

PURPOSE:

This document is intended to provide the Service Technician with a set of tests that must be satisfied in order for an UniSite programmer to be issued a "performance verification" certificate. Use the Performance Verification tests checklist to insure all tests are completed.

EQUIPMENT REQUIRED:

- * Small Phillips screw driver
- * Digital Volt Meter (DVM), Voltage: 0-20 Vdc, 3 Digit display minimum
- * Oscilloscope or a Frequency Counter, frequency range \geq 15 MHz
- * UniSite DIP shorting Slug (40 Pin and/or 48 Pin)
- * VT-100 Terminal OR Wyse-30 Terminal OR a PC running Hiterm Software
- * PinTest Software

PERFORMANCE VERIFICATION PROCESS:

The following tests must be successfully passed in order to issue a "performance verification" certificate:

- I) Power-Up SelfTest
- II) One Complete Selftest Loop (including PSM/FSM test)
- III) PinTest Software Tests:
 - a) Pindriver Test
 - b) Waveform Calibration Test (Calibrate DAC's)
 - c) PSM Test
 - d) FSM Test
 - e) Continuity Test (requires UniSite shorting slug)
 - f) PLIC Test (FSM only)
- IV) Verification of Main Power Supply Voltage, Precision Voltage Reference and the System clock.
- V) 24 hour Burn-in in selftest loop. Program an EPROM with no errors.

I) Power-Up Selftest (System Software)

This is the first test that is to be performed. This test has the least stringent test parameters of all the software tests. Successful completion of this test verifies that there is no drastic hardware failures in the Controller board, Waveform board, Pindriver boards or the power supply.

- 1) Connect the Programmers Terminal port to a Terminal or a PC running Hiterm software.
- 2) Turn on the Programmer.
- 3) Verify that the Programmer Banner Screen is displayed and that no selftest failures occur.

II) Complete Selftest Loop (System Software)

This test will perform most of the same functions as the power-up selftest and also provide testing of the PSM and FSM (including PinSite bases). Successful completion of this test verifies that there are no drastic problems with any of the programmers major electronic subassemblies.

- 1) Access the Programmers Selftest screen.
- 2) Run one complete loop of the selftest (all tests).

III) PinTest Software Tests

The tests performed with "PinTest" software will provide a more stringent level of software testing than the standard system software self tests. Additionally, PinTest software may provide the service technician with a visual indication of where various voltage levels are relative to the acceptable ranges. The continuity tests (using the shorting slug) will allow the technician to identify DIP sockets that are marginal or bad.

Insert the PinTest disk into the programmers drive A and reboot the programmer.

A) Pindriver Test

- 1) Remove any PSM or FSM modules that are installed.
- 2) From the PinTest software Main Menu select "Self tests".
- 3) From the SELF-TEST Menu select "Pindriver Self test".
- 4) From the Pindriver Self test screen select board 1 and use the PF2 key to continue testing all Pindriver Boards.
- 5) After all pindriver boards have been tested, re-install the PSM and FSM modules.

The Unit Under Test (UUT) must PASS all tests. Any tests that fail will be displayed as well as a listing of the measured values versus the acceptable ranges.

B) Calibrate DAC's

- 1) From the PinTest software Main Menu select "Self tests".
- 2) From the SELF-TEST Menu select "Calibrate DAC's".

The UUT must pass completely without any failures. Any tests that fail will be displayed as well as a listing of the measured values versus the acceptable ranges.

C) PSM Test

- 1) From the PinTest software Main Menu select "Self tests".
- 2) From the SELF-TEST Menu select "PSM self test".
- 3) From the PSM-TEST MENU select "Single pass PSM self test".
- 4) Press the <return> key to perform the PSM self test.
- 5) Return to the PSM-TEST MENU and select "Socket Test".
- 6) Insert the UniSite DIP shorting slug (fig. #4) into the PSM ZIF socket and lock in place.
- 7) Press the <return> key to perform the socket continuity test.

The UUT must pass completely without any failures. Failures will be shown in a screen display of the pins that failed to make proper continuity.

D) FSM Test

- 1) From the PinTest software Main Menu select "Self tests".
- 2) From the SELF-TEST Menu select "FSM self test".
- 3) From the FSM self test menu select "Full test, one pass".
Follow the on-screen instructions, placing the shorting slug (fig. #4) in the appropriate FSM DIP socket (SetSite only).
- 4) Return to the FSM self test menu and select "PLIC test, one pass".

The UUT must pass completely without any failures. Failures will appear as a screen display that shows what test failed.

IV) Power Supply/Precision Voltage Reference/System Clock Verification

The tests described in this section are intended to confirm that actual voltage levels are within acceptable tolerances. Although the system software (and PinTest) performs various voltage tests, there is still a possibility that these critical voltage levels may be out of specification.

To perform these measurements the top cover must be removed to access test points on the Controller and Waveform boards.

Refer to Table 1 and Table 2 for acceptable readings. Figures 1, 2 and 3 indicate test point locations. Record the measured values on the Performance Verification tests checklist (steps 8 through 13).

Table #1
Waveform
Board
Voltage
Spec.'s

Test Points	Tolerance
+10V Ref TP1	+9.990V to +10.010V
AGND TP2	GND
+5V Ref TP3	+4.5V to +4.8V
-10V Ref TP4	-9.8V to -10.2V
-10V TP5	-9.8V to -10.2V
+40V TP6	+39.20V to +40.80V

CAUTION: The Test Point (TP) numbers are silkscreened on the printed circuit board. Refer to Figure #1 for the TP locations. The test point is a post on the board. Observe all ESD precautions when making the measurement and do not touch the circuit board without a grounding wrist strap attached to your body. TP2 (GND) is used as the low potential testpoint for TP1, and TP2-TP6 verification measurements.

Figure #1

Waveform Board
Test Point Locations

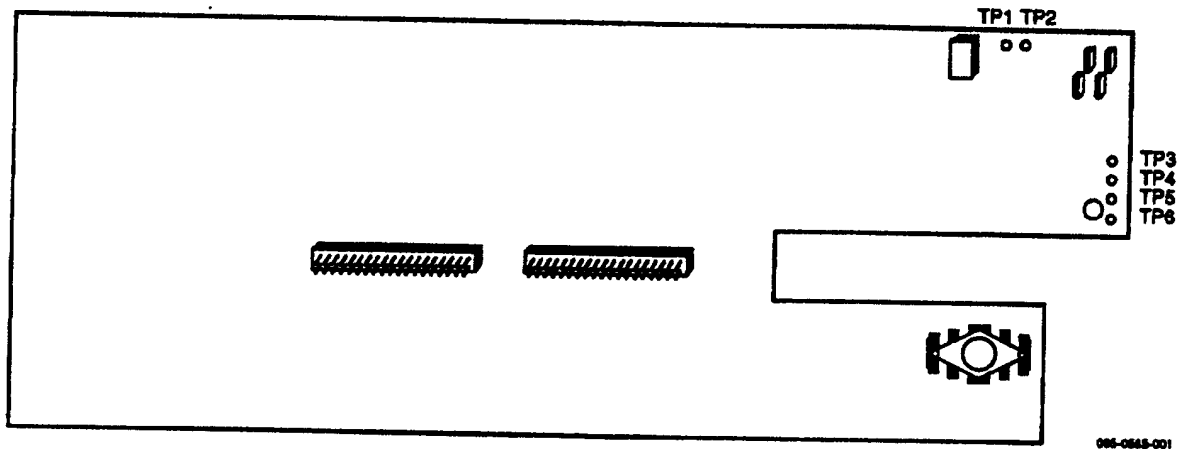


Table #2
Controller
Board
Voltage
Spec.'s

Test Points	Tolerance
-15V	+5.999V to +10.000V <i>-14.3V -15.3V</i>
+5V	+4.75V to +5.25V
+12V	+11.4V to + 12.6V
+21V	+19.9V to +22.8V
+48V	+43.0V to +55.0V
Sys. Clock	9.9990 Mhz to 10.0010 Mhz

CAUTION: The Test Points are silkscreened on the Controller printed circuit board. Refer to Figure #2 and Figure #3 for the test point locations. The test point is a post on the board. Observe all ESD precautions when making the measurement and do not touch the circuit board without a grounding wrist strap attached to your body. The GND post is used as the low potential test point for all verification measurements.

Figure #2

Controller Board
Test Point Locations

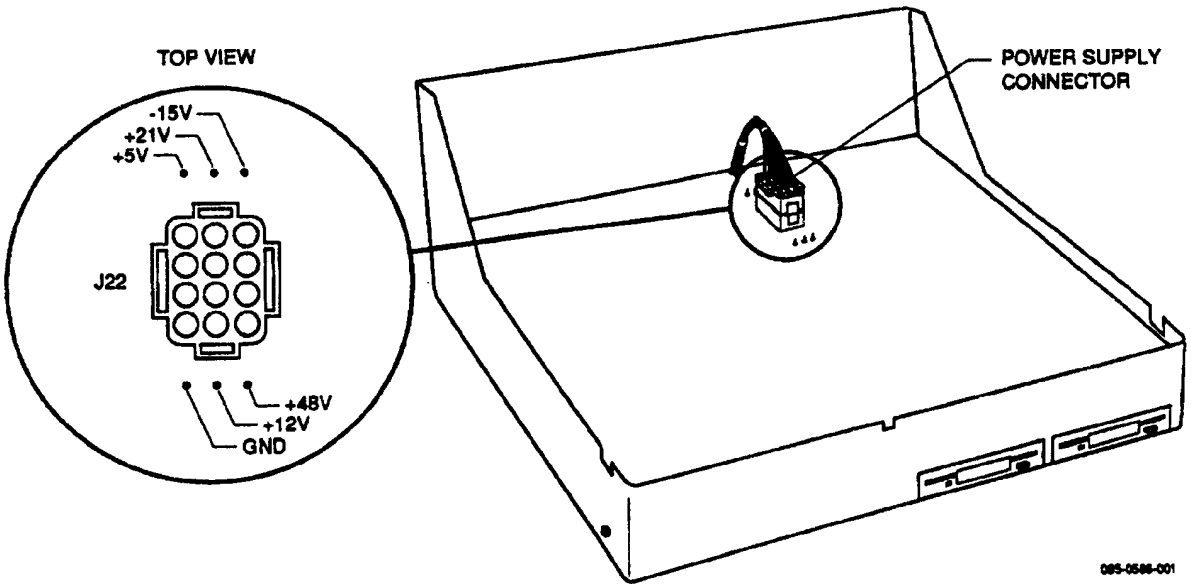


Figure #3

UniSite Master
Clock Test Point
Location

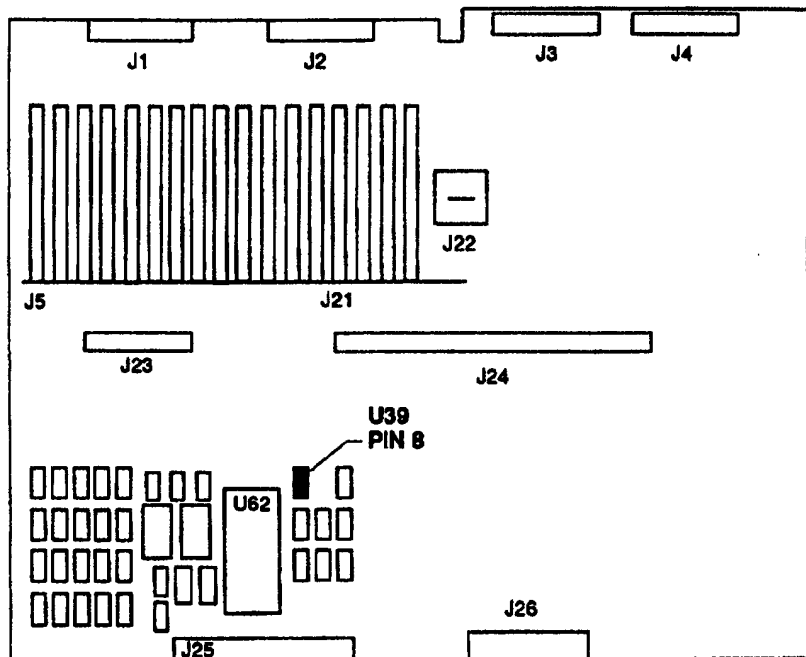
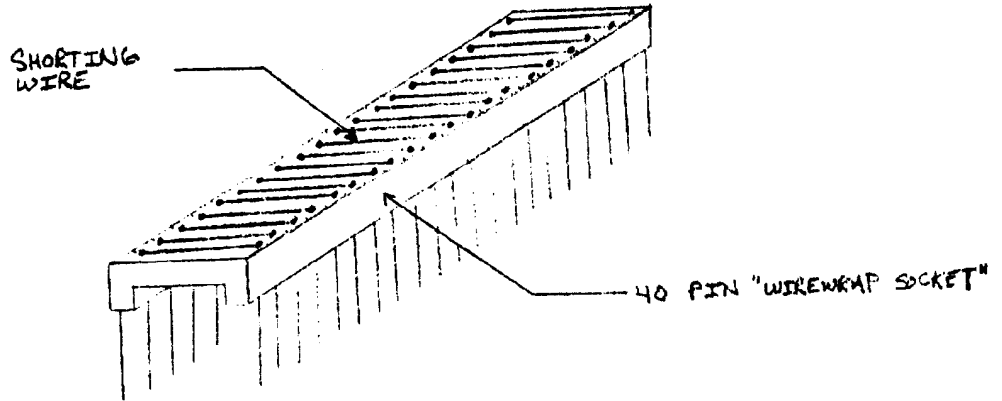
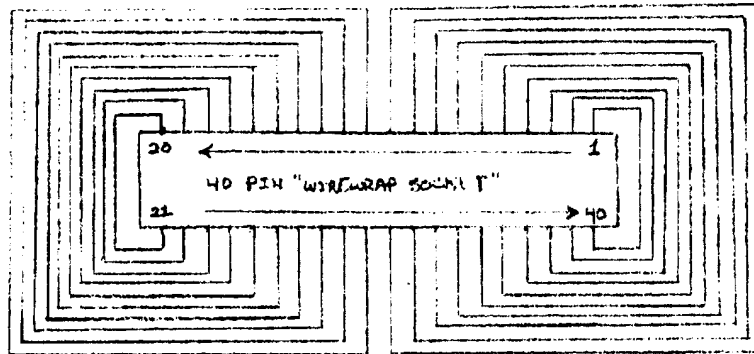


Figure #4

UniSite DIP
Shorting Slug and
Schematic. Used
for Socket Tests.



Recommended "Wirewrap Socket" Shorting Slug



Schematic Diagram of UniSite DIP Shorting Slug

7) PROGRAMMER BURN-IN

The tests described in this section are intended to identify any problems that might tend to appear only after the programmer has been powered-up for a period of time.

This test consists of a 24 hour burn-in period (running in a continuous selftest loop).

Perform the following steps:

- 1) Insert the System disk into Drive A of the programmer and reboot the programmer.
- 2) From the Main Menu select "More Commands".
- 3) From the More Commands Menu select "Self Test".
- 4) Select "continuous loop".
- 5) Press the <return> key to start the loop testing. Allow the loop tests to run for a minimum of 24 hours.
- 6) Press the Cntrl-Z to break out of the loop tests, no errors should be reported.
- 7) Program an EPROM (ANY MANUFACTURER SUPPORTED WITH THE CUSTOMERS CONFIGURATION). Any data pattern is acceptable.

UNISITE
PERFORMANCE VERIFICATION TESTS ^

YES NO The programmer must pass (Y) the following tests to be issued a performance verification certificate:

- 1) ___ ___ Power-Up Selftest (System Software). S/W Ver: _____
- 2) ___ ___ Complete Selftest (System Software).
- 3) ___ ___ Waveform Calibration Test (PinTest). S/W Ver: _____
- 4) ___ ___ Pindriver Tests (PinTest).
- 5) ___ ___ PSM and/or FSM Tests (PinTest).
- 6) ___ ___ PLIC Test, if applicable (PinTest).
- 7) ___ ___ Continuity Test (PinTest).
- 8) ___ ___ +10 Volt Ref. (Waveform Board).
Actual Voltage _____ Vdc (Before Servicing)
Actual Voltage _____ Vdc (After Servicing)
- 9) ___ ___ +5 Volt Ref. (Waveform Board).
Actual Voltage _____ Vdc (Before Servicing)
Actual Voltage _____ Vdc (After Servicing)
- 0) ___ ___ -10 Volt Ref. (Waveform Board).
Actual Voltage _____ Vdc (Before Servicing)
Actual Voltage _____ Vdc (After Servicing)
- 11) ___ ___ -10 Volt (Waveform Board).
Actual Voltage _____ Vdc (Before Servicing)
Actual Voltage _____ Vdc (After Servicing)
- 12) ___ ___ +40 Volt (Waveform Board).
Actual Voltage _____ Vdc (Before Servicing)
Actual Voltage _____ Vdc (After Servicing)
- 13) ___ ___ System Clock Measurement.
Actual Frequency _____ Mhz (Before Servicing)
Actual Frequency _____ Mhz (After Servicing)
- 14) ___ ___ Burn-in test. (24-hour minimum!)
- 15) ___ ___ Program an EPROM (ANY MANUF. THAT IS SUPPORTED).

Service Center _____ Technician _____

Date of Performance Verification _____ S/N _____

Repair Authorization (RA #) _____

^ A copy of this checklist (and also a completed Performance Verification Certificate) must be included with the machine when returned to the customer. The original copy must be kept on file for future reference.