Overview

This Host FatFs example supports UFI and SCSI U-disk device.

The application prints the attached device information when U-disk device is attached. The application executes some FatFs APIs to test the attached device.

System Requirement

Hardware requirements

- Mini/micro USB cable
- USB A to micro AB cable
- Hardware (Tower module/base board, and so on) for a specific device
- Personal Computer (PC)

Software requirements

• The project path is:

```
<MCUXpresso_SDK_Install>/boards/<board>/usb_examples/usb_host_msd_fatfs/<rtos>/<toolchain>.
```

Note

The <rtos> is Bare Metal or FreeRTOS OS.

Getting Started

Hardware Settings

Note

Set the hardware jumpers (Tower system/base module) to default settings.

Prepare the example

- 1. Download the program to the target board.
- 2. Power off the target board and power on again.
- 3. Connect devices to the board.

Note

For detailed instructions, see the appropriate board User's Guide.

Run the example

- 1. Connect the board UART to the PC and open the COM port in a terminal tool.
- 2. Plug in a HUB or a U-disk device to the board. The attached information prints out in the terminal.
- 3. The test information prints in the terminal. The "success" message prints when a FatFs API succeeds. The "fail" message prints when a FatFs API fails. The test completes when either the FatFs API fails or all the tests are done. The following figure is an example for attaching one U-disk device.

```
host init done
mass storage device attached:pid=0x312bvid=0x125f address=1
fatfs mount as logiacal driver 1.....success
test f mkfs.....success
test f getfree:
   FAT type = FAT32
   bytes per cluster = 32768; number of clusters=474069
   The free size: 15170176KB, the total size:15170208KB
directory operation:
list root directory:
create directory "dir 1".....success
create directory "dir 2".....success
create sub directory "dir_2/sub_1".....success
list root directory:
   dir - ___ - DIR_1 - OBytes - 2015-1-1 0:0:0
   dir -
            - DIR 2 - OBytes - 2015-1-1 0:0:0
list directory "dir 1":
   dir - - SUB 1 - OBytes - 2015-1-1 0:0:0
rename directory "dir 1/sub 1" to "dir 1/sub 2".....success
delete directory "dir_1/sub_2".....success
get directory "dir_1" information:
   dir - - DIR 1 - OBytes - 2015-1-1 0:0:0
change "dir 1" timestamp to 2015.10.1, 12:30:0.....success
get directory "dir 1" information:
   dir - - DIR 1 - OBytes - 2015-10-1 12:30:0
file operation:
create file "f 1.dat".....success
test f write.....success
test f printf.....success
test f puts.....success
test f putc.....success
test f seek.....success
test f gets.....ABCDEFGHI
      read.....JKLMNOPQRS
test f_truncate.....success
test f close.....success
get file "f 1.dat" information:
   fil - - F 1.DAT - 19Bytes - 2015-1-1 0:0:0
change "f 1.dat" timestamp to 2015.10.1, 12:30:0.....success
change "f 1.dat" to readonly.....success
get file "f 1.dat" information:
   fil - R__ - F_1.DAT - 19Bytes - 2015-10-1 12:30:0
remove "f 1.dat" readonly attribute.....success
get file "f_1.dat" information:
   fil - - F 1.DAT - 19Bytes - 2015-10-1 12:30:0
rename "f 1.dat" to "f 2.dat".....success
delete "f 2.dat".....success
  .....test done.....
```

Figure 1: Attach U-disk device

4. To test the throughput, set the MSD_FATFS_THROUGHPUT_TEST_ENABLE to (1) in the file host_msd_fatfs.h. An additional 64 K RAM is required to test the throughput. The macro is only supported on TWR-K65F180M Tower System module and IAR IDE.

The throughput test process is as follows:

• Enable MSD_FATFS_THROUGHPUT_TEST_ENABLE.

- Format the U-disk in the PC. Select the "Allocation unit size" 32 K.
- Insert the U-disk. The throughput test starts. The following image shows an example.

Figure 2: Throughput test

Note

- 1. The throughput test only supports the TWR-K65F180M Tower System module.
- 2. LFN (long file name) can be enabled by changing the macro FF_USE_LFN as 1.