Products Affected:

5600MSC

Reason for Bulletin

To provide information on updating systems where two or more 5600MSC units are deployed.

Overview

This information is provided to assist in updating systems as seamlessly as possible so that a minimal amount of disruption will occur. Depending on the method that was used to reference, these systems will dictate the amount of disruption that may occur. For systems using precise time information (GPS), the update should be seamless, provided the upgrade information is followed for this process. For other methods, which were employed for referencing, consideration will need to be made when performing these updates.

During the updating process, if the synchro mode is being used, this will be disrupted, as the COM port will be required to perform the update.

5/10 MHz Internal or External Reference:

Using this method of reference will provide the 5600MSC with a sync reference. However, the phase of these signals will vary. To ensure that both units are in phase with each other, the phasing needs to be checked whenever a unit is powered down. Failure to do this may result in unpredictable results to downstream equipment, particularly if they are phase dependent.

Video Reference:

When NTSC is being used as a reference to the 5600MSC, output signals will be phased to this signal with the exception of the DARS output. If interruption has occurred this output should always be checked for correct phasing.

If a PAL signal is being used, this is not a concern.

Preparation

In order to successfully complete the update, the following will be required:

1. Straight Through Cable
2. Laptop or PC with available COM port with a 16550 UART is preferred.
3. A terminal program (Such as HyperTerminal or Tera Term) that is capable of X modem file transfers.

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Updating the 5600MSC System

Before updating either of these units, be sure that nothing in the downstream chain will be affected. Be sure that ALL sync signals are derived from the primary unit first!

If you are using a 5600ACO, select the primary unit (generally A) and then switch the 5600ACO to manual mode. This will prevent any unplanned switches during this upgrade.

1. Connect the serial cable to the COM DB9 connector on the rear panel of the unit to be updated.

2. Connect the 9 pin connector on the end of the serial update cable to the PCs' RS-232 communications port.

3. Start the terminal program.

4. Configure the port settings of the terminal program as follows:

Baud	**57600**
Parity	**no**
Data bits	**8**
Stop bits	**2**
Flow Control	**None**

5. You can invoke the Firmware upgrade mode using the front panel Setup Menu. (See section 3.2 in the 5600MSC manual for information on how to operate the front panel menus.) Press the **GENERAL** key to enter the GENERAL Setup menu. Scroll to the *FIRMWARE* menu item using the arrow keys (↑,↓) or turn the **SHAFT ENCODER** knob and then press **SELECT**. If you want to upgrade the main operating firmware in the 5600MSC, scroll to the *Upgrade 5600MSC* menu item using the arrow keys (↑,↓) or turn the **SHAFT ENCODER** knob and then press **SELECT**.

   The front panel will show the message ARE YOU SURE? for 1 second. To proceed, press the **SELECT** key. The front panel will show the message VERY SURE? for 1 second. This warning lets the user know that taking the next step will place the unit in programming mode and could erase the software already present in the FLASH device. To proceed, press the **SELECT** key. The front panel will show the message UPGRADING IN 5 SEC. This warning indicates that the unit will be placed in programming mode in the time shown. Press the **ESC** key if you want to abort the programming operation. When the timer expires the unit will be placed in programming mode and its serial port is opened to communicate with the terminal software program. The front panel display shows UPGRADE MSC NOW or UPGRADE T2G NOW depending on whether you are upgrading the main application firmware of the test generator firmware. Proceed to step 12 for instructions on uploading the main application firmware using the terminal program. Proceed to step 10 for instructions on uploading the test generator firmware using the terminal program.

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Initiating Firmware Upgrade Mode from the Terminal Program

You may send commands to the 5600MSC Boot monitor in order to upgrade the 5600MSC application firmware. The High Definition Test generator cannot be upgraded using the boot monitor method. To initiate firmware uploading from a terminal program follow the procedure described in steps 6 to 11.

6. Power up the 5600MSC Master Clock/SPG. After the unit powers up, a banner with the boot code version information should appear in the terminal window. The cursor to the right of the word "BOOT>" should be spinning.

   For example:

```
EVERTZ MFC5407 MONITOR 2.1.3
COPYRIGHT 1997, 1998, 1999, 2000, 2001 EVERTZ MICROSYSTEMS LTD.
COLD BOOT |
```

7. The following is a list of possible reasons for failed communications:
   - Defective Serial Upgrade cable.
   - Wrong communications port selected in the terminal program.
   - Improper port settings in the terminal program. (Refer to step 4 for settings). Note that HyperTerminal will not change port settings while connected. Click on HyperTerminal's "Disconnect" button, then click the "Reconnect" button to activate changes to the port settings.

8. While the cursor is spinning press the <CTRL> and <X> keys, this should stop the cursor from spinning. The spinning prompt will only remain for about 5 seconds. You must press <CTRL-X> during this 5 second delay. If the unit continues to boot-up, simply cycle the power and repeat this step.

9. Hit the <ENTER> key on your computer once.

10. Type the word "upgrade", without quotes, and hit the <ENTER> key once.

11. The boot code will ask for confirmation. Type "y", without quotes.

Uploading the New Firmware

12. You should now see a prompt asking you to upload the file.

13. Upload the "*.bin" file supplied using the X-Modem transfer protocol of your terminal program. If you do not start the upload within 10 minutes the unit's Boot code will time out. You can restart the upgrade process by power cycling the unit.

    If you are upgrading the main 5600MSC application firmware the bin file will have a name similar to:
    5600MSC.bin

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There are two different versions of HD test generator cards that may be installed in the 5600MSC. The front panel will show the version that is installed. Make sure that you upload the correct version for your unit.

If you are upgrading the 7750TG2-HD Test generator application firmware the bin file will have a name similar to:

7750TG2-HD.bin

If you are upgrading the 7751TG2-HD Test generator application firmware the bin file will have a name similar to:

7751TG2-HD.bin

14. The boot code will indicate whether the operation was successful upon completion of the upload.

    For Example:

```
UPLOAD OKAY
MFC5407 WARM BOOT> |
```

15. The following is a list of possible reasons for a failed upload:
    - If you get the message "transfer cancelled by remote" you must restart the terminal program and load the bin file, then remove and install the module again.
    - The supplied "*.bin" file is corrupt.
    - Wrong file specified to be uploaded.
    - Wrong file transfer protocol used – make sure you specify Xmodem, not Xmodem 1K.
    - The PCs' RS-232 communications port can't handle a port speed of 57600.
    - Noise induced into the Serial Upgrade cable.

16. Send the .BIN file to the 5600MSC. Ensure that the protocol is XModem. Once initiated a window will appear displaying the file transfer progress.

17. Once the update is complete, you must type in *boot* or power cycle the 5600MSC to return to operational mode. It will then need to be synchronized with the live 5600MSC. If GPS is being used as the frequency and time reference, wait until 100% lock is obtained. Compare each output from the updated 5600MSC to the live 5600MSC to verify correct phasing. If video has been used as the frequency reference, follow the steps as outlined above paying particular attention to the DARS output (if equipped). Independent phase adjustment may need to be executed to have this match the live 5600MSC. Once this has been confirmed, proceed to Step # 20. If a different reference is used, proceed to the next step.

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18. In order to bring phasing into alignment with the live 5600MSC, the global phasing adjustment is used. This adjustment is found in the *OUTPUT* menu. Scroll to the *GLOBAL PHASING* menu item using the arrow keys (↑,↓) or turn the **SHAFT ENCODER** knob and then press **SELECT**. Use the arrow keys (↑,↓) or turn the **SHAFT ENCODER** knob until *Global Phase En* is displayed and then press **SELECT**. To enable Global Phasing, use the arrow keys (↑,↓) or turn the **SHAFT ENCODER** knob until **on** is shown and press **SELECT**. Depending on how much adjustment is required to align the outputs, select NS, MS or US (Nano, Milli, or Micro second).

GLOBAL PHASING is a <u>LIVE</u> control. All adjustments will affect the outputs immediately.

19. Once Global Phasing is completed, check and verify the outputs with respect to the Live 5600MSC. **Be sure to confirm all signals!**

20. Using the 5600ACO, switch the test signals from the Live 5600MSC to the backup 5600MSC that was updated.

21. Repeat Step 1 to 8 for additional units.

<u>Returning System to Normal Operation</u>

22. Switch the 5600ACO back to the primary 5600MSC and return it to AUTO mode.

23. Synchro mode may be reinstated.

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