THE 3D SCAN MODULATOR

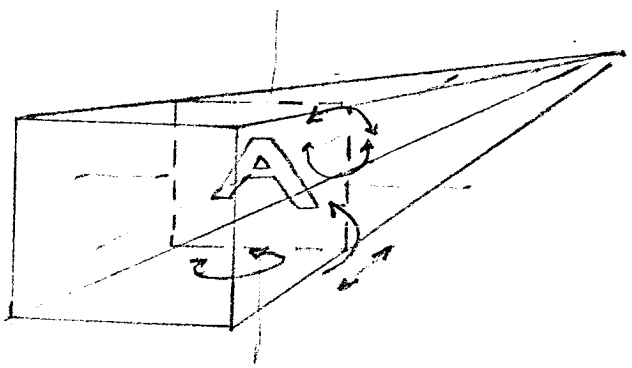
NOV. 79

THIS MODULE CONSISTS OF A 4 X 3 COMPUTER CONTROLED VIDEO SWITCH, A 3 CHANNEL X 5 DEEP MULTIPLIER ARRAY, AND A DIVIDER/BUFFER OUTPUT STAGE.

DATA FROM THE COMPUTER IS DECODED, AND CAN BE APPLIED TO ANY OF THE 15 MULTIPLIER CELLS VIA SOFTWARE ENCODING. SYNCRONOUS H & V REFERENCE RAMPS OCCUPY 2 INPUT CHANNELS WITH BIAS VOLTAGE PLUS ANY EXTERNAL OSCILLATOR SIGNALS AVAILABLE ON THE REMAINING 3.

THE IMAGE IS SOFTWARE positioned WITHIN A TRUNCATED PYRAMID.

IE.



DIVIDER CIRCUITRY FORE SHORTENS IMAGE ON Z AXIS.

THE COMPUTER CAN MANIPULATE THE IMAGE ON ANY OF X, Y, OR Z AXIS.

A MANUAL CONTROL PANEL CONSISTING OF 15 POTS & ADC IS PROVIDED FOR MANUAL CONTROL. POT VALUES ARE STORED IN TABLES & SOFTWARE CAN BE ARRANGED TO REPLICATE EFFECTS FROM THE MANUAL CONTROL PANEL AS WELL AS SOFTWARE GENERATED EFFECTS IE. ROLL / ROLL-TUMBLES ETC.

BILL JACKSON
416-964-1183 TORONTO

Bill Jackson 416-964-1183
TORONTO

IMAGE PROCESSING HARDWARE 2.

ITT MODEL KM 906 COLOR CRT DISPLAY

19" CRT
ACCELERATING POTENTIAL 18 KV.
MAGNETIC DEFLECTION
FOCUS - HV ELECTROSTATIC
RESOLUTION 15 LINES/CM.
DRIFT LESS THAN 0.5 CM/8 HRS.
FULL SCALE LIMITS - 10"X10"

HORIZONTAL & VERTICAL - INPUTS - IDENTICAL

INPUT - to 10 V P-P (±5V)
SENSITIVITY 1.0 IN/VOLT
MAX. SPOT VELOCITY - 1 CM/μs
STEP FUNCTION RESPONSE - FULL SCALE DEFLECTION - STABILIZING TO .9 MM in 25 μsec

IN IMPEDANCE - 900 Ω
BAND WIDTH DC - 10 MC

Bill Jackson 416-964-1183 TORONTO

COMPUTER HARDWARE 1

* SWTPC 6800
  12K RAM
  5 AMP POWER SUPPLY
  CABINET - RACK MOUNTED ON EXTENSION SLIDES
  TVT
  KEYBOARD

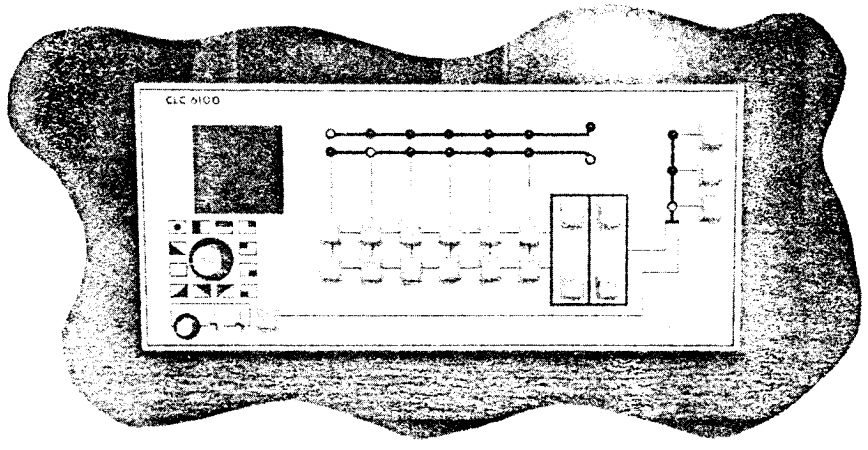
* PERCOM LFD 400 MINIFLOPPY DISC CONTROLLER PACKAGE WITH MINIDOS PLUS X PROM, EDITOR, ASSEMBLER
  SUGGART SA 400 MINIFLOPPY DISC DRIVE.

* COMPUTER ⅓ DISC DRIVE W/ RELATED POWER SUPPLIES HOUSED IN 19" SHORT RACK (29" High) - FANNED.

MODEL CLC6100A INCLUDES COLORIZER

COLOR VIDEO SWITCHER CLC 6100

WITH SPECIAL EFFECTS AND MIXER



The CLC 6100 is a broadcast quality switcher which has many features available only in much higher priced units. Though there are only two busses it is possible to preview and/or preset a mix or effect without disturbing the program output. The special mix-wipe function provides a combination mix and wipe which normally requires at least three busses. The automatic preview output continually monitors the buss that is not being used for program.

All drives required for special effects are generated within the unit. No external drives are necessary, greatly simplifying system hook-up.

When wiping and/or mixing from color to monochrome, full color burst is maintained throughout the transition

The mechanical fader handles usually seen in a switcher are replaced by push buttons, which add greatly to the convenience and smoothness of operation. There are two modes - automatic and manual. The operation is digitally controlled and it is possible to switch between modes rapidly and unobtrusively even in the middle of a transition. Effects-into-mix and mix-into-effects re-entries are accomplished with control logic. No delay lines are used.

Light emitting diodes on the panel indicate the status of the switching matrix in a very convenient format. The switcher automatically adds sync to a non composite signal on any input.

An external key input is provided.

- Vertical Interval Switching
- Six inputs: composite or non composite
  color or monochrome
  synchronous or non synchronous
- Automatic sync add, on all inputs
- External sync input necessary only if video inputs are non composite
- No external drives necessary
- No mechanical fader handles
- Automatic or manual push button fader operation
- Automatic preview on unused buss
- Preview mix, wipe or key without disturbing program buss
- 11 wipes including circle
- External Key
- Special mix-wipe function premits mixing within a wipe
- LED push-button tally indicators
- Four program outputs: two preview outputs
- Camera tally outputs
- No delay lines

- Built-in 3 input audio mixer
- Rack mount ears
- Remote front panel

316 BROAD STREET, SUMMIT, N.J. 07901 • (201) 273-1090

Bill Jackson. 416-964-1183. Toronto Canada

PRODUCTION EQPT. /.

FIELD VIDEO BROADCAST SYNC GENERATOR

6 DRIVES
BARS
BLACK
3 BLACK BURST CAMERA DRIVES - $\frac{SC}{H}\phi$ ADJUSTABLE, FRONT PANEL
14.318180 Mhz ECL DRIVEN TTL OUTPUT.
CRYSTAL OVEN.

4 - PULSE DISTRIBUTION AMPLIFIERS - R.H.L PDA 41
- LINE TILT < 0.25%, HUM > 70Db.

2 - VIDEO DISTRIBUTION AMPLIFIERS - RHL VDA 41
- GAIN ± 2db
DIFF GAIN < 1%
DIFF PHASE < 1°

POWER SUPPLIES INC. / 19" RACK MOUNTS. AVAILABLE.

MODEL 553A
AMERICAN DATA CORP. SWITCHER with Chroma Keyer.
(AIRPAX) HUNTSVILLE ALABAMA.

10 INPUTS - 7 COMPOSITE
1 BLACK
2 DOWNSTREAM Program inputs for Non Spec. Comp. or Non Comp VIDEO

SOFT WIPES
DIGITAL EFFECTS GENERATOR - CIRCLE, SQ. DIAMOND, DIAG H+V control > H+V. POSITIONER
SELF, OR MATTE KEY - INT OR EXT.
COLORIZER

TALLY.
ISOLATION inputs 36DB to 4.43 Mhz / CROSS talk 52db V IV.p-p @ 4.43 mHz
HUM 48db dw. DIFF GAIN 1% -10-90 APL, DIFF. PHASE 1° - 10-90 APL.

AMERICAN DATA CORP
MODEL 830 Chroma Keyer.
INPUTS - R G B NON Comp VIDEO
INTERNAL DELAY COMPENSATION 1.2 MICROSECONDS TOTAL
VERY CLEAN!
REQUIRES EXT. System Sync & Blanking

Bill Jackson 416-964-1183
TORONTO

PRODUCTION EQPT. 2.

CROSSPOINT LATCH Corp. Model CLC 6100A Switcher - colorizer included
SEE. CPL. BROCHURE -

CAMERAS

2 - PHILLIPS BLACK & White Plumbicon Studio Camera CHASSIS
EL8020 - EL8025
with CCU, REMOTE CONSOLE CONTROLLERS.
TAYLOR HOBSON ZOOM LENSES - VAROTAL CONTROLS

1 - PANASONIC WV-380P/KT HIGH RESOLUTION B+W
GRAPHICS CAMERA
CCU.

MISCELLANEOUS.

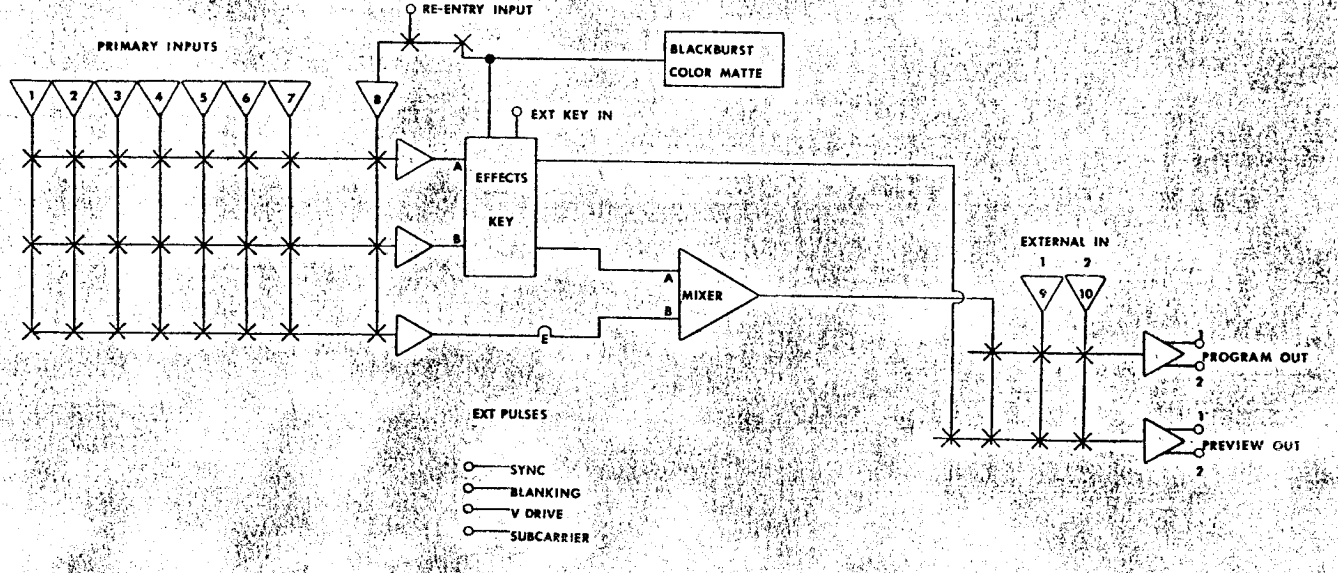
SOLA BASIC TRANSFORMER - 15 Amp + output @ 118V - 95-130V Supply.

MISCELLANEOUS DELAY LINES, ETC.

BLOCK DIAGRAM EXAMPLE

SPECIFICATIONS

Input Video	1.0 p-p Composite Bridging
Output Impedance	75Ω, source terminated
Number of Outputs	Two each, program and preview, 1.0 V p-p nominal
Crosstalk	52 dB below 1.0 V p-p@3.58/443 MHz
Frequency Response	±.25 dB to 6 MHz
Differential Phase	1°@3.58/4.43 MHz maximum, 10 to 90% APL
Differential Gain	1%@3.58/4.43 MHz maximum, 10 to 90% APL
Hum and Noise	52 dB below 1.0 p-p output
Camera Tally Provisions	Ground external circuit not to exceed +24 VDC at 300 mA
Power Requirements	105-125 or 200-240 VAC 50-60 Hz
Pulse Requirement	Sync, Blanking, Subcarrier, V-Drive
Mechanical Dimensions	
Electronics/Control	48.3 cm Wide by 17.8 cm High by 14 cm Deep (19" x 7" x 5.5")
Power Supply	External, 48.3 cm Wide by 4.5 cm High by 22.8 cm Deep (19" x 1.75" x 9")
Customer Connections	Video/Pulse - BNC



Specifications subject to change without notice.

Software - quantizer control

The quantizer is controlled by manipulating a series of control voltages which define the upper and lower luminance limits of each slice. These voltages are generated by a 32 channel DAC/sample+hold which is refreshed 30 or 60 times a second.

The refresh occurs in the vertical interval and is transparent to the remainder of the software, as the processor is interrupted by a vertical blanking pulse on the maskable int. input.

The entire system is locked to V sync, with all sweeps + changes occurring immediately after the DAC refresh.

The background program is responsible for creating a table of position and width values (1 byte ea.) for each slice. It also sets up a value for sweep rate and bias (manual sweep). Another table defines the colorizer characteristics for each slice (color, brightness etc...).

After each interrupt, the DAC is refreshed and any changes to the colorizer int are made. The interrupt (foreground) routine then creates a new table of values for the next DAC refresh.

Each control voltage is made up from : position
: width
: bias
: value of 'global' sweep counter
: " 'local' " "

eg V_L = pos + bias + (global) + (local)

$V_H = V_L$ + wid

} all 8-bit values

( ) - optional - disabled by flags - switches on Q-controller

Bill Jackson 416-964-1183 Toronto

MONITORS.

4 - 9" Black & White - Shiba Electric Model VM 903

1 - 19" Rack containing 2 9" Electrohome Model EVM9R2 Black & Wh. with
UNDERSCAN,
INT./EXT. SYNC
NORM/FAST H. Lock.

CONRAC C4A17 Color Monitor

TEKTRONIX 525 WAVE FORM Monitor

TEKTRONIX 526 VECTOR SCOPE

IMAGE PROCESSING HARDWARE 1.

* 16 CHANNEL COMPUTER CONTROLLED QUANTIZER

INCLUDES -

INPUT SECTION - SYNC STRIPPER, VIDEO AMP., BLANKING INSERTION, MASTER Power Supply

QUANTIZER UNIT -

COMPUTER INTERFACE -

CONTROLLERS. (2) -

* SEE SYSTEM DESCRIPTION

* 3 D SCAN MODULATOR

4 X 3 MATRIX VIDEO SWITCH / COMPUTER CONTROLLED
5 X 3 MULTIPLIER ARRAY
DIVIDER & BUFFERED X & Y OUTPUT STAGE
POWER SUPPLY.

* SEE SYSTEM DESCRIPTION

LEITCH MODEL CEC 810 NTSC COLOR ENCODER

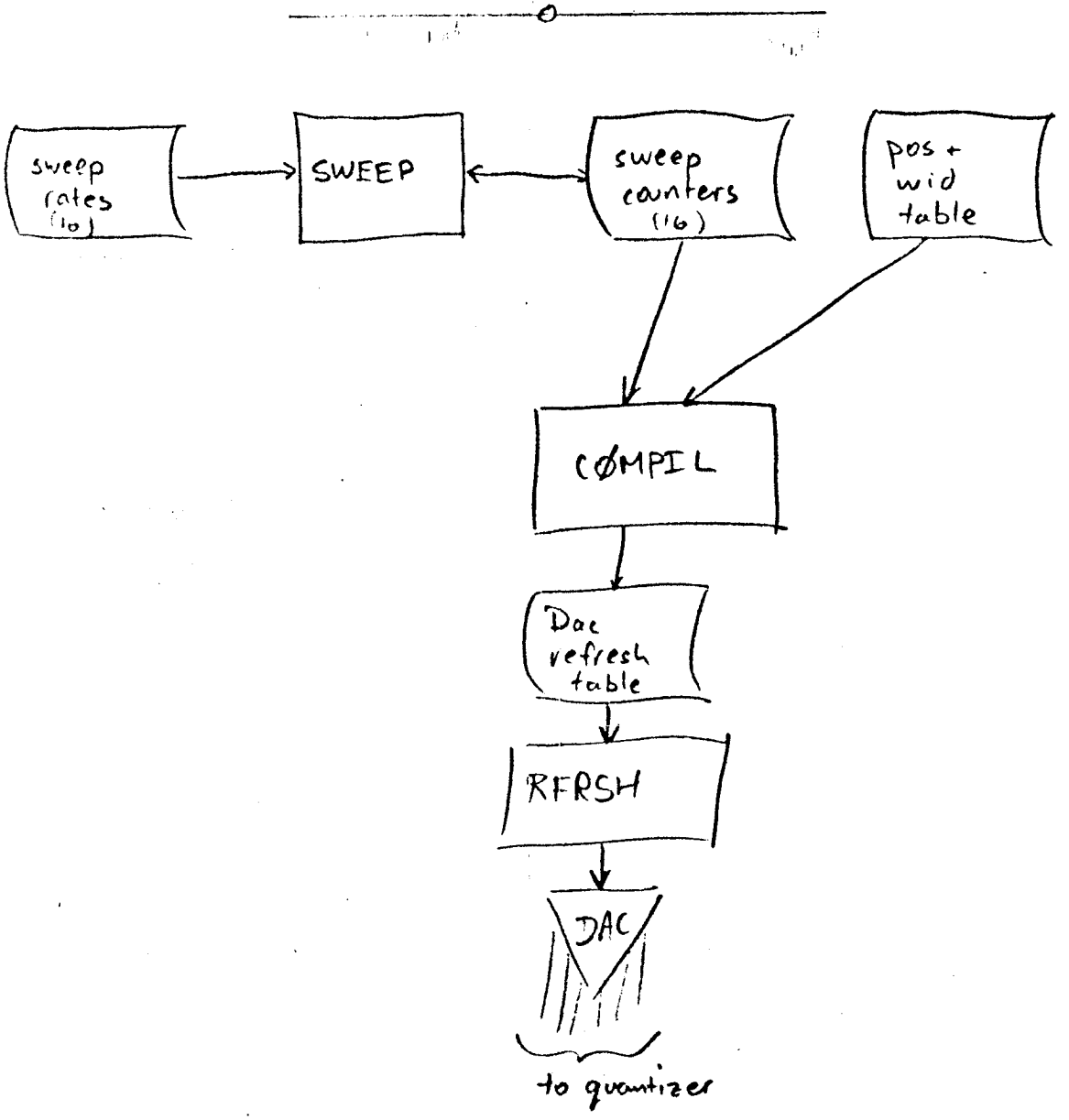
MEETS ALL NTSC & EIA STANDARDS FOR RGB ENCODERS
GENERATES INTERNAL Colour BARS FOR ALIGNMENT OF BURST Ø AMPLITUDE, I/Q Quadrature + GAIN, CHROMINANCE - LUMINANCE RATIO, SYNC SET UP. GREEN TIE SWITCH FOR WHITE & BLACK BALANCE ALIGNMENT.

Sync inputs - Sync, BLANKING & 3.58.

DUAL 1 V P.P. OUTPUTS.

FREQ RES. ±5 db to 7 mhz down 3 db @ 10 Mhz (no notch filters or Ap correct)
DIFF GAIN. ± 1% (10 - 90 APL)
DIFF Ø ± 1° (10 - 90 APL)
APERATURE CORRECTION +10 DB 2.9 Mhz max.
Notch Filter 12 DB @ 3.58 Mhz.

The next step is to update the sweep counters. These are currently 1 byte values but will be changed to 2-byte for slower sweeps. A signed sweep rate value is added to the sweep counter...



- calling sequence

① RFRSHA (RFRSHB) - refreshes ½ DAC - called alternately

② changes to col. int if required

③ SWEEP

④ COMPIL create new table for DACs

① scan keyboard / controller - keyboard → queue for foreground
- controller changes tables immediately

- controller -

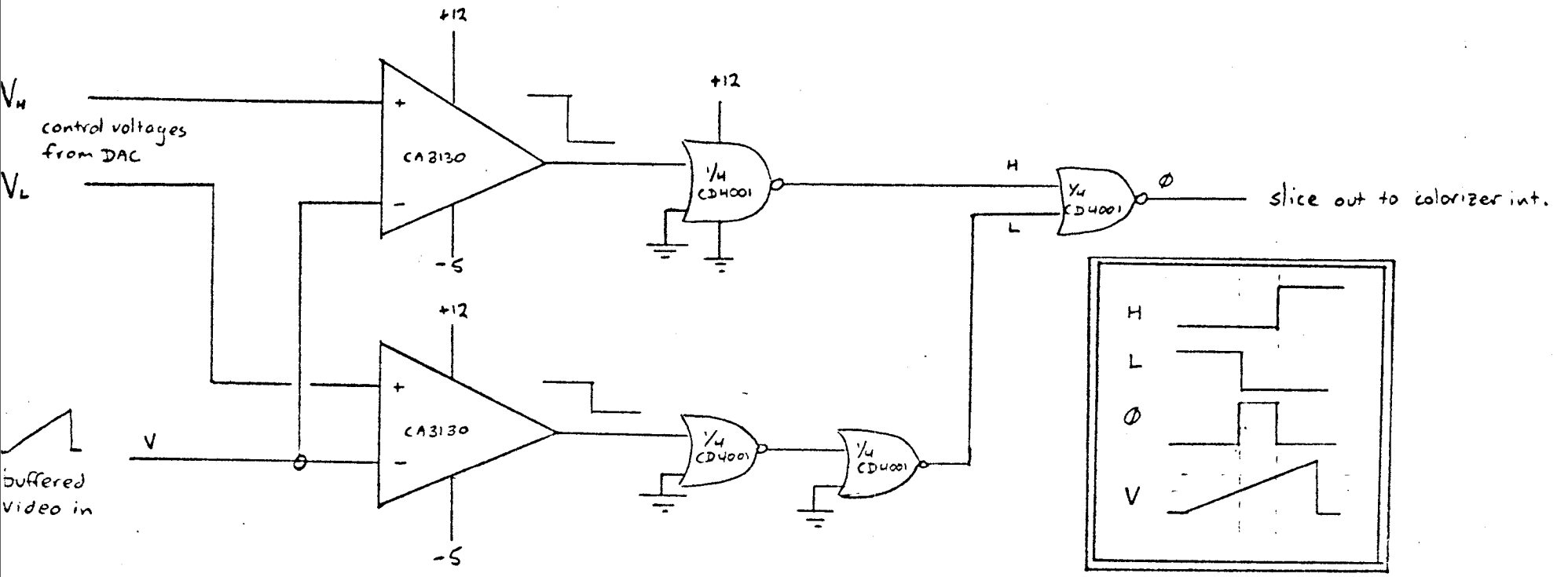
Our latest toy is a control panel for the quantizer. The controls are scanned by the µC in the interrupt routine to allow easy change of parameters. The present controller handles position, width, luminance, color, sweep + bias and consists of a number of switches (12) connected to a parallel input port. Each button increments or decrements an element in the table - pushing both simultaneously zeroes the given element (eg position)

All software was written in M6800 machine language. The interrupt routines consume about 20% of the available processing time - during development we were splitting the remaining 80% between the background control program and a debug monitor on another terminal (the amazing 27 byte task handler strikes again). Until our other micro(s) come up, we may run a vector graphics generator along with the control program - this would display on the ITT 'scope and refresh at TV field rate (or possibly frame rate if time requires).

John

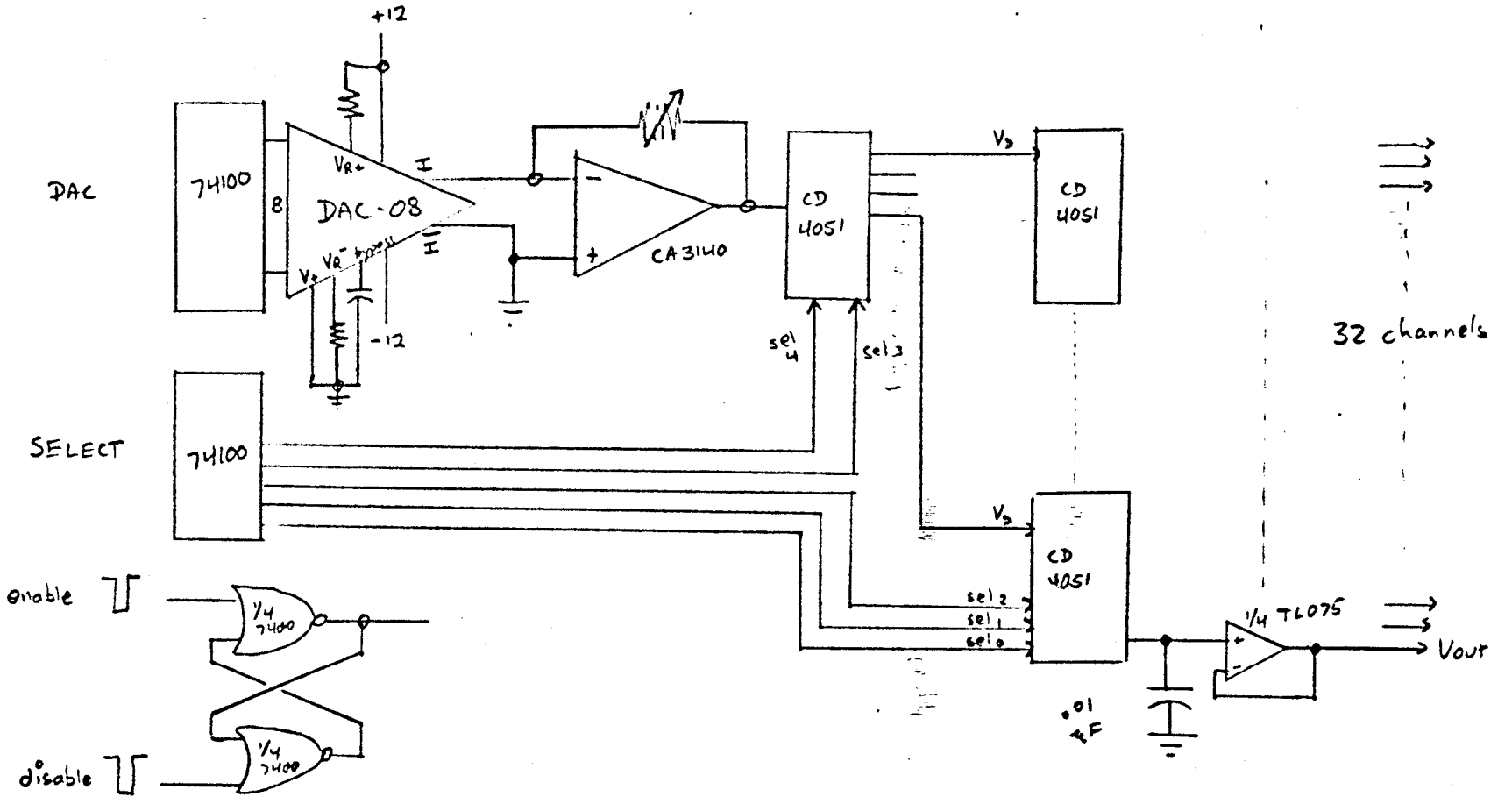
Mar 31/79

Mar 31/79



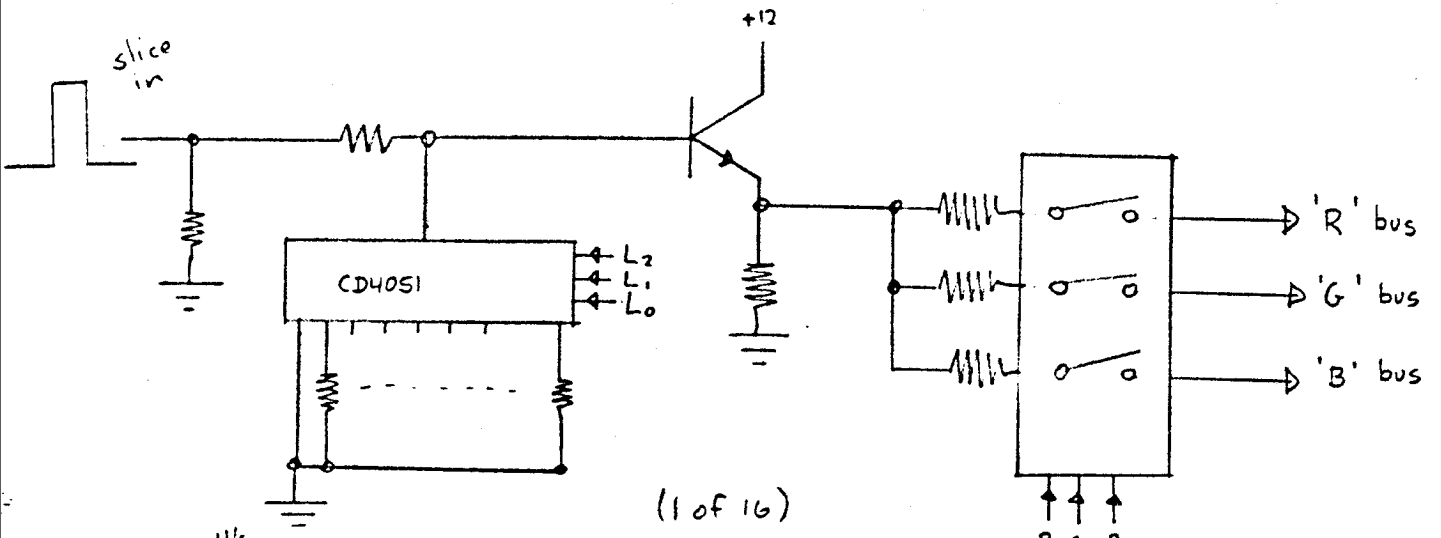
Quantizer
- window comparator
(1 of 16)

Nov 31/79

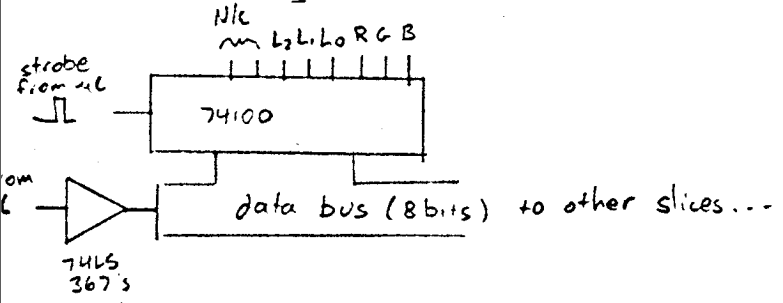


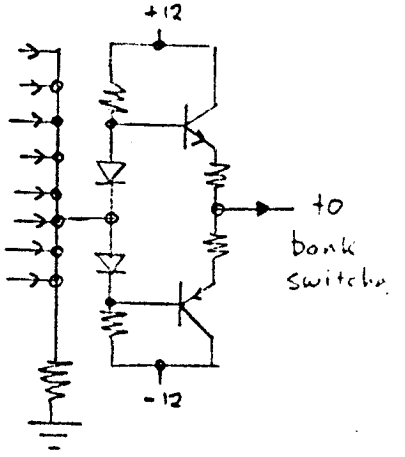
Quantizer - DAC

Mar 31/79

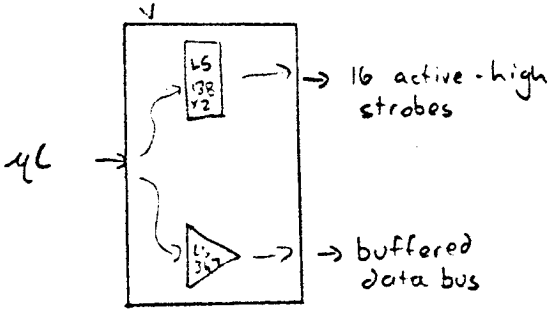


(1 of 16)



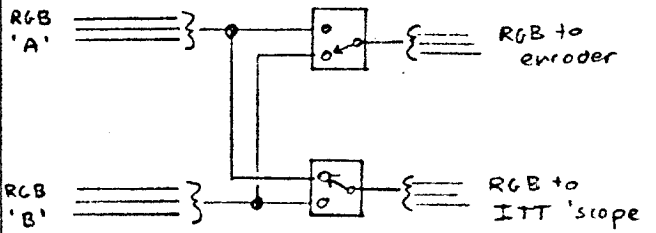


typical bus (1 of 6)



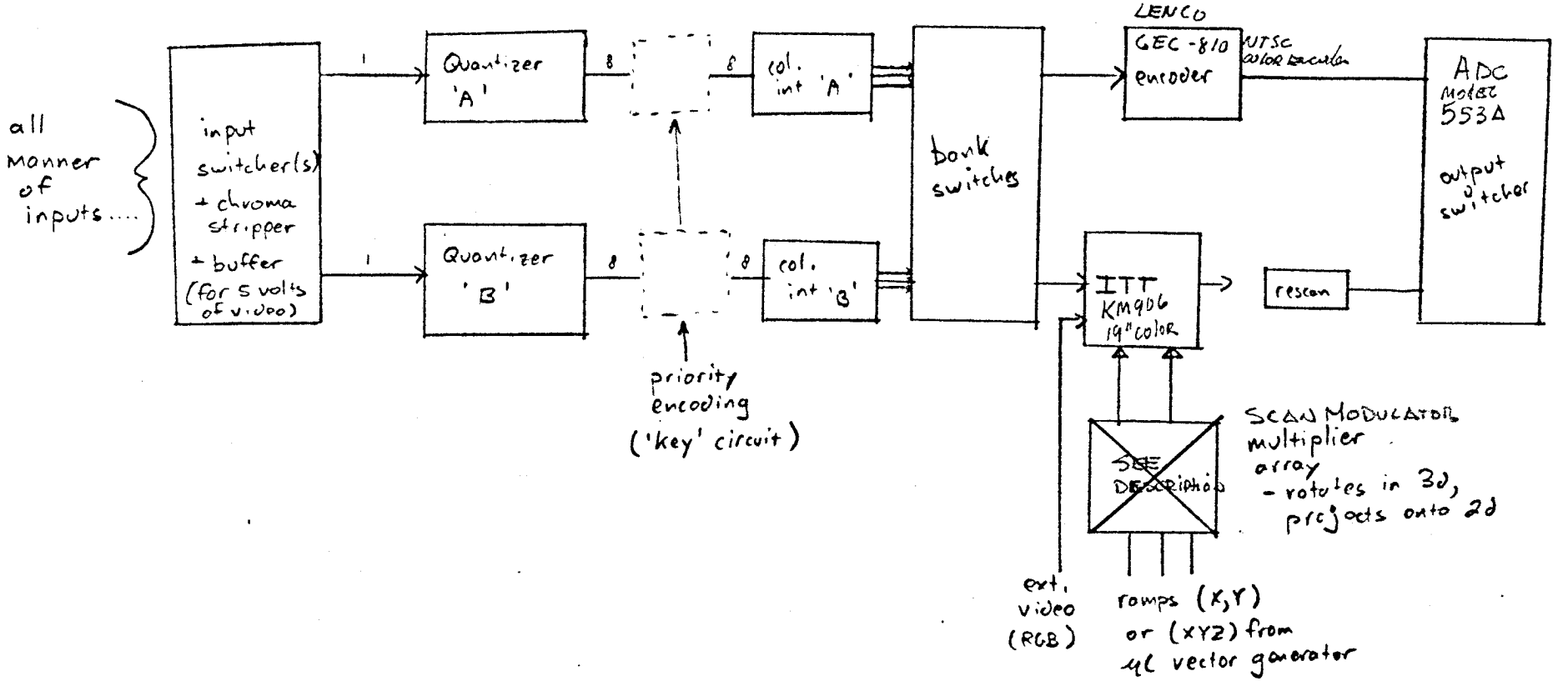
(1 only!)

bank switches (not presently implemented)



Quantizer - colorizer interface

Mar 31/74
Oct 31/75



Quantizer - block diagram