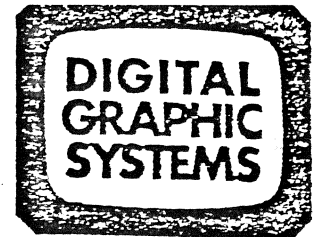


HIGH RESOLUTION GRAPHICS FOR THE S-100 BUS



GRAPHIC MEMORY BUFFER

- On-board 32K-byte capacity in basic CAT-100 system.
- Organized in 2 banks of 16K bytes of dynamic memory.
- Expandable up to 256K of capacity in 32K increments on extension boards for better gray scale or color resolution.
- 2-port design for a totally snow-free and clean display:
 - internal port for fast video access;
 - external port for S-100 bus. Access time: 1 microsecond average, 25 microseconds maximum during 0.2% of the time.
- Convenient addressing scheme:
 - Fixed access window in S-100 memory address space.
 - Window size (2K/8K) and location are switch-selectable.
 - The software-selectable page of the CAT-100 buffer appears to the CPU as regular memory located in the window.
 - Allows large buffers to be addressed without consuming a large fraction of the S-100 address space.

VIDEO INPUT

- On-board 4-bit A/D converter yields 16 gray-scale levels.
- Full video-rate digitization: 1/60th of a second for a resolution of 240 x 256 x 4 or equivalent.
- Can be set to generate 1, 2 or 4 bits per pixel.
- Conversion speed: better than 76 nanoseconds for 4 bits.
- Accepts standard 1.4 volt composite B/W video; Z-75 ohms.
- Automatic composite sync extractor.
- Accepts EIA RS-170 or "random interlace" sync.
- No equalization requirements: will sync on a video tape or a video cassette recorder output
- Also accepts/generates external sync (selectable by software).
- On-board proprietary 2-threshold slicing/contouring circuit as an alternative to the A/D converter.
- Maximum output rate: 26 Mbits/sec. for both the A/D converter and the contouring circuit.
- Accepts external digital data from higher performance converters or real-time video processing equipment.
- Direct view of live contoured image before digitization.
- Large number of input formats matching the output formats.

VIDEO OUTPUTS

- One main and 3 auxiliary standard composite video outputs.
- All 4 video outputs are 1.4 volt p-p; Z-75 ohms.
- Each output may display an independent digital image.
- The main output is driven by a 3-source video mixer which will show any combination of up to 3 simultaneous images: the live video input, the real-time contoured video input, and a digitized image or a text stored in the buffer.

GRAPHIC MODE

- On-board 4-bit D/A converter; 4 individual bit switches.
- Can be set to generate 2, 4, 8 or 16 levels of gray scale.
- Dot mode available for 256, 288 and 320 pixels per line.
- When dot mode is selected, the main output display is composed of discrete square dots and shows a pleasant homogeneous texture horizontally and vertically.
- Variety of output mapping formats, fully compatible with all the input formats.
- 3 aspect ratios: square, standard rectangular, compressed.
- For each aspect ratio, an image can be mapped into 3 interlaced formats and 7 non-interlaced formats.
- 30 software-selectable GRAPHIC FORMATS, listed in the form:

Lines/frame x Pixels/line x Bits/pixel		
SQUARE	RECTANGLE	COMPRESSED*
480 x 512 x 1	454 x 576 x 1	408 x 640 x 1
480 x 256 x 1	454 x 288 x 1	408 x 320 x 1
480 x 256 x 2	454 x 288 x 2	408 x 320 x 2
240 x 1024 x 1	227 x 1152 x 1	204 x 1280 x 1
240 x 512 x 1	227 x 576 x 1	204 x 640 x 1
240 x 512 x 2	227 x 576 x 2	204 x 640 x 2
240 x 256 x 1	227 x 288 x 1	204 x 320 x 1
240 x 256 x 2	227 x 288 x 2	204 x 320 x 2
240 x 256 x 3	227 x 288 x 3	204 x 320 x 3
240 x 256 x 4	227 x 288 x 4	204 x 320 x 4

* optional

TEXT MODE

- A software-selectable alternative to the graphic mode.
- Makes efficient use of the buffer as a text file: 32,768 characters are stored, with up to 2,640 visible at one time.
- High quality full ASCII 7x9 character generator.
- Any character can be individually inverted by software.
- Instant scanning through the 32K-character text file by setting appropriate base address in control register.
- Smooth scrolling at raster line level permits variable scanning speed; text always remains perfectly legible.
- No wrap-around at end of buffer.
- 6 software-selectable TEXT FORMATS, listed in the form:

Text lines/frame x Characters/text line					
29 x 64	29 x 72	29 x 80	33 x 64	33 x 72	33 x 80

LIGHTPEN INPUT

- Enabled by software; interaction flagged in status.
- 18 bits of X-Y coordinates available in status.
- CAT-100 timing must be restarted by software within one millisecond after interaction occurs.
- Input specs: active-high TTL pulse > 100 nanoseconds.

PHOTOGRAPHIC TRIGGER INPUT

- Armed by software; screen blanks and waits for signal.
- Photo input designed to be grounded by closure of the "X" flash contacts of a photographic camera.
- A complete frame is then displayed and photographed. This technique avoids partial or multiple exposures and yields clean individual pictures or animated films.

POWER • DC voltages unregulated per S-100 specs.
+8V, 2.5A typical; +16V, 0.8A typical; -16V, 0.3A typical.

TEMPERATURE +10°C to +40°C ambient, operating.