CMX:
L1Topo protocol

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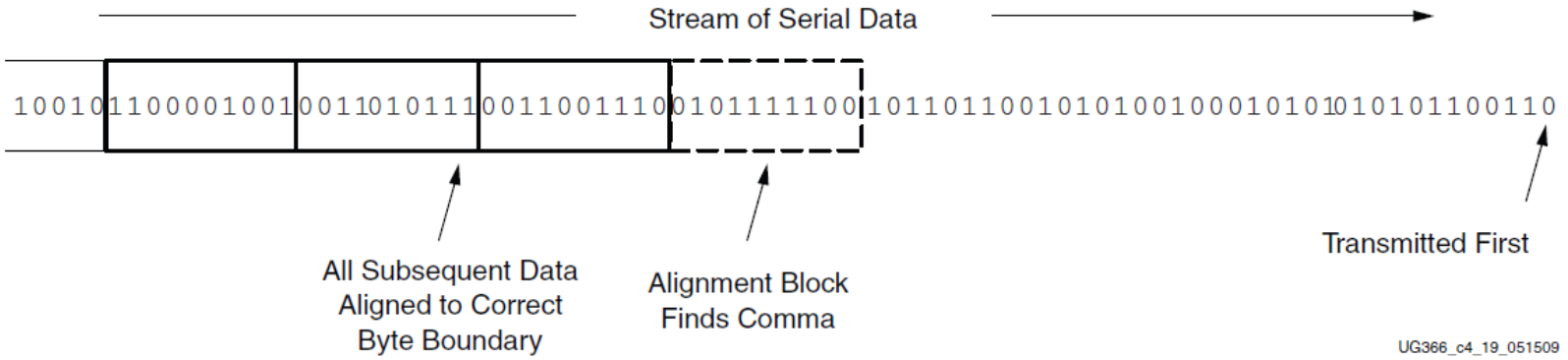
Protocol implications: alignment

- Receiver needs to ‘find’ byte boundaries in the data stream



- Propose to send D0.0 K28.5 whenever a 16 bit word of data to be sent is identically 0
- Set RX to even byte alignment ALIGN_COMMA_WORD=2
- RX enable P and M comma alignment

Protocol Implications: RX elastic buffer and clock correction

- Elastic buffer and clock correction not needed in a synchronous system application if delays identical
- Here “quasi-synchronous” TX and RX independently derive REF clocks from TTC
- How large is the jitter of the REF clocks on either side?
- How large relative differences in propagation delay?
- Clock correction requires use of the elastic buffer – inserts or deletes special sequences into the data stream to accommodate small frequency offsets.
- If clock correction is to be used 4 16 bit words need to be inserted into the data periodically. Least significant byte will be matched.

Channel bonding

- Uses elastic buffer to delay the data from the earliest to arrive channels
- Most likely not needed
- Can be useful if channel to channel skew is greater than 3 ns
- Skew will be deterministic so can be added by hand
- If used need to add sequence of four 16 bit words to the data and establish procedure after powerup to send this pattern till bonding is established.