T E C H N O T E

FROM: Herje Wikegard **DATE:** 5/24/99
SUBJECT: **Installing and using WinCal on a PS21**

WinCal 2.3 will run on NT 4.0 and can be set up to control a PS21 in the same manner as it controls a Summit 12000 series prober, i.e. in a semi-automatic fashion.

PS21 version 1.9.1, 1.9.2 and 1.9.3

WinCal will only record x,y,z for positions. No theta! This means that when a new wafer is loaded and aligned, the recorded ISS position is no longer valid, although it should be somewhat close to where it was before. This all depends on how much theta adjustment the PS21 is forced to make between wafers. Just after a wafer is loaded (but before aligning) the theta angle is set at zero degrees. This is a good time to make calibrations on the ISS and have a constant ISS angle between calibrations. It is also possible to use the PS21 GUI to record custom locations that includes a theta angle and use them to go in between angles.

In PS21 software version 1.9.0 the move speed used by Summit commands will be "last used speed". After an auto align the speed is rather slow, so before WinCal is used, make a manual fast move. This is not an issue in PS21 software version 1.9.1 and later.

PS21 version 1.9.4

WinCal will record x,y,z and theta for positions. This means that when moving back to a recorded position, the theta angle is restored as well. But remember there is no encoder on theta and it will be to the resolution and accuracy of the motor counts. Also be aware that if WinCal changes theta, it is the responsibility of the operator to restore theta to fit the wafer, either by moving back to a recorded wafer position (with correct theta) or by re-aligning the wafer. The win.ini file need to have *RemoteThetaEnabled = 1* in the *[CascadeMicrotech]* section for this feature to be used by WinCal.

All PS21 versions

PS21 installation does not add anything to the WIN.INI file yet. WinCal needs that information to see that it is running on a PS21. Add the following to win.ini before WinCal is installed. Use any text editor, or run "sysedit" from the NT Start button-Run menu.

```
[CascadeMicrotech]
   SysMgrVersion=1.9          Do not use more than 1 period.  It is only for WinCal to read.
                              Use 2.0 when that version of PS21 is installed (future)
   SysMgrPath=c:\raven\bin\   Modify as needed, but make sure to include the last "\".
   RemoteThetaEnabled = 1     Version 1.9.4 can turn this on.  If keyword missing it is off.
```

During installation WinCal will then add the following to the same section:

```
   WinCalVersion=2.3
   WinCalPath=c:\cascade\wincal23\     Or wherever WinCal got installed
```

Put the hardware key (P/N 106-752) on the parallel port in the back of the prober.

Remember that when WinCal is controlling the VNA the prober cannot receive commands from any remote host over GPIB. There can only be one system controller on a GPIB network. WinCal makes the prober take control when it needs to, but that will fail if a remote host is still attached. The GPIB switch box could be a solution.

If the test program can run on the prober there is no problem with GPIB control. Then the "Communications: GPIB" module can be removed from default.cfg on the PS21, and it will never be controlled by an external GPIB computer. WinCal can then be setup to leave the prober as GPIB controller all the time.

In case of failures

If there is a problem with the GPIB switching and something locks up (drivers, communication, other test program etc.) you might run in to a situation where WinCal is not visible but some part is still loaded in memory, or just locked up, both of which stops you from starting it again.

To get out of this it is usually possible to just terminate the NT 16-bit virtual environment and thereby leave System Manager and the PS21 GUI running. To do this bring up *Windows NT Task Manager* by pressing Ctrl-Alt-Del and selecting *Task List* in the dialog that comes up. Then select the *Processes* tab in the next dialog. In that list you should find something that looks like this:

NTVDM.EXE
    wincal.exe
    wowexec.exe

This is the NT virtual 16 bit driver module (wowexec stands for Windows On Windows). Select NTVDM.EXE and press the *End Process* key. Answer *Yes* to confirm process termination.