

# SMART BACKUP!



## PRIAM's Intelligent Interfaces For Winchester Discs And Tape Drives

Save time and money by using PRIAM's intelligent interfaces. PRIAM has expanded the SMART family to support *backup* to your Winchester disc systems. Take your pick from 1/4-inch streaming cartridge tape or 1/2-inch tape. PRIAM SMART Interfaces can be mounted on PRIAM drives or separately, and they can be powered from PRIAM's disc drive power supplies.

### SMART

Lowest in cost of PRIAM's three intelligent interfaces, the SMART Interface is smart indeed. It includes error checking, disc formatting, selectable sector sizes, full-sector buffering, defect mapping, self-test, and power-down data protection.

### SMART-E

Also low in cost, the SMART-E provides all the SMART functions, plus ECC with error correction transparent to the host and high-performance hardware/firmware. Backup is provided by daisy-chaining the EPI STR-Stream\*

17-megabyte 1/4-inch cartridge drive or the Pragma DAC 2080\* 80-megabyte 1/2-inch cartridge drive.

### SMART-T

Compatible with the SMART and SMART-E, the SMART-T provides off-line streaming backup with host access to the database during backup. The SMART-T controls Archive Sidewinder\*, DEI Streamer\* and Cipher Quarterback\* 1/4-inch streaming cartridge tape drives.

In addition to the SMART series, a complete list of disc controllers for popular host busses is available from PRIAM.

**MAKE THE SMART CONNECTION FOR WINCHESTER DISC DRIVES AND BACKUP NOW!** Get complete information about the SMART, SMART-E, and SMART-T by writing or calling:



# PRIAM

\*STR-Stream is a trademark of Electronic Processors, Inc.; DAC 2080 is a trademark of Pragma Data Systems, Inc.; Sidewinder is a trademark of Archive Corporation; Streamer is a trademark of Data Electronics, Inc.; Quarterback is a trademark of Cipher Data Products, Inc.

20 West Montague Expressway, San Jose, CA 95134 (408) 946-4600 TWX 910-338-0293

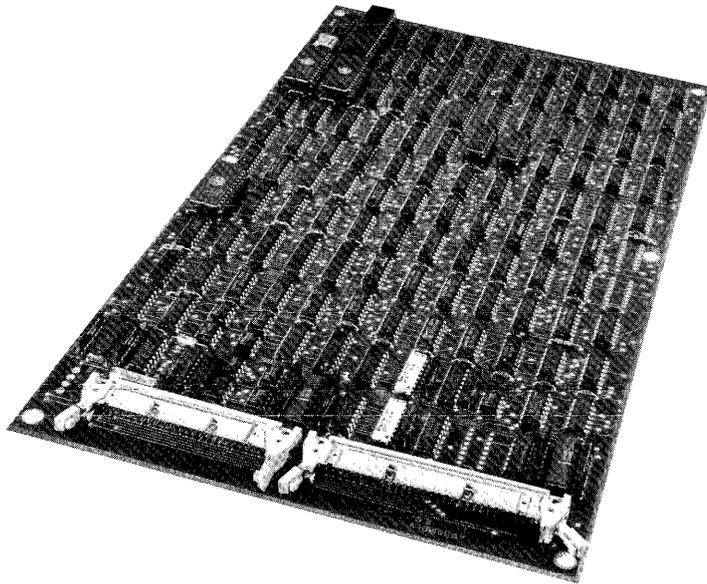
Other PRIAM  
Sales Offices:

New England  
(617) 444-5030

Mid-Atlantic  
(201) 542-8778

Midwest  
(312) 961-9654

Southern Calif.  
(714) 994-3593



## PRIAM SMART-E INTERFACE

The PRIAM SMART-E Interface is a powerful micro-processor-controlled device that supports any mix of PRIAM disc drives from 10 to 158 megabytes. The device's high-level command set and its general purpose host interface with DMA transfer allow easy attachment to a wide range of host buses. And the advanced SMART-E Interface architecture incorporates high-speed logic to meet the performance demands of advanced systems and fast data transfer rates. The SMART-E is an extended version of PRIAM's well-known SMART Interface. It includes all SMART features plus ECC, streamlined software, sector interleaving, a 2048-byte buffer and logical sector addressing.

The SMART-E Interface was designed specifically for PRIAM disc drives and is fully tested on all PRIAM drive types to ensure smooth storage subsystem integration. And since the majority of the high-level functions are performed in firmware, parts count is reduced and reliability is increased.



# PRIAM

### FEATURES

- Controls up to four daisy-chained drives.
- Supports all PRIAM 14-inch and 8-inch disc products and any intermix thereof.
- Designed for straightforward attachment to the typical microprocessor bus.
- Performs all serialization, deserialization, and disc format related functions.
- Selectable sector size: 128, 256, 512, and 1024 bytes.
- Buffer capacity of 2048 bytes.
- Full-sector buffer:
  - Data transfers may be program I/O or DMA driven
  - Buffered mode simplifies interfacing and eliminates data-late errors due to DMA latency
  - Buffer is prefilled prior to data transfer
  - Nonbuffered mode data transfers are at disc speed
- Device control block oriented: Simplifies host interface, reduces control protocols, isolates host from physical control of the drives.
- Media defects may be automatically avoided with transparent bad-sector flagging and alternate sector mapping.
- Automatic alternate-track assignment is made when there are more than three defects per track.
- Overlapped commands: For example, the host may seek or restore on three drives while seeking, reading, or writing on another drive.
- High-level Format command supports a variety of interleaved formats.
- Data may be addressed by logical sector number or a physical sector address.
- Implied Seek: Automatic track seek and position verification.
- Implied Operations: Automatic sequence up, restore, seek and position verification on read or write operations.
- Automatic self-test mode with resident microdiagnostics.
- Automatic power down data protection.
- Automatic error retry.
- Automatic Head and Cylinder Switching during multi-sector operations.
- Header and data are checked by 32-bit ECC. Automatic correction is transparent to the Host.
- Can be mounted piggy-back on PRIAM 8-inch and 14-inch disc drives.
- Can be powered by the PRIAM 14-inch disc drive optional power supply.

### TRANSFER RATE

0 to 2 megabytes/second.

### POWER

3A @ +5 VDC. Supplied by optional PRIAM 14-inch disc drive power supply or by host system.

### PHYSICAL DIMENSIONS

8 inches by 14 inches.

### CONNECTORS

- Signal: 40-pin ribbon cable. 3M #3432-1302 or equivalent.
- Power: 2-pin Molex Housing Series 2139 #09-50-3021 Molex Pins Series 2478 #08-50-0105 or equivalent.

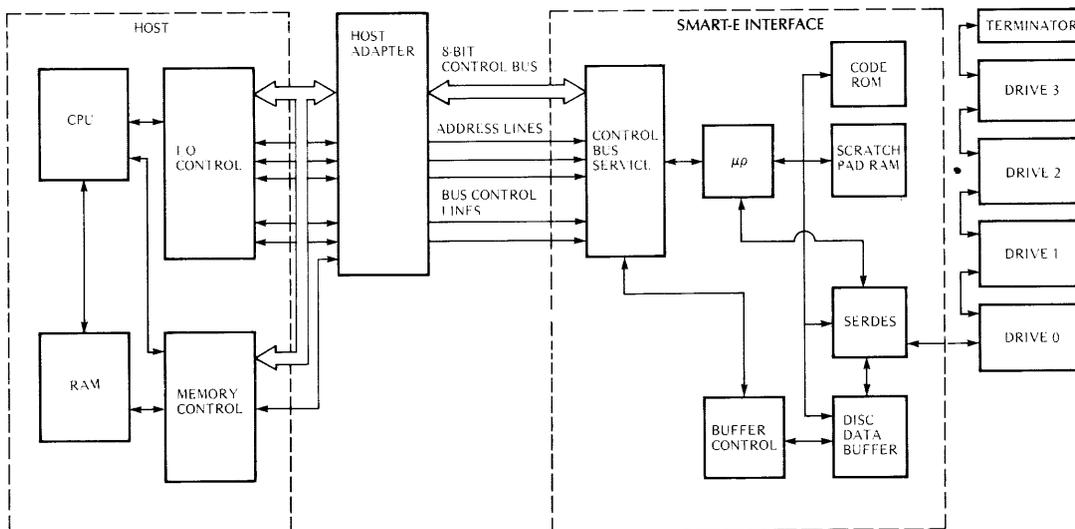
## FUNCTIONAL CONTROLLER COMMANDS

- Write Data: Causes data to be written according to specified parameters, e.g., which drive, cylinder, head, sector, and number of sectors. Sequence Up and Seek are implied by this command.
- Read Data: Causes data to be read according to same parameters specified in Write Data command.
- Format Disc: Performs complete disc formatting operation, including assignment of alternate sectors for each sector containing a defect.
- Format Cylinder: Limits formatting operation to the cylinder defined by parameters.
- Format Track: Limits formatting operation to track defined by parameters.
- Verify Disc: Verifies that disc is formatted correctly. Each sector ID and data field is read and CRC checked.
- Verify Cylinder: Limits verify operation to cylinder defined by parameters.
- Verify Track: Limits verify operation to track defined by parameters.
- Write ID: ID field will be written at physical sector specified by parameters.
- Read ID: ID field will be read from specified physical sector.
- Verify ID: ID field will be read from specified physical sector except that data is not transferred to the host. The ID field ECC will be checked to verify the ID was written without a disc-generated error.
- Verify Data: Specified data field will be read from disc, except that data will not be transferred to the host. Data field ECC will be checked to verify the data was written without a disc-generated error.
- Read Defect Field: Skip defect field will be read in accordance with specified parameters.
- Read Drive Status: Used to obtain current status of drive.

- Sequence Up—Wait: Causes addressed drive to enable its spindle motor. When command is complete, drive will be at speed and heads will be positioned at cylinder zero.
- Sequence Up—Return: Causes addressed drive to enable its spindle motor. This command is completed before drive is at speed and heads positioned at cylinder zero.
- Sequence Down: Addressed drive will disable the spindle motor and initiate dynamic braking.
- Restore Drive: Addressed drive moves access arm to cylinder zero.
- Seek: Drive positions heads over specified cylinder and selects specified head.
- Write Buffer: Causes data transfer from host to data buffer. This command is implied in every write operation.
- Read Buffer: Causes data transfer from data buffer to the host. This command is implied in every read operation.
- Command Completion Acknowledge: This command is issued after noticing that a command has been completed via the Controller Status Register and reading the appropriate Result Registers. Issuing this command releases the Result Registers for use in the next command completion phase.

## DATA VERIFICATION/CORRECTION TECHNIQUE

- Error Checking and Correction (ECC) value is computed by the SMART-E Interface during each write operation based on actual data content or header content.
- Computed ECC value is automatically appended to the end of each data and header field by the SMART-E Interface.
- If automatic correction is enabled, the SMART-E Interface automatically computes the error syndrome value based on the actual read and performs correction. Also, the sector is checked for defects and an alternate sector will automatically be assigned if required.
- If automatic correction is not enabled, syndrome information is available for Host correction.



SMART-E INTERFACE ARCHITECTURE AND SYSTEMS ATTACHMENT

NOTE: While the SMART-E and SMART Interfaces are interchangeable, data written with one type cannot be read by the other. Changing from the SMART-E to the SMART, or vice versa, will require the disc to be reformatted.



PRITAM

PRIAM BACK UP SUGGESTIONS

BACK UP DEVICES

| <u>Type of Device</u>                  | <u>Manufacturer and Contact</u>   | <u>Brief Specifications</u>   |
|--|---|---|
| Standard 1/2-inch streaming tape drive | Cipher Data Products, Inc.<br>10225 Willow Creek Road<br>San Diego, CA 92131<br>TEL: (714) 578-9100<br>TWX: 910-335-1251<br>Larry Hemmerich, VP Marketing<br>Frank Kirchhoff, Sales Manager                             | Model: MicroStreamer<br>Capacity: 45 & 90 megabytes<br>Size: 8.75" x 17" x 22"  |
| 1/2-inch tape cartridge drive          | Pragma Data Systems, Inc.<br>610 Palomar Avenue<br>Sunnyvale, CA 94086<br>TEL: (408) 738-8215<br>TLX: 171627-Attn: PRAGMA<br>TWX: 910-379-0029-Attn: PRAGMA<br>Tom McCrystal, President<br>John Peters, Product Manager | Model: DAC 2080<br>Capacity: 80 megabytes<br>Size: 4.62" x 8.55" x 14.25"<br>Interface: PRIAM compatible  |
|  | Megatape Corporation<br>1041 Hamilton Road<br>Duarte, CA 91010<br>TEL: (213) 357-9921<br>Gene Moscaret, President<br>Bill Chambers, VP Marketing  | Model: MegaStor 200 & 400<br>Capacity: 160 & 300 megabytes<br>(available June '82)<br>Size: 8.75" x 12" x 20"<br>Interface: Cipher MicroStreamer compatible |
| 1/4-inch tape cartridge drive          | Electronic Processors, Inc.<br>1265 West Dartmouth Avenue<br>Englewood, CO 80110<br>TEL: (303) 761-8540<br>TWX: 910-933-0171<br>Bob Dershang, Executive VP<br>Vince Stinton, Product Manager                            | Model: STR-Stream<br>Capacity: 17 megabytes<br>Size: 4" x 7" x 13"<br>Interface: PRIAM, DEI Funnel, and Pertec compatible                                   |
|  | Archive Corporation<br>3540 Cadillac Avenue<br>Costa Mesa, CA 92626<br>TEL: (714) 641-0279<br>TWX: 910-595-2458<br>Howard Lewis, President  | Model: Sidewinder<br>Capacity: 10 & 20 megabytes<br>Size: 4" x 8" x 14"   |
|  | Cipher Data Products, Inc.<br>(See address and phone above)   | Model: Quarterback<br>Capacity: 10 & 20 megabytes<br>Size: 4" x 8" x 14"<br>Interface: Archive Sidewinder compatible  |
|  | Data Electronics, Inc.<br>10150 Sorrento Valley Road<br>San Diego, CA 92121<br>TEL: (714) 452-7840<br>TLX: 69-7118<br>Sam Thompson, VP Marketing<br>Whitney Lynn, Nat'l Sales Manager                                   | Model: Funnel & Streamer<br>Capacity: 10, 17 & 20 megabytes<br>Size: 4" x 8" x 14"  |

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(OVER FOR SELECTED CONTROLLERS)

PRIAM BACK UP SUGGESTIONS (CONTINUED)

BACKUP DEVICE CONTROLLERS

SMART-Compatible (Generalized Host Bus)

EPI and PRAGMA are supported in daisy-chain mode by the PRIAM SMART-E.

Host Bus

Host adapters are available from selected sources:

| <u>Host</u>        | <u>Adapter Vendor</u> |
|--------------------|-----------------------|
| Data General       | Rianda                |
| DEC LSI-11         | Peritek               |
| General Automation | Dataplex              |
| Motorola           |                       |
| -MC6800            | Novex                 |
| -MC68000           | Child                 |
| S-100              | Alloy Engineering     |

Archive Sidewinder/Cipher Quarterback and DEI Streamer are supported by the SMART-T.

Host adapters are available from ADES for Intel Multibus, S-100 and Zilog Z-80.

CIPHER MICROSTREAMER/MEGATAPE MEGASTOR

Alloy Engineering  
Computer Products  
Custom Systems  
Dataplex  
Dilog  
MicroComputer Systems  
Quentin Research  
Schuler & Associates  
Spectra Logic

S-100  
Multibus  
Data General, TI-990  
General Automation  
DEC LSI-11, PDP-11  
TI-990  
Data General  
TI-990  
Data General, DEC PDP-11, Perkin Elmer,  
TI-990

ARCHIVE SIDEWINDER/CIPHER QUARTERBACK

SMART-T  
Child  
Computer Products  
Rianda Electronics  
Spectra Logic

Intel Multibus, S-100, Z-80  
Motorola MC68000  
Intel Multibus  
Data General  
TI-990

DEI STREAMER

SMART-T

Intel Multibus, S-100

DEI FUNNEL/EPI STR-STREAM

Alloy Engineering  
Xylogics

S-100  
DEC LSI-11

EPI STR-STREAM\* & PRAGMA DAC 2080\*

Computer Products  
Custom Systems (available '82)  
Dataplex  
Dilog  
Intel  
Mator  
U.S. Design  
Xylogics

Intel Multibus  
Data General, TI-990  
General Automation  
LSI-11  
Intel Multibus  
IEEE 488, Intel Multibus, RS 232  
DEC LSI-11  
DEC LSI-11

\* NOTE: PRIAM-compatible controllers and SMART-E host adapters may require microcode or software driver modifications to support the EPI STR-Stream and PRAGMA DAC 2080.

\* \* \*

See the PRIAM Controller Directory for more complete information on controllers and vendors. The directory is available from PRIAM on request.

\* \* \*



PRIAM CORPORATION  
20 West Montague Expwy  
San Jose, CA 95134  
TEL: (408) 946-4600  
TWX: 910-338-0293  
3308B/131A

CONTROLLERS FOR PRIAM DISC DRIVES (OVER FOR ADDRESS/PHONE)

| <u>HOST BUS</u>                    | <u>DISC INTERFACE</u> | <u>COMMENTS</u>  |
|------------------------------------|-----------------------|--|
| <u>DATA GENERAL (NOVA/ECLIPSE)</u> |                       |  |
| Custom Systems                     | PRIAM                 | Emulates DG-6070, 6060; backup controller for Cipher MicroStreamer; supports RD05, AOS, BLISCOBAL, IRIS                                |
| Minicomputer Technology            | SMD                   | Emulates all models of Zebra 6060 series; supports RDOS, AOS   |
| Quentin Research                   | SMD                   | Models 6100 and 8200; emulates DG-6098 or DG-6103; supports RDOS, AOS, Point 4 IRIS, IPI BLISCOBAL; 8200 has Cipher Microstreamer port |
| Rianda Electronics                 | SMART                 | Model 2900; backup port for Archive/Cipher streamers; supports RDOS, IRIS  |
| Spectra Logic                      | SMD                   | Spectra 20; DG-6067 emulator; backup port for Cipher MicroStreamer; supports RDOS, AOS, IRIS; Spectra 10 supports disc only            |
| Xylogics                           | SMD                   | Model 850; supports RDOS, AOS, BLISCOBAL, IRIS   |
| <u>DIGITAL EQUIPMENT CORP</u>      |                       |  |
| <u>Q-BUS (LSI-11)</u>              |                       |  |
| Dilog                              | PRIAM                 | Model DQ413; RP02 and RL01/02 emulation; Cipher MicroStreamer backup   |
| Emulex                             | SMD                   | Model SC02; RP02/03 emulation  |
| Minicomputer Technology            | SMD                   | RK06/07 and RM02/03 emulation; supports RSX-11M, RT-11, RSTS/E   |
| Peritek                            | SMART                 | Model PRM-Q11; supports RSX-11M, RT-11, UNIX   |
| USDC                               | PRIAM                 | Model USDC 1101; supports RSTS/E, RSX-11M, UNIX; multiported, data caching, ECC; backup port for PRAGMA and EPI tape drives            |
| Xylogics                           | PRIAM                 | Model 530; emulates RL01/02; supports RSX-11M, RT-11, RSTS/E   |
| <u>UNIBUS (PDP-11)</u>             |                       |  |
| Dilog                              | SMD                   | Model DU202; RP02 and RL01/02 emulation; Cipher MicroStreamer backup   |
| Emulex                             | SMD                   | Model SC21; RP02/03 emulation; also attaches to PDP-11/70  |
| Spectra Logic                      | SMD                   | Spectra 21; RM02/03 emulation; backup port for Cipher MicroStreamer; supports RSX-11M, RSTS/E; Spectra 11 supports disc only           |
| USDC                               | PRIAM                 | Model USDC 1151; supports RSTS/E, RSX-11M, RT-11, UNIX; multiported, data caching, ECC; backup port for PRAGMA and EPI tape drives     |
| Xylogics                           | SMD                   | Model 650; emulates RM02; supports RSX-11M, RT-11, RSTS/E  |
| <u>GENERAL AUTOMATION</u>          |                       |  |
| <u>Dataplex</u>                    |                       |  |
|                                    | SMART                 | Attaches to GA-16 and SPC-16 series CPU models; supports CONTROL, MIBS, RTOS, DBOS; backup controller for Cipher Microstreamer         |
| <u>IEEE 488</u>                    |                       |  |
| Mator                              | PRIAM                 | Attaches to Commodore PET (emulates DOS) and Hewlett Packard; EPI/PRAGMA   |
| <u>INTEL (MULTIBUS)</u>            |                       |  |
| ADES                               | PRIAM                 | Attaches to iSBC or MDS, 8-bit or 16-bit Multibus; supports CP/M and MP/M; backup port for Archive/Cipher and DEI streamers            |
| Computer Products                  | PRIAM                 | Attaches to iSBC or MDS; supports CP/MP/M & CP/M86; backup port for Cipher MicroStreamer and Archive/Cipher streamers                  |
| Intel                              | PRIAM                 | Model iSBC 215B; attaches to iSBC 80, 88, and 86   |
| Mator                              | PRIAM                 | Operates in DMA or parallel modes; supports EPI/PRAGMA tape drives   |
| <u>MOTOROLA</u>                    |                       |  |
| <u>MC6800 (EXORCISER BUS)</u>      |                       |  |
| Novex                              | SMART                 | Macromodule Series-The Controller; 6809 software driver; 4-channel DMA; uninterruptible clock calendar; backup port for floppy disc    |
| <u>MC68000 (VERSABUS)</u>          |                       |  |
| Child                              | SMART                 | Model DTA; backup port for Archive/Cipher streamers; supports DMA  |
| Motorola                           | SMD                   | Model M68KUDC; supports VERSADOS executive and multi-user/multi-task file manager; backup port for floppy disc                         |
| <u>PERKIN ELMER (INTERDATA)</u>    |                       |  |
| Spectra Logic                      | SMD                   | Model Spectra 14; MSM emulation  |
| <u>RS-232</u>                      |                       |  |
| Mator                              | PRIAM                 | Full communications envelope and file management; supports EPI/PRAGMA  |
| <u>S-100</u>                       |                       |  |
| ADES                               | PRIAM                 | Supports CP/M, MP/M; backup port for Archive/Cipher and DEI streamers  |
| Alloy Engineering                  | SMART                 | Supports CP/M; backup port for DEI cartridge, Cipher Microstreamer   |
| <u>TI-990</u>                      |                       |  |
| Custom Systems                     | PRIAM                 | Attaches to CPU models/10, /12; supports DX-10; Cipher MicroStreamer backup  |
| Microcomputer Systems              | SMD                   | Model 1990; attaches to CPU models /5, /10, /12; supports DX-10; backup controller for Cipher MicroStreamer                            |
| Spectra Logic                      | SMD                   | Spectra 26; backup ports for Cipher Microstreamer and Archive/Cipher streamers; supports DX-10; Spectra 16 is disc only                |
| <u>ZILOG Z-80</u>                  |                       |  |
| ADES                               | PRIAM                 | Supports CP/M, MP/M; backup port for Archive/Cipher and DEI streamers  |

ADES  
2627 Pomona Blvd.  
Pomona, CA 91766  
(714)594-5858  
DON WATZ, Sales Manager  
BILL HORTON, V.P. Engineering

ALLOY ENGINEERING CO., INC.  
12 Mercer Road  
Natick, MA 01760  
(617)655-3900  
TWX: 710-346-0394  
DICK GORGENS, VP & General Manager  
NIGEL SPICER, Director of Marketing

CHILD, INC.  
P.O. Box 2326  
Ann Arbor, MI 48106  
(313) 971-8192  
GEOFF ROPER, Exec. VP  
MICHAEL FISCHER, VP Systems

COMPUTER PRODUCTS CORPORATION  
2415 Annapolis Lane  
Plymouth, MN 55441  
(612) 559-2034  
TLX: 985641-ATTN-SHERMAN KEMMER  
RON THOMAS, President  
STU REILE, Director, Marketing & Sales

CUSTOM SYSTEMS, INC.  
6850 Shady Oak Road  
Eden Prarie, MN 55344  
(612) 941-9480  
TLX: 290975  
DAVE CLINTON, President  
PARIS CAMPBELL, VP Marketing

DATAPEX, INC.  
2351 Devon Avenue  
Elkgrove Village, IL 60007  
(312)860-5665  
WALTER WULCZAK, President  
RUBY CUTZER, Director Marketing

DILOG  
12800-G Garden Grove Blvd.  
Garden Grove, CA 92643  
(714)534-8950  
TLX: 681399  
LES ALBERTS, VP Marketing  
DENNIS EDWARDS, Sales Manager

EMULEX  
2001 E. Deere Ave.  
Santa Ana, CA 92705  
(714)557-7580  
TWX: 910-595-2521  
FRED COX, President  
FLIP BEGICH, National Sales Director

INTEL CORPORATION  
5200 Northeast Elan Young Parkway  
M/S H2-2E-343  
Hillsboro, OR 97123  
(503)640-7135/7156  
TWX: 910-467-7073  
BILL WALKER, OEM Marketing (x 7135)  
BRUCE OLENCHUK, 215B Prod. Mgr. (x 7156)

MATOR NEW TECHNOLOGY  
Willet House  
12 Grand Avenue  
Hove, East Sussex, BN3 2FQ  
Brighton 720451/2 (std code 0273)  
TLX: 877680  
JOHN MARSH, VP Marketing  
-OR-

MATOR INC.  
3002 Santa Monica Blvd.  
Santa Monica, CA 90404  
213-828-5200  
TOM MISKELLY, Managing Director

MICROCOMPUTER SYSTEMS CORPORATION  
432 Lakeside Drive  
Sunnyvale, CA 94086  
(408)733-4200  
TWX: 910-339-9359  
MIKE RAINEY, General Manager-OEM  
NEAL GREELEY, National OEM Sales Manager

MINICOMPUTER TECHNOLOGY  
2470 Embarcadero Way  
Palo Alto, CA 94303  
(415)856-7400  
TWX: 910-373-1292  
RICHARD HILL, President  
NICK HORN, VP Marketing

MOTOROLA, INC.  
(See local Motorola Semiconductor  
Division MC68000 Sales Engineer)

NOVEX, INC.  
P.O. Box 3006  
Gaithersburg, MD 20760  
(301)840-8575  
STEVE PARKS, President

PERITEK  
3014 Lakeshore Avenue  
Oakland, CA 94610  
(415)465-9000  
TWX: 910-366-2029  
ERIC WUGSBERG, President  
TOM BIRCHELL, Sales Manager

QUENTIN RESEARCH, INC.  
19355 Business Center Drive  
Northridge, CA 91324  
(213)701-1006  
TWX: 910-493-2174  
DAN DUKE, President

RIANDA ELECTRONICS  
2535 Via Palma  
Anaheim, CA 92801  
(714)995-6552  
TLX: 18-1623  
WALLY RIANDA, President  
DICK MC CORMICK, VP Marketing

SPECTRA LOGIC  
1227 Innsbruck Drive  
Sunnyvale, CA 94086  
(408)744-0930  
TLX: 172-524  
STEVE ROBERTS, VP Marketing  
BOB CARTER, National Sales Manager

U.S. DESIGN CORPORATION  
5100 Philadelphia Way  
Lanham, MD 20706  
(301) 577-2880  
BOB RUDY, National Sales Manager

XYLOGICS  
42 Third Avenue  
Burlington, MA 01803  
(617)272-8140  
TWX: 710-332-0262  
WAYNE GRIFFITH, President  
LYNN SPEAKER, VP Sales



PRIAM

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| <u>HOST BUS</u>                    | <u>DISC INTERFACE</u> | <u>COMMENTS</u>  |
|------------------------------------|-----------------------|--|
| <u>DATA GENERAL (NOVA/ECLIPSE)</u> |                       |  |
| Custom Systems                     | PFIAM                 | Emulates DG-6070, 6060; backup controller for Cipher MicroStreamer; supports RD05, AOS, BLISCOBAL, IRIS  |
| Minicomputer Technology            | SMD                   | Emulates all models of Zebra 6060 series; supports RD05, AOS   |
| Quentin Research                   | SMD                   | Models 6100 and 8200; emulates DG-6098 or DG-6103; supports RD05, AOS, Point 4 IRIS, IPI Blis/Cobol; model 8200 has Cipher MicroStreamer backup port emulating DG-6021 and DG-6026 |
| Rianda Electronics                 | SMART                 | Backup port for Archive cartridge drives; supports RD05, BLISCOBAL, IRIS   |
| Spectra Logic                      | SMD                   | Spectra 20; DG-6067 emulator; backup port for Cipher MicroStreamer; supports RD05, AOS, IRIS   |
| Xylogics                           | SMD                   | Model 850; supports RD05, AOS, BLISCOBAL, IRIS   |
| <u>DIGITAL EQUIPMENT CORP</u>      |                       |  |
| <u>Q-BUS (LSI-11)</u>              |                       |  |
| Dilog                              | PFIAM                 | Model DQ203; RP02 and RL01/02 emulation; backup controller for Cipher MicroStreamer  |
| Emulex                             | SMD                   | Model SC02; RP02/03 emulation  |
| Mator Systems Ltd.                 | PFIAM                 |  |
| Minicomputer Technology            | SMD                   | RK06/07 and RM02/03 emulation; supports RSX-11M, RT-11, RSTS/E   |
| Peritek                            | SMART                 | Model PRM-Q11; supports RSX-11M, RT-11, UNIX; also supports DEC 22-bit "STD 160" Q-BUS   |
| Xylogics                           | PFIAM                 | Model 530; emulates RL01/02; supports RSX-11M, RT-11, RSTS/E   |
| <u>UNIBUS (PDP-11)</u>             |                       |  |
| Dilog                              | PFIAM                 | Model DU203; RP02 and RL01/02 emulation; backup controller for Cipher MicroStreamer  |
| Emulex                             | SMD                   | Model SC21; RP02/03 emulation; also attaches to PDP-11/70  |
| Minicomputer Technology            | SMD                   | Same as LSI-11 above; also emulates RP04/06  |
| Spectra Logic                      | SMD                   | Spectra 21; RM02/03 emulation; backup port for Cipher MicroStreamer; supports RSX-11M, RSTS/E  |
| Xylogics                           | SMD                   | Model 650; emulates RM02; supports RSX-11M, RT-11, RSTS/E; also attaches to VAX-11/780   |
| <u>GENERAL AUTOMATION</u>          |                       |  |
| Dataplex                           | SMART                 | Attaches to GA-16 and SPC-16 series CPU models; supports CONTROL, MIBS, RTOS, DBOS; backup controller for Cipher MicroStreamer   |
| <u>INTEL (MULTIBUS)</u>            |                       |  |
| ADES                               | PFIAM                 | Attaches to iSBC or MDS, 8-bit or 16-bit Multibus; supports CP/M and MP/M; backup port for Archive cartridge   |
| Computer Products                  | PFIAM                 | Attaches to iSBC or MDS; supports CP/M; backup port for Cipher MicroStreamer or DEI cartridge; also attaches to Z-80 Multibus  |
| Intel                              | PFIAM                 | Model iSBC 215B; attaches to iSBC 80, 88, and 86   |
| Mator Systems Ltd.                 | PFIAM                 |  |
| <u>MOTOROLA</u>                    |                       |  |
| <u>MC6800 (EXORCISER BUS)</u>      |                       |  |
| Novex                              | SMART                 | Macromodule Series-The Controller; 6809 software driver; 4-channel DMA; uninterruptible clock calendar; backup port for floppy disc  |
| <u>MC68000 (VERSABUS)</u>          |                       |  |
| Motorola                           | SMD                   | Model M68KUDC; supports VERSADOS executive and multi-user/multi-task file manager; backup port for floppy disc   |
| SV Associates                      | PFIAM                 |  |
| <u>PERKIN ELMER (INTERDATA)</u>    |                       |  |
| Minicomputer Technology            | SMD                   | Model EDC23; supports OS/16 and OS/32  |
| Spectra Logic                      | SMD                   | Model Spectra 14; MSM emulation  |
| <u>RS-232</u>                      |                       |  |
| Mator Systems Ltd.                 | PFIAM                 |  |
| <u>S-100</u>                       |                       |  |
| ADES                               | PFIAM                 | Supports CP/M, MP/M; backup port for Archive cartridge   |
| Alloy Engineering                  | SMART                 | Supports CP/M; backup port for DEI cartridge, Cipher MicroStreamer   |
| Mator Systems Ltd.                 | PFIAM                 |  |
| <u>TI-990</u>                      |                       |  |
| Custom Systems                     | PFIAM                 | Attaches to CPU models /10, /12; supports DX-10; backup controller for Cipher MicroStreamer  |
| Microcomputer Systems              | SMD                   | Model 1990; attaches to CPU models /5, /10, /12; supports DX-10; backup controller for Cipher MicroStreamer  |
| Schuler & Associates               | SMD                   | Distributor for MSC TI-990 controller line   |

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BRUCE OLENCHUK, 215R Prod. Mgr. (x 7156)

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PRIAM

3096 ORCHARD DRIVE, SAN JOSE, CA 95134 (408) 946-4600 TWX 910-338-0293

August 24, 1981

Mr. Eric Wugsberg, President  
Peritek  
3014 Lakeshore Avenue  
Oakland, CA 94610

Dear Eric:

I note that you offer our disc drive plus SMART Interface to the LSI-11 market. We have now delivered our first SMART-E Interface (attached to a 6650-10).

Benchmark performance improved from 20 minutes with the SMART Interface to 6 minutes with the SMART-E. Moreover, the customer (Tom Phinney, VP; Dataplex, Inc.; (312) 860-5665) says that the SMART-E is four times as fast on some tasks. Our own engineers say that you can expect anywhere from 2X to 10X performance improvement using the SMART-E versus the SMART.

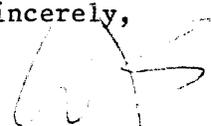
So, we have a real hot product to sell: The DISKOS 6650 with the SMART-E. I have enclosed a couple of specs for you as well as a little extra ammo. It's a product that will give an awful lot of bang for the buck, so you can be proud to present it to your customers. For example, a Q500 account can get 68 megabytes of disc storage (6650-10), a sophisticated controller (SMART-E), and a power supply and terminator for only \$3,575. And very soon (early 4Q81) the SMART-E will support the EPI and PRAGMA tape drives.

All your accounts need to attach this powerhouse to a LSI-11 bus is your host adapter. I thought you might want to know about it so you can modify your adapter to support the SMART-E as well as the SMART.

As always the SMART-E supports the entire PRIAM line.

Good luck with your market and the new SMART-E!

Sincerely,

  
WILLIAM J. SCHROEDER  
President

WJS/jen

encl.