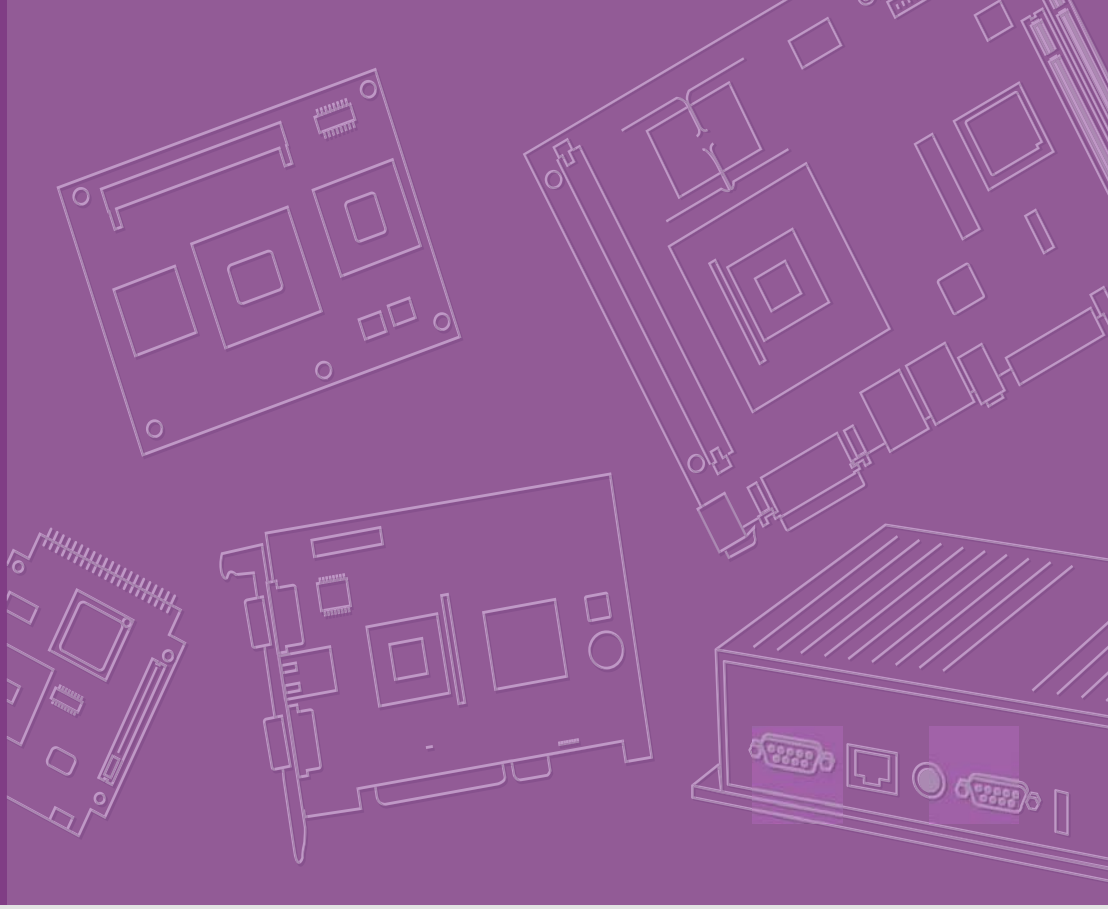

User Manual

SUSI® Library

Trusted ePlatform Services

ADVANTECH

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Contents

Chapter 1

Introduction

1.1 Introduction

SUSI - A Bridge to Simplify & Enhance H/W & Application Implementation Efficiency

When developers want to write an application that involves hardware access, they have to study the specifications to write the drivers. This is a time-consuming job and requires lots of expertise.

Advantech has done all the hard work for our customers with the release of a suite of APIs (Application Programming Interfaces), called the **Secured & Unified Smart Interface** (SUSI).

SUSI provides not only the underlying drivers required but also a rich set of user-friendly, intelligent and integrated interfaces, which speeds development, enhances security and offers add-on value for Advantech platforms. SUSI plays the role of catalyst between developer and solution, and makes Advantech embedded platforms easier and simpler to adopt and operate with customer applications.

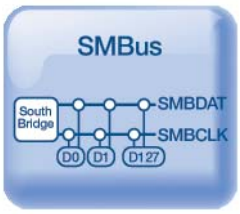
1.2 SUSI Functions

Control

- **GPIO**

General Purpose Input/Output is a flexible parallel interface that allows a variety of custom connections. It supports various Digital I/O devices - input devices like buttons, switches; output devices such as cash drawers, LED lights°¦etc. And, allows users to monitor the level of signal input or set the output status to switch on/off the device. Our API also provide Programmable GPIO, allows developers to dynamically set the GPIO input or output status

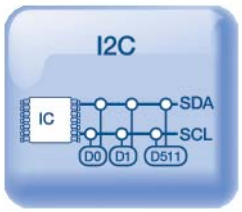
- **SMBus**



SMBus is the System Management Bus defined by Intel? Corporation in 1995. It is used in personal computers and servers for low-speed system management communications. Today, SMBus is used in all types of embedded systems.

The SMBus API allows a developer to interface a Windows XP or CE PC to a downstream embedded system environment and transfer serial messages using the SMBus protocols, allowing multiple simultaneous device control.

- **I²C**



I2C is a bi-directional two wire bus that was developed by Philips for use in their televisions in the 1980s. Today, I2C is used in all types of embedded systems.

The I2C API allows a developer to interface a Windows XP or CE PC to a down-stream embedded system environment and transfer serial messages using the I2C protocols, allowing multiple simultaneous device control.

Monitor

- **Watchdog**

A watchdog timer (WDT) is a device or electronic card that performs a specific operation after a certain period of time if something goes wrong with an electronic system and the system does not recover on its own.

A watchdog timer can be programmed to perform a warm boot (restarting the system) after a certain number of seconds during which a program or computer fails to respond following the most recent mouse click or keyboard action.

- **Hardware Monitor**

The Hardware Monitor (HWM) API is a system health supervision API that inspects certain condition indexes, such as fan speed, temperature and voltage.

- **Hardware Control**

The Hardware Control API allows developers to set the PWM (Pulse Width Modulation) value to adjust Fan Speed or other devices; can also be used to adjust the LCD brightness.

Display

- **Brightness Control**

The Brightness Control API allows a developer to interface Windows XP and Windows CE PC to easily control brightness.

- **Backlight**

The Backlight API allows a developer to control the backlight (screen) on/off in Windows XP and Windows CE.

Power Saving

- **CPU Speed**

Make use of Intel SpeedStep technology to save the power consumption. The system will automatically adjust the CPU Speed depend on the system loading.

- **System Throttling**

Refers to a series of methods for reducing power consumption in computers by lowering the clock frequency. These API allow user to lower the clock from 87.5% to 12.5%.

1.3 Benefits

- **Faster Time to Market**

  SUSI's unified API helps developers write applications to control the hardware without knowing the hardware specs of the chipsets and driver architecture.

- **Reduced Project Effort**

  When customers have their own devices connected to the onboard bus, they can either: study the data sheet and write the driver & API from scratch, or they can use SUSI to start the integration with a 50% head start. Developers can reference the sample program on the CD to see and learn more about the software development environment.

- **Enhances Hardware Platform Reliability**

  SUSI provides a trusted custom ready solution which combines chipset and library function support, controlling application development through SUSI enhances reliability and brings peace of mind.

- **Flexible Upgrade Possibilities**

  SUSI supports an easy upgrade solution for customers. Customers just need to install the new version SUSI that supports the new functions.

Chapter 2

Environments

2.1 Environments

Operating Systems that SUSI supports include:

- Windows XP Embedded
- Windows XP Pro or Home Edition

For the complete list of SUSI-enabled platforms, please refer to Appendix A. Note that the list may be changed without notice. For the latest support list, please check:

http://www.advantech.com.tw/ess/SUSI.asp

Should you have any questions about your Advantech boards, please contact us by telephone or E-mail.

Chapter 3

Package Contents

3.1 Package Contents

SUSI currently supports Windows XP. Contents listed below:

Operating System	**Location**	**Installation**
Windows XP(e)	C:\ProgramFiles\Advantech\SUSIV30	Setup.exe
Directory	**Contents**	
User Manual	SUSI.pdf	
Library Files	■ Susi.lib Function export ■ Susi.dll Dynamic link library	
Include Files	■ Susi.h ■ Debug.h / Errdrv.h / Errlib.h	
SusiDemo	■ SusiDemo.exe Demo program execution file ■ Susi.dll Dynamic link library	
SusiDemo\SRC\ C#	Source code of SusiDemo program in C#, VS2005	

Chapter 4

Additional Programs

4.1 VGA Control Hotkey Utility

The VGA control hotkey utility, SusiHotkey.exe, automatically runs during system startup in both Windows XP and Windows CE. It provides users with an easy access to VGA functions with the following hotkey assignments.

Key	Action
Ctrl + Alt + '+'	Increase brightness by 10%
Ctrl + Alt + '-'	Decrease brightness by 10%
Ctrl + Alt + '6'	Set brightness to 60 %
Ctrl + Alt + '1'	Turn VGA display on
Ctrl + Alt + '0'	Turn VGA display off

4.2 Demo Program

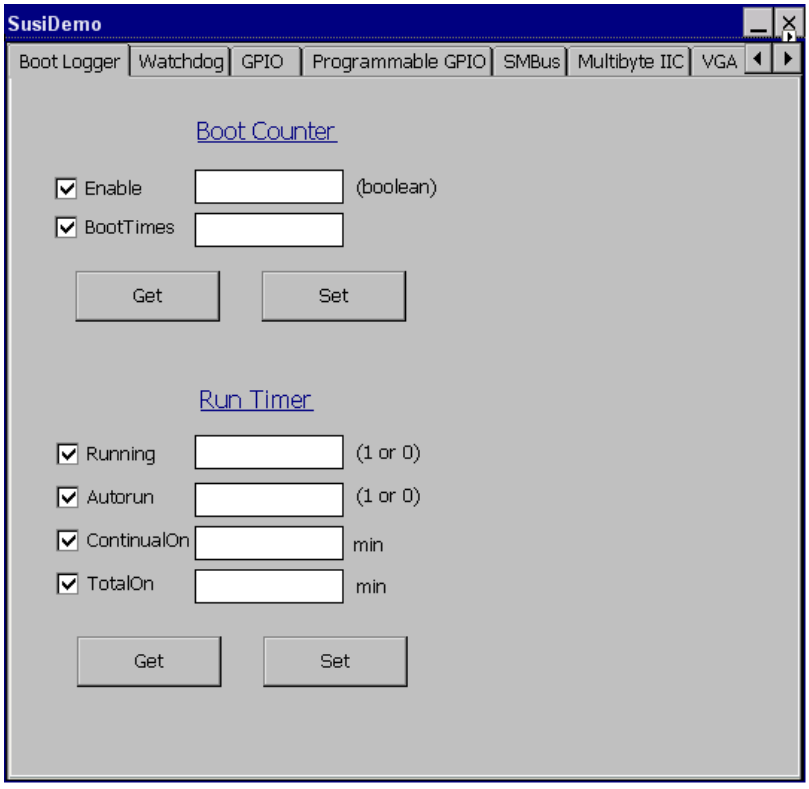
The SUSI demo program demonstrates how to incorporate SUSI library into user's own applications. The program is written in C# programming language and based upon .NET Compact Framework 2.0, Visual Studio 2005.

4.3 SusiDemo.exe

The execution file, SusiDemo.exe, released with source code can be run on both Windows XP and Windows CE.

The following pages are a detailed introduction to the SusiDemo program:

4.3.1 Boot Logger



This part belongs to the feature Core in SUSI APIs.

- Select or clear the check box to select the information to get or set in its text box.

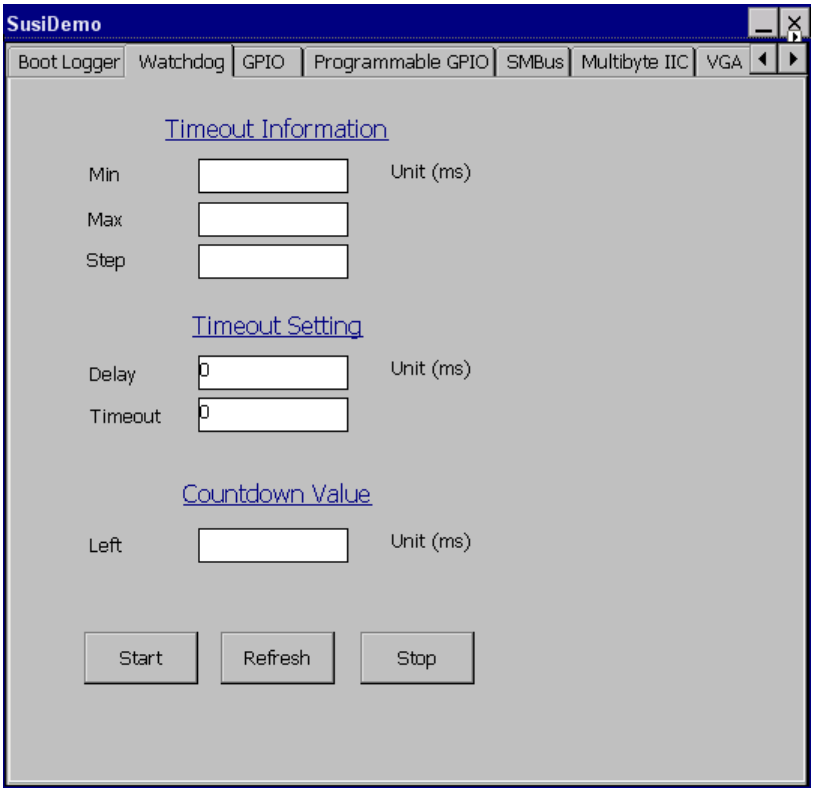
In Boot Counter

- To reset the BootTimes parameter to 0, just type 0 in the BootTimes text box with its check box selected, and then click the "Set" button.

In Run Timer

- Set the Running text box to 1 to start the timer, or 0 to stop the timer.
- Set the Autorun text box to 1 to start the timer when the system restarts.

4.3.2 Watchdog

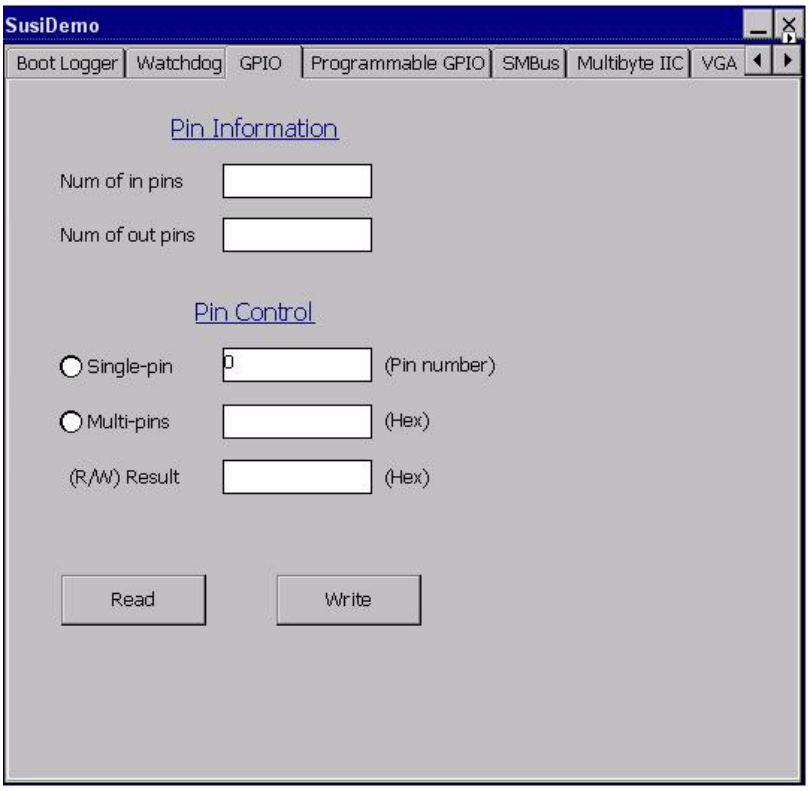


When the SusiDemo program executes, it shows watchdog information in the "Time-out Information" fields - "Min", "Max", and "Step" in milliseconds. For example, for a range of 1 ~ 255 seconds, 1000 appears in the "Min" text box, 255000 appears in the "Max" text box, and 1000 appears in the "Step" text box.

Here is an example of how to use the watchdog timer:

- Type 3000 (3 sec.) in the "Timeout" text box and optionally type 2000 (2 sec.) in the "Delay" text box. Click the "Start" button. The "Left" text box will show the approximate countdown value the watchdog timer. (This is a software timer in the demo program, not the actual watchdog hardware timer so it is not very accurate.)
- Before the timer counts down to zero, you may reset the timer by clicking the "Refresh" button, stop it by clicking the "Stop" button.

4.3.3 GPIO



This page is only for backward compatibility with previous APIs that are bidirectional. So in new GPIO supported platforms such as SUSI V12, this page will not be shown. **We highly recommend you use the new Programmable GPIO.**

When the SusiDemo program executes, it displays the fixed numbers of input pins and output pins in "Pin Information" field. You can click the "Single-pin" or "Multi-pins" radio button to choose single or multiple pins. For GPIO pinout information for each platform, please refer to the Appendix.

Read Single Input Pin

- Click "Single-Pin" radio button.
- Type the input pin number to read the status from. Pins are numbered from 0 to the total number of input pins minus 1.
- Click "Read" button and the status of the GPIO pin appears in "(R/W) Result".

Read Multiple Input Pins

- Click "Multiple-Pins" radio button.
- Type a pin number from '0x01' to '0x0F' to read the status of the input pins. The pin numbers are bitwise-ORed, i.e. bit 0 stands for input pin 0, bit 1 stands for input pin 1, etc. For example, to read input pins 0, 1, and 3, type '0x0B' into the "Multi-Pins" text box.
- Click the "Read" button and the status of the GPIO pins appears in the "(R/W) Result" text box.

Write Single Output Pin

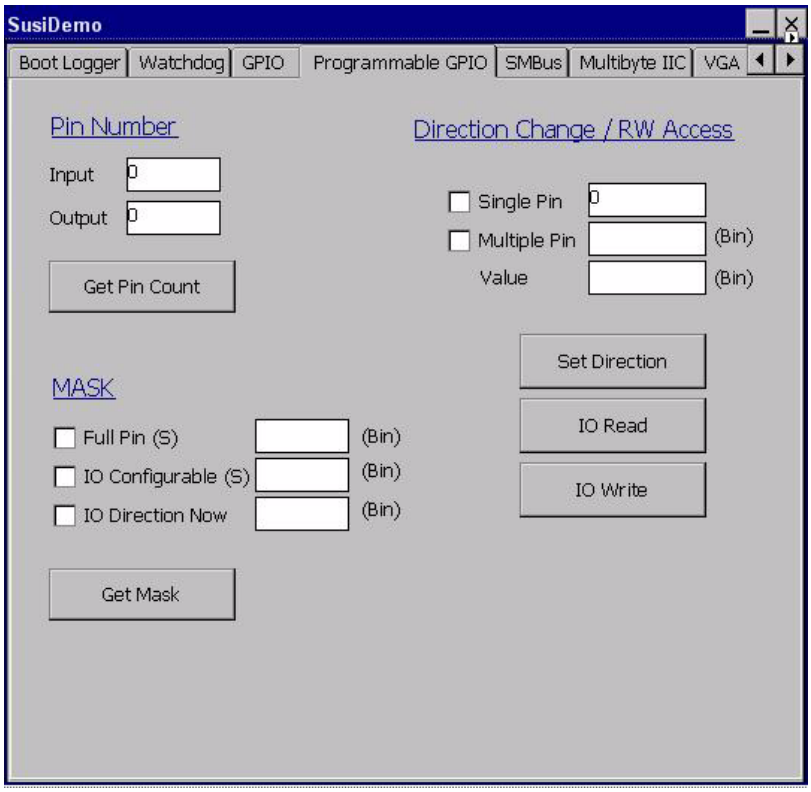
- Click the "Single-Pin" radio button.

- Type the output pin number to write the status to. Pins are numbered from 0 to the total number of input pins minus 1.
- Type either '0' or '1' in "(R/W) Result" to set the output status as low or high.
- Click "Write" button to perform the operation.

Write Multiple Output Pins

- Click the "Multi-Pins" radio button.
- Type a pin number from '0x01' to '0x0F' to choose the output pins to write. The pin numbers are bitwise-ORed, i.e. bit 0 stands for output pin 0, bit 1 stands for output pin 1, etc. For example, to write input pins 0, 1, and 3, type '0x0B' into the "Multi-Pins" text box.
- Type a value from '0x01' to '0x0F' into the "(R/W) Result" text box to set the status of the output pins. Again, the pin statuses are bitwise-ordered, i.e. bit 0 stands for the desired status of output pin 0, bit 1 for output pin 1, etc. For example, if you want to set pin 0 and 1 high, 3 to low, the value given in text box of "(R/W)Result" should be '0x0A'.
- Click "Write" button to perform the operation.

4.3.4 Programmable GPIO



Pin Number

- Get the numbers of input pins and output pins respectively. Each number may vary with the direction of current pins, but the sum remains the same.

MASK

- Choose the mask of interest by selecting or clearing its check box, then clicking "Get Mask".

Direction Change / RW Access

- Choose either "Single Pin" or "Multiple Pin".
- The possible values that the "Single Pin" text box can be set to ranges from 0 to the total number of GPIO pins minus 1.

Single Pin Operation - "IO Write" / "Set Direction"

- Give a value of '1' (output status high / input direction) or '0' (output status low / output direction) to set the pin then click the "IO Write" or "Set Direction" button.

Single Pin Operation - "IO Read"

- Click "IO Read" to get the pin input status.

Multiple Pin Operation - "IO Write" / "Set Direction"

If there are 8 GPIO pins:

- To write the status of GPIO output pins 0, 1, 6 and 7, give the "Multiple Pin" text box the value 11000011. Bit 0 stand for GPIO 0, bit 1 stand for GPIO 1, and so on.
  To set pin 0 as high, pin 1 as low, pin 6 as high and pin 7 as low, give the "Value" text box the value 01XXXX01, where X stands for a don't care pin.
  Please simply assign a 0 for don't care pins, e.g. 10000001.
- To set the direction of GPIO pins 0, 1, 6 and 7, give the "Multiple Pin" text box the value 11000011. Again bit 0 stands for GPIO 0, bit 1 stands for GPIO 1, and so on. To set pin 0 as an input, pin 1 as an output, pin 6 as an input and pin 7 as an output, give the "Value" text box with 01XXXX01, where X is for don't care
  Please simply assign a 0 for don't care pins, e.g. 10000001.

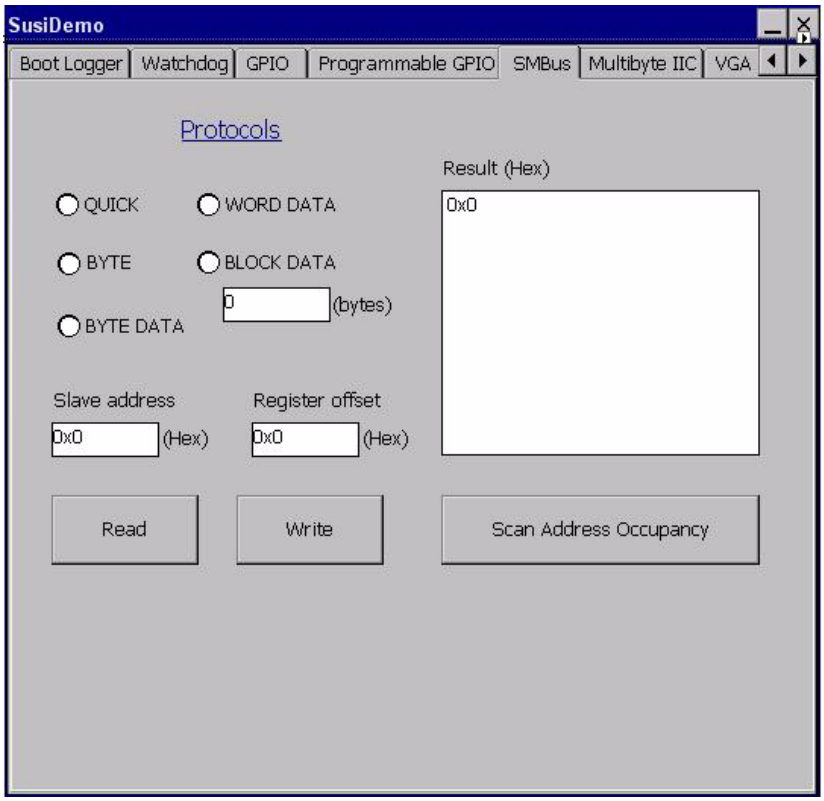
Multiple Pin Operation - "IO Read"

- For example, if you want to read the status of GPIO pins 0, 1, 6 and 7, give the "Multiple Pin" text box the value 11000011. Bit 0 stands for GPIO 0, bit 1 stands for GPIO 1, and so on. Again, if the pin is in status high, the value in the relevant bit of the "Value" text box will be 1. If the pin status is low, the "Value" text box will be 0.

Note!

1. "IO Write" can only be performed on pins in the output direction.
2. "Set Direction" can only be performed on bidirectional pins.
3. "IO Read" can get the status of both input and output pins.
   Please get the information first in the "MASK" field.

4.3.5 SMBus



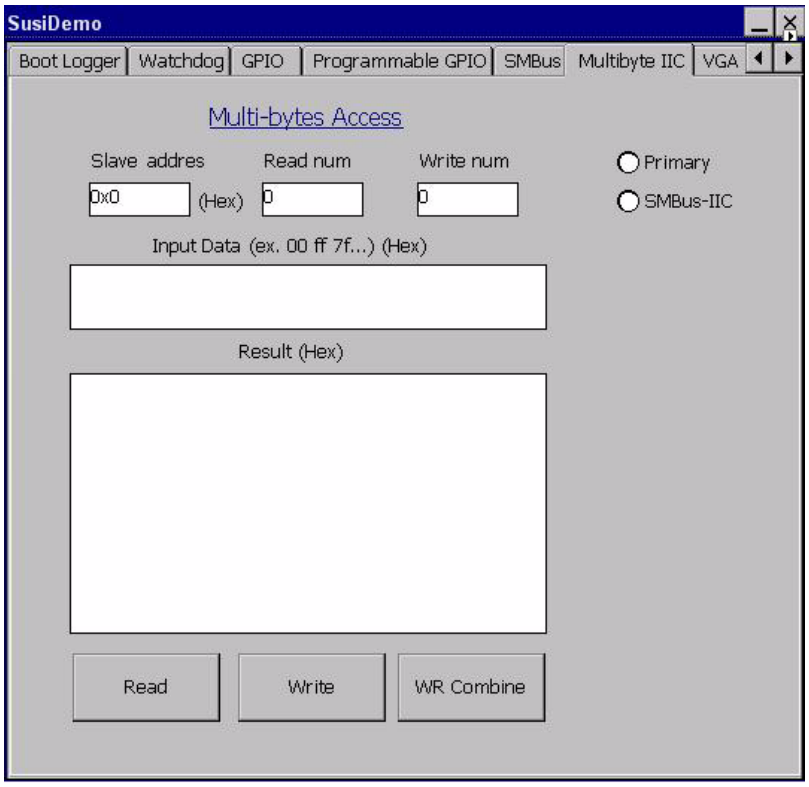
Protocols

- Choose one of the protocol operations by selecting a radio button.
- Give the proper value to the "Slave address" and "Register offset" text boxes. Some protocol operations don't have register offsets.
- Click the "Read" button for read/receive operations, and the "Write" button for write/send operations.
- The values read or to be written are in the "Result (Hex)" text box.

"Scan Address Occupancy" Button

- Click this button to get the addresses currently used by slave devices connected to the SMBus.
- The occupied addresses will be shown in the "Result (Hex)" text box. The addresses are already in an 8-bit format.

4.3.6 Multibyte IIC



- Select the "Primary" or "SMBus-IIC" radio button. If one of them is not supported, its radio button will be unavailable.

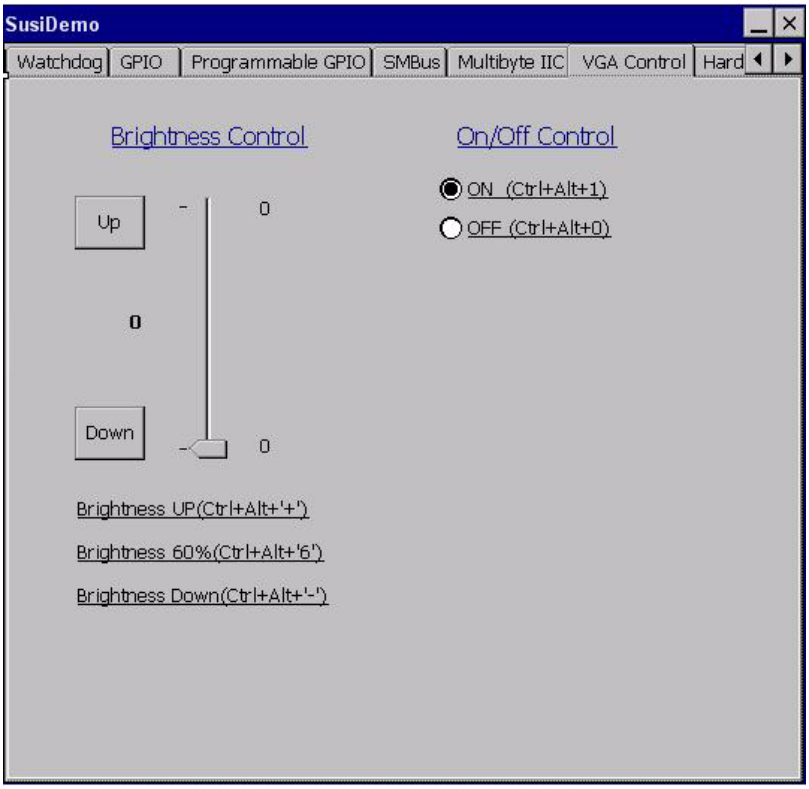
Primary

- Connect the IIC devices to the IIC connector.
- Type in the data bytes to be written in the "Input Data" text box.
- The bytes read will be shown in the "Result" text box.

SMBus-IIC

- Connect the IIC devices to the SMBus connector.
- In AMD platforms, all the IIC functions are fully supported.
- In Intel or VIA platforms, only Read and Write with "Read num" = 1 or "Write num" = 1 are supported. "WR Combine" is not supported.

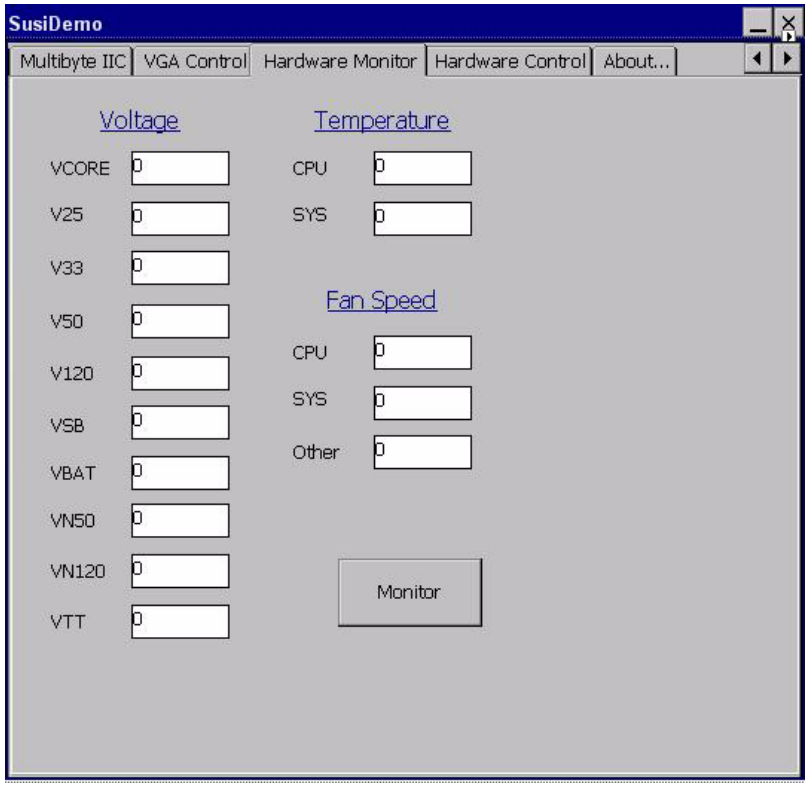
4.3.7 VGA Control



You may control VGA functions from the "VGA Control" tab or directly by hotkey.

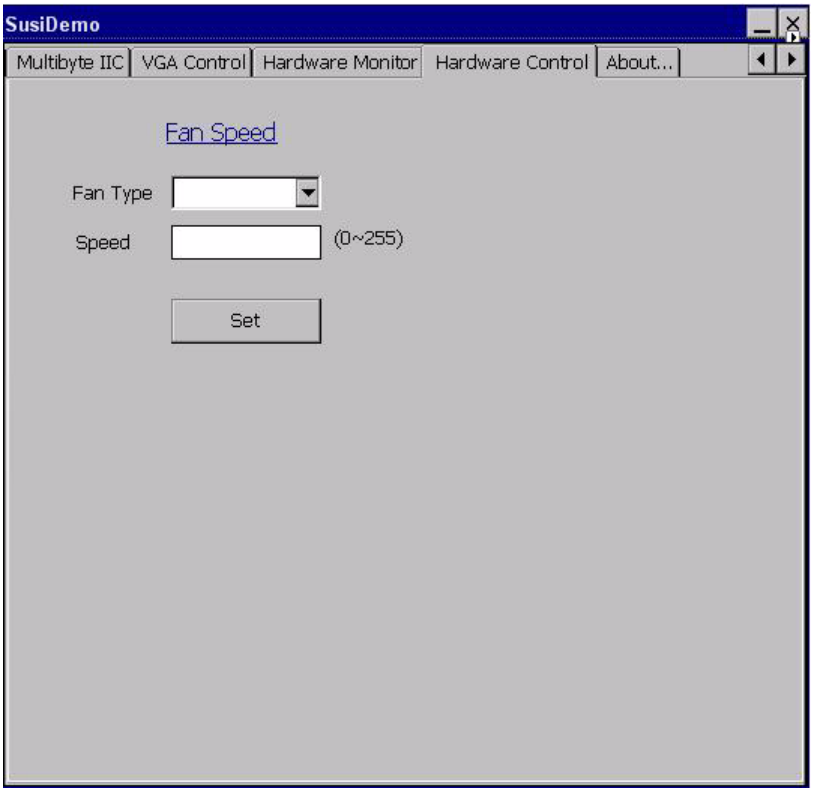
If the brightness control is not supported, the control parts are unavailable (grayed-out).

4.3.8 Hardware Monitor



Click "Monitor" to get and display the hardware monitor values. If a data value is not supported on the platform, its text box will be unavailable (grayed-out).

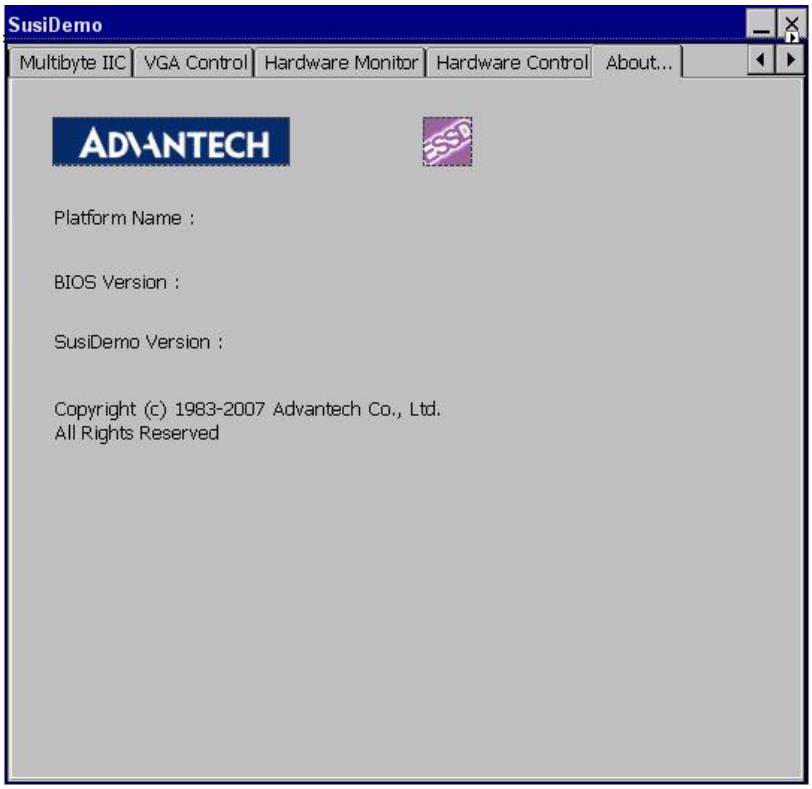
4.3.9 Hardware Control



This function now includes Pulse Width Modulation (PWM) control over parameters such as fan speed, panel brightness etc.

The bigger the value given, the higher the duty cycle (power) of the pulse, e.g. the fan will have a higher speed.

4.3.10 About



This page contains the platform name, the BIOS version etc., i.e. the information retrieved by the SUSI APIs.

Chapter 5

Programming Overview

5.1 Introduction

Header Files

- SUSI.H includes API declaration, constants and flags that are required for programming.
- DEBUG.H / ERRDRV.H / ERRLIB.H are for debug code definitions.

  DEBUG.H - Function index codes

  ERRLIB.H - Library error codes

  ERRDRV.H - Driver error codes

Library Files

- Susi.lib is for library import and Susi.dll is a dynamic link library that exports all the API functions.

Demo Program

- The SusiDemo program, released with source code, demonstrates how to fully use SUSI APIs. The program is written in the latest programming language C#.

Drivers

There are seven drivers for SUSI: CORE, WDT, GPIO, SMBus, IIC, VC and HWM.

E.g. Driver CORE is for SusiCore- prefixed APIs, and so on.

A driver will be loaded only if its corresponding function set is supported by a platform.

Installation File

In Windows XP, you have to run Setup.exe for installation. To avoid double installation, please make sure you have removed any existing SUSI drivers, either by using Setup.exe or by manually removing them in Device Manger.

Dll functions

SusiDll- APIs are driver-independent, i.e. they can be called without any drivers. In Windows XP, after drivers having been installed, users have to call SusiDllInit for initialization before using any other APIs that are not SusiDll- prefixed. Before the application terminates, call SusiDllUnInit to free allocated system resources.

When an API call fails, use SusGetLastError to get an error report. An error value will be either

Function Index Code + Library Error Code, or

Function Index Code + Driver Error Code

The Function Index Code indicates which API the error came from and the library / Driver Error Code indicates the actual error type, i.e. whether it was an error in a library or driver. For a complete list of error codes, please refer to the Appendix

- SusiDllInit
- SusiDllUnInit
- SusiDllGetLastError
- SusiDllGetVersion

5.2 Core functions

SusiCore- APIs are available for all Advantech SUSI-enabled platforms to provide board information such as the platform name and BIOS version. New SusiCoreAccessBootCounter and SusiCoreAccessBootCounter APIs are Boot Logger features that enable monitoring of system reboot times, total OS run time and continual run time. SusCoreThrottlingSpeed to SusiCoreGetCpuMaxSpeed APIs are CPU throttling features.

- SusiCoreGetPlatformName
- SusiCoreGetBIOSVersion
- SusiCoreAccessBootCounter
- SusiCoreAccessRunTimer
- SusiCoreGetThrottlingSpeed
- SusiCoreSetThrottlingSpeed
- SusiCoreGetThrottlingDuty
- SusiCoreSetThrottlingDuty
- SusiCoreGetCpuMaxSpeed
- SusiCoreGetCpuVendor

5.3 Watchdog (WD) functions

The hardware watchdog timer is a common feature among all Advantech platforms. In user applications, call SusiWDSetConfig with specific timeout values to start the watchdog timer countdown, meanwhile create a thread or timer to periodically refresh the timer with SusiWDTrigger before it expires. If the application ever hangs, it will fail to refresh the timer and the watchdog reset will cause a system reboot.

- SusiWDGetRange
- SusiWDSetConfig
- SusiWDTrigger
- SusiWDDisable

5.4 GPIO (IO) functions

There are two sets of GPIO functions. It is highly recommended to use the new one. With pin read and write, more flexibility has been added to allow easy pin direction change as needed, as well as the capability of reading output pin status.

New programmable GPIO function set:

- SusiIOCountEx
- SusiIOQueryMask
- SusiIOSetDirection
- SusiIOSetDirectionMulti
- SusiIOReadEx
- SusiIOReadMultiEx
- SusiIOWriteEx
- SusiIOWriteMultiEx

Previous function set:

- SusiIOCount
- SusiIOInitial

- SusiIORead
- SusiIOReadMulti;
- SusiIOWrite
- SusiIOWriteMulti

Refer to Appendix for pin allocation and their default direction.

5.5 SMBus functions

We support the SMBus 2.0 compliant protocols in SusiSMBus- APIs :

- Quick Command - SusiSMBusReadQuick/SusiSMBusWriteQuick
- Byte Receive/Send - SusiSMBusReceiveByte/SusiSMBusSendByte
- Byte Data Read/Write - SusiSMBusReadByte/SusiSMBusWriteByte
- Word Data Read/Write - SusiSMBusReadWord/SusiSMBusWriteWord

We also support an additional API for probing:

- SusiSMBusScanDevice

The slave address is expressed as a 7-bit hex number between 0x00 to 0x7F, however the actual addresses used for R/W are

8-bit write address = 7-bit address <<1 (left shift one) with LSB 0 (for write)

8-bit read address = 7-bit address <<1 (left shift one) with LSB 1 (for read)

E.g. Given a 7-bit slave address 0x20, the write address is 0x40 and the read address is 0x41.

Here in all APIs (except for SusiSMBusScanDevice), parameter SlaveAddress is the 8-bit address and users don't need to care about giving it as a read or write address, since the actual R/W is taken care by the API itself, i.e. you could even use a write address, say 0x41 for APIs with write operation and get the right result, and vice versa.

SusiSMBusScanDevice is used to probe whether an address is currently used by certain devices on a platform. You can find out which addresses are occupied by scanning from 0x00 to 0x7f. For example, you could scan for occupied addresses and avoid them when connecting a new device; or by probing before and after connecting the new device, you could quickly know its address. The SlaveAddress_7 parameter given in this API is a 7-bit address.

5.6 IIC functions

The APIs here cover IIC standard mode operations with a 7-bit device address:

- SusiIICRead
- SusiIICWrite
- SusiIICWriteReadCombine

IIC versus SMBus - compatibility

On platforms that do not have IIC but do have SMBus, a call to SusiIICAvailable returns SUSI_IIC_TYPE_SMBUS (2). Users might be able to use SMBus as a substitute; however, whether it's with fully or partially supported depends on the SMBus controller type.

In AMD platforms, we have implemented the SMBus driver to be totally IIC standard mode compatible; users could use the IIC APIs implemented by the SMBus controller

with IICType = SUSI_IIC_TYPE_SMBUS to communicate with all kinds of IIC devices.

In Intel and VIA's platforms, the currently compatible protocols are

- SusiIICRead with ReadLen = 1
- SusiIICWrite with WriteLen = 1

IIC devices with 7-bit slave addresses can also be scanned by SusiSMBusScanDevice on all platforms that have SMBus support.

We are now working on more IIC compatible APIs for Intel and VIA controllers. These APIs will be supported soon.

For more details on platform IIC/SMBus support, please refer to Appendix A.

5.7 VGA Control (VC) functions

SusiVC- functions support VGA signal ON/OFF on all SUSI-enabled platforms and also LCD brightness adjustment.

- SusiVCScreenOn
- SusiVCScreenOff
- SusiVCGetBrightRange
- SusiVCGetBright
- SusiVCSetBright

One application of SusiVCScreenOn and SusiVCScreenOff is to have the display signal disabled when system idles after certain period of time to expand the panel life span.

5.8 Hardware Monitoring (HWM) functions

SusiHWM- functions support system health supervision by retrieving the values of voltage, temperature and fan sensors. In some platforms, it is possible to control the CPU/System fan speed. Use these functions cautiously.

- SusiHWMAvailable
- SusiHWMGetFanSpeed
- SusiHWMGetTemperature
- SusiHWMGetVoltage
- SusiHWMSetFanSpeed

Chapter 6

SUSI API Programmer's Documentation

All APIs return the BOOL data type except Susi*Available and some special cases that are of type int. If any function call fails, i.e. a BOOL value of FALSE, or an int value of -1, the error code can always be retrieved by an immediate call to SusiGet-LastError.

6.1 SusiDllInit

Initialize the Susi Library.

BOOL SusiDllInit(void);

Parameters

None.

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

An application must call SusiDllInit before calling any other non SusiDll- functions.

6.2 SusiDllUnInit

Uninitialize the Susi Library.

BOOL SusiDllUnInit(void);

Parameters

None.

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

Before an application terminates, it must call SusiDllUnInit if it has successfully called SusiDllInit. Calls to SusiDllInit and SusiDllUnInit can be nested but must be paired.

6.3 SusiDllGetVersion

Retrieve the version numbers of SUSI Library.

void SusiDllGetVersion(WORD *major, WORD *minor);

Parameters

major

[out] Pointer to a variable containing the major version number.

minor

[out] Pointer to a variable containing the minor version number.

Return Value

None.

Remarks

This function returns the version numbers of SUSI. It's suggested to call this function first and compare the numbers with the constants SUSI_LIB_VER_MJ and SUSI_LIB_VER_MR in header file SUSI.H to insure the library compatibility.

6.4 SusiDllGetLastError

This function returns the last error code value.

```
int SusiDllGetLastError(void);
```

Parameters

None

Return Value

The code of error reason for the last function call with failure.

Remarks

You should call the SusiDllGetLastError immediately when a function's return value indicates failure.

The return error code will be either

Function Index Code + Library Error Code, or

Function Index Code + Driver Error Code

The Function Index Code distinguishes which API the error resulted from and the library / Driver Error Code indicates the actual error type, i.e. if it is an error in a library or driver. For a complete list of error codes, please refer to the Appendix.

6.5 SusiCoreAvailable

Check if Core driver is available.

```
int SusiCoreAvailable (void);
```

Parameters

None.

Return Value

Value	Meaning
-1	The function fails.
0	The function succeeds; the platform does not support SusiCore- APIs.

1	The function succeeds; the platform supports Core.

Remarks

After calling SusiDllInit successfully, all Susi*Available functions are used to check if the corresponding features are supported by the platform or not. So it is suggested to call Susi*Available before using any Susi*- functions.

6.6 SusiCoreGetBIOSVersion

Get the current BIOS version.

BOOL SusiCoreGetBIOSVersion(TCHAR *BIOSVersion, DWORD *size);

Parameters

BIOSVersion

[out] Pointer to an array in which the BIOS version string is returned.

size

[in/out]

Pointer to a variable that specifies the size, in TCHAR, of the array pointed to by the BIOSVersion parameter.

If BIOSVersion is given as NULL, when the function returns, the variable will contain the array size required for the BIOS version.

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

Call the function twice, first by giving BIOSVersion as NULL to get the array size required for the string. Then allocate a TCHAR array with the size required and give the array with its size as parameters to get the BIOS version. Note that the BIOS version cannot be correctly retrieved if it's a release version.

6.7 SusiCoreGetPlatformName

Get the current platform name.

BOOL SusiCoreGetPlatformName(TCHAR *PlatformName, DWORD *size);

Parameters

PlatformName

[out] Pointer to an array in which the platform name string is returned.

size

[in/out]

Pointer to a variable that specifies the size, in TCHAR, of the array pointed to by the PlatformName parameter.

If PlatformName is given as NULL, when the function returns, the variable will contain the array size required for the platform name.

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

Call the function twice, first by giving PlatformName as NULL to get the array size required for the string. Then allocate a TCHAR array with the size required and give the array with its size as parameters to get the platform name. Note that the platform name cannot be correctly retrieved if the BIOS is a release version.

6.8 SusiCoreAccessBootCounter

Access the boot counter. A boot counter is used to count the number of boot times.

BOOL SusiCoreAccessBootCounter(DWORD mode, DWORD OPFlag, BOOL *enable, DWORD *value);

Parameters

mode

[in] The value can be either

ESCORE_BOOTCOUNTER_MODE_GET (0)

- To get information from counter.

ESCORE_BOOTCOUNTER_MODE_SET (1)

- To set information to counter.

OPFlag

[in] The operation flag can be the combination of

ESCORE_BOOTCOUNTER_STATUS (1)

- The operation is on the parameter enable

ESCORE_BOOTCOUNTER_VALUE (2)

- The operation is on the parameter value

enable

[in/out]

If OPFlag contains ESCORE_BOOTCOUNTER_STATUS (1):

When mode equals ESCORE_BOOTCOUNTER_MODE_GET(0), after the function returns, enable will contain the status of the counter: TRUE (enabled) or FALSE (disabled).

When mode equals ESCORE_BOOTCOUNTER_MODE_SET(1), enable is a pointer to a variable that contains the status to set. Use TRUE to start the counter or FALSE to stop.

value

[in/out]

If OPFlag contains ESCORE_BOOTCOUNTER_VALUE (2):

When mode equals ESCORE_BOOTCOUNTER_MODE_GET(0),

after the function returns, value will contain the reboot count.

When mode equals ESCORE_BOOTCOUNTER_MODE_SET(1), value is a pointer to a variable that contains the reboot count to set. Give a value 0 to clear the count or any other value to start from.

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

In windows XP, the boot counter information is stored in the following registry values:

HKEY_LOCAL_MACHINE \SYSTEM\SusiBootCounter\Enable
HKEY_LOCAL_MACHINE \SYSTEM\SusiBootCounter\BootTimes

6.9 SusiCoreAccessRunTimer

Access the run timer. A run timer is used to count the system running time.

BOOL SusiCoreAccessRunTimer(DWORD mode, PSSCORE_RUNTIMER pRunTimer);

Parameters

mode

[in] The value can be either

ESCORE_BOOTCOUNTER_MODE_GET (0)

- Get the counter.

ESCORE_BOOTCOUNTER_MODE_SET (1)

- Set the counter.

pRunTimer

[in/out]

Pointer to a SSCORE_RUNTIMER structure to set or get the timer. Please see next page for details of this structure.

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

In windows XP, the information is stored in the following registry values:

HKEY_LOCAL_MACHINE\SYSTEM\SusiRunTimer\Running
HKEY_LOCAL_MACHINE\SYSTEM\SusiRunTimer\Autorun
HKEY_LOCAL_MACHINE\SYSTEM\SusiRunTimer\ContinualOnTime
HKEY_LOCAL_MACHINE\SYSTEM\SusiRunTimer\TotalOnTime

The information will be lost only if the registry values have been wiped out.

For a detailed definition of the SSCORE_RUNTIMER structure, please refer to next page.

6.10 SSCORE_RUNTIMER

This structure represents the run timer information.

```
typedef struct {
  DWORD dwOPFlag;
  BOOL  isRunning;
  BOOL  isAutorun;
  DWORD dwTimeContinual;
  DWORD dwTimeTotal;
} SSCORE_RUNTIMER, *PSSCORE_RUNTIMER;
```

Members

dwOPFlag

The operation flag can be a combination of:

ESCORE_RUNTIMER_STATUS_RUNNING (1)

- The operation is on the member isRunning

ESCORE_RUNTIMER_STATUS_AUTORUN (2)

- The operation is on the member isAutorun

ESCORE_RUNTIMER_VALUE_CONTINUALON(4)

- The operation is on the member dwTimeContinual

ESCORE_RUNTIMER_VALUE_TOTALON(8)

- The operation is on the member dwTimeTotal

isRunning

TURE indicates the timer is running now, FALSE indicates not.

isAutorun

TRUE states the timer will start automatically upon startup, i.e. it will be running each time when the system reboots.

dwTimeContinual

Specify the system continual-on time in minutes, i.e. the OS running time without a system reboot. At reboot, it will be reset to 0.

dwTimeTotal

Specify the system total-on time in minutes, i.e. the total time accumulated while the OS has been running.

6.11 SusiCoreSetThrottlingSpeed

Set the CPU throttling speed

```
BOOL SusiCoreSetThrottlingSpeed(int value)
```

Parameters

value

[in] CPU Throttling Speed value

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

N/A

6.12 SusiCoreGetThrottlingSpeed

Get the CPU throttling Speed

BOOL SusiCoreGetThrottlingSpeed(int &value)

Parameters

value

[out] Get the CPU Throttling Speed value

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

N/A

6.13 SusiCoreGetThrottlingDuty

Get the CPU throttling Duty

BOOL SusiCoreGetThrottlingDuty(DWORD &dutyFlag)

Parameters

dutyFlag

[out] Get the CPU Throttling Speed value

Duty flag type define

#define TFULL	0x00
#define T875	0x1E
#define T750	0x1C
#define T625	0x1A
#define T500	0x18
#define T375	0x16
#define T250	0x14
#define T125	0x12

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

N/A

6.14 SusiCoreSetThrottlingDuty

Set the CPU throttling Duty

BOOL SusiCoreSetThrottlingDuty(DWORD dutyFlag)

Parameters

dutyFlag

[in] Get the CPU Throttling Speed value

Duty flag type define

#define TFULL	0x00
#define T875	0x1E
#define T750	0x1C
#define T625	0x1A
#define T500	0x18
#define T375	0x16
#define T250	0x14
#define T125	0x12

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

N/A

6.15 SusiCoreGetMaxCpuSpeed

Get max CPU speed

BOOL SusiCoreGetCpuMaxSpeed(DWORD &Value)

Parameters

value

[out] Get the CPU Max CPU Speed value

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

N/A

6.16 SusiCoreGetCpuVendor

Get the CPU Vendor type

Parameters

value

[out] Get the CPU vendor type

```
// Vendor
#define INTEL       1<<0
#define VIA         1<<1
#define SIS             1<<2
#define NVIDIA          1<<3
#define AMD         1<<4
```

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

N/A

6.17 SusiWDAvailable

Check if the watchdog driver is available.

```
BOOL SusiWDAvailable(void);
```

Parameters

None.

Return Value

value	Meaning
-1	The function fails.
0	The function succeeds; the platform does not support SusiWD- APIs.
1	The function succeeds; the platform supports Watchdog.

Remarks

After calling SusiDllInit successfully, all Susi*Available functions are used to check if the corresponding features are supported by the platform or not. We suggest Susi*Available is called before using any Susi*- functions.

6.18 SusiWDGetRange

Get the step, minimum and maximum values of the watchdog timer.

BOOL SusiWDGetRange(DWORD *minimum, DWORD *maximum,
DWORD *stepping);

Parameters

minimum

[out] Pointer to a variable containing the minimum timeout value in milliseconds.

maximum

[out] Pointer to a variable containing the maximum timeout value in milliseconds.

stepping

[out] Pointer to a variable containing the resolution of the timer in milliseconds.

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

The values may vary from platform to platform; depending on the hardware implementation of the watchdog timer. For example, if the minimum timeout is 1000, the maximum timeout is 63000, and the step is 1000, it means the watchdog timeout will count 1, 2, 3 … 63 seconds.

6.19 SusiWDSetConfig

Start watchdog timer with specified timeout value.

BOOL SusiWDSetConfig(DWORD delay, DWORD timeout);

Parameters

delay

[in] Specifies a value in milliseconds which will be added to “the first” timeout period. This allows the application to have sufficient time to do initialization before the first call to SusiWDTrigger and still be protected by the watchdog.

timeout

[in] Specifies a value in milliseconds for the watchdog timeout.

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure

Remarks

Once the watchdog has been activated, its timer begins to count down. The application has to periodically call SusiWDTrigger to refresh the timer before it expires, i.e. reload the watchdog timer within the specified timeout or the system will reboot when it counts down to 0.

Actually a subsequent call to SusiWDTrigger equals a call to SusiWDSetConfig with delay 0 and the original timeout value, so if you want to change the timeout value, call SusiWDSetConfig with new timeout value instead of SusiWDTrigger.

Use SusiWDGetRange to get the acceptable timeout values.

6.20 SusiWDTrigger

Reload the watchdog timer to the timeout value given in SusiWDSetConfig to prevent the system from rebooting.

```
BOOL SusiWDTrigger(void);
```

Parameters

None

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

A watchdog protected application has to call SusiWDTrigger continuously to indicate that it is still working properly and prevent a system restart. The first call to SusiWDTrigger in the middle of a delay resulting from a previous call to SusiWDSetConfig causes the delay timer to be canceled immediately and starts the watchdog timer countdown from the timeout value. It is always a good choice for users to have a longer delay time in SusiWDSetConfig.

6.21 SusiWDDisable

Disable the watchdog and stop its timer countdown.

```
BOOL SusiWDDisable(void);
```

Parameters

None

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

If watchdog protection is no longer required by an application, it can call SusiWD-

Disable to disable the watchdog. A call to SusiWDDisable in the middle of a delay resulting from a previous call to SusiWDSetConfig causes the delay timer to be canceled immediately and stops watchdog timer countdown. Only a few hardware implementations in which the watchdog timer cannot be stopped once it has been activated, will return with FALSE.

6.22 SusiIOAvailable

Check if GPIO driver is available.

int SusiCoreAvailable (void);

Parameters

None.

Return Value

value	Meaning
-1	The function fails.
0	The function succeeds; the platform does not support SusiIO- APIs.
1	The function succeeds; the platform supports GPIO.

Remarks

After calling SusiDllInit successfully, all Susi*Available functions are used to check if the corresponding features are supported by the platform or not. It is suggested to call Susi*Available before using any Susi*- functions.

6.23 SusiIOCountEx

Query the current number of input and output pins.

BOOL SusiIOCountEx(DWORD *inCount, DWORD *outCount)

Parameters

inCount

[out] Pointer to a variable in which this function returns the count of input pins.

outCount

[out] Pointer to a variable in which this function returns the count of output pins.

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

The number of GPIO pins equals the number of input pins plus the number of output pins. The number of input and output pins may vary in accordance with the current pin direction.

6.24 SusiIOQueryMask

Query the GPIO mask information.

BOOL SusiIOQueryMask(DWORD flag, DWORD *Mask)

Parameters

flag

[in] The value given to indicate the type of mask to retrieve can be one of the following values:

Static masks

ESIO_SMASK_PIN_FULL (1)

ESIO_SMASK_CONFIGURABLE (2)

Dynamic masks

ESIO_DMASK_DIRECTION (0x20)

Mask

[out] Pointer to a variable in which this function returns the queried mask.

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

A mask is expressed as a series of binary digits. Each bit corresponds to a pin (bit 0 for pin 0, bit 1 for pin 1, bit 2 for pin 2 …), depending on the mask type:

A bit value **1** stands for a pin with

1. Input direction
2. Status HIGH
3. Direction changeable.

Or a bit value **0** stands for a pin with

1. Output direction
2. Status LOW
3. Direction unchangeable

Here are the definitions for masks:

- ESIO_SMASK_PIN_FULL
  - If there are total 8 GPIO pins (GPIO 0 ~ 7) in a platform, the full pin mask is 0xFF, or in binary 11111111, i.e. the number of 1s corresponds to the number of pins.
- ESIO_SMASK_CONFIGURABLE
  - This is the mask to indicate which pins have changeable directions. If all the 8 pins are changeable, the mask would be 0xFF.

- ESIO_DMASK_DIRECTION
  - The current direction of pins. If the mask is 0xAA, or in binary 10101010, it means the even pins are output pins and the odd pins are input pins.

6.25 SusiIOSetDirection

Set direction of one GPIO pin as input or output.

BOOL SusiIOSetDirection(BYTE PinNum, BYTE IO, DWORD *PinDirMask);

Parameters

PinNum

[in] Specifies the GPIO pin to be changed, ranging from 0 ~ (total number of GPIO pins minus 1).

IO

[in] Specifies the pin direction to be set.

PinDirMask

[out] Pointer to a variable in which the function returns the latest direction mask after the pin direction is set.

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

Use an IO value of 1 to set a pin as an input or 0 to set a pin as an output.

The function can only set the direction of one of the pins that are direction configurable. If the pin number specified is an invalid pin or a pin that can only be configured as an input, the function call will fail and return FALSE.

6.26 SusiIOSetDirectionMulti

Set directions of multiple pins at once.

BOOL SusiIOSetDirectionMulti(DWORD TargetPinMask, DWORD *PinDirMask);

Parameters

TargetPinMask

[in] Specifies the mask of GPIO output pins to be written.

PinDirMask

[in/out]

Specifies the directions of pins to be set in a bitwise-ORed manner. After the function call returns TRUE, it contains the latest direction mask after set.

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

For example, if you set to the directions of GPIO pin 0, 1, 6, 7. Give parameter TargetPinMask with a value 11000011, or 0xC3. Bit 0 stand for GPIO 0, bit 1 stand for GPIO 1, and so on.

If you want to set pin 0 as input, pin 1 as output, pin 6 as input and pin 7 as output. Give value in parameter PinDirMask as 01XXXX01, X is for don't care, you could simply assign a 0 for it, i.e. 0x41.

6.27 SusiIOReadEx

Read current status of one GPIO input or output pin.

BOOL SusiIOReadEx(BYTE PinNum, BOOL *status)

Parameters

PinNum

[in] Specifies the GPIO pin demanded to be read, ranging from 0 ~ (total number of GPIO pins minus 1).

status

[out] Pointer to a variable in which the pin status returns.

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

If the pin is in status high, the value got in status will be 1. If the pin is in status low, it will be zero. The function is capable of reading the status of either an input pin or an output pin.

6.28 SusiIOReadMultiEx

Read current statuses of multiple pins at once regardless of the pin directions.

BOOL SusiIOReadMultiEx(DWORD TargetPinMask, DWORD *StatusMask);

Parameters

TargetPinMask

[in] Specifies the mask of GPIO pins demanded to be read.

StatusMask

[out] Statuses of pins in Bitwise-ORed. For pins that are not specified in TargetPinMask, the related bit value is invalid.

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

For example, if you want to read the statuses of GPIO pin 0, 1, 6, 7. Give parameter TargetPinMask with a value 11000011, or 0xC3. Bit 0 stand for GPIO 0, bit 1 stand for GPIO 1, and so on. Again, if the pin is in status high, the value got in relevant bit of StatusMask will be 1. If the pin is in status low, it will be zero.

6.29 SusiIOWriteEx

Set one GPIO output pin as status high or low.

BOOL SusiIOWriteEx(BYTE PinNum, BOOL status);

Parameters

PinNum

[in] Specifies the GPIO pin demanded to be written, ranging from 0 ~ (total number of GPIO pins minus 1).

status

[in] Specifies the GPIO status to be written.

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

The function can only set the status of one of the output pins. If the pin number specified is an input pin or an invalid pin, the function call will fail and return with FALSE. A status with 1 to set the pin as output high, 0 to set the pin as output low.

6.30 SusiIOWriteMultiEx

Set statuses of multiple output pins at once.

BOOL SusiIOWriteMultiEx(DWORD TargetPinMask, DWORD StatusMask);

Parameters

TargetPinMask

[in] Specifies the mask of GPIO output pins demanded to be written.

StatusMask

[in] Statuses of pins to be set in Bitwise-ORed. For pins that are not specified in TargetPinMask, the related bit value is invalid.

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

For example, if you want to write the statuses of GPIO output pin 0, 1, 6, 7. Give parameter TargetPinMask with a value 11000011, or 0xC3. Bit 0 stand for GPIO 0, bit 1 stand for GPIO 1, and so on.

If you want to set pin 0 as high, pin 1 as low, pin 6 as high and pin 7 as low. Give parameter StatusMask with a value 01XXXX01, X is for don't care pin, you could simply assign a 0 for it, i.e. 0x41.

6.31 Susi64BitsIOQueryMask

Query the GPIO mask information.

BOOL Susi64BitsIOQueryMask(DWORD flag, UINT64 *Mask)

Parameters

flag

[in] The value given to indicate the type of mask to retrieve can be one of the following values:

Static masks

ESIO_SMASK_PIN_FULL (1)

ESIO_SMASK_CONFIGURABLE (2)

Dynamic masks

ESIO_DMASK_DIRECTION (0x20)

Mask

[out] Pointer to a variable in which this function returns the queried mask.

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

A mask is expressed as a series of binary digits. Each bit corresponds to a pin (bit 0 for pin 0, bit 1 for pin 1, bit 2 for pin 2 …), depending on the mask type:

A bit value **1** stands for a pin with

1. Input direction
2. Status HIGH
3. Direction changeable.

Or a bit value 0 stands for a pin with

1. Output direction
2. Status LOW
3. Direction unchangeable

Here are the definitions for masks:

- ESIO_SMASK_PIN_FULL
  - If there are total 8 GPIO pins (GPIO 0 ~ 7) in a platform, the full pin mask is 0xFF, or in binary 11111111, i.e. the number of 1s corresponds to the number of pins.
- ESIO_SMASK_CONFIGURABLE
  - This is the mask to indicate which pins have changeable directions. If all the 8 pins are changeable, the mask would be 0xFF.
- ESIO_DMASK_DIRECTION
  - The current direction of pins. If the mask is 0xAA, or in binary 10101010, it means the even pins are output pins and the odd pins are input pins.

6.32 Susi64BitsIOSetDirection

Set direction of one GPIO pin as input or output.

BOOL Susi64BitsIOSetDirection(ULONG PinNum, BYTE IO, UINT64 *PinDirMask);

Parameters

PinNum

[in] Specifies the GPIO pin to be changed, ranging from 0 ~ (total number of GPIO pins minus 1).

IO

[in] Specifies the pin direction to be set.

PinDirMask

[out] Pointer to a variable in which the function returns the latest direction mask after the pin direction is set.

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

Use an IO value of 1 to set a pin as an input or 0 to set a pin as an output.

The function can only set the direction of one of the pins that are direction configurable. If the pin number specified is an invalid pin or a pin that can only be configured as an input, the function call will fail and return FALSE.

6.33 Susi64BitsIOSetDirectionMulti

Set directions of multiple pins at once.

BOOL Susi64BitsIOSetDirectionMulti(UINT64 TargetPinMask, UINT64 *PinDirMask);

Parameters

TargetPinMask

[in] Specifies the mask of GPIO output pins to be written.

PinDirMask

[in/out]

Specifies the directions of pins to be set in a bitwise-ORed manner. After the function call returns TRUE, it contains the latest direction mask after set.

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

For example, if you set to the directions of GPIO pin 0, 1, 6, 7. Give parameter TargetPinMask with a value 11000011, or 0xC3. Bit 0 stand for GPIO 0, bit 1 stand for GPIO 1, and so on.

If you want to set pin 0 as input, pin 1 as output, pin 6 as input and pin 7 as output. Give value in parameter PinDirMask as 01XXXX01, X is for don't care, you could simply assign a 0 for it, i.e. 0x41.

6.34 Susi64BitsIOReadMultiEx

Read current statuses of multiple pins at once regardless of the pin directions.

BOOL Susi64BitsIOReadMultiEx(DWORD TargetPinMask, DWORD *StatusMask);

Parameters

TargetPinMask

[in] Specifies the mask of GPIO pins demanded to be read.

StatusMask

[out] Statuses of pins in Bitwise-ORed. For pins that are not specified in TargetPinMask, the related bit value is invalid.

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

For example, if you want to read the statuses of GPIO pin 0, 1, 6, 7. Give parameter TargetPinMask with a value 11000011, or 0xC3. Bit 0 stand for GPIO 0, bit 1 stand for GPIO 1, and so on. Again, if the pin is in status high, the value got in relevant bit of StatusMask will be 1. If the pin is in status low, it will be zero.

6.35 Susi64BitsIOWriteMultiEx

Set statuses of multiple output pins at once.

```
BOOL Susi64BitsIOWriteMultiEx(DWORD TargetPinMask, DWORD StatusMask);
```

Parameters

TargetPinMask

[in] Specifies the mask of GPIO output pins demanded to be written.

StatusMask

[in] Statuses of pins to be set in Bitwise-ORed. For pins that are not specified in TargetPinMask, the related bit value is invalid.

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

For example, if you want to write the statuses of GPIO output pin 0, 1, 6, 7. Give parameter TargetPinMask with a value 11000011, or 0xC3. Bit 0 stand for GPIO 0, bit 1 stand for GPIO 1, and so on.

If you want to set pin 0 as high, pin 1 as low, pin 6 as high and pin 7 as low. Give parameter StatusMask with a value 01XXXX01, X is for don't care pin, you could simply assign a 0 for it, i.e. 0x41.

6.36 SusiSMBusAvailable

Check if SMBus driver is available.

```
int SusiSMBusAvailable(void);
```

Parameters

None.

Return Value

Value	Meaning
-1	The function fails.
0	The function succeeds; the platform does not support SusiSMbus- APIs.
1	The function succeeds; the platform supports SMBus.

Remarks

After calling SusiDllInit successfully, all Susi*Available functions are use to check if the corresponding features are supported by the platform or not. So it is suggested to call Susi*Available before using any Susi*- functions.

6.37 SusiSMBusScanDevice

Scan if the address is taken by one of the slave devices currently connected to the SMBus.

int SusiSMBusScanDevice(BYTE SlaveAddress_7)

Parameters

SlaveAddress

[in] Specifies the 7-bit device address, ranging from 0x00 – 0x7F.

Return Value

Value	Meaning
-1	The function fails.
0	The function succeeds; the address is not occupied.
1	The function succeeds; there is a device to this address.

Remarks

There could be as much as 128 devices connected to a single SMBus. For more information about how to use this API, please refer to “Programming Overview”, part “SMBus functions”.

6.38 SusiSMBusReadQuick

Turn a SMBus device function on (off) or enable (disable) a specific device mode.

BOOL SusiSMBusReadQuick(BYTE SlaveAddress);

Parameters

SlaveAddress

[in] Specifies the 8-bit device address, ranging from 0x00 – 0xFF.

Whether to give a 1 (read) or 0 (write) to the LSB of SlaveAddress could be ignored.

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

For more information about how to use this API, please refer to “Programming

Overview", part "SMBus functions".

6.39 SusiSMBusWriteQuick

Turn a SMBus device function off (on) or disable (enable) a specific device mode.

BOOL SusiSMBusWriteQuick(BYTE SlaveAddress);

Parameters

SlaveAddress

[in] Specifies the 8-bit device address, ranging from 0x00 – 0xFF.
Whether to give a 1 (read) or 0 (write) to the LSB of SlaveAddress could be ignored.

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

For more information about how to use this API, please refer to "Programming Overview", part "SMBus functions".

6.40 SusiSMBusReceiveByte

Receive information in a byte from the target slave device in the SMBus.

BOOL SusiSMBusReceiveByte(BYTE SlaveAddress, BYTE *Result);

Parameters

SlaveAddress

[in] Specifies the 8-bit device address, ranging from 0x00 – 0xFF.
Whether to give a 1 (read) or 0 (write) to the LSB of SlaveAddress could be ignored.

Result

[out] Pointer to a variable in which the function receives the byte information.

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

A simple device may have information that the host needs to be received in the parameter Result.

For more information about how to use this API, please refer to "Programming

Overview”, part “SMBus functions”.

6.41 SusiSMBusSendByte

Send information in a byte to the target slave device in the SMBus.

BOOL SusiSMBusSendByte(BYTE SlaveAddress, BYTE Result);

Parameters

SlaveAddress

[in] Specifies the 8-bit device address, ranging from 0x00 – 0xFF.

Whether to give a 1 (read) or 0 (write) to the LSB of SlaveAddress could be ignored.

Result

[in] Specifies the byte information to be sent.

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

A simple device may recognize its own slave address and accept up to 256 possible encoded commands in the form of a byte given in the parameter Result.

For more information about how to use this API, please refer to “Programming Overview”, part “SMBus functions”.

6.42 SusiSMBusReadByte

Read a byte of data from the target slave device in the SMBus.

BOOL SusiSMBusReadByte(BYTE SlaveAddress, BYTE RegisterOffset, BYTE *Result);

Parameters

SlaveAddress

[in] Specifies the 8-bit device address, ranging from 0x00 – 0xFF.

Whether to give a 1 (read) or 0 (write) to the LSB of SlaveAddress could be ignored.

RegisterOffset

[in] Specifies the offset of the device register to read data from.

Result

[out] Pointer to a variable in which the function reads the byte data.

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

For more information about how to use this API, please refer to “Programming Overview”, part “SMBus functions”.

6.43 SusiSMBusWriteByte

Write a byte of data to the target slave device in the SMBus.

BOOL SusiSMBusWriteByte(BYTE SlaveAddress, BYTE RegisterOffset, BYTE Result);

Parameters

SlaveAddress

[in] Specifies the 8-bit device address, ranging from 0x00 – 0xFF.

Whether to give a 1 (read) or 0 (write) to the LSB of SlaveAddress could be ignored.

RegisterOffset

[in] Specifies the offset of the device register to write data to.

Result

[in] Specifies the byte data to be written .

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

For more information about how to use this API, please refer to “Programming Overview”, part “SMBus functions”.

6.44 SusiSMBusReadWord

Read a word (2 bytes) of data from the target slave device in the SMBus.

BOOL SusiSMBusReadWord(BYTE SlaveAddress, BYTE RegisterOffset, WORD *Result);

Parameters

SlaveAddress

[in] Specifies the 8-bit device address, ranging from 0x00 – 0xFF.

Whether to give a 1 (read) or 0 (write) to the LSB of SlaveAddress could be ignored.

RegisterOffset

[in] Specifies the offset of the device register to read data from.

Result

[out] Pointer to a variable in which the function reads the word data.

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

The first byte read from slave device will be placed in the low byte of Result, and the second byte read will be placed in the high byte.

For more information about how to use this API, please refer to “Programming Overview”, part “SMBus functions”.

6.45 SusiSMBusWriteWord

Write a word (2 bytes) of data to the target slave device in the SMBus.

BOOL SusiSMBusWriteWord(BYTE SlaveAddress, BYTE RegisterOffset, WORD Result);

Parameters

SlaveAddress

[in] Specifies the 8-bit device address, ranging from 0x00 – 0xFF.

Whether to give a 1 (read) or 0 (write) to the LSB of SlaveAddress could be ignored.

RegisterOffset

[in] Specifies the offset of the device register to write data to.

Result

[in] Specifies the word data to be written .

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

The low byte of Result will be send to the slave device first and then the high byte. For more information about how to use this API, please refer to “Programming Overview”, part “SMBus functions”

6.46 SusiIICAvailable

Check if I^2C driver is available and also get the IIC type supported.

int SusiIICAvailable();

Parameters

None.

Return Value

Value	Meaning
-1	The function fails.
0	The function succeeds; the platform does not support any SusiIIC - APIs.
SUSI_IIC_TYPE_PRIMARY (1)	The function succeeds; the platform supports only primary IIC.
SUSI_IIC_TYPE_SMBUS (2)	The function succeeds; the platform supports only SMBus implemented IIC.
SUSI_IIC_TYPE_BOTH (3)	The function succeeds; the platform supports both primary IIC and SMBus IIC.

Remarks

After calling SusiDllInit successfully, all Susi*Available functions are use to check if the corresponding features are supported by the platform or not. So it is suggested to call Susi*Available before using any Susi*- functions.

6.47 SusiIICRead

Read bytes of data from the target slave device in the I^2C bus.

SUSI_API BOOL SusiIICRead(DWORD IICType, BYTE SlaveAddress, BYTE *ReadBuf, DWORD ReadLen);

Parameters

IICType

[in] Specifies the I^2C type, the value can either be

SUSI_IIC_TYPE_PRIMARY (1)

SUSI_IIC_TYPE_SMBUS (2)

SlaveAddress

[in] Specifies the 8-bit device address, ranging from 0x00 – 0xFF.

Whether to give a 1 (read) or 0 (write) to the LSB of SlaveAddress could be ignored.

ReadBuf

[out] Pointer to a variable in which the function reads the bytes of data.

ReadLen

[in] Specifies the number of bytes to be read.

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

Call SusiIICAvailable first to make sure the support I^2C type. For more information

about how to use this API, and the relationship between IIC and SMBus, please refer to “Programming Overview”, parts “SMBus functions” to “IIC versus SMBus – compatibility”.

6.48 SusiIICWrite

Write bytes of data to the target slave device in the I^2C bus.

BOOL SusiIICWrite(DWORD IICType, BYTE SlaveAddress, BYTE *WriteBuf, DWORD WriteLen);

Parameters

IICType

[in] Specifies the I^2C type, the value can either be

SUSI_IIC_TYPE_PRIMARY (1)

SUSI_IIC_TYPE_SMBUS (2)

SlaveAddress

[in] Specifies the 8-bit device address, ranging from 0x00 – 0xFF.

Whether to give a 1 (read) or 0 (write) to the LSB of SlaveAddress could be ignored.

WriteBuf

[in] Pointer to a byte array which contains the bytes of data to be written.

WriteLen

[in] Specifies the number of bytes to be written.

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

Call SusiIICAvailable first to make sure the support I^2C type. For more information about how to use this API, and the relationship between IIC and SMBus, please refer to “Programming Overview”, parts “SMBus functions” to “IIC versus SMBus – compatibility”.

6.49 SusiIICWriteReadCombine

A sequential operation to write bytes of data followed by bytes read from the target slave device in the I^2C bus.

BOOL SusiIICWriteReadCombine(DWORD IICType, BYTE SlaveAddress, BYTE *WriteBuf, DWORD WriteLen, BYTE *ReadBuf, DWORD ReadLen);

Parameters

IICType

[in] Specifies the I^{2}C type, the value can either be

SUSI_IIC_TYPE_PRIMARY (1)

SUSI_IIC_TYPE_SMBUS (2)

SlaveAddress

[in] Specifies the 8-bit device address, ranging from 0x00 – 0xFF.

Whether to give a 1 (read) or 0 (write) to the LSB of SlaveAddress could be ignored.

WriteBuf

[in] Pointer to a byte array which contains the bytes of data to be written.

WriteLen

[in] Specifies the number of bytes to be written.

ReadBuf

[out] Pointer to a variable in which the function reads the bytes of data.

ReadLen

[in] Specifies the number of bytes to be read.

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

The function is mainly for EEPROM I^{2}C devices - the bytes written first are used to locate to a certain address in ROM, and the following bytes read will retrieve the data bytes starting from this address.

Call SusiIICAvailable first to make sure the support I^{2}C type. For more information about how to use this API, and the relationship between IIC and SMBus, please refer to “Programming Overview”, parts “SMBus functions” to “IIC versus SMBus – compatibility”

6.50 SusiVCAvailable

Check if VC driver is available and also get the feature support information.

BOOL SusiVCAvailable(void);

Parameters

None.

Return Value

value	Meaning
-1	The function fails.
0	The function succeeds; the platform does not support any SusiVC- APIs.
SUSI_VC_BRIGHT_CONTROL_AVAILABLE (1)	The function succeeds; the platform supports only brightness APIs.

SUSI_VC_VGA_CONTROL_AVAILABLE (2)	The function succeeds; the platform supports only screen on/off APIs.
SUSI_VC_BOTH_AVAILABLE (3)	The function succeeds; the platform supports all SusiVC- APIs.

Remarks

After calling SusiDllInit successfully, all Susi*Available functions are use to check if the corresponding features are supported by the platform or not. So it is suggested to call Susi*Available before using any Susi*- functions.

6.51 SusiVCGetBrightRange

Get the step, minimum and maximum values in brightness adjustment.

BOOL SusiVCGetBrightRange(BYTE *minimum, BYTE *maximum, BYTE *stepping);

Parameters

minimum

[out] Pointer to a variable to get the minimum brightness value.

maximum

[out] Pointer to a variable to get the maximum brightness value.

stepping

[out] Pointer to a variable to get the step of brightness up and down

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

Call SusiVCAvailable first to make sure if the brightness control is available.

The values may vary from platform to platform; depend on the hardware implementations of brightness control. For example, if minimum is 0, maximum is 255, and stepping is 5, it means the brightness can be 0, 5, 10, …, 255.

6.52 SusiVCGetBright

Get the current panel brightness.

BOOL SusiVCGetBright(BYTE *brightness);

Parameters

brightness

[out] Pointer to a variable in which this function returns the brightness.

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

Call SusiVCAvailable first to make sure if the brightness control is available.

6.53 SusiVCSetBright

Set current panel brightness.

BOOL SusiVCSetBright(BYTE brightness);

Parameters

brightness

[in] Specifies the brightness value to be set.

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

Call SusiVCAvailable first to make sure if the brightness control is available.

In some implementations, the higher the brightness value, the higher the voltage fed to the panel. So please make sure the voltage toleration of your panel prior to the API use.

6.54 SusiVCScreenOn

Turn on VGA display signal.

BOOL SusiVCScreenOn(void);

Parameters

None.

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

The function enables both the LCD and CRT display signals.

6.55 SusiVCScreenOff

Turn off VGA display signal.

BOOL SusiVCScreenOff(void);

Parameters

None.

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

The function disables both the LCD and CRT display signals.

6.56 SusiHWMAvailable

Check if the hardware monitor driver is available.

int SusiHWMAvailable();

Parameters

None.

Return Value

Value	Meaning
-1	The function fails.
0	The function succeeds; the platform does not support SusiHWM- APIs.
1	The function succeeds; the platform supports HWM.

Remarks

After calling SusiDllInit successfully, all Susi*Available functions are use to check if the corresponding features are supported by the platform or not. So it is suggested to call Susi*Available before using any Susi*- functions.

6.57 SusiHWMGetFanSpeed

Read the current value of one of the fan speed sensors, or get the types of available sensors.

BOOL SusiHWMGetFanSpeed(WORD fanType, WORD *retval, WORD *typeSupport = NULL);

Parameters

fantype

[in] Specifies a fan speed sensor to get value from. It can be one of the flags

FCPU (1) – CPU Fan

FSYS (2) – System / Chassis fan

retval

[out] Point to a variable in which this function returns the fan speed in RPM

Typesupport

[out]

If the value is specified as a pointer (non-NULL) to a variable, it will return the types of available sensors in flags bitwise-ORed

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

Call the function first with a non-NULL typesupport to know the available fan sensors and a following call to get the fan speed required.

6.58 SusiHWMGetTemperature

Read the current value of one of the temperature sensors, or get the types of available sensors.

BOOL SusiHWMGetTemperature(WORD tempType, float *retval, WORD *typeSupport = NULL);

Parameters

tempType

[in] Specifies a temperature sensor to get value from. It can be one of the flags

TCPU (1) – CPU temperature

TSYS (2) – System / ambient temperature

retval

[out] Point to a variable in which this function returns the temperature in Celsius.

Typesupport

[out]

If the value is specified as a pointer (non-NULL) to a variable, it will return the types of available sensors in flags bitwise-ORed

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

Call the function first with a non-NULL typesupport to know the available temperature sensors and a following call to get the temperature required.

6.59 SusiHWMGetVoltage

Read the current value of one of the voltage sensors, or get the types of available sensors.

BOOL SusiHWMGetVoltage(DWORD voltType, float *retval, DWORD *typeSupport = NULL);

Parameters

voltType

[in] Specifies a voltage sensor to get value from. It can be one of the flags

VCORE (1<<0)
V25 (1<<1)
V33 (1<<2)
V50 (1<<3)
V120 (1<<4)
VSB (1<<5)
VBAT (1<<6)
VN50 (1<<7)
VN120 (1<<8)
VTT (1<<9)

retval

[out] Point to a variable in which this function returns the voltage in Volt.

Typesupport

[out]

If the value is specified as a pointer (non-NULL) to a variable, it will return the types of available sensors in flags bitwise-ORed

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

Call the function first with a non-NULL typesupport to know the available fan sensors and a following call to get the voltage required.

6.60 SusiHWMSetFanSpeed

Control the speed of one of the fans, or get the types of available fans.

BOOL SusiHWMSetFanSpeed(WORD fanType, BYTE setval, WORD *typeSupport = NULL);

Parameters

fantype

[in] Specifies a fan to be controlled. It can be one of the flags

FCPU (1) – CPU Fan

FSYS (2) – System / Chassis fan

setval

[in] Specifies the value to set, ranging from 0 to 255.

Typesupport

[out]

If the value is specified as a pointer (non-NULL) to a variable, it will return the types of available fans in flags bitwise-ORed

Return Value

TRUE (1) indicates success; FALSE (0) indicates failure.

Remarks

The fan speed is controlled by Pulse Width Modulation (PWM):

Duty cycle (%) = (setval/ 255) * 100%

And the default duty cycle is set to 100%, i.e. the maximal fan speed.

Call the function first with a non-NULL typesupport to know the available fan sensors and a following call to set the fan speed.

Appendix A

GPIO Information

A.1 GPIO Information

Look up the table for the GPIO pins assignment and the default pins direction for a platform. E.g. AIMB-330(CN19) means that the platform name is AIMB-330 and its GPIO pins are located in CN19 on the board.

AIMB-330(CN19)/ AIMB-340(CN19)/ AIMB-640(CN18)

The number of GPIO pins4 Inputs, 4 outputs

Pin	Signal	Pin	Signal
Pin-1	IN0	Pin-2	+5 V
Pin-3	IN1	Pin-4	OUT0 (Max 1A)
Pin-5	IN2	Pin-6	GND
Pin-7	IN3	Pin-8	OUT1 (Max 1A)
Pin-9	GND	Pin-10	+12 V
Pin-11	Key	Pin-12	Key
Pin-13	POUT3	Pin-14	GND
Pin-15	OUT2	Pin-16	+12 V

* It should add the pull-up resistors to *OUT0*, *OUT1* on **AIMB-330, AIMB-340** and **AIMB-640**.

PCM-3350(CN36,CN37)/PCM-3353(CN36,CN37)/PCM-3372(CN2,CN23)/PCM-4153(CN36,CN37)

*PCM-XXXX(IN,OUT)

The number of GPIO pins4 Inputs, 4 outputs

IN		OUT	
Pin	Signal	Pin	Signal
Pin-1	VCC	Pin-1	OUT0
Pin-2	IN0	Pin-2	OUT1
Pin-3	IN1	Pin-3	OUT2
Pin-4	IN2	Pin-4	OUT3
Pin-5	IN3	Pin-5	GND

PCM-4372(CN2)/PCM-4386(CN7)/PCM-4380(CN7)/ PCM-4390(CN6)/PCM-9374(CN4)/PCM-9375(CN9)/ PCM-9377(27)/PCM-9380(CN7)/PCM-9386(CN7)/ PCM-9577(CN25)/PCM-9584(CN16)/PCM-9586(CN9)/ PCM-9679(CN7)

The number of GPIO pins4 Inputs, 4 outputs

Pin	Signal	Pin	Signal
Pin-1	VCC	Pin-2	OUT0
Pin-3	IN0	Pin-4	OUT1
Pin-5	IN1	Pin-6	OUT2
Pin-7	IN2	Pin-8	OUT3
Pin-9	IN3	Pin-10	GND

* It should add the pull-up resistors to the input pins on **PCM-9577** for logic level.

PCM-9381(CN7)/ PCM-9387(CN7)

The number of GPIO pins4 Inputs

Pin	Signal
Pin-1	VCC
Pin-2	IN0
Pin-3	IN1
Pin-4	IN2
Pin-5	IN3

PCM-9578(CN5)

The number of GPIO pins4 Inputs, 4 outputs

Pin	Signal	Pin	Signal
Pin-1	OUT0	Pin-2	OUT1
Pin-3	OUT2	Pin-4	OUT3
Pin-5	OUT4	Pin-6	OUT5
Pin-7	OUT6	Pin-8	OUT7
Pin-9	GND	Pin-10	GND

PCM-9580(CN16)

The number of GPIO pins4 Inputs, 4 outputs

Pin	Signal	Pin	Signal
Pin-1	IN0	Pin-2	OUT0
Pin-3	IN1	Pin-4	OUT1
Pin-5	IN2	Pin-6	OUT2
Pin-7	IN3	Pin-8	OUT3
Pin-9	GND	Pin-10	GND

PCM-9581(CN9)/ PCM-9582(CN19)/ PCM-9586(CN9)/ PCM-9587(CN19)/PCI-6681(CN16)

The number of GPIO pins4 Inputs, 4 outputs

Pin	Signal	Pin	Signal
Pin-1	IN0	Pin-2	OUT0
Pin-3	GND	Pin-4	GND
Pin-5	IN1	Pin-6	OUT1
Pin-7	VCC	Pin-8	NC
Pin-9	IN2	Pin-10	OUT2
Pin-11	GND	Pin-12	GND
Pin-13	IN3	Pin-14	OUT3

* It should add the pull-up resistors to *In2*, *In3*, *OUT0*, *OUT1* on **PCM-9581** and **PCM-9586**.

PCI-6880 (CN2)

The number of GPIO pins4 Inputs, 4 outputs

Pin	Signal	Pin	Signal
Pin-1	IN0	Pin-2	OUT0
Pin-3	IN1	Pin-4	OUT1
Pin-5	IN2	Pin-6	OUT2
Pin-7	IN3	Pin-8	OUT3
Pin-9	VCC	Pin-10	GND

SOM-5780(U17)/SOM-5782(U14)

The number of GPIO pins4 Inputs, 4 outputs

Pin	Signal	Pin	Signal
Pin-1	VCC 3.3 V	Pin-16	GND
Pin-4	IN2	Pin-20	OUT3
Pin-5	IN3	Pin-21	OUT2
Pin-11	IN0	Pin-22	OUT1
Pin-12	IN1	Pin-23	OUT0

* SOM-5780, SOM-5782 must combine with SOM-DB5700(carrier board).

SOM-DB5700(CN27)			
Pin-1	IN0	Pin-2	VCC
Pin-3	IN1	Pin-4	OUT0
Pin-5	IN2	Pin-6	OUT1
Pin-7	IN3	Pin-8	OUT2
Pin-9	GND	Pin-10	+12V
Pin-11	NC	Pin-12	NC
Pin-13	OUT3	Pin-14	NC
Pin-15	GND	Pin-16	+12V

PCM-3375(CN16)

The number of GPIO pins4 Inputs, 4 outputs

Pin	Signal
Pin-1	-5 V
Pin-2	GND
Pin-3	-12 V
Pin-19	IN0
Pin-20	IN1
Pin-21	IN2
Pin-22	IN3
Pin-23	OUT0
Pin-24	OUT1
Pin-25	OUT2
Pin-26	OUT3

* There are two high drive digital outputs, *OUT0*, *OUT1* (24 VDC, 1 A max), two TTL level digital outputs, OUT2, OUT3 and four digital inputs (TTL level). You can configure the digital I/O to control the opening of the cash drawer and to sense the closing of the cash drawer. The above table explains how the digital I/O is controlled via software programming and how a 12 V solenoid or relay can be triggered. For completeness, please refer to the user manual of POS-563/POS-564/POS-761.

Appendix B

Programming Flags Overview

B.1 Programming Flags Overview

Hardware Monitor Flags

Fan

Flag	Value	Description
FCPU	1u	CPU FAN
FSYS	2u	System FAN
F2ND	4u	3rd FAN

Temperature

Flag	Value	Description
TCPU	1u	CPU Temperature
TSYS	2u	System Temperature

Voltage

Flag	Value	Description
VCORE	1u	Vcore
V25	2u	2.5 V
V33	4u	3.3 V
V50	8u	5 V
V120	16u	12 V
VSB	32u	Voltage of standby
VBAT	64u	VBAT
VN50	128u	-5 V
VN120	256u	-12 V
VTT	512u	VTT

Boot Logger Flags

Bootcounter

Mode Flag	Value	Description
ESCORE_BOOTCOUNTER_MODE_GET	1u	Read Operation
ESCORE_BOOTCOUNTER_MODE_SET	2u	Write Operation

Element Flag	Value	Description
ESCORE_BOOTCOUNTER_STATUS	1u	Current Status (Is Enabled or Disabled?)
ESCORE_BOOTCOUNTER_VALUE	2u	Number of Reboot Times

Runtimer

Mode Flag	Value	Description
ESCORE_RUNTIMER_MODE_GET	1u	Read Operation
ESCORE_RUNTIMER_MODE_SET	2u	Write Operation

Element Flag	Value	Description
ESCORE_RUNTIMER_STATUS_RUNNING	1u	Current Status (Is Enabled or Disabled?)
ESCORE_RUNTIMER_STATUS_AUTORUN	2u	Is AutoRun upon Startup?
ESCORE_RUNTIMER_VALUE_CONTINUALON	4u	OS continual run time (reset to 0 after a reboot)
ESCORE_RUNTIMER_VALUE_TOTALON	8u	Sum of OS total run time

GPIO Mask Flags

Flag	Value	Description
ESIO_SMASK_PIN_FULL	0x01	Series of binary 1s for the number of total pins
ESIO_SMASK_CONFIGURABLE	0x02	Direction Changeable Pins
ESIO_DMASK_DIRECTION	0x20	Current Direction of Pins

Appendix C

API Error Codes

C.1 API Error Codes

An error value will be either

Function Index Code + Library Error Code, or

Function Index Code + Driver Error Code.

If you call an API and returns with fail. The Function Index Code in its error code combination does not necessarily equal to the index code of the API. This is because the API may make a call to another API.

Function Index Code

Index Code	Function Index
	DLL
00100000	ESusiInit
00200000	ESusiUnInit
00300000	ESusiGetVersion
00400000	ESusiDllInit
00500000	ESusiDllUnInit
00600000	ESusiDllGetVersion
00700000	ESusiDllGetLastError
	Core
10100000	ESusiCoreInit
10200000	ESusiCoreAvailable
10300000	ESusiCoreGetBIOSVersion
10400000	ESusiCoreGetPlatformName
10500000	ESusiCoreAccessBootCounter
10600000	ESusiCoreAccessRunTimer
10700000	ESusiCoreRebootSystem
10800000	ESusiReserved8000000
	Watchdog
20100000	ESusiWDInit
20200000	ESusiWDAvailable
20300000	ESusiWDDisable
20400000	ESusiWDGetRange
20500000	ESusiWDSetConfig
20600000	ESusiWDTrigger
	GPIO
30100000	ESusiIOInit
30200000	ESusiIOAvailable
30300000	ESusiIOCount
30400000	ESusiIOInitial
30500000	ESusiIORead
30600000	ESusiIOReadMulti
30700000	ESusiIOWrite
30800000	ESusiIOWriteMulti
30900000	ESusiIOCountEx
31000000	ESusiIOQueryMask
31100000	ESusiIOSetDirection
31200000	ESusiIOSetDirectionMulti

31300000	ESusiIOReadEx
31400000	ESusiIOReadMultiEx
31500000	ESusiIOWriteEx
31600000	ESusiIOWriteMultiEx
	SMBus
40100000	ESusiSMBusInit
40200000	ESusiSMBusAvailable
40300000	ESusiSMBusReadByte
40400000	ESusiSMBusReadByteMulti
40500000	ESusiSMBusReadWord
40600000	ESusiSMBusWriteByte
40700000	ESusiSMBusWriteByteMulti
40800000	ESusiSMBusWriteWord
40900000	ESusiSMBusReceiveByte
41000000	ESusiSMBusSendByte
41100000	ESusiSMBusWriteQuick
41200000	ESusiSMBusReadQuick
41300000	ESusiSMBusScanDevice
41400000	ESusiSMBusWriteBlock
41500000	ESusiSMBusReadBlock
	IIC
50100000	ESusiIICInit
50200000	ESusiIICAvailable
50300000	ESusiIICReadByte
50400000	ESusiIICWriteByte
50500000	ESusiIICWriteReadCombine
50600000	ESusiIICRead
50700000	ESusiIICWrite
50800000	ESusiIICScanDevice
50900000	ESusiIICWriteRegister
51000000	ESusiIICReadRegister
	VGA Control
60100000	ESusiVCInit
60200000	ESusiVCAvailable
60300000	ESusiVCGetBright
60400000	ESusiVCGetBrightRange
60500000	ESusiVCScreenOff
60600000	ESusiVCScreenOn
60700000	ESusiVCSetBright
	Hardware Monitor
70100000	ESusiHWMInit
70200000	ESusiHWMAvailable
70300000	ESusiHWMGetFanSpeed
70400000	ESusiHWMGetTemperature
70500000	ESusiHWMGetVoltage
70600000	ESusiHWMSetFanSpeed

Library Error Code

Error Code	Error Type
	Driver Open Errors
00000001	ERRLIB_CORE_OPEN_FAIL
00000002	ERRLIB_WDT_OPEN_FAIL
00000004	ERRLIB_GPIO_OPEN_FAIL
00000008	ERRLIB_SMB_OPEN_FAIL
00000016	ERRLIB_VC_OPEN_FAIL
00000032	ERRLIB_HWM_OPEN_FAIL
	DLL Functions
00000000	ERRLIB_SUCCESS
00000001	ERRLIB_RESERVED1
00000002	ERRLIB_RESERVED2
00000003	ERRLIB_LOGIC
00000004	ERRLIB_RESERVED4
00000005	ERRLIB_SUSIDLL_NOT_INIT
00000006	ERRLIB_PLATFORM_UNSUPPORT
00000007	ERRLIB_API_UNSUPPORT
00000008	ERRLIB_RESERVED8
00000009	ERRLIB_API_CURRENT_UNSUPPORT
00000010	ERRLIB_LIB_INIT_FAIL
00000011	ERRLIB_DRIVER_CONTROL_FAIL
00000012	ERRLIB_INVALID_PARAMETER
00000013	ERRLIB_INVALID_ID
00000014	ERRLIB_CREATEMUTEX_FAIL
00000015	ERRLIB_OUTBUF_RETURN_SIZE_INCORRECT
00000016	ERRLIB_RESERVED16
00000017	ERRLIB_ARRAY_LENGTH_INSUFFICIENT
00000032	ERRLIB_RESERVED32
00000050	ERRLIB_BRIGHT_CONTROL_FAIL
00000051	ERRLIB_BRIGHT_OUT_OF_RANGE
00000064	ERRLIB_RESERVED64
00000128	ERRLIB_RESERVED128
00000256	ERRLIB_RESERVED256
	Core Functions
00000500	ERRLIB_CORE_BIOS_STRING_NOT_FOUND
00000512	ERRLIB_RESERVED512
Watchdog Functions	
00001024	ERRLIB_RESERVED1024
GPIO Functions (N/A)	
	SMBus Functions
00001400	ERRLIB_SMB_MAX_BLOCK_SIZE_MUST_WITHIN_32
IIC Functions	
00001600	ERRLIB_IIC_GETCPUFREQ_FAIL
	VGA Control Functions (N/A)
	Hardware Monitor Functions
00002000	ERRLIB_HWM_CHECKCPUTYPE_FAIL
00002001	ERRLIB_HWM_FUNCTION_UNSUPPORT

00002002	ERRLIB_HWM_FUNCTION_CURRENT_UNSUPPORT
00002003	ERRLIB_HWM_FANDIVISOR_INVALID
00002048	ERRLIB_RESERVED2048
	Reserved Functions
00004096	ERRLIB_RESERVED4096
00008192	ERRLIB_RESERVED8192

Driver Error Code

Error Code	Error Type
00000000	ERRDRV_SUCCESS
	Common to all Drivers
00010000	ERRDRV_CTRLCODE
00010001	ERRDRV_LOGIC
00010002	ERRDRV_INBUF_INSUFFICIENT
00010003	ERRDRV_OUTBUF_INSUFFICIENT
00010004	ERRDRV_STOPTIMER_FAILED
00010005	ERRDRV_STARTTIMER_FAILED
00010006	ERRDRV_CREATEREG_FAILED
00010007	ERRDRV_OPENREG_FAILED
00010008	ERRDRV_SETREGVALUE_FAILED
00010009	ERRDRV_GETREGVALUE_FAILED
00010010	ERRDRV_FLUSHREG_FAILED
00010011	ERRDRV_MEMMAP_FAILED
	Core Driver (N/A)
	Watchdog Driver (N/A)
	GPIO Driver
00011200	ERRDRV_GPIO_PIN_DIR_CHANGED
00011201	ERRDRV_GPIO_PIN_INCONFIGURABLE
00011202	ERRDRV_GPIO_PIN_OUTPUT_UNREADABLE
00011203	ERRDRV_GPIO_PIN_INPUT_UNWRITTABLE
00011204	ERRDRV_GPIO_INITIAL_FAILED
00011205	ERRDRV_GPIO_GETINPUT_FAILED
00011206	ERRDRV_GPIO_SETOUTPUT_FAILED
00011207	ERRDRV_GPIO_GETSTATUS_IO_FAILED
00011208	ERRDRV_GPIO_SETSTATUS_OUT_FAILED
00011209	ERRDRV_GPIO_SETDIR_FAILED
	SMBus Driver
00011400	ERRDRV_SMB_RESETDEV_FAILED
00011401	ERRDRV_SMB_TIMEOUT
00011402	ERRDRV_SMB_BUSTRANSACTION_FAILED
00011403	ERRDRV_SMB_BUSCOLLISION
00011404	ERRDRV_SMB_CLIENTDEV_NORESPONSE
00011405	ERRDRV_SMB_REQUESTMASTERMODE_FAILED
00011406	ERRDRV_SMB_NOT_MASTERMODE
00011407	ERRDRV_SMB_BUS_ERROR
00011408	ERRDRV_SMB_BUS_STALLED
00011409	ERRDRV_SMB_NEGACK_DETECTED

00011410	ERRDRV_SMB_TRANSMITMODE_ACTIVE
00011411	ERRDRV_SMB_TRANSMITMODE_INACTIVE
00011412	ERRDRV_SMB_STATE_UNKNOWN
IIC Driver	
00011600	ERRDRV_IIC_RESETDEV_FAILED
00011601	ERRDRV_IIC_TIMEOUT
00011602	ERRDRV_IIC_BUSTRANSACTION_FAILED
00011603	ERRDRV_IIC_BUSCOLLISION
00011604	ERRDRV_IIC_CLIENTDEV_NORESPONSE
00011605	ERRDRV_IIC_REQUESTMASTERMODE_FAILED
00011606	ERRDRV_IIC_NOT_MASTERMODE
00011607	ERRDRV_IIC_BUS_ERROR
00011608	ERRDRV_IIC_BUS_STALLED
00011609	ERRDRV_IIC_NEGACK_DETECTED
00011610	ERRDRV_IIC_TRANSMITMODE_ACTIVE
00011611	ERRDRV_IIC_TRANSMITMODE_INACTIVE
00011612	ERRDRV_IIC_STATE_UNKNOWN
VGA Control Driver	
00011800	ERRDRV_VC_FINDVGA_FAILED
00011801	ERRDRV_VC_FINDBRIGHTDEV_FAILED
00011802	ERRDRV_VC_VGA_UNSUPPORTED
00011803	ERRDRV_VC_BRIGHTDEV_UNSUPPORTED
Hardware Monitor Driver (N/A)	

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