

**Important**

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To function properly no matter which slot a peripheral card is installed in, the program in the card's 256-byte memory space must not make any absolute references to itself. Instead of using jump instructions, you should force conditions on branch instructions, which use relative addressing.

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The first thing a peripheral card used as an I/O device must do when called is to save the contents of the Apple IIe's microprocessor's registers. (Peripheral cards not being used as I/O devices do not need to save the registers.) The device should save the register's contents on the stack, and restore them just before returning control to the calling program. If there is RAM on the peripheral card, the information may be stored there.

Most single-character I/O is done via the microprocessor's accumulator. A character being output through your subroutine will be in the accumulator with its high bit set when your subroutine is called. Likewise, if your subroutine is performing character input, it must leave the character in the accumulator with its high bit set when it returns to the calling program.

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### Finding the slot number with ROM switched in

The memory addresses used by a program on a peripheral card differ depending on which expansion slot the card is installed in. Before it can refer to any of those addresses, the program must somehow determine the correct slot number. One way to do this is to execute a JSR (jump to subroutine) to a location with an RTS (return from subroutine) instruction in it, and then derive the slot number from the return address saved on the stack, as shown in the following example.

```
PHP           ; save status
SEI           ; inhibit interrupts
JSR KNOWNRTS  ; ->a known RTS instruction
              ;...that you set up
TSX           ; get high byte of the
LDA $0100,X   ; ...return address from stack
AND #$0F      ; low-order digit is slot no.
PLP           ; restore status
```

The slot number can now be used in addressing the memory allocated to the peripheral card, as shown in the next section.