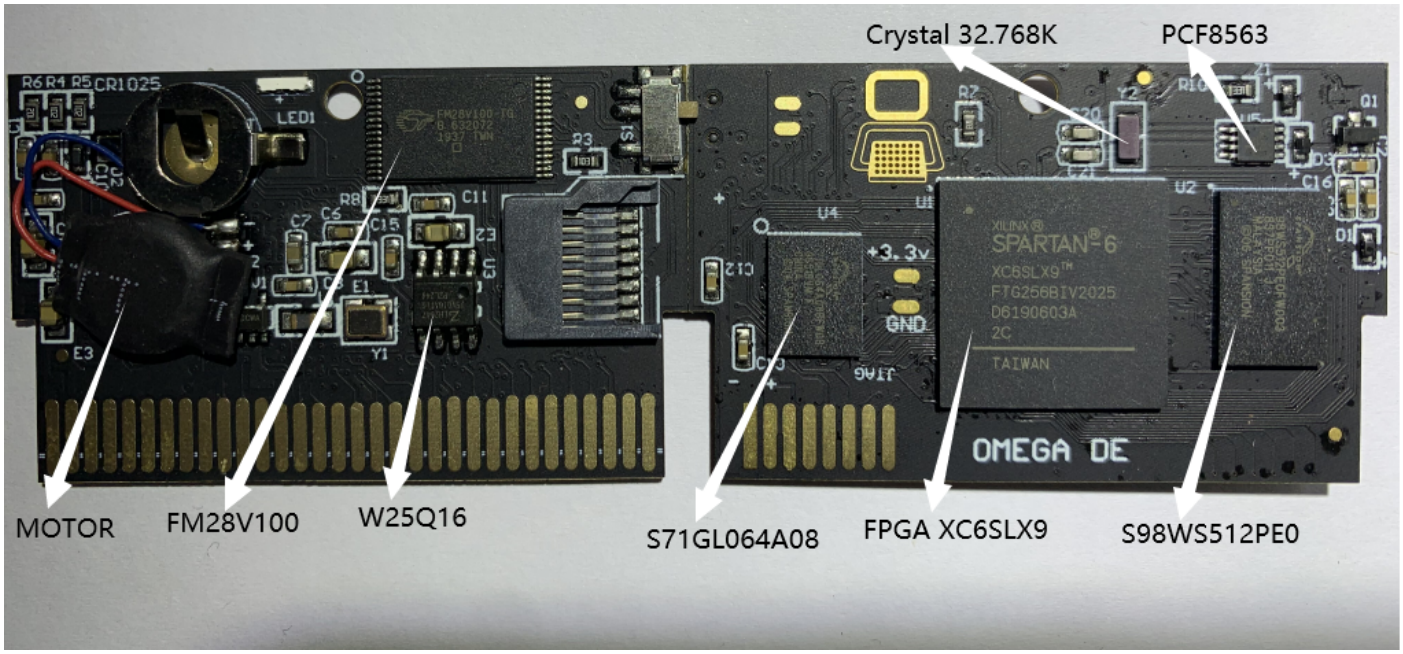
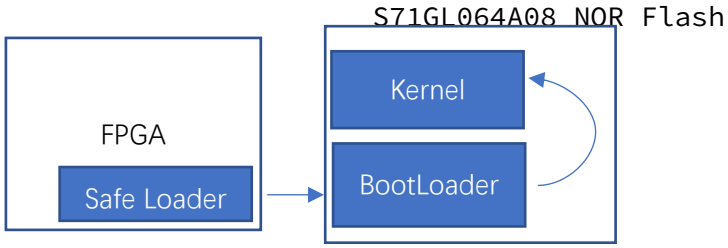
EZ-FLASH OMEGA DE Document

Hardware



S71GL064A08 MCP, 64 Megabit NOR flash,8 Megabit SRAM.
S98WS512PE0 MCP,512 Megabit NOR flash,256Megabit PSRAM.
FM28V100 FRAM,1 Megabit F-RAM Memory.

Boot Sequence



S71GL064A08 NOR Allocation

Start Address 16bit	End Address 16bit	Size	Content
0x0	0x8000	0x10000 Byte	BootLoader
NUL			
0x20000	<0x120000	Max 0x200000Byte	Kernelnew
0x3C8000	0x3CFFFF	0x2000 Byte	GAME SAVE_info
0x3D0000	0x3D7FFF	0x2000 Byte	NOR INFO
0x3D8000	0x3DFFFF	0x2000 Byte	System Setting

S71GL064A08 SRAM Allocation

SRAMSTART Address 16bit	Size	Content	SetRampage	RTS file offset	
0x0	0x10000 Byte	NUL	0x00		
0x8000	0x10000 Byte	NUL	0x10		
0x10000	0x10000	0x12C00 VRAM buffer	0x20		Temp buffer
0x18000	0x2C00		0x30		
0x20000		02000000-0203FFFF 256K Byte	0x40	0x00000	RTS file buffer
0x28000			0x50	0x10000	
0x30000			0x60	0x20000	
0x38000			0x70	0x30000	
0x40000	Size 0x8000	03000000-03007FFF 32K byte	0x80	0x40000	
0x44000	0x400	05000000-050003FF 1K byte	0x80	0x48000	
0x44200		NULL		0x48400	
0x48000	0x10000 Byte	06000000-06017FFF (96K Bytes)	0x90	0x50000	
0x50000	0x8000 Byte		0xA0	0x60000	
0x54000	0x400	07000000-070003FF 1K byte	0xA0	0x68000	
0x54200		R4-R11	0xA0	0x68400	
0x54800	0x400	04000000-040003FE IO	0xA0	0x69000	
0x58000					
		FLAG	0xA0	0X6FFF0	

FM28V100 FRAM Allocation

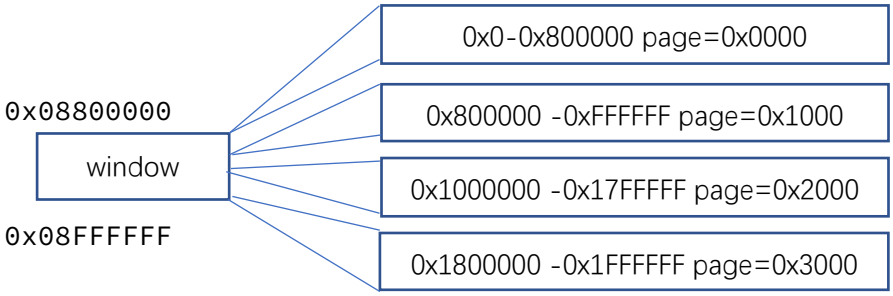
FRAM Start Address 16bit	Size	Content	SetRampage
0x0	0x10000 Byte	Save 64KByte	0x00
0x8000	0x10000 Byte	Save 64KByte	0x10

Like EZ3, OMEGA DE has OS MODE and GAME MODE

OS Mode: The working mode of BootLoader and Kernel

START Address	End Address	Content	
0x08000000	0x08040000	BootLoader,(ROMPGAE 0x8000)	NOR flash(S71GL064A08)
0x08040000	0x087FFFFF	Kernel,(ROMPGAE 0x8002)	
0x08800000	0x08FFFFFF	64Mbit(8MByte)window,1Mbit/page,total 256Mbit(32Mbyte) PSRAM	
0x09000000	0x097FFFFF	64Mbit(8Mbyte)window,1Mbit/page,total 512Mbit(64Mbyte) NOR	
0x09E00000		MicroSD read and write buffer address	
0x0E000000	0x0E00FFFF	64 Kbytes SetRampage 0x0	SAVE LOAD
0x0E010000	0x0E01FFFF	64 Kbytes SetRampage 0x10	
0x0E020000		1 page is 32Kbit, (4Kbyte/page), RTS file load	

SetPSRampage: Set the PSRAM window map address.
Available value(0x0000,0x1000,0x2000,0x3000)



SetRampage: Set SRAM Saver offset start address.

Game mode: The working mode for games

PSRAM(S98WS512PE0), 256Megabit size：SetRompage(0x200)

0x08000000 0x0A000000	Total 32Mbyte Space

NOR(S98WS512PE0), 512 Megabit size: SetRompage(rompage) 1Mbit/page

GAME 1 offset 0x0, size 4MByte	SetRompage(0)
GAME 2 offset 0x400000, size 8MByte	SetRompage(0x40)
GAME 3 offset 0xC00000	SetRompage(0xC0)
…	

Change Mode

We can toggle between OS mode and Game mode by set the 15th bit of Rompage to 1 or 0. Set rompage = 0x8000, system goes to OS mode. Set rompage(0), system goes to Game mode.

PSRAM only have one map address in Game mode, address 0 maps to 0x08000000, Read only.

If you want to access SD data in homebrew. Please look at https://gbatemp.net/threads/ez-flash-omega-kernel-source-code-released.510332/page-2#post-8124061

Control LED

```
void IWRAM_CODE Set_LED_control(u16  status)
{
    *(u16 *)0x9fe0000 = 0xd200;
    *(u16 *)0x8000000 = 0x1500;
    *(u16 *)0x8020000 = 0xd200;
    *(u16 *)0x8040000 = 0x1500;
    *(u16 *)0x96E0000 = status;
    *(u16 *)0x9fc0000 = 0x1500;
}
u16  led_status  =  (led_open_sel<<7)  |  (Breathing_R<<5)  |  (Breathing_G<<4)  |
(Breathing_B<<3) | (SD_R<<2) | (SD_G<<1) | (SD_B) ;
Set_LED_control(led_status);
```

Set Rumble

```
void StartRumble (void) {
    *(u16 *)0x9fe0000 = 0xd200;
    *(u16 *)0x8000000 = 0x1500;
    *(u16 *)0x8020000 = 0xd200;
    *(u16 *)0x8040000 = 0x1500;
    *(u16 *)0x9E20000 = 0xF1;   //set rumble strength  F1: Strong; F0: weak;F2:medium
    *(u16 *)0x9fc0000 = 0x1500;

    *(vu16*)0x8001000 = 0x2;
    *(vu16*)0x8001000 = 0x0;
}
```