

UNCLASSIFIED

**IDENTIFICATION OF VOLATILE
AND NON-VOLATILE STORAGE
AND
SANITIZATION OF SYSTEM
COMPONENTS**

**JUNIPER NETWORKS
SRX-SERIES
SRX210H-P-MGW**

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1 INTRODUCTION

1.1 Purpose

The purpose of this document is to provide direction to identify volatile and nonvolatile storage device and remove non-volatile (NV) storage from the Juniper Networks' Secure Services Gateway SRX210H-P-MGW security platform.

1.2 Scope

This document only addresses the SRX210H-P-MGW security platform. While other platforms offered by Juniper Networks may contain similar hardware components, this document only applies to the SRX210H-P-MGW. Furthermore, this document only provides direction for the identification and removal of NV storage components. It does not address destruction procedures for those components. As all the NV storage components used in the SRX Series product family are commercial off-the-shelf (COTS) components, directions for destruction of those components are left to the governing Department, Agency, or Office.

2 EQUIPMENT OVERVIEW

2.1 Identification of Chassis

The SRX210H-P-MGW is a 1U chassis with 2 fixed 10/100/1000 Mbps and 6 fixed 10/100 Mbps Ethernet ports, 2 fixed FXO and 2 fixed FXS ports, one front facing mini Physical Interface Module (mPIM) slot for additional port capacity, one rear facing Express card slot and one rear-facing DC Jack for 48V or 54V power. The chassis is fixed with system motherboard, with two front-facing Universal Serial Bus (USB) interfaces, internal NAND Flash, internal Dynamic Random-Access Memory (DRAM), Boot flash chip, IDEEPROM and Renesas chips, which are soldered on the system motherboard.

The SRX210H-P-MGW also has a voice mezzanine board. This board has DRAM and EEPROM, and IDEEPROM storage devices.

The volatile and non-volatile memories cannot be accessed without removing the top cover of the chassis and these are soldered to the motherboard except the USB storage devices. Users are not advised to remove these internal memories unless they want to scrap the system. If the user wants to remove them, the user has to de-solder these chips.

The following pictures show the different views of the SRX210H-P-MGW model:



Figure 2-1: SRX210H-P-MGW Chassis different views

2.2 Description of Components

The following major components are installed in the SRX210H-P-MGW chassis.

2.2.1 System Motherboard

The System Motherboard is the large printed circuit board located inside the chassis. The NAND flash, NOR Flash, IDEEPROM, Renesas and DRAM Chips are soldered directly to the motherboard (refer to the figure below). The System Motherboard also has the encryption acceleration chip and mPIM interface slot.

The SRX210H-P-MGW has the following non-volatile memory devices:

- Anti-counterfeit security chip's internal EEPROM (U30) – stores the signature of the security chip. No user data is stored here.
- IDEEPROM (U49)– only used to store FRU identification data. No user data is stored here.
- Boot flash for Processor (U2) – stores the boot loader image for the Processor, no user data.
- NAND Flash (U35) – stores the JUNOS image and user data
- CPLD internal flash (U1) - stores CPLD image, no user data is stored.

In addition, the SRX210H-P-MGW has two USB ports, into which the user can install an external USB disk device to store core dumps, system configuration, software images, etc. The system does not store any user data onto storage devices attached to these ports.

All other components of the SRX210H-P-MGW are volatile, so they do not store any information after power is lost. The following are the volatile memory present on SRX210H-P-MGW:

- DDR2 memory (U5, U6, U13, U14, U39, U40, U43, and U44) – stores user data here
- Regex chip (U15)- stores user data here
- Processor Internal Cache memory and registers (U8) – stores operational data here.

No other sub-components on the motherboard contain any storage elements, either volatile or non-volatile

2.2.2 Voice Mezzanine Card

One Voice Mezzanine card is present in SRX210H-P-MGW. This mezzanine card has the following storage devices:

- DRAM (U24, U25) - stores user data here
- IDEEPROM (U16) - only used to store FRU identification data. No user data is stored here.
- EEPROM for DSP (U23) – Stores the DSP configuration information; no user data is stored here.

The SRX210H-P-MGW supports an Express card slot on the rear side of the box.

2.2.3 3G Express card slot

SRX210H-P-MGW supports the 3G Express card slot on the rear side of the box for the 3G Wireless Interface. There is no user data which is stored on 3G Cards.

2.2.4 Physical Interface Module Slot

The mPIM provides expanded input/output (I/O) capability for the SRX210H-PMGW. There are large varieties of mPIM's available for the SRX Series family. Some of the mPIM's have volatile or/and non-volatile memories, but none of them contain any user data.

2.2.5 External Power Supply Adapter (48V or 54V)

The SRX210H-P-MGW uses the external power supply Adapter and Adapter contains no storage elements, either volatile or non-volatile.

2.2.6 Cooling Subsystem

The Cooling Subsystem consists of two fans. The Cooling Subsystem contains no storage elements, either volatile or non-volatile.

3 POWER DOWN AND REMOVAL OF NON-VOLATILE STORAGE

In order to ensure that no data remains resident on an SRX210H-P-MGW platform in volatile memory, power must be removed from the system to clear all volatile storage.

Normally the user will not be able to destroy user data stored in non-volatile memory as all non-volatile memory chips are soldered on system motherboard. If the user wants to destroy such data, the user needs to follow the steps below, but it is not advised unless the user wants to scrap the system.

1. The internal NAND flash must be removed from the motherboard by desoldering the chips. This is not advised unless the user wants to scrap the system.
2. All external USB storage devices must be removed from the chassis

A detailed process is included in the following sections.

3.1 System Power Down

The SRX210H-P-MGW should be powered down gracefully if time exists to do so. A graceful power down takes less than a minute to complete. To perform a graceful power down of an SRX platform, complete the following steps:

1. Execute the "request system power-off" command from the command line. Wait for positive feedback that the shutdown is complete. If connected via the console, you will see the message "The operating system has halted. Please press any key to reboot." If connected via Telnet or SSH, your session will be disconnected before the SRX completes the power down process. You can verify via the console or

- observe the LED's on the front of the chassis. If monitoring the LED's, ensure the Power LED is off (not solid on or flashing).
2. The user can power off the system via pressing and releasing the power button on front panel. This halts the system gracefully.
 3. The user can power off the system by pressing the power button in front panel for 10sec, system will shut downs immediately after 10sec. You can verify via observing the Power LED. Please ensure the power LED is off.
 4. Unplug the External power adapter cable from the SRX210H-P-MGW system.
 5. The user can also shut down the system by removing AC supply to the External Power supply Adapter.

An emergency power down of a JUNOS system can be performed by omitting step 1 and 2, simply performing step 3, 4, and 5 in the process above. Note that an emergency power down could possibly corrupt the operating system and configurations stored on the NV media. Once the system has been powered down, all volatile storage is clear.

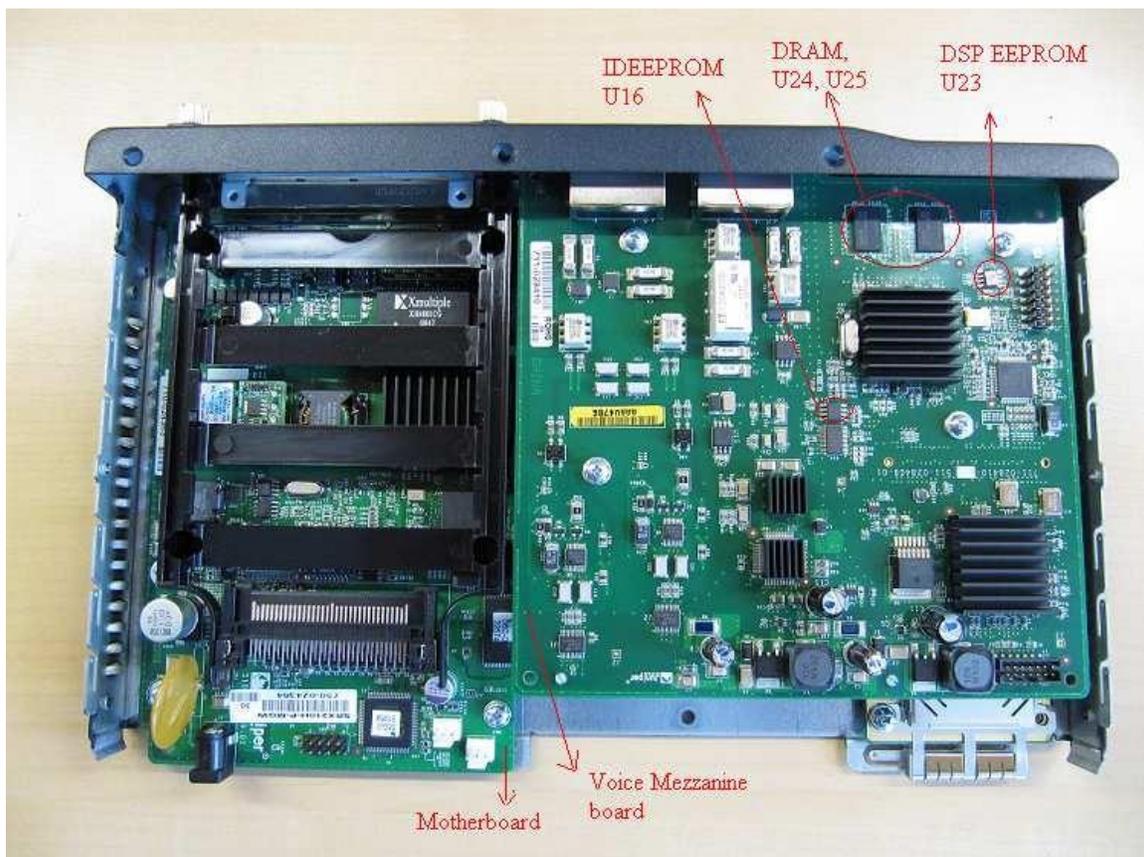
3.2 Removal of the NAND flash from the System Motherboard

It is not advised that the user remove NAND storage devices which are soldered to the motherboard of the SRX210H-P-MGW unless the user wants to scrap the system. If the user wants to remove them, the user needs to follow the steps below after powering down the system motherboard.

1. If the SRX210H-P-MGW chassis is rack mounted, remove it from the rack and remove the rack mount bracket and Power adapter tray assembly from the side of the unit using #1 phillips screw driver.
 - a. Or
2. If the SRX210H-P-MGW chassis is mounted with a Desktop vertical stand assembly, use #1 phillips screw driver to remove the screws that secure the stand with chassis.
 1. Or
3. If the SRX210H-P-MGW chassis is wall mounted, remove it from the wall and remove both left and right-side wall mount brackets using #1 phillips screw driver.
4. Attach an electrostatic discharge (ESD) grounding strap to your bare wrist and connect the strap to one of the ESD points on the working table. Make sure the SRX210-P-MGW unit is attached to a proper earth ground.
5. Use #1 phillips screwdriver to remove the six screws that secure the cover to the top of the chassis. Three screws are located on the top of

the cover along the front of the chassis. The other two are located at the sides of the chassis. There is one screw at the rear bottom side of the chassis.

6. Slide the top cover towards the back of the chassis and lift to remove.
7. Unplug the fan connector from the header mounted on the Mother board assembly.
8. Use phillips screw driver to remove the four screws that secure the mezzanine board assembly.
9. Remove the two numbers of the snap type PCB support hardware before dismantling the mezzanine board.
10. Place the mezzanine board assembly on a smooth ESD surface.
11. Use #2 phillips screw driver to remove the four screws that secure the motherboard assembly with the chassis base.
12. Use 4.5 AF nut driver to remove the four numbers of M-F standoff that secure the main board assembly with chassis base.
13. Place the Motherboard assembly on a smooth ESD surface, identify NAND flash (Reference Designator "U35", which is soldered on the bottom side of the motherboard).
14. De-solder the device from the mother board assembly.



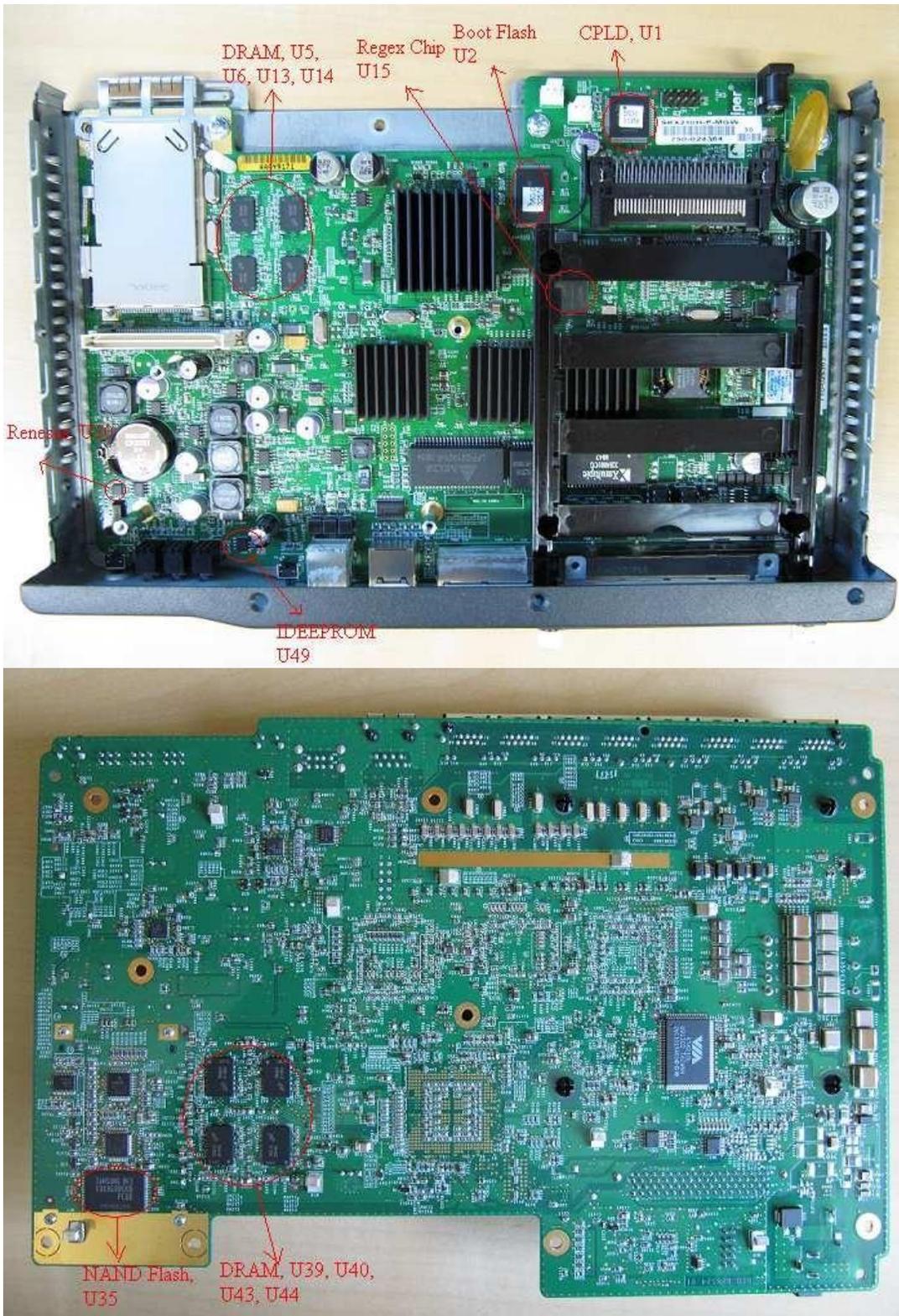


Figure 3-1: Identification of volatile and non-volatile storage devices on SRX210H-P-MGW

3.3 Removal of USB Storage from the Chassis

There are two USB interfaces on the front of the SRX210H-P-MGW chassis. They are labeled "0" and "1", and are located directly to the left of the Console and port. With the unit powered off, gently pull any attached media devices away from the SRX210H-P-MGW chassis to remove them.

This completes the sanitization process for the SRX210H-P-MGW.

4 ENCRYPTION KEYS

The Encryption Keys are stored in DRAM, when system is running, and will be lost after the system is powered off.