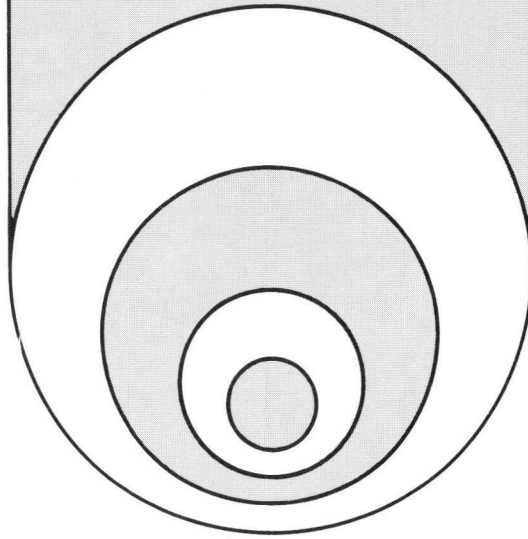# Signetics

MICROPROCESSOR

2650 INITIALIZATION.............MP51

At power-up the status of the 2650 is undefined. The Reset signal should be raised for at least three clock periods. This forces execution of the instruction at location 0. Once the system is started up, the first program to run is generally responsible for initializing the microprocessor, memory, and I/O devices to their desired initial states. The type of I/O initialization is dependent on the particular device. Contents of RAM are undefined at power-up and must be set to their desired initial states.

Program status word initialization:

1. Interrupts can be inhibited as a first step in initialization. The Reset clears the Interrupt Inhibit bit and the internal Interrupt Waiting signal. After the remainder of the status bits, the memory, and the I/O is initialized, interrupts can be permitted. This procedure will prevent unwanted interrupts during system initialization. If the system does not utilize interrupts, the Interrupt Inhibit bit can be left set on when system initialization is complete. This approach will assure that a spurious interrupt will not occur.

2. The Stack Pointer may be initialized to zero. The Stack Pointer should not be modified during the execution of a program. This pointer is under the control of the processor. Modification by a program could have unwanted results, i.e., to the instruction address register.

3. It is generally unnecessary to initialize the Condition Code, Interdigit Carry, Overflow, and Carry bits. These bits are normally set by arithmetic and logical operations before they are tested. However, if the With Carry bit is set on, then the Carry bit should be initialized correctly for the first arithmetic instruction.

4. The Register Select bit should be set to a known state, e.g. if bank 1 registers are reserved for interrupt routines, the register select bit should be initialized to bank 0.

5. The With Carry bit can be initialized to the state desired for most arithmetic and rotate operations. Then if a different state is desired for some operations, the With Carry bit can be changed and then restored after these operations.

6. The same philosophy used for the With Carry bit also applies to the Compare bit. Set the Compare bit initially to the most frequent types of compares made, logical or arithmetic.

7. The Sense bit cannot be modified by a program. The Flag bit may need to be initialized if there is a device connected to it such as a TTY which needs stop bits (binary one) when not receiving data.