ANALOG DEVICES

Evaluation Board for the ADV7176A Digital Video Encoder

Eval-ADV7176A

FEATURES
Operates from a +5V/-5V Supply
On-Board Reference
Direct Hook-Up to Printer Port of PC
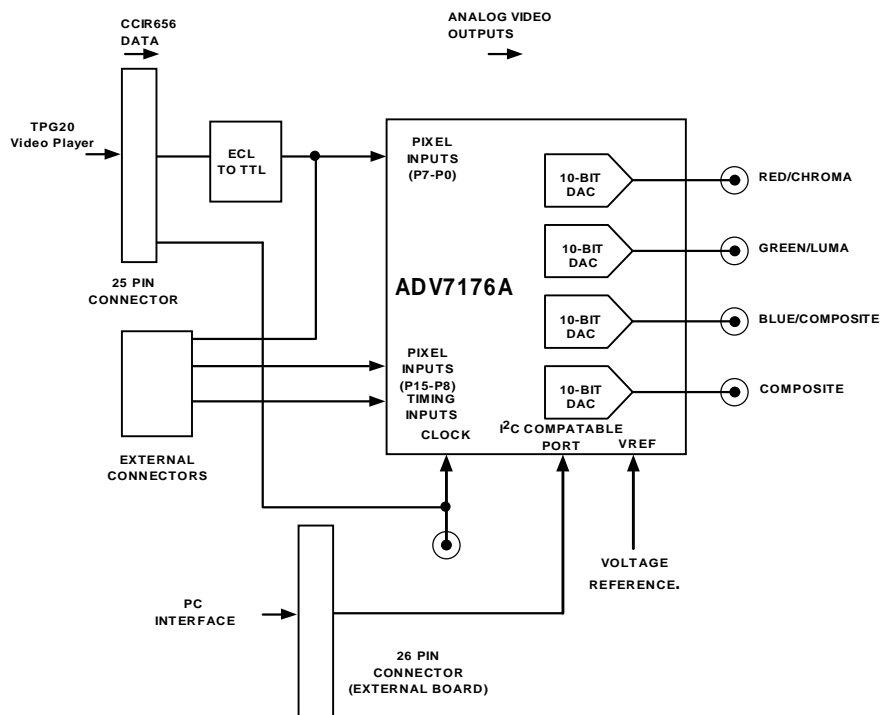*PC Software for Control of ADV7176A modes*

INTRODUCTION

This Application Note describes the evaluation board for the ADV7176A. The ADV7176A is a Digital Video Encoder. The device accepts CCIR656 data and converts to Composite, Y/C, RGB or YUV video signals in PAL or NTSC format. Full data on the ADV7176A is available in the ADV7175A/ADV7176A data sheet available from Analog Devices and should be consulted in conjunction with this Application Note when using the Evaluation Board.

The ADV7176A evaluation board accepts a CCIR656 data stream from a source such as a Tektronix TPG20 or a Panasonic D5 VTR. The ADV7176A converts this data stream to a video signal.

Because the ADV7176A is a flexible and sophisticated video processor its internal settings may require changes according to the application the user chooses. By default or by pressing the reset button on the evaluation board, the internal settings of the ADV7176A will set up the following modes:

NTSC Format.
CCIR656 Slave Timing Mode.
Composite Output.
7.5 IRE Pedestal Enabled.
All 4 DACs powered up.
Interlaced Mode Operation.
Low Pass Filter.
Internal Color Bar Disabled.
Closed Captioning Disabled.

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Evaluation Software

In order to give the user complete control over the ADV7176A, a computer program has been produced to allow the user to set up the device in the way that best suits the required application.

Setting Up:

This software is in the form of a windows executable file called 7175A.EXE. To set this software up on your computer just run the program SETUP_76.EXE. When prompted for conformation of various setup procedures it is recommended that you accept the default settings.

When setup is complete, a folder called ADV7176A will be created, inside this folder will be a file called ADV7176A.

Running the Software:

Everytime you run this program you will be presented with a selection of three different types of parallel ports, the default is the most common type of setup, if this does not work then trying the other options should work.

When you have selected the correct parallel port the main menu will be displayed.

You can now set up your ADV7176A.

Initialisation:

When the evaluation software initialises (assuming the evaluation system is correctly set up), the default settings of the ADV7176A are changed to:

All DACS powered down (**NO OUTPUT**).
CCIR656 mode
NTSC Format.
Composite Output.
7.5 IRE Pedestal Enabled.
Interlaced Mode Operation.
Low Pass Filter.
Internal Color Bar Disabled.
Closed Captioning Disabled.

Dynamically Linked Menu System:

All menus in this software are interactive, so when (for example) you change the values of a register in the Registers Menu all switch settings relevant to that register change will automatically change to the correct state.

IMPORTANT THINGS TO KNOW:

Updating Registers;
When you change the configuration of the ADV7176A with this version of software the settings will not be transmitted to the ADV7176A until you select the "Update Registers" button.

Validity of Settings;
No settings implied by the software are necessarily concurrent with the settings of the ADV7176A. i.e. this version of the software does not read the register values, it merely writes the information associated with the current software settings to the MPU port, if there is a bad connection to the MPU port the ADV7176A may not be set up correctly. In a later version of this software, register reading and checking will be utilised.

I^2C Compatable Programming;
This version of software does not take into account the ability of the ADV7176A to accept continuous streams of data. Instead, for every register this software writes to, it completely re-initiates a start sequence (see the ADV7176A Data sheet for information on different ways registers can be written to). This means that more information has to be written to the MPU port, extending the time required to program the ADV7176A.
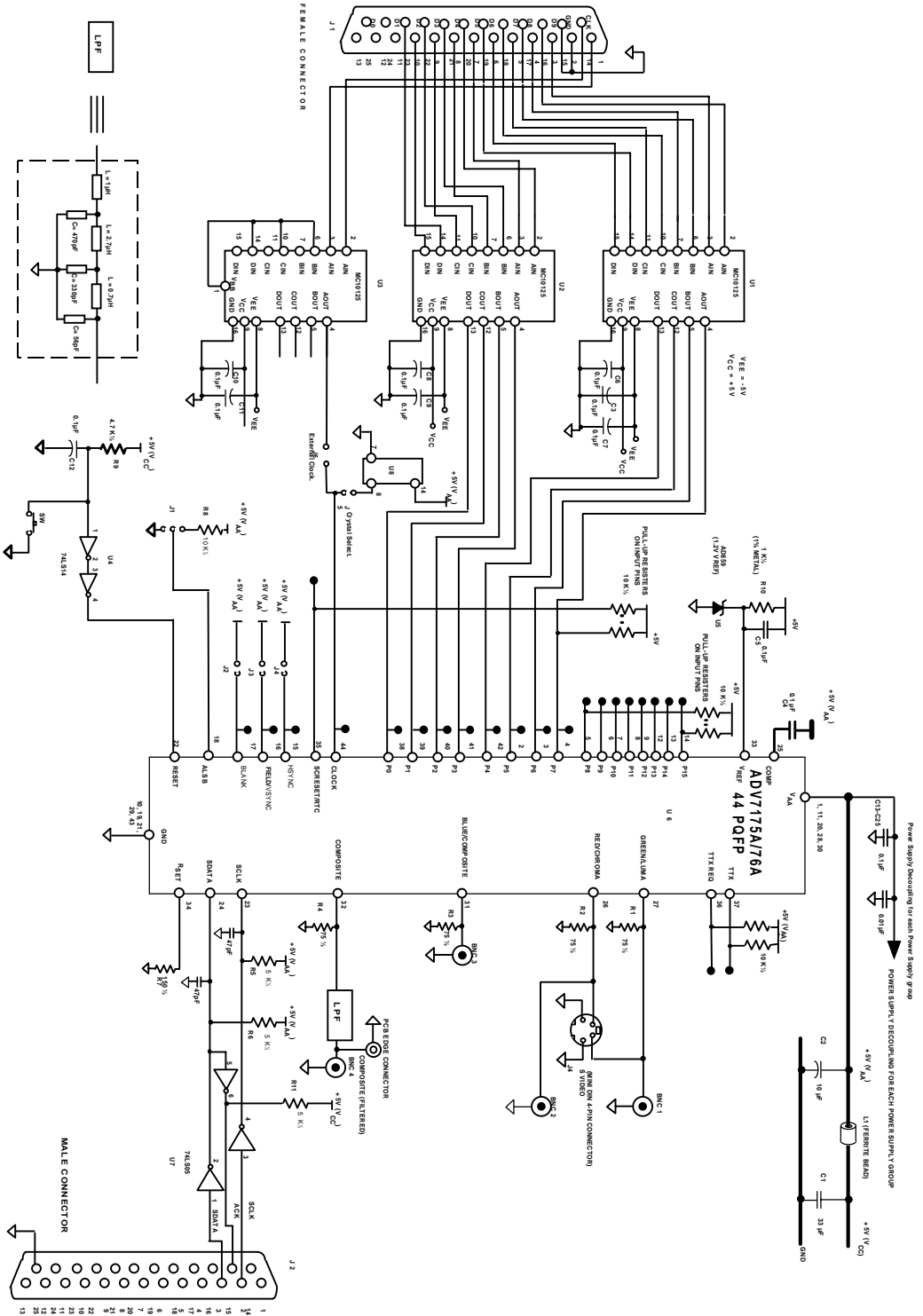
Jumpers and Other board Configurations.

Because there are so many possible ways to set up the ADV7176A, a selection of jumper settings have been included on this evaluation board. Settings are as follows:

Jumper (1);   Ties ALSB either High or Low.
Jumper (2);   Sets Blank either floating (so this pin can be properly assessed at the screw terminal block) or High. (Connect High if Blank is not used).
Jumper (3);   Sets Field/VSync either floating (so this pin can be properly assessed at the screw terminal block)or High if CCIR656 mode is required.
Jumper (4);   Sets HSync either floating (so this pin can be properly assessed at the screw terminal block). or High if CCIR656 mode is required.
Jumper (5);   Selects the oscillator as the external clock for the ADV7176A (Do not connect J6 when this is connected).
Jumper (6):   Selects an external clock for the external clock for the ADV7176A (Do not connect J5 when this is connected).

NOTE :   All input pins are tied to Vcc with 10.5K resistors via resistor networks 1, 2 and 3.

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