Mr.LOOP SDK Release
1.1

Supervised by

Mr. LOOP Inc.

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Contents

Chapter 1

Main Page

Mr.LOOP WiGig Software Development Kits

This library is provided to utilize our devices with limited warranty.

Permission is granted to our clients to use this library for any purpose, including commercial applications freely, subject to the following restrictions:

1. The origin of this software must not be misrepresented; you must not claim that you wrote the original software. If you use this software in a product, an acknowledgment in the product documentation would be appreciated but is not required.

2. This notice may not be removed or altered from any source distribution.

Chapter 2

Mr.LOOP SDK User Guide

This guide demostrates how to utilize our SDK.

Please read Chapter 3 to understand workflow of our hardware. Chapter 4 show its control process of our APIs.

I/O rate depends on USB host-type and CPU deeply. Our devices doesn't work on any virtual machine.

Technical Specs

Windows test-case:

- CPU: Intel i5-4200U 2.3 Ghz above

- Chipset: Later than Intel® HM86

- RAM: least 8G

- HD: SSD

- Windows Platform Essential: .Net Framework 4.5
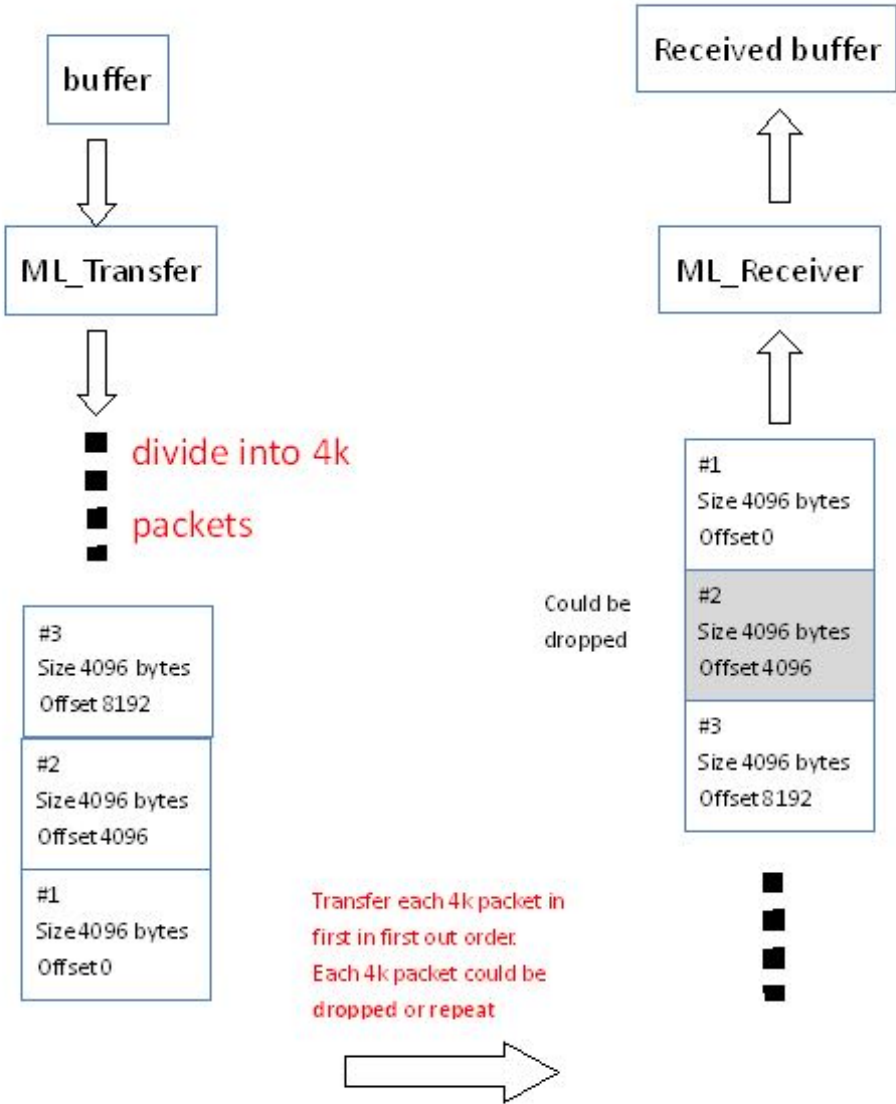
Linux test-case:

- CPU: Intel i7-4790 4.00 GHz

- RAM: 8 Gb

- HD: SSD

- Kernal: 3.16

- OS: Ubuntu 14.04 LTS
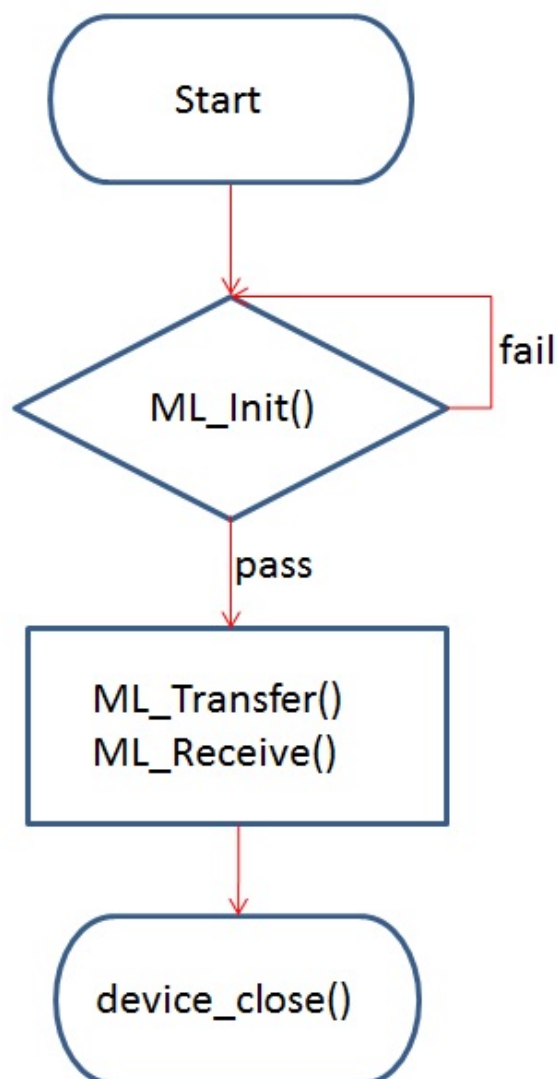
Chapter 3

Device Flowcahrt

This flowchart describes our device how to work

buffer

ML_Transfer

divide into 4k

packets

#3
Size 4096 bytes
Offset 8192

#2
Size 4096 bytes
Offset 4096

#1
Size 4096 bytes
Offset 0

Transfer each 4k packet in
first in first out order.
Each 4k packet could be
dropped or repeat

Received buffer

ML_Receiver

Could be
dropped

#1
Size 4096 bytes
Offset 0

#2
Size 4096 bytes
Offset 4096

#3
Size 4096 bytes
Offset 8192

Chapter 4

SDK Simple Control Process
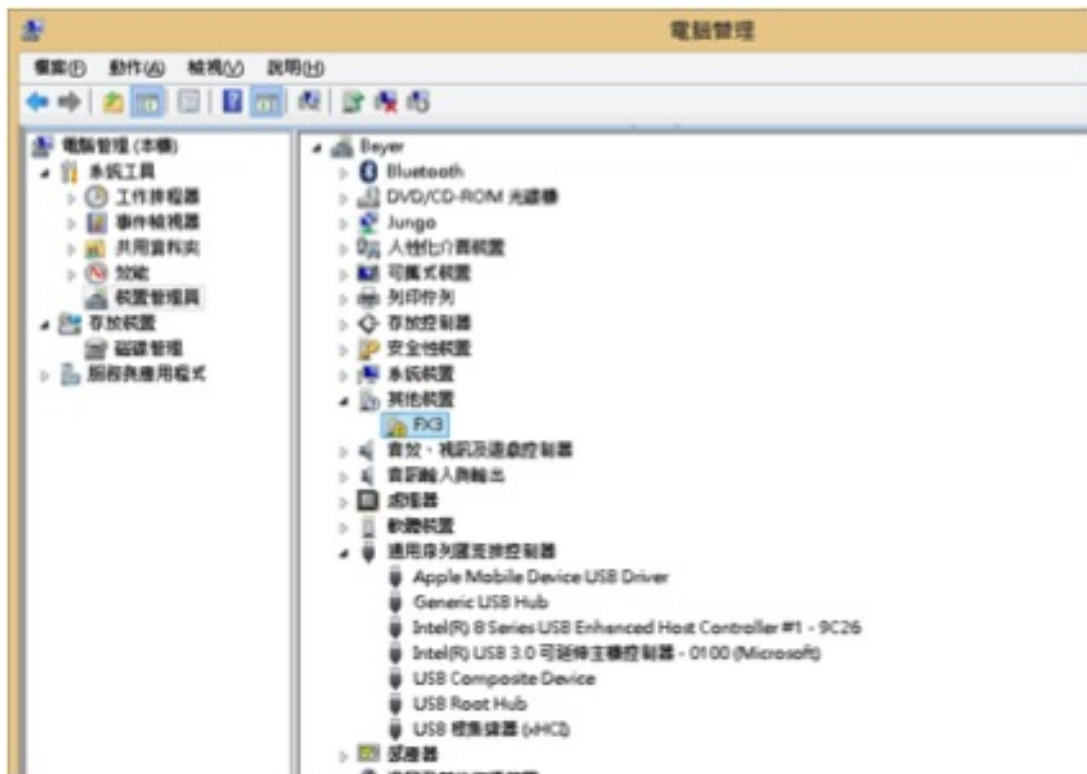
This flowchart describes our SDK how to work

Chapter 5

Windows Driver Install Tutorial

1. Run Setup to install SW
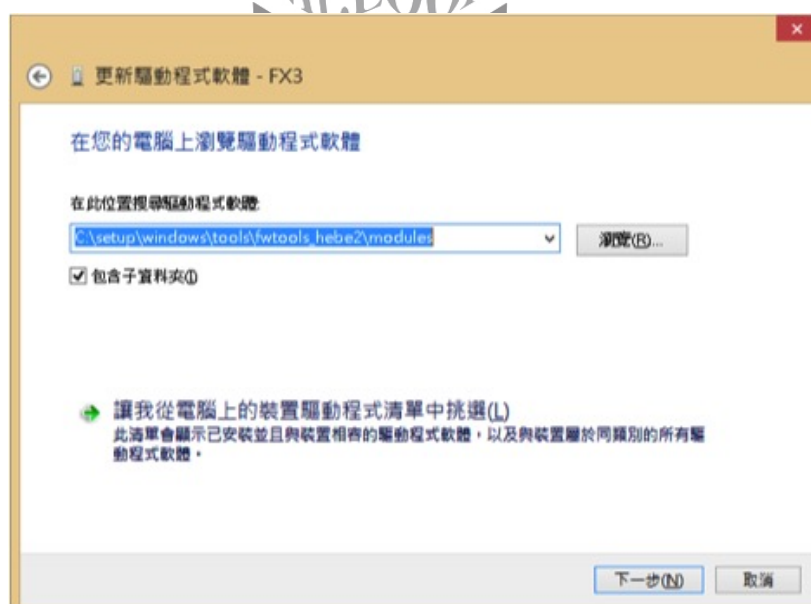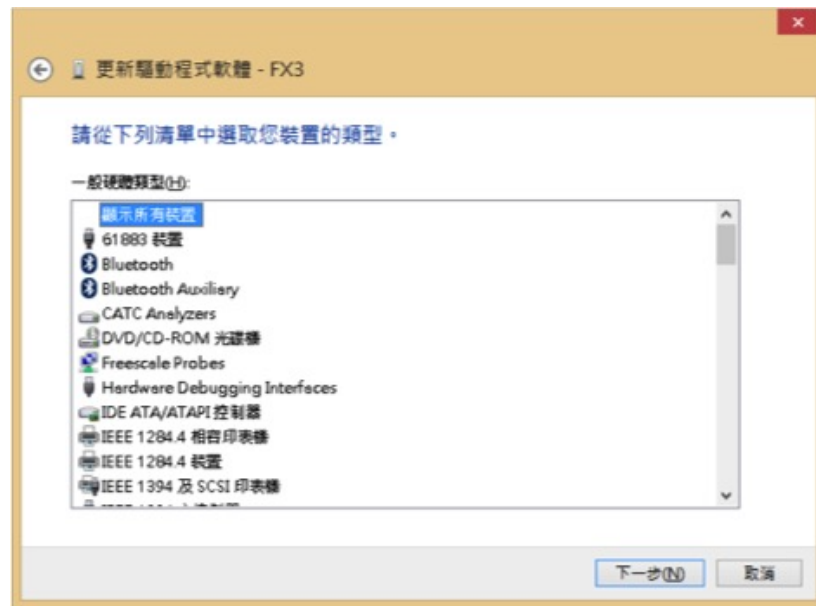   Run Device Manager. Select "FX3" and mouse right click. Select "Update Driver Software".
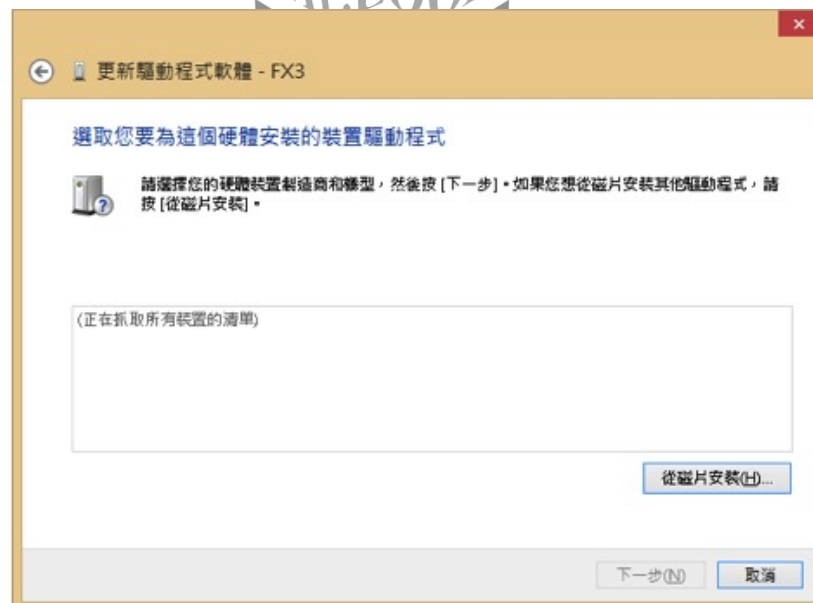
2. Select "Browse my computer for driver software"

3. Select "Let me pick from a list of device drivers on my computer"

4. Select "Next"

5. Select "Have disk"

6. Select the path of "cyusb3.inf"

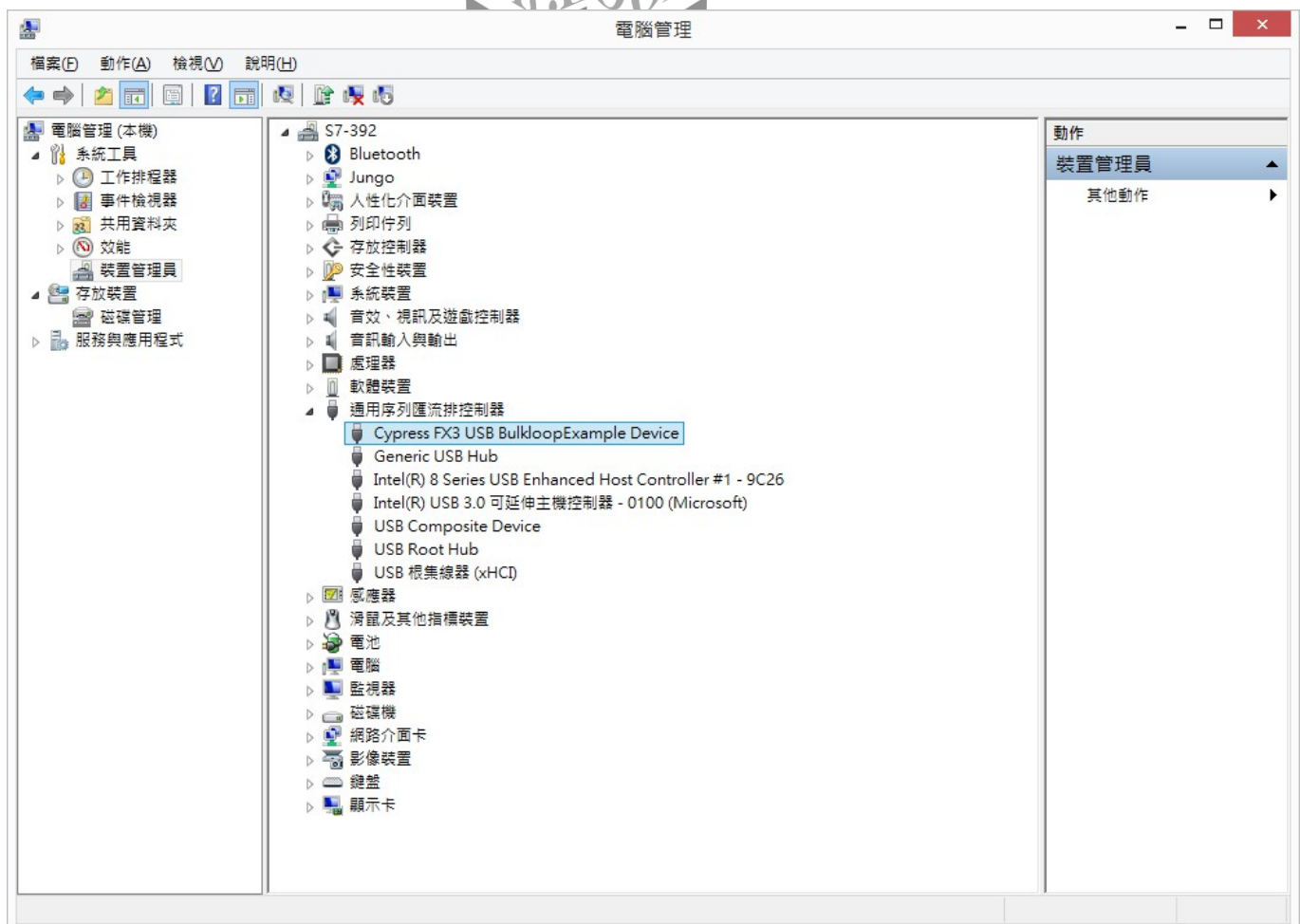> Default path is : "C:\Program Files (x86)\MrLoop\Dongle\driver*windows_↩
> version**x64_or_x86"
> "*" : Depends on windows version, select win7, win8, win8.1. For win10, choose win8.1
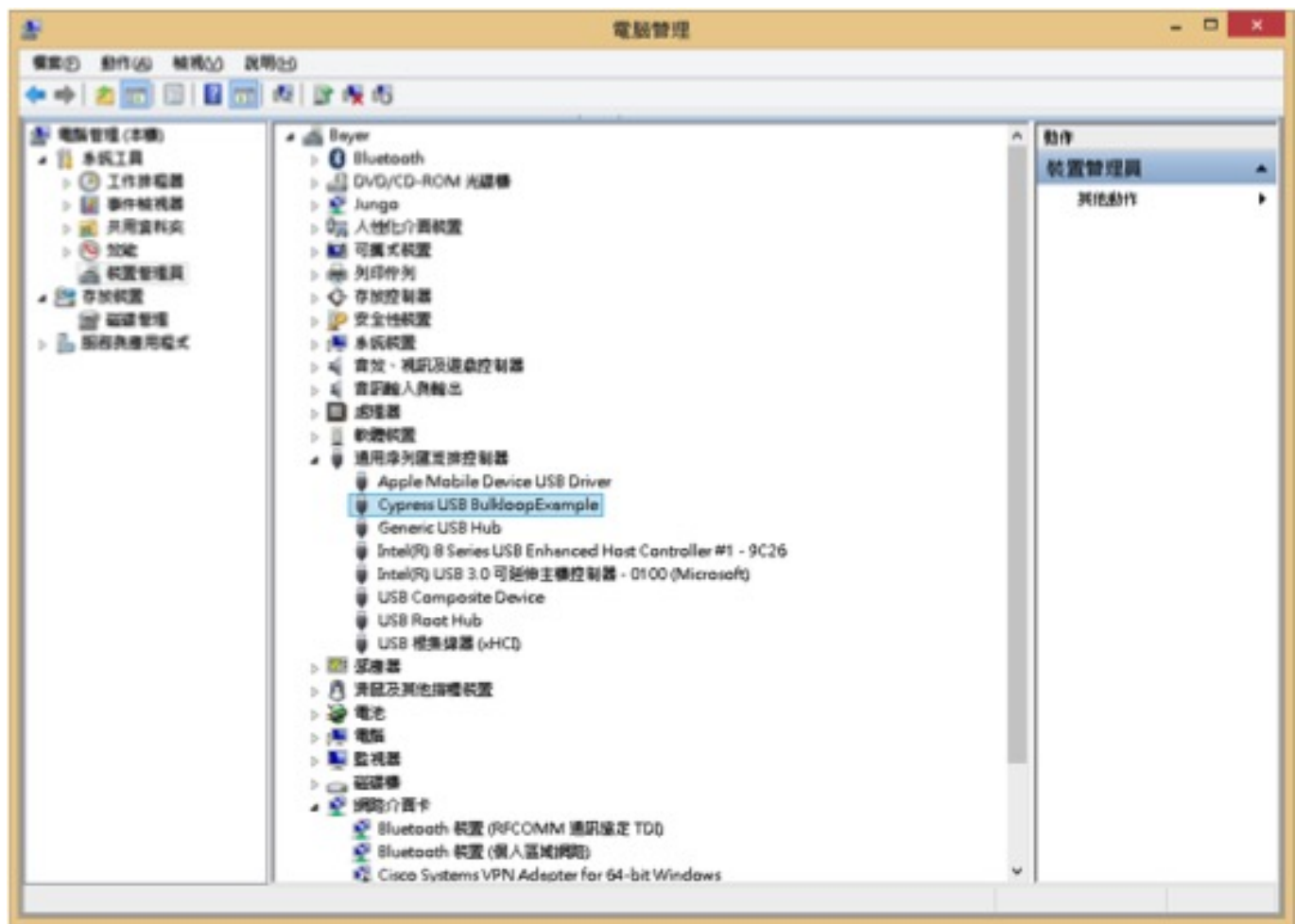> "**": Depends on 32bit OS or 64bit OS

7. Select "Cypress USB BulkloopExample" and "Next"

8. When install successfully, you can find "CypressUSB BulkloopExample" on device manager.

Chapter 6

Disable USB suspend for high performance

1. Click power management
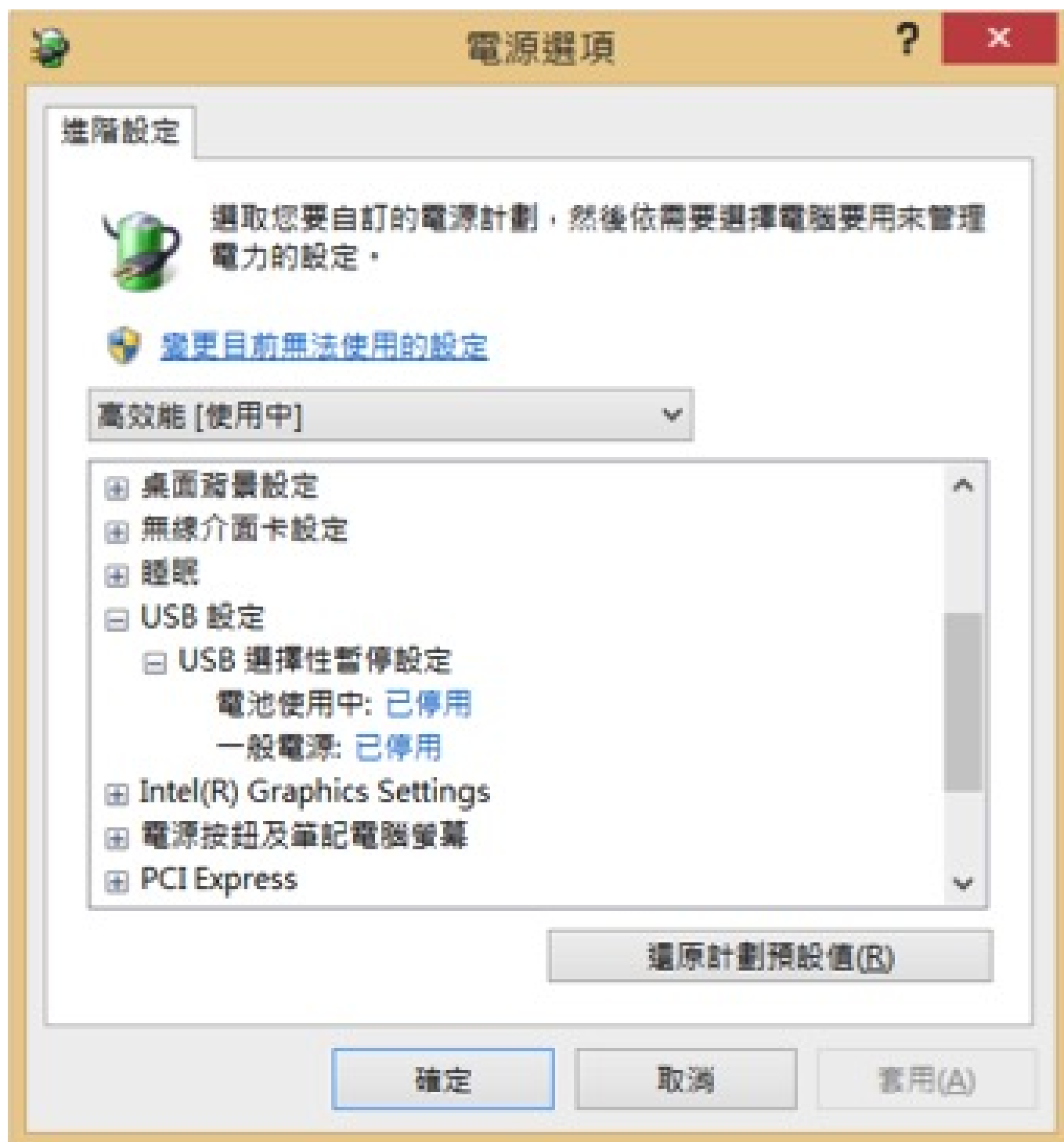
2. Click "High perfpormance"

3. Click "change setting"

4. Click change power setting
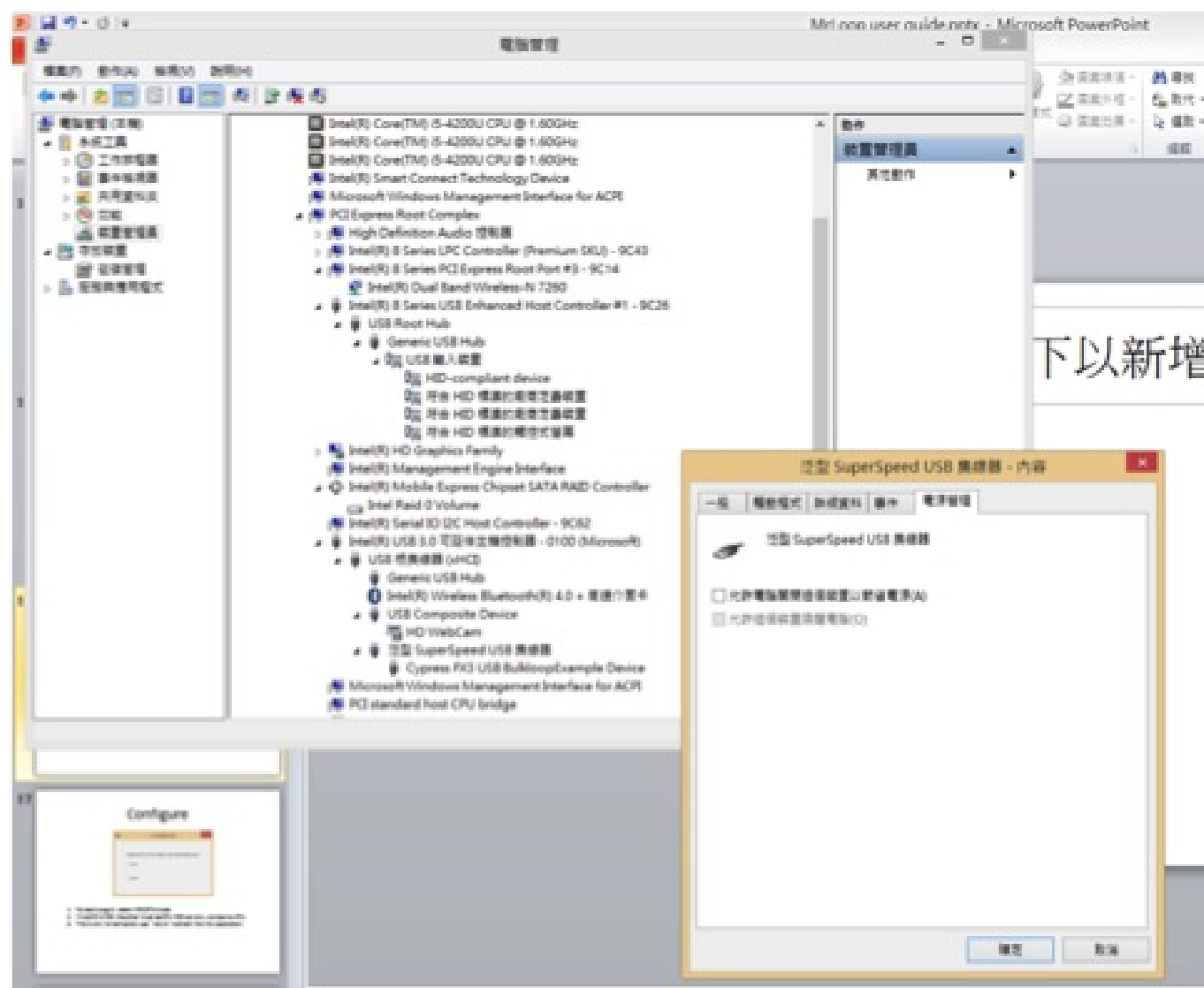
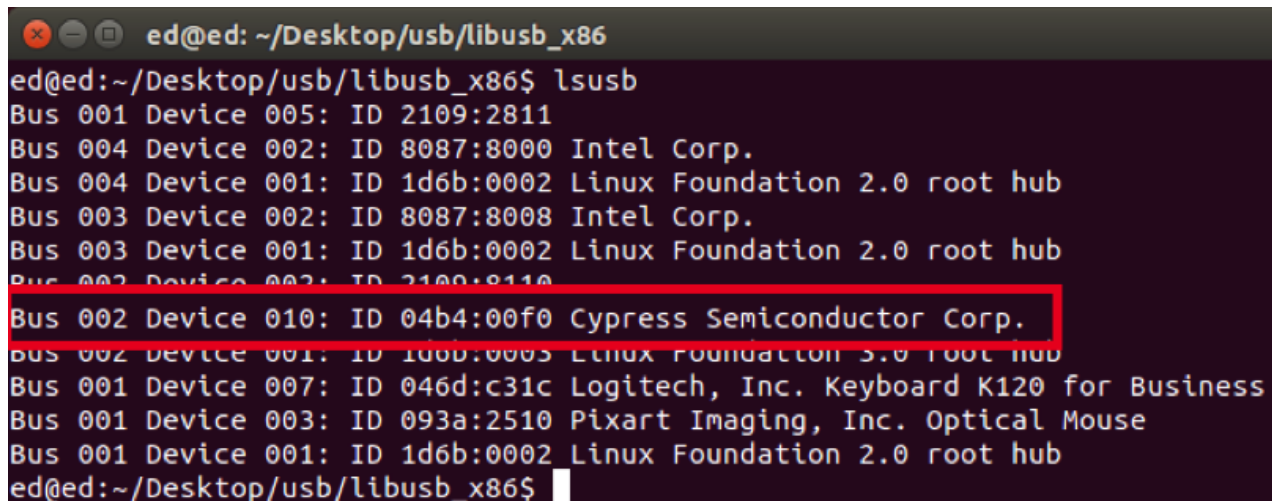5. Disable USB selective suspend

6.Disable USB hub power management

Chapter 7

Linux Driver Install Tutorial

1. Open terminal and sh ./install.sh

2. Support CPU architecture: x86_64

3. Plug-in WiGig dongle

4. open terminal enter "lsusb" and find "Cypress Semiconductor Corp."

Chapter 8

File Index

8.1 File List

Here is a list of all files with brief descriptions:

Chapter 9

File Documentation

9.1 mrloopbf_release.h File Reference

Macros

- #define MRLOOPBFSHARED_EXPORT

Functions

- MRLOOPBFSHARED_EXPORT int ML_Init ()
- MRLOOPBFSHARED_EXPORT void ML_Close ()
- MRLOOPBFSHARED_EXPORT void ML_HiddenDebugMsg ()
- MRLOOPBFSHARED_EXPORT int ML_Transfer (uint8_t *In_byte_ptr, int In_length_↩ ptr)
- MRLOOPBFSHARED_EXPORT int ML_Receiver (uint8_t *In_byte_ptr, int *In_length)
- MRLOOPBFSHARED_EXPORT bool ML_SetSpeed (uint8_t speed)
- MRLOOPBFSHARED_EXPORT bool ML_SetMode (uint8_t mode)
- MRLOOPBFSHARED_EXPORT uint8_t ML_GetDevGen (void)

9.1.1 Macro Definition Documentation

9.1.1.1 MRLOOPBFSHARED_EXPORT

```
#define MRLOOPBFSHARED_EXPORT
```

9.1.2 Function Documentation

9.1.2.1 ML_Close()

```
MRLOOPBFSHARED_EXPORT void ML_Close ( )
```

Close the device and leave SDK .

Returns

no return.

9.1.2.2   ML_GetDevGen()

```
MRLOOPBFSHARED_EXPORT uint8_t ML_GetDevGen (
            void  )
```

Get Current USB Device Generation.

Returns

> Integer value when succeeded, 0 if it fails. 1 is USB 1.1 2 is USB 2.0 3 is USB 2.1 4 is USB 3.0 5 is USB 3.1

9.1.2.3   ML_HiddenDebugMsg()

```
MRLOOPBFSHARED_EXPORT void ML_HiddenDebugMsg ( )
```

Hide the debug output message.

Returns

> no return.

9.1.2.4   ML_Init()

```
MRLOOPBFSHARED_EXPORT int ML_Init ( )
```

Initial the device and SDK first.

Returns

> If return 0, is initialization finish. The other return number is device driver, no device is attached or connect fail.

9.1.2.5   ML_Receiver()

```
MRLOOPBFSHARED_EXPORT int ML_Receiver (
            uint8_t * In_byte_ptr,
            int * In_length )
```

To listen to RF. Timeout value is 1 second.

Parameters

In_byte_ptr	A buffer to receive data. The buffer size must be multiple of 4096bytes since the unit in RF transaction is 4096bytes. The buffer will be divided into 4k packets in transaction. Each packet may be dropped or repeat in RF transaction.
In_length_ptr	Input the size of the buffer and output the size of the receive packet. When it returns fail, *In_length_ptr will be 0.

Returns

When it returns fail, ∗In_length_ptr will be 0.

ML_Transfer does NOT guarantee that the packet is delivered without error. Even ML_Transfer returns true, the packet could be dropped or repeated. The safe way is to put an index in the packet. Tx sends out the packet. Rx receives the packet and checks the index. Then Rx sends out one packet to note ack. If Tx does not receive the ack packet, then sends out the packet again or return error.

9.1.2.6 ML_SetMode()

```
MRLOOPBFSHARED_EXPORT bool ML_SetMode (
            uint8_t mode )
```

is Set Mrloop WiGig Dongle RF rule

Parameters

mode	Set mode value "1" is Master, mode value "2" is Slave.

Returns

False is fail. Slave can Only connect to Master. Master can Only connect to Slave.

9.1.2.7 ML_SetSpeed()

```
MRLOOPBFSHARED_EXPORT bool ML_SetSpeed (
            uint8_t speed )
```

is set Mrloop WiGig Dongle speed.

Parameters

speed	It ranges between 1∼7.

Returns

False is fail.

9.1.2.8 ML_Transfer()

```
MRLOOPBFSHARED_EXPORT int ML_Transfer (
            uint8_t * In_byte_ptr,
            int In_length_ptr )
```

To send out packet. Timeout value is 1 second.

Parameters

In_byte_ptr	The buffer to be sent out. The buffer size must be multiple of 4096bytes since the unit in RF transaction is 4096bytes. The buffer will be divided into 4k packets in transaction. Each packet may be dropped or repeat in RF transaction.
In_length_ptr	The size of the buffer.

Returns

If return fail, there may be error on device driver or no device is attached.

ML_Transfer does NOT guarantee that the packet is delivered without error. Even ML_Transfer returns true, the packet could be dropped or repeated. The safe way is to put an index in the packet. Tx sends out the packet. Rx receives the packet and checks the index. Then Rx sends out one packet to note ack. If Tx does not receive the ack packet, then sends out the packet again or return error.

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