MEMOREX MRX/40 and MRX/50
Memorex Corporation
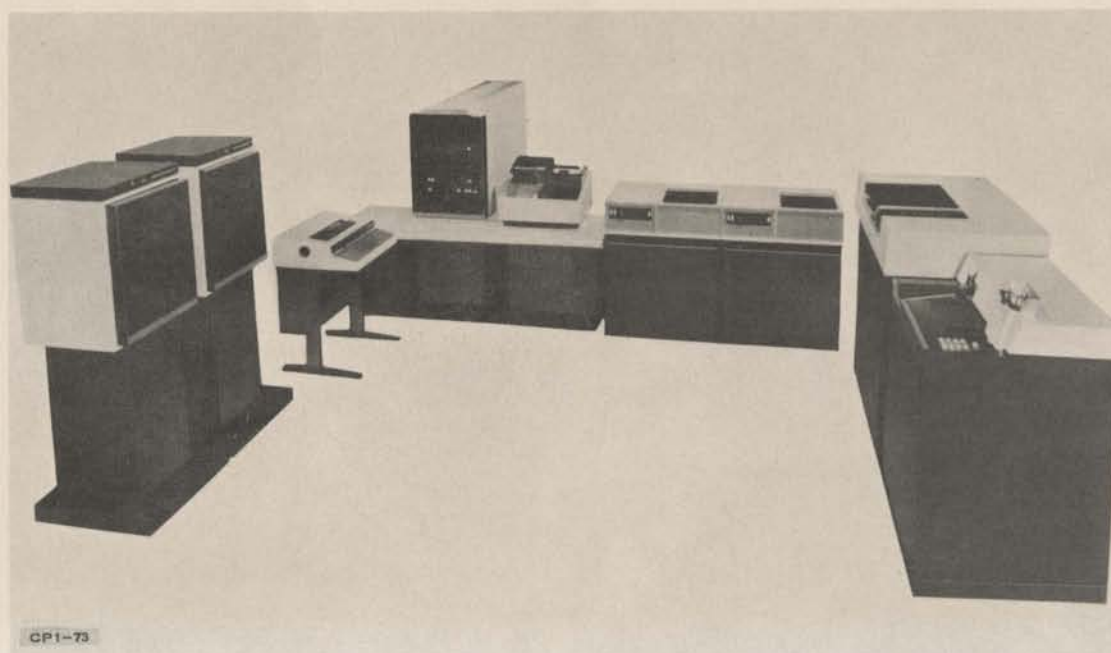Santa Clara, Calif. 95052

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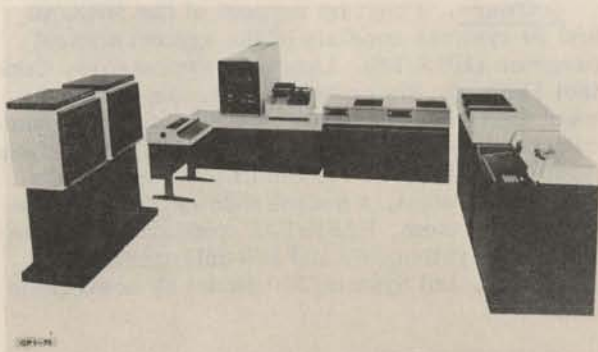
MRX/40 System

OVERVIEW

Memorex formally entered the computer mainframe business on March 29, 1972, with announcement of the MRX/40 and MRX/50. Careful research caused Memorex to aim the two systems at the following specific market segments, which the firm considers most receptive to MRX/40 and 50 capabilities.

- Upgrades from an IBM System/360 Model 20, especially the Submodel 5.

- Replacement of IBM systems running as remote job entry (RJE) workstations under IBM's HASP (Houston Automatic Spooling Program) software.

- New installations of remote decentralized computer systems.

The goal is to provide these potential users with systems that have power and performance comparable to the IBM System/360 Model 40 or 50 and System/370 Model 135 at prices more in line with the Model 20. Further, the systems offer enhancements that would be unavailable otherwise.

Entering the computer mainframe market during a continued economic recession, and following so closely the exit from this market of RCA and GE, is no light decision for any company. However, the risks involved for Memorex are somewhat balanced and limited by its well-planned and modest marketing program.

This report examines the competitive position of the MRX/40 and 50 in relation to the systems they are intended to replace. In this regard, the MRX systems are specifically intended to:

- Provide an attractive upgrade system to the more advanced System/360 Model 20 Submodel 5 users that gives extremely easy conversion and significantly more processing power.

- Replace a HASP/RJE workstation system directly, while permitting multiprogrammed operation (impossible on an IBM system).

- Offer either of these conversions at a very attractive price.

Initial deliveries are scheduled for September 1972. A national installation assist center (IAC) will be staffed in Minneapolis prior to that date, also slated for staffing by that time are "Datacenters" for pre-installation testing and file conversion at Minneapolis, Santa Clara (CA), Chicago, and Washington DC. In preparation for a conversion, Model 20 users can, prior to installation of an MRX system, run programs on their Model 20 systems that translate:

- IBM Job Control Language (JCL) statements into the MRX Control Language Statements (CLSs).

- Model 20 basic assembler language (BAL) statements into MRX source statements.

- Model 20 RPG (report program generator) into MRX-RPG II.

Highlights

A prime highlight of the Memorex announcement was the unexpected marketing strategy presented. That is, from the indications appearing in the press 1 week earlier, and the known position of the company in the IBM replacement market, many may have expected the systems called the MRX/40 and MRX/50 to be plug-compatible IBM System/360 Model 40 and 50 mainframes. In fact, the two new systems, featuring sophisticated architecture and state-of-the-art technology, are quite unique and are directed towards an entirely different market.

The balanced and comprehensive systems announced on March 28 are described in terms of their processing units, software, peripheral units, and services provided.

Processing Units. MRX/40, with 1.8-microsecond access to two bytes of its metal oxide semiconductor (MOS) storage, will be somewhat

faster than the System/360 Model 40 (2.5 micro-seconds for two bytes).

MRX/50 also has MOS storage and accesses store at twice the rate of the MRX/40 — two bytes per 900-nanosecond cycle. This is slightly faster than the System/360 Model 50 (four bytes in 2.0 microseconds). It also compares favor-ably at times to the System/370 Model 135, whose main store cycle for four bytes can vary from 275 nanoseconds (for control access) to 1,430 nanoseconds (for instruction access). On Model 135, store read requires 770 nanoseconds and store write requires 935 nanoseconds.

Although primarily intended for IBM replace-ment in the Model 20 range, the new Memorex processing units do compare favorably with Model 40, 50, or 135 processors. Both models of the MRX systems offer, in addition to MOS store, the following features that are unavailable on the Model 20:

- Large-scale integration (LSI) circuits.

- Microprogram control implemented in alterable control memory (ACM).

- Eight processor states — each with a separate set of registers, and capable of acting as a functionally autonomous pro-cessing unit — for communications I/O, disc I/O, problem program processing, operating system processing, etc.

- Optional integrated I/O adapters for all peripheral devices — these all operate in a burst mode, with full buffering for unit record devices.

- Optional integrated communications adapters.

- Optional System/360 (or 370)-compatible selector channels.

- Storage protection.

- Interval timer.

Also, both systems offer optional Model 20 compatibility.

Table 1 outlines MRX/40 and MRX/50 speci-fications and compares them to the System/360 Model 20, Submodel 5, which is the top of the Model 20 line and the prime target for conver-sions to the Memorex systems.

Software. Program support of the MRX/40 and 50 systems consists of the system control program (MRX/OS), Language Processors, Con-trol Language Statements (CLS), Data Manage-ment Services (DMS), I/O support, telecommuni-cations support (TCOM), the Telecommunications Application Support System (TASS), an inquiry retrieval system, a source data entry (SDE) ap-plication system, HASP/RJE workstation support, utilities, System/360 and 370 data interchange programs, and System/360 Model 20 conversion aids.

MRX/OS provides capabilities comparable to IBM's disc operating system (DOS) supervisor. It has a minimum size of 8K. MRX/OS allows multiprogramming of two programs in any mix of these types: batch job, emulator job, and tele-processing application. An automatic program relocation feature allows user programs to run in either partition without need for re-link editing.

MRX-RPG II is more comprehensive than the report program generator of the 360/20, and ex-pands upon IBM's RPG II for the IBM System/3. MRX/Cobol is an extension of ANSI Standard low-level Cobol. MRX/Fortran IV is IBM 1130 Fortran compatible, and can also process com-plex variables. MRX/Assembler is externally similar to IBM's basic assembler language (BAL) but is simpler due to the elimination of the base register concept.

CLS provides facilities equivalent to IBM's Job Control Language (JCL); it also offers op-tional I/O spooling and catalog procedures, job accounting, and optional job queueing (none of which are available on IBM's System/360 Model 20 or System/3).

I/O and telecommunications (TCOM) I/O sup-port are integral to the MRX/OS operating sys-tem. Both logical- and physical-level I/O con-trol are presented, with telecommunications I/O handled as if it were that of any local device.

TASS is an interface between MRX/OS TCOM and user-written conversational mode application programs. It is thus similar in scope and func-tion to IBM's Customer Information Control System (CICS).

HASP/RJE workstation support comes in two versions, Package and System. Either has the advantage over an IBM system in that it can run in a single partition, leaving the other partition free for concurrent processing of another job. The nontailorable Package version supports a card reader and line printer and is designed for