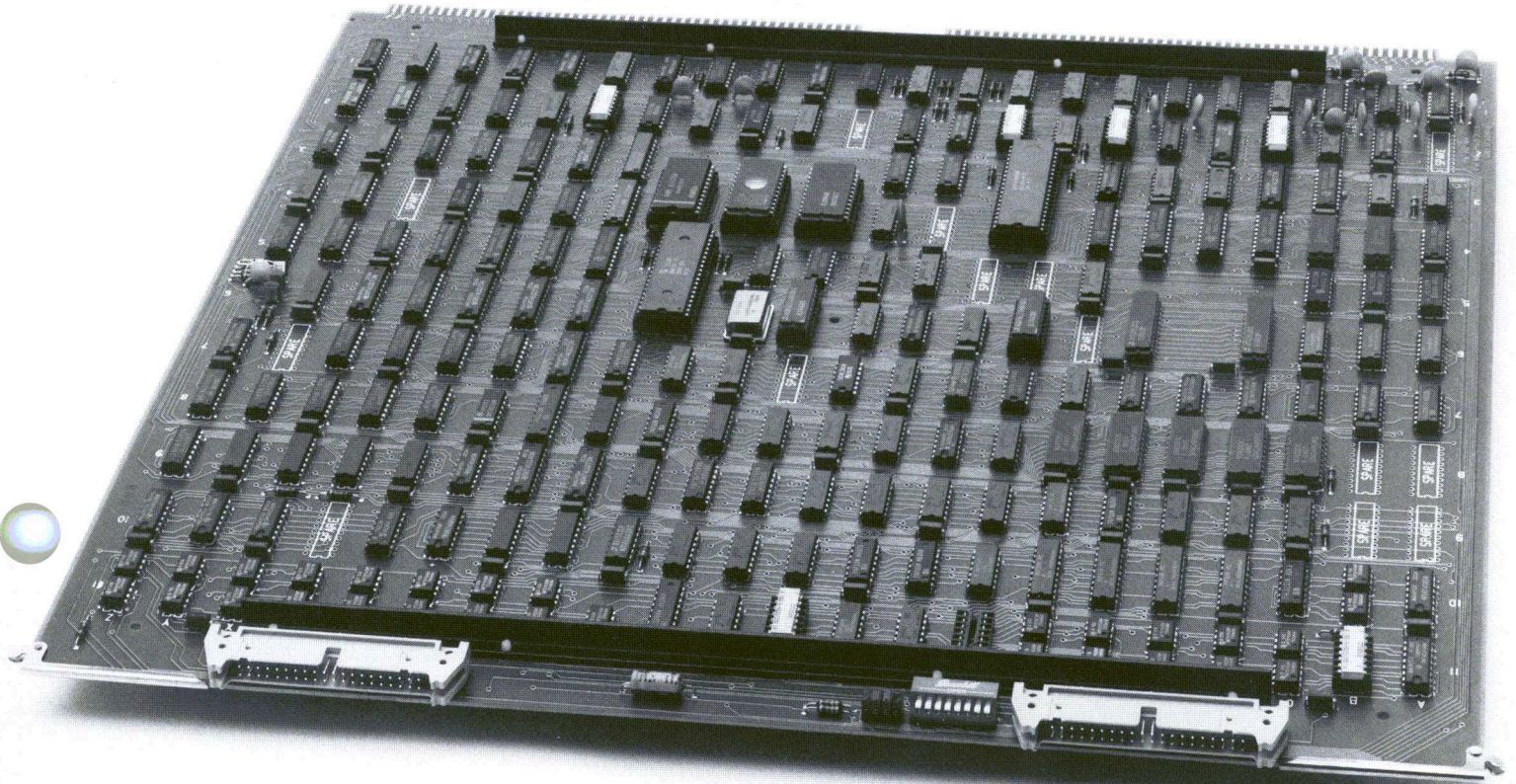# BMC or DCH-Compatible Tape Coupler for Nova, Eclipse, MV:
Model BMX-2

ZETA

- **True emulation of Data General tape subsystems 6026 and 6300/4307 under unmodified RDOS, AOS, and AOS/VS.**

- **Interface Data General's high-speed Burst Multiplexor Channel (BMC) or the Data Channel (DCH).**

- **Technological enhancements mean higher performance with both streaming and start/stop drives: E²PROM's, 2 MB/sec transfer rate, Dynamic Gap Length Select, Read/Look-Ahead & Auto Re-Try.**

- **Supports formatted tape drives with the Pertec interface — any brand/speed/type mix of up to 8!**

- **Plug compatible with Data General's FCC-hardened or non-FCC chassis.**

- **Full factory back-up: 2 year warranty, 48-hour return/repair policy, Customer Support Hotline, and much more!**

Model BMX-2 Tape Coupler

Zetaco's BMX-2 is the industry's first independent magnetic tape coupler designed to interface Data General's high-speed Burst Multi-plexor Channel (BMC) on the MV series mini-computers, or the Data Channel (DCH) found on other Data General CPU's. It fully emulates Data General tape sub-systems when coupled with popular start/stop, streaming, or half-inch cartridge tape drives.

Many formatted tape drives with Pertec interface are sup-ported, including CacheTape, GCR, tri-density, and many other t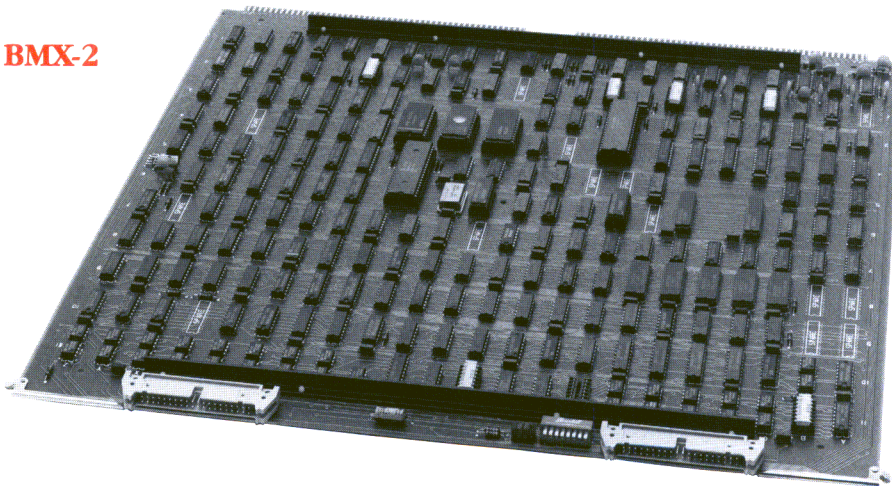ypes. A brand/speed/type mix of up to 4 drives under the 6300/4307 emulation, and up to 8 drives under the 6026 emula-tion, may be run concurrently. NRZI, PE, GCR, and other for-matted drives may be mixed on this one coupler.

Besides being fully emulating, the BMX-2 is further enhanced with many high performance features not found on other tape couplers. High data transfer rate, E^2PROM technology, and exclusive streaming enhance-ments make this the most advanced coupler available to systems designers and Data General users who want the in-creased power and performance of the latest tape drives.

It has always been Zetaco's design philosophy that a truly emulating tape coupler should achieve high performance with-out software patching. Patching can be cumbersome and the root of problems later when operating system revisions are made. That's why Zetaco has designed the BMX-2 to obtain high speed and versatility while running under unmodified Data General operat-ing systems, without patching of any kind. You can be assured of high performance and trouble-free longevity, under true emulation ... now and in the future.

BMX-2

Configuration Versatility

Because Zetaco believes it's important that systems integrators have a choice of tape drives to meet specific needs, the BMX-2 is designed to be versatile. This coupler interfaces your Data General minicomputer to many popular start/stop or streaming formatted tape drives, including Cipher, Control Data, Fujitsu, Kennedy, Megatape, Pertec, STC, Telex, and others. For a complete list of compatible drives, contact Zetaco.

One of the keys to the versatility of the BMX-2 is its Configurator Program software, which is factory-programmed with popular tape drive parameters. You can configure the BMX-2 exactly as you need it, on a drive-by-drive basis, to run up to eight units of the same kind, or any mix of up to eight different drives, without further hardware additions or adjustments.

Unlike other tape couplers, the BMX-2 remains in the chassis during configuration: the selected characteristics are loaded into an E²PROM (Electrically Erasable Programmable Read Only Memory) via typed-in commands from the console. The reliable, nonvolatile E²PROM holds these characteristics until you reconfigure the board to change or add a drive.

Feature and functions of the coupler are also conveniently selectable from the console, instead of by a complicated array of on-board switches, via the Configurator Program.

CPU Compatibility

The BMX-2 interfaces the BMC or DCH on MV models and the DCH on all other Data General minicomputers, in any I/O slot. It is designed to be plug compatible with either the FCC-hardened or the non-FCC chassis, with cabling for both chassis styles offered optionally.

A microprocessor-based design, BMX-2 uses Data General's standard drivers and low-power components to assure true emulation, reliable operation, and minimal power consumption.

Software Compatibility

Zetaco's BMX-2 is a true emulator of Data General tape subsystems 6300/4307 (on BMC) under unmodified AOS/VS, and 6026 (on DCH) under unmodified RDOS (rev. 7.0 or above) and AOS. As a true emulator, the BMX-2 supports all the features of these subsystems, plus has further performance enhancements, all without patches to the operating system.

To provide full optimization of both start/stop and streaming drives, the BMX-2 supports Data General's high-speed back-up utilities, BURST, PCOPY, LOAD II, and DUMP II.

Auto Retry

An automatic retry feature allows the coupler, in the event of a parity error or data late, to retry the command up to eight times without further instruction from the CPU before reporting a hard error. This performance advantage, which places more burden on the coupler to reduce CPU overhead, is part of Data General's 6026 subsystem; Zetaco has added it to 6300/4307 as well.

Remote Density Select

The remote density select feature allows the choice of any two tape densities (800, 1600, 3200, 6250 bpi) via a typed command from the console.

Data Buffering

One KB of on-board data buffering permits continuation of drive-to-coupler data transfers while the coupler awaits the next 'read' command. This smoothing process minimizes potential reinstruct timing overruns and undesirable drive repositioning.

Another buffer optimizes the high speed capability of the BMC by buffering data for coupler-to-CPU transfers. The 6300/4307 emulation allows bursts of up to 256 words via the BMC, so that copy and restore performances are greatly increased.

High Speed File Search

During a file search on dual-speed drives, the controller will automatically select the higher speed when the file is located more than 16 records away from the current tape position, dramatically improving file access time.

Exclusive Zetaco Enhancements Yield Optimum Performance from Streamers

Data General users integrating streamer tape drives often find that constraints of disk access, CPU cycle time, and operating system limitations do not allow for command execution within the normal drive-dependent reinstruct period (inter-record gap).

The BMX-2 circumvents many of these environmental restrictions with the Dynamic Gap Length Select and Read/Look-Ahead features, to allow full capitalization of the benefits of streamer technology.

With Zetaco's **Dynamic Gap Length Select**, a streaming drive's limited reinstruct period can be artificially extended to let you control the trade-off between throughput and media conservation. Undesirable start/stop action is kept to a minimum, thereby optimizing streamer performance, when the inter-record gap is extended sufficiently to reduce reinstruct times on both the read and write operations. This feature is selectable via the Configurator Program on a drive-by-drive basis.

With **Read/Look-Ahead**, the coupler anticipates another 'read' command and issues it within the time limit of the gap period, which is either nominal or what the user chose through Dynamic Gap Length Select. This permits the CPU to take advantage of the full inter-record gap length timing before acknowledging the coupler's decision to read another record. Should the next command not be a 'read,' the buffered coupler ensures tape repositioning at the end of the last record actually read. Once this feature is selected, it is activated for all tape drives connected to the coupler.

Self-Test and Verification

Comprehensive self-test diagnostics are built into the BMX-2 to provide full operational verification of over 90% of the board every time it is powered up. 'Go/no go' and 'controller active' status are indicated with LED's on the board edge.
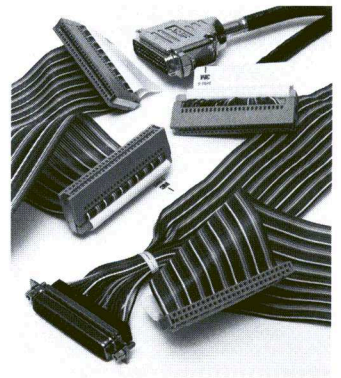
Each Unit Fully Tested

The BMX-2 Tape Coupler is manufactured under state-of-the-art conditions, and checked by our experienced Quality Assurance team throughout the production cycle. From incoming components to assembly, through burn-in and final test, each unit is repeatedly examined to ensure that it meets Zetaco's stringent quality standards.

Final testing includes two phases: first, the coupler is exercised under the most demanding conditions, whereby each operational module is run at its maximum speed and capacity. Each unit is then installed and tested for an extended period of time on a Data General system.

Reliable Cabling

Zetaco offers a full line of compatibly designed cables for coupler-to-peripheral connection. Our fully tested cables, manufactured in-house for superior quality, are recommended for use with the BMX-2 to help ensure system reliability and prevention of the line noise and hard-to-trace system malfunctions that poor quality or improper cables can cause. Please refer to Zetaco's cable brochure for detailed information.

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Complete Package

The BMX-2 Tape Coupler is shipped complete with a protective board cover, two 4-position BMC jumper cables, documentation, installation instructions, and a software support tape on 9-track/1600 bpi tape. Cabling to connect the coupler to the drive/s is available optionally.

Complete Backup From Zetaco

Zetaco's full two-year warranty, which has been an industry exclusive for over 7 years, attests to the confidence we have in our products. With our technical sales and support staff, and fully trained Authorized Stocking Distributor network, you can be assured of any support you may need.

In the rare event of a hardware failure, our 48-hour turnaround policy on repair/replacement means minimal downtime for you.

Our fully staffed Customer Support Hotline (800-537-5292) is available to answer your technical questions and troubleshoot on the phone every weekday, 8 a.m to 5 p.m. (CST).

Zetaco Authorized Stocking Distributors package, install, and maintain complete peripheral subsystems using a wide variety of peripheral brands to meet your specific needs. Call us for the name and phone number of the one nearest you.

BMX-2 Specifications

Operational

Tape Drive Interface: Industry-standard Pertec, both start/stop and streaming.

CPU Interface: via the BMC or DCH in MV minicomputers; via the DCH in other Data General minicomputers.

Data General Subsystem Emulations: 6026 (under RDOS or AOS) and 6300/4307 (under AOS/VS).

Operating Systems: unmodified RDOS (rev. 7.0 and above), AOS, AOS/VS, DG/UX.

Recording Formats Supported: NRZ I/800 bpi, PE/1600 and 3200 bpi, GCR/6250 bpi, and other common formats.

Data Transfer Rate: 2 megabytes per second.

Device Codes: Primary coupler 22_8; secondary coupler 62_8; others selectable.

Bus Load: 1 unit load.

Drive-to-Coupler Data Buffer: 1 KB FIFO.

Coupler-to-BMC Data Buffer: 256 words.

Power Requirements

Typically 30.2 watts, ±5% (6.04 amps @ +5vdc).

Physical

Drives Supported: up to eight under 6026; up to four under 6300/4307.

Size: 15″ x 15″ (38.1 x 38.1 cm)

Cables: 'A/B' set required. FCC and non-FCC cables are available optionally. Refer to Zetaco's cable brochure for specific model numbers.

Operating Environment: 0°C to 55°C with 10% to 90% relative humidity (non-condensing).

Shipping Weight: 7 lbs/3.2 kg (Includes coupler, documentation, diagnostic software).

Zetaco constantly strives to improve its products and may therefore modify or deviate from the specifications and descriptions presented in this brochure without prior notice.

High Performance Backed by Experience and Service

Zetaco's longevity in the Data General-compatibles market assures you of a reputable, reliable source. The firm was founded in 1972 as Custom Systems Inc., designing and building turnkey systems using Data General minicomputers. Evolving into the leading designer and manufacturer of Data General-emulating peripheral controllers, we changed our name to Zetaco in 1984 to better reflect our market position. In 1985, Zetaco became a part of the Carlisle Corporation, a Fortune 500 company.

Our specialty is peripheral interfaces for Data General minicomputers. We concentrate our efforts and resources on these technologies, so you are assured of true emulation and compatibility.

Guided Installation: Each Zetaco product is shipped complete with detailed installation instructions, and a Customer Support Hotline (800-537-5292) is available to answer your questions.

2-Year Warranty: All Zetaco products are warranted against defects in materials and workmanship for up to two years from date of shipment. Refer to Zetaco's Terms and Conditions Policy for complete warranty information.

Variety: Zetaco currently offers a complete line of Data General-compatible peripheral controllers and processor enhancements: SMD disk controllers, mag tape couplers, Slot Savers,™ general purpose I/O, communications multiplexors, line printer controllers, memory expansion, and others. Normal delivery time on standard product is 30 days, ARO.

Custom Designs: Many O.E.M.'s have taken advantage of the engineering resources of Zetaco. Contact us to design interfaces to your specifications.

References: We have a long, prestigious list of satisfied customers and we'll be happy to supply you with references.

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The Link To Tomorrow.