LEXIDATA
SYSTEM 2000

MODEL 2400

The Lexidata System 2000 is an intelligent, black and white display terminal which provides the user the advantages of distributed graphics processing. It is a totally integrated display system developed to deliver high performance graphics at a low cost while providing high reliability and serviceability to meet the needs of both OEMs and sophisticated end users.

The S2400 is comprised of an electronics module containing all system electronics, a 19" black and white monitor (125MHz) and a detachable 85 key ASCII keyboard with an integral, proportional-rate joystick. The keyboard generates all 128 ASCII characters and includes 12 function keys for user-programming and a numeric entry/cursor control keypad. The joystick is a 2-D rate-control device located on the right-hand side of the keyboard; it provides control of each window's graphics cursor. Simultaneous use of the joystick and keypad provides control of both a graphics and text cursor.

STANDARD FEATURES
- 1280 x 1024 resolution at 50/60Hz non-interlaced
- Screen workspace offering four user-definable video windows, each with special attributes for different tasks
- PROM-resident software offering both raster graphics primitives and Tektronix PLOT-10* for coding vectors
- Single board architecture built around Motorola's MC68000 microprocessor with five processor option slots and two RS-232 interface ports
- Detached 85 key ASCII keyboard with integral proportional-rate joystick

The system offers the flexibility of plug-in options, enabling additions such as serial ports and expansion RAM, peripheral storage devices and communications interfaces. The design also addresses the issue of operator efficiency; a unique video workspace layout permits the performance of multiple tasks simultaneously.

ARCHITECTURE
The 16/32-bit Motorola MC68000 microprocessor and a video display memory are configured together on a single PC board. The MC68000 is equipped with a large memory address range for optimizing display speed and handling user programming. The video display memory is configured to allow user definition of as many as four video windows into the screen workspace to enable the user to select a window optimal for handling a specific activity; W1 is configured with pan and zoom and is ideal for handling interactive graphics, W2 is a static window which readily accommodates system select menus because of its shape and position, W3 is capable of vertical scroll with wraparound and is well suited for processing text and W4 is a static window which can be used for log-
erring error messages or annotating keyboard function keys. Additionally, each window is configured with its own graphics and text cursor and is adjustable in size. A four window configuration optimized for efficiency would enable the user to simultaneously perform interactive graphics, conduct system dialogue, maintain a system select menu and log error messages. The position of each window and its associated attributes appear below.

<table>
<thead>
<tr>
<th>W1</th>
<th>W2</th>
</tr>
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<tbody>
<tr>
<td>- Graphics and Text Cursor</td>
<td>- Graphics and Text Cursor</td>
</tr>
<tr>
<td>- Pan</td>
<td>- Variable Size</td>
</tr>
<tr>
<td>- Zoom at 2x, 4x</td>
<td>- Variable Size</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>W3</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Graphics and Text Cursor</td>
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<tr>
<td>- Vertical Scroll with Wraparound</td>
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<tr>
<td>- Variable Size</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>W4</th>
</tr>
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<tbody>
<tr>
<td>- Graphics and Text Cursor</td>
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<tr>
<td>- Variable Size</td>
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</table>

**SOFTWARE**

The S2400 supports two independent command formats: a Lexidata version based on an English language command structure and a version based on Tektronix PLOT-10™ code. The architecture of the software is based on MC68000-resident firmware and is made up of 64KB of PROM and 32KB or 128KB of RAM. The PROM contains the S2400 operating system, while the RAM is present for downloading user fonts and application software. Additional program memory can be added via the processor option slots.

**LEXIDATA PROTOCOL FUNCTIONS**

**Text**
- Four Character Sizes
- Tab Stops
- Text Wrap Around to Next Line
- Locatable at Current Graphics Position

**Graphics**
- Chained Vector
- Absolute and relative vectors
- Circle
- Area Flood
- Selective Erase

**Display**
- Read/Write Displayed Plane
- Replacement and Complement Writing Modes
- Read/Write Pixels
- Block Pixel Copy

**PLOT-10™ PROTOCOL FUNCTIONS**

- Absolute vectors
- Point Plot mode
- Incremental Plot mode

**OPTIONS**

**Processor** The system controller board is configured with five processor option slots for upgrading system functionality. Option boards providing additional serial ports and additional program memory (up to 256KB per option board) can be added to the basic version to tailor configurations to user needs.

**Input Devices** 11 inch x 11 inch data tablet with ballpoint stylus or four-button puck for digitizing.

**CONFIGURATION**

The S2000 is packaged as three separate components: a 19” CRT; a standard ASCII keyboard with integral joystick; and an electronics module containing system electronics and interfaces.
ELECTRONICS MODULE

HOST CPU
SERIAL PORTS
MC68000
1280 x 1024 FRAME BUFFER
MONITOR

KEYBOARD/JOYSTICK
FIVE-SLOT PROCESSOR OPTION BUS
64KB PROM
32KB OR 128KB RAM

DATA TABLET

BLOCK DIAGRAM OF MODEL 2400
SYSTEM SPECIFICATIONS

DISPLAY MONITOR
- **Screen Size**: 19" diagonal measure
- **Phosphor Type**: P4 phosphor
- **Refresh Rate**: 50/60Hz non-interlaced
- **Text Format**: 51 lines x 80 characters or 102 lines x 160 characters
- **Character**: 10x14 matrix in 16x20 box with descenders or 5x7 matrix in 8x10 box with descenders
- **Character Set**: ASCII display, 96 characters (upper/lower case, numeric and punctuation)
- **Cursor**: Blinking block character in text mode or flashing crosshair in graphics mode. Both programmable.
- **Cursor Control**: Host, joystick, and keypad; data tablet optional

KEYBOARD
- **General**: Detached, 85 key with 2-axis joystick
- **Key Set**: Standard 85 key arrangement
- **Auxiliary Keys**: 11-key cursor/numeric pad with cursor arrows, numbers and period
- **Function Keys**: 16-key function pad with programmable keys, function select, learn key and cursor/numeric select

KEYBOARD (continued)
- **Visual Indications**: Function select, learn key and cursor numeric with LED indicator
- **Audible Signal**: Bell produced by CTRL G
- **N-Key Rollover**: Rapid entry permitted
- **Method of Interface**: RS232 connection via coiled cable

GRAPHICS FEATURES
- **Resolution**: 1280 x 1024 x 1
- **Graphics Format**: 1280 horizontal x 1024 vertical for 5:4 aspect ratio
- **Protocols**: Lexidata command language (based on English language structure)
  - **PLOT-10™**
- **Pan and Zoom**: Window 1 only. Zoom at 2x and 4x. Pan in any direction at 2x or 4x
- **Scroll**: Window 3 only. Single or multiple line scroll.

POWER
- **Input**: 110/220VAC, 50/60Hz
- **Consumption**: 300W, nominal

HOST INTERFACE
- **Method**: Serial via RS232 port connection
- **Data Transfer Speed**: Up to 9600 baud

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