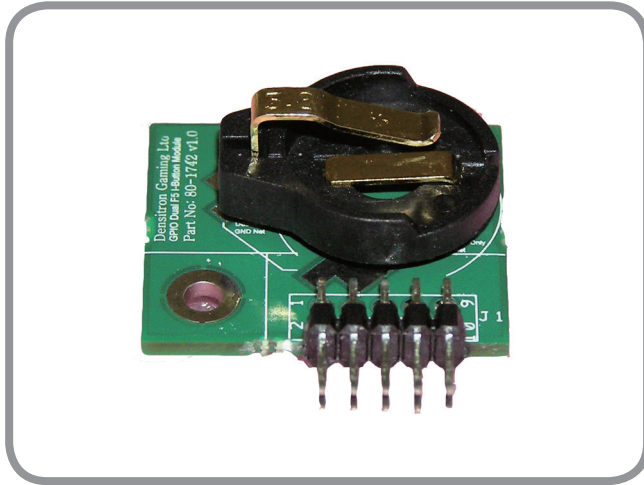# GPIO/iButton®

1-wire® bus security module

Features

- Simple solution to add security or other device
- Standard iButton® and custom modules supported
- Supplied driver and SDK

Introduction

Advantech-Innocore's DPX®-Series boards have a GPIO header that is a very flexible multi-purpose interface that can be used to connect a variety of simple one- or two-wire devices. The Dallas iButton® is one such device and iButton devices are available for a number of different functions. The GPIO interface supports any 1-wire® bus device and typical uses could include special purpose I/O, security, memory and data storage.

Feature Summary

Easy to use and robust mounting for up to two devices per GPIO board

iButton(s)® are securely attached to the header

Header is mounted to the motherboard by simple bracket which picks up on one of the motherboard mounting points

How Does The iButton® Work?

Up to two iButtons® can be fitted to a DPX® mainboard using a secure carrier board. In general the following components are needed for any iButton® application:

- iButton® and Advantech-Innocore's GPIO iButton® carrier
- Advantech-Innocore's DPX®-series mainboard
- Software to interface the iButton® to the DPX® board. Advantech-Innocore provides both Linux and Windows® builds of the 1-Wire API. Advantech-Innocore also provides software samples as well as utilities to aid the software development process

Key iButton® Features

- Rugged steel container allows for long term durability in harsh environments
- Extremely portable. Can be mounted in watches, rings, keychains etc.
- Self contained, requiring just one data and one ground connection to function
- Unique and unalterable address laser etched onto the chip inside the can
- Tamperproof. Chip erases itself if metal container is opened.

Typical Application of the iButton®

- Store slot machine status information for easy retrieval by slot technicians
- Electronic ID can provide access control to hardware
- E-cash and player tracking system
- Unique ID's and encryption to lock software against cloning
- RTC (Real – Time – Clock) to control time-restricted licensing in game titles

Examples of iButtons® Available

Dallas/Maxim Part Number	Features
DS1996 64-Kbit Memory iButton®	65536 Bit EEPROM iButton®
	Over 10 years of memory retention
DS1963s SHA iButton®	Dedicated 512 bit SHA-1 hardware accelerated engine
	4096 bits of read/write non-volatile memory
	On-chip 16-bit CRC generator for safeguarding data transfers
DS1904 4kb plus Time Memory iButton®	4096 bits of read/write non-volatile memory
	Real-Time clock and calendar
	Write-Protect feature provides tamperproof time data
	Programmable alarms can be set to generate interrupts for interval timer, RTC, and/or cycle counter
	Over 10 years of data retention
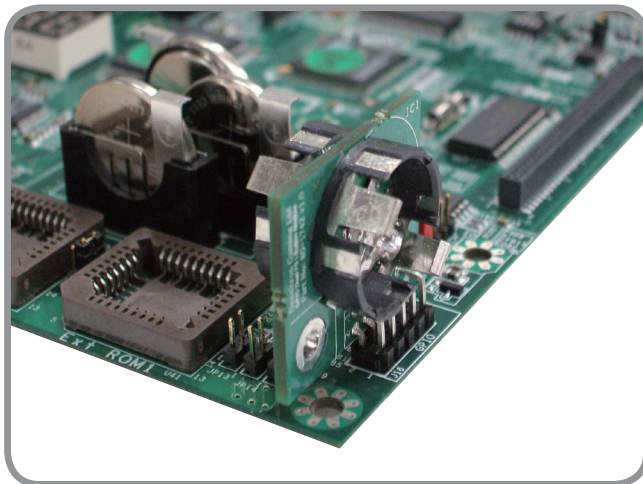
GPIO Header shown fitted to DPX-117

Required Hardware

- DPX® Mainboard

Required Software

- Advantech-Innocore 1-Wire & iButton® SDK and Run-time

OEM Customization and Product Development

- Advantech-Innocore specializes in the fields of PC-based hardware design and software development. Our in-depth knowledge and global resources make us your ideal partner.

- Advantech-Innocore is part of the Advantech Co., Ltd. Group of Companies.

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