Product Name	XC2000 LIN Driver Package
Release Version	1.9
Type Of Release	Production Release
Name of the Supplier	Infineon Technologies AG
Mode of Release	Infineon Security Server
Date of Release	4-May-2011
Previous Version	1.8

Contents

1 Released Items 2

2 Tool Information 3

3 Changes to Previous Version 4

4 Installation Requirements 8

5 List of known Issues 9

6 MISRA Violations 10

7 List of Limitations and Deviations 11

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	1.6.1	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	1.6.2	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	1.6.1	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	1.5.0	
SFR16.h	1.0.2	SFR abstraction Layer
Defines.h	1.3.1	File for Common #defines
Lin_IIL.h	1.3.2	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 v1.8.0 to v1.9.0

The driver version 1.9 is certified for compliance of NCNM and OSI Layers, for Lin Specification Revision 2.1 (November 24th, 2006). Version 2.1, October 10th, 2008.

Issue #	Description	Modified Artifacts	
		Module	Files
AI00060499	**Bugfix:** Signal information did not get updated while using dynamic signal APIs while updating signals event triggered frames	Lin	Lin_Core.c
AI00060500	**Bugfix:** The measured time of the silence period after 3 wake up signals is not in the expected range of 1.5s. The silence measured is 1.46s	Lin	Lin_IIL.h
AI00060501	**Bugfix:** After LIN Bus is IDLE , the time it takes to enter sleep mode is detected as 3.675s instead of expected range of 4s to 10s	Lin	Lin_IIL.h
AI00060502	**Bugfix:** Bit time for a response was sporadically moving out of the range specified by the specification (± 2% of baudrate)	Lin	Lin_Protocol.c Lin_IDL.c

3.2 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

3.3 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 “lRxLen” provides the number of valid data received as a result of a segmented	Lin	Lin_Protocol.c

Issue #	Description	Modified Artifacts	
	transport protocol communication		
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

3.4 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

3.5 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

3.6 Changes from V1.3.0 to V1.4.0

Issue #	Description	Modified Artifacts	
		Module	Files
AI00056224	**Bugfix:**	Lin	Lin_Protocol.c

Issue #	Description	Modified Artifacts	
	Bit Error Detection for conformance tests		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_IIL.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

3.7 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 l_assign_frame_id_range	Lin	Lin_Protocol.c Lin_Protocol.h

3.8 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) • Assign Frame ID Range • Assign NAD • Conditional Change NAD	Lin	Lin_Protocol.c Lin_Protocol.h Lin_Diag.c Lin_diag.h

Issue #	Description	Modified Artifacts	
	• Read by ID (only for ID 0)		
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

3.9 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

3.10 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_V190.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	The Driver is not able to handle transmission of same signal over multiple frames.
LIN	The Driver has been tested for certification and specification compliance with 19200 baud only.

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