

PQA500 Picture Quality Analyzer Declassification and Security Instructions

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Preface

This document helps customers with data security concerns to sanitize or remove memory devices from the PQA500 Picture Quality Analyzer.

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

Products

The following Tektronix products are covered by this document:

- PQA500 – Picture Quality Analysis System

Terms

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.

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-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.

Clear and Sanitize Procedures

Use the following procedures to clear or sanitize the memory devices and disable the data output devices of your equipment.

Memory Devices

The following tables lists the volatile and nonvolatile memory devices in the standard instrument and listed options. Detailed procedures to clear or sanitize these devices, if any, are shown following each table.

Table 1: Volatile Memory Devices

| Type and minimum size | Function | User modifiable ¹ | Data input method | Location | To clear | To sanitize |
|---|---|------------------------------|----------------------------------|--|------------------------------------|------------------|
| DDR2 FBDIMM, SDRAM, 2 GB, Quantity 6 | Microprocessor system RAM | Yes | Written by processor system | Main Server board (DIMM slots) | Remove AC mains power ² | Same as To clear |
| Processor Level 1 Cache, 4 MB, Quantity 2 | Microprocessor cache memory (on chip) | Yes | Written by processor system | Main Server board | Remove AC mains power ² | Same as To clear |
| Video Controller SDRAM, 16 MB | Video display memory | Yes | Written by processor system | Main Server board | Remove AC mains power ² | Same as To clear |
| DDR2 SDRAM, 128 MB | Video display memory (DVI-I Dual Link output) | Yes | Written by processor system | HIS X1550 DVI graphics card (installed in low profile riser) | Remove AC mains power ² | Same as To clear |
| SDI Video Card RAM (SDI Option only) | RAM for buffering SDI input video | Yes | External SDI signal (SDI In 1/A) | AJA model Z-OEM-2Ke-RO SDI card (installed in full height riser) | Remove AC mains power ² | Same as To clear |
| BMC SDRAM, 16 MB | BMC (Baseboard Management Controller) RAM | No | Written by BMC system | Main Server board | Remove AC mains power ² | Same as To clear |
| LM94 RAM, 256 Bytes | LM94 memory registers. The LM94 collects power supply voltage and internal temperature data, which is read by the BMC | No | Written by LM94 firmware | Main Server board | Remove AC mains power ² | Same as To clear |

¹ User data may be stored in these devices as a result of normal instrument operation.

² “Remove AC mains power” means to remove all power source connections from the instrument for at least 20 seconds.

Table 2: Nonvolatile Memory Devices

| Type and minimum | Function | May contain user data ¹ | Data input method | Location | To clear | To sanitize |
|---|--|------------------------------------|--|---|--|---|
| Removable hard disk drive, 500 GB, Quantity 6 | Holds OS, Application, and user files, including video test sequences, measurement results, and instrument settings | Yes | Firmware and OS operations and user initiated writes | Hard drives are removable from the instrument front. See <i>Specific Clear and Sanitize Procedures</i> , page 4. | Reformat using DOS command such as <format c:> | Remove and store in a secure area or physically destroy |
| DVD or CD ROM drive and media | Used to store and transport data. May hold user data such as video test sequences, measurement results, and instrument settings. | Yes | User initiated writes | DVD / CD-ROM drive is accessible from the instrument front. See <i>Specific Clear and Sanitize Procedures</i> , page 4. | Rewritable media can be cleared by reformatting. Non-rewritable media should be removed and stored in a secure area, or destroyed. | Remove media (CD or DVD) and store in a secure area or physically destroy |
| BIOS Flash, 4 MB | Contains system BIOS, server passwords, and startup splash screen logo | Yes (see following note) | Firmware operations, OEM Utilities | Main Server board | Passwords are cleared with "Password Clear" jumper. BIOS is returned to default settings with "CMOS Clear" jumper. See <i>Specific Clear and Sanitize Procedures</i> , page 4. | Store memory device in a secure area or physically destroy. See <i>Specific Clear and Sanitize Procedures</i> , page 4. |
| BMC FW Flash, 4 MB, Quantity 2 | BMC (Baseboard Management Controller) Flash memory | No | Firmware operations | Main Server board | No user information stored | No user information stored |
| SDR memory, 64 KB | Stores platform sensor data events | No | BMC firmware operations | Main Server board | No user information stored | No user information stored |
| NIC EEPROM, 32 KB | Network Interface Controller (NIC) configuration memory | No | | Main Server board | No user information stored | No user information stored |

Table 2: Nonvolatile Memory Devices continued

| Type and minimum | Function | May contain user data ¹ | Data input method | Location | To clear | To sanitize |
|-----------------------------------|--|------------------------------------|--|-------------------|--|--|
| PECI Poller internal memory, 8 KB | Part of Platform Environmental Controller Interface (PECI) system to monitor processor temperature | No | BMC firmware operations | Main Server board | No user information stored | No user information stored |
| Battery powered RAM, 256 Bytes | Real Time clock (RTC) in ESB (Enterprise South Bridge) module | Yes (time of day only) | BIOS checks ESB RTC against SIO RTC during boot and resets if needed | Main Server board | Reset SIO RTC (see below) and reboot server | Remove battery on Main Server board. See <i>Specific Clear and Sanitize Procedures</i> , page 4. |
| Battery powered RAM, 124 Bytes | Real time clock (RTC) in PC87427 SIO chip | Yes (time of day only) | User enters time of day in BIOS setup | Main Server board | Reset clock in BIOS setup (press <F2> during boot sequence to enter setup) | Remove battery on Main Server board. See <i>Specific Clear and Sanitize Procedures</i> , page 4. |

¹ User data may be stored in these devices as a result of normal instrument operation.

NOTE. Normal operation of the PQA500 application does not write user data to the BIOS flash. However, you can perform the following setup operations, which will write user-supplied data to the BIOS flash:

- *Passwords.* Administrator and user passwords control access to the server. Clear passwords from the BIOS using the “Password Clear” jumper; see BIOS Flash Password Clearing, page 5.
- *BIOS settings.* The BIOS Setup utility is entered by pressing the <F2> key during system boot, when the Intel or OEM logo is displayed. BIOS settings can be returned to factory defaults using the “Clear CMOS” jumper; see Restoring BIOS Default Settings, page 5.
- *Startup Splash Screen.* The BIOS Flash contains a 192 kB firmware volume that is intended for an OEM splash logo. This volume can be modified using a “Change Logo” utility available from Intel. As originally supplied by Tektronix, the stock Intel splash screen is used.
- *BIOS Updates.* The BIOS can be rewritten using an Intel BIOS Update utility.

Specific Clear and Sanitize Procedures

Hard Disk Drive Removal

1. Remove the instrument snap-on front bezel. The hard drives are located at the instrument front; see Figure 1, page 5, items D and E.
2. The hard drives are removed from the instrument front. Depress the green button located on the right front side of each drive, and pull forward on the latch arm to eject the drive. Remove all drives.
3. Removed drives containing sensitive information should either be stored in a secure location or physically destroyed.

DVD and CD ROM Media Removal

1. Remove the instrument snap-on front bezel. The slimline DVD/CD ROM drive is item A in Figure 1, page 5.
2. Press the black button on the DVD/CD ROM drive to open the door. The instrument power must be ON for the door to open. Remove any media.
3. Media containing sensitive information should either be stored in a secure location or physically destroyed.

NOTE: *If the instrument is unpowered or inoperative, the entire DVD/CD-ROM drive with media can be removed; see DVD/ CD-ROM Drive Removal, page 4.*

DVD/CD-ROM Drive Removal

If the instrument is unpowered or inoperative, remove the entire DVD/CD-ROM drive.

1. Ensure that power is removed from the server.
2. Remove the server top cover.
3. Locate the DVD/CD-ROM drive. At the upper left rear of the drive is a latch lever. Depress this lever in the direction of the drive centerline to eject the drive.

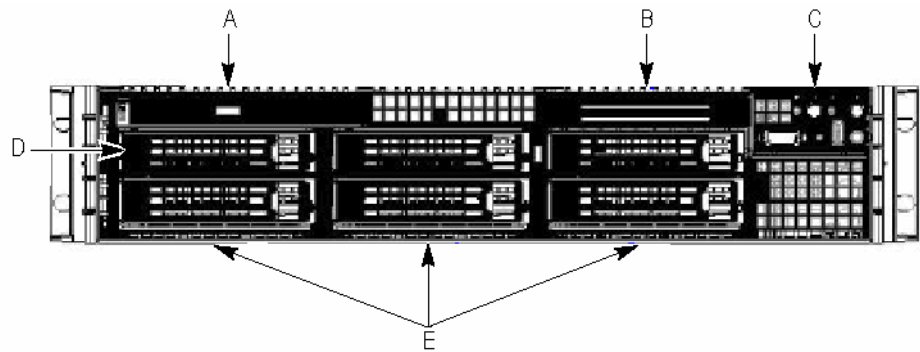


Figure 1. PQA front view - Storage media locations

Key to Figure 1:

- A Slimline drive bay (floppy or optical)
- B Optional 6th HDD drive or tape drive bay
- C System control panel
- D 1" hard drive bay or optional floppy drive bay
- E 1" hard drive bays x5

BIOS Flash Password Clearing

1. Power down the server. Do not remove AC power.
2. Remove the server top cover and move the Password Reset jumper from pins 1 and 2 (the default operating position) to pins 2 and 3, see Figure 2, page 6.
3. Replace the top cover and power up the server. The password is now cleared.

NOTE. To enable normal password operation again, repeat steps 1 and 2, except return the Password Reset jumper to the default operating position (pins 1 and 2). After replacing the top cover and powering up the server, the password can be set by going into the BIOS setup (press key <F2> during boot).

Restoring BIOS Default Settings

1. Power down the server. Do not remove AC power.
2. Remove the server top cover and move the Clear CMOS jumper from pins 1 and 2 (the default operating position) to pins 2 and 3, see Figure 2, page 6.
3. Wait 5 seconds.
4. Move the jumper back to the default operating position, pins 1 and 2.
5. Replace the top cover and power up the server.

6. The BIOS is now set to defaults and can be configured by going into the BIOS setup (press key <F2> during boot).

NOTE: *This procedure only returns the BIOS settings to defaults. It does not clear the BIOS firmware, or the OEM splash screen firmware volume.*

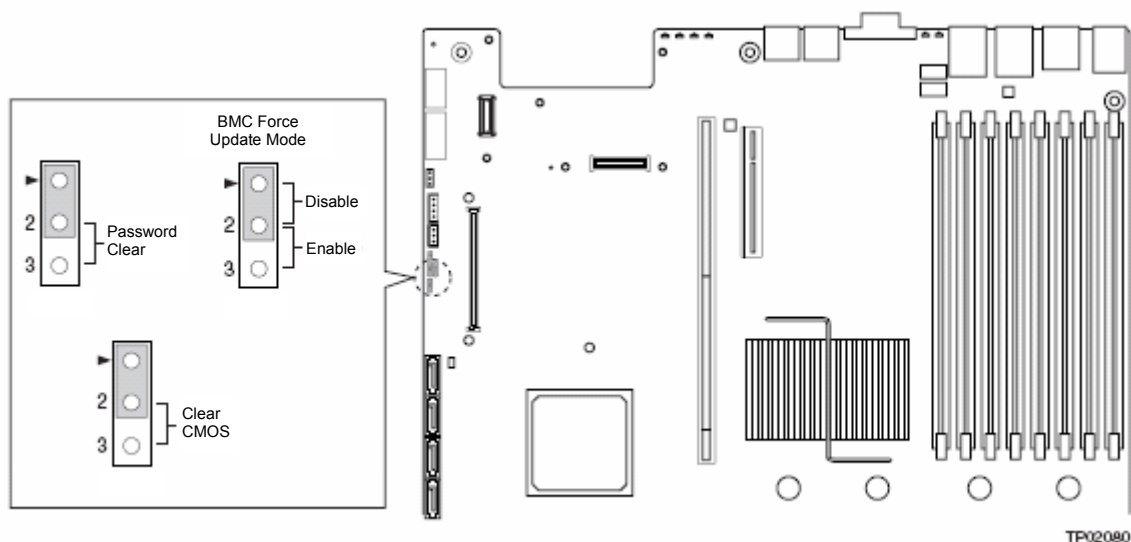


Figure 2. Jumper Locations and Configuration

Removing BIOS Flash

During normal instrument operation, user data is not written to the BIOS flash memory. However, as described in the note following Table 2, a user can store data in the flash memory (such as in the OEM firmware volume), that could constitute a security concern in some high security environments. In this case, remove the server board and store it in a secure location, or physically destroy it.

NOTE: *The server will become inoperative with the BIOS flash removed.*

Removing Real Time Clock (RTC) Battery

Two Real Time Clocks, set by the user in the BIOS setup, are maintained by battery operated RAM. This RAM can be erased by removing the battery:

1. Disconnect AC power from the server and remove the top cover.
2. Using the two blue release levers, lift the riser assembly out of the server.
3. The battery is located at the left front corner of the server main board; see Figure 3. Remove the battery from its socket.

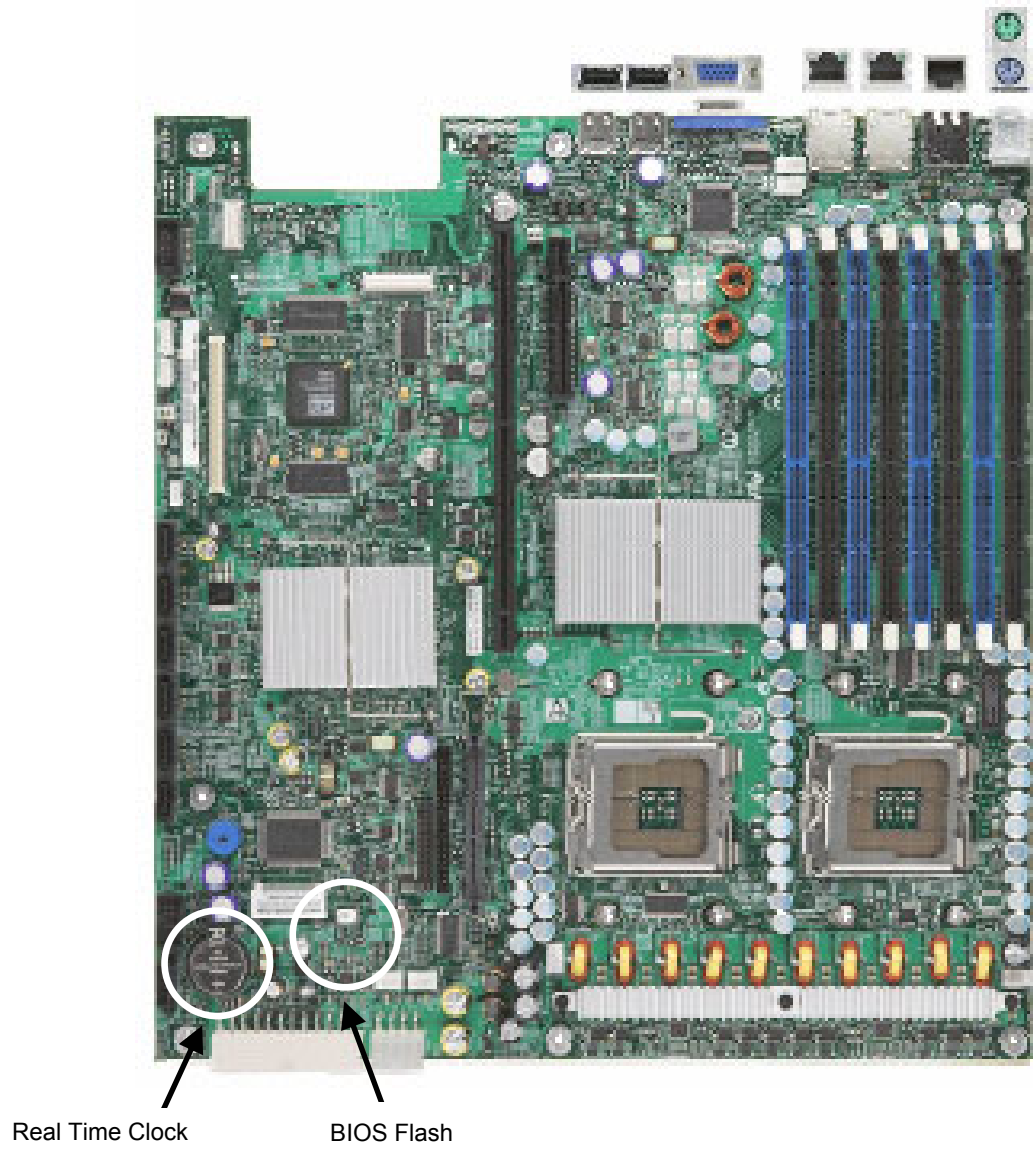


Figure 3. BIOS flash memory and RTC battery locations

Troubleshooting

How to Clear or Sanitize a Non-Functional Instrument

If your instrument is not functioning, proceed as follows:

- Remove and secure or destroy all hard disk drives.
- Remove and secure or destroy the slimline CD ROM/DVD drive, if it cannot be opened to check for presence of media.
- Remove and secure or destroy the main server board.

Refer to your organization's policies regarding storage or disposal of any removed items.

How to Recover from Clearing or Removing the Instrument Memory



CAUTION: *If you clear the hard drive or destroy the BIOS flash, you will need to return the unit to Tektronix for service and possible replacement of the server Main board. Contact your Tektronix Service representative for assistance.*
