Genesys Logic, Inc.

Hub Firmware Updater

Revision 1.05
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Revision History

Revision	Date	Description
0.10	12/12/2014	Brief Linux hub firmware updater first release.
1.00	12/16/2016	1. Support Multi Hub ISP. 2. Combine lsusb opensource to do list usb topology tree.
1.04	04/30/2019	1. Support GL3590. 2. Add erase function. 3. Add info function. 4. Update support flash list into GLHubIsp.ini.
1.05	01/30/2020	1. Support manual setting VID, PID in GLHubIsp.ini. 2. Update support flash list into GLHubIsp.ini. 3. Build in Ubuntu 18.04 LTS on WSL.

Overview

Hub firmware updater program is just like what it describes, update firmware on hub.
Currently this version is only for Linux command line interface.
Genesys also has Linux GUI version (QT) and also windows version.

GLHubIsp.ini

INI file needs to be placed at the same folder with **hubFwUpdaterCLI**
Here's one sample *.ini file.

[GLHub]
VID = 05e3 **target hub's vendor ID**
PID = 0610 **target hub's product ID**

[Hub1]
BinFile = FW8801.bin **firmware Binfile name1**

[Hub2]
BinFile = FW5340.bin **firmware Binfile name2**

[FlashInfo] **all the supported flash parameters**

Compile Environment

OS:

Windows 10 64bit (10.0, Build 18363) + WSL 1 + Ubuntu 18.04 LTS APP

Compiler :

gcc version 7.4.0 (Ubuntu 7.4.0-1ubuntu1~18.04.1)

Target PC :

x86_64-linux-gnu.

Linux Kernal version :

Linux 4.4.0-18362-Microsoft

Source code:

Source codes are all written by C and C++.

Command Line Interface

help -- print the help function.

```
#./hubFwUpdaterCLI -help
Genesys hubFwUpdaterCLI version 1.04
List of commands:
        help -- help
        isp -- isp firmware
        erase -- erase firmware
        version -- firmware version
        tree -- list hub tree
        reset -- software reset
        switch_speed -- switch usb speed
        info -- list hub info
```

isp -- In system programming. (Program firmware into hub)

Example:

1. Use INI file to update.

```
#./hubFwUpdaterCLI isp –t ini
```

2. Update Single Hub

```
#./hubFwUpdaterCLI isp –t single –n 0 –b ZS600KL_HUB1_6961_20180802rom.bin
```

erase -- Erase hub's firmware, has to add hub number.(index)

Example:

```
#./hubFwUpdaterCLI erase 0
```

version -- Get the firmware version. (not this source code version)

Example:

```
#./hubFwUpdaterCLI version
GL hub 0 found, bus:5 dev:48
GL hub 0 version:9305
```

tree -- List USB hub topology tree, same as lsusb –t.

Example:

```
#./hubFwUpdaterCLI tree
/:  Bus 06.Port 1: Dev 1, Class=root_hub, Driver=xhci_hcd/4p, 5000M
/:  Bus 05.Port 1: Dev 1, Class=root_hub, Driver=xhci_hcd/1p, 480M
    |__ Port 1: Dev 2, If 0, Class=, Driver=hub/4p, 480M
        |__ Port 3: Dev 3, If 0, Class=, Driver=usbhid, 1.5M
        |__ Port 3: Dev 3, If 1, Class=, Driver=usbhid, 1.5M
        |__ Port 4: Dev 4, If 0, Class=, Driver=usbhid, 1.5M
/:  Bus 04.Port 1: Dev 1, Class=root_hub, Driver=xhci_hcd/4p, 5000M
/:  Bus 03.Port 1: Dev 1, Class=root_hub, Driver=xhci_hcd/4p, 480M
/:  Bus 02.Port 1: Dev 1, Class=root_hub, Driver=xhci_hcd/4p, 5000M
    |__ Port 4: Dev 11, If 0, Class=, Driver=hub/3p, 5000M
/:  Bus 01.Port 1: Dev 1, Class=root_hub, Driver=xhci_hcd/4p, 480M
    |__ Port 4: Dev 11, If 0, Class=, Driver=hub/4p, 480M (GL Hub1)
        |__ Port 4: Dev 12, If 0, Class=, Driver=hub/4p, 480M (GL Hub2)
```

GL Hub1 & **GL Hub2** … are those hub Associated with *.ini file,

reset -- reset single hub, has to add hub number (index)

Example:

```
#./hubFwUpdaterCLI reset 0
```

switch_speed -- change usb speed to usb2 or usb3

Example:

```
# ./hubFwUpdaterCLI switch_speed 0 2
```

Info -- Display devices information.

Example:

```
#./hubFwUpdaterCLI info
GL hub 0 found, bus:5 dev:48
GL hub 0 : Chip Id(9), VID_05E3, PID_0610, REV_9305
```

Porting Guide

1. The only external library we used is <libudev.h>, under ubuntu we need to do install following libraries, for embedded system, might need to find something suitable or cross-compiled those libs.
   apt-get install libudev-dev
   apt-get install libusb-1.0-0-dev
2. For desktop PC, Makefile sample offers “make debug”, so that we could use **gdb** on desktop for debug purpose, also this needs to be installed.
   apt-get install gdb
3. For sorting hub topology tree map, we use open source **lsusb**, for parsing usb hub tree under **/sys/bus/usb/devices** (this path might change on different operating system)
   We will find bus number and device number under /sys/bus/usb/device, and open control from path **/dev/bus/usb** (this path might change on different operating system).

   The most important thing is to find out where the system USB device located at.