The basic building blocks of a microcomputer are examined in detail. Emphasis is placed on a conventional 8-bit system of a single CPU connected by a bus structure to ROM, RAM, and I/O units. The design, construction, development and application principles of such a system are closely investigated with a view of selecting the appropriate microprocessor and the associated ICs. A single-board microcomputer system based on 8085 PU is designed, constructed and tested to illustrate the basic principles. Finally, the assembly language monitor program and schematic circuit diagrams of the prototype system are presented.