Notices

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Safety Information

CAUTION
A CAUTION denotes a hazard. It calls attention to an operating procedure or practice that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a CAUTION notice until the indicated conditions are fully understood and met.

WARNING
A WARNING denotes a hazard. It calls attention to an operating procedure or practice, that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood and met.
Memory Declassification Procedure

Some test equipment users have a need to “declassify” or “sanitize” their instruments for security purposes. This involves following a procedure to clear all user data from the instrument’s memory. The result is a sanitized instrument that can be removed from a secure area without any chance of classified data being recovered from it.

This document details the internal memory locations of the Keysight M9021A, M9022A, M9023A, and M9024A PXIe System and Cable Modules and the M9048B, M9049A PCIe Host Desktop Adapter modules. It describes instrument security features and the steps necessary to declassify the products through memory sanitization or removal. For additional information on a particular product, the Keysight Instrument Security Database may be accessed here: www.keysight.com/find/security.

For general information, the Keysight Aerospace and Defense web page may be found here: www.keysight.com/find/ad.

Definitions:

**Clearing** – Clearing is the process of eradicating the data on media before reusing the media so that the data can no longer be retrieved using the standard interfaces on the instrument. Clearing is typically used when the instrument is to remain in an environment with an acceptable level of protection.

**Sanitization** – Sanitization is the process of removing or eradicating stored data so that the data cannot be recovered using any known technology. Instrument sanitization is typically required when an instrument is moved from a secure to a non-secure environment such as when it is returned to the factory for calibration. Keysight memory sanitization procedures are designed for customers who need to meet the requirements specified by the US Defense Security Service (DSS). These requirements are outlined in the “Clearing and Sanitization Matrix” issued by the Cognizant Security Agency (CSA) and referenced in National Industrial Security Program Operating Manual (NISPOM) DoD 5220.22M ISL 01L-1 section 8-301.

**Security erase** – Security erase is a term that is used to refer to either the clearing or sanitization features of Keysight instruments.

**Instrument declassification** – A term that refers to procedures that must be undertaken before an instrument can be removed from a secure environment such as is the case when the instrument is returned for calibration. Declassification procedures will include memory sanitization and or memory removal. Keysight declassification procedures are designed to meet the requirements specified by the DSS NISPOM security document (DoD 5220.22M chapter 8).
Procedure for declassifying a module

All volatile memory in the Keysight M9021A, M9022A, M9023A, and M9024A PXIe System and Cable Modules and the M9048A, M9048B, M9049A PXIe Host Desktop Adapter modules may be erased by removing module power for 30 seconds. Refer to the tables below.

M9021A PCIe Cable Interface Module

- There are no sanitization procedures for the M9021A devices because there is no memory available.

M9022A, M9023A PXIe System Modules

<table>
<thead>
<tr>
<th>Memory Type and Size</th>
<th>Is Memory user accessible as a mass storage device?</th>
<th>Writable During Normal Operation?</th>
<th>Data Retained When Powered Off?</th>
<th>Purpose/Contents</th>
<th>Data Input Method</th>
<th>Location in Instrument and Remarks</th>
<th>Sanitization Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>8192 Bytes EEPROM</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Store PLX PCIe settings</td>
<td>Factory and Firmware upgrades</td>
<td>Main PC board</td>
<td>N/A</td>
</tr>
<tr>
<td>4096 Bytes Flash</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Store FPGA settings</td>
<td>Factory and Firmware upgrades</td>
<td>Main PC board</td>
<td>N/A</td>
</tr>
<tr>
<td>Memory Type and Size</td>
<td>Is Memory user accessible as a mass storage device?</td>
<td>Writable During Normal Operation?</td>
<td>Data Retained When Powered Off?</td>
<td>Purpose/Contents</td>
<td>Data Input Method</td>
<td>Location in Instrument and Remarks</td>
<td>Sanitization Procedure</td>
</tr>
<tr>
<td>---------------------</td>
<td>--------------------------------------------------</td>
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<td>---------------------------------</td>
<td>----------------</td>
<td>----------------</td>
<td>-----------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>8192 Bytes EEPROM</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Store PLX PCIe settings</td>
<td>Factory and Firmware upgrades</td>
<td>Main PC board</td>
<td>N/A</td>
</tr>
<tr>
<td>4096 Bytes Flash</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Store FPGA Settings</td>
<td>Factory and Firmware upgrades</td>
<td>Main PC board</td>
<td>N/A</td>
</tr>
<tr>
<td>4096 Bytes Flash</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Store GPIB Settings</td>
<td>Factory and Firmware upgrades</td>
<td>Main PC board</td>
<td>N/A</td>
</tr>
<tr>
<td>4096 Bytes Flash</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Store LAN Settings</td>
<td>Factory and Firmware upgrades</td>
<td>Main PC board</td>
<td>N/A</td>
</tr>
</tbody>
</table>
### M9048A PCIe Host Desktop Adapter

<table>
<thead>
<tr>
<th>Memory Type and Size</th>
<th>Is Memory user accessible as a mass storage device?</th>
<th>Writable During Normal Operation?</th>
<th>Data Retained WhenPowered Off?</th>
<th>Purpose/Contents</th>
<th>Data Input Method</th>
<th>Location in Instrument and Remarks</th>
<th>Sanitization Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>128 Kbits EEPROM</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Stores PCIe Switch configuration including port and transceiver characteristics</td>
<td>Factory and Firmware upgrades</td>
<td>Main PC board</td>
<td>Reprogramming the EEPROM requires a special utility from the PCIe switch manufacturer.</td>
</tr>
<tr>
<td>128 Kbits EEPROM</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Stores PCIe Switch configuration including NTB mode port and transceiver characteristics</td>
<td>Factory and Firmware upgrades</td>
<td>Main PC board</td>
<td>Reprogramming the EEPROM requires a special utility from the PCIe switch manufacturer.</td>
</tr>
</tbody>
</table>

### M9048B, M9049A PCIe Host Desktop Adapter

<table>
<thead>
<tr>
<th>Memory Type and Size</th>
<th>Is Memory user accessible as a mass storage device?</th>
<th>Writable During Normal Operation?</th>
<th>Data Retained WhenPowered Off?</th>
<th>Purpose/Contents</th>
<th>Data Input Method</th>
<th>Location in Instrument and Remarks</th>
<th>Sanitization Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>8192 Bytes EEPROM</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Store PLX PCIe settings</td>
<td>Factory and Firmware upgrades</td>
<td>Main PC board</td>
<td>N/A</td>
</tr>
<tr>
<td>32 Macro Cells</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Logic array for switch settings</td>
<td>Factory and Firmware upgrades</td>
<td>Main PC board</td>
<td>N/A</td>
</tr>
</tbody>
</table>

For additional information, go to: [http://www.keysight.com/find/security](http://www.keysight.com/find/security) and enter the model number of your module (for example, M9021A).
Memory Clearing, Sanitization and/or Removal Procedures

The following table explains how to clear, sanitize, and remove memory from your instrument for all memory that can be written to during normal operation and for which the clearing and sanitization procedure is more than trivial such as rebooting your instrument.

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory clearing</td>
<td>Remove operating power from the module for 30 seconds minimum.</td>
</tr>
<tr>
<td>Memory removal</td>
<td>This memory cannot be removed without destroying the module</td>
</tr>
</tbody>
</table>

Sales and Technical Support

For product specific information and support, and to obtain the latest software and documentation, refer to the following Keysight web resources:

www.keysight.com/find/M9021A
www.keysight.com/find/M9022A
www.keysight.com/find/M9023A
www.keysight.com/find/M9024A
www.keysight.com/find/M9048A
www.keysight.com/find/M9048B
www.keysight.com/find/M9049A

Worldwide contact information for repair and service can be found at:

www.keysight.com/find/assist

References

For additional information, refer to: