

Chapter 38 - The Terminal Serial Stream

The terminal is the Intuition Engine's byte-stream console. BASIC uses it for PRINT, GET, and INPUT. Machine code can use the same registers for character output, cooked input, local echo, and line-mode control.

Every register lives in the terminal block at \$F0700-\$F07FF.

38.1 Register Map

Address	Name	R/W	Meaning
\$F0700	TERM_OUT	W	Write one byte to the terminal. Reads return 0.
\$F0704	TERM_STATUS	R	Bit 0 input available, bit 1 output ready.
\$F0708	TERM_IN	R	Read one cooked input byte and advance the input queue.
\$F070C	TERM_LINE_STATUS	R	Bit 0 set when a complete line is queued.
\$F0710	TERM_ECHO	R/W	Bit 0 local echo. Default 1.
\$F0724	TERM_CTRL	R/W	Bit 0 line-input mode. Default 1.
\$F07F0	TERM_SENTINEL	W	Writing \$DEAD stops the current CPU.

Reserved terminal addresses:

Address	Name	Status
\$F0714	cursor X	Reserved. Reads return 0; writes are ignored.
\$F0718	cursor Y	Reserved. Reads return 0; writes are ignored.
\$F071C	foreground colour	Reserved. Reads return 0; writes are ignored.
\$F0720	background colour	Reserved. Reads return 0; writes are ignored.

38.2 Output

Writing a byte to \$F0700 sends one character to the terminal. TERM_STATUS bit 1 is always set, so output never needs a wait loop.

```
10 REM SEND ONE BYTE, THEN READ THE STATUS
20 POKE &H000F0700,ASC("?")
30 PRINT "READY ";PEEK32(&H000F0704)
```

The first line prints ?. The second line normally prints READY 2 when there is no waiting input, or READY 3 when input is already queued. Bit 1 is the output-ready bit. Line 20 is a raw byte write to the terminal stream. It is the same stream BASIC uses for PRINT.

ASCII \$0A ends a line. ASCII \$0D is carriage return. Other bytes are sent as-is; printable results depend on the active font and screen mode.

Two aliases exist for M68K short-form addressing:

Address	Meaning
\$F700	16-bit absolute form that reaches \$F0700 on M68K.
\$FFFFFF700	Sign-extended form of \$F700; same effect.

The 6502 and Z80 do not use \$F700 for terminal output. Their small-address terminal routes are documented in Chapters 27 and 28.

38.3 Cooked Input

TERM_IN is the cooked byte stream used by BASIC INPUT. Check TERM_STATUS bit 0 before reading if byte value 0 matters to your program.

```
10 REM PROMPT, WAIT FOR COOKED INPUT, THEN CONSUME ONE BYTE
20 POKE &H000F0700,ASC("?")
30 IF (PEEK32(&H000F0704) AND 1)=0 THEN GOTO 30
40 C=PEEK32(&H000F0708)
50 PRINT "GOT ";C
```

If the next queued character is A, line 50 prints GOT 65. Reading \$F0708 when the queue is empty returns 0. Line 30 tests TERM_STATUS bit 0. Line 40 advances the input queue by one byte.

TERM_LINE_STATUS bit 0 is set when a complete line ending in ASCII \$0A is queued. It clears after the queued line bytes have been consumed.

38.4 Local Echo

When local echo is on, line input prints characters as they are typed. A program that wants to draw its own prompt or hide typed characters can turn echo off.

```
10 PRINT "ECHO ";PEEK32(&H000F0710)
20 POKE32 &H000F0710,0
30 PRINT "ECHO ";PEEK32(&H000F0710)
40 POKE32 &H000F0710,1
```

Expected output:

```
ECHO 1
ECHO 0
```

38.5 Line-Input Mode

TERM_CTRL bit 0 selects line-input mode. The default is 1.

In line-input mode, typed keys go to the cooked input queue and INPUT waits for Enter. In single-character mode, keys go to the cooked-key queue at \$F0728, described in Chapter 37. BASIC GET uses that single-character route.

```
10 PRINT "LINE ";PEEK32(&H000F0724)
20 POKE32 &H000F0724,0
30 PRINT "LINE ";PEEK32(&H000F0724)
40 POKE32 &H000F0724,1
```

Expected output:

```
LINE 1
LINE 0
```

38.6 Sentinel

Writing the exact value \$DEAD to \$F07F0 stops the current CPU. Any other value is ignored.

This is for deliberate self-termination and test harnesses. BASIC has no keyword for it. Do not type the write casually:

```
POKE32 &H000F07F0,&HDEAD
```

The CPU stops when the write completes and does not reach the next statement.

38.7 What This Chapter Is Not

The terminal is the only byte-stream console in the machine. There is no UART, parallel port, IEC bus, RS-232 line, or separate keyboard scan port. Programs that need binary file data use Chapter 35. Programs that need raw keystrokes use Chapter 37.