



Chapter 1

Introduction

Computers usages has grown rapidly into most industries, business and government sectors. Since the introduction of microcomputer and personal computer, small industries and business can afford to own a computer which has enough capability for their uses.

Because of the availability of many interface adapters for personal computer, it has increased the capability of the personal computer.

IRMA card (IBM 3278 Display Station Emulation Adapter Card) is available in the market for emulating IBM personal computer as IBM 3278. By using IRMA card, IBM personal computer can emulate IBM 3278, and with special software it can transfer files between IBM mainframe and personal computer.

The Computing Service Center, Chulalongkorn University, is currently using IBM System/370 with 3031 CPU. The host system has IBM 3270 Information Display System attached to it both locally and remotely. IBM 3278 is being used by the Computing Service Center in its IBM 3270 Information Display System.

In 1983, the Computing Service Center has started

servicing online interactives to the university and its students. Since then, the demand for more online display stations has grown enormously.

At present, microcomputers are widely used, because of its low cost and general purpose functions. Currently available microcomputers are 8 bits and 16 bits machines. With regard to today's price, some of the 8 bits machines are cheaper than the IBM 3278. Therefore, if microcomputer can be used instead of IBM 3278, then display station's cost can be reduced considerably. Also, since microcomputer has computing power, therefore some processing can be done offline, e.g. text editing, program's syntax scan, etc.

Because of the difference between Thai language and English language, this thesis is to study and build an emulator hardware which will enable microcomputer to emulate IBM 3278 with Thai language feature.

1.1 Objectives

To interface microcomputer to IBM 3270 Information Display System as IBM 3278, as illustrated in Figure 1.1. To achieve this goal, the following procedure must be performed:

1. Designs and builds a hardware, which will convert Signal in Coaxial cable of IBM 3270 system to RS-232C Signal, and vice-versa.



2. Designs and implements a software program on microcomputer, so that IBM 3278 functions can be emulated.

3. Designs and implements a software program on microcomputer, so that file can be transferred from microcomputer to the host computer.

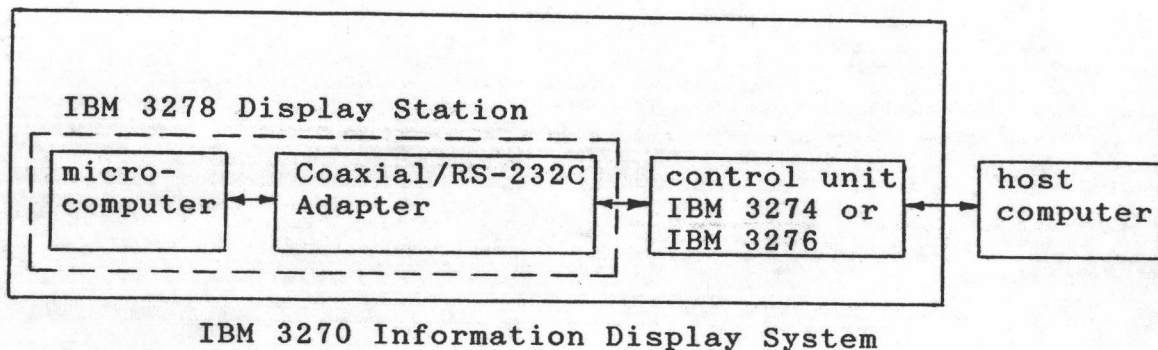


Figure 1.1 System Block Diagram.

1.2 Limitations

Any microcomputer which has an RS-232C interface module can be interfaced to IBM 3270 System by using the hardware developed.

Software will be written in PASCAL which will allow easy program modification and installation on different microcomputer. This software must be used on microcomputer which has either CP/M or MS-DOS operating system.

Limitation also exists on the type of display

screen used by the microcomputer. Some microcomputer's display screen can accomodate all the IBM 3278 screen display functions, but some cannot, e.g. Hilight, Character attribute, etc.

1.3 Study And Development Procedure

1. Studies IBM 3270 Information Display System.
2. Studies IBM Binary Synchronous Communications.
3. Studies IBM 3278 Display Station.
4. Develops hardware and software to capture IBM 3270 Coaxial Type A Protocol.
5. Develops hardware and software to convert IBM 3270 Coaxial Signal to RS-232C signal, and vice-versa.
6. Draws conclusion on the Thesis.

1.4 Benefits

This thesis will lead to the following benefits:

1. Understanding of IBM 3270 coaxial protocol.
2. Understanding the method used in transmitting high speed data into IBM 3270 coaxial cable.
3. Using microcomputer as IBM 3278 Display Station.
4. Transferring file between microcomputer and IBM mainframe computer.