GM8136

QUICK START FOR GM8136

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GM8136 Quick Start

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Chapter 1

Introduction

This chapter contains the following sections:

- 1.1 Overview
- 1.2 EVB Connection

1.1 Overview

The purpose of this document is to describe the basic ideas and demonstrate how to run the sample program in this SDK. After reading this document, users will be able to develop applications. Table 1-1 lists the product name and relative specifications used in this SDK.

Table 1-1. Product Name and Relative Specifications

Product Name	Brief Specification
GM8136_2MP (IPCAM)	Support GM8135/GM8136 IPCAM 2M pixel video front end Two capture inputs One display output: LCD0 (CVBS) Encode: 2M pixel capture mainstream + VGA capture substream + QVGA scaling substream
GM8136_1MP (IPCAM)	Support GM8135/GM8136 IPCAM 1M pixel video front end Two capture inputs One display output: LCD0 (CVBS) Encode: 1M pixel capture mainstream + QVGA capture substream

Because this document only describes how to run the demonstrations, users may refer to other documents to obtain more detailed information. For example, users should set the development environment before building the images from the source code and know how to write applications with the interfaces that each driver provide. Grain Media will not mention the information in this document. Grain Media lists the reference documents and positions of the corresponding How-To in Table 1-2 for reference.

Table 1-2. Reference Documents and Positions

How-To	Reference Document and Position
Embedded Linux environment setup and compiling procedure	GM8136_Linux_User_Guide.pdf
GMLIB concept and programming for surveillance application	GMLIB_Programming_Guide.pdf
Sample code for surveillance application	GMLIB_Sample_Code.chm
Flash upgrade and PC tool usage	GM8136_Flash_User_Guide.pdf

1.2 EVB Connection

Connect UART from PC and setup the video input/output connections as follows:

UART0: baud rate = 115200, 8N1

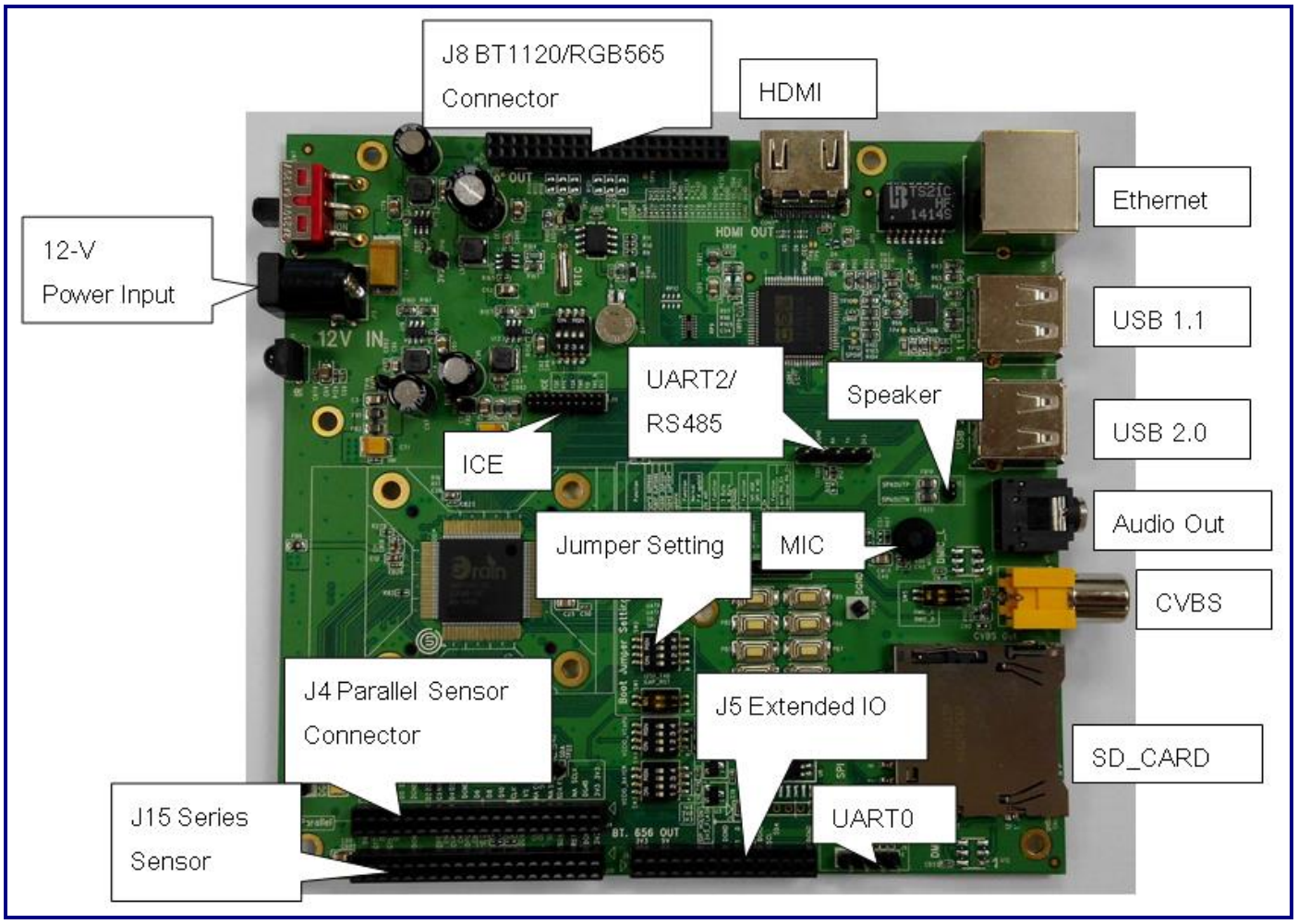


Figure 1-1. Top View of EVB Connections for GM8136_2MP/GM8136_1MP

Chapter 2

Boot-up Flow

The chapter contains the following sections:

- 2.1 Upgrade Image in GM8136 EVB
- 2.2 Prepare Product Environment
- 2.3 Booting Procedure
- 2.4 Run Sample

2.1 Upgrade Image in GM8136 EVB

In Table 2-1, users can find the image files in this SDK and upgrade these images in target.

Table 2-1. Image Files

File	Content	Flash Partition
uImage_8136	Linux image	/dev/mtd1
rootfs-cpio_8136.squashfs.img	GM8136 rootfs image (boot.sh)	/dev/mtd2
[PRODUCT].SPI.jffs2.img	Product image (gmlib.cfg, vg_boot.sh and sample program)	/dev/mtd3

Please note that [PRODUCT] is the product name, such as GM8136_1080P. Grain Media provides two methods for upgrading the images. One is the PC tools and the other is the Linux commands. To upgrade the images by using the PC tools, please refer to GM8136_Flash_User_Guide.pdf.

2.1.1 Upgrade Image by Linux Command

After booting up from target, users can execute commands based on the Flash type.

- SPI NOR Flash

Upgrade Linux image:

```
#flash_eraseall /dev/mtd1
#flashcp uImage_8136 /dev/mtd1
#sync
```

Upgrade Linux rootfs:

```
#cp /gm/tools/flashcp /var
#cp /gm/bin/flash_eraseall /var
#cp /gm/bin/busybox /var
#/var/flash_eraseall /dev/mtd2
#/var/flashcp rootfs-cpio_8136.squashfs.img /dev/mtd2
#/var/busybox sync
```

Upgrade Linux product config:

```
#umount /mnt/mtd
```

#flash_eraseall /dev/mtd3
#flashcp [PRODUCT].SPI.jffs2.img /dev/mtd3
#sync

- NAND Flash

Upgrade Linux image:
#flash_eraseall /dev/mtd1
#nandwrite -p /dev/mtd1 uImage_8136
#sync

Upgrade Linux rootfs:
#cp /gm/tools/nandwrite /var
#cp /gm/bin/flash_eraseall /var
#cp /gm/bin/busybox /var
#/var/flash_eraseall /dev/mtd2
#/var/nandwrite -p /dev/mtd2 rootfs-cpio_8136.squashfs.img
#/var/busybox sync

Upgrade Linux product config:
#umount /mnt/mtd
#flash_eraseall /dev/mtd3
#nandwrite -p /dev/mtd3 [PRODUCT].NAND.jffs2.img
#sync

2.2 Prepare Product Environment

After booting up, users can find the following files in target.

Item	File	Directory Path in Target
Library	libgm.so	/lib
Module driver	*.ko	/lib/modules
Boot scripts	vg_boot.sh	/mnt/mtd

If users want to change the boot environment, such as PAL or NTSL, users should edit /mnt/mtd/vg_boot.sh and reboot again.

In vg_boot.sh, users can find the key words, “video_system” and “video_frontend”.

Please modify the following two arguments and reboot again.

video_system=PAL

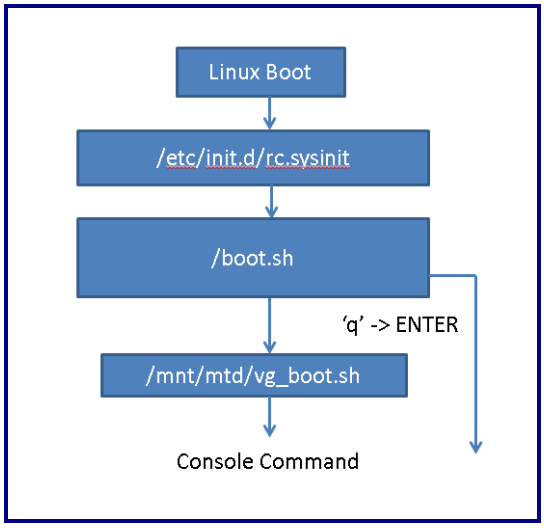
video_frontend=ov2715

2.3 Booting Procedure

After powered on, Linux bootstrap will start. The following message provides information for checking the correctness of the hardware environments, such as the IC name and Linux version.

```
Uncompressing Linux... done, booting the kernel.
Booting Linux on physical CPU 0
Linux version 3.3.0 (root@ftclab1) (gcc version 4.4.0 20100318 (experimental) (Buildroot
2012.02) ) #97 PREEMPT Thu Sep 11 20:04:43 CST 2014
CPU: FA6 [66056263] revision 3 (ARMv5TE), cr=0000397f
CPU VIPT aliasing data cache, unknown instruction cache
Machine: Grain-Media GM8136 series
Memory policy: ECC disabled, Data cache writeback
Built 1 zonelists in Zone order, mobility grouping on.  Total pages: 65024
Kernel command line: mem=256M gmmem=190M console=ttyS0,115200 user_debug=31 init=/squashfs_init
root=/dev/mtdblock2 rootfstype=squashfs
PID hash table entries: 1024 (order: 0, 4096 bytes)
Dentry cache hash table entries: 32768 (order: 5, 131072 bytes)
Inode-cache hash table entries: 16384 (order: 4, 65536 bytes)
Memory: 256MB = 256MB total
Memory: 255588k/255588k available, 6556k reserved, 0K highmem
```

Linux boot up will automatically load the drivers and setup the product configurations as follows.



Please note that in the /boot.sh procedure, users can use 'q' → ENTER to exit from the booting procedure.

```
......
Frammap: DDR0: memory base=0x3800000, memory size=0xbe00000, align_size = 4K.
Frammap: version 1.1.2, and the system has 1 DDR.
Frammap: fail to open /mnt/mtd/config_8139, /tmp/template_8139 is created.
-----------------------------------------------------------------
ddr name: frammap0
base: 0x3800000
end: 0xf600000
size: 0xbe00000 bytes
memory allocated: 0x0 bytes
memory free: 0xbe00000 bytes
max available slice: 0xbe00000 bytes
memory allocate count: 0
clear address: 0x3800000
dirty pages: 0
clear pages: 48640
size alignment: 0x1000

   Press q -> ENTER to exit boot procedure?
```

2.4 Run Sample

Users may refer to the GMLIB programming guide and sample_code.chm for more programming and sample information.

After booting up is successful, users can run rtspd with the following commands:

```
# ifconfig eth0 xxx.xxx.xxx.xxx
# cd /mnt/mtd
# ./rtspd
```