

The CPU used by both the enhanced IIe and the extended keyboard IIe is the 65C02 microprocessor. The 65C02 is an 8-bit microprocessor with a 16-bit address bus. The 65C02 runs at 1.02 MHz and performs up to 500,000 8-bit operations per second. The specifications for the 65C02 are given in Appendix A.

The original version of the Apple IIe uses the 6502 microprocessor. You can tell which version of Apple IIe you have by starting up your machine. An original Apple IIe displays “Apple] [” at the top of the screen during startup, while the enhanced and the extended keyboard Apple IIe’s display “Apple //e”. This manual will call out specific areas where the three versions of the Apple IIe differ.

Original IIe

The original IIe uses the 6502 microprocessor. The 6502 is very similar to the 65C02, except that it lacks ten instructions and two addressing modes found in the 65C02. In addition, the 6502 is an NMOS device, which means its power consumption is higher than the CMOS 65C02. Except for these differences, and some minor differences in the number of clock cycles required for execution of some instructions, the 6502 and 65C02 are identical.

The keyboard is decoded by an AY-3600-PRO or 9600-PRO integrated circuit and a read-only memory (ROM). These devices are described in Chapter 7.

The interpreter ROMs (or ROM, in the case of the extended keyboard IIe) are integrated circuits that contain the Applesoft BASIC interpreter. The ROMs are described in Chapter 7. The Applesoft language is described in the *Applesoft Tutorial* and the *Applesoft BASIC Programmer's Reference Manual*.

Two of the large ICs are custom-made for the Apple IIe: the MMU and the IOU. The MMU IC contains most of the logic that controls memory addressing in the Apple IIe. The organization of the memory is described in Chapter 4; the circuitry in the MMU itself is described in Chapter 7.

The IOU IC contains most of the logic that controls the built-in input/output features of the Apple IIe. These features are described in Chapter 2 and Chapter 3; the IOU circuits are described in Chapter 7.