Tektronix®

RSA7100 and CTRL7100 Series
Real-Time Spectrum Analyzer
Convertor and Controller
Declassification and Security

Instructions

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- In North America, call 1-800-833-9200.
- Worldwide, visit www.tek.com to find contacts in your area.

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RSA7100 and CTRL7100 Series Declassification and Security Instructions

Preface

This document helps customers with data security concerns to sanitize or remove memory devices from the Tektronix RSA7100 Series Real-Time Spectrum Analyzer convertor and CTRL7100 Series controller.

These products have data storage (memory) devices and data output devices (USB ports). These instructions tell how to clear or sanitize the memory devices and disable the data output devices. The instructions also tell how to declassify an instrument that is not functioning.

Reference
The procedures in this document are written to meet the requirements specified in:

■ NISPOM, DoD 5220.22–M, Chapter 8

■ ISFO Process Manual for Certification & Accreditation of Classified Systems under NISPOM

Products
This document covers the following Tektronix products:

■ RSA7100A

■ CTRL7100A

■ RSA7100B

■ CTRL7100B

Terms that may be used in this document
The following terms may be used in this document:

■ **Clear.** This removes data on media/memory before reusing it in a secured area. All reusable memory is cleared to deny access to previously stored information by standard means of access.

■ **Erase.** This is equivalent to clear.

■ **Instrument Declassification.** A term that refers to procedures that must be undertaken before an instrument can be removed from a secure environment. Declassification procedures include memory sanitization and memory removal, and sometimes both.

■ **Media storage/data export device.** Any of several devices that can be used to store or export data from the instrument, such as a USB port.

■ **Nonvolatile memory.** Data is retained when the instrument is powered off.

■ **Power off.** Some instruments have a "Standby" mode, in which power is still supplied to the instrument. For the purpose of clearing data, putting the instrument in Standby mode does not qualify as powering off. For these products, you will need to either press a rear-panel OFF switch or remove the power source from the instrument.

■ **Remove.** This is a physical means to clear the data by removing the memory device from the instrument. Instructions are available in the product Service Manual.

■ **Sanitize.** This eradicates the data from media/memory so that the data cannot be recovered by other means or technology. This is typically used when the device will be moved (temporarily or permanently) from a secured area to a non-secured area.

■ **Scrub.** This is equivalent to sanitize.

■ **User Accessible.** User is able to directly retrieve the memory device contents.

■ **User-modifiable.** The user can write to the memory device during normal instrument operation, using the instrument interface or remote control.

■ **User-modifiable.** The user can write to the memory device during normal instrument operation, using the instrument interface or remote control.

■ **Volatile memory.** Data is lost when the instrument is powered off.

Device terms
■ **User data.** Describes the type of information stored in the device. Refers to waveforms or other measurement data representing signals connected to the instrument by users.

■ **User settings.** Describes the type of information stored in the device. Refers to instrument settings that can be changed by the user.

■ **Both.** Describes the type of information stored in the device. It means that both user data and user settings are stored in the device.

■ **None.** Describes the type of information stored in the device. It means that neither user data nor user settings are stored in the device.

■ **Directly.** Describes how data is modified. It means that the user can modify the data.

■ **Indirectly.** Describes how data is modified. It means that the instrument system resources modify the data and that the user cannot modify the data.

Memory devices

The following tables and procedures identify volatile and non-volatile memory devices in the RSA7100A, CTRL7100A, RSA7100B, and the CTRL7100B and how to clear and/or sanitize them.

Volatile memory devices (RSA7100A)

Type and min. size	Function	Type of user info stored	Backed up by battery	Method of modification	Data input method	Location	User accessible	To clear	To sanitize
PCIe switch, 122 kB	Device configuration, traffic buffering	None	No	None	Firmware operations	MXI module	No	Remove power from instrument for at least 20 seconds.	Remove power from instrument for at least 20 seconds.
FPGA block, 1548 kB	Data buffering	None	No	None	Firmware operations	GPS module	No	Remove power from instrument for at least 20 seconds.	Remove power from instrument for at least 20 seconds.
PCI DMA, 1536 bits	Data buffering	None	No	None	Firmware operations	GPS module	No	Remove power from instrument for at least 20 seconds.	Remove power from instrument for at least 20 seconds.
SRAM 96 kB	Fan, voltage, and temperature monitoring and control	None	No	None	uP control	Chassis module	No	Remove power from instrument for at least 20 seconds.	Remove power from instrument for at least 20 seconds.
SRAM 96 kB	Temperature monitoring	None	No	None	uP control	Chassis module	No	Remove power from instrument for at least 20 seconds.	Remove power from instrument for at least 20 seconds.
FPGA 2910 logic elements	Module control and bus control	None	No	None	System writes	MXI module	No	Remove power from instrument for at least 20 seconds.	Remove power from instrument for at least 20 seconds.

Volatile memory devices (CTRL7100A)

Type and min. size	Function	Type of user info stored	Backed up by battery	Method of modification	Data input method	Location	User accessible	To clear	To sanitize
256 Byte Battery Backed RTC CMOS RAM	Holds time, date, and system configuration date	None	Yes	Indirectly through BIOS interface	User option selectable	Main controller motherboard	No	Use the "Procedure to Clear CMOS" located in this document. Or pull the backup battery out of the holder on the motherboard for 20 seconds.	Use the "Procedure to Clear CMOS" located in this document. Resets time, date, and settings to factory default settings.
DDR4 SDRAM 64 GB (std)	Microprocessor system memory	User data, user settings, system data	No	Directly	Written by processor system	Main controller motherboard memory sockets	Yes	Remove power from the instrument for at least 20 seconds.	Remove power from the instrument for at least 20 seconds.
Adaptec RAID Card	Controls data written to SSDs for higher write speed	Configuration data, buffers user data	No	Indirectly	Written by processor system	PCIe slot on motherboard	No	Remove power from the instrument for at least 20 seconds.	Remove power from the instrument for at least 20 seconds.
AMD W9100 Graphics Card 16 GB	Memory for graphics card	Program and user data	No	Indirectly	Written by processor system	PCIe slot on motherboard	No	Remove power from the instrument for at least 20 seconds.	Remove power from the instrument for at least 20 seconds.
Micron 16M x 16 DDR3	FPGA scratchpad RAM	Program and user data	No	Indirectly	Written by processor system	PCIe slot on motherboard	No	Remove power from the instrument for at least 20 seconds.	Remove power from the instrument for at least 20 seconds.
XILINX ~2.3 Mbytes FPGA	FPGA scratchpad RAM	Program and user data	No	Indirectly	Written by processor system	PCIe slot on motherboard	No	Remove power from the instrument for at least 20 seconds.	Remove power from the instrument for at least 20 seconds.

Volatile memory devices (RSA7100B)

Type and min. size	Function	Type of user info stored	Backed up by battery	Method of modification	Data input method	Location	User accessible	To clear	To sanitize
PCIe switch, 122 kB	Device configuration, traffic buffering	None	No	None	Firmware operations	MXI module	No	Remove power from instrument for at least 20 seconds.	Remove power from instrument for at least 20 seconds.
FPGA block, 1548 kB	Data buffering	None	No	None	Firmware operations	GPS module	No	Remove power from instrument for at least 20 seconds.	Remove power from instrument for at least 20 seconds.
PCI DMA, 1536 bits	Data buffering	None	No	None	Firmware operations	GPS module	No	Remove power from instrument for at least 20 seconds.	Remove power from instrument for at least 20 seconds.
SRAM 96 kB	Fan, voltage, and temperature monitoring and control	None	No	None	uP control	Chassis module	No	Remove power from instrument for at least 20 seconds.	Remove power from instrument for at least 20 seconds.
SRAM 96 kB	Temperature monitoring	None	No	None	uP control	Chassis module	No	Remove power from instrument for at least 20 seconds.	Remove power from instrument for at least 20 seconds.
FPGA 2910 logic elements	Module control and bus control	None	No	None	System writes	MXI module	No	Remove power from instrument for at least 20 seconds.	Remove power from instrument for at least 20 seconds.

Volatile memory devices (CTRL7100B)

Type and min. size	Function	Type of user info stored	Backed up by battery	Method of modification	Data input method	Location	User accessible	To clear	To sanitize
256 Byte Battery Backed RTC CMOS RAM	Holds time, date, and system configuration date	None	Yes	Indirectly through BIOS interface	User option selectable	Main controller motherboard	No	Use the "Procedure to Clear CMOS" located in this document. Or pull the backup battery out of the holder on the motherboard for 20 seconds.	Use the "Procedure to Clear CMOS" located in this document. Resets time, date, and settings to factory default settings.
DDR4 SDRAM 64 GB (std)	Microprocessor system memory	User data, user settings, system data	No	Directly	Written by processor system	Main controller motherboard memory sockets	Yes	Remove power from the instrument for at least 20 seconds.	Remove power from the instrument for at least 20 seconds.
Adaptec RAID Card	Controls data written to SSDs for higher write speed	Configuration data, buffers user data	No	Indirectly	Written by processor system	PCIe slot on motherboard	No	Remove power from the instrument for at least 20 seconds.	Remove power from the instrument for at least 20 seconds.
AMD WX9100 Graphics Card 16 GB	Memory for graphics card	Program and user data	No	Indirectly	Written by processor system	PCIe slot on motherboard	No	Remove power from the instrument for at least 20 seconds.	Remove power from the instrument for at least 20 seconds.
Micron 16M x 16 DDR3	FPGA scratchpad RAM	Program and user data	No	Indirectly	Written by processor system	PCIe slot on motherboard	No	Remove power from the instrument for at least 20 seconds.	Remove power from the instrument for at least 20 seconds.
XILINX ~2.3 Mbytes FPGA	FPGA scratchpad RAM	Program and user data	No	Indirectly	Written by processor system	PCIe slot on motherboard	No	Remove power from the instrument for at least 20 seconds.	Remove power from the instrument for at least 20 seconds.

Non-volatile memory devices (RSA7100A)

Type and min. size	Function	Type of user info stored	Method of modification	Data input method	Location	User accessible	To clear	To sanitize
EEPROM, 2 kB	TCXO calibration data	Calibration	API	Factory programming	GPS module	No	None	Not applicable. Does not contain user data or settings.
Flash, 4 MB	Device configuration data	None	None	System writes	GPS module	No	None	Not applicable. Does not contain user data or settings. Sanitizing would disable instrument functionality.
CPLD, 256 macro cells	Trigger routing	None	None	System writes	GPS module	No	None	Not applicable. Does not contain user data or settings. Sanitizing would disable instrument functionality.
Flash 64 MB	Product ID and calibration data	Arbitrary text	API and system writes	Factory and system writes and user inputs	Convertor module	No	None	Not applicable. Does not contain user data or settings.
EEPROM, 16 kB	Clock tuning configuration	None	None	uP writes	Chassis module	No	None	None
EEPROM, 2 kbit	PCI bridge configuration	None	None	uP writes	Chassis module	No	None	None
EEPROM, 2 kbit	Backplane configuration	None	None	uP writes	Chassis module	No	None	None
EEPROM, 32 kB	PCIe switch configuration	None	None	uP writes	Chassis module	No	None	None
CPLD, 8 kB	PXI clock configuration	None	None	uP writes	Chassis module	No	None	None
CPLD, 72 macro cells	Trigger routing logic	None	None	uP writes	Chassis module	No	None	None
CPLD, 72 macro cells	PCI configuration	None	None	uP writes	Chassis module	No	None	None
Flash 4 MB	Fan, voltage, and temperature monitoring	None	None	uP writes	Chassis module	No	None	None
Flash 256 kB	Fan, voltage, and temperature monitoring	None	None	uP writes	Chassis module	No	None	None
Flash 4 MB	Temperature monitoring	None	None	uP writes	Chassis module	No	None	None
Flash 256 kB	Temperature monitoring	None	None	uP writes	Chassis module	No	None	None

Type and min. size	Function	Type of user info stored	Method of modification	Data input method	Location	User accessible	To clear	To sanitize
EEPROM 128 kB	Device configuration	None	None	System writes	MXI module	No	None	None
FPGA 2910 logic elements	Module control and bus control	None	None	System writes	MXI module	No	Remove power from instrument for at least 20 seconds.	Remove power from instrument for at least 20 seconds.

Non-volatile memory devices (CTRL7100A)

There is no user-modifiable non-volatile memory (besides removable drives).

All user data is stored on Solid-State Drives (SSDs) or user inserted USB drives. The SSD drives are removable from the CTRL7100A front-panel, and the USB drives are removable from the CTRL7100A front and rear panels.

See the instructions for removing these devices from the CTRL7100A. (See page 21, *Clear or sanitize a non-functional instrument*.)

To clear CMOS, see the procedure after the following table. (See page 15, *Procedure to clear the CMOS (CTRL7100A)*.)

Type and min. size	Function	Type of user info stored	Method of modification	Data input method	Location	User accessible	To clear	To sanitize
Solid State Hard Drive, holds System OS, programs and user data 512 GB	Holds instrument operating system and application software. Holds all user-storable data such as waveforms, measurement results, and instrument settings.	User data, user settings	Direct	Firmware operations, user input	In user accessible drive tray on front of controller.	Yes	Use the SSD manufacturer's secure erase function. Reinstall Microsoft Windows. Reinstall the instrument software. Contact Tektronix for software if needed.	Remove the hard drive. Store the removed hard drive in a secure area or destroy it. Conversely, you can also use the SSD manufacturer's secure erase function.
Small RAID option using 1 TB SSDs, total size 10 TB	Holds data from instrument acquisition system	Acquisition data, user data	Direct	Acquisition generated data, programmatic generated data, or direct data input	In user accessible drive trays behind lower door on CTRL7100A.	Yes	Use the SSD manufacturer's secure erase function.	Use the SSD manufacturer's secure erase function.

Type and min. size	Function	Type of user info stored	Method of modification	Data input method	Location	User accessible	To clear	To sanitize
Large RAID option using 2 TB SSDs, total size 16 TB	Holds data from instrument acquisition system	Acquisition data, user data	Direct	Acquisition generated data, programmatic generated data, or direct data input	In user accessible drive trays behind lower door on CTRL7100A.	Yes	Use the SSD manufacturer's secure erase function.	Use the SSD manufacturer's secure erase function.
BMC FW flash ROM 16 MB	Holds motherboard firmware and diagnostic information	None	Indirect	Settings applied through vendor supplied tools. Not directly accessible by user.	U2F1	No	Memory must be erased to clear data. The exact method of clearing these areas varies by the specific component. Some areas are required for normal operation of the server, and clearing these areas may render the server board inoperable.	Memory must be erased to clear data. The exact method of clearing these areas varies by the specific component. Some areas are required for normal operation of the server, and clearing these areas may render the server board inoperable.
BIOS Flash ROM 16 MB	Holds motherboard firmware, system configuration and diagnostic information	None	Indirect	Settings applied through vendor supplied tools. Not directly accessible by user.	U4G2	No	Memory must be erased to clear data. The exact method of clearing these areas varies by the specific component. Some areas are required for normal operation of the server, and clearing these areas may render the server board inoperable.	Memory must be erased to clear data. The exact method of clearing these areas varies by the specific component. Some areas are required for normal operation of the server, and clearing these areas may render the server board inoperable.

Type and min. size	Function	Type of user info stored	Method of modification	Data input method	Location	User accessible	To clear	To sanitize
Adaptec RAID controller BIOS	Holds configuration data	None	Indirect	Settings applied through vendor supplied tools. Not directly accessible by user.	On RAID controller card	No	Memory must be erased to clear data. The exact method of clearing these areas varies by the specific component. Some areas are required for normal operation of the RAID controller, and clearing these areas may render the RAID controller inoperable.	Memory must be erased to clear data. The exact method of clearing these areas varies by the specific component. Some areas are required for normal operation of the RAID controller, and clearing these areas may render the RAID controller inoperable.
I350 EEROM 256 kB	Holds MAC address and firmware settings for LAN	None	Indirect	Settings applied through vendor supplied tools. Not directly accessible by user.	U8L1	No	Memory must be erased to clear data. The exact method of clearing these areas varies by the specific component. Some areas are required for normal operation of the server, and clearing these areas may render the server board inoperable.	Memory must be erased to clear data. The exact method of clearing these areas varies by the specific component. Some areas are required for normal operation of the server, and clearing these areas may render the server board inoperable.
X540 Flash ROM 16 MB	Holds MAC address and firmware settings for LAN	System configuration information	Indirect	Settings applied through vendor supplied tools.	U2A1	No	Memory must be erased to clear data. The exact method of clearing these areas varies by the specific component. Some areas are required for normal operation of the server, and clearing these areas may render the server board inoperable.	Memory must be erased to clear data. The exact method of clearing these areas varies by the specific component. Some areas are required for normal operation of the server, and clearing these areas may render the server board inoperable.

Type and min. size	Function	Type of user info stored	Method of modification	Data input method	Location	User accessible	To clear	To sanitize
NXP EEPROM 128k x 8	Used by Pentek for fixed configuration	None	Direct via a data path and with special software available only from Pentek. Setting the switch SW2-1 to the "on" position will inhibit programming.	Settings applied through vendor supplied tools.	U1 on Pentek 78610-104-155-165 LVDS	No	Can be written only with special software available only from Pentek. Without this software it is impossible for a user to write to these devices inadvertently.	Can be written only with special software available only from Pentek. Without this software it is impossible for a user to write to these devices inadvertently.
INTEL FLASH 32M x 16	Contains programming information for FPGAs	None	Direct via a data path and with special software available only from Pentek. Setting the switch SW2-1 to the "on" position will inhibit programming	Settings applied through vendor supplied tools.	U84 on Pentek 78610-104-155-165 LVDS	No	Can be written only with special software available only from Pentek. Without this software it is impossible for a user to write to these devices inadvertently.	Can be written only with special software available only from Pentek. Without this software it is impossible for a user to write to these devices inadvertently.

Non-volatile memory devices (RSA7100B)

Type and min. size	Function	Type of user info stored	Method of modification	Data input method	Location	User accessible	To clear	To sanitize
EEPROM, 2 kB	TCXO calibration data	Calibration	API	Factory programming	GPS module	No	None	Not applicable. Does not contain user data or settings.
Flash, 4 MB	Device configuration data	None	None	System writes	GPS module	No	None	Not applicable. Does not contain user data or settings. Sanitizing would disable instrument functionality.

Type and min. size	Function	Type of user info stored	Method of modification	Data input method	Location	User accessible	To clear	To sanitize
CPLD, 256 macro cells	Trigger routing	None	None	System writes	GPS module	No	None	Not applicable. Does not contain user data or settings. Sanitizing would disable instrument functionality.
Flash 64 MB	Product ID and calibration data	Arbitrary text	API and system writes	Factory and system writes and user inputs	Convertor module	No	None	Not applicable. Does not contain user data or settings.
EEPROM, 16 kB	Clock tuning configuration	None	None	uP writes	Chassis module	No	None	None
EEPROM, 2 kbit	PCI bridge configuration	None	None	uP writes	Chassis module	No	None	None
EEPROM, 2 kbit	Backplane configuration	None	None	uP writes	Chassis module	No	None	None
EEPROM, 32 kB	PCIe switch configuration	None	None	uP writes	Chassis module	No	None	None
CPLD, 8 kB	PXI clock configuration	None	None	uP writes	Chassis module	No	None	None
CPLD, 72 macro cells	Trigger routing logic	None	None	uP writes	Chassis module	No	None	None
CPLD, 72 macro cells	PCI configuration	None	None	uP writes	Chassis module	No	None	None
Flash 4 MB	Fan, voltage, and temperature monitoring	None	None	uP writes	Chassis module	No	None	None
Flash 256 kB	Fan, voltage, and temperature monitoring	None	None	uP writes	Chassis module	No	None	None
Flash 4 MB	Temperature monitoring	None	None	uP writes	Chassis module	No	None	None
Flash 256 kB	Temperature monitoring	None	None	uP writes	Chassis module	No	None	None
EEPROM 128 kB	Device configuration	None	None	System writes	MXI module	No	None	None
FPGA 2910 logic elements	Module control and bus control	None	None	System writes	MXI module	No	Remove power from instrument for at least 20 seconds.	Remove power from instrument for at least 20 seconds.

Non-volatile memory devices (CTRL7100B)

There is no user-modifiable non-volatile memory (besides removable drives).

All user data is stored on Solid-State Drives (SSDs) or user inserted USB drives. The SSD drives are removable from the CTRL7100B front-panel, and the USB drives are removable from the CTRL7100B front and rear panels.

See the instructions for removing these devices from the CTRL7100B. (See page 21, *Clear or sanitize a non-functional instrument*.)

To clear CMOS, see the clear procedure. (See page 17, *Procedure to clear the CMOS (CTRL7100B)*.)

Type and min. size	Function	Type of user info stored	Method of modification	Data input method	Location	User accessible	To clear	To sanitize
Solid State Hard Drive, holds System OS, programs and user data 512 GB	Holds instrument operating system and application software. Holds all user-storable data such as waveforms, measurement results, and instrument settings.	User data, user settings	Direct	Firmware operations, user input	In user accessible drive tray on front of controller.	Yes	Use the SSD manufacturer's secure erase function. Reinstall Microsoft Windows. Reinstall the instrument software. Contact Tektronix for software if needed.	Remove the hard drive. Store the removed hard drive in a secure area or destroy it. Conversely, you can also use the SSD manufacturer's secure erase function.
Small RAID option using 1 TB SSDs, total size 10 TB	Holds data from instrument acquisition system	Acquisition data, user data	Direct	Acquisition generated data, programmatic generated data, or direct data input	In user accessible drive trays behind lower door on CTRL7100A.	Yes	Use the SSD manufacturer's secure erase function.	Use the SSD manufacturer's secure erase function.
Large RAID option using 2 TB SSDs, total size 16 TB	Holds data from instrument acquisition system	Acquisition data, user data	Direct	Acquisition generated data, programmatic generated data, or direct data input	In user accessible drive trays behind lower door on CTRL7100A.	Yes	Use the SSD manufacturer's secure erase function.	Use the SSD manufacturer's secure erase function.

Type and min. size	Function	Type of user info stored	Method of modification	Data input method	Location	User accessible	To clear	To sanitize
BMC FW flash ROM 32MB/ 64MB	Holds motherboard firmware and diagnostic information	None	Indirect	Settings applied through vendor supplied tools. Not directly accessible by user.	U1D2	No	Memory must be erased to clear data. The exact method of clearing these areas varies by the specific component. Some areas are required for normal operation of the server, and clearing these areas may render the server board inoperable.	Memory must be erased to clear data. The exact method of clearing these areas varies by the specific component. Some areas are required for normal operation of the server, and clearing these areas may render the server board inoperable.
BIOS Flash ROM 32MB/ 64MB	Holds motherboard firmware, system configuration and diagnostic information	None	Indirect	Settings applied through vendor supplied tools. Not directly accessible by user.	U3E1	No	Memory must be erased to clear data. The exact method of clearing these areas varies by the specific component. Some areas are required for normal operation of the server, and clearing these areas may render the server board inoperable.	Memory must be erased to clear data. The exact method of clearing these areas varies by the specific component. Some areas are required for normal operation of the server, and clearing these areas may render the server board inoperable.
Adaptec RAID controller BIOS	Holds configuration data	None	Indirect	Settings applied through vendor supplied tools. Not directly accessible by user.	On RAID controller card	No	Memory must be erased to clear data. The exact method of clearing these areas varies by the specific component. Some areas are required for normal operation of the RAID controller, and clearing these areas may render the RAID controller inoperable.	Memory must be erased to clear data. The exact method of clearing these areas varies by the specific component. Some areas are required for normal operation of the RAID controller, and clearing these areas may render the RAID controller inoperable.

Type and min. size	Function	Type of user info stored	Method of modification	Data input method	Location	User accessible	To clear	To sanitize
Inphi PHY EEPROM 512 kB	Holds MAC address and firmware settings for LAN	None	Indirect	Settings applied through vendor supplied tools. Not directly accessible by user.	EU2A1	No	Memory must be erased to clear data. The exact method of clearing these areas varies by the specific component. Some areas are required for normal operation of the server, and clearing these areas may render the server board inoperable.	Memory must be erased to clear data. The exact method of clearing these areas varies by the specific component. Some areas are required for normal operation of the server, and clearing these areas may render the server board inoperable.
LAN Riser FRU 2 kB	Holds MAC address and firmware settings for LAN	System configuration information	Indirect	Settings applied through vendor supplied tools.	EU3A1	No	Memory must be erased to clear data. The exact method of clearing these areas varies by the specific component. Some areas are required for normal operation of the server, and clearing these areas may render the server board inoperable.	Memory must be erased to clear data. The exact method of clearing these areas varies by the specific component. Some areas are required for normal operation of the server, and clearing these areas may render the server board inoperable.

Type and min. size	Function	Type of user info stored	Method of modification	Data input method	Location	User accessible	To clear	To sanitize
NXP EEPROM 128k x 8	Used by Pentek for fixed configuration	None	Direct via a data path and with special software available only from Pentek. Setting the switch SW2-1 to the "on" position will inhibit programming.	Settings applied through vendor supplied tools.	U1 on Pentek 78610-104-155-165 LVDS	No	Can be written only with special software available only from Pentek. Without this software it is impossible for a user to write to these devices inadvertently.	Can be written only with special software available only from Pentek. Without this software it is impossible for a user to write to these devices inadvertently.
INTEL FLASH 32M x 16	Contains programming information for FPGAs	None	Direct via a data path and with special software available only from Pentek. Setting the switch SW2-1 to the "on" position will inhibit programming	Settings applied through vendor supplied tools.	U84 on Pentek 78610-104-155-165 LVDS	No	Can be written only with special software available only from Pentek. Without this software it is impossible for a user to write to these devices inadvertently.	Can be written only with special software available only from Pentek. Without this software it is impossible for a user to write to these devices inadvertently.

Procedure to clear the CMOS (CTRL7100A)

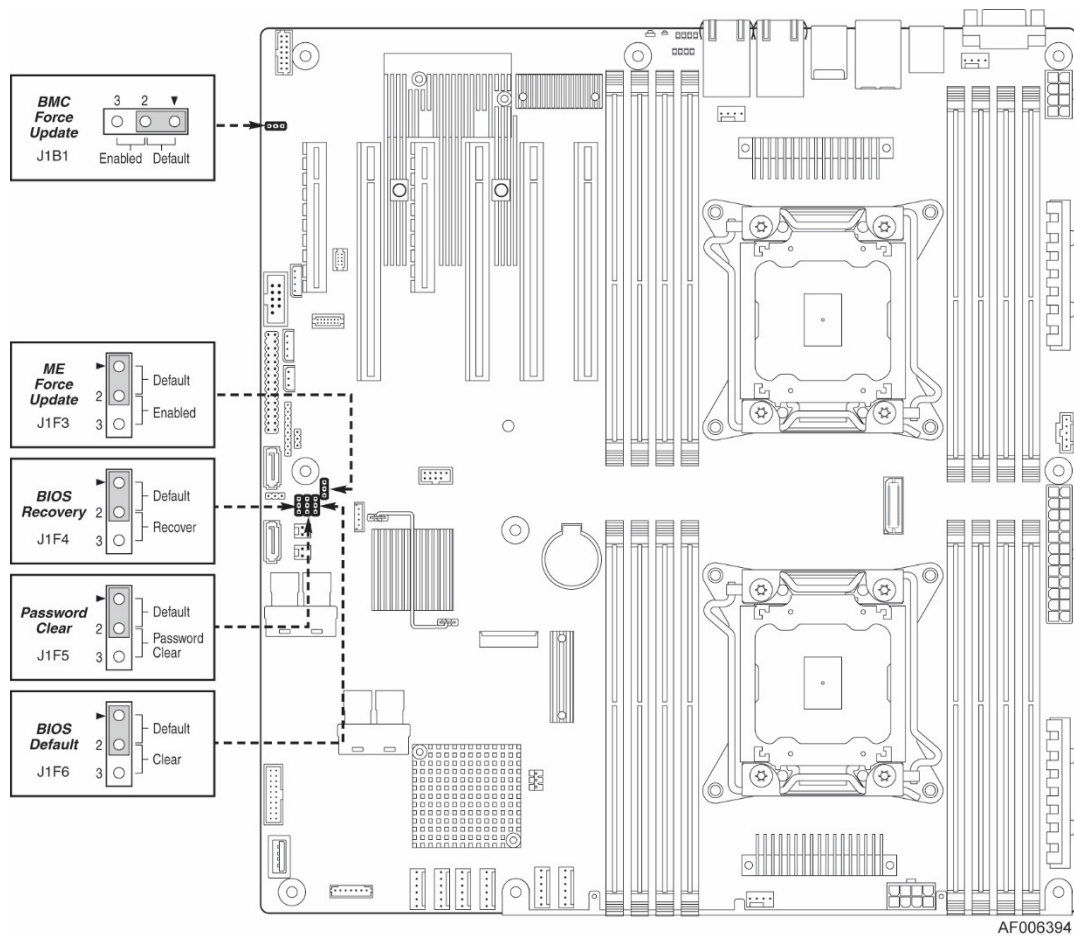To clear the CMOS, perform the following procedure:

1. Power down the server and unplug the power cord.

2. Open the server chassis.

3. Move the J1F6 jumper from the default operating position (covering pins 1 and 2) to the reset/clear position (covering pins 2 and 3).

    This jumper is shown in the following diagram and labeled BIOS Default.

4. Wait five seconds.

5. Move the jumper back to the default position (covering pins 1 and 2).

6. Close the server chassis.

7. Install AC power cord.

8. Power up the server and access the BIOS setup utility by <F2>.

9. Verify the BIOS default operation was successful by view the Error Manager screen. Two errors should be logged:

    a. 5220 BIOS Settings reset to default settings.

    b. 0012 System RTC date/time not set.

The CMOS is now cleared and can be reset by going into the BIOS setup.

NOTE. This jumper does not reset Administrator or User passwords. In order to reset passwords, the Password Clear jumper must be used. The system will automatically power on after AC is applied to the system.

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Procedure to clear the CMOS (CTRL7100B)

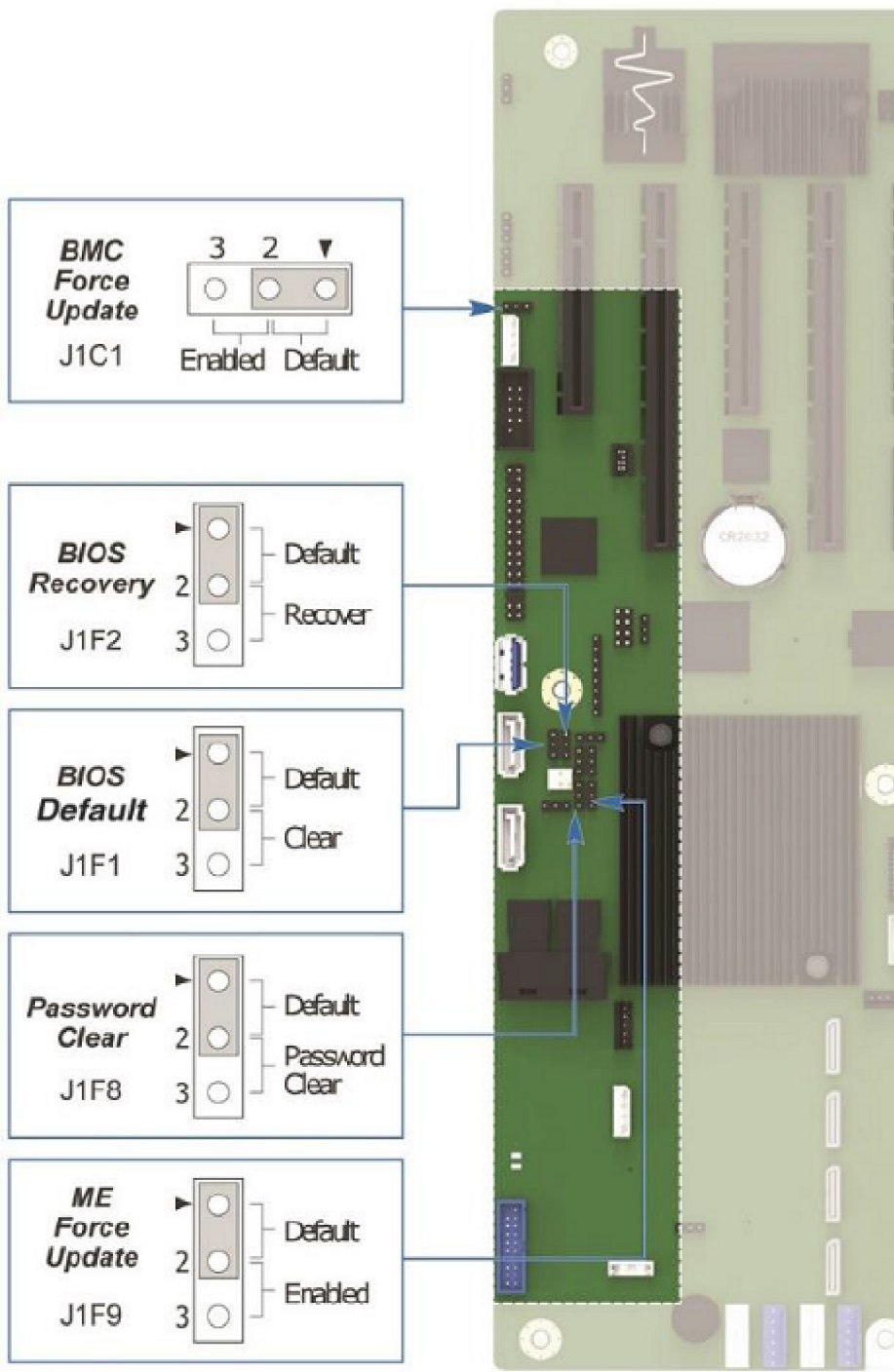To clear the CMOS, perform the following procedure:

1. Power down the server and unplug the power cord.

2. Open the server chassis.

3. Move the J1F1 jumper from the default operating position (covering pins 1 and 2) to the reset/clear position (covering pins 2 and 3).

   This jumper is shown in the following diagram and labeled BIOS Default.

4. Wait five seconds.

5. Move the jumper back to the default position (covering pins 1 and 2).

6. Close the server chassis.

7. Install AC power cord.

8. Power up the server and access the BIOS setup utility by <F2>.

9. Verify the BIOS default operation was successful by view the Error Manager screen. Two errors should be logged:

   a. 5220 BIOS Settings reset to default settings.

   b. 0012 System RTC date/time not set.

The CMOS is now cleared and can be reset by going into the BIOS setup.

NOTE. This jumper does not reset Administrator or User passwords. In order to reset passwords, the Password Clear jumper must be used. The system will automatically power on after AC is applied to the system.

Data export devices

The following tables and procedures identify data export devices in the RSA7100A, CTRL7100A, RSA7100B, and CTRL7100B and how to clear and/or sanitize them.

Data export devices for the RSA7100A

Type	Function	Method of modification	Data input method	Location	User accessible	Process to disable
LAN Ethernet connector	No intended use	None	N/A	Rear panel	No	None
PCIe	Transfer waveform samples	None	None	Front panel	No	None

Data export devices for the CTRL7100A

Type	Function	Method of modification	Data input method	Location	User accessible	Process to disable
USB device port	Supports removable USB flash drive. User storage of reference waveforms, screen images, and instrument setups.	Directly	Directly by system resources	Front and rear panel	No	Remove all USB memory devices. USB devices can be formatted, stored in a secure area, or destroyed.
LAN Ethernet connector	Supports data transfer	Directly	System resources	Rear panel	No	None

Data export devices for the RSA7100B

Type	Function	Method of modification	Data input method	Location	User accessible	Process to disable
LAN Ethernet connector	No intended use	None	N/A	Rear panel	No	None
PCIe	Transfer waveform samples	None	None	Front panel	No	None

Data export devices for the CTRL7100B

Type	Function	Method of modification	Data input method	Location	User accessible	Process to disable
USB device port	Supports removable USB flash drive. User storage of reference waveforms, screen images, and instrument setups.	Directly	Directly by system resources	Front and rear panel	No	Remove all USB memory devices. USB devices can be formatted, stored in a secure area, or destroyed.
LAN Ethernet connector	Supports data transfer	Directly	System resources	Rear panel	No	None
40 GbE	Supports data transfer	Directly	System resources	Rear panel	No	None

Clear or sanitize a non-functional instrument

If the CTRL7100 is not functioning, perform the following actions and then return the CTRL7100 to Tektronix for repair.

If the RSA7100 is not functioning, perform the USB removal procedure below and then return the RSA7100 to Tektronix for repair.

Charges   Replacement of any missing hardware will be charged according to the rate at the time of replacement.

Remove SSD, RAID SSD, and USB drive from the CTRL7100

Operating system SSD removal   The operating system (OS) SSD contains the OS, programs, and user data such as configurations.

1. Locate the OS SSD located in one of the upper drive bays.

2. Push the unlock button to unlock the removal lever.

3. Pull the lever to the fully open position and slide out the drive.

4. Refer to your company's internal policies regarding storage or disposal of the drive.

RAID SSD removal   The RAID SSDs contain streamed samples from one or more user configured acquisitions. These drives can be removed from the front panel.

1. Open the lower drive bay door.

2. Locate all of the SSDs associated with the RAID system.

3. Press on the green tab to pop out the lever to extract the drive bracket and then remove the drive.

4. Repeat step 3 for each drive you want to remove.

5. Refer to your company's internal policies regarding storage or disposal of the drives.

USB drive removal   The USB drives may contain user data and configurations. Pull the USB device from the USB port to remove. Refer to your company's internal policies regarding storage or disposal of the drives.