USRP™ X Series Memory & Certificate of Volatility

This document describes all memory types present on the Ettus Research USRP X Series and how to remove all software from the device.

Memory Types

This section contains information on the memory components used in the USRP X Series, including details on the size, type, purpose, location, volatility, and the required sanitization procedure.

The device uses both volatile and non-volatile memory types. The volatile memory in the device does not have battery backup and therefore does not retain any information when power is removed. On the other hand, the non-volatile memory requires specific sanitization procedures to clear it of any data.

The following reference table will provide a breakout of the memory types used on the USRP X Series which currently includes both the **USRP X300** and the **USRP X310**.

Memory Type	Memory Size	Volatile	Purpose/Contents	Sanitization Procedure
Synchronous DRAM	1 GB	Yes	Transmit Buffering	1
Flash Storage	256 Mb	No	FPGA Configuration Bit Stream, Power On Self Configuration	2
Motherboard EEPROM	256 Kb	No	Device ID, Serial Number, IP & MAC Addresses, User definable ID	2

Sanitization Procedures

This section contains information on sanitization procedures required to clear all software from the USRP X Series devices.

Procedure 1

Remove power to clear all volatile memory.

Procedure 2

Add the 'uhd_device_eraser' utility to UHD (available upon request from support@ettus.com), and then re-build. Once built, you can run the 'uhd_device_eraser' program to erase all memory indicated in this document.

Run the following script (available upon request from support@ettus.com): uhd_device_eraser

The script will not clear the "Power On Self Configuration" because it would render the device inoperable and require it to be returned to National Instruments for re-programming. The "Power On Self Configuration" does not include any user definable settings or data, and does not reveal how the device was configured or being used.

Recovery Procedure

The USRP X Series includes an on-board JTAG programmer that will enable the user to restore all functionality as long as the "Power On Self Configuration" is intact.

Instructions on how to recover the device are available online at the following URL:

http://files.ettus.com/uhd_docs/manual/html/usrp_x3x0.html#on-board-jtag-programmer

 The default compiled FPGA image (.bin file) is available on ettus.com as part of the UHD driver distribution or on any computer where the appropriate version of the UHD driver is installed. The path to the .bin image file is:

<UHD install path>\share\uhd\images

A Xilinx FPGA configuration file (.bit file) generated by the Xilinx FPGA design software will also be required. This file can be obtained by compiling the FPGA code distributed by Ettus Research or by requesting the current version from Ettus Research.

Ettus Research will not be held responsible for reprogramming USRP devices that have been made inoperable using these procedures.