

SUSI

Secure & Unified Smart Interface

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Background:

Software Requirements for System Integration: In modern operating systems, user applications can not easily access hardware directly unless the customer has a driver or can develop the required driver for the specific hardware in different operating systems. For example, when customers want to use the onboard GPIO to control particular buttons or an LED in Windows XP Embedded, they will need to develop a GPIO driver to access the GPIO directly. In reality, drivers can be very unique and sometimes too *personal* because programmers often develop drivers based on their own experience and only they know how to use them, other programmers might not understand them because they are not clearly defined or unified.

Furthermore, because *personalized* drivers are often not tested properly, it is possible to damage the hardware if they are not carefully used. In other words, they are not very secure. These situations often happen during system integration, whether integrating I2C devices, SMBus devices or WatchDog timers etc.

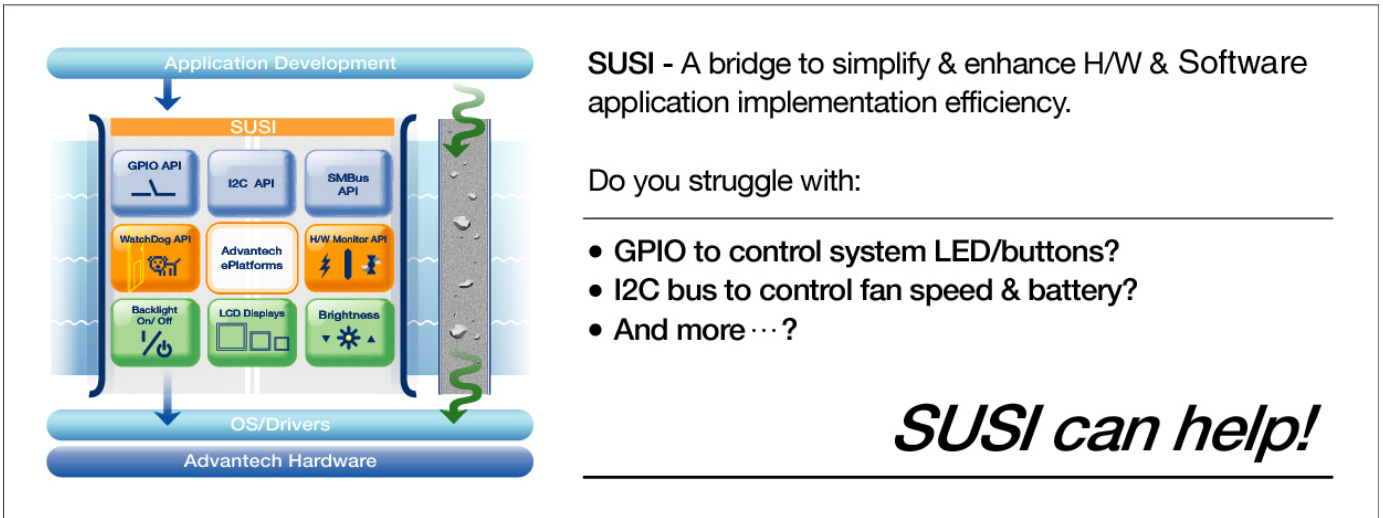
In view of the increasing demands on the software library, Advantech developed the SUSI unified interface. The new *secure* and *unified* drivers and API help customers more easily control the system regardless of the hardware platform and OS.

Our Strategy: By providing a set of secure and unified drivers and API, application programmers can more easily access the hardware functions in different operating systems and on different Advantech hardware platforms, adding value to embedded platforms to create application ready turnkey solutions.

Advantech developed the SUSI software interface to take advantage of unique hardware configurations to add unique functions that enhance the whole value.

Advantech's SUSI unified development interface provides an ideal solution for developers to efficiently design and build their innovative applications. With SUSI the headache is taken out of complex projects, developers can easily concentrate on adding value to their products and quickly reaching the market ahead of the competitors. Customers can also include SUSI into *MS Visual Studio* development suite and configure suitable devices in less time to speed up project development

Introduction of SUSI



SUSI (Secure & Unified Smart Interface)

Provide unified drivers and API for application programmers to access hardware functions in different operating systems and Advantech hardware platforms. SUSI provides a 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.

Description of SUSI

An Application Programming Interface (API) describes how computer applications and software developers access a set of functions without requiring access to the source code of the functions or library, or requiring a detailed understanding of the functions' internal workings

SUSI (Secure & Unified Smart Interface) provides a 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.

SUSI contains 3 categories of features: Control, Display and Monitor

Control

Control to the devices connected with GPIO, I2C and SMBus buses

Display

Adjust the brightness of LCD panels or turn on/off the power of display devices

Monitor

Monitor the system status, including voltage, temperature, fan speed and Watchdog function to restart if it freezes or crashes.

SUSI Advantages

Secure

The SUSI can help programmer avoid accessing wrong hardware address through pre-programmed API, to increase system reliability. SUSI also can avoid OS crash from HW address change, to extend system up time by Watchdog API, or Monitor system temperature and voltage for better application control (selective models).

Unified

The SUSI can support different Advantech Embedded platforms, different chipsets, different I/O devices, and different Windows OS (Windows CE & Windows XP Embedded). With the unified interface, customers can easily migrate their application between OSs, they just re-compile application source code and run. It is also very easy to upgrade the SUSI version because of the unified API, all you need to do is change the SUSI Library header then re-compile application source code and run.

Smart Interface

The SUSI will auto detect Advantech platform and then auto enabled SUSI functions. The SUSI is very easy for Installation, programming, Integration, and Maintenance / Upgrade. It also has very detail Sample Application Source code provided for easier implementation.

SUSI package

The SUSI pack contains User Manual, Drivers and APIs, Sample Code, Demo application on CD.

User Manual

A PDF file, describe the detail installation process and each API's function

Drivers

The drivers support Advantech onboard hardware, chipset, I/O.

APIs

We provide a lot of APIs, so customer can use to control different functions, such as read/write bit, or read/write Byte... etc

Demo application

By using the Demo application, customer can instantly test the function of Control, Display and Monitor

Sample Code

The sample source code is good reference for customer to develop their application

Programmers just need to include the SUSI header file and call the unified API supported by SUSI software library to control all the Hardware.

Example of Sample code:

```
#include "Susi.h"
Void main()
{
    if ( !SusiInit() )
        printf(%S, "Fail to initialize SUSI Library");
    else if(!SusiSMBusAvailable())
        printf(%S, " Fail to initialize SMBus");
    else{
        // Do something you want here
        ...
        if ( !SusiUninit() )
            printf(%S, " Fail to close SUSI"); }
}
```

For details, please read the User Manual.

Benefits to Customers

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% ahead 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.

Summary

Advantech's SUSI API unifies the development interface for developers to quickly design and build their innovative applications. With SUSI, the hassle is taken out of complex projects, developers can concentrate on adding value to their products and reaching the market ahead of the competition. The SUSI is included with the embedded product. To find out more about SUSI, please visit our website at <http://ess.advantech.com.tw>