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32GFC Rate Select Implementation



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◆ Set Rate Select HIGH for 32GFC operation

- Transceiver knows to activate CDR and set phase delay properly for 32GFC (28.05Gbps) operation.
- Avoids potential issues with automatically detecting between 32GFC (28.05Gbps) and 16GFC (14.025Gbps) which have exact harmonic frequencies.

◆ Set Rate Select LOW for 16GFC and 8GFC operation

- Transceiver will need to determine automatically if traffic is 16GFC (14.025Gbps) or 8GFC (8.5Gbps) and configure itself appropriately.
- Differences in harmonic content introduced by 16GFC encoding scheme (64b/66b vs 8b/10b) makes accurate detection easier.
- Timing requirement of 500us for identifying and configuring datapath still applies. Start time defined as when rate select pin is set low AND valid data rate is present. Same data rate must be maintained for 500us to ensure link up is successful.

- ◆ This uses historical rate select behavior whereby high denotes highest supported data rate and low denotes prior generation backward compatibility operation.

- ◆ Set Rate Select pin HIGH (>2V) for 16GFC operation
 - Same as existing 16GFC products
- ◆ Set Rate Select pin LOW (<1V) for 8GFC operation
 - Same as existing 16GFC products
- ◆ Set Rate Select pin FLOATING for 32GFC operation
 - Change SFP+ specification for transceiver termination on Rate Select pins (RS0 pin 7 and RS1 pin 9) to be a weak pullup (>30kohms) to 1.2-1.8V. Current specification requires a weak pulldown (>30kohms) to ground.
 - Allows clear identification of all three supported modes of operation.
- ◆ Requires host system design to configure the pin in all three states.
- ◆ Though traditionally not considered a FibreChannel requirement, this does introduce a potential compatibility issue if a new transceiver is used in an old 16GFC or 8GFC system that left the rate select pins FLOATING to denote LOW.