GM8136

GMAC

User Guide

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For Faraday 19676

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GM8136 GMAC User Guide

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For Faraday 19676

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Chapter 1
Introduction

This chapter contains the following sections:

- 1.1 Source File Overview
- 1.2 Configuration in Linux Kernel
- 1.3 Set MAC Driver Argument



1.1 Source File Overview

FA7-Linux provides the GMAC driver to implement the network functions. The related files on Linux are shown in Table 1-1.

Table 1-1. File List of GMAC Driver

File Name	Description	, 0
drivers/net/Ethernet/faraday/ftgmac100.c	Main program of the GMAC driver	
drivers/net/Ethernet/faraday/ftgmac100.h	Header file of the GMAC driver	

1.2 **Configuration in Linux Kernel**

To activate the GMAC functions, users have to select the desired options in the kernel configuration menu. These options include enabling the Linux networking support and Ethernet (10 Mbps/100 Mbps). Depending on the requirements, users may choose the specified network protocol from the "Networking support" option. After finishing the configuration, users should make the kernel to support the GMAC driver.

```
Linux/arm 3.3.0 Kernel Configuration
Arrow keys navigate the menu. <Enter> selects submenus --->.
Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes,
<M> modularizes features. Press <Esc> to exit, <?> for Help, </>
for Search. Legend: [*] built-in [ ] excluded <M> module < >
       Boot options --->
       CPU Power Management --->
       Floating point emulation --->
       Userspace binary formats --->
       Power management options --->
    [*] Networking support --->
        Device Drivers --->
       File systems --->
       Kernel hacking --->
       Security options --->
                 <Select>
                             < Exit >
                                         < Help >
```

Kernel Configuration of Networking Support Figure 1-1.

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```
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> to exit, <?> for Help, </>
for Search. Legend: [*] built-in [ ] excluded <M> module < >
          Ethernet driver support --->
    [ *]
         PHY Device support and infrastructure --->
         Micrel KS8995MA 5-ports 10/100 managed Ethernet switch
    <*>
         PPP (point-to-point protocol) support
    < >
           PPP BSD-Compress compression
           PPP Deflate compression
    < >
           PPP filtering
    < >
           PPP MPPE compression (encryption) (EXPERIMENTAL)
    [*]
           PPP multilink support (EXPERIMENTAL)
           PPP over Ethernet (EXPERIMENTAL)
    <*>
                  <Select>
                              < Exit >
                                         < Help >
```

Figure 1-2. Kernel Configuration of PPP Support

```
Networking options
Arrow keys navigate the menu. <Enter> selects submenus --->.
Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes,
<M> modularizes features. Press <Esc> to exit, <?> for Help, </>
for Search. Legend: [*] built-in [] excluded <M> module < >
    <<mark>*</mark>> Packet socket
    <*> Unix domain sockets
        UNIX: socket monitoring interface
    < > Transformation user configuration interface
    [ ] Transformation sub policy support (EXPERIMENTAL)
    [ ] Transformation migrate database (EXPERIMENTAL)
    [ ] Transformation statistics (EXPERIMENTAL)
    < > PF KEY sockets
    [*] TCP/IP networking
          IP: multicasting
    [ ]
                  <Select>
                              < Exit >
                                           < Help >
```

Figure 1-3. Kernel Configuration of Package Socket Support



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```
Ethernet driver support
Arrow keys navigate the menu. <Enter> selects submenus --->.
Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes,
<M> modularizes features. Press <Esc> to exit, <?> for Help, </>>
for Search. Legend: [*] built-in [ ] excluded <M> module < >
    -<mark>-</mark>- Ethernet driver support
         Broadcom devices
        Calxeda 1G/10G XGMAC Ethernet driver
    < >
    [ ] Chelsio devices
        DM9000 support
    < >
    < > Dave ethernet support (DNET)
    [*] Faraday devices
    <*>
           Faraday FTGMAC100 support
             Enable GMAC 0
           Faraday FTMAC110 support
    < >
         Intel devices
    [ ]
        Marvell devices
        Micrel devices
    [ ] Microchip devices
    [ ]
        National Semi-conductor devices
         OpenCores 10/100 Mbps Ethernet MAC support
    [ ]
         SEEQ devices
        SMC (SMSC)/Western Digital devices
         STMicroelectronics devices
                  <Select>
                             < Exit >
                                         < Help >
```

Figure 1-4. Kernel Configuration of Etherent Driver Support

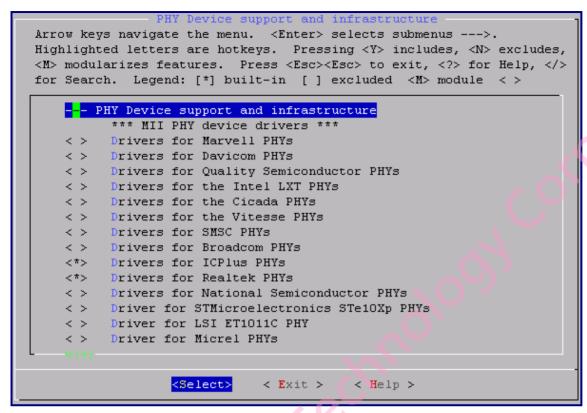


Figure 1-5. Kernel Configuration of PHY Device Support

After compiling the Linux kernel with the selected options, Linux will run and the terminal will show the booting messages. Users can see the descriptions of FTGMAC100 in the booting message if it works.

When the shell starts, users can perform some network tests. For example, users can execute the following commands to set up the Ethernet GMAC address and the IP address.

- # ifconfig eth0 hw ether 00:11:22:33:44:55
- # ifconfig eth0 192.168.121.139

Users can ping another network device by using the following command:

ping 192.168.121.70

The result of the above commands is shown in Figure 1-6. Users can start using the network function.



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```
ftgmac100: Loading version 2.0 ...
ftgmac100-0-mdio: probedftgmac100-0 ftgmac100-0.0: eth0: 1 tx queue used (max: 2)
ftgmac100-0 ftgmac100-0.0: eth0: 1 rx queue used (max: 1)
ftgmac100-0 ftgmac100-0.0: eth0: irq 3, mapped at 90868000
ftgmac100-0 ftgmac100-0.0: eth0: generated random MAC address 32:94:38:37:d4:3b...
```

Figure 1-6. Command Result

1.3 Set MAC Driver Argument



