

in include/common.h

```
1.  #ifdef DEBUG
2.  #define _DEBUG 1
3.  #else
4.  #define _DEBUG 0
5.  #endif
6.
7.  /*
8.   * Output a debug text when condition "cond" is met. The "cond" should be
9.   * computed by a preprocessor in the best case, allowing for the best
10.   * optimization.
11.   */
12. #define debug_cond(cond, fmt, args...) \
13. do { \
14.   if (cond) \
15.   printf(fmt, ##args); \
16. } while (0)
17.
18. #define debug(fmt, args...) \
19.   debug_cond(_DEBUG, fmt, ##args)
```

直接调用printf()就可以无条件输出log.

printf()定义在common/console.c

```
1.  int printf(const char *fmt, ...)
2.  {
3.  va_list args;
4.  uint i;
5.  char printbuffer[CONFIG_SYS_PBSIZE]; ①
6.
7.  #if !defined(CONFIG_SANDBOX) && !defined(CONFIG_PRE_CONSOLE_BUFFER)
8.  if (!gd->have_console)
9.  return 0;
10. #endif
11.
12. va_start(args, fmt);
13.
14. /* For this to work, printbuffer must be larger than
15.   * anything we ever want to print.
16.   */
17. i = vsnprintf(printbuffer, sizeof(printbuffer), fmt, args); ②
18. va_end(args);
19.
20. /* Print the string */
21. puts(printbuffer); ③
22. return i;
23. }
```

in include/configs/pegmatite.h

```
1.  #define CONFIG_SYS_CBSIZE    512 /* Console I/O Buffer Size */
2.
3.  /* Monitor Command Prompt */
4.  # define CONFIG_SYS_PROMPT  "# "
5.
6.  #define CONFIG_SYS_PBSIZE    \
7.  (CONFIG_SYS_CBSIZE + sizeof(CONFIG_SYS_PROMPT) + 16)
```

printf()输出的buffer由BSP developer的责任指定。

②

在printbuffer中format string

③

真正从串口输出。

puts() is in common/console.c中

```
1.  void puts(const char *s)
2.  {
3.  #ifdef CONFIG_SANDBOX
4.  if (!gd) {
5.  os_puts(s);
6.  return;
7.  }
8.  #endif
9.
10. #ifdef CONFIG_SILENT_CONSOLE
11. if (gd->flags & GD_FLG_SILENT)
12. return;
13. #endif
14.
15. #ifdef CONFIG_DISABLE_CONSOLE
16. if (gd->flags & GD_FLG_DISABLE_CONSOLE)
17. return;
18. #endif
19.
20. if (!gd->have_console)
21. return pre_console_puts(s);
22.
23. if (gd->flags & GD_FLG_DEVINIT) {
24. /* Send to the standard output */
25. fputs(stdout, s);
26. } else {
27. /* Send directly to the handler */
28. serial_puts(s);
29. }
30. }
```

in drivers/serial/serial.c

```
1. void serial_puts(const char *s)
2. {
3.     get_current()->puts(s);
4. }
```

```
1. /**
2.  * get_current() - Return pointer to currently selected serial port
3.  *
4.  * This function returns a pointer to currently selected serial port.
5.  * The currently selected serial port is altered by serial_assign()
6.  * function.
7.  *
8.  * In case this function is called before relocation or before any serial
9.  * port is configured, this function calls default_serial_console() to
10. * determine the serial port. Otherwise, the configured serial port is
11. * returned.
12. *
13. * Returns pointer to the currently selected serial port on success,
14. * NULL on error.
15. */
16. static struct serial_device *get_current(void)
17. {
18.     struct serial_device *dev;
19.
20.     if (!(gd->flags & GD_FLG_RELOC))
21.         dev = default_serial_console();
22.     else if (!serial_current)
23.         dev = default_serial_console();
24.     else
25.         dev = serial_current;
26.
27.     /* We must have a console device */
28.     if (!dev) {
29.         #ifdef CONFIG_SPL_BUILD
30.             puts("Cannot find console\n");
31.             hang();
32.         #else
33.             panic("Cannot find console\n");
34.         #endif
35.     }
36.
37.     return dev;
38. }
```

在Gr2 and Gs2中，串口的config如下

in include/configs/pegmatite.h

```
1.  #ifndef __ASSEMBLY__
2.  unsigned int get_uart_clock(void);
3.  #endif
4.  #define CONFIG_SYS_NS16550_SERIAL
5.  #define CONFIG_SYS_NS16550
6.  #define CONFIG_SYS_NS16550_COM1 0xd4030000
7.  #define CONFIG_SYS_NS16550_CLK get_uart_clock( )
8.  #define CONFIG_SYS_NS16550_REG_SIZE (-4)
9.  #define CONFIG_CONS_INDEX 1
10. #define CONFIG_BAUDRATE 115200
11. #define CONFIG_SYS_BAUDRATE_TABLE { 38400, 115200 }
12. #define CONFIG_SYS_NS16550_IER (1 << 6) /* Bit 6 in UART_IER register
13. represents UART Unit Enable */
```

所以串口driver为

```
obj-$(CONFIG_SYS_NS16550) += ns16550.o
```

```
obj-$(CONFIG_SYS_NS16550_SERIAL) += serial_ns16550.o
```