A DIVISION OF CIRRUS LOGIC

CDBCAPTURE

Data Capture and Interface Board for a PC

Features

- Measurement Tool used for the evaluation of Crystal Semiconductor Analog to Digital Converters.
- Easy interface to a PC Compatible computer.
- LabWindows® based evaluation software for data analysis.
- Includes time domain, FFT, and noise distribution histograms.
- Can be used to evaluate the ADC in your equipment.

General Description

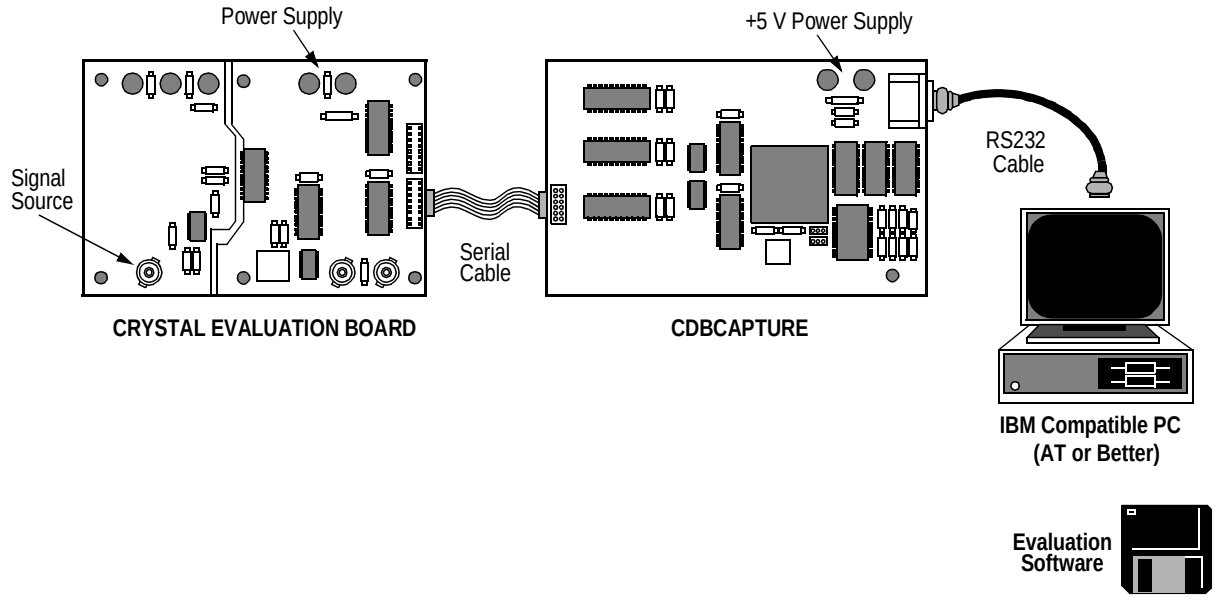
The CAPTURE interface board is a development tool that interfaces a Crystal Semiconductor analog to digital converter to a PC-compatible computer. Digital data is collected in a high speed digital FIFO, then transferred to the PC over a serial COM port. Evaluation software is included to analyze the data and demonstrate the analog to digital converter's performance.

The CAPTURE interface board is designed to be easily interfaced to Crystal Semiconductor Evaluation boards. Application software is loaded via the PC's serial COM port. The software adjusts the CAPTURE interface board for the appropriate signal timing and polarity, coding format and number of bits, thus allowing the same hardware to be used with a variety of Crystal Semiconductor ADCs.

Evaluation software is included with the CAPTURE interface board. The software is developed with LabWindows, a software development system for instrument control, data acquisition, and analysis applications. The evaluation software permits time domain, frequency domain and histogram analysis.

ORDERING INFORMATION

CDBCAPTURE



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OVERVIEW

The CAPTURE interface board captures a block of A/D converter output data, which is then transferred to the PC. The CAPTURE board buffers the high speed digital data in a FIFO and transfers the data to the PC via the COM port. Figure 1 is a functional block diagram which illustrates the data acquisition process.

The setup for the CAPTURE board is simple. A serial cable is connected from the evaluation board to the CAPTURE board. An RS232 cable is connected from the CAPTURE board to a PC COM port. A +5V power supply is required. Upon reset, the microcontroller (µC) on the CAPTURE board begins executing boot code from its internal EPROM. The boot code monitors the µC's serial port for application software from the PC and stores the application software in SRAM. The application software is specific for the type of A/D converter being used. When the transfer is complete, the µC executes program code out of the SRAM and turns on the LED.

With the µC running the application software, the data collection process can begin. The collection process is started by a command sent from the PC to the CAPTURE board. When the collection command is received, the CAPTURE board synchronizes itself to the FRAME signal and begins capturing data from the ADC. The serial cable signals are optically isolated for optimum noise isolation. Data is stored in a serial FIFO. The writing to the FIFO is controlled by the µC and Counter/Control circuit.

The CAPTURE board collects one channel of data from the ADC. When the data sample set has been collected and stored in the serial FIFO, the µC reads the data out of the FIFO and converts the format to 2's complement if required. The data in 2's complement format is then transferred to the PC via the RS232 cable connected the PC's COMM port.

The evaluation software developed with LabWindows® performs post processing of the digitized signal (source code included). Time plots, FFT analysis and noise analysis are included. The software operates upon sample sets as large as 8192. For more sophisticated analysis, the LabWindows® development system can be purchased from National Instruments (512-794-0100).

CS5012A	CS5126	CS5329	CS5389	CS5506
CS5014	CS5317	CS5336	CS5390	CS5507
CS5016	CS5322	CS5338	CS5501	CS5508
CS5032	CS5326	CS5339	CS5503	CS5509
CS5101A	CS5327	CS5345	CS5504	CS7870
CS5102A	CS5328	CS5349	CS5505	CS7875

Crystal Parts Supported by Capture Board
***Future products will be added with software updates**

Packaging List: CDBCAPTURE Interface Board
Serial Cable
EIA232 Cable (RS232)
3.5" 1.44 MB Software Diskette

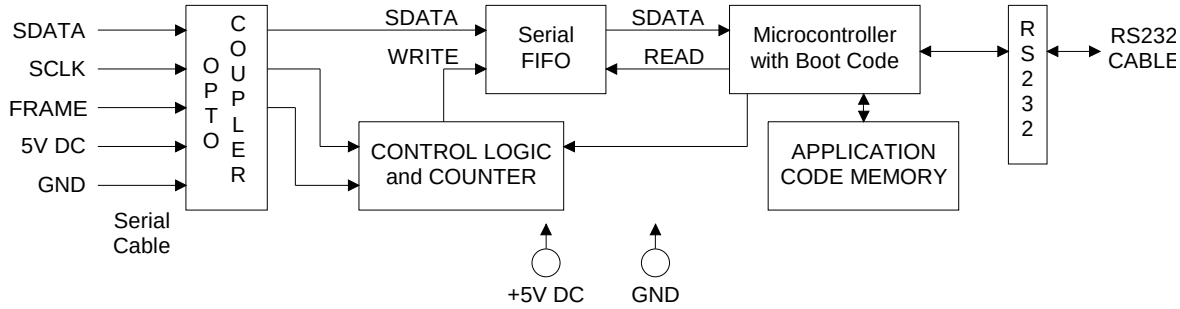

Figure 1. Functional Block Diagram

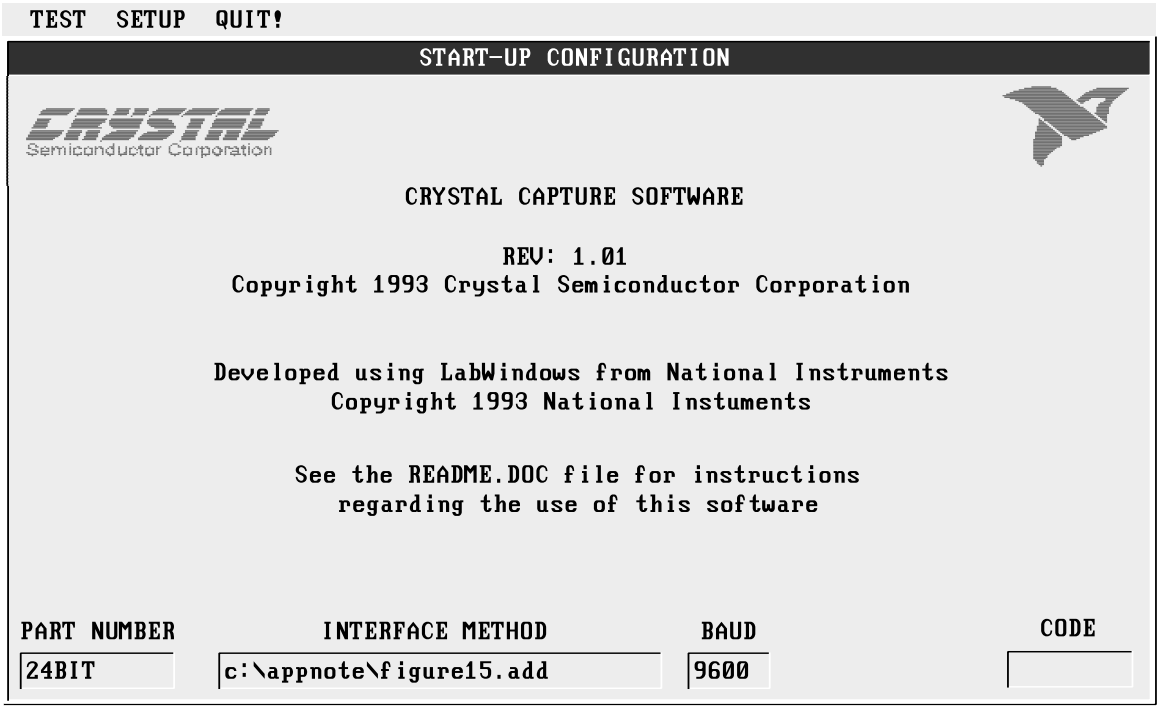

Figure 2. Main Menu

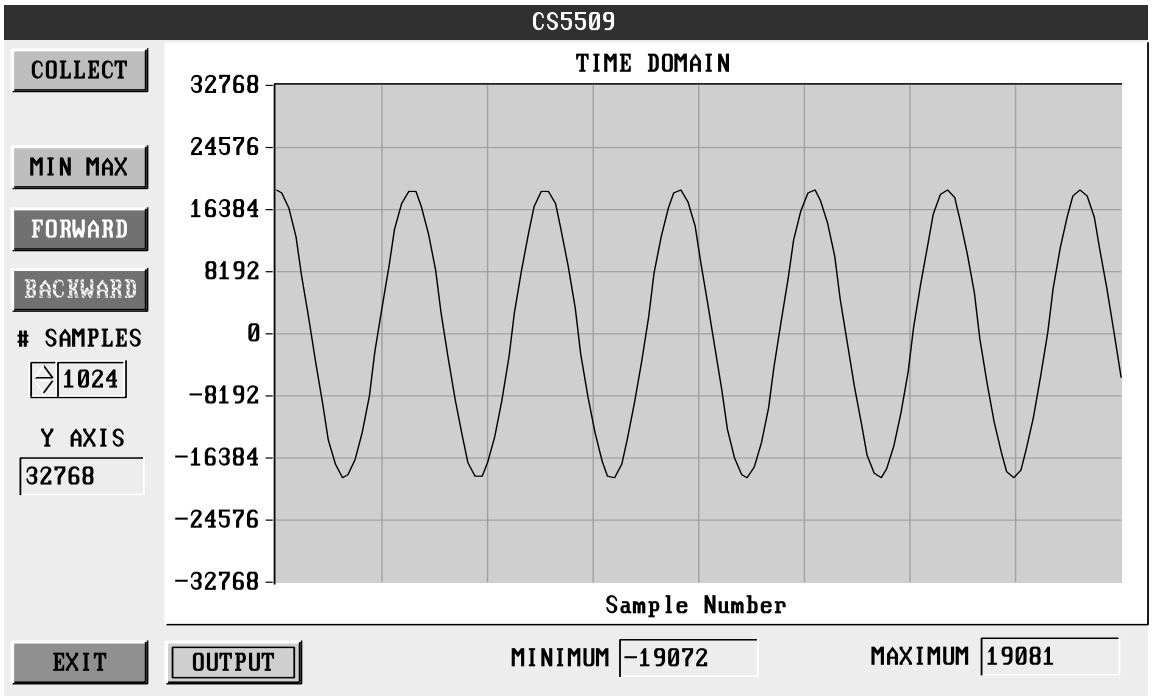

Figure 3. Time Domain Analysis

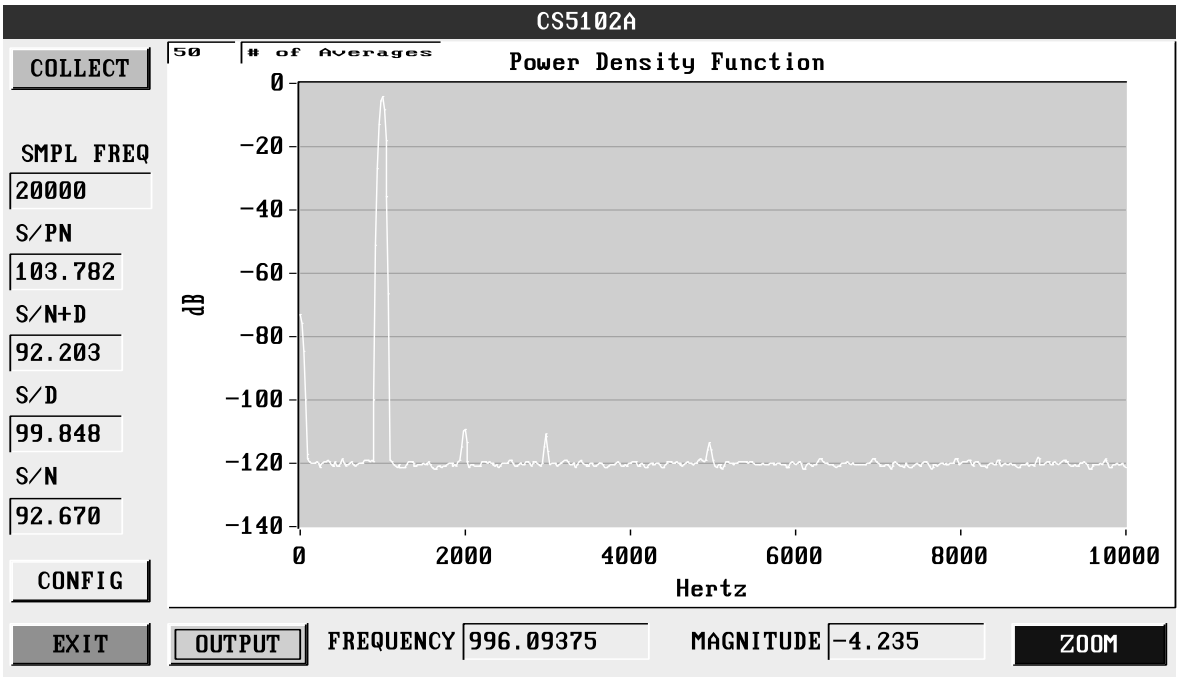

Figure 4. Frequency Domain Analysis

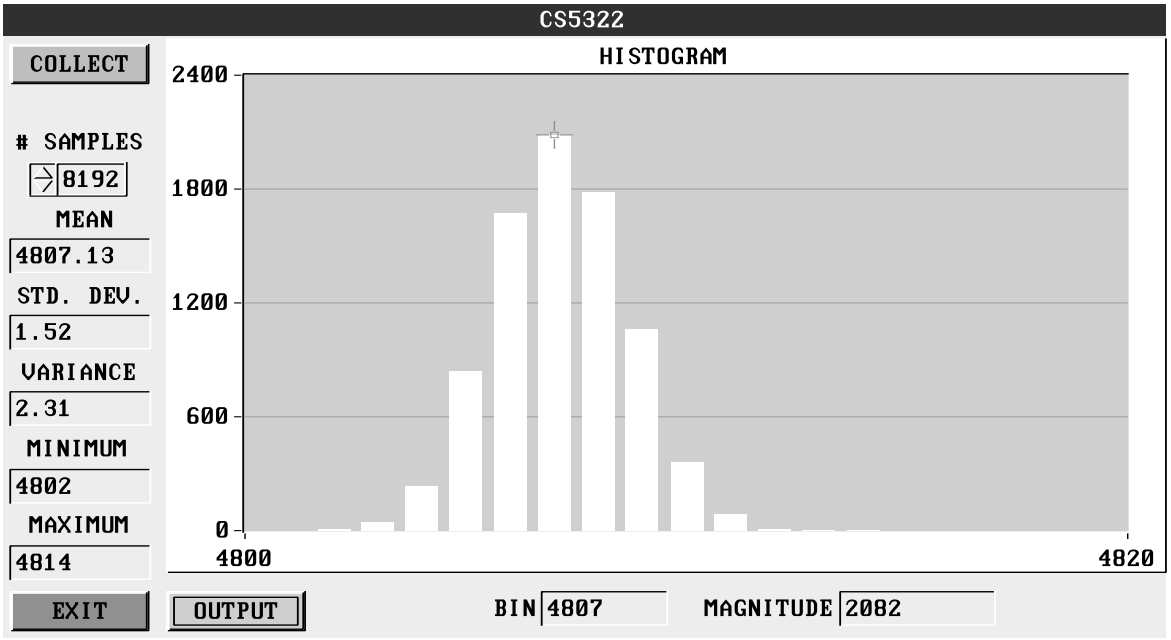

Figure 5. Histogram Analysis

• Notes •


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