FREQUENCY CONTROL IN THE RECEIVER USING A GPIB (GENERAL PURPOSE INTERFACE BUS)

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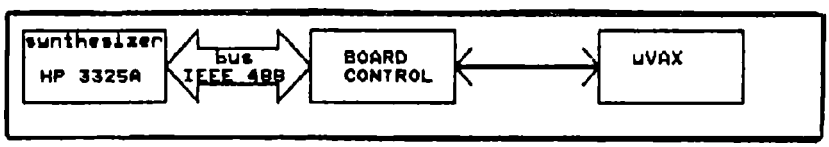
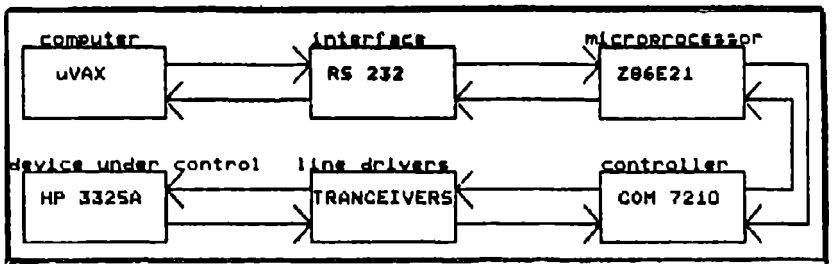
The IAR (Instituto Argentino de Radioastronomia) has a spectral analyzer which makes the auto correlation function of the received signals from the radiometer.It is a means to analyze different spectral lines.
One of the autocorrelator's features is STABILITY because of the digital circuits it works with.
Because of its high resolution,it becomes necessary to update the frequency of one of the locals oscillators to obtain a satisfactory result when an observation is made.The necessity to update the oscillator frequency is to compensate the shift produced by the terrestrial rotatory movement.
The solution to this problem is to control first local oscillator of the receiver because it is an HP 3325 synthesizer with the capability of remote control by means of standard bus according to IEEE-488 st.
The control circuit links a uVax computer and the synthesizer.Therefore, the system takes into account the computer RS-232 output, the synthesizer IEEE-488 bus, and the control board itself as it is shown in the block diagram.



HARDWARE

The system board control is a full-function IEEE-488 interface.The block diagram shows the basic elements of the interface hardware.

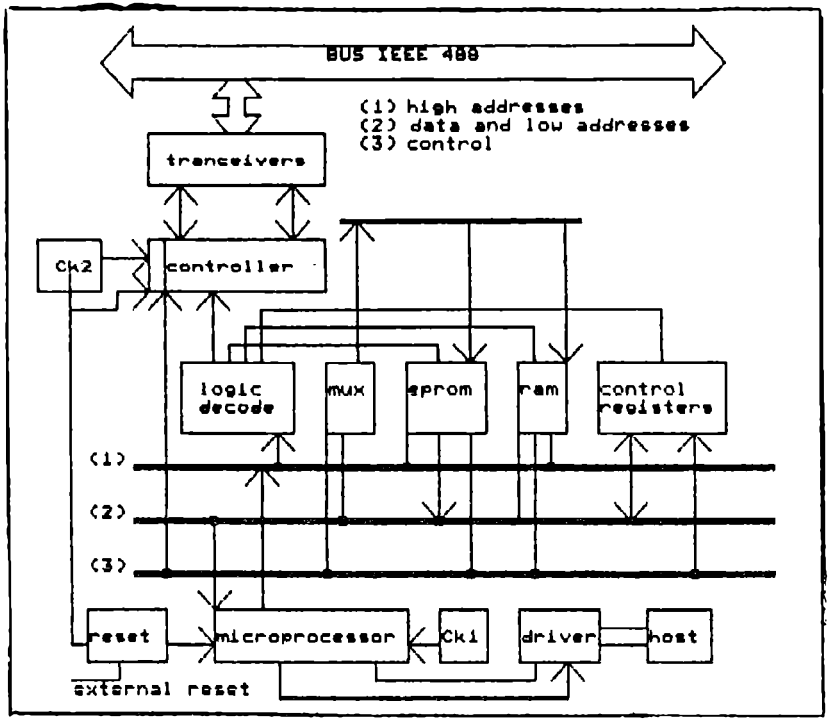


The card controls and communicates any compatible instrument with the standard. It implements the full range of talker, listener, controller and remote programming functions.

CONTROLLER: it manages the bus IEEE-488 by addressing devices to be *talkers, listeners* as well as programming them to perform functions. It implements the most complete subset of interface functions and transfers commands and data.

MICROPROCESSOR: it stores and executes the program that updates frequency and communicates the host computer via RS 232 shannon.

The following is a more detail block diagram of the system which shows the complete circuitry.



REFERENCES:
-IEEE Std 488-1978 (Revision of ANSI/IEEE Std 488)
-IEEE-488 Interface Design, Electronic Design.