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SENSORAY CO., INC.

# PC/104 MPEG Frame Grabber

## Model 516

August 6, 2002

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# 1. Limited Warranty

Sensoray Company, Incorporated (Sensoray) warrants the model 516 hardware to be free from defects in material and workmanship and perform to applicable published Sensoray specifications for two years from the date of shipment to purchaser. Sensoray will, at its option, repair or replace equipment that proves to be defective during the warranty period. This warranty includes parts and labor.

The warranty provided herein does not cover equipment subjected to abuse, misuse, accident, alteration, neglect, or unauthorized repair or installation. Sensoray shall have the right of final determination as to the existence and cause of defect.

As for items repaired or replaced under warranty, the warranty shall continue in effect for the remainder of the original warranty period, or for ninety days following date of shipment by Sensoray of the repaired or replaced part, whichever period is longer.

A Return Material Authorization (RMA) number must be obtained from the factory and clearly marked on the outside of the package before any equipment will be accepted for warranty work. Sensoray will pay the shipping costs of returning to the owner parts, which are covered by warranty.

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# 2. Special Handling Instructions

The Model 516 board contains CMOS circuitry that is sensitive to Electrostatic Discharge (ESD). Special care should be taken in handling, transporting, and installing the 516 to prevent ESD damage to the board. In particular:

- Do not remove the 516 from its protective antistatic bag until you are ready to install it in your computer.
- Handle the 516 only at grounded, ESD protected stations.
- Always turn off the computer before installing or removing the 516 board

# 3. Introduction

The Sensoray Model 516 is an MPEG video encoder/decoder board. Some of the features include:

General

- Real time MPEG-2 and MPEG-1 video encoder and decoder
- Support for variable bit rate and constant bit rate
- IPB pictures to 15Mbps for constant bit rate and 10Mbps for variable bit rate
- Supports multiple resolutions (704x480, 640x480, 352x240, etc.)
- Support for NTSC, PAL
- Composite and S-Video inputs and outputs
- During encoding and standby, video input is fed to output for easy adjustment
- Onboard audio CODEC
- PC/104 form factor
- Either BNC connectors or header for video input and output
- Mini phone jacks for audio input and output
- 2 TTL-level inputs and/or outputs
- Low power

Video encoder

- Generates 13818 (MPEG-2) and 11172 (MPEG-1) compliant elementary streams (ES)
- Operates up to 30 frames per second
- Selectable bit rate

Video decoder

- Decodes both MPEG-1 and MPEG-2 streams
- Horizontal and vertical scaling

# 4. Hardware Configuration

Video, audio and digital I/O are presented on 5 connectors.

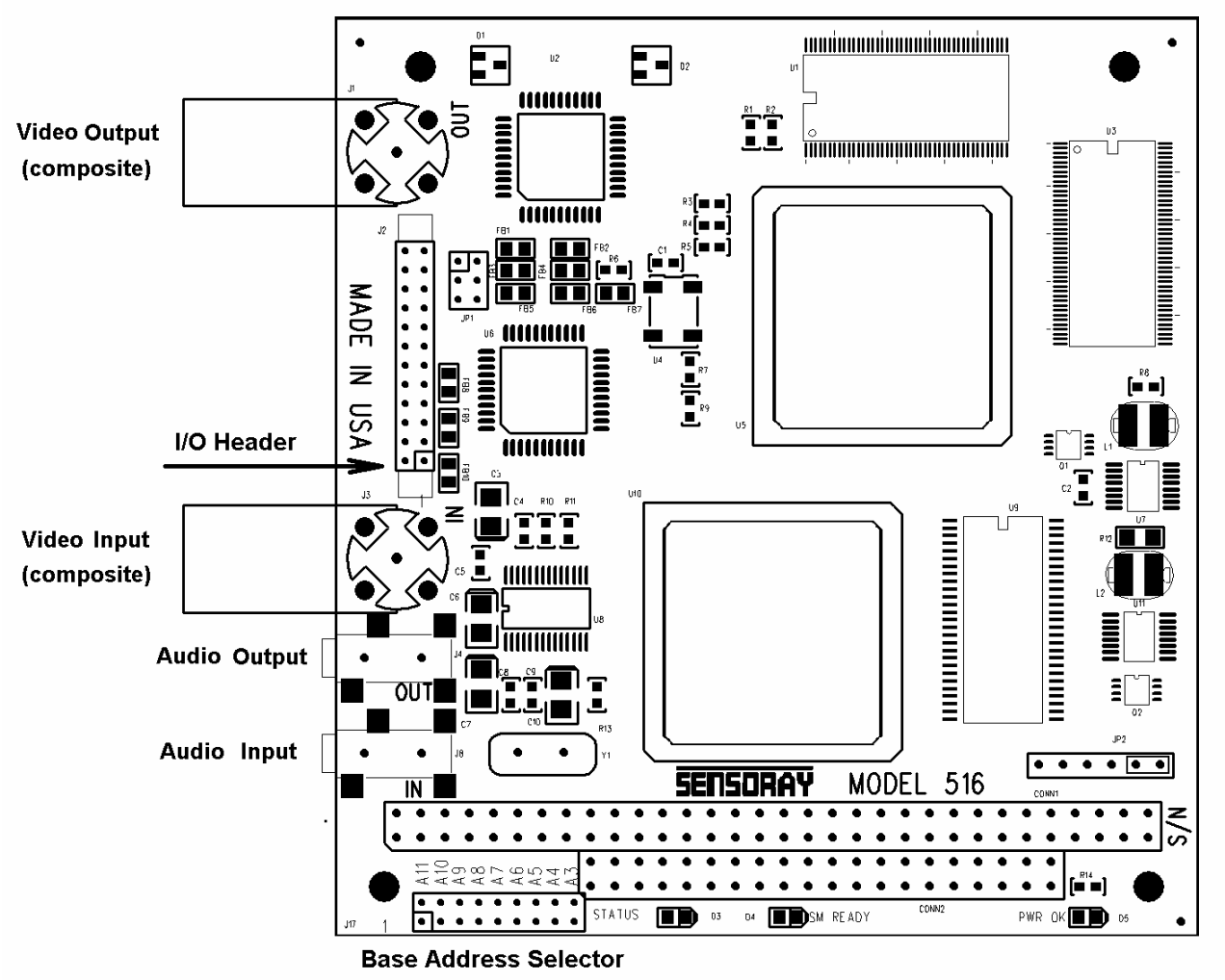



Figure 1. Board Layout

## *4.1. Base Address Selection*

The jumpers marked A6 through A11 are for address selection. A “1” in the table below indicates an installed jumper. A ‘0’ is no jumper. This table illustrates how to determine the base address of the 512.

| A11 | A10 | A9 | A8 | First digit of address | | A7 | A6 | Second digit of address | | Third digit of address |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | F | | 0 | 0 | C | | 0 |
| 0 | 0 | 0 | 1 | E | | 0 | 1 | 8 | | |
| 0 | 0 | 1 | 0 | D | | 1 | 0 | 4 | | |
| 0 | 0 | 1 | 1 | C | | 1 | 1 | 0 | | |
| 0 | 1 | 0 | 0 | B | | | | | | |
| 0 | 1 | 0 | 1 | A | | | | | | |
| 0 | 1 | 1 | 0 | 9 | | | | | | |
| 0 | 1 | 1 | 1 | 8 | | | | | | |
| 1 | 0 | 0 | 0 | 7 | | | | | | |
| 1 | 0 | 0 | 1 | 6 | | | | | | |
| 1 | 0 | 1 | 0 | 5 | | | | | | |
| 1 | 0 | 1 | 1 | 4 | | | | | | |
| 1 | 1 | 0 | 0 | 3 | | | | | | |
| 1 | 1 | 0 | 1 | 2 | | | | | | |
| 1 | 1 | 1 | 0 | 1 | | | | | | |
| 1 | 1 | 1 | 1 | 0 | | | | | | |

**Table 1 Base Address Selection**

**Example 1:**

A11, A10 not installed, A9, A8 installed (First digit is C)
A7, A6 not installed (Second digit is C)
The third digit is always zero; hence we have a base address of CC0 hex

**Example 2:**

We need a base address of F80 hex.
The first digit is F; therefore jumpers A11, A10, A9 and A8 must be removed.
The second digit is 8, therefore jumper A7 must be removed and jumper A6 installed.

If you have two or more 512’s in your system they must have different base addresses. Be sure that you are not using an address used by another device in your system.

## *4.2. Connectors*

The header J1 carries all the I/O signals. The pinout is given in Table 2.

| Pin | Function | Pin | Function |
|---|---|---|---|
| 1 | Digital I/O 1 | 2 | +5V |
| 3 | Digital I/O 0 | 4 | Digital ground |
| 5 | Audio ground | 6 | Audio in - R |
| 7 | Audio in - L | 8 | Audio out - R |
| 9 | Audio out - L | 11 | Audio ground |
| 11 | S-Video out – Y | 12 | Video ground |
| 13 | S-Video out – C | 14 | Video ground |
| 15 | Composite video out | 16 | Video ground |
| 17 | Composite video in 4 / S-Video 1 – C | 18 | Video ground |
| 19 | Composite video in 3 / S-Video 2 – C | 20 | Video ground |
| 21 | Composite video in 2 / S-Video 1 – Y | 22 | Video ground |
| 23 | Composite video in 1 / S-Video 2 – Y | 24 | Video ground |

**Table 2 I/O Header Pinout**

The BNC connectors (if installed) are for composite video. The center pin is the signal and the out shell is video ground.

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