

1.1 Transport layer state diagrams

1.1.1 Overview

The PC state machines interface with the link layer connection state machine(s) (the SAS link end point connection state SS link state machines) and the and the SSP, SMP, and STP transport layer state machines to establish port connections and disconnections. The PC connection contains three state machines that run in parallel to accomplish this.

The PC connection state machines are as follows:

- a) Receive and queue connection requests (R&Q state machine);
- b) Counters and timers (TMR state machine); and
- c) Control (Port control state machine).

The Target R&Q machine's purpose is to:

- a) Queue all of the Interlocked or Non Interlocked frame transmission requests to the specified destination port. For SSP initiator ports this consists of COMMAND, DATA, TASK, and AEN_RESPONSE frames, as well as SMP Request frames. For SSP target ports this consists of DATA, RESPONSE, XFER_RDY, and AEN frames, as well as SMP Response frames to all Initiators.
- b) Determine the priority of frame transmission;
- c) If not connected, initiate a connection sequence;
- d) If / (When) connected, indicate to the transport layer when a single frame transmission can occur;
- e) Notify the transport layer if a connection cannot be opened;
- f) For Targets Only, initialize and monitor the counters and timers supported in the Target's Disconnect-Reconnect control page;
- g) If a Disconnect-Reconnect counter or timer reaches the specification limit then initiate a Disconnect sequence and notify the transport layer. The transport layer will later request a new data transmission request to continue with the data transmission.
- h) If a Disconnect sequence is requested from the Transport layer, then initiate a disconnect sequence;
- i) Notify the transport layer if a connection has been exited (this also allows transport layer recovery for premature disconnections);
- j) If a DONE has been transmitted, do not allow another IU transmission until after the connection has been completely closed down (SL0 : Idle entered);
- k) If DONE's have been transmitted and received, or a CLOSE or BREAK has been either transmitted or received , do not allow any transmissions and ignore any receptions until after the connection has been completely closed down (SL0 : Idle entered); and
- l) Initiate a "Close Connection" function to ~~get request that~~ DONE be transmitted if the device is opened by a receive function and has nothing to transmit to this Initiator (or Target).

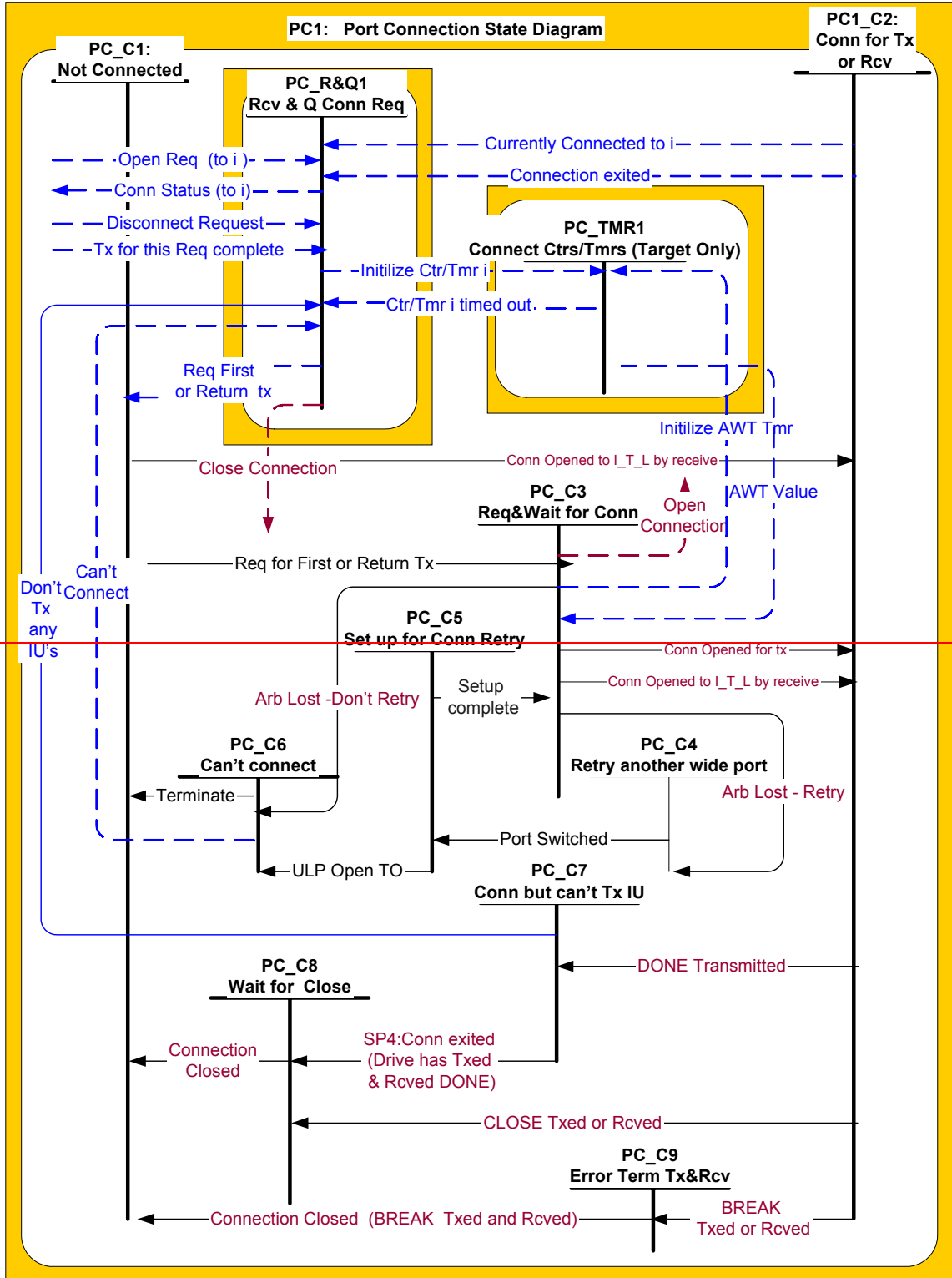
The Target TMR machine's purpose is to:

- a) Accept initialization by ~~the R&Q other state~~ machines;
- ~~b) Time the connected milliseconds and notify the R&Q machine when this value exceeds the Maximum Connect Time limit specified in the Disconnect Reconnect mode page for SSP devices;~~
- ~~c) Count the number of bytes transmitted by the target in a connection and notify the R&Q machine when this value exceeds the Maximum Burst Size limit specified in the Disconnect Reconnect mode page for SSP devices; and~~
- b) Time or count the following parameters and indicate when this value exceeds the limit defined in the Disconnect-Reconnect Mode page for SSP devices.
 - 1. MAXIUM CONNECT TIME
 - 2. MAXIMUM BURST SIZE
 - 3. BUS INACTIVITY LIMIT
- c) Time the I T NEXUS LOSS TIME and indicate when this value exceeds the limit defined in the Protocol-Specific Port Control mode page
- d) Time the Arbitration Wait Time (AWT).

The C machine's purpose is to:

- a) Indicate if the device is not connected for receive or transmit;
- b) Indicate if the device is connected for receive or transmit;
- c) Request or retry a connection sequence via the link layer and handle exception conditions ;
- d) Initialize the Arbitration Wait Timer and the I T Nexus Loss Timer;;
- e) Create the "Open Connection" request to the link layer which also includes:
 - A) Destination port identifier of the SAS port to be opened;
 - B) The protocol to be used;
 - C) The AWT value to be placed into the Open Address Frame by the link layer; and
 - D) The link rate to be used to the arb_sel state.
- f) Indicate if a connection could or could not be established;
- g) Indicate if the device is connected but can't transmit an IU; and
- h) Indicate if the device is in process of closing a connection and cannot receive or transmit until after the connection is closed and a new connection is established.

Figure 1~~Figure 1~~ shows the PC state machines.



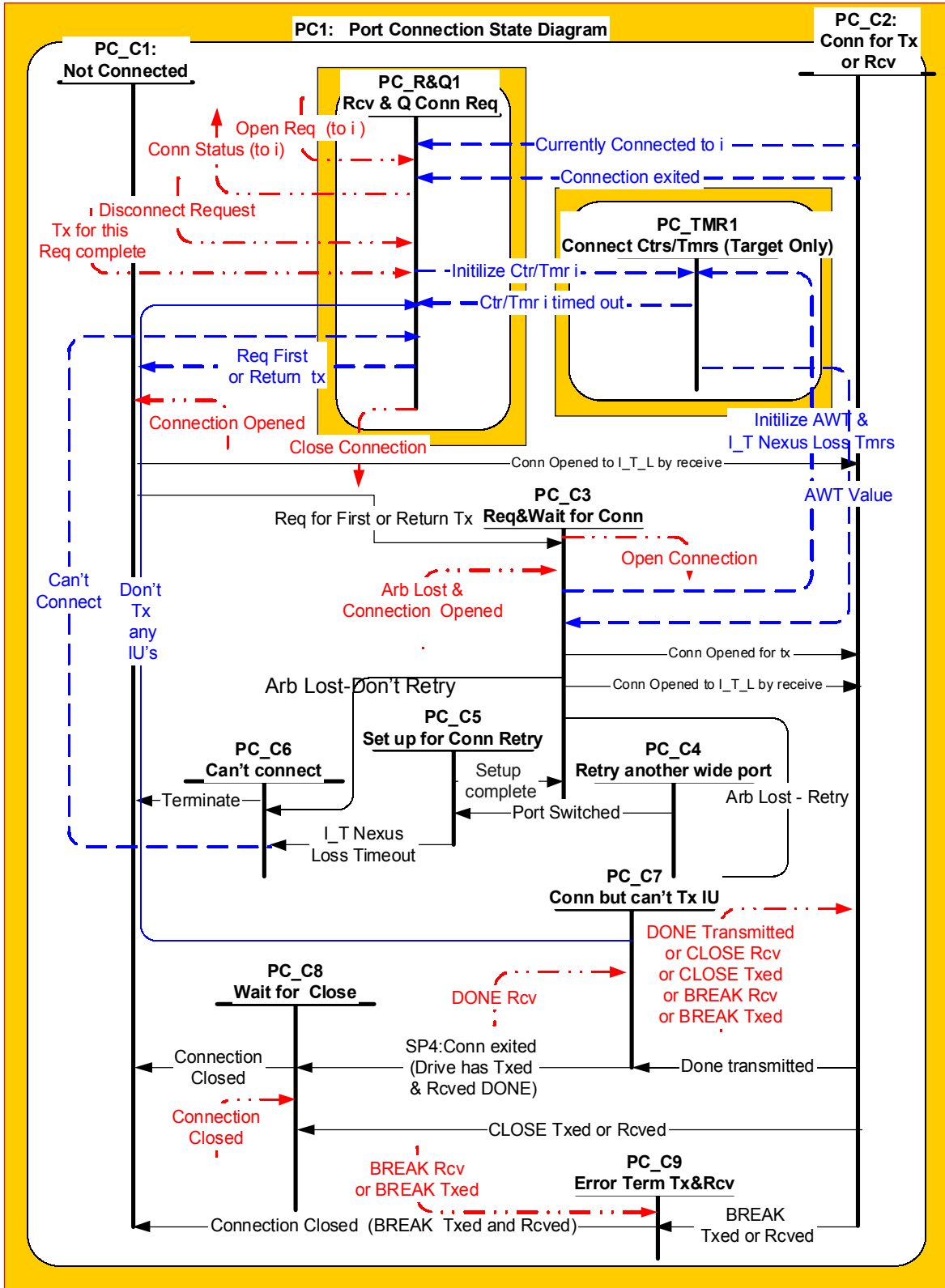


Figure 1. Port Connection and supporting state machines

1.1.2 R&Q1: Receive and queue connection request state machine

1.1.2.1 State machine description

A transport layer state machine requests an open (Open Req) for a specific destination port to (to i) transmit at least one interlocked “Open Req (to i): Interlocked Frame” or non interlocked “Open Req (to i): Non Interlocked Frame” frame. Multiple requests (normally with different tag values) may exist at the same time to the same or different destination ports. The R&Q1 state machine queues each of these requests and determines the priority order of servicing. The priorities are as follows, from highest to lowest priority:

- 1) A destination port currently connected;
- 2) ~~the~~ continuation of transmission of non-interlocked frames;
- 3) A returned to transmission request; and
- 4) The next highest priority queued request.

The R&Q1 state machine responds to the transport layer with a confirmation using the connection status (Conn Status (to i) parameter) for the requested destination port. ~~The status is be one of:~~

The reason code shall be one of the following:

CONNECTED-FRAME TRANSMISSION MAY OCCUR
WAIT FOR A CONNECTION
ARB LOST WO RETRY-BAD DESTINATION
ARB LOST WO RETRY-WRONG DESTINATION
ARB LOST WO RETRY-INVALID PROTOCOL TYPE
ARB LOST WO RETRY-TOO MANY STP INITIATORS
ARB LOST AFTER RETRY-NO DESTINATION
ARB LOST AFTER RETRY-INVALID LINK RATE
ARB LOST AFTER RETRY-PHYSICAL NOT READY
ARB LOST AFTER RETRY-I T NEXUS LOSS TIMEOUT
ARB LOST –BREAK RECEIVED
ARB LOST –OPEN TO OCCURRED
CONNECTION REJECTED-RETRY
CONNECTION EXITED- INVALID PROTOCOL TYPE
CONNECTION EXITED- WRONG DESTINATION
CONNECTION EXITED- BAD DESTINATION
CONNECTION EXITED- NO DESTINATION
CONNECTION EXITED- INVALID LINK RATE
CONNECTION EXITED-NO ERRORS OCCURRED
CONNECTION EXITED-BREAK RECEIVED
CONNECTION EXITED-BREAK TRANSMITTED
CONNECTION EXITED-DONE RECEIVED
CONNECTION EXITED-DONE TRANSMITTED
CONNECTION EXITED-CLOSE RECEIVED
CONNECTION EXITED-CLOSE TRANSMITTED
CONNECTION EXITED-CLOSE TIME-OUT
CONNECTION EXITED-LINK BROKE
DISCONNECT IN PROCESS-DISCON/RECON LIMIT EXCEEDED

- a) ~~Connected to this destination — frame transmission may occur;~~
- b) ~~Wait for connection to this destination;~~
- c) ~~Arbitration Lost (Arb Lost) — No destination;~~
- d) ~~Arbitration Lost — ULP Open time out exceeded; or~~

~~e) Connection Exited (either normally, or prematurely).~~

~~f) Disconnect in process — Disconnect-Reconnect timer/counter exceeded~~

~~If a) status is sent, if already connected to this destination port (i.e., in the PC1_C2 state) a confirmation is sent to the transport layer using the Conn Status (to i) parameter with a reason code CONNECTED – FRAME TRANSMISSION MAY OCCUR and the transport layer may transmit this frame. After the frame has been sent (i.e., “Tx for this Req complete” signal received request sent from the transport layer to the port layer), the R&Q1 state machine shall clear its request queue of this request and check if this the frame just sent was an Interlocked or Non Interlocked frame.~~

- ~~a) If an Interlocked frame was sent, the R&Q machine shall check its request queue for the next frame to be transmitted.~~
- ~~b) If a Non Interlocked frame was sent, The R&Q machine shall wait for the next subsequent Open Req (to i) request (or Disconnect request) from this requester.~~

~~If not connected and in the PC_C1 state, the R&Q machine shall send a confirmation to the transport layer using the Conn Status (to i) parameter with a reason code a “Wait for connection to this destination port” Conn Status WAIT FOR A CONNECTION and initiate a connection sequence by issuing a “#Rrequest a #Ffirst or #Rreturn tx” request.~~

- ~~a) The “#Ffirst” refers to the first time this transmission request has been serviced and shall cause the AWT timer to be initialized when the PC_C3 state is entered.~~
- ~~b) The “#Rreturn” refers to establishing a connection for a frame transmission that had previously requested an open but had been preempted by a connection opened to this port from another source port as a result of a selected (SL2_Selected i.e., Receive) path (i.e., receive from the link layer a conformation with the Connection Opened parameter with a reason code of SSP/STP/SMP LINK OPENED BY SELECTED. This shall cause the AWT timer to not be initialized when the PC_C3 state is entered.~~

The PC_C3 state shall perform a “Open Connection” request to the link layer. One of the following situations shall result:

- ~~a) The connection is opened for this destination port as a result of the request for this transmit connection (SL1:Arb_Sel path) and the requested frame transmission can occur.~~
- ~~b) The connection is opened for this destination port as a result of a selected (SL2_Selected) path and the requested frame transmission can occur.~~
- ~~c) The connection is opened with this port as the destination port as a result of a selected (SL2_Selected) path from a different Target (or Initiator) and the requested frame transmission can not occur. In this case the R&Q machine shall reexamine its queue to determine if any transmit requests exists for this different Target (or Initiator). The original frame shall be requeued for transmission with a “#Rreturn” status for priority and AWT control.~~
- ~~d) The connection is denied and is not established. The transport layer shall be notified and the R&Q machine shall check its queue for the next transmit request~~

~~For Target ports only, when a connection is first established (detected by the leading edge of the “Currently Connected to i” signal from the PC_C2 state), the R&Q machine shall initialize the counters and timers in the TMR machine as indicated in the TMR1: Counters and timers state machine section.~~

~~For target ports only, if connected, the R&Q machine shall check to see if any of the Disconnect-Reconnect mode page CTR/Timers have exceeded the specified limits after each frame transmission and prior to sending Connection Status back to the transport layer. (i.e., check CTR/Timers after each “Tx for this Req complete” signal is received and check CTR/Timers after~~

~~each “Open Req (to i)” is received prior to each frame transmission and after each frame transmission.~~

- a) If the CTR/Timer’s have not exceeded the specified limits, frame transmission may continue.
- b) If the CTR/Timer’s have exceeded the specified limits, The R&Q machine shall request a “Close Connection” function from the Link layer and notify the transport layer with a confirmation using the Conn Status (to i) parameter with a reason code DISCONNECT IN PROCESS-DISCON/RECON LIMIT EXCEEDED~~with a “Disconnect in process — Disconnect-Reconnect timer/counter exceeded” status~~. To continue transmission of this data, the transport layer will generate a new “Open Req” transmission request which will be placed in the request queue.

If a Disconnect request is received, The R&Q machine shall request a “Close Connection” function from the Link layer. Any queue entry transmission waiting for a response from the transport layer shall also be cleared.

When a connection is exited, the R&Q machine shall notify the Transport layer. (This also allows the transport layer to recover for a premature disconnection if a frame transmission has been approved but before the transport layer has notified the R&Q machine that the transmission is completed)

If a DONE has been transmitted, the R&Q machine shall not allow another IU transmission until after the connection has been completely closed down (SL0 : Idle entered)

If DONE’s have been transmitted and received, or if a CLOSE or BREAK has been transmitted or received, the R&Q machine shall not allow any transmissions and shall ignore any receptions until after the connection has been completely closed down (SL0 : Idle entered)

The R&Q machine shall detect if the connection was opened as a result of a ~~device selection selected path~~(detect “Currently Connected to i” signal from PC_C2 via the SL2_Selected path), determine that there is no pending transmit requests in the queue to this Initiator (or Target) and request a ‘Close Connection’ function from the link layer so that a DONE is transmitted to the destination port so that the connection can be closed by a DONE being received from the destination port.

1.1.3 TMR1: Counters and timers state machine

1.1.3.1 State machine description

This state machine contains the timers and counters to measure and determine when limits have been exceeded for the optional SSP target port Disconnect-Reconnect mode page.

~~These timers and counters are initialized by the R&Q machine when a connection is first established.~~

The Maximum Connect Time timer times the connected milliseconds during SSP connections and notifies the R&Q machine when this value exceeds the limit specified in the MAXIMUM CONNECT TIME field of the Disconnect-Reconnect mode page.

The Maximum Connect Time timer is initialized by the R&Q machine when a connection is first established and is only monitored during the current connection

The Maximum Burst Size ~~limit~~ counter counts the number of bytes transmitted by the target port in an SSP connection and notifies the R&Q1 machine when this value exceeds the limit specified in the MAXIMUM BURST SIZE field of the Disconnect-Reconnect mode page.

The Maximum Burst Size counter is initialized by the R&Q machine when a connection is first established and is only monitored during the current connection.

The Bus Inactivity Timer times when the target is maintaining a connection without transferring frames to the initiator port and notifies the R&Q machine when this value exceeds the limit specified in the BUS INACTIVITY LIMIT field of the Disconnect-Reconnect mode page

The Bus Inactivity Timer is initialized by the R&Q machine when a connection is first established. This timer is held in the initialized state and inhibited from operating during each frame transmission. The timer is allowed to time after each frame is transmitted and until the next frame is started to be transmitted. This timer is only monitored during the current connection and before a DONE is transmitted.

The I T Nexus Loss Time timer times how long the target port shall retry connection requests that are rejected for certain reason codes. The PC C5 state machine will detect when this value exceeds the I T NEXUS LOSS TIME specified in the Protocol-Specific Port Control mode page (19h) and transition to the ePC C6 state. The PC C6 state machine will terminate connection requests and via the R&Q machine remove this request from the queue and notify the transport layer of this with a confirmation using the Conn Status (to i) parameter and a reason code of ARB LOST AFTER RETRY-I T NEXUS LOSS TIMEOUT.

The I T Nexus Loss Time timer shall be initialized when the PC C3 state is entered from the PC R&Q1 state a result of a “Req for First or Return tx” transition condition. This timer is only monitored while trying to open a connection for a transmission from the target. This timer is also initialized when a confirmation is received from the link layer with a Arb Lost parameter and a reason code of OPEN FAILED-RETRY, OR OPEN-FAILED-PATHWAY BLOCKED.

~~This state also contains t~~The Arbitration Wait Timer. ~~This timer~~ shall time the amount of time since arbitration was first started for a frame transmission. This timer value shall be passed to the link layer when an “Open Connection” function is requested.

This AWT timer shall be initialized when a request for a “First” time frame transmission has occurred.

This AWT timer shall be reinitialized when the following reason codes ~~s are~~ is received from the link layer:

- a) OPEN FAILED-RETRY.

This timer shall not be reinitialized when the following reason codes are received from the link layer:

- a) OPEN FAILED-WRONG DESTINATION;
- b) OPEN FAILED-INVALID LINK RATE;
- c) OPEN FAILED-INVALID PROTOCOL TYPE;
- d) OPEN FAILED-PATHWAY BLOCKED; or
- ee) ARBITRATION LOST-OPEN TIME-OUT OCCURRED.

~~This~~The AWT timer shall not be initialized when a request for a “Return” frame transmission is requested.

1.1.4 Port connection state machine

1.1.4.1 PC_C1:Not Connected state

1.1.4.1.1 State description

The Not Connected state is the idle state for the Port connection state machine.

This state is entered when no connections exist on the port. This state is entered when ~~all the~~ connection is closed.

This state is exited when a receive connection is established by a link layer. This state is also exited when the R&Q state machine requests a fFirst or fReturn transmit.

1.1.4.1.2 Transition PC_C1: PC_C2 (Not Connected: Connected for Transmit or Receive)

The PC_C1: PC_C2 transition shall occur when a ~~receive connection- selected path~~ is established by ~~a_a~~ link layer ~~(when the link layer SL4:Connected state is entered via the SL2:Selected state).~~

~~[Editor's note: don't mention other state machine states here]~~

1.1.4.1.3 Transition PC_C1: PC_C3 (Not Connected: Request and Wait for connection)

The PC_C1: PC_C3 transition shall occur when the R&Q state machine requests a fFirst or ~~continued- Return~~ transmit function be performed.

1.1.4.2 PC_C2:Connected for Transmit or Receive (Conn for Tx or Rcv) state

1.1.4.2.1 State description

This state indicates that a connection exists between two ports and that primitives and frames may be transmitted and received between them.

This state shall notify the R&Q state machine when a connection is first established, that a connection exists, and shall indicate when the connection is closed.

1.1.4.2.2 Transition PC_C2: PC_C7 (Conn for Tx or Rcv: Conn but can't Tx IU)

The PC_C2: PC_C7 transition shall occur when a DONE has been transmitted by this port (i.e., when the link layer sends a conformation with the DONE Transmitted parameter).

1.1.4.2.3 Transition PC_C2: PC_C8 (Conn for Tx or Rcv: Wait for Close)

The PC_C2: PC_C8 transition shall occur when a CLOSE has been transmitted or received by this port (i.e., when the link layer sends a conformation with either the CLOSE Txed or CLOSE Rcv parameter).

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1.1.4.2.4 Transition PC_C2: PC_C9 (Conn for Tx or Rcv: Error Term Tx and Rcv)

The PC_C2: PC_C9 transition shall occur when a Break has been transmitted or received by this port (i.e., when the link layer sends a conformation with either the BREAK Txed or BREAK Rcv parameter).

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1.1.4.3 PC_C3:Request and Wait for a connection (Req&Wait for conn) state

1.1.4.3.1 State description

This state requests an “Open Connection” function to a specific destination port to be performed by a link layer and interprets the resultant responses.

When this state is entered for the ~~f~~First time from the PC_C1:Not Connected state, this state shall:

- a) initialize a ~~ULP open time out timer to 1 ms | T Nexus Loss time timer~~ which limits the ~~number of retry connection requests that are rejected for certain reason codes total time than an open function is attempted for this open request~~ to the specified destination port;
- b) Select the link through which the connection request is to be made;
- c) Initialize the AWT for a “~~f~~Req for ~~f~~First tx” frame transmission request; and
- d) Not initialize the AWT for a “~~f~~Req for ~~f~~Return” tx frame transmission request.

This state shall build the “Open Connection” parameter list for the link layer which consists of:

- a) Destination port device name;
- b) The protocol to be used;
- c) The link rate to be used; and
- d) The current AWT timer value

This state shall pass the “Open Connection” request plus parameters to the Link layer.

This state shall then monitor the link layer response to determine the result of this “Open Connection” request or to determine if a ~~n receive- Selected path~~ connection occurred, ~~which would override~~ the “Open Connection” request.

1.1.4.3.2 Transition PC_C3: PC_C2 (Req&Wait for conn: Conn for Tx or Rcv)

The PC_C3: PC_C2 transition shall occur as a result of ~~entering the link layer SL4:Connected state by either the link layer SL1:Arb_Sel state or the SL2: Selected state receiving form the link layer a conformation with the Connection Opened parameter with a reason code of either SSP/STP/SMP LINK OPENED BY ARB SEL or SSP/STP/SMP LINK OPENED BY SELECTED.~~
~~[Editor’s note: don’t reference states in other state machines]~~

1.1.4.3.3 Transition PC_C3: PC_C4 (Req&Wait for conn: Retry another wide port)

The PC_C3: PC_C4 transition shall occur as a result of receiving ~~from the physical layer a conformation with the Phy Status parameter with a reason code of PHYRDY (physical not ready to open a connection) or as a result of receiving from from~~ the link layer ~~a conformation with the Arb Lost parameter with one of the following reason codes:~~

- a) OPEN FAILED-RETRY;
- b) OPEN FAILED-PATHWAY BLOCKED; or
- ~~c) OPEN FAILED-NO DESTINATION or~~
- ~~d) OPEN FAILED-INVALID LINK RATE or~~
- ~~ee) ARBITRATION LOST-OPEN TIME-OUT OCCURRED.~~

1.1.4.3.4 Transition PC_C3: PC_C6 (Req&Wait for conn: Can't connect)

The PC_C3: PC_C6 transition shall occur as a result of receiving from the link layer a conformation with the Arb Lost parameter with one of the following reason codes:

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- a) OPEN FAILED-WRONG DESTINATION;
- b) OPEN FAILED-~~INVALID LINK RATE~~ BAD DESTINATION; or
- c) OPEN FAILED-INVALID PROTOCOL TYPE or
- d) OPEN FAILED-TOO MANY STP INITITATORS or
- e) ARBITRATION LOST BREAK RECEIVED.

1.1.4.4 PC_C4:Retry another wide port state

1.1.4.4.1 State description

This state shall set up the next link (if the port is a wide port) to attempt another Open Connection function.

If only one port exists the same link shall be respecified.

If more than one port exists, then this state may select a different link to be used for the Open Connection function.

If the link layer sent a conformation with the Arb Lost parameter with a reason code of OPEN FAILED RETRY the same link shall be respecified.

1.1.4.4.2 Transition PC_C4: PC_C5 (Retry another wide port:Set up Conn Retry)

The PC_C4: PC_C5 transition shall occur when the port for the Open Connection function has been set up or switched.

1.1.4.5 PC_C5:Set up for Connection Retry (Set up for Conn Retry) state

1.1.4.5.1 State definition

This state shall either set up for a connection retry or exit to the PC C6 state to terminate connection retries. This state will first check to see if the UPL Open timeout timer has exceeded the specified limit and take the appropriate action if it has the link layer sent a conformation with the Arb Lost parameter with a reason code of either OPEN FAILED RETRY or OPEN FAILED PATHWAY BLOCKED. If yes , a connection retry will be set up. If no, the State will check to see if the I T Nexus Loss timer has exceeded the specified limit . If no, a connection retry will be set up. If yes, the state will exit to the PC C6 state.

~~If the ULP Open timeout timer has not reached its limit, this state shall ensure that the link layer is in the SL0: Idle state prior to transitioning to the PC_C3 state.~~

Set up for a connection retry shall include:

This state shall reinitialize the AWT timer if the link layer sent a conformation with the Arb Lost parameter with a reason code of ~~status was~~ OPEN FAILED-RETRY.

This state shall not reinitialize the AWT timer if the link layer sent a conformation with the Arb Lost parameter with a reason code of either ~~status was~~ OPEN FAILED-PATHWAY BLOCKED OR ARBITRATION LOST-OPEN TIME-OUT OCCURRED.

This state shall delay 15 microseconds before it can be exited.

1.1.4.5.2 Transition PC_C5: PC_C3 (Set up for Conn Retry:Req&Wait for Conn)

The PC_C5: PC_C3 transition shall occur if ~~the ULP Open timeout timer has not reached the specified limit and if the link layer is in the SL0:Idle state.~~

- a) The link layer sent a conformation with the Arb Lost parameter with a reason code of either OPEN FAILED_RETRY or OPEN FAILED_PATHWAY BLOCKED or
- b) (if a is not true) If the I T NEXUS L Loss timer has not exceeded the specified limit

1.1.4.5.3 Transition PC_C5: PC_C6 (Set up for Conn Retry:Can't connect)

The PC_C5: PC_C6 transition shall occur if: ~~the ULP Open timeout timer has reached the specified limit.~~

- c) The link layer did not sent a conformation with the Arb Lost parameter with a reason code of either OPEN FAILED_RETRY or OPEN FAILED_PATHWAY BLOCKED or
- a) (if a is not true) If the I T NEXUS L Loss timer has exceeded the specified limit

1.1.4.6 PC_C6:Can't connect state

1.1.4.6.1 State definition

This state shall request the link layer perform a “Stop Arb” ~~function, function and~~ set up ~~the Connection Status to either Arb Lost—No Retry or Arb Lost—ULP Open time out exceeded~~ to return to the transport layer a conformation with the Conn Status (to i) parameter and one of the following reason codes:

- ARB LOST WO RETRY-BAD DESTINATION
- ARB LOST WO RETRY-WRONG DESTINATION
- ARB LOST WO RETRY-INVALID PROTOCOL TYPE
- ARB LOST WO RETRY-TOO MANY STP INITIATORS
- ARB LOST AFTER RETRY-NO DESTINATION
- ARB LOST AFTER RETRY-INVALID LINK RATE
- ARB LOST AFTER RETRY-PHYSICAL NOT READY
- ARB LOST AFTER RETRY-I T NEXUS LOSS TIMEOUT
- ARB LOST –BREAK RECEIVED
- ARB LOST –OPEN TO OCCURRED

,and then wait for the link layer to enter the SL0:Idle state.

1.1.4.6.2 Transition PC_C6: PC_C1 (Can't connect:Not connected)

The PC_C6: PC_C1 transition shall occur when the link layer enters the SL0:Idle state ?????.

1.1.4.7 PC_C7:Connected but can't transmit frames (Conn but can't Tx) state

1.1.4.7.1 State definition

This state indicates that a DONE has been received and that this port cannot transmit any additional frames until the connection has been closed and reestablished. While in this state, the

device may transmit primitives (i.e., ACK's, NAK's, RRDY's, etc) and receive IU's and primitives.

[Editor's note: this is SSP specific ???]

1.1.4.7.2 Transition PC_C7: PC_C8 (Conn but can't Tx:Wait for close)

The PC_C7: PC_C8 transition shall occur when the link layer SL4:Connected state has been exited- (i.e., when the link layer sends a conformation with the DONE Rcv parameter).

1.1.4.8 PC_C8:Wait for Close state

1.1.4.8.1 State definition

This state indicates that a DONE has been transmitted and received by the Initiator(or Target) or that a CLOSE has been transmitted or received and that this device cannot transmit or receive anything until the connection has been closed and reestablished.

1.1.4.8.2 Transition PC_C8: PC_C1 (Wait for Close; Not connected)

The PC_C8: PC_C1 transition shall occur when the link layer indicates that the connection has been closed (i.e., when the link layer sends a conformation with the Connection Closed parameter).

1.1.4.9 PC_C9:Error terminate transmit and receive (Error Term Tx&Rcv) state

1.1.4.9.1 State definition

This state indicates that a BREAK has been either transmitted and received by the link layer and that this device cannot transmit anything or receive anything until the connection has been closed and reestablished.

1.1.4.9.2 Transition PC_C9: PC_C1 (Error Term Tx&Rcv: Not connected)

The PC_C8: PC_C1 transition shall occur when the link layer indicates that the connection has been closed (i.e., when the link layer sends a conformation with either the BREAK Txed or BREAK Rcv parameter).

