

STANDBY

Standby is a term used to describe a low energy consumption mode of operation for a node with only one active port. A node in Standby does not participate in normal bus activity.

CHARACTERISTICS OF A STANDBY CANDIDATE CHILD NODE

- A feature of Beta-mode operation only
- A beta-only leaf node does not have to implement Suspend/Resume provided it responds to Suspend symbol (0xx00101) by entering into Standby
- A bus reset does NOT occur as part of entering or restoring from Standby
- The active bus for which the Standby child node is a member of is not aware of any status change of the Standby child node (its parent node shall “proxy” the self-ID packet subsequent to any bus reset on the active bus)
- When a Standby child node restores from Standby, the latency from Standby to fully active is 3 milliseconds (+/- 5%).
- A restoring Standby child node becomes active AFTER receiving the following information from the first PHY packet it detects:
 - Node-ID,
 - gap count
 - gap count “sticky-bit” status
- Upon detecting its first PHY packet, the restoring child node transmits a PHY response packet to its parent PHY.
- A Standby child node will begin monitoring for a PHY packet after detecting a resume tone or after generating a resume tone to its parent node
- A multi-port node with one connected port in Standby shall restore that port followed by a bus reset if, on any of its other ports, it detects a resume or a new connection
- A child node will enter into Standby when it detects a Standby PHY Command Packet containing its Node-ID and port address

CHARACTERISTICS OF THE PARENT NODE OF A LEAF NODE IN STANDBY

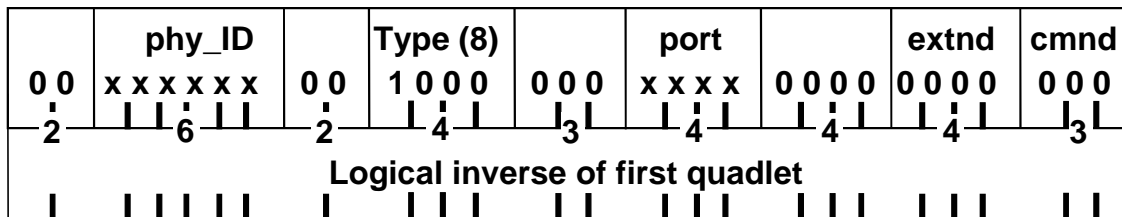
- This is a feature of Beta mode operation only
- The parent PHY stores (for each port) a set of 12 bits from each self-ID sequence for which it will use to proxy the self-ID packet for its child port
 - Link_Active = 1 bit
 - Pwr_class = 3 bits
 - Parent_port_num = 4 bits
 - Highest_port_num = 4 bits
- When the parent node of a child port detects a Standby symbol (0xx00001), the parent node shall proxy the self-ID packet of the Standby child node on the occurrence of any bus reset

- When either detecting or generating a resume tone from/to a Standby child node, the parent node will arbitrate for the bus after which it will generate a “Restore” NOP PHY command packet addressed to itself. The 17th bit through the 29th bit transmitted (bit 1 being the first bit transmitted) will contain the following data for the child:
 - Bit 17 = Gap Count “Sticky-Bit” status
 - Bits 18-23 = Child Node-ID
 - Bits 24-29 = Child Gap Count
- The parent node shall service only one restoring child leaf at a time
- A parent node with a Standby child node shall restore the child (assert a resume tone to the child) when it receives a Restore PHY command packet with the Node-ID of the parent node and the port address of the port connected to the Standby child node

PHY PACKET DETAILS

New PHY Command Seven (7) – Extended:

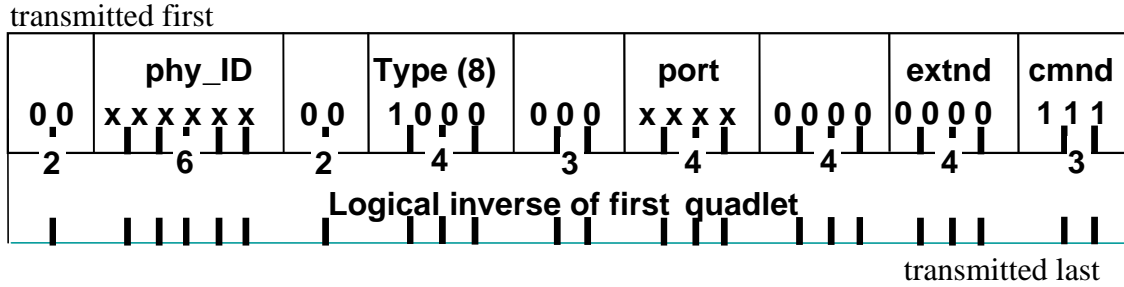
transmitted first



transmitted last

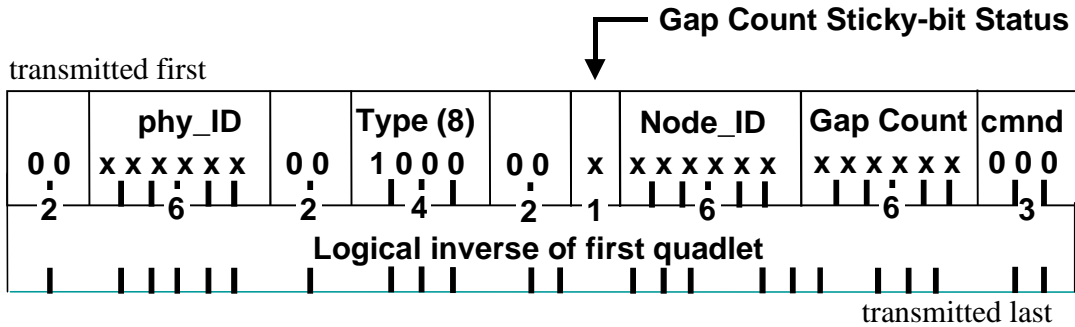
Field	Comment
phy_id	Physical node identifier of the destination of this packet
type	Extended PHY packet type (8 indicates command packet)
port	This field selects one of the PHY's ports
cmnd	Command: 0 NOP 1 Transmit TX_DISABLE_NOTIFY then disable port 2 Initiate Suspend (become a suspend initiator) 3 Reserved 4 Clear the port's fault bit to zero 5 Enable port 6 Resume Port 7 Extended Command

Extended PHY Command Code:



Field	Comment
extnd	Command:
0	NOP
1	Initiate Standby with Connected Peer Port
2	Restore from Standby with Connected Peer Port
3-F	Reserved

NOP PHY Command Packet containing “Restore” Data for Child Node:



The phy_ID is the node-ID of the parent node of the node being restored from Standby.