

# **DILOG**

**MODEL DQ100**

# **DISC**

# **CONTROLLER**

**DEC LSI-11 COMPATIBLE**

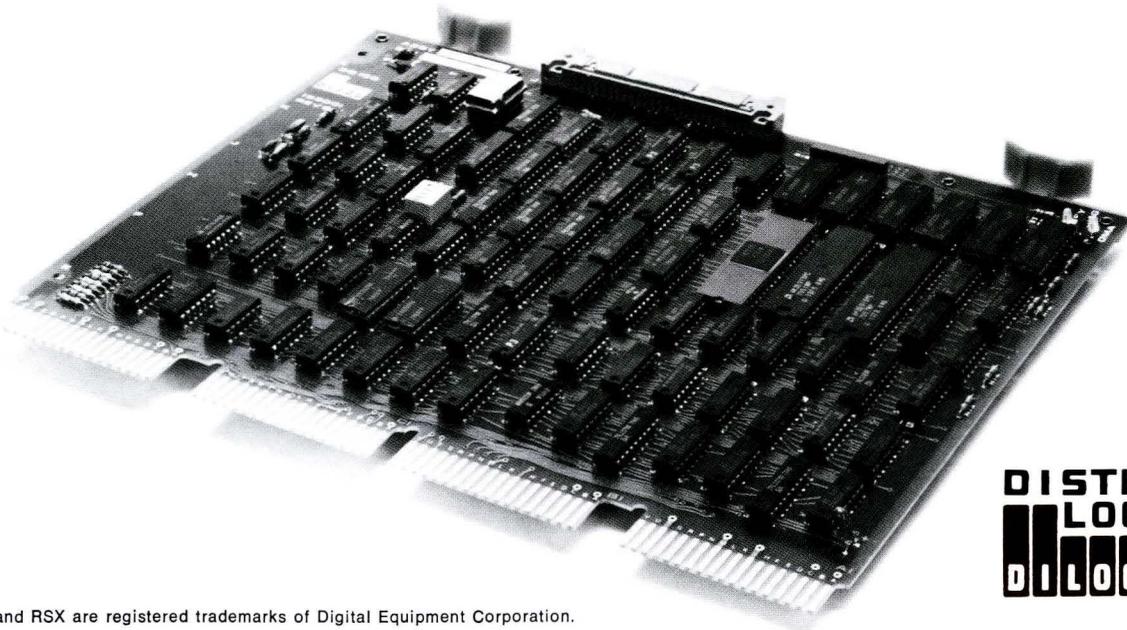
## **FEATURES**

- **Interfaces DEC LSI-11, 11/2 and 11/23 based computers with 2.5, 5, 10 or 20 megabyte cartridge and fixed platter disc drives in combinations of up to 20, 40, or 80 megabytes total.**
- **Entire controller on one quad printed circuit module that plugs into any DEC LSI-11 based quad backplane assembly.**
- **No external chassis, special wiring, or bus converters required.**
- **Completely emulates DEC RKV11 controller.**
- **Complete DEC RT-11/RSX-11 software compatibility.**
- **Runs all DEC RKV11 software diagnostics.**
- **Handles both front load and top load cartridge drives.**
- **Overlap seek capability.**
- **Built-in high speed microprocessor.**
- **FIFO buffer for DMA latency.**
- **Automatic self-test and data protect feature.**
- **Memory addressing capability, to 128K words**
- **On-board LED indicators provide visual display of controller status.**
- **Automatic power fail/power down data protection.**
- **Complete mass storage subsystems including disc drives available.**

## **DESCRIPTION**

The Distributed Logic Corporation (DILOG) Model DQ100 Disc Controller couples up to 20, 40 or 80 megabytes of disc storage to the sub-UNIBUS of all Digital Equipment Corporation (DEC) LSI-11, 11/2 or 11/23 based computer systems. The controller is completely contained on one quad printed circuit module that plugs into a single slot in any LSI-11 based quad system backplane. The basic controller emulates the DEC RKV11 unit and operates with all DEC LSI-11 based software including the RT-11 and RSX-11 operating systems, and RKV11 diagnostics. Several additional controller features, including an automatic self-test mode, are standard.

A complete disc storage subsystem is comprised of a single Model DQ100 quad printed circuit module, a disc drive and interconnecting ribbon cable. 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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## SYSTEM CONFIGURATIONS

The basic Model DQ100 interfaces up to 20 megabytes of disc storage to LSI-11 based systems in configurations which are completely hardware, software and media transparent with RKV11 systems. Various combinations of removable cartridge and fixed platter drives may be accommodated. Other configurations allow combinations of up to 20 megabytes of 100 or 200 track per inch IBM 2315 (front load) or 5440 (top load) removable cartridge and fixed platter drives to be interfaced while being totally hardware and software transparent with the RKV11 controller. Additional drive configurations of up to 40 or 80 megabytes can be accommodated while being upward hardware compatible with the RKV11 controller.

## DISC DRIVE COMPATIBILITY

The Model DQ100 can interface with up to eight 2.5 megabyte RK05 compatible single platter disc drives or up to four 5, 10, or 20 megabyte industry standard multiple platter drives from any of the following manufacturers: • Ampex • Caleus • Control Data • Diablo • Iomec • Microdata • Pertec • Wangco • Western Dynex

## MEDIA COMPATIBILITY

The Model DQ100 will interface with all DEC RK05 100 track per inch media compatible disc drives. It is also capable of controlling and can be supplied with industry standard 200 track per inch cartridge drives which are capable of reading DEC RK05 media compatible 100 track per inch cartridges.

## FULL SOFTWARE COMPATIBILITY

The Model DQ100 is completely transparent to DEC's RKV11/RK05 software. In disc subsystem configurations up to 20 megabytes it will operate with all LSI-11 based DEC operating systems including RT-11 and RSX-11 as well as the RKV11/RK05 diagnostics. In configurations using more than 20 megabytes of storage, a special software driver is required.

## MICROPROCESSOR BASED

The heart of the Model DQ100 is a proprietary high speed bipolar microprocessor designated the DILOG I. The majority of controller functions are implemented in firmware. This allows for a parts count significantly reduced from conventional controllers. User benefits include: reduced size, increased controller reliability, and applications flexibility.

## AUTOMATIC SELF-TEST FEATURE

The Model DQ100 is supplied with an AUTOMATIC SELF TEST FEATURE which causes on-board microdiagnostics to be run on the controller each time the QBus is initialized. A green edge card 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. Other LED indicators provide for monitoring of controller data transfer and busy activity.

## FULL SYSTEM SUPPORT

Distributed Logic Corporation also supplies fully integrated and tested disc subsystems including the disc drives themselves. For the customer that wishes to purchase drives directly from the manufacturer, they can be drop-shipped at our facility where they will be integrated, tested, and shipped as a complete system with the Model DQ100.

## DOCUMENTATION

Each Model DQ100 is supplied with a full set of documentation including user's guide.

## OPTIONS

• Disc drive I/O cables (vary with drive manufacturer) • Disc drives • Factory integration of customer supplied drives • Diagnostic software • 80 megabyte disc addressability.

## DISC DRIVES SUPPORTED

The Model DQ100 will interface to industry standard disc drives with the following characteristics:

**Cylinder Density** — 100 or 200 per inch (corresponds to 203 or 406 cylinders per drive).

**Recording Density** — 2040 or 2200 bits per inch.

**Platters/Spindle** — 1, 2, or 4

**Platter Type** — Fixed or removable cartridge.

**Cartridge Type** — IBM 2315/DEC RK05 (front load) or IBM 5440 (top load).

**Rotational Speed** — 1,500 or 2,400 rpm

**Formatted Data Capacity** — 2.5 or 5 megabytes per platter, 2.5, 5, 10 or 20 megabytes per drive. Formatted 12 sectors per cylinder, 512 bytes per sector.

**Data Transfer Rate** — 180,000 bytes/sec. (1,500 rpm) or 312,000 bytes/sec. (2,400 rpm)

**Average Access Time** — 60 ms (1,500 rpm) or 52.5 ms (2,400 rpm) (includes rotational latency)

## CONTROLLER SPECIFICATIONS

**Mechanical** — The Model DQ100 is completely contained on one quad module 10.44 inches wide by 8.88 inches deep and plugs into and requires 1 slot in any DEC LSI-11, 11/2, or 11/23 based system quad backplane.

### Computer I/O

#### Register Addresses

- Drive status (RKDS) 777 400
- Error (RKER) 777 402
- Control Status (RKCS) 777 404
- Word Count (RKWC) 777 406
- Current Bus Address (RKBA) 777 410
- Disc Address (RKDA) 777 412
- Data Buffer (RKDB) 777 416

#### Address Ranges

- Disc drive: 20 or 40 megabytes standard, 80 optional
- Computer memory: to 128K words

#### Interrupt Vector Address

- PROM selectable (factory set at 220, priority level BR5)

### Disc Drive I/O

**Connector** — One 50 pin ribbon cable type, mounted on outer edge of controller module. Mate is 3M 3425-5000 or equivalent. Drive cable is optional.

**Signal** — Diablo/RK05 compatible.

**Power** — +5 volts at 3.5 amps

**Environment** — Operating temperature 50° to 140°F, humidity 10 to 95% non-condensing.

**Shipping Weight** — 5 pounds includes documentation.

†Specifications subject to change without notice.



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