FEATURES
- Interfaces LSI-11, 11/2 and 11/23 computers to the Shugart Associates SA1000 or interface compatible disc drives.
- Emulates DEC RK05, RL01/RL02 or RP02/RP03 software drivers in RT-11 and RSX-11 software systems.
- Low cost microprocessor based intelligent controller, completely contained on one quad printed circuit card.
- Automatic media flaw compensation with bad-sector flagging and transparent, automatic, track-skipping feature.
- Automatic retry on read errors.
- Full sector data buffer for elimination of Q-BUS data late errors due to DMA latency.
- On-board bootstrap loader for RK05, RL01/RL02 or RP02/RP03 and TM-11 support, with jumper selectable bootstrap address selection.
- Automatic self-test with status indicator and data protect feature.
- Memory addressing to 128K words.
- Automatic power fail/power down protection.
- Low power consumption, less than 3.5 amps @ 5 volts.

DESCRIPTION
The Distributed Logic Corporation (DILOG) Model DQ431 (RK05 emulation), DQ433 (RP02/RP03 emulation) or DQ434 (RL01/RL02 emulation) Disc Controllers interface up to two Shugart Associates SA1000 or interface compatible disc drives to DEC LSI-11, 11/2 or 11/23 based computer systems. The controller runs under the RT-11 and RSX operating software systems using the standard DEC RK05, RL01/RL02 or RP02/RP03 drivers.

The Model DQ43X controllers are microprocessor based, and implemented on a single quad board which plugs into and requires one slot in an LSI-11, or LSI-11 compatible backplane. On-board firmware provides such features as automatic media flaw compensation and write protect features.

A complete disc subsystem is comprised of the controller, one or more disc drives, and the necessary interconnecting ribbon cables. No specially wired connectors, additional formatting circuitry, bus converters, chassis or power supplies are required for the controller to function. The single quad printed circuit board contains all necessary disc drive and Q-BUS interfaces, in addition to all formatting and control functions.

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DISC DRIVE COMPATIBILITY
The Model DQ43X can interface up to two Winchester disc drives having the same I/O structure. With drives available from several manufacturers, increased capacities over and above those allowed for by the DEC RK05 (DQ431), RL01/RL02 (DQ434) or RP02/RP03 (DQ433) disc driver software are optionally available.

SOFTWARE SUPPORT
The Model DQ43X will run the standard DEC RK05, RL01/RL02 or RP02/RP03 drivers (or modified drivers for increased capacity) in RT-11 and RSX-11 software systems. A format diagnostic routine is supplied with each unit. The factory should be contacted for special drives requiring different logical unit sizing.

MEDIA FLAW COMPENSATION
The Model DQ43X comes with two methods of providing for prevention of 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 for by an automatic read retry function.

HARDWARE BOOTSTRAP
The Model DQ43X contains an on-board hardware bootstrap loader for RK05 (DQ431) RL01/RL02 (DQ434) or RP02/RP03 (DQ433) and TM-11 mag tape support. On-board jumpers allow you to select one of two bootstrap addresses, in addition to enabling/disabling of the bootstrap. When the bootstrap is disabled, the Model DQ41X will boot from the standard DEC boot board.

AUTOMATIC SELF-TEST
The Model DQ43X 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 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 DQ43X contains on-board jumpers and switches for selection of starting bootstrap address, bootstrap enable/disable and disc mapping control.

FULL SYSTEM SUPPORT
Distributed Logic Corporation also supplies fully integrated and tested disc systems, including the discs themselves. For the customer that wishes to purchase drives directly from the manufacturer, they can be drop-shipped to our facility where they will be integrated, tested, and shipped as a complete system with the Model DQ43X.

DOCUMENTATION
Each Model DQ43X is supplied with an Instruction Manual

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