ELECTRONIC VIDEO SYNTHESIZER
THE EVS VIDEO STANDARD

To accomplish video synthesis, a special system had to be devised so that all important signals could be interfaced.

- So that all output signals could be connected to all inputs.
- So that all inputs could accept all output signals.
- So that there would be no frequency distortion at any frequency from D.C. to 10 megacycles.
- All signals had to be ultra-linear.
- All signal outputs had to be extremely low impedance (approximately 1 Ohm).
- All signal inputs were preferred as high impedance as possible, so that many inputs could be driven from one output.

Standard video signals are usually one volt peak to peak including sync. Most equipment manufactured in the United States today does not use D.C. coupled video amplifiers, therefore, the signal which is fed to the co-axial cable is an A.C. signal containing no direct information concerning the Brightness level of the picture. It is therefore necessary for the monitor to contain special circuits called, D.C. Restoration, to re-establish the Brightness level of the picture.

In the E.V.S. System all this is unnecessary -- all signals are D.C. coupled everywhere; and a standard of 0- (+1) Volt exists for every signal involved in video synthesis.

The device can be thought of as a video analog computer as far as electronic circuitry goes. This signal standard is compatible with existing video standard. Therefore, E.V.S. can be used with all existing E.I.A. Television Equipment.

The E.V.S. has inputs for (EIA) station synchronizes pulses (EIA) station blanking pulses and EIA subcarrier, thereby making it a totally EIA device. The Burst is made inside the E.V.S. according to EIA Standards.

All visual pattern signals pass through a video processing amplifier; inside this amplifier the following steps are performed:

1. Black level (Brightness level) control amplifier.
2. New blanking pulse insertion.
3. New Sync pulse insertion.
4. New burst signal insertion.
5. Chroma insertion.

The Pattern Generators have push button switches to enable you to have these oscillators locked to a sub multiple of the Vertical, a Horizontal rate, thereby giving you a now moving picture (from left to right and top to bottom); but not necessarily in to out.
By feeding the outputs from the Pattern Generators (Boards 5, 6, 7, 8) to the inputs of the Electronic switch (Board #4), you are able to change the size and sometimes the shape of the various patterns.

By feeding the output of Board #8 to the 1B, 2B or 3B input of Board #4, one can get a moving in and out of the patterns on the screen.
I wish to make it public knowledge that I have just developed the first all electronic video synthesizer in the world. It is called the Electronic Video Synthesizer (E.V.S.) and it makes pictures electronically. It is an instrument for the Creation of Color Visual information in the medium of video with the possibilities of at least one thousand different pattern variations. The unit can be performed on the air live.

It could also be used in a video tape session involving music for the creation of mythical trips. The colors are the most intense ever seen on any T.V. or monitor before. The E.V.S. does not have a B.L.D. (Brightness level distortion) problem. *Note: BLD (Brightness level distortion) shows itself as incorrect brightness level on the video screen. Usually apparent in dark scans, showing up as a washed out grey.

It is the instrument of the New Television; the growing tendency of more artistic abstract television performed by beautiful enchanting people. Where conventional television seeks to inform and entertain the New Television will be engaged in expanding people’s consciousness and providing a way for constructive meditation.

The E.V.S. hypnotizes you and the person playing it controls your trip. So the way you see the E.V.S. will depend on who is playing it. “It’s the singer not the song.”

This is the second instrument in the Siegel Video System. The first is the Video Chrominance Synthesizer which converts the gray scale of a monochrome video signal into a full color chrominance signal. A more detailed discussion will be issued at a later time.

For inquiries, write to: Eric Siegel, c/o Howard Wise Gallery, 2 West 13th Street, Rm. 1011, New York, New York 10011, Tel: (212) 989-2316.

SOUND

A sound is composed of a basic frequency (cycles per second) A sound (or electromagnetic) source emanates from a point in a directional pattern characteristic of its frequency. The higher a frequency is the more directional it is. Cosmic rays, another form of electromagnetic energy, with a very high frequency, are highly directional. Sound waves are relatively low in directionality, however the effect of higher frequencies equaling higher directionality is still very apparent. Sound such as a yell or ticking of a clock are much more directional than the rumble of a trailer truck which is felt and has a larger sphere of physical stimulation. (Cosmic rays are attributed with the ability to change genetic structure)

Ideal Microphone—a piece of flat solid material which vibrates at the same frequency and intensity (a loud sound has more punch) as the sound source. This [plate] is connected to an electronic circuit where the variation in plate movements are transduced into a variation in the flow of electrons. This energy flow is measured in volts, amperes and db.

Good simple microphone techniques consists of getting as close to the sound you want recorded and making sure the mike is pointed at the sound source especially if the microphone has a directional (cardioid) sensitivity pattern.
UNITED STATES INFORMATION  
CONSULATE  
23-05-90  

1. DRIVERS LICENSE  
   1. small electronics business  
   2. Police papers no. 2  
   3. Doctor papers any doctor  
   4. Church identification papers  

2. Church  
   St. Pauls  

2. Police
ERIC SIEGEL:

ELECTRONIC VIDEO SYNTHESIZER
COLOR INCODER
BOARD #3

BURST DELAY

BURST CYCLES

ONE SHOT
DELAY MULT.

ONE SHOT
DELAY MULT.

BURST GATE

EMITTER
FOLLOWER
BURST OUTPUT

EMITTER
FOLLOWER
CHROMA OUTPUT

3.58 mc.
XTAL
OSC.

DOUBLE
BALANCED
MODULATOR

90° PHASE SHIFT

DOUBLE
BALANCED
MODULATOR

CHROMA
GATE

CARRIER
INPUT

RED INPUT - BLUE INPUT

GREEN INPUT - MAGENTA INPUT
GENERAL DESCRIPTION — The µA796 is a monolithic Double-Balanced Modulator/Demodulator constructed on a single silicon chip using the Fairchild Planar® epitaxial process. This circuit produces an output voltage which is the product of an input voltage (signal) and a switching function (carrier). Communications applications include modulation and demodulation of AM, SSB, DSB, FSK, FM and phase encoded signals. Signal conditioning techniques possible include frequency doubling and halving, linear mixing and chopping, with additional uses as phase detectors in phase locked loops and as differentiators in NRZ and phase encoded digital tape and disk memories.

For µA796 applications information and other Fairchild Communications Integrated Circuits, see listing on last page.

- EXCELLENT CARRIER SUPPRESSION
- LOW OFFSETS AND DRIFT
- FULLY BALANCED INPUTS AND OUTPUT
- USEFUL TO 100 MHz
- WIDE RANGE OF APPLICATION

ABSOLUTE MAXIMUM RATINGS

<table>
<thead>
<tr>
<th>Description</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal Power Dissipation (Note 1)</td>
<td>500 mW</td>
</tr>
<tr>
<td>Applied Voltage (Note 2)</td>
<td>30 V</td>
</tr>
<tr>
<td>Differential Input Signal (V_A - V_B)</td>
<td>±5.0 V</td>
</tr>
<tr>
<td>Differential Input Signal (V_2 - V_3)</td>
<td>±(5+I_R) V</td>
</tr>
<tr>
<td>Input Signal (V_1 - V_2)</td>
<td>5.0 V</td>
</tr>
<tr>
<td>Bias Current (I_B)</td>
<td>12 mA</td>
</tr>
<tr>
<td>Operating Temperature Range</td>
<td>-55°C to +125°C</td>
</tr>
<tr>
<td>Storage Temperature Range</td>
<td>-65°C to +150°C</td>
</tr>
<tr>
<td>Lead Temperature (Soldering, 60 seconds)</td>
<td>300°C</td>
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</table>

PHYSICAL DIMENSIONS

In accordance with JEDEC (TO-100) outline

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>.335 DIA.</td>
<td>.500 DIA.</td>
</tr>
<tr>
<td>0.034</td>
<td>0.045</td>
</tr>
<tr>
<td>0.28</td>
<td>0.29</td>
</tr>
</tbody>
</table>

NOTES:

1. Rating applies to Case Temperatures to +125°C; derate linearly at 6.5 mW/°C for Ambient Temperature above 75°C.
2. Voltage applied between pins 6-7, 8-1, 9-7, 9-8, 7-4, 7-1, 8-4, 6-8, 2-5, 3-5.

Pin 10 electrically connected to case through substrate.

*Planar is a patented Fairchild process.
ELECTRONIC SWITCH
BOARD #4
ELECTRONIC SWITCH
BOARD #4

MARCH 11, 1971

[Diagram of electronic switch circuitry with component labels and values, including resistors, capacitors, and ICs.]
GATE CONTROLLED TWO-CHANNEL-INPUT WIDEBAND AMPLIFIER
MONOLITHIC SILICON EPITAXIAL PASSIVATED

APRIL 1969 - DS 9125

Number in parenthesis denotes pin for F and L packages, number at left in each case denotes corresponding pin for G package.
High-Performance Open Loop Gain Characteristics

$A_{\text{OL}} = 45,000$ typical

Low Temperature Drift $-3 \mu \text{V/°C}$

Large Output Voltage Swing $-\pm 14 \text{ V typical @ } \pm 15 \text{ V Supply}$

Low Output Impedance $Z_{\text{out}} = 150 \text{ ohms typical}$

MAXIMUM RATINGS (Ta = 25°C unless otherwise noted)

<table>
<thead>
<tr>
<th>Rating</th>
<th>Symbol</th>
<th>Value</th>
<th>Unit</th>
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</thead>
<tbody>
<tr>
<td>Power Supply Voltage</td>
<td>$V^+$</td>
<td>+18</td>
<td>Vdc</td>
</tr>
<tr>
<td></td>
<td>$V^-$</td>
<td>-18</td>
<td>Vdc</td>
</tr>
<tr>
<td>Differential Input Signal</td>
<td>$V_{\text{in}}$</td>
<td>±5.0</td>
<td>Volts</td>
</tr>
<tr>
<td>Common Mode Input Swing</td>
<td>$CMV_{\text{in}}$</td>
<td>±$V^*$</td>
<td>Volts</td>
</tr>
<tr>
<td>Load Current</td>
<td>$I_L$</td>
<td>10</td>
<td>mA</td>
</tr>
<tr>
<td>Output Short Circuit Duration</td>
<td>$t_S$</td>
<td>5.0</td>
<td>s</td>
</tr>
<tr>
<td>Power Dissipation (Package Limitation)</td>
<td>$P_D$</td>
<td>680</td>
<td>mW</td>
</tr>
<tr>
<td>Metal Can</td>
<td>Derate above 25°C</td>
<td>4.6</td>
<td>mW/°C</td>
</tr>
<tr>
<td>Flat Package</td>
<td>500</td>
<td>mW</td>
<td></td>
</tr>
<tr>
<td>Derate above 25°C</td>
<td>3.3</td>
<td>mW/°C</td>
<td></td>
</tr>
<tr>
<td>Ceramic and Plastic Dual In Line Package</td>
<td>625</td>
<td>mW</td>
<td></td>
</tr>
<tr>
<td>Derate above 25°C</td>
<td>5.0</td>
<td>mW/°C</td>
<td></td>
</tr>
<tr>
<td>Operating Temperature Range*</td>
<td>$T_A$</td>
<td>0 to +75</td>
<td>°C</td>
</tr>
<tr>
<td>Storage Temperature Range</td>
<td>$T_{\text{stg}}$</td>
<td>-65 to +150</td>
<td>°C</td>
</tr>
<tr>
<td>Metal Can and Ceramic Packages</td>
<td>-65 to +125</td>
<td>°C</td>
<td></td>
</tr>
<tr>
<td>Plastic Package</td>
<td>-65 to +125</td>
<td>°C</td>
<td></td>
</tr>
</tbody>
</table>

CIRCUIT SCHEMATIC

PIN CONNECTIONS

EQUIVALENT CIRCUIT

Trademark of Motorola Inc.
PATTERN POSITION + DIAMOND SQUAR BAR
BOARD # 5

CONSTANT CURRENT GENERATOR

TRANSISTOR SWITCH

OP AMP SWITCH

TRAPIZOID OSC.

DIFFERENTIAL AMP

EMITTER FOLLOWER

EMITTER FOLLOWER

EMITTER FOLLOWER

EMITTER FOLLOWER

EMITTER FOLLOWER

EMITTER FOLLOWER

OP AMP SWITCH

4 VOLT

61

6
PATTERN POSITION = DIAMOND, SQUARE, BAR
BOARD #5
MARCH 15, 1971
BOARD PIN NUMBERS

ALL DIODES IN 714.
... BOARD PIN NUMBERS
ALL DIODES 1N914
VOLTAGE CONTROLLED AMP AND SAWTOOTH GEN.

12  SIGNAL INPUT
     |  CONTROL INPUT
     |  10
11  VOLTAGE CONTROLLED AMPLIFIER
     |  Emitter Follower Output
      |  19  SIGNAL INPUT
      |  15  CONTROL INPUT
13  9
14  7

17  VOLTAGE CONTROLLED CURRENT GEN.
     19  CONTROL INPUT
     11  VOLTAGE CONTROLLED CURRENT GEN.
     15  CONTROL INPUT
     19  CONTROL INPUT

16  8
17  7

5  SAWTOOTH GEN.
    6  SAWTOOTH GEN.
      6  SYNC INPUT
        6  FREQ DET. CAP
        6  FREQ DET. CAP.
VIDEO PROCESSING AMPLIFIER
BOARD #2

1 - 11V
2, X
3, X
4 +1 VOLTS
5 X
6 SYNC OUT (PIN 9)
7 VERT BLANKING OUT
8 MIXED BLANKING OUT
9 COMPOSITE VIDEO OUT
10 SEC VIDEO OUT (PIN 7)
11 GROUND (PIN 7)
12 VIDEO IN (1) (PIN 3) GREEN
13 VIDEO IN (2) (PIN 6) GREEN
14 X
15 X
16 SEC VIDEO IN
17 BLANKING VOLTAGE CONTROL (PIN 12) GREEN
18 BLANKING (IN) 4 VPP
19 SYNC (IN) 4 VPP
20 BURST (IN) 4 VPP
21 X
22 +11 VOLS