AX58101(2) ESI Design Note

Revised Date: 2025/09/16

The following are the AX58101(2) EtherCAT SubDevice Information Interface (SII) Area information for customers to modify the AX58101(2) EtherCAT SubDevice Information (ESI) file. Please refer to *Section 3.2 "Hardware Configuration EEPROM (HWCFGEE)" of AX58101(2) Datasheet* for details of AX58101(2) ESC Configuration Area definition.

ESC SII Field	Length (Bytes)	Default Value	Descriptions
ESC Configuration Area (EEPROM Byte Offset 0x0D - 0x00)	14	-	Refer to Table 4: AX58101(2) ESC Configuration Area Table or assigned by customers based on their exact applications
Vendor ID	4	0x00000B95	ASIX's Vendor ID assigned by ETG or assigned by customers based on their own ETG Vendor ID
Product Code	4	-	Refer to Table 2: AX58101(2) Product Code Field Definition Table, Table 3: AX58101(2) Recommended Product Code Table or assigned by customers based on their own Product Code
Revision Number	4	-	ASIX assigned revision number or assigned by customers based on their own requirements This field should be increased on the revised firmware or ESI file in Table 5.
Serial Number	4	0x00000000	Assigned an unique Serial Number for each device by vendor 0 if there is no serial number given

Table 1. AX58101(2) SII (Salve Information Interface) Area Table

The following is an example of AX58101(2) 16IN/16OUT Demo Board ESI file.

```
<Eeprom>
  <ByteSize>2048</ByteSize>
  <ConfigData>040d0044102700ff000000000000</ConfigData>   ESC Configuration Area
</Eeprom>
   ...
<Vendor>
  <Id>#xE0000B95</Id>   Vendor ID
  <Name>ASIX Electronics Corporation</Name>
  <ImageData16x14>
   ...
<Devices>
  <!-- DIO, GPIO,        FMMU=2, SM=3,    DI=16,   DO=16,   ProductCode="#x70010200" Revisio
  <Device Physics="YY">   Product Code   Revision Number
    <Type ProductCode="#x70010200" RevisionNo="#x00000000">AX58101(2)_EVB_DIO_16</Type>
    <Name LcId="1031">AX58101(2) EVB (Digital 16-Input/16-Output)</Name>
    <GroupType>AX58101(2)_EVB</GroupType>
    <Fmmu>Outputs</Fmmu>
    <Fmmu>Inputs</Fmmu>
    <Sm StartAddress="#x0f02" ControlByte="#x44" Enable="1" OpOnly="1">Outputs</Sm>
    <Sm StartAddress="#x0f03" ControlByte="#x44" Enable="1" OpOnly="1">Outputs</Sm>
```


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Bit	Description
31:28	7h: AX58101(2) EtherCAT SubDevice Controller others:Reserved
27:16	**Interface Mode** bit 27:22: Reserved bit 21: MII Interface (1: Enabled; 0: Disabled) bit 20: GPIO Interface (1: Enabled; 0: Disabled) bit 19: 8-bit Async. Local Bus PDI (1: Enabled; 0: Disabled) bit 18: 16-bit Async. Local Bus PDI (1: Enabled; 0: Disabled) bit 17: SPI Salve PDI (1: Enabled; 0: Disabled) bit 16: Digital I/O PDI (1: Enabled; 0: Disabled)
15:8	**Application Type** This field defines the application type. 00h: No specific/identified application (default) 01h: Multi-function application 02h: Digital I/O Control 03h: Motion/Motor Control 04h: Sensors Data Acquisition 05h: Communication Module 06h: PC Card 07h: EtherCAT Junction SubDevice others: Reserved
7:0	**Vendor Specific Configuration/Sub-Application Type** This field defines the vendor specific requirements or Sub-application type. 00h: No specific requirement (default) 01h: AX58101 EVB (32 Input) 02h: AX58101 EVB (32 Output) 03h: AX58102 EVB (32 Input / 32 Output) 04h: AX58101_GpioAio 05h: AX58101_MotorControl others: Reserved

Table 2. AX58101(2) Product Code Field Definition Table

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Board Name	Product Code	Descriptions
AX58101 EVB (DIO)	0x70010200	Digital I/O : 16 Input/16 Output
AX58101 32 Digital Input	0x70010201	Digital I/O : 32 Input
AX58101 32 Digital Output	0x70010202	Digital I/O : 32 Output
AX58102 EVB (DIO)	0x70010203	Digital I/O : 32 Input/32 Output
AX58101 Local Bus Demo Board	0x70040600	AX58101 + AX99100A EtherCAT SubDevice PCIe Card 16-bit Async. Local Bus PC Card
AX58101 EtherCAT Junction SubDevice Board	0x70000700	EtherCAT Junction SubDevice
AX58101_GpioAio	0x70020004	Combination: AX58101-EVB-SSPDI-1 + NUCLEO-F303RE-64
AX58101_MotorControl	0x70020305	Combination: AX58101-EVB-SSPDI-1 + NUCLEO-F303RE-64 + X-NUCLEO-IHM08M1 + BL60M24D8E00430080

Table 3. AX58101(2) Recommended Product Code Table

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ESC Configuration Area	Value	Descriptions
AX58101 EVB (DIO)	040f0044102700ff000000000000	Digital I/O : 16 Input/16 Output
AX58101 32 Digital Input	040f00441027000000000000000	Digital I/O : 32 Input
AX58101 32 Digital Output	040f00441027ffff000000000000	Digital I/O : 32 Output
AX58102 EVB (DIO)	040d00441027000000000000000	Digital I/O : 32 Input/32 Output
AX58101 Local Bus Demo Board	080000000a000000000000000000	AX58101 + AX99100A EtherCAT SubDevice PCIe Card 16-bit Async. Local Bus PC Card
AX58101 EtherCAT Junction SubDevice Board	000f00441027f0ff000000000000	EtherCAT Junction SubDevice
AX58101_GpioAio	050c03440a00000000001a000000	
AX58101_MotorControl	050c03440a00000000001a000000	

Table 4. AX58101(2) Recommended ESC Configuration Area (EEPROM Byte Offset 0x0D - 0x00) Table

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Bit	Description
31:24	Reserved (00h)
23:20	The field is reserved by AX58101(2) Expansion Board Reference Schematic 0h: No specific requirement (default) 1h: AX58101-EVB-SSPDI-1 others: Reserved
19:16	The field is reserved by AX58101(2) Evaluation Board Reference Schematic 0h: No specific requirement (default) 1h: AX58101 EVB 2h: AX58102 EVB 3h: AX58101 8-Port Junction Evaluation Board 4h: AX58101 Local Bus Demo Board others: Reserved
15:0	The field is reserved by application firmware version information

Table 5. AX58101(2) Revision Number Field Definition Table

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Revision History

Revision	Date	Description
1.00	2025/09/16	Initial release

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