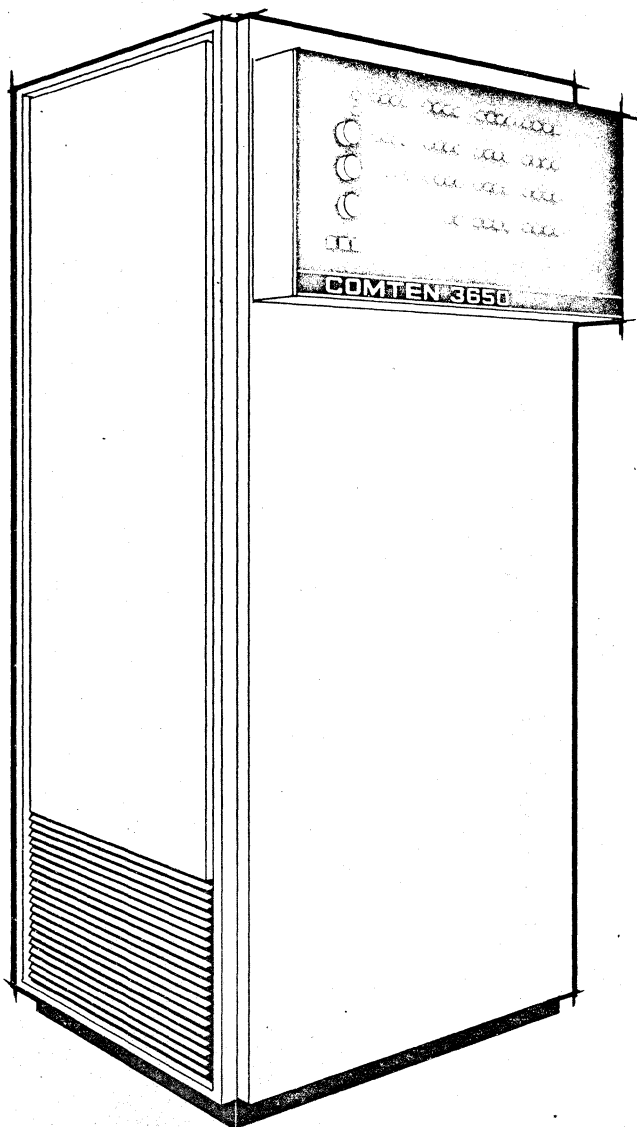


# COMTEN 3650

## COMMUNICATIONS SYSTEMS



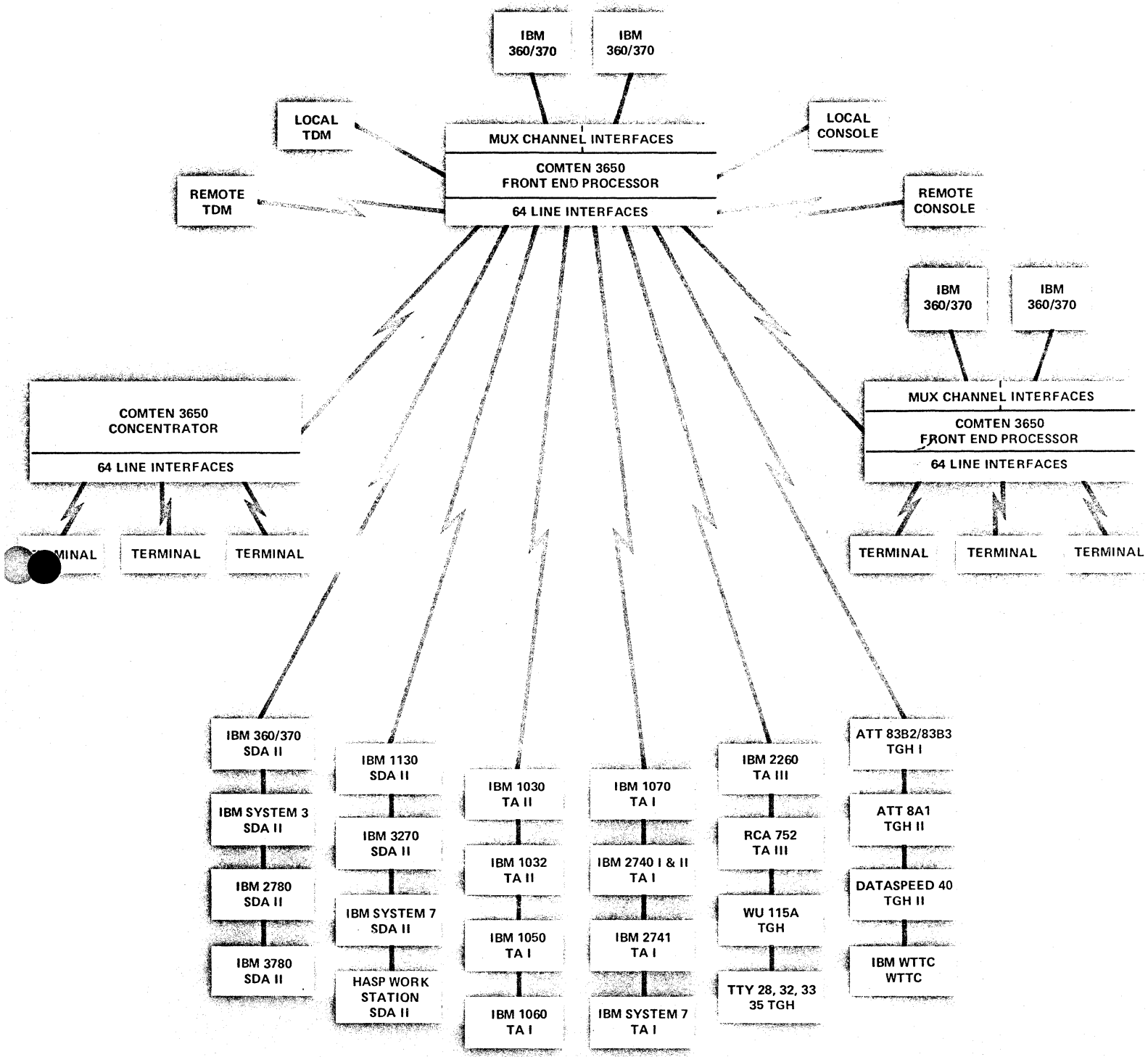
The cost effective, high performance COMTEN 3650 communications system allows an IBM 360 or 370 system to communicate with remote terminals, concentrators and computer systems over a wide range of communications facilities. The 3650 presents to the System 360/370 an IBM compatible interface that enables all IBM 3704/3705 functions which include both IBM 2701, 2702, 2703 emulation mode and the IBM 3704/3705 Network Control Program mode.

The COMTEN 3650, in its basic form, is a plug-compatible, host software transparent, replacement for IBM 3704/3705 equipment. The user further benefits from growth potential, configuration flexibility, and networking features of the COMTEN 3650.

A single COMTEN 3650 can simultaneously interact with two IBM 360 or 370 systems. A Terminal Initiated Line Switching function (TILS) allows a terminal to access any application program in either of the two IBM systems. The same function is accomplished at the central computer site through the use of Site Initiated Line Switching (SILS), under 3650 console control. The COMTEN Network System (CNS) function allows a terminal using TILS to access an application in a physically remote IBM 360 or 370 by utilizing interconnecting 3650 to 3650 communication trunk lines.

### FEATURES

- IBM 3704/3705 compatible
- Low Cost/High Performance
- Any mix of Line Speeds from 45 to 230.4K BPS
- Up to 64 full or half duplex lines
- Throughput up to 30,000 characters per second
- Auto Answer - Auto Dial
- Automatic Baud Rate Detection
- RS 232 - Mil 188 - DC Loop Interfaces
- FEP Emulation, NCP or PEP
- Remote Concentrator for Emulation or NCP
- Terminal Initiated Line Switching
- Site Initiated Line Switching
- COMTEN Network System
- 3650 initiated on line Terminal and Network Testing
- Console Utilities for Network Control
- Complete Diagnostics



## **FRONT END PROCESSOR**

The COMTEN 3650 features a flexible, modular, state-of-the-art design to meet today's and tomorrow's communication requirements. The COMTEN 3650 is upwards compatible to the larger COMTEN 3670.

The hardware architecture is extremely modular. Storage is expandable to 256 kilobytes. Up to two IBM channel interfaces are available and up to 64 half or full duplex communication lines are supported.

Each of the channel interfaces is capable of interfacing up to 256 subchannel addresses. Subchannel addresses can be bypassed on an individual basis. This capability allows for replacing several IBM 3704/3705s running either 2701, 2702, 2703 emulation or NCP not having contiguous subchannel address assignments, thus allowing for maximum subchannel address flexibility.

The features that allow the superior throughput rates of the COMTEN 3650 are the communication channels and the IBM channel interface units. The 3650 communications channels perform all character buffering and in the case of BSC and SDLC lines, all protocol and error checking. This method of line handling significantly reduces processor overhead thus allowing the processor more time for accommodating the many unique functions offered in the COMTEN 3650.

The IBM channel interface unit handles all channel protocol, code detection, command detection and error control. When used on a multiplexer channel, each interface has a subchannel priority structure allowing high speed subchannels (e.g. BSC lines) to have access to the channel more frequently than lower speed channels (e.g. stop-start lines). The channel interface thus allows for the highest possible IBM multiplexer channel utilization.

## **REMOTE CONCENTRATOR**

The COMTEN 3650 Remote Concentrator provides all the features of a 3650 FEP but replaces the IBM channel interface system attachment with full duplex communication lines. The full duplex communication line trunks must be interconnected to another COMTEN 3650 Remote Concentrator, 3650 FEP or 3670 FEP.

Two of the trunks may be designated as Remote Initial Load (RIL) trunks whereby the 3650 can be initially loaded or reloaded with system

software. An operators console may be directly connected to a 3650 Remote Concentrator or may be remotely attached utilizing the remote console feature.

## **EMULATION MODE**

The COMTEN 3650 is a plug-to-plug replacement for an IBM 3704/3705 emulating the operation of an IBM 2701, 2702, and 2703. The COMTEN 3650 out - performs the IBM 3704/3705 emulator in terms of terminal types supported, character throughput, number of host 360/370's, remote concentration utilizing CNS, and the many additional features offered on the 3650.

## **NETWORK CONTROL PROGRAM**

The COMTEN 3650 Network Control Program (NCP) provides a compatible interface to IBM TCAM and IBM VTAM. The emulation features provided by the COMTEN 3650 are also provided when NCP is utilized by the Partitioned Emulation Processing (PEP) software system, combining emulation mode, NCP and CNS. The COMTEN 3650 again out-performs the IBM 3704/3705 in NCP in terms of terminal types supported, character throughput, emulation mode remote concentrator utilizing CNS, and other features.

## **COMTEN NETWORK SYSTEM**

The COMTEN Network System (CNS) provides the system software and procedures to connect COMTEN 3650 processors to front end processors, processors to remote concentrators and remote concentrators to remote concentrators in emulation and NCP modes. With CNS, the TILS extension and intersite trunking control allows a terminal connected to a 3650 FEP or 3650 remote concentrator access to any host IBM 360/370 at any number of different locations providing the hosts have 3670 or 3650 FEP's and intersite trunks exist. The COMTEN on-line terminal tests, used in conjunction with CNS, allows testing of all network terminals from a single COMTEN 3650 FEP.

## **UTILITIES**

Utilities are an integral part of the COMTEN 3650 and include a complement of monitoring functions. Subchannel, communication line and trunk subline utilization information is provided. Input controls to effect changes in these functions are also available. System operation, program and hardware maintenance, and on line terminal tests are controlled through the use of 3650 utilities.

# SPECIFICATIONS

## INSTRUCTION SET

- Instruction Repertoire consists of a 54 instruction subset of standard IBM Instruction set
- Eight special instructions to facilitate handling of communications data
- RR, RS, RX and SI format

## STORAGE

- 650 ns. cycle time
- Expandable in 16K byte increments to maximum of 256K bytes
- 18 bit interface between storage and CPU
- Parity checking per byte
- Storage protection against power loss or over temperature

## PROCESSOR

- 16-32 bit registers
- Interfaces to 512 IBM subchannels
- Integral Load Device (tape cassette)
- Operator console with complete console utilities
- Throughput of up to 30K characters/sec
- Hardware tabling of interrupts

## I/O

- 64 Communications Channels
- Full or Half Duplex Protocol
- Asynchronous, synchronous or binary synchronous modes
- Standard Industry Interfaces: RS-232, Mil 188, DC Loop
- Auto Baud Rate Detection
- Auto Answer/Auto Dial
- Any mix of line speeds up to 230.4K bps
- Code levels of 5, 6, 7 or 8 bits

## PHYSICAL

**Power**  
208V ± 10% 60Hz

**Weight**  
800 pounds

**Temperature**  
60° - 80° Operational

**Dimensions**  
Height - 75 3/4 inches  
Width - 27 3/8 inches  
Depth - 30 inches

**Heat**  
17,200 BTU/Hour  
1000 CFM Airflow

**Humidity**  
35% - 60% (Normal Conditions)

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