



iXpand SDK – Developer Guide

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Abbreviations and Conventions

SDK	Software Development Kit
API	Application Programming Interface
USB	Universal Serial Bus
PC	Personal Computer
iXpand Drive	An abbreviation to SanDisk's family of products named iXpand
APP	iOS application

Introduction

Sandisk iXpand™ is a family of storage accessories for devices running Apple's iOS. iXpand™ devices enable transfer and storage of photos, music, videos and files between iPhones, iPads, PCs and Mac computers. iXpand™ accessories are accessible over lightning and USB connectotrs.

Sandisk's iXpand™ SDK enables third party application developers to seamlessly access and manage iXpand devices from their own iOS applications through the lightning interface.

Following figure shows the highlevel architecture of application that utilizes iXpand SDK.

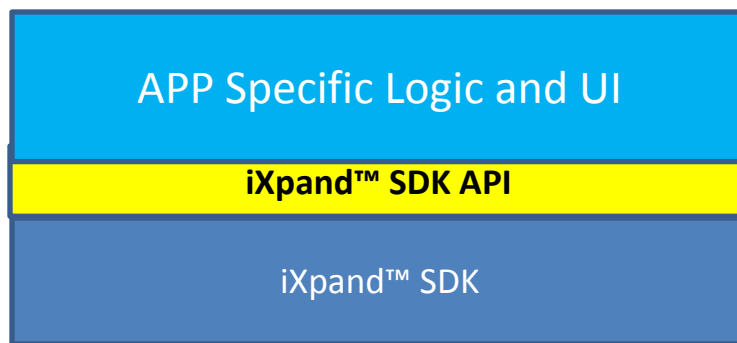


Figure 1 High Level Block Diagram

Concepts

Sandisk iXpand SDK contains two sets of APIs.

- File System APIs
- System APIs

File system APIs provide an industry-standard, familiar filesystem API to the iXpand device for managing storage related software operations.

System APIs provide access to administration functionality not directly related to storage.

iXpand SDK is available as an iOS framework file. A developer needs to include the framework and header files within the the target application's source tree for successful integration.

Following diagram shows the concepts explained above.

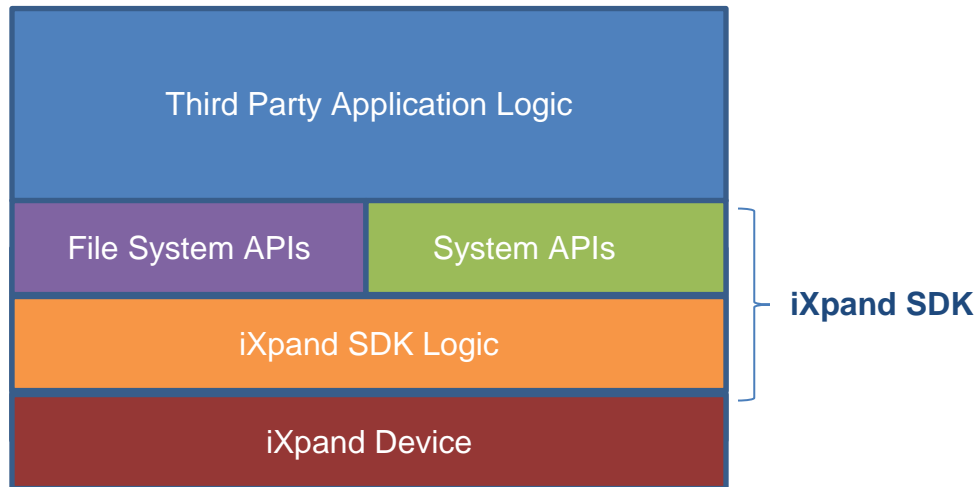


Figure 2 Conceptual Block Diagram

Modules Overview

In order to access iXpand SDK, developer has to initialize “iXpandSystemController” and “FileSystemController” respectively. All system APIs are accessible as part of “iXpandSystemController” and file system APIs are accessible over “FileSystemController”.

To initialize the iXpand, ‘iXpandSystemController’ instance is created first followed by calling “initDrive” and “OpenSession”. When ‘OpenSession’ is completed, iXpand is ready to communicate. Instance of ‘FileSystemController’ can be created to deal with File System APIs. When all the operation with iXpand device completed, application can successfully close communication with the device using ‘closeSession’ API.

Compilation Instructions

Include the “iXpandSDK.framework” along with other libraries that application requires.

▼ Link Binary With Libraries (12 items) ×













Name	Status
 iXpandSDK.framework	Required ▾
 UIKit.framework	Required ▾
 Security.framework	Required ▾
 CFNetwork.framework	Required ▾
 SystemConfiguration.framework	Required ▾
 libc.dylib	Required ▾
 libc++.dylib	Required ▾
 libz.dylib	Required ▾
 Foundation.framework	Required ▾
 CoreFoundation.framework	Required ▾
 ExternalAccessory.framework	Required ▾
 MobileCoreServices.framework	Required ▾

Figure 3 Adding Library

In the application source code, include the following headers.

```
#import <iXpandSDK/iXpandFileSystemAPI.h>
#import <iXpandSDK/iXpandSystemAPI.h>
```

This will allow application source to access iXpand SDK APIs.

File Write Example

Following code snippet shows example of initializing the drive.

```
if (![iXpandSystemController sharedController] initWithAccessory) {
    dispatch_sync(dispatch_get_main_queue(), ^{
        [self.consoleString appendString:@"Drive Initialisation failed"];
        [self updateConsole];
        return;
    });
} else {
    if ([iXpandSystemController sharedController] openSession) {
        // iXpand is successfully opened
    }
}
```

Following code snippet shows sample of opening file and writing to iXpand.

```
if ([iXpandFileSystemController sharedController] changeDirectoryAbsolutePath:@"\"){
    int handle = [iXpandFileSystemController sharedController] openFileAbsolutePath:path
    openMode:mode];

    if (handle != -1)
    {
        uint32_t dataLength = 0;
```

```

uint32_t uintDataSize = 0;
uint32_t uintDataTranLen = 0;
uintDataSize = (uint32_t)[self returnFileSize:test0];
@synchronized(self){
    while((dataLength != -1) && (uintDataSize != 0))
    {
        @autoreleasepool {
            uintDataTranLen = ((uintDataSize >
MAX_DATABUFFER) ? MAX_DATABUFFER : uintDataSize);
            [[fileHandle readDataOfLength:uintDataTranLen] getBytes:byDataBuf];
            NSData *aData = [NSData dataWithBytes:byDataBuf length:sizeof(byDataBuf)];
            dataLength = [[iXpandFileSystemController sharedController] writeFile:handle
writeBuf:aData writeSize:uintDataTranLen];
            uintDataSize -= dataLength;
        }
        [[iXpandFileSystemController sharedController] closeFile:handle];
        [fileHandle closeFile];
    }
}
}
}
}

```

The following code snippet shows closing session with iXpand after file operation is done.

```
[[iXpandSystemController sharedController] closeSession];
```

Design Guidelines

iXpand doesn't generate thumbnails and meta data information of media files. Third party application has to take care of thumbnail and meta data generation if required.

iXpand accessory doesn't protect application specific files.

Application developer has the flexibility to organize iXpand files in any manner as intended.

SDK Glossary

- 1.** Meta Data
Additional information about a media file. Example, meta data of a music file can contain artist, album, title etc.
- 2.** Thumbnail
Small image representation of large file. Typically used to show in icon of files.

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