LAN9252 – EtherCAT PIC32 SDK Release Notes

	Microchip Technology, Incorporated 2355 W. Chandler Boulevard Chandler, Arizona 85224 480/792-7416		
REV	**DATE**	**ORIGINATOR**	**DESCRIPTION OF CHANGE**
1.0	6/24/2015	Riyas K	Initial version
1.1	9/10/2015	Riyas K	Refer section Version 1.1

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1 Introduction

This document contains the LAN9252 EtherCAT Slave Controller SDK - PIC32MX firmware samples based on EVB-LAN9252-HBI platform.

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3 Terms and abbreviations

IDE   - Integrated Development Environment
ESC   - EtherCAT Slave Controller
EVB   - Engineering Validation Board
HAL   - Hardware Abstraction Layer
HBI   - Host Bus Interface
SPI   - Serial Peripheral Interface
SSC   - Slave Stack Code

4 Prerequisites

The following development tools are required for using this sample for developing EtherCAT application:

- MPLAB IDE v2.20 or above
  (Refer to MPLAB IDE download link: http://www.microchip.com/pagehandler/en-us/family/mplabx/)

- MPLAB XC Compiler v1.33 or above
  (Refer to MPLAB XC Compiler download link: http://www.microchip.com/pagehandler/en-us/devtools/mplabxc/home.html)

- LAN9252 sample SDK source code for PIC32 from Microchip.

- SSC v5.11 code from EtherCAT.org.
  Note: *For using this slave stack code (SSC), you need to be a member of EtherCAT.org.*

5 References
- LAN9252 Datasheet
- EVB-LAN9252-HBI User Manual
- LAN9252 SDK Integration App Notes
- LAN9252 EEPROM Configuration and Programming App Notes

6 Release notes

6.1 Version 1.1

LAN9252-PIC32_SDK_v1.1.zip, file contains the LAN9252 EtherCAT Slave Controller SDK sample source 1.1 for PIC32MX and EVB-LAN9252 Quick Start Guide.docx.

Please note that the source zip file contains:

- Two project sets for PIC32MX SoC (PIC32 folder having HBI sample; PIC32-SPI folder having SPI sample)
- SSC tool configuration file
- Example ESI files for the sample projects using HBI, SPI modes in "ESI Files" folder for reference.
- Demo application object file (pic32_mchp_gpio_sample_app.xlsx).
- Demo application files.

Each project folder has ReadMe.txt detailing the source files and sub-folders and their purpose. Please refer to the Application note "Integrating Microchip's LAN9252 SDK with Beckhoff's EtherCAT® SSC" for integrating the LAN9252 SDK with the EtherCAT® Slave stack code from Beckhoff.

6.1.1 Bug Fixes
None

6.1.2 Features Added
- Error LED
- PDARM FIFO support is added.
- Binaries(Hex files) for each modes are added

Note: EtherCAT master should have maximum jitter shall be concentrated in the range < 50us, or at the most < 100us, Otherwise DC will not work properly.

6.1.3 Known limitations
- Bootstrap mode is not supported.

6.2 Version 1.0

LAN9252-PIC32_SDK_v1.0.zip, file contains the LAN9252 EtherCAT Slave Controller SDK sample source 1.0 for PIC32MX and EVB-LAN9252 Quick Start Guide.docx.

Please note that the source zip file contains:

- Two project sets for PIC32MX SoC (PIC32 folder having HBI sample; PIC32-SPI folder having SPI sample)
- SSC tool configuration file
- Example ESI files for the sample projects using HBI, SPI modes in "ESI Files" folder for reference.
- Demo application object file (pic32_mchp_gpio_sample_app.xlsx).
- Demo application files.

Each project folder has ReadMe.txt detailing the source files and sub-folders and their purpose. Please refer to the Application note "Integrating Microchip's LAN9252 SDK with Beckhoff's EtherCAT® SSC" for integrating the LAN9252 SDK with the EtherCAT® Slave stack code from Beckhoff.

6.2.1 Bug Fixes
None

6.2.2 Features Added
- Added Sync Manger, AL Event Request, Interrupt support and Distributed clock support.
- Added a sample application with PIC GPIOs for HBI based project.
- Added a sample application with LAN9252 GPIOs for SPI based project.

Note: EtherCAT master should have maximum jitter shall be concentrated in the range < 50us, or at the most < 100us, Otherwise DC will not work properly.

6.2.3 Known limitations
- The ERRORLED is not added.
- Bootstrap mode is not supported.

6.3 *Version 0.4*

LAN9252-PIC32_SDK_v0.4.zip, file contains the LAN9252 EtherCAT Slave Controller SDK sample source v0.4 for PIC32MX and the EVB-LAN9252-HBI User Manual.

Please note that the source zip file contains:

- Two project sets for PIC32MX SoC (PIC32 folder having HBI sample; PIC32-SPI folder having SPI sample)
- SSC tool configuration file
- Example ESI files for the sample projects using HBI, SPI modes in "ESI Files" folder for reference.

Each project folder has ReadMe.txt detailing the source files and sub-folders and their purpose. Please refer to the Application note "Integrating Microchip's LAN9252 SDK with Beckhoff's EtherCAT® SSC" for integrating the LAN9252 SDK with the EtherCAT® Slave stack code from Beckhoff.

6.3.1 Bug Fixes
None

6.3.2 Features Added
- Added support for Beckhoff's EtherCAT Slave Stack Code 5.11. Following changes has been done in the sample code for working with SSC 5.11:
  - As Sync Manager time set-up is application specific, this feature is disabled by default and therefore it's associated ISR call back (Sync0_Isr & Sync1_Isr), in 9252_HW.c, is commented out.
  - As AL Event Request is also application specific, this feature is disabled and therefore it's associated ISR call back (PDI_Isr), in 9252_HW.c, is commented out.
  - Updated the SSC tool configuration file with Sync Manger and AL Event Requested disabled as default.
  - Updated the reference HBI/SPI ESI files (in ESI folder) with Sync Manager & AL Event Request Disabled.

  Note: If customer application needs AL Event Request and Sync Manager then they need to enable the related ISR call backs and definition. Also they may need to customize the ISR implementation for their application to work with SSC 5.11.

6.4 Version 0.3

LAN9252-PIC32_SDK_v0.3.zip, file contains the LAN9252 EtherCAT Slave Controller SDK sample source v0.3 for PIC32MX and the EVB-LAN9252-HBI User Manual.

Please note that the source zip file contains:

- Two project sets for PIC32MX SoC (PIC32 folder having HBI sample; PIC32-SPI folder having SPI sample)
- SSC tool configuration file
- Example ESI files for the sample projects using HBI, SPI modes in "ESI Files" folder for reference.

Each project folder has ReadMe.txt detailing the source files and sub-folders and their purpose. Please refer to the Application note "Integrating Microchip's LAN9252 SDK with Beckhoff's EtherCAT® SSC" for integrating the LAN9252 SDK with the EtherCAT® Slave stack code from Beckhoff.

6.4.1 Bug Fixes
None

6.4.2 Features Added
None

6.5 Version 0.2 & 0.1

The v0.2 & v0.1 are internal test release within Microchip.