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|-----------------------------|---------------------------|
| Product Name | XC2000 LIN Driver Package |
| Release Version | 1.8 |
| Type Of Release | Release Candidate* |
| Name of the Supplier | Infineon Technologies AG |
| Mode of Release | Infineon Security Server |
| Date of Release | 10-Mar-2011 |
| Previous Version | 1.7 |

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* Delivery is not intended to be used for production code

1 Released Items

1.1 XC2000 LIN Driver Package Contents

This section contains the files available within this package. The functionality is explained below.

Please note that the source files (*.c) are located in the folder “src” and the header files (*.h) are located in the folder “inc” within the package.

| File Name | Version | Description |
|----------------|---------|---|
| LIN_core.c | 1.6.0 | Lin Protocol Implementation. This file provides the interfaces compliant to Lin standard, specification 2.0 and 2.1 |
| LIN_core.h | 1.2.1 | |
| Lin_protocol.c | 1.6.0 | ISR Routines and State Machine Implementation |
| LIN_protocol.h | 1.3.1 | |
| Compiler.h | 1.0.2 | The compiler abstraction layer for LIN driver. It contains compiler specific definitions. |
| Lin_Diag.c | 1.7.0 | Lin Diagnostics Layer and Transport Protocol Services |
| Lin_Diag.h | 1.4.1 | |
| Lin_Idl.c | 1.6.0 | The Device dependent Layer for the package. This file contains the definition and implementation for various system and HW module functionalities and |
| Lin_Idl.h | 1.4.1 | |
| SFR16.c | 1.0.2 | SFR abstraction Layer |
| Defines.h | 1.3.1 | File for Common #defines |
| Lin_IIL.h | 1.3.1 | Main Header file for LIN driver |

1.2 XC2000 LIN Driver Configuration Files

These files are provided with sample configuration and should be changed by the user as per their needs.

These files are located in the folder “cfg” within the package.

| File Name | Version | Description |
|-----------------|---------|---|
| LIN_LDF.c and h | --- | Sample LDF file for slave configuration |
| LIN_CFG.h | --- | Sample CFG file for LIN slave |

1.3 XC2000 LIN Driver Documentation

These files are provided with sample configuration and should be changed by the user as per their needs.

These files are located in the folder “doc” within the package

| File Name | Version | Description |
|-----------------------|---------|----------------------------|
| XC2000_LIN_LLD_UM.pdf | 1.6 | User Manual for the driver |

2 Tool Information

| | |
|---|---|
| Compiler Name | Tasking Viper v2.4r2 |
| Compiler Options | --- |
| Processor Platform | Following Series of Microcontrollers are supported XC223xN, XC233xB and XC2734X XC2234L, XC2331D, XC2733X, XC2224L, XC2321D, XC2723X, XC2320S, XC2220U, XC2722X, XC2210U, XC2310S, XC2712X |
| Evaluation Hardware | XC2236N, XC2234L and XC2224L easy kits v1.0 |
| Other Tools | Debugger : PLS |
| Code Configuration & Generation tool | Manually Configured / via DAVE Plug-in |

3 Changes to Previous Version

3.1 Changes from v1.7.0 to v1.8.0

| Issue # | Description | Modified Artifacts | |
|------------|--|--------------------|-----------------------------|
| | | Module | Files |
| AI00059574 | Bugfix: Modifications to Algorithm to make the Lin Driver work at Baud-rates < 10 KBAud | Lin | Lin_Protocol.c Lin_Idl.c |
| AI00059573 | Issue: Lin Internal Variable "LIN_4sIdle" remains set once the Bus enters in IDLE state and recovers due to an active communication. | Lin | Lin_Protocol.c |
| AI00059568 | Bugfix: Transport Layer Test cases 13.5.1 Ignoring segmented requests after timeout and 13.1 Transport layer Functional Request are failing. | Lin | Lin_diag.c |

3.2 Changes from v1.6.0 to v1.7.0

| Issue # | Description | Modified Artifacts | |
|------------|--|--------------------|--|
| | | Module | Files |
| AI00058362 | Bugfix: Modification to API Lin_TpCallBack's handling of received data bytes so that the parameter "IRxLen" provides the number of valid data received as a result of a segmented transport protocol communication | Lin | Lin_Protocol.c |
| AI00058130 | Bugfix: Modification to File Headers to make it generic XC2000 | Lin | All |
| AI00058345 | Bugfix: Removal of redundant checks - cleanup | Lin | Lin_Protocol.c Lin_diag.c |
| AI00058346 | Bugfix: Bounds checking made more strict so that there is no chance of any error due to divide by zero operation / out of bounds array access | Lin | LIN_Protocol.c, LIN_IDL.c and Lin_Diag.c |
| AI00058362 | Bugfix: Handling of event triggered frame id (re)assignment modified. | Lin | Lin_Diag.c |

3.3 Changes from v1.5.0 to v1.60

| Issue # | Description | Modified Artifacts | |
|---------|---|--------------------|------------------------|
| | | Module | Files |
| --- | Driver now supports XC2000 Low End and Ultra Low End Series of Microcontrollers | Lin | Lin_idl.c Lin_cfg.h |

3.4 Changes from V1.4.0 to V1.5.0

| Issue # | Description | Modified Artifacts | |
|------------|---|--------------------|----------------|
| | | Module | Files |
| AI00057719 | Bugfix: Loss of synch in some scenarios (18,800 Bits/sec, 19,200Bits/sec) with and without VBAT toggle, also with debugger commands RUN -> STOP -> CONTINUE | Lin | Lin_Protocol.c |
| AI00057690 | Bugfix: ESR0 pin can be selected as the rx pin for U1C0. The driver doesn't support ESR0 pin as RX pin option currently. | Lin | Lin_Idl.c |
| AI00057123 | Enhancement: Remove Master Code from LIN Slave Driver | LIN | All Files |
| AI00056413 | Issue: Remove Commented Code | LIN | All Files |
| AI00056260 | Bugfix: Frame Response Timeout should be aligned to clock frequency and baud rate | LIN | LIN_Idl.h |

3.5 Changes from V1.3.0 to V1.4.0

| Issue # | Description | Modified Artifacts | |
|------------|---|--------------------|--|
| | | Module | Files |
| AI00056224 | Bugfix: Bit Error Detection for conformance tests | Lin | Lin_Protocol.c Lin_IDL.c |
| AI00056225 | Enhancement: Initial NAD not considered for subsequent Assign NAD | Lin | Lin_Protocol.c Lin_Diag.c Lin_Diag.h |
| AI00056226 | Bugfix: Handling of Response Error Bit | Lin | Lin_Protocol.c Lin_Core.c |
| AI00056265 | Bugfix: Wake Up timing modified to make sure that it falls within specification range | Lin | Lin_IL.h Lin_Idl.h |
| AI00056263 | Enhancement: Handling of Dummy Data | Lin | Lin_Protocol.c |
| AI00056262 | Bugfix: Transport Layer Modifications for Conformance tests. | Lin | Lin_Protocol.c |
| AI00056326 | Bugfix: Handling of command "Go-to-Sleep". | Lin | Lin_Protocol.c |

3.6 Changes from V1.2.0 to V1.3.0

| Issue # | Description | Modified Artifacts | |
|------------|--|--------------------|----------------------------------|
| | | Module | Files |
| AI00056180 | Bugfix: Corrections for loss of sync | Lin | Lin_Idl.h Lin_Idl.c |
| AI00056181 | Bugfix: Corrections to API I_assign_frame_id_range | Lin | Lin_Protocol.c Lin_Protocol.h |

3.7 Changes from V1.1.0 to V1.2.0

| Issue # | Description | Modified Artifacts | |
|------------|---|--------------------|--|
| | | Module | Files |
| AI00055270 | Bugfix: Corrections to Autobaud Detection Algorithm | Lin | Lin_Idl.h Lin_Idl.c |
| AI00055629 | Enhancement: Handling of following diagnostic services within the driver (handled in callback in v1.1.0) <ul style="list-style-type: none"> Assign Frame ID Range Assign NAD Conditional Change NAD Read by ID (only for ID 0) | Lin | Lin_Protocol.c Lin_Protocol.h Lin_Diag.c Lin_diag.h |
| AI00055632 | Enhancement: Support for Frame Counters | Lin | Lin_Protocol.c Lin_IIL.h |
| AI00055631 | Bugfix: Corrections to Internal Macro Name | Lin | Lin_Idl.h Lin_Core.c |

3.8 Changes from V1.0.0 to V1.1.0

| Issue # | Description | Modified Artifacts | |
|--------------------------|--|--------------------|--|
| | | Module | Files |
| AI00053474 | Enhancement: Usage of HW FIFO's support | Lin | Lin_Protocol.c Lin_idl.c Sfr16.c |
| AI00053539 | Enhancement: Test Suite enhancements | Lin Test | Lin_Test1.c |
| AI00053851 | Enhancement: Include all software releases in an installer | Lin Package | --- |
| AI00053852 AI00053924 | Enhancement: Enhancements to diagnosis (Callback Support) | Lin | Lin_Protocol.c Lin_Diag.c |

3.9 Changes to V1.0.0

This is the First Release of the driver. No Previous version exists

4 Installation Requirements

- Installation of package is required. Select and execute the executable file "Lin_SLAVE_20_21_XC22xxN_XC22xxL_XC22xxU_LLD_V180.exe" and follow the instructions.

5 List of known Issues

| Module | Fault Id | Description | Work Around |
|--------|----------|-------------|-------------|
| LIN | --- | --- | --- |

6 MISRA Violations

| Rule number | Deviation/ Violation |
|-------------|--|
| 1.1, 1.2 | Violation due to the usage of SFR's (pointer casting) |
| 6.4, 19.15 | Repeated File Inclusion |
| 10.1 | "Implicit conversion changes sign" Violation appearing due to usage of macros for configuration |
| 16.8 | Violation due to Compiler Specific ISR signatures |
| 19.7, 19.13 | Violation due to usage of ### symbols in Macro for code size reduction and efficient usage of language features, and usage of function like macros |

7 List of Limitations and Deviations

The following table summarizes the most important limitations and deviations with respect to the Requirements Specification.

| Module | Limitation / Deviation |
|--------|---|
| LIN | Event Triggered collision is verified only in the software scenario and not on the real bus |

Please refer to the user manual for a complete list of known limitations for this driver.