MCF52223 USB Host Demonstration Suite

This package contains a set of demonstration programs for the MCF52223.

These demonstrations are provided as complete Metrowerks Code Warrior projects with full source code.

The code is designed to show how to use various aspects of USB Host mode in conjunction with the MCF52223.

Basic Directory structure

/projects

Contains developer environment specific files for the two MCF52223 demo projects.

The first project demonstrates a HID class implementation where keyboard, mouse or joystick maybe attached to the board.

The second project demonstrates a USB mass storage host. A standard USB drive can be attached to the system, it will be recognized as a drive and a file API is provided to allow the drive to be read and written.

/src

Contains the USB source code that is project independent.

Source Code

The source code (in the src directory) contains the following files:

/	MCF5222x Directory
hcc_types.h	Common type definitions.
ints.c	
mcf5222x_reg.h	Register definitions for the MCF5222x MCUs.
target.c	Hardware (board) specific routines. Mainly related to
target.h	initialization.
/usb-drv	USB Basic Host Controller
usb_host.c	USB Host driver source.
usb_host.h	
usb_utils.c	USB Host driver utility functions
usb_utils.h	
/uart-drv	MCF52223 UART Driver
uart.c	Simple uart driver source code
uart.h	
/hid	HID Class Host Demo
hid_demo.c	
hid_parser.c	HID device layer for the USB driver.
hid_parser.h	
hid_usage.h	
host_hid.c	Generic HID demo. Allows control of on board leds and
host_hid.h	read status of on board switches.
host_hid_joy.c	HID Joystick demo.
host_hid_joy.h	
host_hid_kbd.c	HID Keyboard demo.
host_hid_kbd.h	
host_hid_mouse.c	HID Mouse demo.
host_hid_mouse.h	

/mass-storage	Mass Storage Class Host Demo
main.c	Main control code of mass storage demo.
/mass-storage/mst-drv	Mass Storage Class Host Demo
scsi.c	SCSI control for USB Mass Storage
scsi.h	
usb_mst.c	USB Mass Storage Host
usb_mst.h	
/mass-storage/terminal	Mass Storage Class Host Demo
terminal.c	Simple terminal source code for accessing the USB drive.
terminal.h	
/mass-storage/thin-lib	Mass Storage Class Host Demo
mst_glue.h	Links sector driver of FAT file system to Mass Storage driver.
thin_usr.h	Header file to be included with FAT file system
thin_lib.a	Limited function FAT file system library
/mass-storage/thin-lib	Mass Storage Class Host Demo
fat_sthin.h	

MCF52223 USB Host Projects

HID Project

If the HID project is downloaded to the MCF52223 Development board and a terminal is attached to the first serial port (9600,N,8,1) then the following can be demonstrated :

1. Plug a mouse to the USB port and the all mouse operations will cause the mouse co-ordinates and the status of the three buttons to be displayed on the terminal..
2. Plug a keyboard to the USB port and all key presses will be displayed including the modifier key status and the scan code of the pressed key.
3. Plug a joystick to the USB co-ordinates x,y, rz, the status of the six buttons, the value representing the slider position and the current angle reflecting the head switch position.

Mass Storage Project

Attach a terminal to the first serial port (9600,N,8,1) and download this project. When a USB drive is connected to the board then the following commands can be entered at the terminal to view the drive:

dir	Prints a directory listing
dump	Dumps the contents of a file in ASCII and Hex form
greet	Displays a greeting message
help	Prints help information
type	Prints the contents of a file.

The user may develop their application by using the CMX-FFS-THIN library to access the FAT file system. They can also extend the above command list.

The following file API commands are available:

- f_open()
- f_close()
- f_read()
- f_write()
- f_tell()
- f_getc()
- f_putc()
- f_rewind()
- f_eof()
- f_seek()
- f_filelength()
- f_getfreespace()
- f_findfirst()
- f_findnext()

Please consult the CMX-FFS-THIN user manual for full documentation of these functions.

The FAT file system library supplied is a limited functionality, evaluation version. Developers requiring a full version should order with CMX-FFS-FAT or CMX-FFS-THIN to get the full functionality and performance for the system.