Evaluation Board for the ADV7202 Video Rate CoDec

Eval-ADV7202EB REVA

FEATURES
On board PSU
On-Board Clock
PSU switchable between 3.3v and 5v
Direct Hook-Up to Printer Port of PC
PC Software for Control of ADV7202 modes
On board switch pack to link front and back end

INTRODUCTION

This Application Note describes the ADV7202EB REVA evaluation board which supports the ADV7202 Video CoDec. Full data on the ADV7202 is available in the ADV7202 data sheet, available from Analog Devices and should be consulted in conjunction with this note when using the Evaluation Board.

REQUIREMENTS

The ADV7202EB requires a DC power supply which is able to deliver a minimum of 7.5V. Current requirements are approx. 0.5 A**.**
To run the software which is supplied with the ADV7202 it is necessary to connect the printer port LPT1 of the PC to the boards 6 pin J11 connector with the lead and adoptor supplied.

In order to run the software on a PC the operating system needs to be Windows 95 or Windows 98.The system requirements ask for any Pentium I, PMMx or Pentium II PC.

GENERAL DESCRIPTION

The ADV7202EB REVA provides 6 BNC input connectors over which CVBS or Aux. data can be input.The digitized data output is then available over D_out[9:0].Using S2 it is possible to route this data directly back into the device for re-encoding . The ADV7202 CoDec features an internal 27Mhz crystal oscillator circuit,
If a different clock source is required, the ADV7202EB REVA features a 27Mhz Oscillator (Y1) which can be connected over jumper J4. The use of an external clock source is also provided for over input P14.

When RESET (S1) is pressed the internal registers of the ADV7202 reset to default register settings (see following page).

The DAC outputs are fed to a low-pass filter followed by an AD8057 buffer op-amp (U2-U5) before being output over the BNC connection. The DAC outputs can be accessed at different points in the output filter circuit .

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REGISTER SETTINGS ON POWER-UP AND ON RESET

After pressing the reset button PB1 on the evaluation board, the register settings of the ADV7202 will set up as follows:

CVBS in on AIN1.
AGC gain 2X.
SHA gain 1
Clamp Level 3C (hex)
Dual Edge Clock
Dual DAC clock
DAC A, B, C , D on

Enabled:
MR0: Internal 1.1V ADC Vref.
MR1: Dual edge clock and dual edge clocking.
MR2: CVBS in on AIN1,SHA0 on.
MR3: Inputs single ended, SHA gain 1X.
AR0: AGC gain 2X

Disabled:
MR1: 4:2:2 mode
MR2:SHA1,SHA2 and Aux ADC
TR0: Crystal Osc. Ckt.
CR0: Clamp level 3C (hex)
CR2: Fine Clamps
CR3: Coarse Clamps

The following register settings will correspond to the above settings:

MR0	40hex
MR1	30hex
MR2	E0hex
MR3	00hex
AGC0	00hex
AGC1	04hex
CR0	3Chex
CR1	2Dhex
CR2	00hex
CR3	00hex
TR0	00hex
VR0	01hex

all other registers : 00hex

After powering up the ADV7202EB REVA a hardware reset should be applied (PB1).

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EVALUATION SOFTWARE

In order to give the user complete control over the ADV7202, a computer program is supplied with the board.

Setting Up:
Insert DISK 1 into the floppy drive and double click on "SETUP.EXE" and you will be prompted for all other necessary information.

Running the Software:
Double clicking the ADV7202 icon will run the software for the evaluation board.

Initialisation:
After starting the software you will be asked to load a preset.If you are not familiar with the software it is recommended to o.k. this message. You will have the ADV7202 immediately configured in such a way that it will input a CVBS signal on AIN1, decode it and after encoding it output it on DACA output.For this mode to work the on board jumpers need to be configured as prompted by the software and all the SW2 DIL switches must be in the on position.The software also provides 4 autoset mode selections labled A,B,C and D on the main tool bar by selecting these options the user can autoset the board in any of the following modes, CVBS in on AIN2, Y/C input on AIN1 and AIN5 ,YUV input on AIN2,AIN3 and AIN6 and lastly CVBS input on AIN1 with 8 Aux. inputs. The register settings for this preset can be checked by clicking on the READ ALL REGISTERS in the main window.Otherwise it is recommended to consult the datasheet for information about each control.

IMPORTANT THINGS TO KNOW:

Validity of Settings:
The evaluation software can automatically check for an acknowledge or, when any register is changed can automatically read-back the new value stored in that register. The "Continuous Read" function may be enabled in the "Register Access" menu.

I²C Compatible Programming:
This version of software does not take into account the ability of the ADV7202 to accept continuous streams of data. Instead, for every register write or read, it completely re-initiates a start sequence (see the ADV7202 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 ADV7202.This, while being a valid way of writing to the ADV7190/91 is not the optimum method of writing to the ADV7202.

Dynamically Linked Menu System:
All menues in this software are interactive, so when (for example) you change the value of a register all switch settings relevant to that register change will automatically change to the correct state, the inverse is also correct.

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LINK HEADERS

ADV7202 LINKS

These links and switches are used for operating the ADV7202 CoDec:

J1: Link ALSB pin to Ground. This jumper should be inserted when ALSB is chosen to be set low.

J2: Link OSDEN pin to ground.When inserted muxes the 3 OSD inputs to DACA,DACB and DACC outputs.

J3: Link SPI_SEL pin to ground.When inserted selects I2C compatible control, when removed SPI compatible control.

J4: Clock Mode
J4A: ADV7202 is clocked from the on-board 27Mhz clock.
J4B : ADV7202 is clocked from an external clock input through P14.

J5: Link Sync_Out to DAC_CLK0. This jumper links SYNC_OUT to DAC_CLK0 input and is used for some of the modes of operation

J6: Link clock line to input DAC_CLK1. This jumper should be inserted when you you want to congifure the on board 27Mhz clock as DAC_CLK1.

ADV7202 Switch Settings

S1: Board reset. Applying a reset will reset the CoDec and cause its registers to return to their default values.

S2: 10 pin DIL switch pack which links digital outputs D_Out [9:0] to Dac inputs Dac_Data[9:0].

S3: Main power switch.Switches power from an external 7.5V to 9V (500mA) DC source to the evaluation board.

S4: The ADV7202 Codec can operate at 3.3V or 5V , this switch selects the DVDD and AVDD supply voltages to the CoDec.

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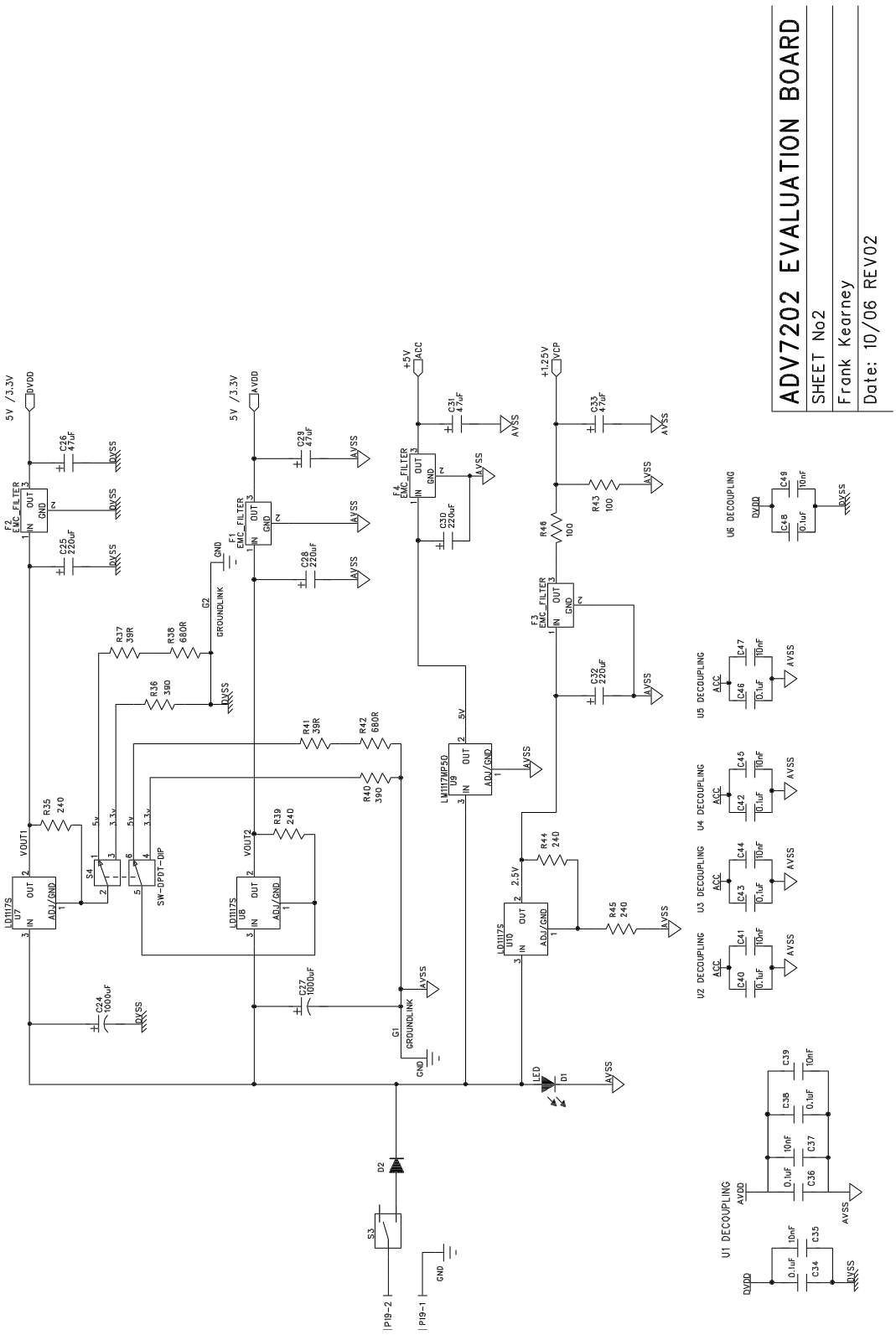

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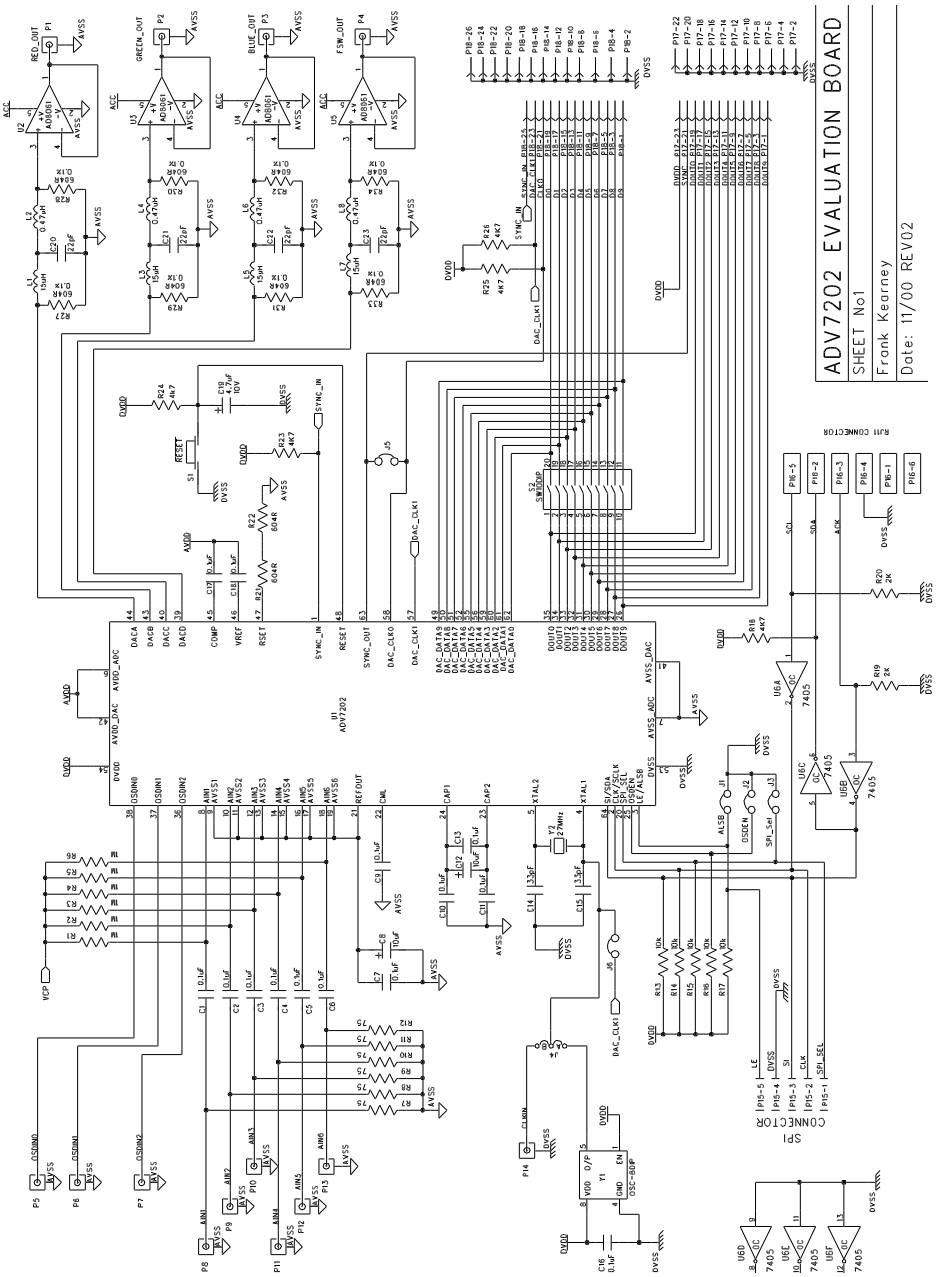

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ADV7202EB REVA CONNECTIONS