

THE ETHERNET

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PREFACE


Local Area Networks, normally referred to simply as LANs are concerned with the interconnection of distributed communities of computer based data terminal equipments (DTEs) whose physical separation is confined to a single buildings. There are many types of LANs and Ethernet is one of the more favoured one.

This report on the Ethernet is based on extensive research and study by the authors. The report starts with the overview of the LAN system covering the architectures, LAN components and OSI.

It then proceed to describe the Ethernet in full detail. The prototype model is included followed by the current specification. The implementation of the interface card is then described down to the components level and their layout. The configuration and setup procedures were also mentioned.

The last part of the report covers the computer evolution and computer security. The evolution summarises the growth of LANs especially the Ethernet through different eras. Computer security covers the measures that had been and to be implemented for safeguarding the LAN.

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1.0 INTRODUCTION

The use of versatile and inexpensive microcomputer became fully established as people moved away from the constraints imposed by large main frame installation. However within the organisation this independence did not always work to advantage, resulting in duplication of programs, datafiles and expensive peripheral devices.

The advent of the local area network offered a solution, providing data transmission system linking computers and associated peripheral devices within a restricted geographical area. There are many types of LANs and the Ethernet is one of the better known.

The project undertaken by us is the research study of Ethernet with the main aim of converting a normal standalone PC to be an Ethernet workstation. The project concerns with the design and building of an network interface unit, of which to be connected to the existing hardware, enable the PC to share resources and communicate with the rest of the workstations in a computer network. The implementation of the project was conducted in the following stages:

- a. Configuring and interfacing of Ethernet elements (Processor, LAN Coprocessor, Serial Interface and the Transceiver).
- b. Implementation on printed circuit board.
- c. Setting up of the Ethernet networks.