

3676 Storage Control Unit

- The controller for the Memorex 3652 Disc Storage Subsystem.
- A controller for Memorex 3650, 3670/75, 3640 and the IBM 3350 subsystems.

The 3676 was designed as the performance complement to the Memorex 3652 Disc Storage Subsystem. The 3652 DSS is Memorex's answer to the operating constraints users were experiencing with the IBM 3350s or Memorex 3650s. The 3652 provides: twice the capacity, with two spindles of 635 megabytes each; faster access, with an average seek time per logical volume of only 18 milliseconds; and a fast transfer rate of 1.198 m/second. In addition, the 3652 DSS provides the user with the enhanced performance and back-up capabilities of IDI, a Memorex exclusive. The 3676 can now further optimize the 3652 DSS performance by providing two independent storage directors in a space- and energy-efficient cabinet.

The 3676 SCU was also designed to ensure an easy transition from older generation disc subsystems to the 3652 DSS. Accordingly, the 3676 can support an intermix of Memorex 3652, 3650, and 3670/75, 3640 and the IBM 3350 Subsystem. The user has the flexibility to systematically upgrade disc systems to meet increasing storage capacity needs, while benefiting from the reliability and economics of the 3676.

3676 Profile

The 3676 is a streamlined storage control unit, which dramatically reduces the space requirements in crowded computer rooms. Containing two storage directors, the 3676 is functionally equivalent to one IBM 3880-1, two IBM 3830-2s, or two Memorex 3674s—but requires up to 80 percent less space when service clearance is included. In addition, units can be placed side by side because service access is required only from the front and back of the cabinet.

However, designing to the state-of-the-art is much more than smaller dimensions and improved service accessibility. Employing years of engineering experience with storage control units, Memorex designed in reliability and efficiency. Switching-type power supplies, shortened internal cabling and LSI circuitry have been employed in the design of the 3676. In addition, the number of components is less and the back panel is smaller than previous Memorex storage control units. Such design features optimize performance and efficiency, which is reflected in reduced power requirements. Less power means less heat, which in turn, means less air conditioning is required. The 3676's functional efficiencies translate into real savings for the user.



MEMOREX

3676
Storage Control Unit

Dual Directors

The 3676 provides dual, independent storage directors that can support up to four DASD strings each. Each director is powered by a separate power system to ensure the other director remains functional during periods, such as servicing, in which a director would be powered down. Each director's instantaneous data transfer rate is dependent on the type of DASD attached, with a maximum of 1.859 mb/second. With the current transfer rate for 3650/52 and IBM 3350 being 1.198 mb/second, the 3676 has the potential for supporting a data transfer rate of up to 55 percent faster. In addition, the 3676 supports multiple requesting, which allows each independent channel path to disconnect from the channel during mechanical-movement delays following seek or set sector commands. Each director can support a maximum channel cable length of 280 feet (85.3 m) contingent on the channel type and the number of SCUs attached to that channel.

Memorex Exclusive

Enhanced Error Recovery (EER)—an advanced error recovery technique unique to Memorex. When attached to Memorex drives, the 3676 employs sophisticated microprograms to recover errors in home address, count and key fields, and uses the system's Error Recovery System (EREP) to aid recovery from previously uncorrectable data checks. In addition, when attached to a Memorex 3650 or 3652, DSS, the 3676 repositions heads to recover previously unrecoverable data checks by utilizing string controller circuitry.

Optional Features

Multiple Channel Switching—Enables a storage director path to be shared by two, three, or four channels. Thus, if a channel should fail, the SCU and its associated drives can be addressed through the alternate channels. These channels may be attached to either the same or different CPUs. Individual drives attached to the storage director may be reserved for the exclusive use of any of the channels. Channel switching and device reservation are controlled by the CPU's operating system. Any one interface can be selectively enabled or disabled through panel switches by the operator.

Remote Switch—Provides the selective, remote enable/disable of the channel interfaces to the 3676.

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3676 Storage Control Unit Technical Specifications

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Attachment

via a Block Multiplexer Channel to:
IBM System 370/135 through 168
3031 through 3081
4341
Amdahl 470 and 580
Equivalent PCM processors

Data Transfer Rate

1.86 mb/sec (maximum)

Power Requirements

Voltage (60 Hz): 208/230 VAC $\pm 10\%$
Frequency: 60 ± 0.5 Hz
Phase: Three-Phase
Branch Service: 15 amperes
Voltage (50 Hz): 220/380 VAC $\pm 10\%$
Frequency: 50 ± 0.5 Hz
Phase: Three-Phase
Branch Service: 15 amperes

Physical Dimensions

Height: 43 in (1,092 mm)
Width: 38 in (965 mm)
Depth: 32 in (815 mm)

Service Clearances

Front: 38 in (965 mm)
Rear: 38 in (965 mm)
Left: No access required
Right: No access required

Weight

600 lbs (272.2 kg)

Operating Environment

Temperature: 16 to 32°C (60 to 90°F)
Relative Humidity: 20% to 80%
Maximum Wet Bulb: 26°C (78°F)
Temperature Variation: 2.7°C/hr (5°F/hr)

Average Heat Dissipation*

4,100 BTU/hr (1,200 watts)

Air Flow*

400 CFM

Power Requirement*

1.4 kVA

*With four-channel switching installed.