480 combination provide a fully automatic filtering and learning system for FDDI Source Routing and Transparent Bridging, connections to the MAC chip are needed to accomplish this. The MU9C8248 provides two signal lines, STRIP and STOP STRIP that can be connected to the MAC chips to prevent filtering and learning while the MAC chip is transmitting, and then to re-enable filtering and learning when the MAC chip is not transmitting.

STRIP and STOP STRIP operate in two ways depending on if they are pulses or levels, as shown in Figures 1a and 1b, and as represented logically in Figure 2:

1) STRIP and STOP STRIP are both pulses. When STRIP asserts, the MU9C8248 is prevented from filtering and learning (Routines 0 and 1 are stopped). Filtering and learning will be turned back on by the MU9C8248 when it detects a Void frame or a Token, or when the next frame's Start Delimiter is detected after STOP STRIP asserts.

2) STRIP is a level and STOP STRIP is held HIGH all the time. When STRIP is taken HIGH, filtering and learning are prevented. When STRIP goes LOW again, filtering and learning are enabled when the next frame's Start Delimiter is detected. Filtering and learning will also turn back on when the MU9C8248 detects a Void frame or a token.

NATIONAL Connection: For National's MAC devices with MyVoid frame mode turned on, the LEARN pin on the MAC can be inverted and connected to STRIP on the MU9C8248. STOP STRIP is tied HIGH.

AMD Connection: Use the "special mode" using Void frames. To stop filtering and learning, use XS2 (Transmit) from the MAC device to connect to STRIP on the MU9C8248. The MU9C8248 will turn filtering and learning back on again when it detects a Void frame or Token. Use XS0 AND (/XS1 AND /XS2) from the MAC to connect to STOP STRIP for aborted transmissions.

MOTOROLA Connection: Set the Bridge_Strip bit in the MAC_CNTRL_B register to send out a Void frame at the end of transmission. The MU9C8248 will recognize this Void frame to re-enable learning. To disable filtering and learning, STOP STRIP is tied LOW, and STRIP is connected to the "01" decode of the TXCTL (1-0) signals from the FSI, which indicates the start of Transmit. TABORT can be OR'd in as well to handle aborted transmissions. When STRIP goes HIGH, filtering and learning will be disabled in the MU9C8248. When the MU9C8248 detects a Void frame or a Token, filtering and learning will be turned back on.

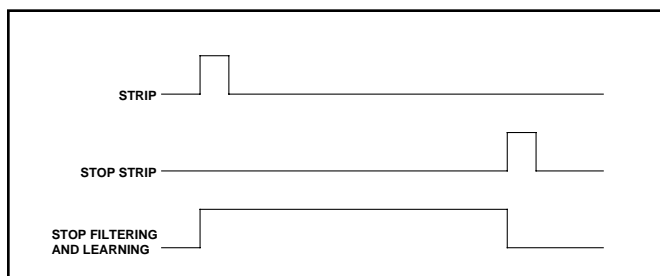


Figure 1a: STRIP and STOP STRIP Pulse Action

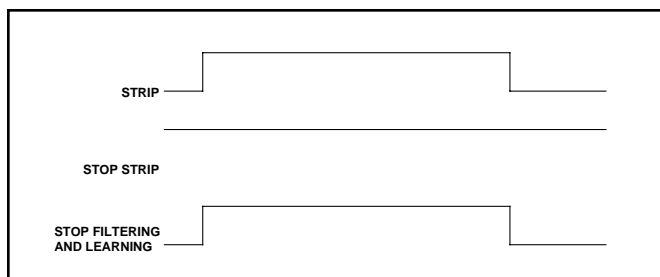


Figure 1b: STRIP and STOP STRIP Level Action

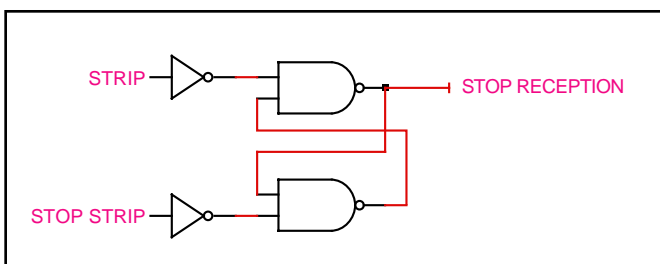


Figure 2: Logical Representation of STRIP Logic