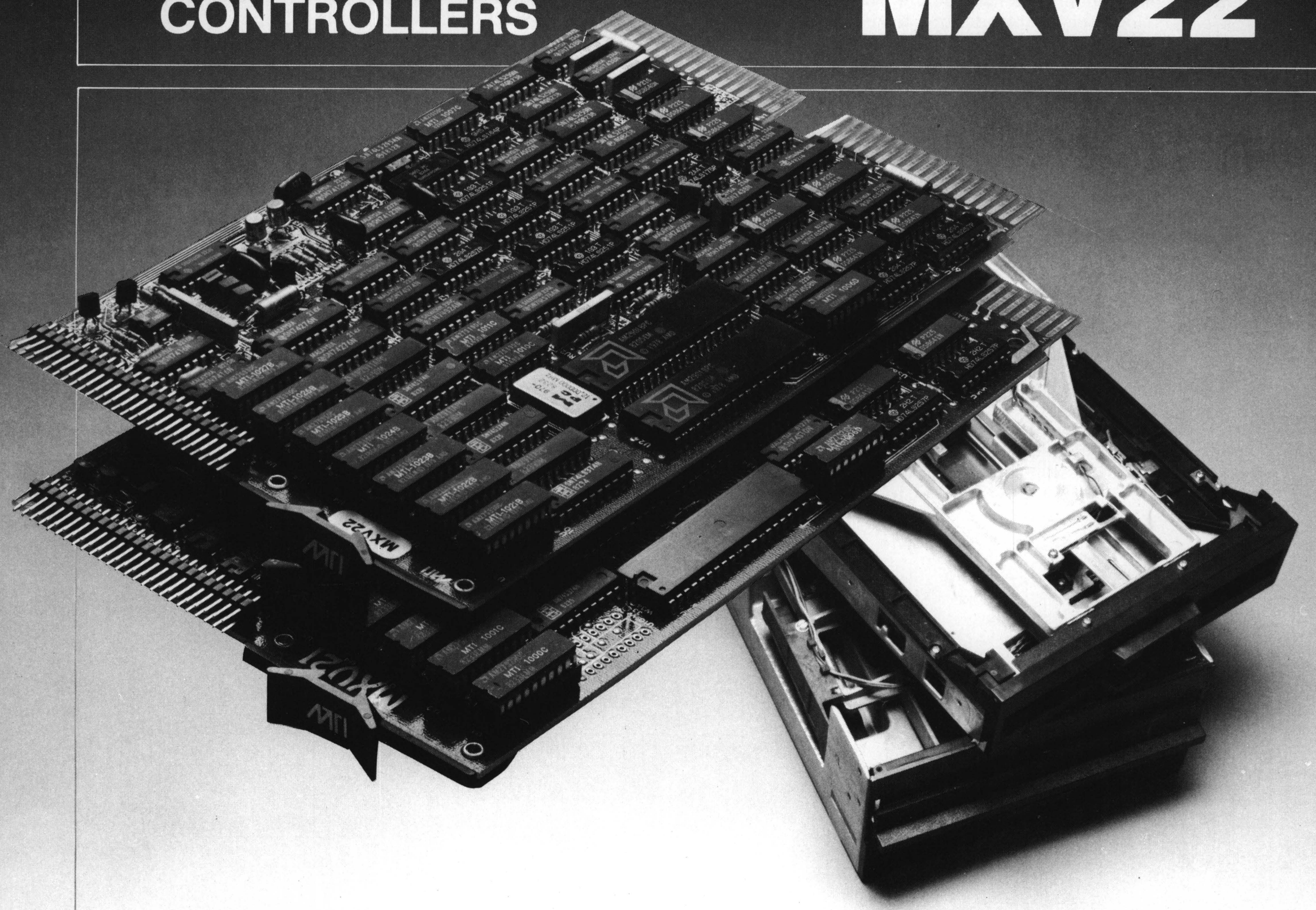
DEC®RX02 COMPATIBLE 8″ FLOPPY DISK CONTROLLERS

MXV21
MXV22



- 22 bit address capability
- All electronics contained on one dual-height card
- DEC®RX01/RX02 media compatible
- Totally DEC®RX02 hardware and software compatible
- LSI 11, LSI 11/2 and LSI 11/23 compatible
- Alternate address/vector selection
- Four level device interrupt priority
- Shugart drive interface
- 12 MHz crystal controlled clock

On a single, dual-height board, the MXV21 and the MXV22 controllers contain all the interface and control electronics necessary for full compatibility with the DEC®RX02 Floppy 1, Disk Drives in LSI 11, LSI 11/2 and LSI 11/23 Micro Computers. The MXV21 version provides 18 bit address capability and supports two drives, while the MXV22 version provides a full 22 bit address and supports up to four drives, for newer LSI-11/23 microcomputer systems. Both the MXV21 and the MXV22 controllers are compatible with IBM 3740 formatting, provide write precompensation, write current control and have power fail protection built-in. Bootstrap firmware is transparent to the operating system. The MXV21 and the MXV22 are capable of controlling single sided, single and double density drives as well as double sided drives. And, because they plug directly into the LSI backplane, the MXV21 and MXV22 are easy to incorporate into your DEC®system.

MTI

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MXV21/22 Controller

Hardware, software and media compatible with the DEC®RX02 floppy disk system, the MXV21 and the MXV22 were designed for LSI 11, LSI 11/2 and LSI 11/23 users. All circuitry is contained on one dual-height card which plugs directly into any standard LSI 11 backplane and interfaces through a 50 conductor ribbon cable *(figure 1)* to any Shugart compatible drive. The card features a transparent firmware bootstrap which automatically loads either single or double density diskettes; IBM 3740 formatting capability; alternate address and vector selection; jumper selectable four-level device interrupt priority; power fail protection; write current control signal to reduce the write current for tracks greater than forty-three, and write pre-compensation for reduced error rates.

Bootstrap

The bootstrap is initiated whenever program execution is started at location 173000_8. Both drives are homed to track 0. Then track 1, sector 1 of unit 0 is read and diskette density is determined. If the diskette is single density, sectors 1, 3, 5 and 7 are loaded starting at location 0. If the diskette is double density, sectors 1 and 3 are loaded. Program execution is then transferred to location 0. This feature can be disabled by pin jumper at the user's option.

Formatting

The MXV21 and the MXV22 provide two pass formatting which writes and checks sector headers prior to recording data fields. The data fields are recorded in either single or double density as defined by the user command. The formatted diskette is compatible with DEC RX01, RX02 or IBM 3740.

Device Address/Interrupt Priority

The MXV21 and the MXV22 are shipped with the standard device address 177170_8, interrupt vector 264_8 and interrupt priority level four. The alternate address and vector are selectable by pin jumpers. Other interrupt priority levels are selectable by jumpers.

Power Failure Protection

When the LSI 11 system signals an impending DC power failure, the MXV21 and the MXV22 controller will no longer initiate a write sequence. However the controller has the capability to complete any sector currently being written.

Write Current Control

The MXV21 and the MXV22 provide the necessary signal to reduce the write current for tracks greater than forty-three. This signal is available at pin 2 of the 50 pin ribbon connector.

Write Precompensation

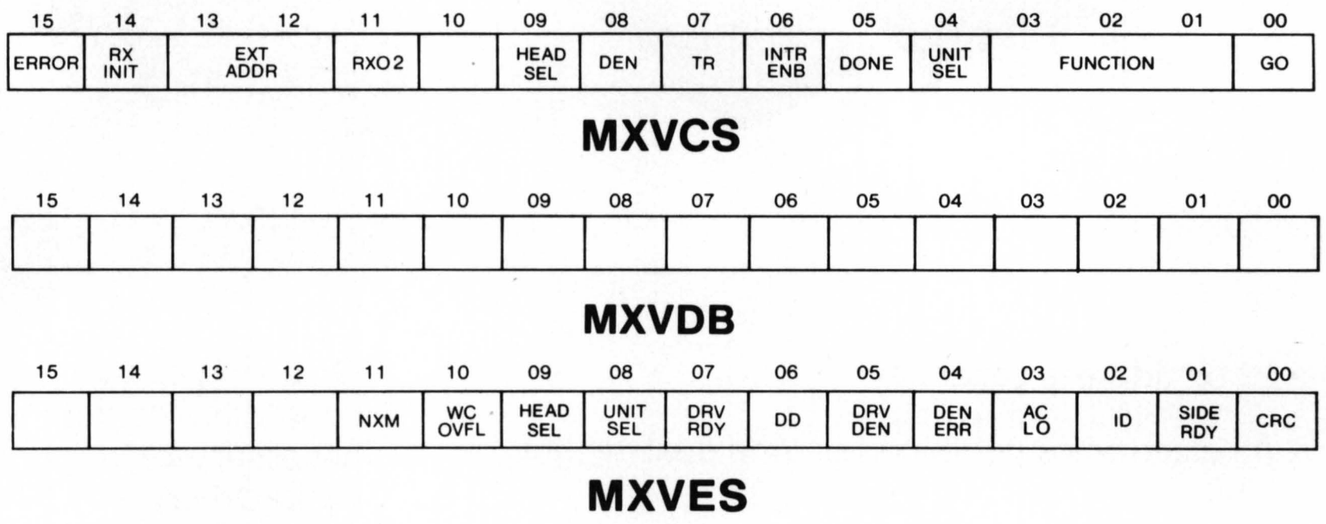
All drives exhibit the phenomenon of apparently time displacing recorded bits in certain bit patterns. Unless some provision is made to compensate for this effect, data retrieved from the disk may display a higher error rate. The MXV21 and the MXV22 provide hardware write precompensation which reduces the apparent bit shift. This unique feature allows the controller to perform reliably with any Shugart compatible drive. For more detailed information refer to *Shugart Associates Application Bulletin—SA800 series diskette storage drive double density design guide*.

DRIVE INTERFACE

Figure 1

* MXV22 only

REGISTER FORMATS



SPECIFICATIONS

RECORDING TECHNIQUE	SINGLE DENSITY	IBM 3740 FM
	DOUBLE DENSITY	DEC MODIFIED MFM
POWER REQUIREMENTS	VOLTAGE	SINGLE 5V SUPPLY (from LSI-11 Back Plane)
	CURRENT	2.5 AMPS TYPICAL
OPERATING LIMITS	TEMPERATURE	0 – 45° C
	HUMIDITY	10% – 95% NON-CONDENSING

FORM 893-0283

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