

USRP™ E312 Certificate of Volatility

This document describes all memory types present on the Ettus Research USRP E310 series and how to remove all user data from the device.

Memory Types

This section contains information on the memory components used in the USRP E310 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 or the device is shutdown. On the other hand, the non-volatile memory requires specific sanitization procedures to clear it of any user data.

The following reference table will provide a breakout of the memory types used on the USRP E310 series which currently includes both the USRP E310, USRP E310 OEM and USRP E312.

Memory Type & Model	Memory Size	Volatile	Purpose/Contents	Location	Sanitization Procedure
FPGA– Xilinx XC7Z020-1CLG484C			Configuration and Digital Signal Processing Data.		
- Level 1 Cache, Instruction	32 KB	Yes	---	MB: U011	1
- Level 1 Cache, Data per processor	32 KB	Yes	---		
- Level 2 Cache	512 KB	Yes	*Manufacturer defined, not user accessible.		
- On-chip boot ROM*	n/a	No			
- On-chip RAM (OCM)	256 KB	Yes			
EEPROM - Microchip 24LC025/SN or equivalent	2 Kbits	No	Model, revision, MAC address& serial number. Contains nouser data.	MB: U005	2
EEPROM - Microchip 24AA256-I/STor equivalent	256Kbits	No	Model, revision& serial number. Contains nouser data.	DB: U015	2
AVR - Atmel ATTINY88-MU			Module power administration. Contains no user data.		
- In-System Programmable Flash	8KB	No		MB: U018	1, 3
- EEPROM	64B	No			
- Internal SRAM	512B	Yes			

DDR3L SDRAM - Micron				MB:	
MT41K256M16HA-125 IT:E			FPGA & User	U002,	
- Processor dedicated memory	512 MB x 2	Yes	application memory	U010,	1
- FPGA dedicated memory	512 MB	Yes		U021	
MicroSD Card –Apacer					
708278A-01	4 GB	No	Operating system and	n/a	4
708278B-01	8 GB		user data		

(Legend: MB = Motherboard; DB = Daughter board)

Sanitization Procedures

This section contains information on sanitization procedures required to clear all software from the USRP E310 series devices.

Procedure 1

Remove power to clear all volatile memory.

Procedure 2

Although the onboard EEPROM can be cleared, it is not necessary as it does not contain any user data. However if desired, our technical support can provide a script that will clear the contents of the EEPROM making the device inoperable.

Procedure 3

Although the onboard AVR can be cleared, it is not necessary as it does not contain any user data. However if desired, our technical support (support@ettus.com) can provide instructions on how to wipe the microcontroller using an In-System Programmer (ISP).

Procedure 4

Remove the memory card from the slot on the front of the unit.

Recovery Procedure

Please note that an in-system programmer (ISP) will be required to restore the USRP E310 to a functional state after executing procedure 2& 3.

The source code required by the AVR is available upon request emailing support@ettus.com.

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.

Note: Ettus Research will not be held responsible for reprogramming USRP devices that have been cleared using this procedure.