T E C H N O T E

DATE: 5/13/99

SUBJECT: WinCal and GPIB switch box (P/N 107-107) on a PS21

The GPIB switch box is used to connect and disconnect an external GPIB controller computer. This is useful when WinCal is installed on the prober and needs to take control of GPIB to calibrate the VNA, but the external computer is otherwise making VNA measurements. On GPIB there can only be one system controller connected at the time.

Connections

On the box top (GPIB contacts) the prober and the VNA is connected on one side and the external computer on the other. Then WinCal can be set up to disconnect the host, take control read the VNA , give up control and reconnect the external computer. The external computer needs to issue a GPIB reset when reconnected and it is also a good idea to make a serial poll to clean out any old ones.

The GPIB switch box is verified to be functional on a PS21, but there has been a revision change in what pin is connected to the prober, so old GPIB boxes will only work on Summits. New ones (made after summer 1998) will work on both. Call service if you have problems with this. The green power light should come on by just connecting the 9-pin cable to the prober. On the PS21 the 9-pin contact is labeled VNA-CAL.

Testing switching functionality can be done in System Manager. Invoke the test dialog for the “Engine: PS21 Stage Tests” component. There is a checkbox there labeled “Disconnect Extern GPIB Controller”. It should make the red light on the box go on and off.

WinCal settings

Use menu Config-Options to bring up the property sheet WinCal Options. The Manual checkbox in Prober Operation needs to be unchecked. Select the GPIB tab. In “Bus Control Method” select “Use switch box to disconnect host” and press OK. The go back to the same place and try the “Connect” and “Disconnect” buttons which should toggle the red light on the box.

WinCal operations

When everything is set up as above WinCal will do the switching. When entering a Calibration, PPR or Probe Test dialog the external host is disconnected and the PS21 GPIB listening stopped. When leaving the dialog the host is reconnected and the prober listens to GPIB again. Note that the external host needs to do a GPIB reset before the bus is useful again. In the S-parameter tool WinCal will do the switching at the time of the read request and restore it right afterwards.

If you do not have an external host you can set WinCal to be “Always controller” and delete the “Communications: GPIB” component in the PS21 System Manager. The switch box is then not needed either.

About the host

If you use any SRQ scenario (EG emulation always does) and National Instruments card is used on the external host, then make sure to turn off Auto Serial Poll and code your own command handling. It is easy to get out of sync. with the SRQ and Serial polling otherwise. When the switch is reconnecting the host it is like connecting the cable for the first time and a reset is needed for the host to go on communicating.

Using HP-Basic on the host

Add ',END' after each output command from HP Basic, running on the UNIX workstation. Also 'ABORT 7' should be sent after reconnecting the host and use 'PASS CONTROL 700' to give control up before WinCal takes over.

For HP-VEE see: TECH NOTE HP VEE Setup.doc