

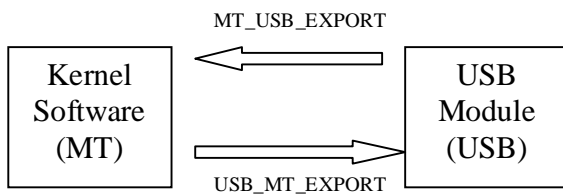
## Development Environment

1. Cygwin GNU gcc (for MIPS) version 2.96
2. Cygwin GNU as (for MIPS) version 2.9
3. Cygwin GNU ar (for MIPS) version 2.9
4. Cygwin GNU ld (for MIPS) version 2.9
5. SuperTask (OS) or other operating system that could provide similar functionality

## Compile Steps

1. Change the path of *ROOT\_DIR* within file `\output\00config.mk`
2. Change the path of *OUTPUT\_ROOT\_DIR* within file `\output\00config.mk`
3. In output directory, use `make -f 00config.mk` command to generate makefile
4. In output directory, use `make` command to generate binary file
5. The binary file will be placed on directory `\output\00release`

## Software Architecture



## Software Interfaces

Load the USB module

1. USB module should be loaded into a fix position - 0x95A70000. (due to the limitation of memory space)
2. Calls the `c_entry()`, located at 0x95A70000, of USB module to get software interfaces.

Unload the USB module

1. Stop all of the tasks created by USB module
2. Clear the memory space from 0x95A70000 to 0x95EF0000.

## From USB to MT (MT\_USB\_EXPORT)

1. `get_data_segment`  
return the pointer of GOT table entry
2. `randomize`  
regenerate the sequence of random number
3. `random`  
generate a random number
4. `runtsk`  
create a task with priority setting. (0 means lowest priority, 255 means highest priority)
5. `dlytsk`  
make a task sleep for number of system ticks
6. `get_sys_time`  
get current system tick
7. `getres`  
enter critical section
8. `relres`  
leave critical section
9. `chkevt`  
check if event is been set
10. `setevt`  
set event in normal mode
11. `SIGNAL_IR`  
set event in kernel mode
12. `wteset`  
wait until event is set or timeout
13. `wteset_dec`  
wait until event is set then decrees it or timeout
14. `clrevt`  
clear event
15. `usb_isr_install`  
(currently, empty function)
16. `usb_uhci1_isr_install`  
(currently, empty function)
17. `usb_uhci2_isr_install`  
(currently, empty function)
18. `led_usb_on`  
turn on the led
19. `led_usb_off`  
turn off the led
20. `led_usb_flash`  
turns led on and off
21. `PciCfgRdByte`  
read byte from PCI configuration space
22. `PciCfgRdWord`  
read word from PCI configuration space

23. PciCfgRdDword  
read double word from PCI configuration space
24. PciCfgWrByte  
write one byte into PCI configuration space
25. PciCfgWrWord  
write word into PCI configuration space
26. PciCfgWrDword  
write double word into PCI configuration space
27. Nputchr  
send byte through UART interface
28. PrintULONG  
send double word through UART interface
29. updateDiskDriveInfo  
let MT knows the latest disk that inserted into the system
30. updateShareConfPlug  
let MT knows the share configuration of plug in device
31. diskMount\_status  
get the mount status of disk
32. diskMount\_set\_status  
set the mount status of disk
33. partition\_mount  
tell MT to mount a disk partition
34. partition\_umount  
tell MT to un-mount a disk partition
35. debug\_act  
information of current debug message output control of MT
36. debug\_rt\_disp  
information of current debug message output control of MT
37. mt\_busy  
information of current preemption status
38. cur\_task  
information of current task control block
39. sys\_time  
information of current hardware system time

#### From MT to USB (USB\_MT\_EXPORT)

1. get\_data\_segment  
return the pointer of GOT table entry
2. UsbSysInit  
USB Module initialization
3. localhc\_irq  
(currently, not been used)
4. localhc\_uhci1\_irq  
(currently, not been used)
5. localhc\_uhci2\_irq  
(currently, not been used)

6. Prt\_Init  
USB printer interface initialization
7. Prt\_Reset  
Reset current USB printer
8. ParallelTest  
Test current USB printer
9. Prt\_Open  
Create USB printer handler
10. Prt\_GetId  
Get device ID of USB printer
11. Prt\_Get\_S\_EPP\_Sts  
Get the status of USB printer
12. Prt\_Check\_Port\_Pwr\_Connect  
Get the status power on USB printer
13. Prt\_Sts\_Check\_On\_Line  
Get the on-line status of USB printer
14. Prt\_Sts\_Check\_Paper\_End  
Get the status of out of paper
15. Prt\_Sts\_Check\_Error  
Check for all of the error status for USB printer
16. Prt\_Buf\_Write  
Write data into USB printer
17. Prt\_Close  
Close handler of USB printer
18. usb\_ms\_unplug  
Software unplug USB storage
19. usb\_block\_read  
Read USB storage by block
20. usb\_block\_readex  
(currently, not been used)
21. usb\_block\_write  
Write USB storage by block
22. blk\_sync\_cache  
(currently, not been used)
23. usb\_storage\_query\_inbound\_display  
(currently, not been used)
24. usb\_storage\_inner\_display  
(currently, not been used)
25. usb\_storage\_cache\_display  
(currently, not been used)
26. USBDiskParam  
The size of USB disk
27. validPartitionCnt  
The number of partition within USB disk
28. PartitionType  
The types of partition within USB disk

29.validPartitionID  
The partition ID of USB disk