

THANES CHOTRATTANAPITUK : HARDWARE DESIGN OF A 256 PORTS DIGITAL PABX. THESIS ADVISOR : ASSO. PROF. BANDHIT ROJARAYANONT, D. Eng.
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This thesis describes the design and construction of a 256-port digital PABX hardware. The system consists of three essential parts, namely, Main Processor Unit (MPU), Time Slot Interchange (TSI), and a number of Communication Device Interfaces (CDI). The CDIs provide control on the communication devices they interface to, and then transform a variety of user signals to a digital format. These digital signals are to be sent to the TSI in order to interchange each signal into an appropriate time slot. The prototype using an IBM PC microcomputer as the MPU was constructed. So was the CDIs which provide basic function of a PABX, which include a tone generator, a DTMF decoder, a standard subscriber interface, an operator console interface and a central office interface. Moreover, this thesis also describes the CDI which provides an asynchronous data communication function. This illustrates a method for employing digital PABX as a data communication channel.

A number of specific programs have been written for testing functionality of each part. Finally, the overall program that performs basic operations of a PABX has been written to test the system. Most of special features can be installed into the system by adding a more complex control routine into the main program.