



## SKM Multi-Function Mass Storage Subsystems

Zetaco's SKM Multi-Function Mass Storage Subsystems combine the high performance and value of 5¼" winchester disks with the high capacity and space-saving convenience of 8mm helical scan cartridge tape, all in an aesthetically compatible, rack-mountable enclosure for Data General MV Systems.

**High Performance.** SKM Subsystems provide the same high disk transaction rates as our SKS-HP Disk Subsystems, and the high-speed, sequential reads of the disks support 246 KB/sec streaming performance with the 8mm tape. Reel-to-reel 6250 bpi tape is also supported.

**High Capacity.** SKM supports up to 4.2GB disk capacity (7-drive maximum) and 8GB on-line tape (4-drive maximum) backup capacity, while utilizing industry standard peripheral interfaces... to be prepared for your future needs for larger capacity disk and tape add-on drives.

**Customer Flexibility.** SKM provides you a flexible environment with selections of two available disk drives (330MB, 601MB), and two available tape drives (8mm helical scan, 6250 bpi reel-to-reel).

**Full Compatibility.** SKM subsystems are compatible with Data General's latest DPJ disk driver and MTJ tape driver operating without modification to any Data General software under AOS/VS, AOS/VS-II, or DG/UX.

SKM products maximize your peripheral investment by using industry standard peripherals and peripheral interfaces.

**Reliability.** Disk drives use thin film media, thin film heads, and surface mount technology to produce an MTBF of 40,000 hours. Disk drives are based on evolutionary field-proven technology with over 2,000,000 units installed. SKM's tape drives also have field-proven product reliability with vendor-specified MTBFs of over 20,000 hours at typical usage for 8mm tape, and 11,000 hours MTBF for 6250 bpi reel-to-reel tape.

**Small Footprint.** Up to four drives (maximum of two tapes) fit in a single 5¼" rack-mountable enclosure. Two enclosures containing 4.2GB of disk storage, with a 2GB tape backup device, fit into the space required by one Argus disk drive.

**Low media cost.** Backup media costs under 2 cents per megabyte, and 2GB backup tapes fit in your shirt pocket, or store conveniently in a desk drawer or on a standard bookshelf.

**High speed data interchange.** SKM Subsystems also support an add-on reel-to-reel tape drive (SKT-6250), to provide a convenient subsystem to update your software or support data interchange with other systems using reel-to-reel tape drives.



## ***Mass Storage for Your Entire System***

SKM Subsystems fulfill your full data storage needs with high performance, high capacity mass storage products. SKM is the only mass storage system available for the MV user that provides high-transaction-rate disk storage, high capacity, unattended backup, and high performance 6250 *bpi*, tape in one fully compatible subsystem. SKM is designed using Data General-compatible system interfaces, and industry-compatible peripheral interfaces to allow Zetaco to qualify additional future peripherals for the SKM customer.

## ***High Performance Disk Subsystem***

SKM provides high performance. You can expect up to 144 random access disk transactions per second (*TA/sec*) using four 330MB SKM drives, (the highest four-drive *TA/sec* available on MV systems) and up to 127 *TA/sec* using the 601MB drives.

High transaction rates result from SKM Subsystems low overhead, high speed bus, and ability to overlap both disk drive seek and latency delays in a multi-drive subsystem. You can also expect high sequential disk performance with subsequent disk reads from the same track directly from the drive buffers. This minimizes or eliminates drive latency, and allows transfers at the bus transfer rate rather than being limited by the data rate on the media.

Unlike traditional SMD interface disk subsystems, SKM disks achieve higher transfer rates and additional overlapping of disk mechanical functions. Disk drive buffers and synchronous SCSI transmission are key in providing this functionality for the user.

In addition, the 330MB drive has the fastest seek time of any drive available on Data General systems, 10.7 *ms*. Higher performance of the disk subsystem can directly affect your system via faster response time at the terminals....consequently yielding more efficiency for your users and overall improved productivity.

## ***High-Capacity, Unattended Cartridge Tape Backup***

SKM provides tape capacity large enough to allow unattended back-up of virtually any winchester drive, and the full disk capacity of many MV systems without changing media.

Over 2000 megabytes (2 gigabytes) of data can be stored on a single cartridge, which is so small, it fits into a shirt pocket.

8mm tape drive transfer rate is 246 *KB/sec*, which is well matched to the sequential transfer rate of the disk drives using "read/look-ahead" from the drive buffers, even with a small element size of 4. Actual backup performance varies from installation to installation depending on the degree of file fragmentation.

## ***High-Performance 6250 bpi Tape Subsystem***

Our SKT-6250 tape drive, with a 256 *KB* cache buffer, dynamically adapts tape drive performance to match the system performance in streaming mode. Both 50 *ips* start/stop and 100 *ips* streaming are supported. The drive provides ANSI reel-to-reel compatibility in both 6250 and 1600 *bpi* recording formats. The drive is supplied in vertical rack mount and requires 24½ inches of rack space.



## *Advanced Controller Design*

The SCZ-3 Disk Controller and SCZ-4 Tape Controller utilized in the SKM series are based on Zetaco's emulation of Data General's Argus technology, which we first introduced with the ARZ-1 Disk Controller in 1986, and later modified to take advantage of newer, more advanced synchronous SCSI bus technology.

The firmware of the SCZ-3 Disk Controller has been specifically tailored to support the advanced system features that Data General supports in its R.A.M.S. disk subsystem, such as disk mirroring and AOS/VS dual port.

The firmware of our SCZ-4 Tape Controller has also been tailored to support high capacity cartridge tape back-up for customer convenience, while retaining the traditional 6250 *bpi* high performance tape features on which MV system customers have always relied.

SKM's dual controllers provide support for the maximum number of targets that SCSI allows (seven disk drives), and the four-tape-drive-maximum that AOS/VS allows. SKM controllers each employ two microprocessors to manage the peripheral interface and the Data General interface technologies. The controllers are programmed in C for ease of support, to allow updates with evolving peripheral technology.

The controllers incorporate integral installation and diagnostic features including self-test on power up, device address switches on the edge of the controller, configuration software, and controller and disk drive verification tests.

## *Configure to Suit Your Needs*

SKM Subsystems are designed in a modular fashion to be configured to unique customer requirements. They are provided complete with all required cables, software support tapes, technical manual, and rack mounting hardware. They are designed and tested for compatibility with Data General's FCC-compliant MV systems, and tested under unmodified AOS/VS, AOS/VS-II, and DG/UX operating systems.

Although 9-ft cables are standard, the SKM products use differential SCSI technology to allow maximum total cable lengths up to 25 meters (82 feet). This maximum applies separately to the disk and tape portions of the SKM. Optional cable lengths are available from Zetaco.

Packaging includes power supplies compatible with your power requirements. Please specify power with your order if the subsystem is intended for power other than 120 volt 60 Hz.

SKM Subsystems have been certified for FCC Class A compliance. UL and CSA approval pending.

### *For More Information...*

... please contact our Authorized Stocking Distributors, or the Zetaco Sales Team:

North America: (612) 941-9480

Europe: 44-442-891500

*Zetaco continually strives to improve its products and may, therefore, modify or deviate from the specifications and descriptions presented in this document without prior notice.*

November 1989

