

DILOG

Model DQ444

CDC FINCH COMPATIBLE DISC CONTROLLER

DEC* LSI-11 COMPATIBLE

FEATURES

- The first controller to interface DEC LSI-11 computers with CDC Finch disc drives.
- Switch selectable for RL01 and/or RL02 emulations; and software compatible with RT-11, RSX-11 and RSTS.
- Interfaces one or two (mix or match) CDC Finch drives with the same or different characteristics such as heads and/or data surfaces.
- Designed to support future drives with increased capacity with no changes required in the controller.
- Low cost, microprocessor based, intelligent controller on one quad printed circuit board.
- Automatic media-flaw compensation and retry on read errors.
- Software write protect capability.
- Automatic power down protection.
- On-board bootstrap loader for RP02/RP03, RK06/RK07, RX02, RK05, RL01/RL02 and TM-11 support, with jumper selectable bootstrap address.
- Automatic self-test feature.
- Full sector data buffer for elimination of data-late errors due to DMA latency.
- Memory addressing capability to 128K words.
- Low power consumption—less than 3.5 amps @ 5 volts.

DESCRIPTION

The Distributed Logic Corporation (DILOG) Model DQ444 is the first controller to interface DEC LSI-11, 11/2 and 11/23 computers with CDC Finch disc drives having RL01 and RL02 emulations which are switch selectable for four logical units.

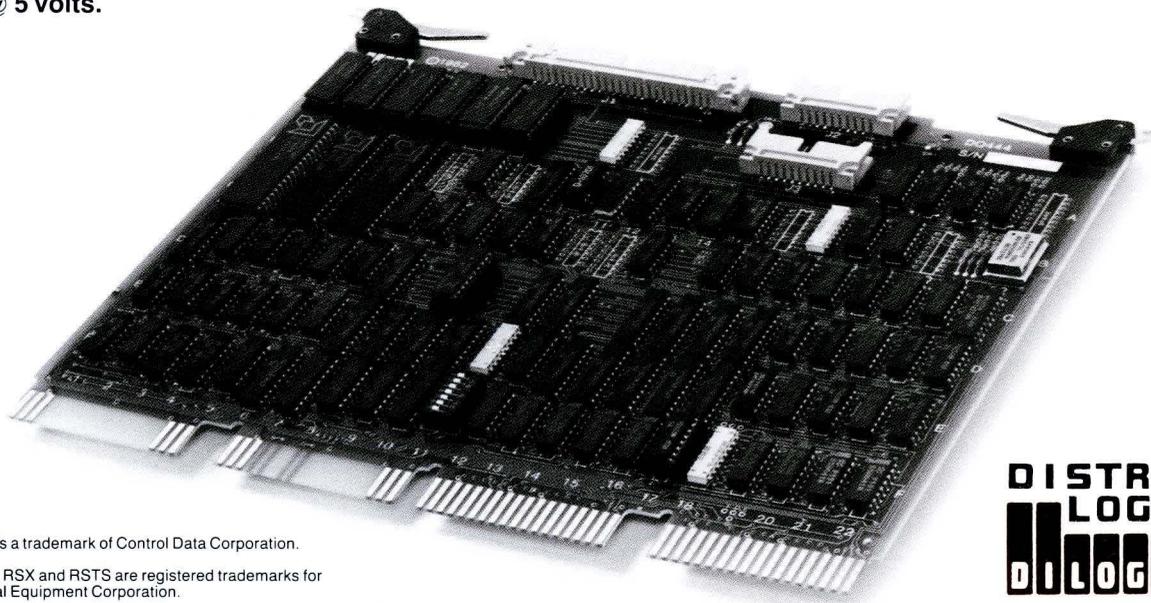
The DQ444 is designed for future growth as the drive capacity is increased. Thus, if the data base outgrows the present system, simply add and/or replace drives; no changes are required in the controller. The controller includes the standard DILOG feature of intermixing drives.

The Model DQ444 controller is microprocessor based and implemented on a single quad board which plugs into one quad slot in any LSI-11 based backplane.

On-board firmware provides such features as automatic self-test, automatic media-flaw compensation, write protect, and automatic read retry.

A complete disc subsystem is comprised of the controller, one or two disc drives, and the necessary interconnecting ribbon cables.

No specially wired connectors, additional chassis, power supplies or bus converters are required. The single quad printed circuit module contains all necessary disc controller interface and formatting circuitry.



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DISC DRIVE COMPATIBILITY

The Model DQ444 interfaces one or two Finch drives having the same or different unformatted capacities. The controller is designed to interface with future disc drives of greater capacities.

MEDIA FLAW COMPENSATION

The Model DQ444 provides two methods of preventing data errors caused by media flaws. The first is bad sector mapping when formatting the disc. The second is automatic, flawed media compensation built into the firmware, which causes a transparent track skipping function to be implemented whenever a hard error is detected on a given track. Soft errors are compensated via an automatic read retry function.

HARDWARE BOOTSTRAP

The Model DQ444 contains an on-board bootstrap loader for RP02/RP03, RK06/RK07, RX02, RK05, RL01/RL02 and TM-11 mag tape support. On-board jumpers allow selectable bootstrap addresses, in addition to enabling/disabling the bootstrap. When the bootstrap is disabled, the Model DQ444 will boot from the standard DEC REV-11 Module.

SOFTWARE SUPPORT

The Model DQ444 will run standard RL01/RL02 drivers contained in various DEC operating systems such as RT-11, RSX-11 and RSTS. A format/diagnostic routine is supplied with each controller.

DATA FORMAT MAPPING

The Model DQ444 allows various compatible physical drive sizes to be mapped into a maximum of 4 logical units. The controller contains switches for the selection of RL01 or RL02 emulation, for each logical unit, to maximize utilization of various disc drives.

MICROPROCESSOR BASED

The heart of the Model DQ444 is a proprietary, high speed, bipolar microprocessor. The majority of controller functions are implemented in firmware. This allows a parts count significantly reduced from conventional controllers. User benefits include reduced size, increased controller reliability and application flexibility.

AUTOMATIC SELF TEST

The Model DQ444 is supplied with an automatic self-test feature which causes on-board microdiagnostics to be run on the controller each time the Q-Bus is initialized. A green card-edge LED indicator is lit and remains lit after each successful completion of the microdiagnostics. Should the microdiagnostics fail, the LED indicator is extinguished and a data protect feature is invoked which disallows any communications between the CPU and the disc, thus protecting critical data base areas from the overwriting of erroneous information.

MODE CONTROL SWITCHES

The Model DQ444 contains on-board jumpers and switches for selection of starting bootstrap address, bootstrap enable/disable, disc mapping control, device address selection and hardware or software selection of ECC data error correction.

FULL SYSTEMS SUPPORT

The customer may purchase drives directly from the manufacturer and have them drop-shipped to DILOG where they will be integrated, tested and shipped as a complete system with the Model DQ444.

DOCUMENTATION

Each Model DQ444 is supplied with an Instruction Manual.

OPTIONS

Disc drive I/O cables. Factory integration of customer-supplied drives.

CONTROLLER SPECIFICATIONS

Mechanical—The Model DQ444 is completely contained on one quad module 10.44 inches wide by 8.88 inches deep, and plugs into and requires one slot in any DEC LSI-11 based backplane.

Computer I/O

Register Addresses (PROM selectable)

- Control Status (RLCS) 774 400
- Current Bus Address (RLBA) 774 402
- Disc Address (RLDA) 774 404
- Multipurpose (RLMP) 774 406

Data Transfer

- Method: DMA
- Interrupt vector: 160

Disc Drive I/O

- One 50 pin type "A" flat ribbon cable connector mounted on outer edge of controller module. Two 20 pin type "B" ribbon cables (one for each drive interfaced).

Signal—Data and Clock, Differential; all others, TTL compatible.

Power—+5 volts at 3.5 amps. from computer power supply.

Environment—Operating temperature 40°F. to 140°F., humidity 10 to 95% non-condensing.

Shipping Weight—5 pounds, includes documentation and cables.

†Specifications subject to change without notice.



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