

Memorex Corporation

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Memorex Corporation

Memorex, founded in 1961, is an international company which manufactures and markets information storage equipment, magnetic recording media, and data communications equipment for the IBM-plug-compatible, OEM and Burroughs markets. Memorex operates 18 engineering and manufacturing facilities in the United States, Canada, Mexico, Ireland, Belgium and Japan. The company's major engineering and development facilities are located in Santa Clara, California. Memorex markets its products, and services its customers, through nearly 70 sales and service offices in the United States and an additional 60 locations in 19 other countries. Distributors market Memorex products in 60 additional countries. A subsidiary of the Burroughs Corporation, Memorex employs 12,000 persons worldwide.



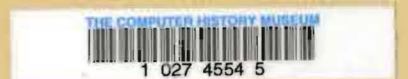
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MEMOREX
A Burroughs Company

3864

MEMOREX

**Solid State
Storage Subsystem**



a total system

The Memorex 3864 provides all of its powerful features within one unit, and has been designed to allow fast access for maintenance. In addition, its capability can be expanded to include up to 144 megabytes of storage, a second controller module, and an optional motor/alternator unit.

The accompanying illustration shows the main components of the 3864: the controller module, the storage subsystem, and the power supply control and distribution system.

Controller Module

The controller has several elements. One is a service processor that uses an on-board microcomputer. The service processor and the access processor act as co-processors for the operations on the interface channel of the 3864.

The access processor supports software that controls access time in a paging environment. The service processor supports all other operations, system storage

diagnostics, dynamic reallocation of faulty memory, channel command decoding and execution, and customer engineering troubleshooting.

The service panel allows engineer-controlled interaction with the service processor. The operator's panel provides operator information and operating-mode control over equipment. Lights on the panel indicate equipment readiness, error conditions, and operating mode. Switches are used to enable the system and control the operating mode.

Another element—the channel adapter—controls the transfer rates and response times between the 3864 and the host computer. Single byte, two byte, data streaming and two-channel capability allow the data transfer rates to range from 1.5 to 4.0 megabytes per second per channel regulated by the host channel.

Finally, the storage control unit interfaces the bus and the basic storage modules (BSMs). It performs the error detection and correction features of fault tolerance, transfers data to and from the service processor or the channel adapter, and provides the hardware interface for the BSMs.

Storage Subsystem

There are up to eight basic storage modules (in 12 megabyte increments) that provide the memory storage space in the Memorex 3864. In addition, it can be expanded to include up to four more BSMs in an additional cabinet.

Power Supply and Cooling

The power supply is comprised of regulators, an input unit, a distribution unit, a master reset/remote power control unit, and an optional motor/alternator. Cooling is maintained through multiple fan assemblies.

Fault Tolerance

The 3864 sets a new standard for data integrity with its comprehensive automatic fault detection and correction capability. This feature is handled by the controller module and does not consume valuable user storage.

A double-bit error correction code (ECC) is maintained for each 20 bytes of stored data (the 3864 can dynamically correct either single bit or double bit errors). In addition, a cyclical redundancy code is maintained by block.

During operation, a background, soft error scrubbing cycle scans allocated storage and corrects data in faulty locations. If the location again registers faulty (double bit errors), the data is transferred to spare memory and the faulty memory is flagged for maintenance while the spare memory is being used.

Controller Module

- Service processor
 - One microcomputer
 - One 64K CMOS RAM
 - Two EPROMs
- Access processor
- Channel adapter
- Storage control unit
- RS232 interface (for optional CRT monitor)
- Operator's panel
- Service panel (rear)

Storage Subsystem

- 8 basic storage modules (BSM)
 - Total of 96 MB
- Each IC contains 64K bits of random-access memory (RAM)



Power Supply & Cooling

- Power regulators
- Power input unit (PIU)
- Power distribution unit (PDU)
- Single and multiple fan assemblies
- Master reset/remote power control panel
- Motor/alternator unit (optional cabinet)

Additional Features

- Fault-tolerant computing
 - Double-bit error detection and correction
 - Dynamic reallocation of memory
 - Cyclical redundancy codes
 - Soft-error scrubbing
 - On-line spare memory
- Emulates IBM 2305 Model 2 Fixed Head Storage System
- VM Native Mode
- Greater reliability
- Faster throughput
- Increased CPU utilization
- Expandable to 2 controllers and 144 MB (additional cabinet)
- Remote diagnostics
- Integral modem