



GPIOTestTool driver – User Guide

Revision History

Revision	Date	Author	Changes
1_0	30 th November 2017	MM	First release

1. Introduction

This guide show how install and use Windows 10 drivers for internal GPIOs.

Internal GPIOs are present on the following SECO board:

- SBC-A44-pITX
- SBC-A80-eNUC

2. Bios setting

Internal GPIOs ACPI device must be enable in BIOS settings following thees steps for **SBC-A44-pITX**:

1. Press **Esc** to enter in BIOS setup
2. Press **SCU** menu
3. Set Advanced\LPSS&SCC Configuration\LPSS&SCC Devices Mode as **ACPI Mode**
4. Set Advanced\LPSS&SCC Configuration\LPSS DMA#2 Support as **Enabled**
5. Set Advanced\LPSS&SCC Configuration\LPSS DMA#2 Support\LVDS I2C Support as **Enabled**
6. Press **F10** to save end exit

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Internal GPIOs ACPI device must be enable in BIOS settings following thees steps for **SBC-A80-eNUC** (BIOS version 1.02 or later):

1. Press **Esc** to enter in BIOS setup
2. Press **SCU** menu
3. Set Advanced\Chipset Configuration\LPSS&SCC Configuration\DMA#2 Support as **Enabled (ACPI)**
4. Set Advanced\Chipset Configuration\LPSS&SCC Configuration\I2C #3 – Touch Controller as **Enabled (ACPI)**
5. Press **F10** to save end exit

3. Linux installation

Internal GPIOs Linux driver has been tested on:

- **Ubuntu16.10 64bit** with **kernel 4.8.0.49**

You can compile, install and use following these steps:

1. Open a terminal with ctrl+T
2. On folder **/sys/class/gpio** there are gpio devices.
3. Type **echo YYY | sudo tee /sys/class/gpio/export** to export the specific single GPIO **YYY**
4. On folder **/sys/class/gpio** will be added a new gpio as **gpio YYY**.
5. Read **/sys/class/gpio/gpioYYY/direction** value to know the current GPIO **YYY** direction
6. Read **/sys/class/gpio/gpioYYY/value** value to know the current GPIO **YYY** status
7. Use the command: **echo in | sudo tee /sys/class/gpio/gpioYYY/direction** to set GPIO **YYY** direction as input
8. Use the command: **echo out | sudo tee /sys/class/gpio/gpioYYY/direction** to set GPIO **YYY** direction as output
9. Use the command: **echo 1 | sudo tee /sys/class/gpio/gpioYYY/value** to set GPIO **YYY** status as high
10. Use the command: **echo 0 | sudo tee /sys/class/gpio/gpioYYY/value** to set GPIO **YYY** status as low
11. Type **echo YYY | sudo tee /sys/class/gpio/unexport** to unexport the specific single GPIO **YYY**.

YYY value is:

A44: YYY = 341 (Output only - Pin 45 on CN16 connector)

A80: YYY = 499 (Output only - Pin 4 on CN10 connector)

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4. Window 10 installation

Internal GPIOs W10 driver can be installed and use following these steps:

1. Install the latest Serial_IO controller driver for your board, downloadable from SECO web site.
2. Verify the presence of **Unknow Device** with Device ID as **ACPI\GPOT000x** in Device Manager
3. Press mouse right-butot on **GPIONTestTool.inf** and select **install**
4. On Device Manger, will be added a “**GPIO Test Tool Peripheral Driver**” device under Sample section.
5. Open a command shell with Administrator privilege.
6. From driver folder type the following command: **GPIONTestTool.exe**
7. Type the command **openout {xx}** to open GPIO xx in output mode where **xx** is the bit mask to manage each single GPIOs
8. Type the command **openin {xx}** to open GPIO xx in input mode where **xx** is the bit mask to manage each single GPIOs
9. Type the command **seth {xx}** to set HIGH GPIO xx where **xx** is the bit mask to manage each single GPIOs
10. Type the command **setl {xx}** to set LOW GPIO xx where **xx** is the bit mask to manage each single GPIOs
11. Type the command **get {0}** to get the value of GPIOxx
12. Type the command **close {0}** to close GPIO 0
13. Type the command **help** to show tool help

When interrupt occurs on a interrupt GPIO pin, interrupt routine will be called and will be printed the following message:

```
Interrupt signalled
```

```
** Interrupt detected. **
```

GPIO pin are mapped as follow:

A44:

- gpiOD 0 – Output only – Pin 45 on CN16 connector
- gpiOIn – Pin 47 on CN16 connector

A80:

- gpiOD 0 – Output only – Pin 4 on CN10 connector
- gpiOIn – Pin 5 on CN10 connector

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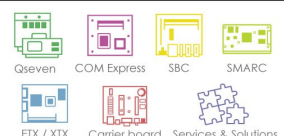
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You can use **GPIONTestTool** source code present on **\\W10_Driver\\SourceCode\\GPIONTestTool** folder as sample code to integrate it on your software.

GPIONTestTool application requires Visual Studio redistributable libraries.

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