

# Linux 0.11源码分析与可视化（一）

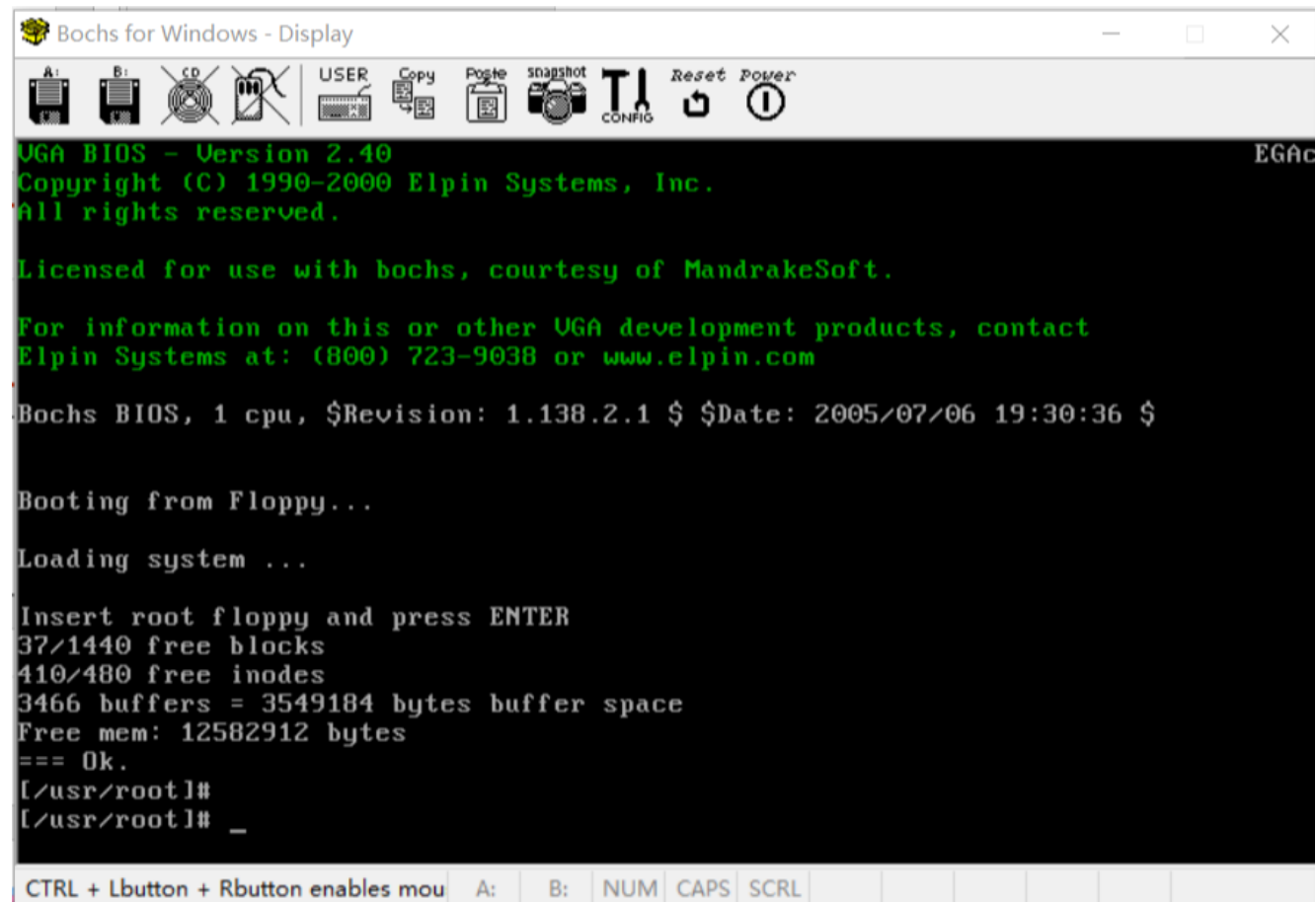
基础模块分析与选读模块确定

201605130116 杜洪超

# Linux 0.11介绍

- bootimage.Z - 具有美国键盘代码的压缩启动映像文件;
- rootimage.Z - 以 1200kB 压缩的根文件系统映像文件;
- linux-0.11.tar.Z - 内核源代码文件。大小为 94KB, 展开后也仅有 325KB;
- as86.tar.Z - Bruce Evans' 二进制执行文件。是 16 位的汇编程序和装入程序;
- INSTALL-0.11 - 更新过的安装信息文件。

# Linux 0.11介绍



The screenshot shows a window titled "Bochs for Windows - Display". The window contains a terminal-like interface with green text on a black background. The text displays the UGA BIOS version (2.40), copyright information (1990-2000 Elpin Systems, Inc.), and a license for use with bochs. It then shows the booting process from a floppy disk, including loading the system and displaying system statistics such as free blocks, inodes, buffers, and memory. The prompt is currently at the root shell.

```
Bochs for Windows - Display
A: B: CD X USER Copy Paste snapshot T1 CONFIG Reset Power
UGA BIOS - Version 2.40
Copyright (C) 1990-2000 Elpin Systems, Inc.
All rights reserved.

Licensed for use with bochs, courtesy of MandrakeSoft.

For information on this or other UGA development products, contact
Elpin Systems at: (800) 723-9038 or www.elpin.com

Bochs BIOS, 1 cpu, $Revision: 1.138.2.1 $ $Date: 2005/07/06 19:30:36 $

Booting from Floppy...

Loading system ...

Insert root floppy and press ENTER
37/1440 free blocks
410/480 free inodes
3466 buffers = 3549184 bytes buffer space
Free mem: 12582912 bytes
=== Ok.
[/usr/root]#
[/usr/root]# _

CTRL + Lbutton + Rbutton enables mou A: B: NUM CAPS SCRL
```

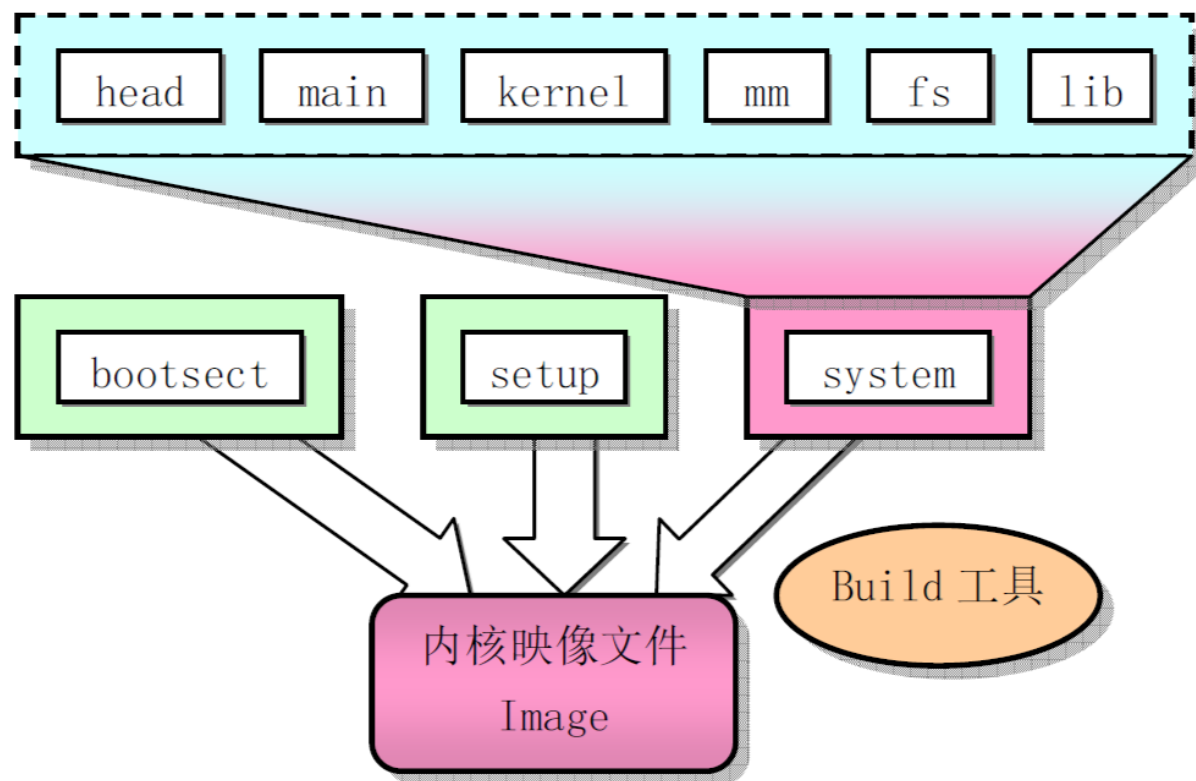
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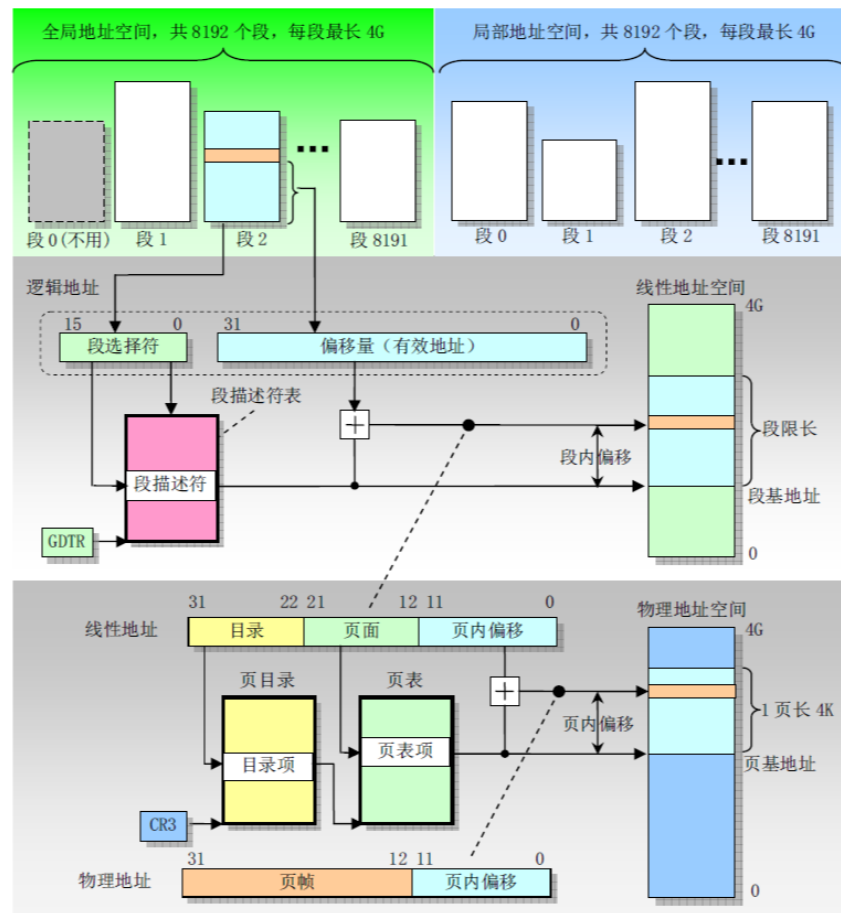
# Linux 0.11介绍

linux	
— boot	系统引导汇编程序
— fs	文件系统
— include	头文件 (*.h)
— asm	与 CPU 体系结构相关的部分
— linux	Linux 内核专用部分
— sys	系统数据结构部分
— init	内核初始化程序
— kernel	内核进程调度、信号处理、系统调用等程序
— blk_drv	块设备驱动程序
— chr_drv	字符设备驱动程序
— math	数学协处理器仿真处理程序
— lib	内核库函数
— mm	内存管理程序
— tools	生成内核 Image 文件的工具程序

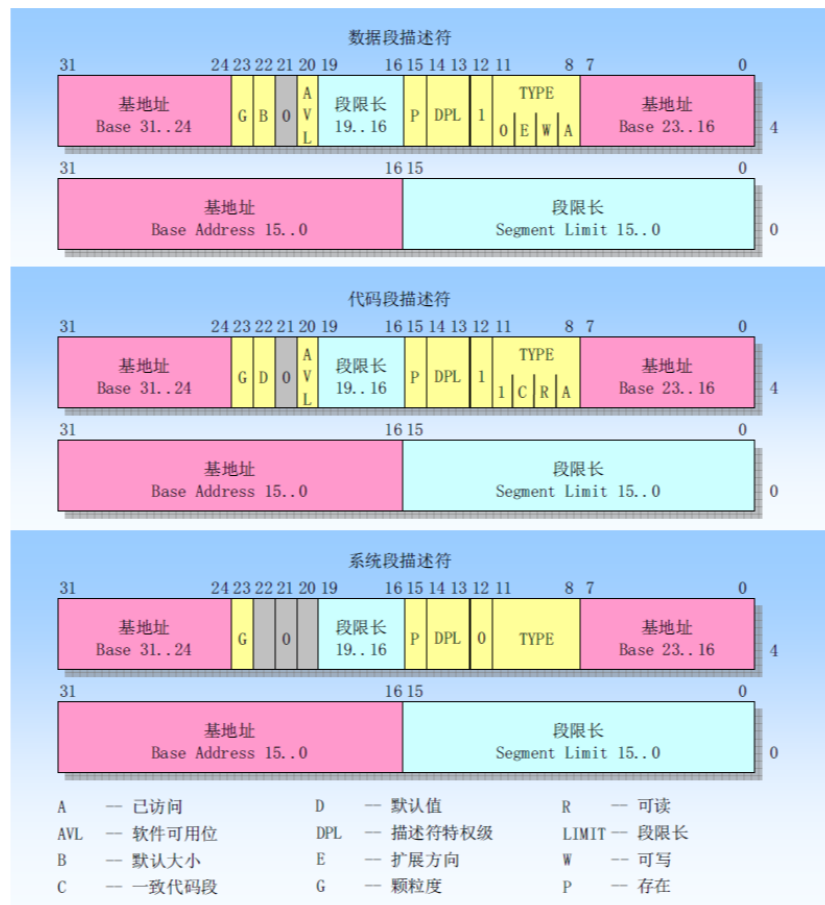
# Linux 0.11介绍



# 80x86保护模式

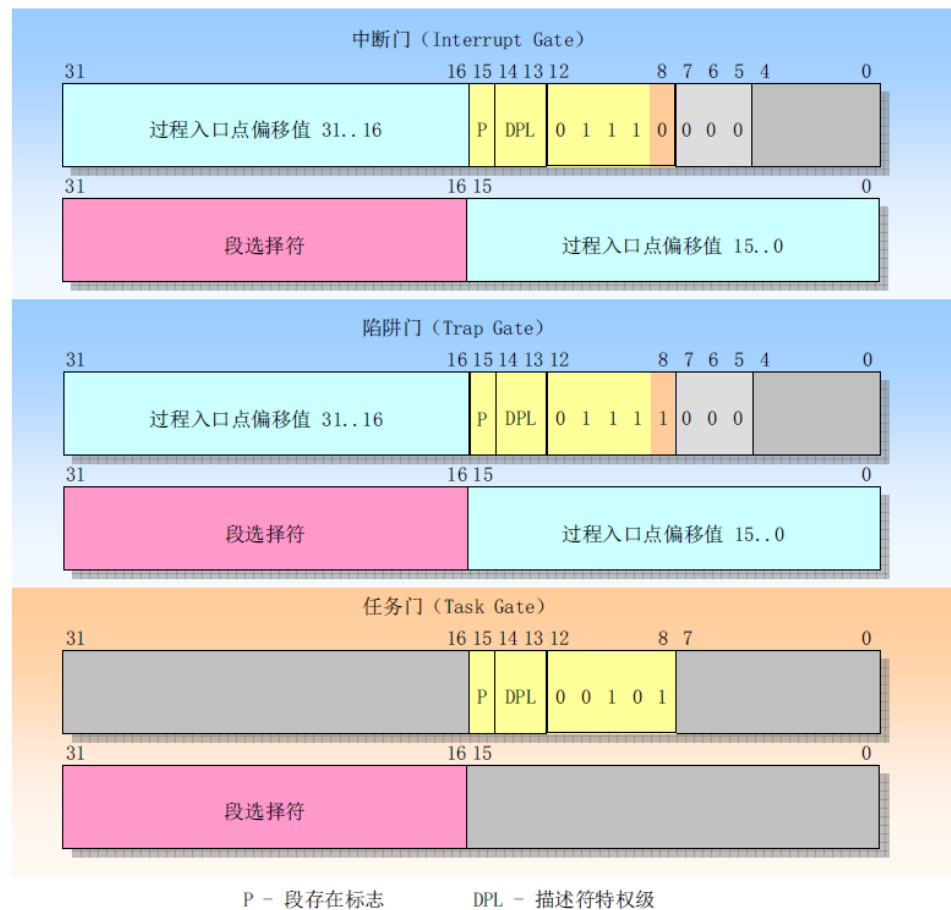


# 80x86保护模式





# 80x86保护模式



# 80x86保护模式



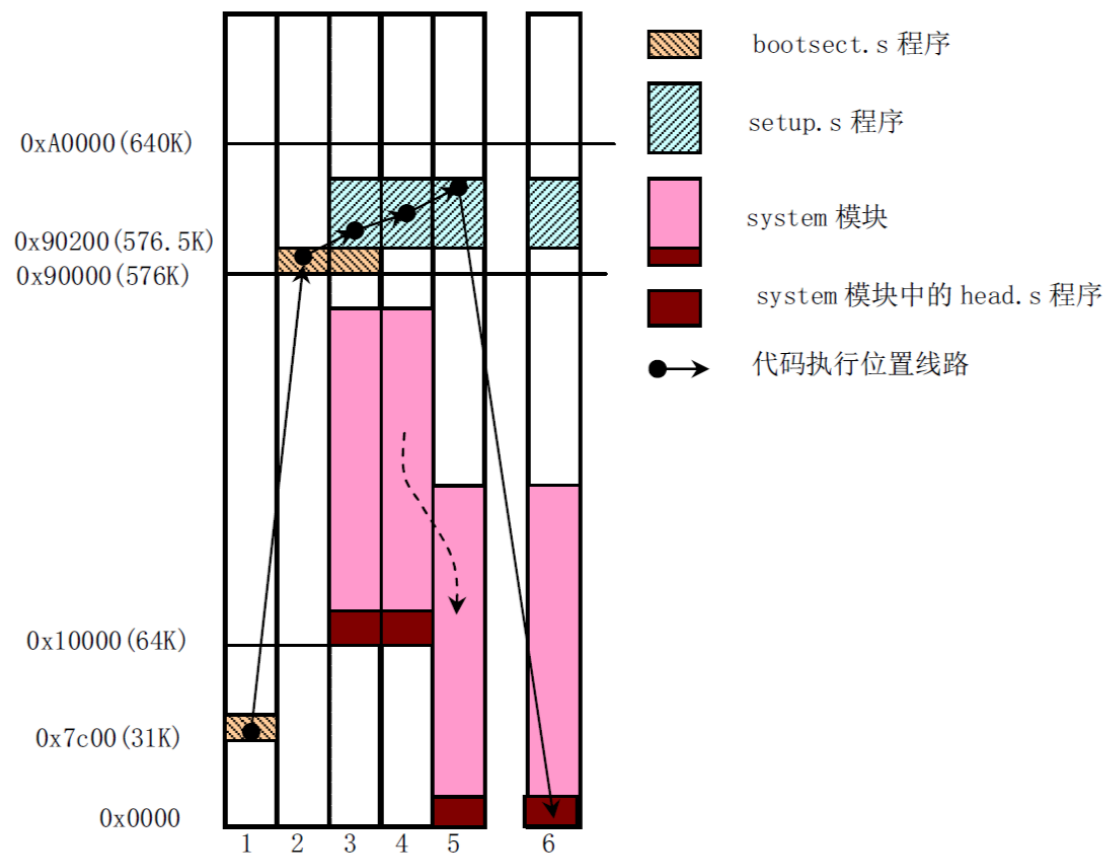
# 80x86保护模式

- 保护模式中断描述符表 IDT;
- 全局描述符表 GDT;
- 任务状态段 TSS;
- 局部描述符表 LDT;
- 若使用分页机制，则起码需要设置一个页目录和一个页表;
- 处理器切换到保护模式下运行的代码段;
- 含有中断和异常处理程序的代码模块。

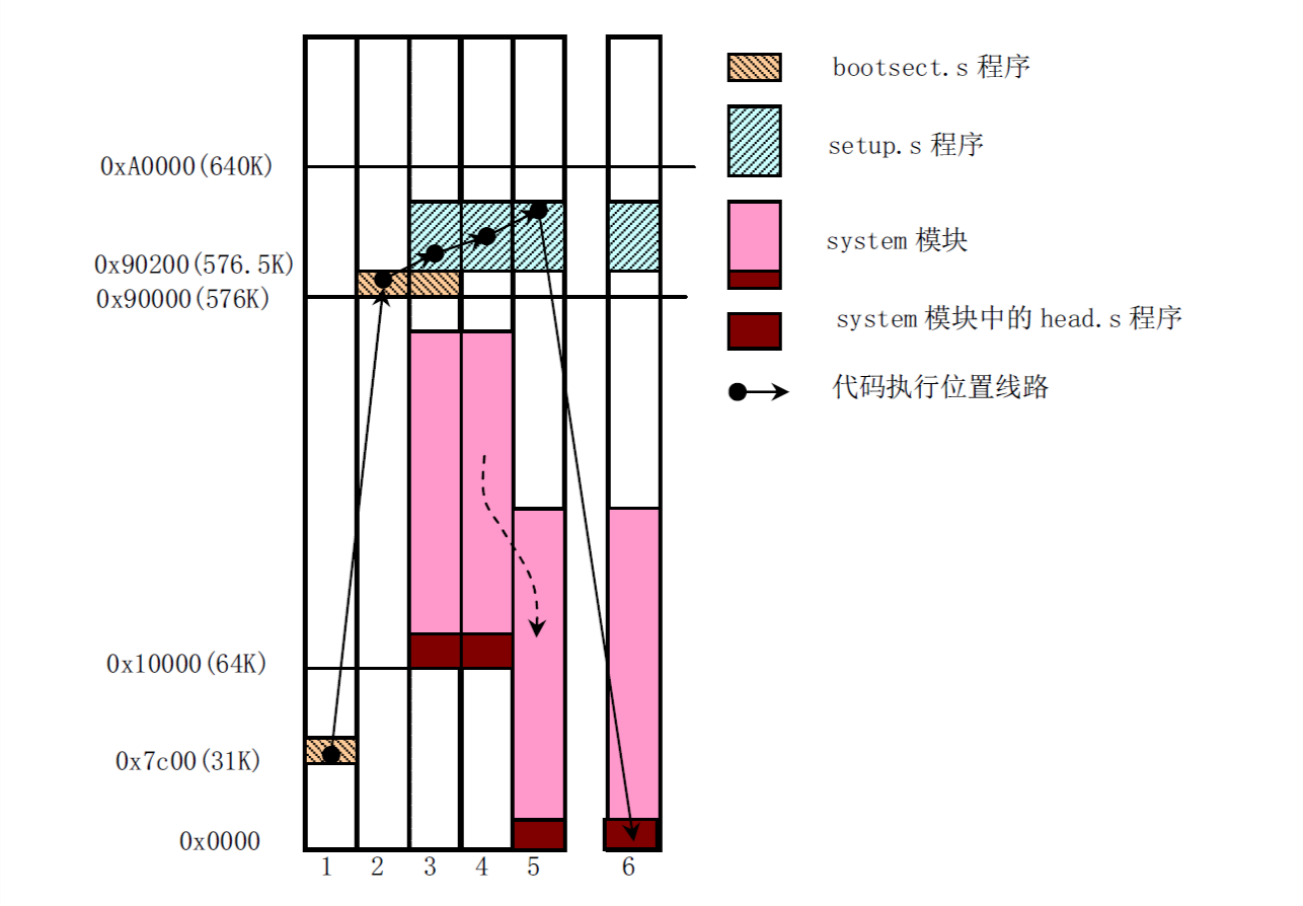
在能够切换到保护模式之前，软件初始化代码还必须设置以下系统寄存器：

- 全局描述符表基地址寄存器 GDTR;
- 中断描述符表基地址寄存器 IDTR;
- 控制寄存器 CR1--CR3;

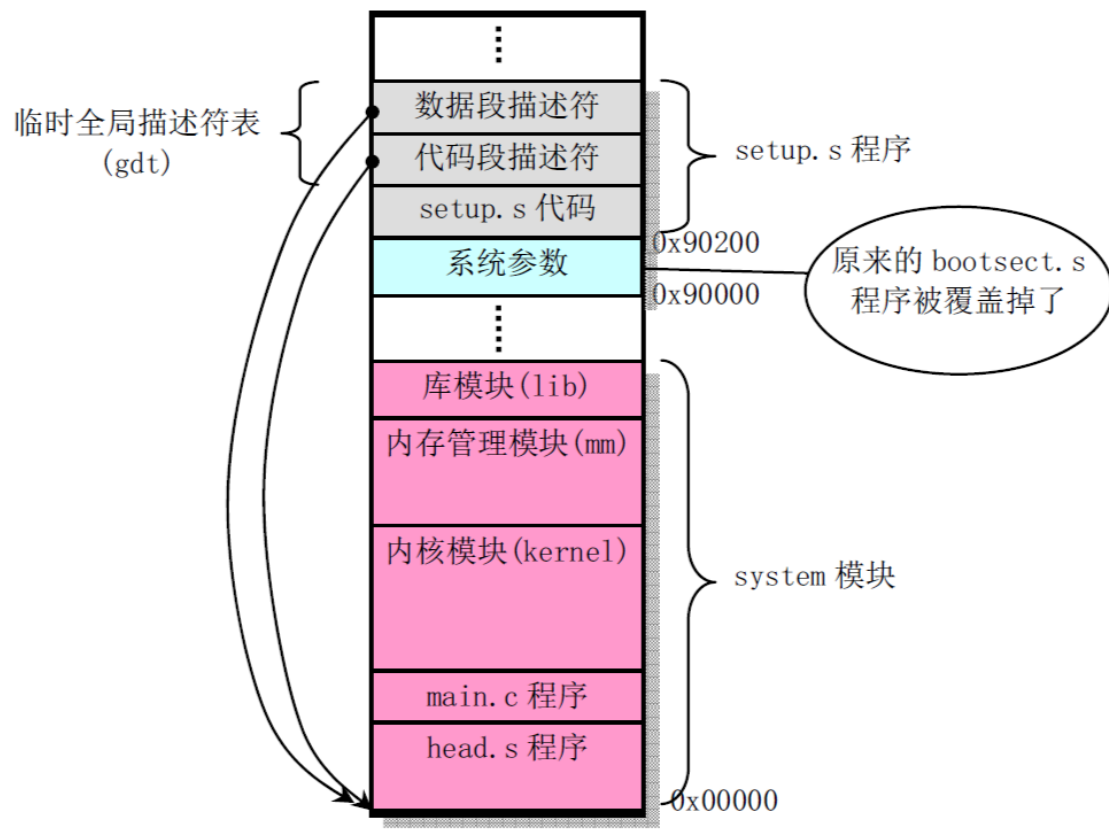
# bootsect.s



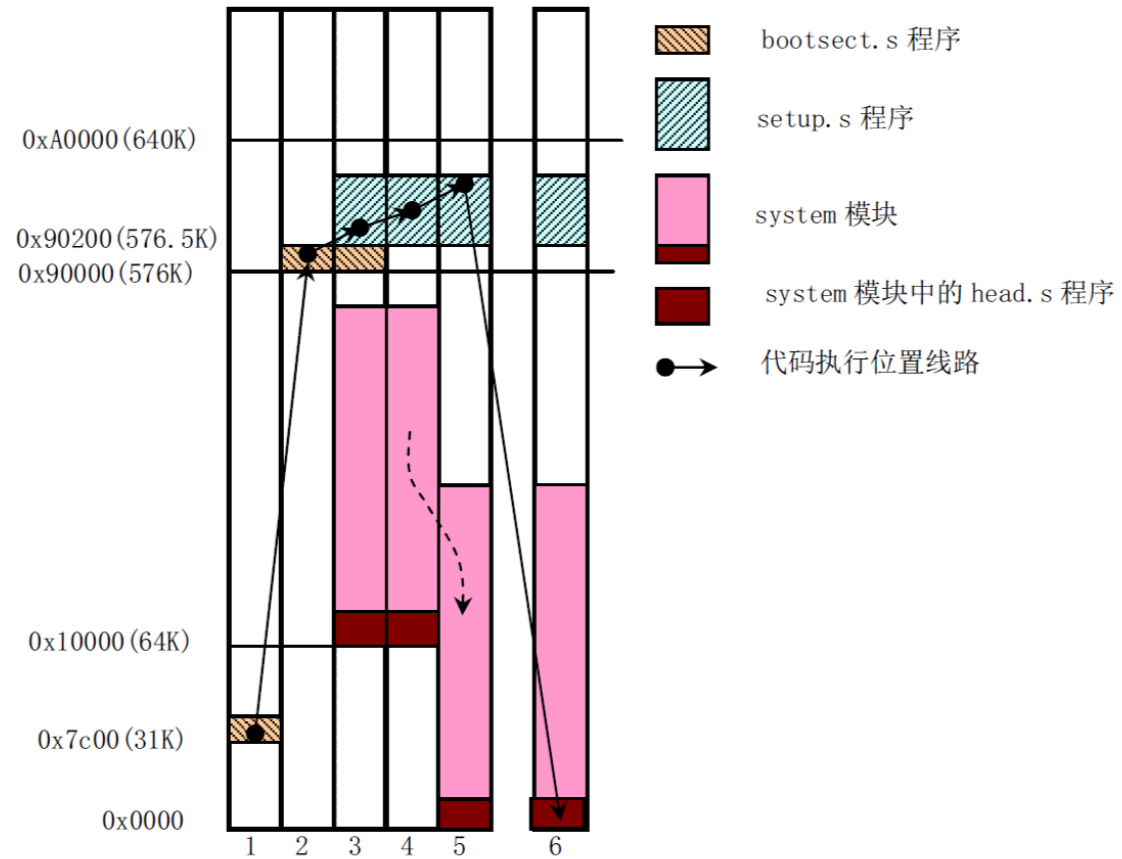
# setup.s



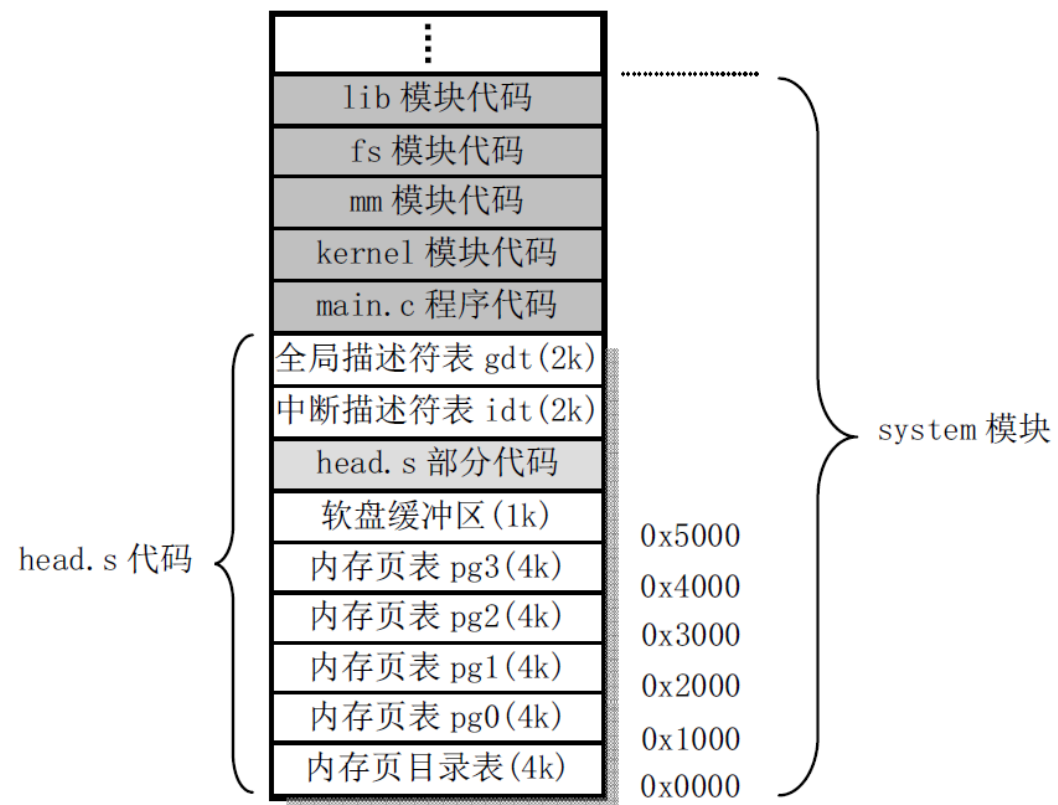
# setup.s



# head.s

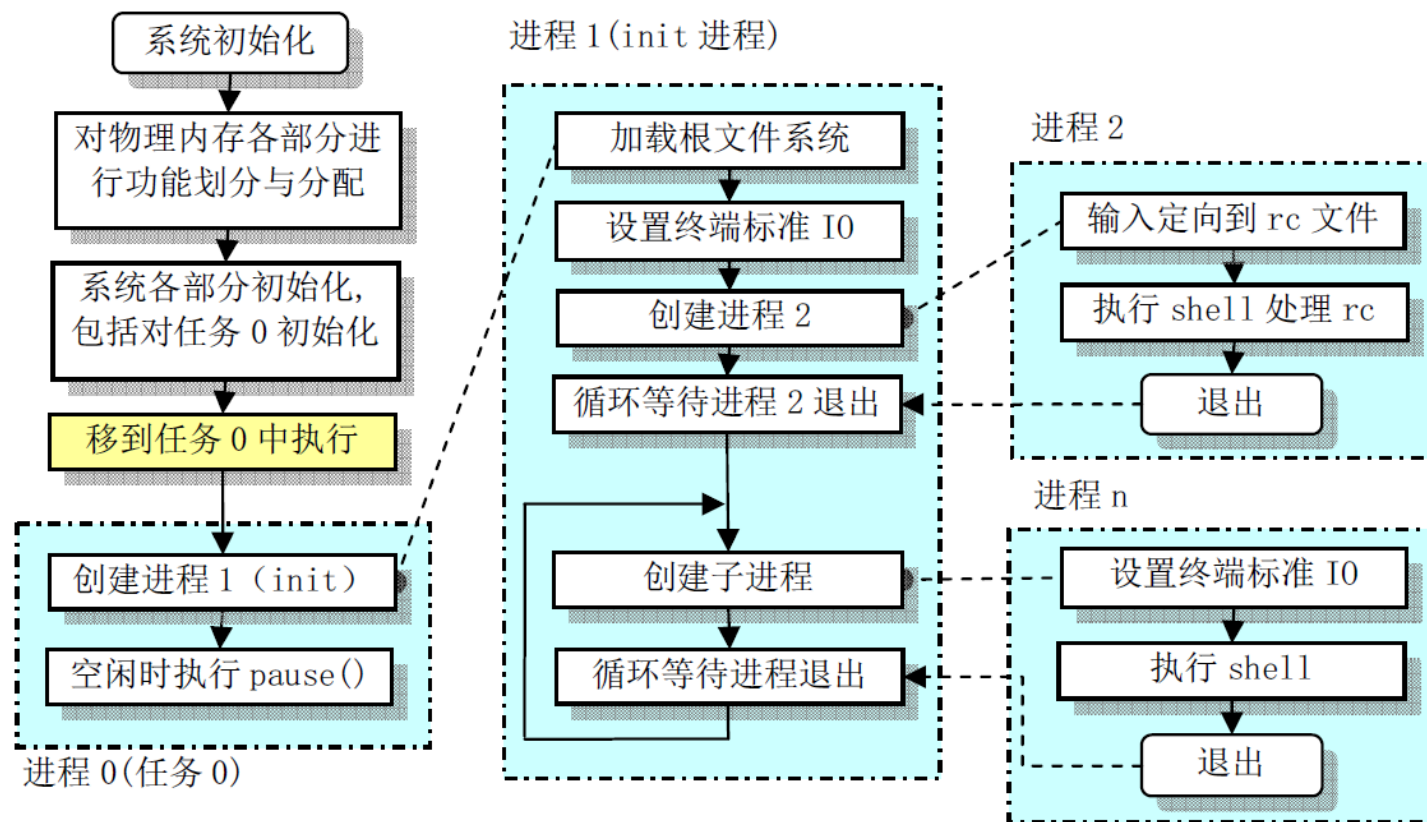


# head.s

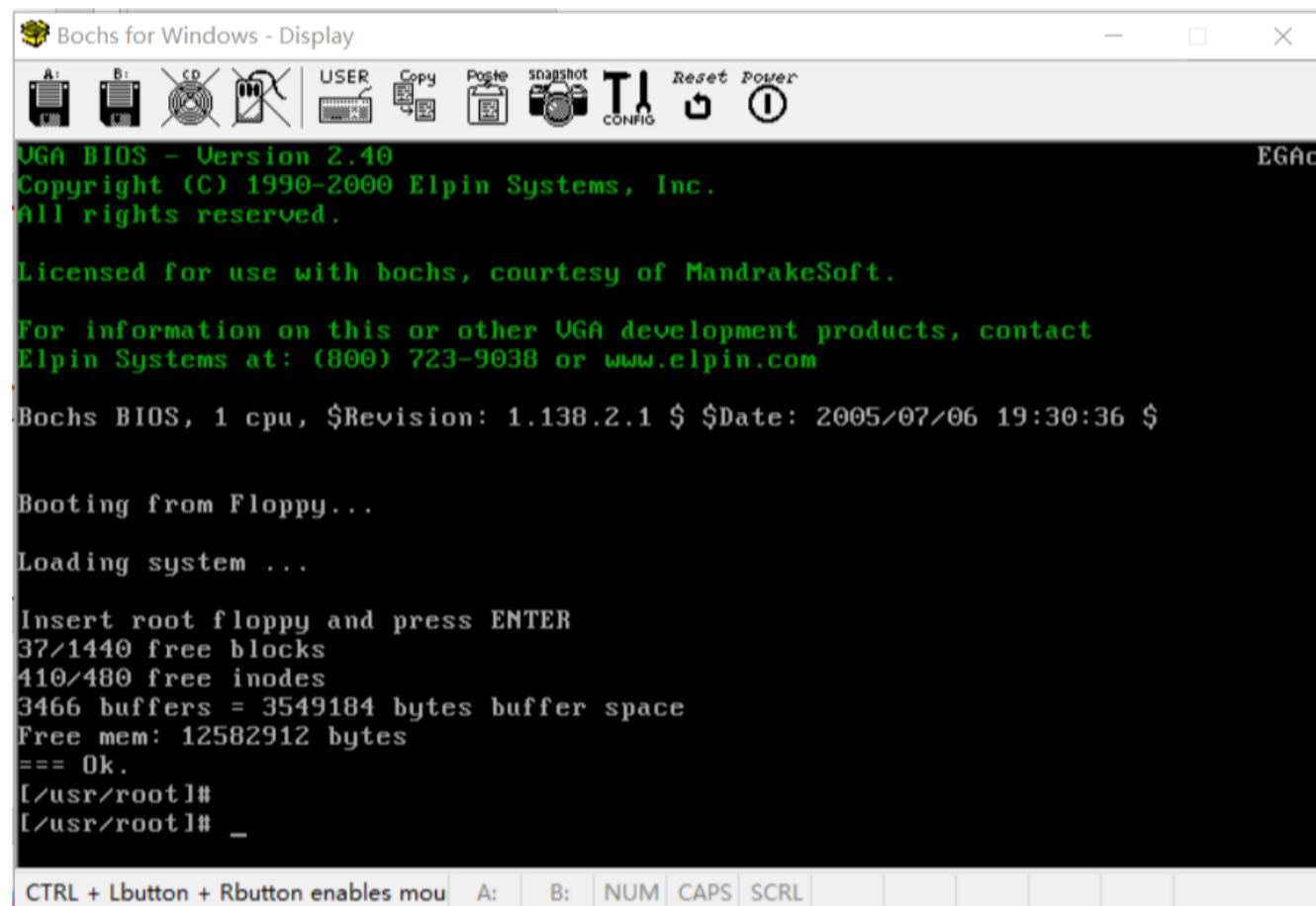




# main.c



# 基础模块



The screenshot shows a window titled "Bochs for Windows - Display". The window contains a text-based interface for the UGA BIOS. The text is as follows:

```
EGA BIOS - Version 2.40
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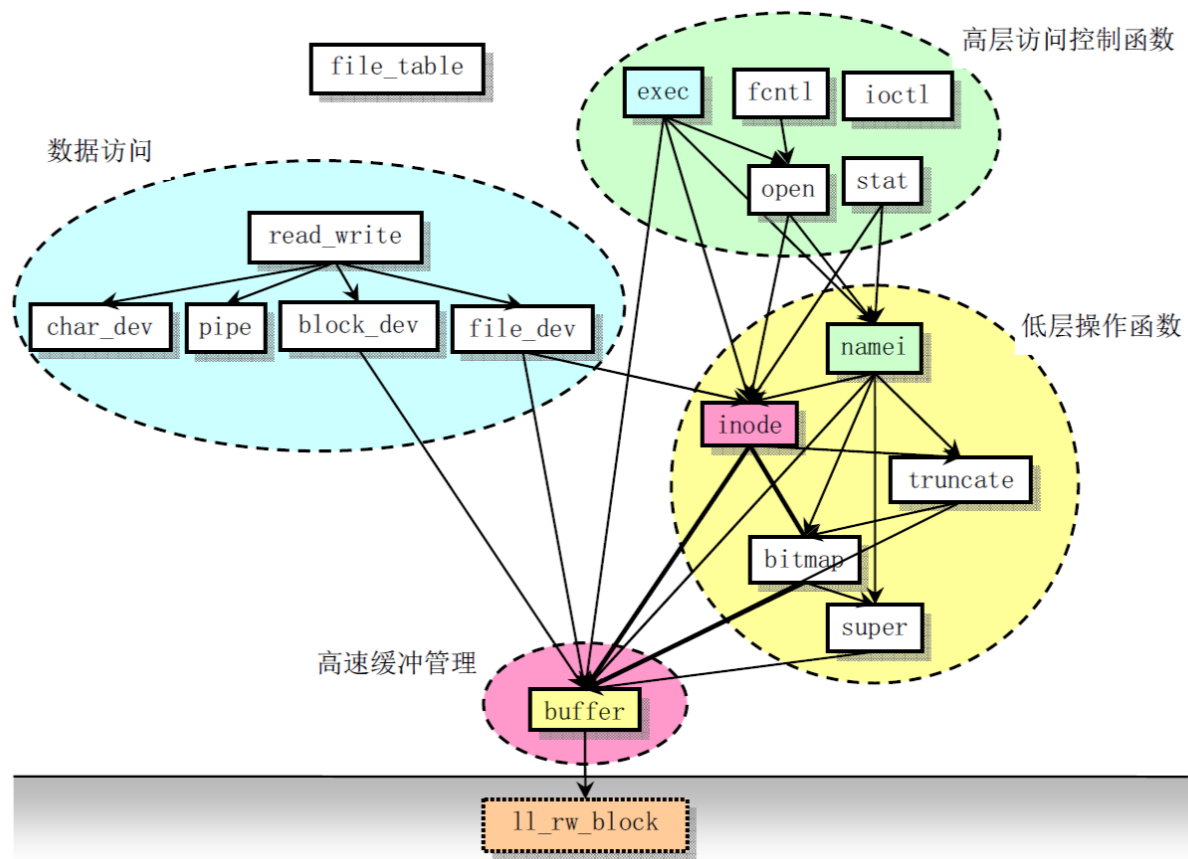
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Free mem: 12582912 bytes
=== Ok.
[/usr/root]#
[/usr/root]# _
```

At the bottom of the window, there is a status bar with the text "CTRL + Lbutton + Rbutton enables mou" and a row of buttons labeled "A:", "B:", "NUM", "CAPS", and "SCRL".

# 选读部分-文件系统



Thank you

