FlexRay Adapter

Features

- Compliant to FlexRay Protocol specification v2.1 RevA
- Support of Single Communication channel-A
- Cold start node
- Up to 5Mbps data rate
- 16 frames TX / RX buffer
- Configurable payload length in the Static/Dynamic segment
- Frame ID, Cycle count based Message Filtering
- 16-bit generic CHI Interface, optional AHB interface
- Interface to PDIUSBD12 USB chip (Full speed 12 Mbps)
- Interface to TJA1080 FlexRay Transceiver

Description

The FlexRay Communication System is designed to provide high-speed deterministic distributed control for advanced automotive applications. Its dual-channel (10 Mbps per channel) architecture offers system-wide redundancy that meets the reliability requirements of emerging safety systems, such as brake-by-wire. Some of the basic characteristics of the FlexRay protocol are synchronous and asynchronous frame transfer, guaranteed frame latency and jitter during synchronous transfer, prioritization of frames during asynchronous transfer, multi-master clock synchronization, error detection and signaling, error containment on the physical layer through the use of a bus guardian device, and scalable fault tolerance.

FlexRay Adapter

FlexRay Adapter shown in Figure 1 consists of the following functional blocks

- FlexRay controller
- D12 controller (PDIUSBD12)
- Cortex M1 processor

FlexRay Controller Configuration and Data Flow are controlled by the Cortex M1 Processor via USB interface.

![Figure 1. FlexRay Adapter Block Diagram](image-url)
FlexRay Controller

FlexRay controller (Figure 2) implements necessary logic to communicate with the processor to send and receive messages on the FlexRay bus.

![FlexRay Controller Block Diagram](image_url)

**Figure 2. FlexRay Controller Block Diagram**

**Deliverables**

2. Test Environment in Specman
3. Coverage, Net list reports.
4. Windows based USB Application, Driver
5. User manual
6. Application notes

**Target Device Details for cold Start Node**

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<thead>
<tr>
<th>Make</th>
<th>Device</th>
<th>Versatile Count</th>
<th>Frequency</th>
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**Target Device Details for Non-cold Start Node**

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**Note:** Versatile count includes Cortex M1 Processor and other interfaces. Versatile count only for the FlexRay Cold start IP is 15440 & FlexRay Non-Cold start IP is 13585.

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