Development Platforms for iPod and iPhone

Make it possible to easily develop an application or accessory for iPod or iPhone, today.

- Ask your Microchip Sales representative to schedule a demonstration
- Enroll in Apple’s “Made for iPod” licensing program
- Development kits can be purchased through Apple’s Made-for-iPod program
- Get Started at: http://www.microchip.com/MFi

Development Boards for iPod and iPhone

Digital Audio Development Kit for iPod and iPhone

The iPod and iPhone Digital Audio Development Kit is an accessory development platform for accessing the digital audio content on the iPod and iPhone using PIC24, dsPIC and PIC32 MCUs or DSCs. It provides the following features:

- Interfaces to the iPod and iPhone via USB
- Enhanced digital audio output
- Headphone and I2S output
- Programmable user interface
- Charger circuit for iPod and iPhone
- Audio/Video expansion capability

8-bit PIC MCU Accessory Development Kit for iPod and iPhone

This kit is a general purpose iPod and iPhone accessory development platform using Microchip 8-bit PIC MCUs including the latest nanoWatt XLP products. It provides the following features:

- Interfaces to the iPod and iPhone via UART
- Programmable user interface
- Charger circuit for iPod and iPhone
- Audio/Video input and output
- Expansion capability with Microchip’s versatile PICtail™ connector

16/32-bit PIC MCU Accessory Development Kit for iPod and iPhone

This kit is a general purpose iPod and iPhone accessory development platform using Microchip’s 16- and 32-bit PIC MCUs and DSCs, including the latest nanoWatt XLP products.

The kit is composed of a PICtail Plus for iPod and iPhone daughter board and an Explorer 16 Development board. The kit offers the following features:

- Interfaces to the iPod and iPhone via USB or UART
- Charging circuit for iPod and iPhone
- Header for audio and video connection
- Enhanced expansion capability using Microchip’s versatile PICtail Plus connector on the Explorer 16 Development board
- Explorer 16 provides complementary set of peripheral functions: pushbutton switches, LEDs, potentiometer, LCD display, temperature sensor, etc.

Microchip’s MFi Library for iPod and iPhone

This library handles all initial communication with the iPod and iPhone. It then provides a minimal hardware wrapper, allowing accessories to utilize the full power of the iAP on the iPod and iPhone. In addition to the library itself, the installation provides source code examples for using the library on PIC MCU or dsPIC DSC. It also provides source code for iPhone APP examples. The features of the library are:

- Encapsulates the identification of the iPod and iPhone
- Both UART and USB interfaces are supported
- Simple API for utilizing Apple’s iAP
- Bootloading capability from the iPhone App
- Digital Audio support
nanoWatt XLP eXtreme Low Power PIC® MCUs Are Ideal for iPod and iPhone Accessories

Many electronic applications require low power or battery power, making energy conservation paramount. Today’s applications must consume little power, and in extreme cases, last for up to 15-20 years, while running from a single battery.

To enable applications like these, products with Microchip’s nanoWatt XLP Technology offer the industry’s lowest currents for Run and Sleep, where extreme low power applications spend 90%-99% of their time. Benefits of nanoWatt XLP Technology include:

- Sleep currents below 20 nA
- Brown-out Reset down to 45 nA
- Watch-dog Timer down to 220 nA
- Real-time Clock/Calendar down to 470 nA
- Run currents down to 50 μA/MHz
- Full analog and self-write capability down to 1.8V

Battery Life

nanowatt XLP vs. Competition

(PIC24F16KA102 vs. Competitor T vs. Competitor A)

PIC24F16KA102

500 days

800 days

Low Power Safety

Products with nanoWatt XLP have system supervisory circuits specially designed for battery powered products.

- The Low Power Brown-out Reset protects applications when batteries are depleted or changed, yet consumes a tiny 45 nA of current
- The Real-time Clock Calendar is a fully independent module that is unaffected by device resets
- Using a dedicated on-chip oscillator, the WDT provides protection against system failure for around 300 nA with programmable time-outs lasting up to 25 days

Low Power Peripheral Integration

Many of today’s low power products also need advanced peripherals. Microchip offers low power devices with peripherals like USB, LCD, RTCC and mTouch™ capacitive sensing. This eliminates the need for additional parts in the application, saving cost, current and complexity.

Development Tools to Help Get You Started

MPLAB® IDE

MPLAB IDE is Microchip’s free, integrated toolset for the development of PIC microcontroller and dsPIC digital signal controller embedded applications. MPLAB IDE runs as a 32-bit application on MS Windows®, is easy to use and includes a host of free software components for fast application development and super-charged debugging. MPLAB IDE also serves as a single, unified graphical user interface for additional Microchip and third-party software/hardware development tools.

In-Circuit Emulators and Debuggers

Microchip offers three universal debuggers. They share design platforms, support all microcontroller and DSC families, are USB-powered and are fully integrated with MPLAB IDE. MPLAB ICD 3 offers debugging and hardware features that would satisfy the needs of most users. PICkit 3 Debugger/Programmer is the economical choice when basic debugging functions are desired. MPLAB REAL ICE emulator offers advanced features usually available only on expensive and high-end emulators. Both MPLAB REAL ICE and MPLAB ICD 3 can be used as programmers in a production environment.

PICKit™ 3 In-Circuit Debugger (PG164130)

The PICkit 3 Debugger Express allows debugging and programming of PIC Flash microcontrollers (MCUs) and dsPIC Digital Signal Controllers (DSCs) using the powerful, yet easy-to-use graphical user interface of the MPLAB Integrated Development Environment (IDE).

MPLAB ICD 3 Debugger/Programmer (DV164035)

MPLAB ICD 3 In-Circuit Debugger System is Microchip’s most cost effective high-speed hardware debugger/programmer for PIC Flash microcontrollers and dsPIC Digital Signal Controller devices. It debugs and programs these devices using MPLAB IDE.

MPLAB REAL ICE™ Emulator (DV244005)

MPLAB REAL ICE In-Circuit Emulator System is Microchip’s next generation high speed emulator for Microchip Flash MCU and DSC devices. It debugs and programs these devices using MPLAB IDE. This emulator system is also field upgradeable through firmware downloads in MPLAB IDE.

Visit our web site for additional product information and to locate your local sales office.

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