AX58101(2) BSP User Guide

Revision 1.10
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1. Introduction

The AX58101(2) is an EtherCAT SubDevice Controller (ESC), licensed from Beckhoff Automation, with two integrated Fast Ethernet PHYs which support 100Mbps full-duplex operation and HP Auto-MDIX. The AX58101(2) supports the CANopen over EtherCAT (CoE), File Access over EtherCAT (FoE), Vendor Specific-protocol over EtherCAT (VoE), etc. Standard EtherCAT protocols provide a cost-effective solution for industrial automation applications, such as motion/motor/digital I/O control, Digital to Analog (DAC)/Analog to Digital (ADC) converters control, sensors data acquisition, and robotics, to be applied in industrial fieldbus. Users can use this BSP to evaluate/develop their production that target on ASIX AX58101(2) evaluation board or hardware platform.

2. Directory Information

Directory	Description
Datasheet	AX58101(2) datasheet
Document	Reference user manual and revision history
ESI_Sample	The related AX58101(2) EVB ESI samples
Hardware_Design	The related reference schematics, PCB, Layout, Application Design Note and BOM files
SampleCode	Several samples or reference codes
Tools	Configuration tools and utility
AX58101(2) BSP User Guide	Board Support Package user guide for AX58101(2)

3. Datasheet

File Name	Description
AX58101(2) Datasheet	AX58101(2) in chip level description

4. ESI_Sample

File Name	Description
AX58101(2)_DIO_16Input_16Output	ESI sample for AX58101(2) EVB DIO 16 Input/Output
AX58101(2)_DIO_32Input_ESI	ESI sample for AX58101(2)EVB DIO 32 Input
AX58101(2)_DIO_32Output_ESI	ESI sample for AX58101(2) EVB DIO 32 Output
AX58101(2)_Junction_Slave_ESI	ESI sample for AX58101(2) Junction application
AX58102_DIO_32Input_32Output	ESI sample for AX58102 DIO 32 Input/Output

5. Document

File Name	Description
AX58x01(2) SSC Tool Configuration Import UserGuide	How to import the configuration file of AX58101+STM32F303RE General Purpose / Analog I/O and MotorControl application to generate related source files
AX58x01(2) TwinCAT User Guide	How to setup entire environment for BECKHOFF TwinCAT on AX58x01(2) EVB

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AX5810x ESI Translator Tool User Guide	User guide of Configure the EtherCAT Slave Information (ESI) file
AX58101(2) Product Brief	Product brief of AX58101(2)
AX58101(2) ESI Design Note	ESI design note for AX58101(2)
AX58101(2) Migration from Beckhoff ET1100 AppNote	User guide of AX58101(2) Migration from ET1100
AX58101(2) Product Introduction	Product introduction of AX58101(2)
AX58101 EVB DIO User Guide	User guide of AX58101 EVB Digital I/O Input/Output
AX58101 GpioAio User Guide	User guide of AX58101+STM32F303RE General Purpose / Analog I/O reference design
AX58101 MotorControl User Guide	User guide of AX58101+STM32F303RE MotorControl reference design

6. Hardware_Design

File Name	Description
BOM	The BOM files for AX58101 EVB boards
Layout	The Layout files for AX58101 EVB boards
Layout_Guide	AX58101(2) Application Design Note
Schematics	The reference and design of AX58101 schematics

7. SampleCode

Folder Name	Description
Ax58101_Bldr	Bootloader
Ax58101_GpioAio	AX58101+STM32F303RE reference code for General Purpose / Analog I/O application
Ax58101_MotorControl	AX58101+STM32F303RE reference code for MotorControl application

8. Tools

File Name	Description
FileInfoAdder.exe	Add file header information utility
AX5810x ESI Translator Tool	Configure the EtherCAT Slave Information (ESI) file

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9. Revision History

Revision	Date	Description
V1.00	2025/09/23	Initial release
V1.10	2026/01/28	1.Updated AX58101(2)_Datasheet v1.01 2.Updated AX58x01(2) TwinCAT UserGuide v1.10 3.Updated AX5810x ESI Translator Tool UserGuide v1.10 4.Updated AX58101(2) Product Introduction v1.10 5.Updated AX58101 GpioAio UserGuide v1.10 6.Updated AX58101 MotorControl UserGuide v1.10 7.Updated AX58101(2)_Junction_Slave_ESI_20251016.xml file 8.Updated Ax58101 GpioAio SampleCode v1.1.0 9.Updated Ax58101 MotorControl SampleCode v1.1.0 10.Updated AX58101-EVB-JMB-1 Schematic v1.01 and BOM files 11.Added AX58101-EVB-SSPDI-1 SCHEMATIC V1.00, PCB, Gerber and BOM files. 12.Added AX58101-EVB-2 SCHEMATIC V1.00, PCB, Gerber and BOM files 13.Removed AX58101 EVB PCB10 SCHEMATIC V100, PCB, Gerber and BOM files.

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