USB convert tty 10 ports user’s manual reference

Build in driver to Linux kernel:

Step 1.

Copy file kernel\_driver/lpc54xxx.c file to Linux kernel source directory drivers/usb/serial/

Step 2.

Add below code to Linux kernel source file drivers/usb/serial/Makefile

obj-$(CONFIG\_USB\_SERIAL\_LPC54XXX) += lpc54xxx.o

Step 3.

Add below code to Linux kernel source file drivers/usb/serial/Kconfig

config USB\_SERIAL\_LPC54XXX

tristate "USB LPC54XXX USB Serial Driver"

help

Say Y here if you want to use a LPC54XXX 10 port

USB to serial converter device.

To compile this driver as a module, choose M here.

Step 4.

On Linux kernel source folder, run ‘make menuconfig’ and select above item (“Linux kernel source”) to ‘\*’, then compile the Linux kernel by executing ‘make’.

Download LPC Firmware to target board:

Environment required for download tool (LPC\_firmware\_download\_tool/dfu-utils):

CPU: arm64

SYSTEM: linux

Step 1.

Copy the download folder LPC\_firmware\_download\_tool/\* to a arm64 platform (such as LS1021ATWR)’s directory /usr/bin/. Connect a USB cable between arm64 platform USB host port and target LPC board’s USB upstream port.

Step2:

Log on arm64 platform /usr/bin/LPC\_firmware\_download\_tool/, execute below command to download LPC firmware:

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**root@ls1021atwr:/usr/bin/LPC\_firmware\_download\_tool# ./download.sh**

dfu-util 0.9

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Please report bugs to http://sourceforge.net/p/dfu-util/tickets/

dfu-util: Invalid DFU suffix signature

dfu-util: A valid DFU suffix will be required in a future dfu-util release!!!

Opening DFU capable USB device...

ID 1fc9:001f

Run-time device DFU version 0110

Claiming USB DFU Interface...

Setting Alternate Setting #0 ...

Determining device status: state = dfuIDLE, status = 0

dfuIDLE, continuing

DFU mode device DFU version 0110

Device returned transfer size 512

Copying data from PC to DFU device

Download [=========================] 100% 62776 bytes

Download done.

state(8) = dfuMANIFEST-WAIT-RESET, status(0) = No error condition is present

Done!

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Congratulations! Now the operation download firmware is successful. Host board (arm64) will begin re-enumerate LPC board as a special USB serial port device automatically.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***root@ls1021atwr:/usr/bin/LPC\_firmware\_download\_tool# ls /dev/ttyUSB\***

/dev/ttyUSB0 /dev/ttyUSB2 /dev/ttyUSB4 /dev/ttyUSB6 /dev/ttyUSB8

/dev/ttyUSB1 /dev/ttyUSB3 /dev/ttyUSB5 /dev/ttyUSB7 /dev/ttyUSB9

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If you can see above 10 ttyUSBx device file ,the firmware have been running correctly.

Debug function

The device’s driver has added two files in sysfs to show the number of sending and receiving data (in bytes).

The file named “send\_bytes” means the data ttyUSBx device has sent since usb serial device got enumerated. Similarly, the file named “recv\_bytes” means the data ttyUSBx device have received since usb serial device got enumerated.

Here is an example:

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**root@ls1043ardb:/sys/bus/usb/devices/1-1.4:1.0/ttyUSB8# cat send\_bytes**

360855

**root@ls1043ardb:/sys/bus/usb/devices/1-1.4:1.0/ttyUSB8# cat recv\_bytes**

360855

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Besides, we also have implement a test program which can be run on arm64 platform, please see folder user\_space\_test\_program/ for details.