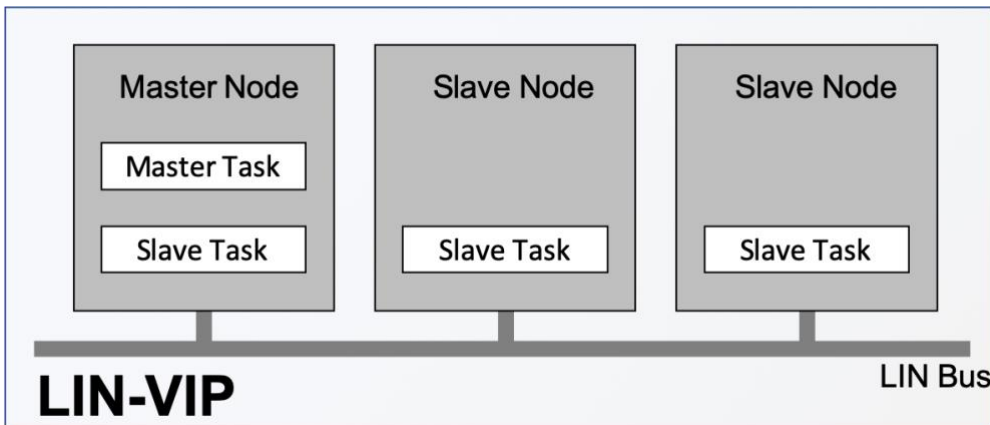# LIN-VIP
LIN Verification IP

LIN-VIP is a comprehensive VIP package for LIN controllers. SoC and IP designers use this LIN-VIP package to ensure complete verification of their designs and full protocol and timing compliance.

LIN-VIP implements a ready-to-use set of models, protocol checkers, and compliance testsuites in 100% native SystemVerilog and UVM. It supports the latest relevant specifications, including LIN ISO 17987 Part 1-7.

The system configuration uses an LDF class describes complete cluster configuration and information mapping

- Time Base, Jitter
- Participating Nodes & Attributes
- Schedule table
- Collision resolver
- System-wide Signals set (Publishers, Subscribers)
- Frames types (Unconditional, Event, Sporadic, Diagnostic, User-Defined, Wake/Sleep)
- Each node refers to copy of LDF class object for request header and response generation
- Signal and Diagnostic carrying frame class models all frame formats including Header and Response

Block Diagram

FEATURES

- Supports ISO 17987 Part 1-7
  - Backwards compatible
- Master and Slave node BFMs
- Node configuration and identification services
- Automatic frame segmentation and re-assembly of network layer messages (FF, CF)
- Automatic frame scheduling to time slot/time base including collision resolution
- Frame transmission ordering and endianness
- Status management that provides error handling and error signaling
- Wake and Go-to-Sleep modes
- Diagnostics
- Response pending
- Diagnostic and Interleaved Diagnostic mode
- Verified with CAST LIN IP

Additional Features

- Timing class models all timing parameters (randomize, modifiable)
- Transport and Network layer timing parameter including time base and jitter
- Multiple bit rates from 1Kbps to 20Kbps
- Inter-frame delay
- Error detection (callback, bit stuffing) and injection
- Random configuration
- Node type, bit timing rate, time base, jitter
- Error injection/Callbacks
- Functional Coverage
- Protocol checking
- Protocol analyzer log
- Compliance testsuite (17987 Part 6)

Support

The LIN-VIP as delivered is warranted against defects for ninety days from purchase. Thirty days of phone and email technical support are included, starting with the first interaction. Additional maintenance and support options are available.

Deliverables

The LIN-VIP includes everything required for successful implementation:

- Master and Slave node BFMs
- Compliance Testsuite
- User Guide