



# GCT450 PLATFORM

Software Integration Guide

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Status	Release

#### **Revision History**

Revision	Date	Description of Major Changes
1.0	2017/06/08	Initial Release
1.1	2020/7/1	Add the debug information

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# 1 Introduction

This document describes how to integrate our module into the Linux based operation system.

## 2 Operation System Support

### 2.1 OpenWRT Linux version

Please run “make menuconfig”, go to “Kernel modules”->”USB Support”, select below options:

kmod-usb-acm,

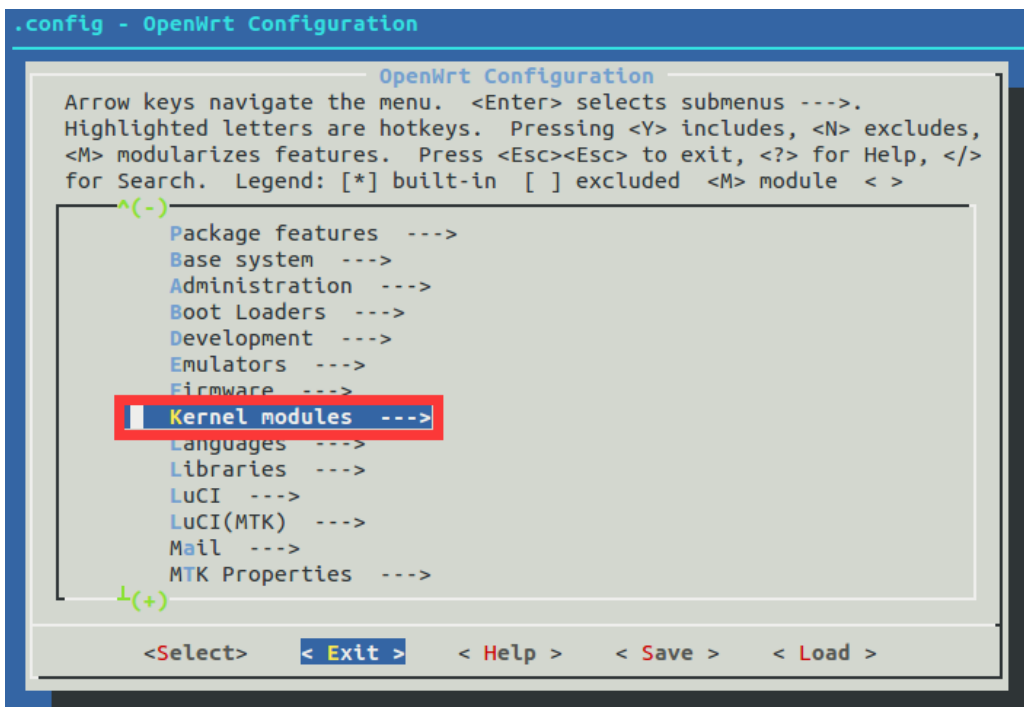
kmod-usb-core,

kmod-usb-net,

kmod-usb-net-cdc-ether,

kmod-usb-net-rndis,

kmod-usb2

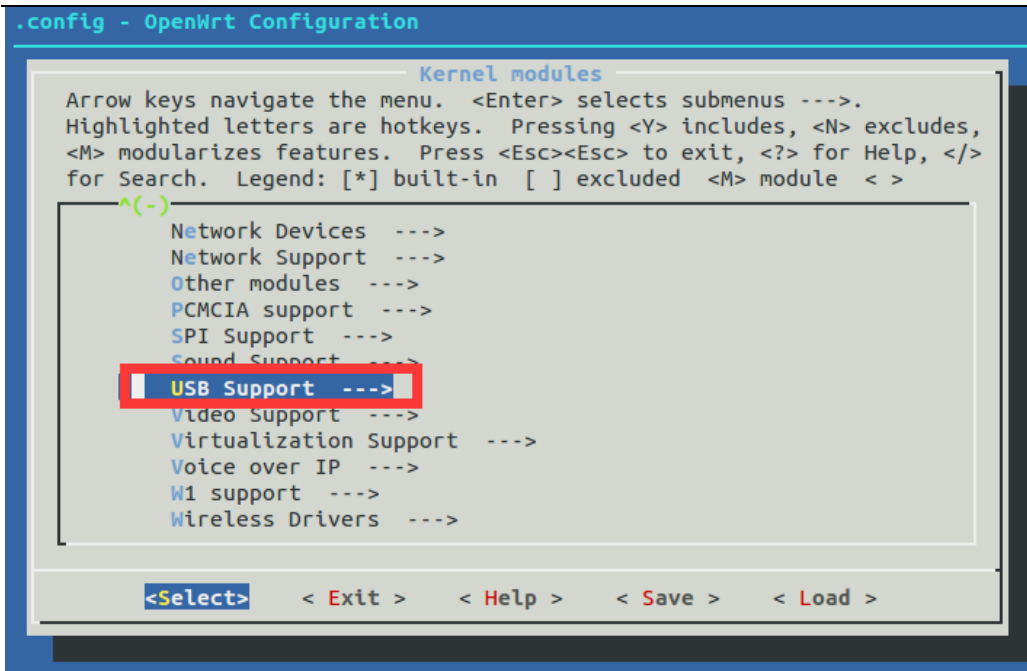


```
.config - OpenWrt Configuration

OpenWrt Configuration
Arrow keys navigate the menu. <Enter> selects submenus --->.
Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes,
<M> modularizes features. Press <Esc><Esc> to exit, <?> for Help, </>
for Search. Legend: [*] built-in [ ] excluded <M> module < >

^(-)
Package features --->
Base system --->
Administration --->
Boot Loaders --->
Development --->
Emulators --->
Firmware --->
Kernel modules --->
Languages --->
Libraries --->
LuCI --->
LuCI(MTK) --->
Mail --->
MTK Properties --->
L(+)
```

<Select> < Exit > < Help > < Save > < Load >



```

.config - OpenWrt Configuration

                                USB Support
Arrow keys navigate the menu. <Enter> selects submenus --->. Highlighted letters are
hotkeys. Pressing <Y> includes, <N> excludes, <M> modularizes features. Press <Esc><Esc>
to exit, <?> for Help, </> for Search. Legend: [*] built-in [ ] excluded <M> module < >
module capable

[*] kmod-usb-acm..... Support for modems/isdn controllers
< > kmod-usb-atm..... Support for ATM on USB bus
< > kmod-usb-chipidea..... Support for ChipIdea controllers
< > kmod-usb-cm109..... Support for CM109 device
[*] kmod-usb-core..... Support for USB
< > kmod-usb-dwc2..... DWC2 USB controller driver
< > kmod-usb-hid..... Support for USB Human Input Devices
[*] kmod-usb-net..... Kernel modules for USB-to-Ethernet convertors
< > kmod-usb-net-asix..... Kernel module for USB-to-Ethernet Asix convertors
< > kmod-usb-net-asix-88179
< > kmod-usb-net-cdc-eem..... Support for CDC EEM connections
[*] kmod-usb-net-cdc-ether..... Support for cdc ethernet connections
< > kmod-usb-net-cdc-mbim..... Kernel module for MBIM Devices
< > kmod-usb-net-cdc-ncm..... Support for CDC NCM connections
< > kmod-usb-net-cdc-subset..... Support for CDC Ethernet subset connections
< > kmod-usb-net-dm9601-ether..... Support for DM9601 ethernet connections
< > kmod-usb-net-hso.. Kernel module for Option USB High Speed Mobile Devices
< > kmod-usb-net-ipheth..... Apple iPhone USB Ethernet driver
< > kmod-usb-net-kalmia..... Samsung Kalmia based LTE USB modem
< > kmod-usb-net-kaweth.. Kernel module for USB-to-Ethernet Kaweth convertors
< > kmod-usb-net-mcs7830
< > kmod-usb-net-pegasus
< > kmod-usb-net-qmi-wwan..... QMI WWAN driver
[*] kmod-usb-net-rndis..... Support for RNDIS connections
< > kmod-usb-net-sierrawireless..... Support for Sierra Wireless devices
< > kmod-usb-net-smc95xx.. SMSC LAN95XX based USB 2.0 10/100 ethernet devices
< > kmod-usb-ohci..... Support for OHCI controllers
< > kmod-usb-printer..... Support for printers
< > kmod-usb-serial..... Support for USB-to-Serial convertors
< > kmod-usb-storage..... USB Storage support
< > kmod-usb-storage-extras..... Extra drivers for usb-storage
< > kmod-usb-uhci..... Support for UHCI controllers
< > kmod-usb-wdm..... USB Wireless Device Management
< > kmod-usb-yealink..... USB Yealink VOIP phone
[*] kmod-usb2..... Support for USB2 controllers
< > kmod-usb3..... Support for USB3 controllers
< > kmod-usbip..... USB-over-IP kernel support
< > kmod-usbip-client..... USB-over-IP client driver
L(+)
```

<Select> < Exit > < Help > < Save > < Load >

## 2.2 Other Linux Version

1.2.1. Please run “make menuconfig” in Kernel path, go to “Kernel modules”->“Device Drivers”->“USB Support”, select below options:

Support for Host-side USB

EHCI HCD (USB 2.0) support

Generic EHCI driver for a platform device

USB Modem (CDC ACM) support

```
.config - Linux/mips 3.10.14 Kernel Configuration
Linux/mips 3.10.14 Kernel Configuration
Arrow keys navigate the menu. <Enter> selects submenus ---.
Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes,
<M> modularizes features. Press <Esc><Esc> to exit, <?> for Help, </>
for Search. Legend: [*] built-in [ ] excluded <M> module < > module
^(-)
  Executable file formats --->
  Power management options --->
  [*] Networking support --->
  Device Drivers --->
  Firmware Drivers --->
  File systems --->
  Kernel hacking --->
  Security options --->
  -* Cryptographic API --->
  Library routines --->
  [ ] Virtualization --->
  Ralink Module --->

  <Select>  < Exit >  < Help >  < Save >  < Load >
```

```
.config - Linux/mips 3.10.14 Kernel Configuration
> Device Drivers
Device Drivers
Arrow keys navigate the menu. <Enter> selects submenus ---.
Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes,
<M> modularizes features. Press <Esc><Esc> to exit, <?> for Help, </>
for Search. Legend: [*] built-in [ ] excluded <M> module < > module
^(-)
  < > Multimedia support --->
  Graphics support --->
  < > Sound card support --->
  [*] USB support --->
  < > MMC/SD/SDIO card support --->
  < > Sony MemoryStick card support --->
  [ ] LED Support --->
  [ ] Accessibility support --->
  [ ] Real Time Clock --->
  [ ] DMA Engine support --->
  [ ] Auxiliary Display support --->
  < > Userspace I/O drivers --->
  +(+)
```

```
.config - Linux/mips 3.10.14 Kernel Configuration
> Device Drivers > USB support
                                USB support
Arrow keys navigate the menu. <Enter> selects submenus --->.
Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes,
<M> modularizes features. Press <Esc><Esc> to exit, <?> for Help, </>
for Search. Legend: [*] built-in [ ] excluded <M> module < > module

--- USB support
<M> Support for Host-side USB
[ ] USB verbose debug messages
[ ] USB announce new devices
*** Miscellaneous USB options ***
[*] Enable USB persist by default
[ ] Dynamic USB minor allocation
[ ] Rely on OTG Targeted Peripherals List
[ ] Disable external hubs
< > USB Monitor
< > Support WUSB Cable Based Association (CBA)
*** USB Host Controller Drivers ***
^(-)

<Select> < Exit > < Help > < Save > < Load >
```

```
.config - Linux/mips 3.10.14 Kernel Configuration
> Device Drivers > USB support
                                USB support
Arrow keys navigate the menu. <Enter> selects submenus --->.
Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes,
<M> modularizes features. Press <Esc><Esc> to exit, <?> for Help, </>
for Search. Legend: [*] built-in [ ] excluded <M> module < > module

^(-)
< > Cypress C67x00 HCD support
<M> EHCI HCD (USB 2.0) support
[*] Root Hub Transaction Translators
[*] Improved Transaction Translator scheduling
<M> Generic EHCI driver for a platform device
< > OXU210HP HCD support
< > ISP116X HCD support
< > ISP 1760 HCD support
< > ISP1362 HCD support
< > OHCI HCD support
< > SL811HS HCD support
< > R8A66597 HCD support
^(-)

<Select> < Exit > < Help > < Save > < Load >
```



```
.config - Linux/mips 3.10.14 Kernel Configuration
> Device Drivers > USB support
      USB support
      Arrow keys navigate the menu. <Enter> selects submenus --->.
      Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes,
      <M> modularizes features. Press <Esc><Esc> to exit, <?> for Help, </>
      for Search. Legend: [*] built-in [ ] excluded <M> module <> module
      ^(-)
      < > R8A66597 HCD support
      *** USB Device Class drivers ***
      <M> USB Modem (CDC ACM) support
      < > USB Printer support
      < > USB Wireless Device Management support
      < > USB Test and Measurement Class support
      *** NOTE: USB_STORAGE depends on SCSI but BLK_DEV_SD may *
      *** also be needed; see USB_STORAGE Help for more info ***
      *** USB Imaging devices ***
      < > USB Mustek MDC800 Digital Camera support
      < > DesignWare USB3 DRD Core Support
      < > ChipIdea Highspeed Dual Role Controller
      L(+)
      <Select> < Exit > < Help > < Save > < Load >
```

1.2.2. Then go to “Device Drivers”->”Network device support”->”USB Network Adapters”, select below options:

- Multi-purpose USB Networking Framework
- CDC Ethernet support (smart devices such as cable modems)
- Host for RNDIS and ActiveSync devices

```
.config - Linux/mips 3.10.14 Kernel Configuration
> Device Drivers
      Device Drivers
      Arrow keys navigate the menu. <Enter> selects submenus --->.
      Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes,
      <M> modularizes features. Press <Esc><Esc> to exit, <?> for Help, </>
      for Search. Legend: [*] built-in [ ] excluded <M> module <> module
      ^(-)
      [ ] Block devices --->
      Misc devices --->
      < > ATA/ATAPI/MFM/RLL support (DEPRECATED) --->
      SCSI device support --->
      < > Serial ATA and Parallel ATA drivers --->
      [ ] Multiple devices driver support (RAID and LVM) --->
      [*] Network device support --->
      Input device support --->
      Character devices --->
      < > I2C support --->
      [ ] SPI support --->
      Qualcomm MSM SSBI bus support --->
      L(+)
      <Select> < Exit > < Help > < Save > < Load >
```

```
.config - Linux/mips 3.10.14 Kernel Configuration
> Device Drivers > Network device support
      Network device support
Arrow keys navigate the menu. <Enter> selects submenus --->.
Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes,
<M> modularizes features. Press <Esc><Esc> to exit, <?> for Help, </>
for Search. Legend: [*] built-in [ ] excluded <M> module <> module
^(-)
[ ] PPP multilink support
<M> PPP over Ethernet
<M> PPP over IPv4 (PPTP)
<M> PPP over L2TP
<> PPP support for async serial ports
<> PPP support for sync tty ports
<> SLIP (serial line) support
USB Network Adapters --->
[*] Wireless LAN --->
*** Enable WiMAX (Networking options) to see the WiMAX drive
[ ] Wan interfaces support --->
[ ] ISDN support --->

<Select> < Exit > < Help > < Save > < Load >
```

```
.config - Linux/mips 3.10.14 Kernel Configuration
> Device Drivers > Network device support > USB Network Adapters
      USB Network Adapters
Arrow keys navigate the menu. <Enter> selects submenus --->.
Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes,
<M> modularizes features. Press <Esc><Esc> to exit, <?> for Help, </>
for Search. Legend: [*] built-in [ ] excluded <M> module <> module
^(-)
<> USB RTL8150 based ethernet device support
<> Realtek RTL8152 Based USB 2.0 Ethernet Adapters
<M> Multi-purpose USB Networking Framework
<> ASIX AX88xxx Based USB 2.0 Ethernet Adapters
<> ASIX AX88179/178A USB 3.0/2.0 to Gigabit Ethernet
-M- CDC Ethernet support (smart devices such as cable modems)
<> CDC EEM support
<> CDC NCM support
<> CDC MBIM support
<> Davicom DM9601 based USB 1.1 10/100 ethernet devices
<> SMSC LAN75XX based USB 2.0 gigabit ethernet devices
<> SMSC LAN95XX based USB 2.0 10/100 ethernet devices
<> Genesys GL620USB-A based cables
<> NetChip 1080 based cables (Laplank, ...)
<> Prolific PL-2301/2302/25A1 based cables
<> MosChip MCS7830 based Ethernet adapters
<M> Host for RNDIS and ActiveSync devices
+ (+)

<Select> < Exit > < Help > < Save > < Load >
```

## 3 Debug Information

### 3.1 Dmesg information

```
# modprobe usbnet.ko
# modprobe ehci-
# modprobe ehci-hcd.ko
# modprobe ehci-platform.ko
# modprobe cdc_ether.ko
# modprobe cdc-acm.ko
# dmesg
```

---

```
[ 313.368000] ehci_hcd: USB 2.0 'Enhanced' Host Controller (EHCI) Driver
[ 318.416000] ehci-platform: EHCI generic platform driver
[ 318.496000] ehci-platform ehci-platform: EHCI Host Controller
[ 318.496000] ehci-platform ehci-platform: new USB bus registered, assigned bus number 1
[ 318.496000] ehci-platform ehci-platform: irq 18, io mem 0x101c0000
[ 318.508000] ehci-platform ehci-platform: USB 2.0 started, EHCI 1.00
[ 318.512000] hub 1-0:1.0: USB hub found
[ 318.512000] hub 1-0:1.0: 1 port detected
[ 318.824000] usb 1-1: new high-speed USB device number 2 using ehci-platform
[ 318.964000] Unsupported Device!
[ 318.964000] Vendor=1076 ProdID=9003
[ 318.964000] Manufacturer=Linux 3.10.0-uc0 with gdm-udc Product=Multifunction Composite Gadget
[ 327.648000] cdc_ether 1-1:1.0 eth1: register 'cdc_ether' at usb-ehci-platform-1, CDC Ethernet Device,
00:0a:3b:ff:ff:01
[ 338.704000] cdc_acm 1-1:1.2: This device cannot do calls on its own. It is not a modem.
[ 338.724000] cdc_acm 1-1:1.2: ttyACM0: USB ACM device
[ 338.724000] cdc_acm: USB Abstract Control Model driver for USB modems and ISDN adapters
```

RNDIS:

```
root@Router:/# modprobe rndis_host.ko
```

```
[ 1922.496000] rndis_host 1-1:2.0 eth1: register 'rndis_host' at usb-ehci-platform-1, RNDIS device,
00:0a:3b:ff:ff:01
```

## 3.2 VID and PID information

RNDIS mode: VID/PID: 1076/9082

ECM mode: VID/PID: 1076/9003

## 4 Contact Us

Turning Point Solution  
OLTRADE LLC

[info@tpsolution.ru](mailto:info@tpsolution.ru)