ASTi
Telestra v2.4 Cold Start Procedure

Document: DOC-01-TELS-CS-2

Product Name: Telestra

Table of Contents

ASTi Telestra Cold Start Procedure

1.0. Overview

The cold start procedure described in this document allows users to build Telestra systems from scratch. There are three main reasons for using the cold start procedure:

1. Installing the latest software version

2. Rebuilding a damaged hard disk

3. Creating spare hard disks

2.0. Requirements

For 1U systems *without* a built-in CD-ROM drive, use the procedure outlined on page two (2). You will need the following items:

- ASTi Kickstart Diskette

- ASTi Linux CD

- ASTi Telestra CD

- USB CD-ROM kit:

    - USB CD-ROM drive & power cable

    - USB connection cable

For 1U systems *with* a built-in CD-ROM drive, use the procedure outlined on starting on page four (4). You will need the following items:

- Telestra Software CD

For 2U or 4U systems, use the procedure outlined on starting on page six (6). You will need the following items:

- Telestra Software CD

3.0. Cold Start Procedure: 1U Systems using USB CD-ROM Drive

WARNING: This will COMPLETELY ERASE the contents of your hard drive.

Before beginning, be sure to download and backup critical Telestra files such as the Telestra Options file, Telestra Configuration file, and any State Machine modules. Also, make sure you have a hard drive properly inserted into the system, along with a connected monitor and keyboard.

3.1. Installing Linux

1. Connect the USB CD-ROM and power cable to power source. Then, connect the USB CD-ROM drive to the Telestra system using the USB connector cable. The USB port is on the front of the Telestra chassis.

2. Insert the floppy disk labeled "ASTi Kickstart Diskette".

3. Turn on the Telestra system via the power switch on the front of the chassis. The system will boot from the floppy.

4. Insert the CD labeled "ASTi Linux CD".

5. Linux will begin to install, and you will see a dialog box showing the progress of the installation.

   If you see a message indicating a Bad Partition Table, select the "Initialize" option to continue with the Linux installation.

6. A message will then be displayed indicating the install has finished.

   If you want to install ASTi software, skip to step 2 of the next section: "Installing ASTi Software".

   - OR -

7. Remove the "ASTi Kickstart Diskette".

8. Press ENTER to reboot the system.

9. Remove the "ASTi Linux CD" after it ejects.

3.2. Installing ASTi Software

1. Connect the USB CD-ROM drive as in step 1 of "Installing Linux" above.

2. Power on the system (or, if you have just finished installing Linux, remove the "ASTi Kickstart Diskette" and press ENTER to reboot, then remove the "ASTi Linux CD" after it ejects.).

3. Insert the CD labeled "ASTi Software CD".

4. At the "LILO:" prompt, type "asti" and press ENTER. If you miss the "LILO:" prompt, you will need to reboot by pressing the CTRL + ALT + DEL keys.

5. ASTi software installation will proceed. After a while, a message will display indicating the installation has completed.

6. Remove the "ASTi Software CD", disconnect the CD-ROM drive, and press ENTER to reboot the system.

4.0. Cold Start Procedure: 1U Systems with Built-In CD-ROM Drive

WARNING: This will COMPLETELY ERASE the contents of your hard drive.

Before beginning, be sure to download and backup critical Telestra files such as the Telestra Options file, Telestra Configuration file, and any State Machine modules. Also, make sure you have a hard drive properly inserted into the system, along with a connected monitor and keyboard.

4.1. Configuring the Award BIOS for MX3S and MX3S-T AOpen motherboards

The following instructions apply to the 1U Telestra chassis with built-in CD-ROM drive and ***Award BIOS for MX3S and MX3S-T AOpen*** motherboards. See the next section for instructions on configuring BIOS version CA81020A.86A.0006.P03.

1. Immediately after system power-on or reboot, press the Delete or Del key to enter BIOS setup.

2. From the main screen, verify title reads, "CMOS Setup Utility - Copyright (C) 1984-2001 Award Software".

3. Press the right-arrow key to highlight "Load Setup Defaults" (first option, right-hand column), and press the ENTER key.

4. Confirm the action by typing "Y", followed by the ENTER key.

5. Use the arrow keys to highlight "Standard CMOS Features" (first option, left-hand column), and press the ENTER key to access those settings.

6. The last option on the Standard CMOS Features screen is "Halt On". Arrow-down to this option and press the ENTER key. When presented with the setting options, arrow-down to select "No Errors" and press the ENTER key.

7. Press the ESC key to return to the main menu.

8. Use the arrow keys to highlight "Advanced BIOS Features" (second option, left-hand column), and press the ENTER key to access those settings.

9. Make sure the "First Boot Device" is set to "CDROM", which is the default.

10. Press the ESC key to return to the main menu. Use the down-arrow key to select "Integrated Peripherals" (fourth option, left-hand column.

11. Change the "IDE Primary Master UDMA", "IDE Primary Slave UDMA", "IDE Secondary Master UDMA", and "IDE Secondary Slave UDMA" settings to "Disable". For each, highlight the setting, press the ENTER key, arrow-down to "Disable" and press ENTER.

12. Press the F10 key to save the settings and exit the utility.

13. Confirm the action by typing "Y", followed by the ENTER key.

14. The system will then reboot using the new BIOS settings. Proceed with "Installing Linux & Telestra Software" on the next page.

4.2. Configuring BIOS version CA81020A.86A.xxxx.Pxx

The following instructions apply to the 1U Telestra chassis with built-in CD-ROM drive and BIOS version *CA81020A.86A.xxxx.Pxx*.

1. Immediately after system power-on or reboot, press the F2 key to enter BIOS setup.

2. From the main screen, verify BIOS version matches that listed above.

3. Press the F9 key to load BIOS defaults, followed by the ENTER key to confirm the action.

4. Use the right-arrow key to move the cursor over the "Boot" menu at the top of the screen; in the main window, boot settings will be displayed.

5. "Quiet Boot" will already be highlighted. Press ENTER to access this setting, use the up-arrow key to highlight "Disabled", then press ENTER to change the setting.

6. Use the down-arrow key to highlight "2nd Boot Device". Press ENTER to access this setting, use the down-arrow key to highlight "ATAPI CDROM", and press ENTER to change the setting.

7. Use the down-arrow key to highlight "3rd Boot Device". Press ENTER to access this setting, use the up-arrow key to highlight "IDE-HDD", and press ENTER to change the setting.

8. Press the F10 key to save the settings and exit the utility; press ENTER to confirm the action. The system will then reboot using the new BIOS settings. Proceed with software installation.

4.3. Installing Linux & Telestra Software

1. Turn on the Telestra system via the power switch on the front of the chassis.

   The system may or may not fully boot, and you may receive an error message.

2. Insert the CD labeled "ASTi Software CD" into the CD-ROM drive.

3. Reboot the system using the "Reset" button on the front of the chassis.

4. The system will boot from the CD, and the Linux Base System will begin to install. You will see a dialog box showing the progress of this installation.

5. After Base System installation, the CD-ROM drive will open, and the screen will display a "Reboot the system?" confirmation.
   a. Remove the CD. *Failure to do this will result in Base System reinstallation.*
   b. Press the ENTER key to confirm system reboot.

6. After reboot, the screen will display "ASTi Software Installation". Open the CD-ROM drive, insert the same "ASTi Software CD", and press the ENTER key. The drive will close, and installation will proceed.

7. Upon completion, the CD-ROM drive will open, and the screen will display a "Finish ASTi Installation" confirmation.
   a. Remove the CD. *Failure to do this will result in Base System reinstallation.*
   b. Press the ENTER key to confirm, and the system will reboot.

5.0. Cold Start Procedure: 2U & 4U Telestra Systems

WARNING: This will COMPLETELY ERASE the contents of your hard drive.

Before beginning, be sure to download and backup critical Telestra files such as the Telestra Options file, Telestra Configuration file, and any State Machine modules. Also, make sure you have a hard drive properly inserted into the system, along with a connected monitor and keyboard.

5.1. Configuring BIOS version RG84510A.86A.xxxx.Pxx or BF86510A.86A.xxxx.Pxx

The following instructions apply to the 2U & 4U Telestra chassis and BIOS version *RG84510A.86A.xxxx.Pxx* or *BF86510A.8A.xxxx.Pxx*.

1. If you have not already done so, attach a monitor, keyboard and power cable to the Telestra platform.

2. Power on the Telestra and press the *F2* key as the system starts.

3. Use the arrow keys to move to the *Exit* field, choose *Load Optimal Defaults* and select *OK*.

4. Use the arrow keys to move to the *Main* field.

    4.1. Select *System Time* and set the value to Greenwich Mean Time (GMT). GMT = Eastern Standard Time + 5 hours.

    4.2. Select *System Date* and change the value to the current date. Press *ESC* when done.

5. Use the arrow keys to move to the *Advanced* field.

    5.1. Select *Video Configuration* and set the *Frame Buffer Size* to 8MB or 16 MB, whichever largest value is available. Press *ESC* when done.

    5.2. Select *IDE Drive Configuration* and set the *Hard Disk Pre-Delay* to 2 seconds. Press *ESC* when done.

    > Depending on the type of motherboard this may read *Drive Configuration* or *IDE Drive Configuration*.

    5.3. Select *USB Configuration* and set *High-Speed USB* to Enabled.

    5.4. Select *Legacy USB Support* and set the value to Disabled. Press *ESC* when done.

6. Use the arrow keys to move to the **Boot** field.

    6.1. Select **Silent Boot** and choose Disabled.

    6.2. Select **Intel(R) Rapid BIOS Boot** and choose Disabled.

    6.3. Select **Boot Device Priority**

      6.3.a. Under **1st** choose ATAPI CD ROM or specific device designation.

      If it is not clear which device is the CD-ROM press **ESC**, highlight the **ATAPI CD-ROM Drives** and press **ENTER**. The device designation will be shown.

      6.3.b. Under **2nd** choose Hard Drive or specific device designation.

      If it is not clear which device is the Hard Drive press ESC, highlight the **Hard Disk Drives** field and press **ENTER**. The device designation will be shown.

      6.3.c. Under **3rd** choose Disabled. Press **ESC** when done.

7. Use the arrow keys to move to the **Exit** field. Select **Exit Saving Changes** and choose **OK**.

5.2. Verifying Software CD-ROM Contents and Configuring BIOS version NT94510J.86A.xxxx.xxxx.xxxx.xxxx

Note: Every Telestra software release beginning with version 2.4-5 with BIOS version NT4510J.86A.xxxx.xxxx.xxxx.xxxx incorporates an MD5 checksum of the CD-ROM's contents, allowing customers to verify the integrity of the installation media.

5.2.1. Instructions to Verify CD-ROM Contents

Before configuring the BIOS version NT94510J.86A.xxxx.xxxx.xxxx.xxxx verify the contents of the CD-ROM. The verification will fail if any file on the CD-ROM is unreadable due to scratches, marks, etc.

To perform the check, users must have access to the sh shell and md5sum executable. *The ASTi Telestra system provides these resources by default, and is the recommended computer to use for media verification.*

If the check is to be performed using a different computer, however, some changes to the system may be required. *ASTi does not support the installation, configuration, or use of any of the packages or utilities listed here.*

- **Windows**: Users can install Cygwin (http://www.cygwin.com/) to gain Linux-like functionality on the Windows OS. This is an arduous process, and a step not to be taken lightly.

- **Non-ASTi GNU/Linux or other *NIX operating systems**: The GNU Core Utilities (coreutils) package must be installed on the system; the 'md5sum' executable is included therein. See http://www.gnu.org/software/coreutils/ for more information. This may be included by default in your installation; enter "which md5sum" at the command-line to check.

- **Mac OS X 10.3 or later**: The preinstalled 'md5' executable will not work properly to verify the installation media. The GNU Core Utilities (coreutils) package must be installed on the system. This can be compiled from source or installed using a third-party porting application such as Darwinports (http://darwinports.com/). Either method requires the Apple XCode developers' tools be installed on the system. Certain changes to the verification script are also required; contact ASTi for more information.

The following instructions are written for disc verification using the Telestra system.

1. Power on the Telestra system, and allow it to fully boot from the hard drive *(not the installation CD!).*

2. Select **Development Mode** and login to the system, as the system loads press *CTRL-ALT-F2* to gain access to the command prompt.

   2a. At the command prompt you will have to login again.

   2b. Insert the **Telestra Software Install CD** into the CD-ROM drive.

3. At the command prompt, mount the CD; enter:

   ```
   mount /cdrom
   ```

4. At the command prompt, move to the "cdrom" mount directory by entering:

    ```
    cd /cdrom
    ```

5. Run the verification script. The verification script does not accept any command-line arguments. At the command prompt, enter:

    ```
    sh ./verify-checksum.sh
    ```

6. The verification test will take **several minutes** to complete. When done, check the output of the script.

    Example output of successful verification:
    ```
    Original Check Sum:      d082a2ba405f05c0a0e3a45e2f4a89f7
    Recalculated Check Sum:  d082a2ba405f05c0a0e3a45e2f4a89f7
    The Checksum Test PASSED.
    ```

    Example output of verification failure:
    ```
    Original Check Sum:      d082a2ba405f05c0a0e3a45e2f4a89f7
    ```
    (multiple on-screen file IO errors not shown here)
    ```
    Recalculated Check Sum:  e0921a3b04a5e06c9aae2a55f2e4b88f6
    The Checksum Test FAILED.
    ```

7. Move out of the "cdrom" mount directory by entering:

    ```
    cd
    ```

8. Unmount and eject the CD by entering:

    ```
    eject
    ```

9. Eject the CD from Telestra's CD-ROM drive. ***Important: Failure to remove the CD after verification will result in complete erasure and reformatting of your hard disk the next time the Telestra system is booted.***

If the CD verification was successful, proceed with software installation. If CD verification failed, however, please contact ASTi immediately to receive new software installation media.

5.2.2. Configuring BIOS version NT94510J.86A. xxxx.xxxx.xxxx.xxxx

The following instructions apply to the 2U & 4U Telestra chassis and BIOS version *NT94510J.86A.xxxx.xxxx.xxxx.xxxx*.

1. If you have not already done so, attach a monitor, keyboard and power cable to the Telestra platform.

2. Power on the Telestra and *immediately* press the *F2* key as the system starts.

   2a. The System Setup will open with a menu across the top reading:

   Main, Advanced, Security, Power, Boot, Exit

3. Use the arrow keys to move to the *Exit* field, choose *Load Optimal Defaults* and select *OK*.

   3.1 A screen will pop up asking *Load Defaults (Y/N)* press *Y*.

4. Use the arrow keys to move to the *Main* field.

   4.1. Select *System Time* and set the value to Greenwich Mean Time (GMT). GMT = Eastern Standard Time + 5 hours.

   4.2. Select *System Date* and change the value to the current date.

5. Use the arrow keys to move to the *Advanced* field.

   5.1. Use the arrow keys to select *Drive Configuration*.

   5.2. Set *Use Automatic Mode* to Enable.

   5.2.1. Set *ATA/IDE Mode* to Legacy. Press *ESC* when done.

   5.3. Select *USB Configuration*.

   5.3.1. Select *USB Legacy (ex. USB 2.0)* and set the value to Disabled. Press *ESC* when done.

6. Use the arrow keys to move to the Power field.

   6.1. Select *After Power Failure* and choose Power ON.

7. Use the arrow keys to move to the *Boot* field.

   7.1 Select *Boot Device Priority*.

   7.2. Press *ENTER* and follow the instructions in the bottom right corner until you see the following order: CD/DVD-ROM Drive
   Hard Disk Drive
   Ethernet
   Floppy

8. Use the arrow keys to move to the *Exit* field. Select *Exit Saving Changes* and choose *Y.*

5.3. Installing Linux & Telestra Software

Note: If you are only performing a software installation, ensure the "Boot Priority" is set in accordance with the proper BIOS instructions previously outlined in this document. Otherwise, the Telestra system will not boot from the CD-ROM and automatically enter the installation routine.

1. Turn on the Telestra system via the power switch on the front of the chassis.

   The system may or may not fully boot, and you may receive an error message.

2. Insert the CD labeled "**Telestra Software CD**" into the CD-ROM drive.

3. Reboot the system using the "**Reset**" button on the front of the chassis.

4. The system will begin to boot from the CD. A message will appear warning that all data will be erased from the hard disk. Press the **ENTER** key to begin installation.

   The screen may go blank for about a minute as the X server (graphical interface) starts. This is normal, and the process should not be interrupted.

5. The Telestra Software Installer will load, and software installation will proceed without any further user action.

6. When installation is complete, the CD tray will slide open. Remove the CD from the tray. *Failure to do this will result in the full reinstallation of the software.*

7. Click the "**Exit**" button in the graphical interface if you have a mouse connected to the Telestra system. Otherwise, press the **ENTER** key to select "**Exit**".

   The Telestra system will then reboot and start from the hard disk.