Annex ??
(Normative)

100Mbit/s PHY Designs using non-MII Based Implementations

This annex list the basic functionality needed for any physical media device used in a design that is not based on the media independent interface defined in standard 802.3u-????. This annex assumes that such PMDs will be based on a superset, subset or other variation of the MII.

??1 Signal Level Functions Required by 100Mb/s Token Ring

??1.1 Signals Likely to be Present
The following signals or their equivalent are likely to be present in a form that is unchanged or not significantly changed in all such implementations since they are required by all 802.3u-???? implementations.
- TXD (although a different bus width may be used)
- RXD (although a different bus width may be used)
- TX_EN
- RX_ER
- MDC
- MDIO

??1.2 Signals Likely to be Significantly Modified or not present

??1.2.1 TX_ER
Although called out in the MII specification in 802.3u-???? standard this signal is usually not used in 100Base-TX implementations. New PMD implementations may therefore consider removing this signal. To support 100Mb/s Token Ring this signal or a suitable substitute that will allow for real-time insertion of the /H symbol into the bit stream must be implemented.

??1.2.2 TX_CLK and RX_CLK
In future PMD implementation these signals may be combined. When this is done an elastic buffer will be needed. Assuming that this elastic buffer is optimized for the 802.3u-???? maximum frame size and clock tolerance it would be 18 bits in size.
Since 100Mb/s Token Ring defines a larger maximum frame size and a tighter clock tolerance this elastic buffer would have to be enlarged to 40 bits. Since this larger elastic buffer could degrade the performance of the PMD in 100Base-TX implementations the buffer size should be configurable.

??1.2.3 RX_DV
This signal may be combined with CRS in other PMD implementations. This is acceptable as long as the capability exists to turn off the combined function on the pin resulting in a signal that is RX_DV only.

??2 Operational Functions Required by 100Mb/s Token Ring

??2.1 Flushing of the Data Stream after Detection of a Code Violation
In 802.3u-???? implementations any data received after detection by the PMD of a code violation is ignored. New PMD implementations may therefore choose to flush this data and not make it available to the MAC layer. In 100Mb/s token ring implementations this data is required by the MAC. The PMD must not flush this information and transfer all data to the MAC layer until the ESD is detected.

??2.2 Programmable Selector Field
Currently several PMD implementations claim that the selector field as defined by 802.3u-????
Auto-negotiation is programmable but this is not true. The register may be reprogrammable but
the PMD operation does not change. This feature must be fully implemented so that the selector
field can be set to the 100Mb/s Token Ring value and function as defined in the 802.3u-????
standard.

??2.3 Device Timers
Any PMD may contain one or more timers to monitor various link conditions. These timers if they
exist must be able to allow proper operation of the link considering the larger frame size defined
by 100Mb/s Token Ring.