Some SpaceWire Standard Problems
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SpaceWire Protocol Problems

In the course of SpaceWire implementation development and testing some mistakes were found in the ECSS-E-50-12A, 24. January 2003.

State machine:

1. **Transition from *Started* to *ErrorReset*.**
   The transition from *Started* to *ErrorReset* is impossible when *gotNULL* condition is set.

2. **Transition from *Connecting* to *Run*.**
   The transition from *Connecting* to *Run* shall be applied only after sending *FCT* to channel.

State machine: from Started to ErrorReset

The state machine never moves from *Started* to *ErrorReset*
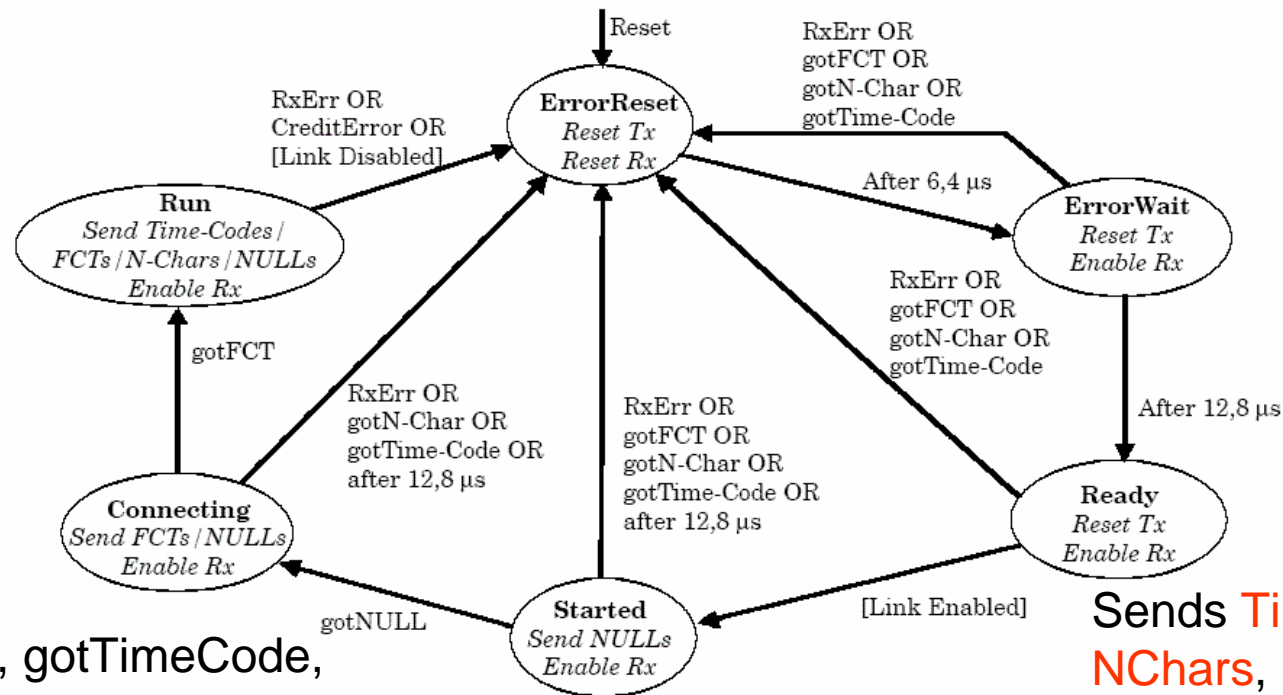by *gotFCT, gotNChar, gotTimeCode*
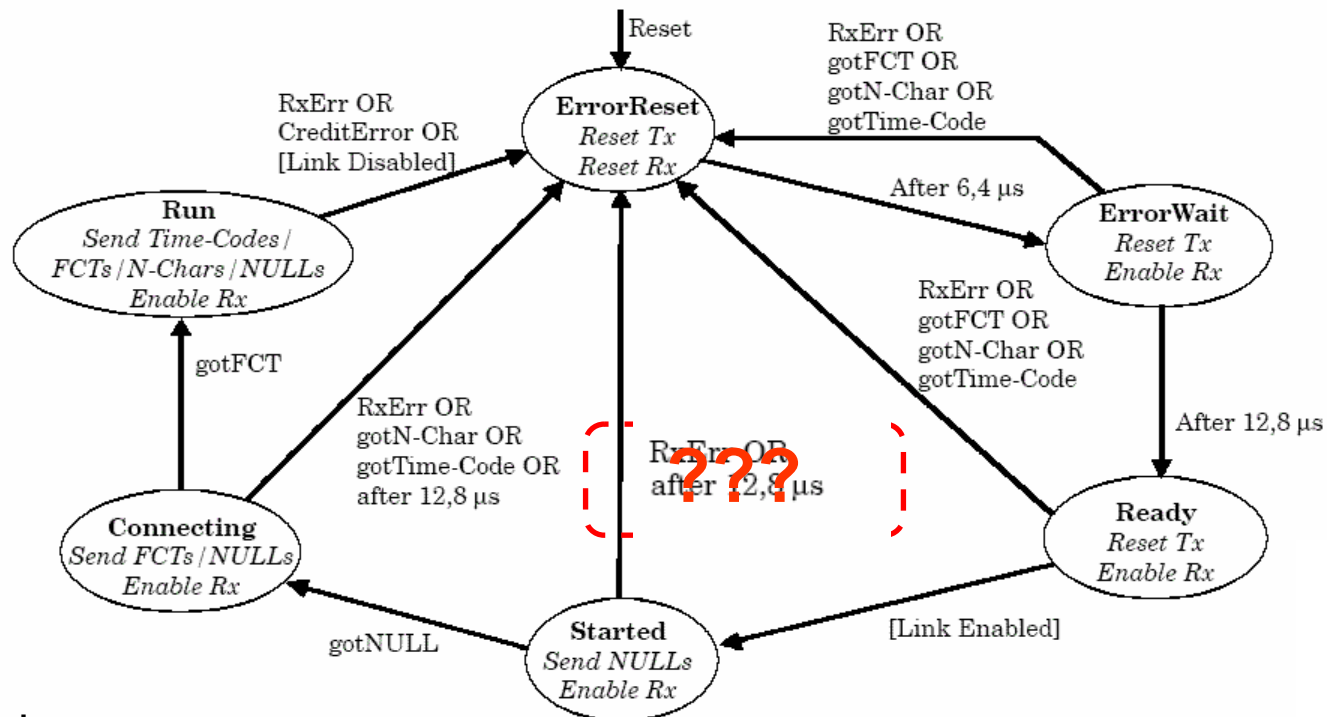
Standard:

Section 8.5.2.5.e, page 62: "The state machine shall move to the Connecting state if the gotNULL condition is set".

Section 8.5.2.5.g, page 62: "If, while in the Started state, a disconnection error is detected, ~~or if after the gotNULL condition is set, a parity error or escape error occurs, or any character other then a NULL is received~~, then the state machine shall move to the ErrorReset state".

State machine: from Connecting to Run

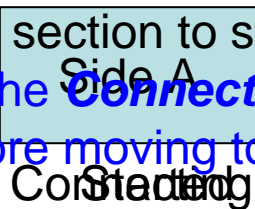According to section 8.5.2.6 (page 62) the state machine can move from Connecting to Run without sending FCT

gotNChar, gotTimeCode,
are errors

Sends Time-Codes, NChars, NULLs
without sending *FCT*s !

Add section to standard (8.5.2.6.e like 8.5.2.5.f):
"In the *Connecting* state at least one *FCT* shall be send from the transmitter before moving to the Run state."

Side A
Side B
NULL

Connecting
Started
FCT
NULL
Started
Connecting

The end.