SightLine APPLICATIONS

EAN-FPGA Firmware Update 1500-OEM

PN: EAN-FPGA-Firmware-Update-1500-OEM

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Alerts

The following notifications are used throughout the document to help identify important safety and setup information to the user:

⚠ **CAUTION:** Alerts to a potential hazard that may result in personal injury, or an unsafe practice that causes damage to the equipment if not avoided.

ⓘ **IMPORTANT:** Identifies crucial information that is important to setup and configuration procedures.

Used to emphasize points or reminds the user of something. Supplementary information that aids in the use or understanding of the equipment or subject that is not critical to system use.

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1 Overview

This document describes how to upgrade the FPGA driver firmware on 1500-OEM (Rev E and later) video processing boards. Specific hardware and software is required for completing this process.

The 1500-OEM (Rev E) hardware now supports in system FPGA programming. The programming can be done by connecting to the board with SSH and executing commands. This no longer requires the FlashPro Utility or programmer. For earlier 1500-OEM (Rev C) boards contact Support for programming assistance.

1.1 Associated Documents

EAN-Startup Guide 1500-OEM: Describes steps for connecting, configuring, and testing the 1500-OEM video processing board on the 1500-AB accessory board.

Panel Plus User Guide: Provides descriptions of all the settings in the Panel Plus application. (Located in the Panel Plus application in the *Help* menu.)

1.2 SightLine Software Requirements

FPGA Configuration Zip File: Required for upgrading the FPGA driver firmware.

The 1500-OEM requires firmware 2.22.18 or higher.

ⓘ **IMPORTANT:** The Panel Plus software version should match the firmware version running on the board.

1.3 OEM Board Compatibility

△ **CAUTION:** Programming a 1500-OEM Rev E board using the J5 (12 pin Molex) connector could damage the 1500-OEM. It can also prevent the programming procedure from working.

1.4 Third Party Software

PuTTY or Tera Term: PC terminal emulator program used for debug output, or to issue commands on SLA hardware.

2 In System FPGA Programming- 1500-OEM (Rev E)

The 1500-OEM (Rev E) has been modified to allow the ARM processor to program the FPGA using internal GPIO lines. This board can be identified by its blue color. The older 1500-OEM (Rev C) board is green in color.

1500-OEM firmware (version 2.22.18 and later) includes code to program the 1500 FPGA board, as well as several versions of FPGA code.

The FPGA code is fully contained in a STAPL (.stp) file and a STAPL player application is included in 1500-OEM firmware releases. STAPL files include programming instructions and FPGA programs. The STAPL player provides features specific to a Microsemi FPGA.

See the EAN-Camera Compatibility document for more information.

2.1 Requirements

- 1500-OEM Board (Rev E)
- 1500-AB Board
- Firmware version 2.22.18 or higher
- PuTTY or Tera Term SSH terminal

2.2 Hardware Bench Setup

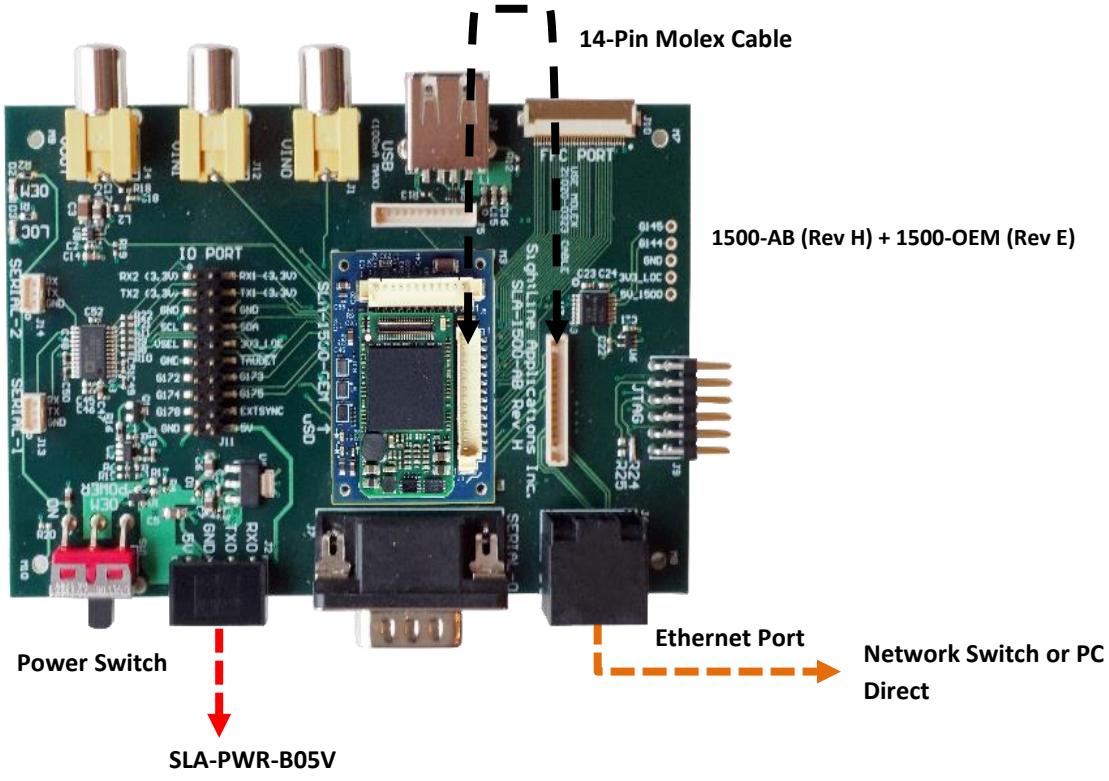


Figure 1: SLA-1500-OEM (Rev E) and 1500-AB (Rev H)

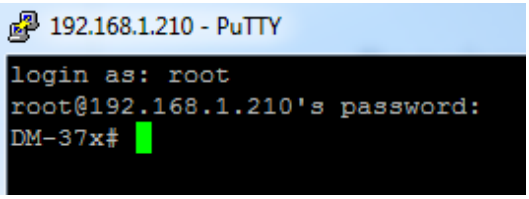
2.3 FPGA Programming

A PuTTY or Tera Term terminal emulator application is used to upgrade the FPGA board on the 1500-OEM (Rev E) board. Once an SSH terminal session has been established you can change folders and execute a script. Each script will:

- show the current FPGA version,
- erase the current program,
- load the new program and provide updates with a completed message.

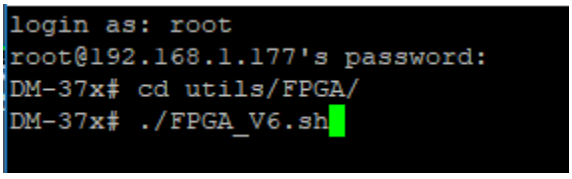
This process will take approximately 2 minutes to complete.

1. Establish an SSH session to the target. The IP address can be read by connecting to board through Panel Plus.
2. Login using the default username and password: *root*



3. Change the directory to: `utils/FPGA`

   If permission is denied, type: `sh ./FPGA_V6.sh`



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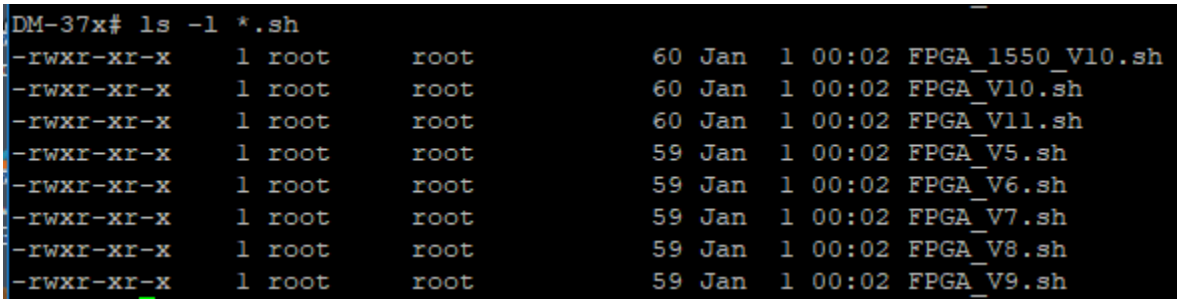
4. Type in the desired FPGA version script name. See the EAN-Camera Compatibility document for FPGA version compatibility.

   You can see the available FPGA names by listing files from the command line.



When the program progress is finished, the *Exit code* will equal *0* and *Success* will be displayed in the terminal window as shown in Figure 2.

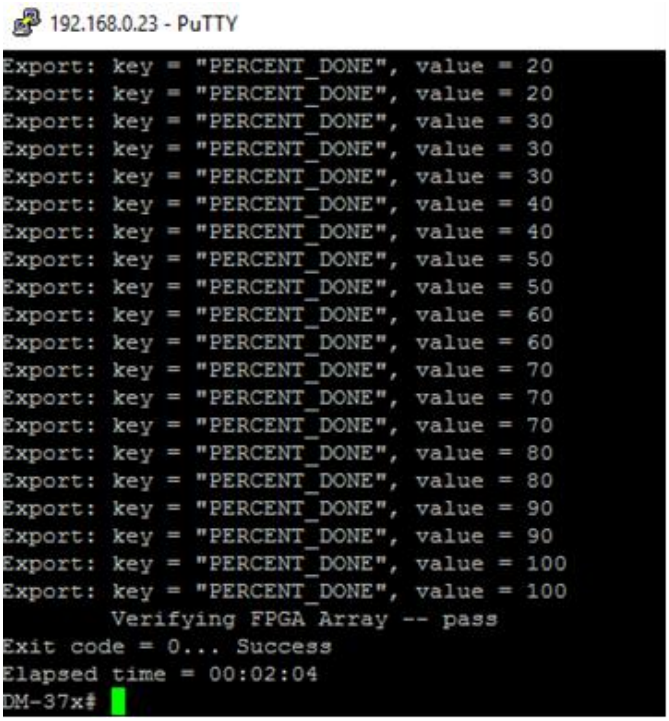


Figure 2: Program Process Successfully Completed

2.3.1 Loading Additional FPGA Versions

To load another supplied FPGA version (not included in the normal release), use the JAMPlayer from Microsemi that is installed on the 1500-OEM.

1. Use WinSCP or FTP to copy the new file to the following folder: */root/utils/FPGA*.
   - Use the IP address of the 1500-OEM.
   - Username and password are *root*.
5. Establish an SSH session to the target. Login using the default username and password: *root*
2. Change the directory to: `/utils/FPGA`
3. Use the following syntax and insert the supplied *STAPL* file e.g.,

   (*newFPGAVersion.stp)*: *./JAMPlayerMicroSemi -aPROGRAM newFPGAVersion.stp -v*

2.4 Errors

If a 1500-OEM (Rev E) board is not used, or the correct firmware version (2.22.18 or later) is not loaded on the board, an error will display as shown in Figure 3.

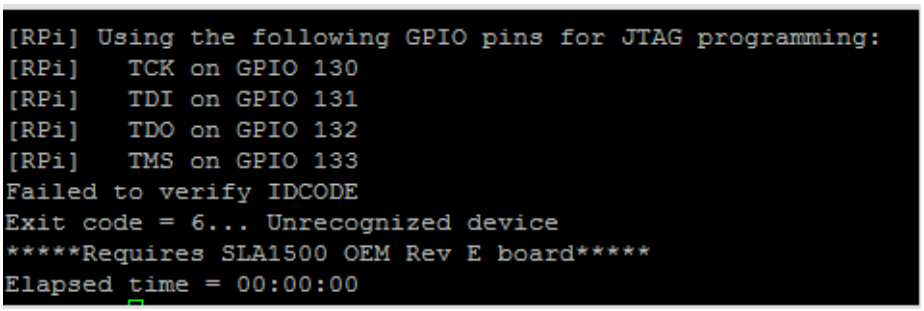


Figure 3: Board and Firmware Version Error

If power is cycled during the flashing process the unit will not have a complete FPGA version on the board. In Panel Plus, there will be no indication of an FPGA version. In the SLA-1500 upgrade utility, the FPGA version will display *0*. To fix this issue, repeat the FPGA Programming steps.

3 Questions and Additional Support

If you are still having issues and require additional support, please contact Technical Support. Additional support, documentation and Engineering Application Notes (EANs) can be found on the Support pages of the SightLine Applications website.