The power supply circuitry is also located on the analog A2 PCB. The separate Power adapter/bat charger **PM8907/...** converts the line voltage into 15V DC. This voltage is used by the **BATTER CHARGER** to charge a **NiCad BATTERY PACK (PM9086/001)**, if present.

The **POWER SUPPLY** section transforms the input voltage (line operated) or the battery voltag (battery operated) into the supply voltages for the various ScopeMeter circuits on A1 and A2.

Digital A1 PCB

The ScopeMeter is controlled by the **MICROPROCESSOR**, located on the digital A1 PCB. This microprocessor performs several control tasks, for example:

- Scanning the **KEYPAD** for user commands. The keypad is connected to the microprocessor the **KEYPAD DRIVERS**.
- Communication with the outside world via the **OPTICALLY COUPLED RS-232-C TRANSCEIVER**. This section contains an Infrared LED (transmitter) and a phototransistor (receiver).
- Monitoring the battery voltage (**BATTERY SENSE CIRCUIT**).
- Controlling the Analog ASIC on the analog A2 PCB.
- Switching the power on or off (**POWER ON/OFF CIRCUIT**).
- Performing a proper RESET at power on (**RESET CIRCUIT**).
- Controlling the analog A2 circuits (via the **ANALOG CONTROL CIRCUIT**).
- Signal processing of acquired data. The microprocessor reads, calibrates and stores the acqu data.

The **DIGITAL ASIC** is the core of the ScopeMeter's digital circuitry. It provides:

- Timebase functions. For example: the ScopeMeter's ADC sampling signal is generated by th Digital ASIC.
- Trigger functions (in real-time sampling mode).
- Acquisition Control Logic (ACL). This function controls the acquisition according to trigger an acquisition modes. The Digital ASIC contains acquisition RAM for quick data storage.
- Min/Max mode.
- Decoding of the internal ASIC addresses and synchronization of Digital ASIC and microproces access to the acquisition RAM.
- Display control. The Digital ASIC generates the picture to be displayed on the LCD.

The picture, generated by the Digital ASIC is displayed on the **Liquid Crystal Display (LCD)**. T LCD is controlled by the **LCD ROW DRIVERS** and the **LCD COLUMN DRIVERS**. The **LCD SUPP** section provides for the voltages needed. ScopeMeter model 97 has a **BACKLIGHT CIRCUIT**, wh can illuminate the LCD.

3.2.2 Data acquisition

- Data acquisition path in the ScopeMeter

The analog input signals are first attenuated and/or amplified and then converted into digital val by the ADC. The samples of the input signals are stored in the Acquisition RAM of the Digital AS If 512 samples are stored in memory, the second trigger pulse will signal the microprocessor that acquisition is ready. (We assume that the ScopeMeter is using random repetitive sampling, see r section.) Then the acquired data is ready for processing. The microprocessor reads the data from Acquisition RAM and processes the data according to the actual calibration values. These calibra values (constants) are copied from Flash ROM to RAM during startup. The calibration values ha been stored in Flash ROM during the calibration process. After processing, the data is stored in External RAMs. These RAMs also contain the more static picture elements, for example the gri cursor- and text data.