CXI5 Chromebox
Lifecycle Extension Guide

Self-Repair

This chapter highlights the limited self-repair capabilities of the product.

Prior to performing self-repair, familiarize yourself with the Safety Guidelines and Recommended Equipment sections first as described in the chapter **"Disassembly Procedures"**.

Depending on model, the following key components are eligible for self-repair (if applicable):

- eMMC / SSD module
- DIMM module(s)
- WLAN module

If a particular key component is listed and thus would be eligible for self-repair, but is not described in the **"Disassembly Procedures"** section, then this component is either not present on the respective model, or it is present but embedded on the motherboard and therefore not eligible for self-repair.

> **NOTE:**
>
> Do not attempt to replace other components than those listed above.

> **NOTE:**
>
> For replacement parts, always use only Acer certified components in order to safeguard quality, optimum system performance, stability and reliability of the product.

> **NOTE:**
>
> Any damage to the product that occur during self-repair, or which has occurred as a result of a careless or unsuccessful self-repair attempt, is not covered by the standard product warranty.

● Disassembly Procedures

Please refer to the **"Disassembly Procedures"** chapter for step by step disassembly instructions.

● Software Recovery

This product has embedded software recovery tools which can be used to either perform a partial or full software recovery, but also to create a Factory Default recovery media.

For more information about software recovery options, how to perform a software recovery or creating a Factory Default recovery media, please refer to chapter "Recovery" which is available in the User Manual of the product.

> **NOTE:**
>
> In the event of not being able to create a Factory Default recovery media, it is possible to obtain a copy of the recovery media through Acer Customer Service (**http://www.acer.com/support**). This is not a free of charge service.

Disassembly Procedures

● Safety Guidelines

This chapter contains step by step procedures on how to remove and de-install components from the computer. Use the following safety guidelines to ensure your personal safety. Each procedure included in this chapter assumes that you are preparing your computer for recycling and disposal. **By performing any of these procedures you acknowledge that any remaining warranty applicable to your computer will be voided. Before you start any of the procedures in this chapter, make sure to read the following safety guidelines and the respective instructions within the chapter.**

CAUTION!

- ● Turn off your computer and disconnect all power sources before opening the computer cover or panels.

- ● To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface at the same time as touching a connector on the back of the computer.

- ● Take off any metal objects on your arms or fingers such as bracelets, rings or watches and make sure your hands are completely dry. Even if your unit is unplugged, there may still be some remaining electric charge.

- ● If a component does not come out easily, do not forcefully remove it. Instead, check that you are removing it correctly and that no wires or other parts are in the way.

- ● When you disconnect a cable, pull on its connector or on its pull-tab, not on the cable itself. Some cables have connectors with locking tabs; if you are disconnecting this type of cable, press in on the locking tabs before you disconnect the cable.

● Recommended Equipment

The following equipment are recommended to do the following maintenance procedures:

- ● Wrist grounding strap and conductive mat
- ● Flat screwdriver
- ● Philips screwdriver
- ● Polydrive screwdriver
- ● Plastic tweezers
- ● Flat plastic pry

● WEEE Annex VII Component

These components are classified as requiring selective treatment.

● Pre-disassembly Instructions

Do the following prior to starting any maintenance procedures:

1. Place the system on a stable work surface.
2. Remove AC power cord from the system and peripherals
3. Remove all cables from the system.

⇛ NOTE:

Make sure the system is completely powered off.

Chassis Cover Removal

1. Remove the Chassis Cover

    3.1. Remove the screw securing the chassis cover to the chassis.

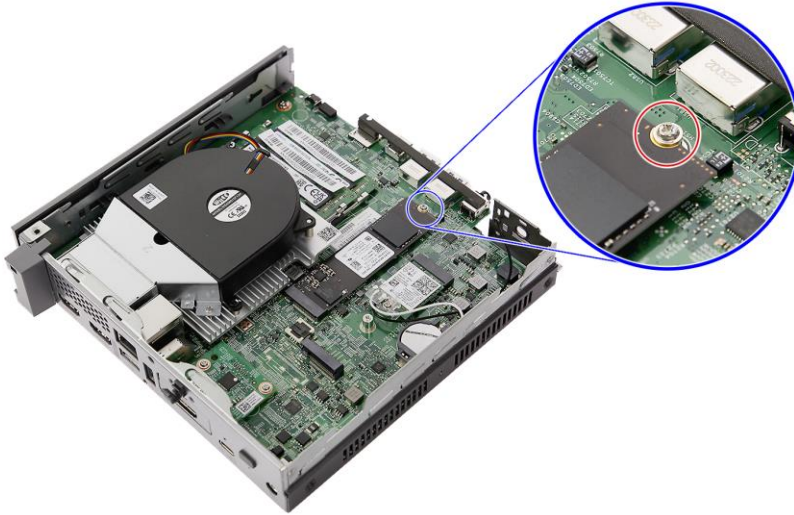   **3.2.** Detach the chassis cover from the chassis.

NOTE: In order to meet Google's requirement to hide the SPI ROM, a mylar cover has been added to the mainboard.

SSD Module Removal *(for systems with SSD storage)*

2. Remove the SSD module

2.1. Remove the screw securing the SSD module to the mainboard.

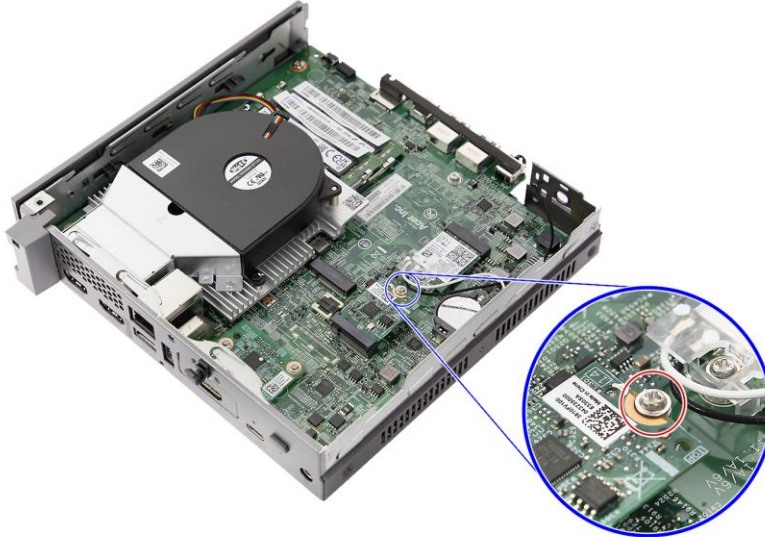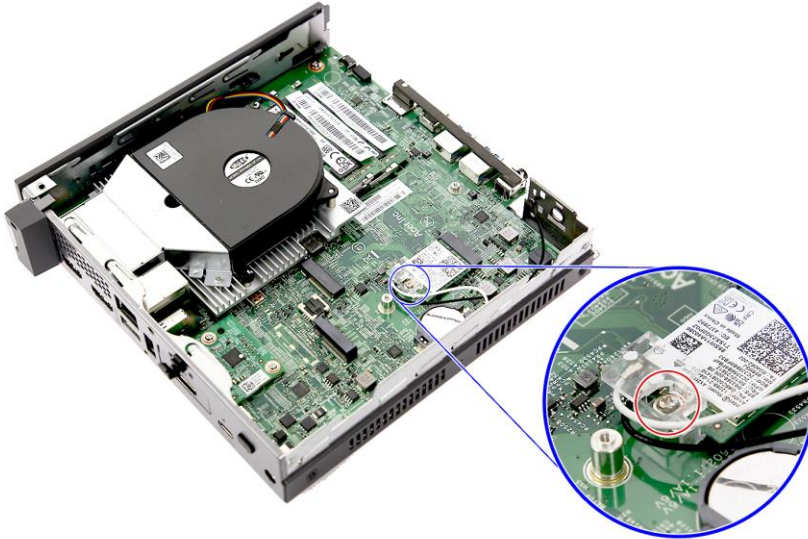**2.2.** Remove the SSD module from the mainboard.

⚠️ **Note:** WEEE Annex VII component. A circuit board >10 cm2 has been highlighted with the yellow rectangle as shown above. Please follow local regulations for disposal of detached circuit boards.

3.   Remove the eMMC module

   3.1.   Remove the screw securing the eMMC module to the mainboard.

   3.2.   Remove the eMMC module from the mainboard.

⚠️ **Note:** WEEE Annex VII component. A circuit board >10 cm2 has been highlighted with the yellow rectangle as shown above. Please follow local regulations for disposal of detached circuit boards.
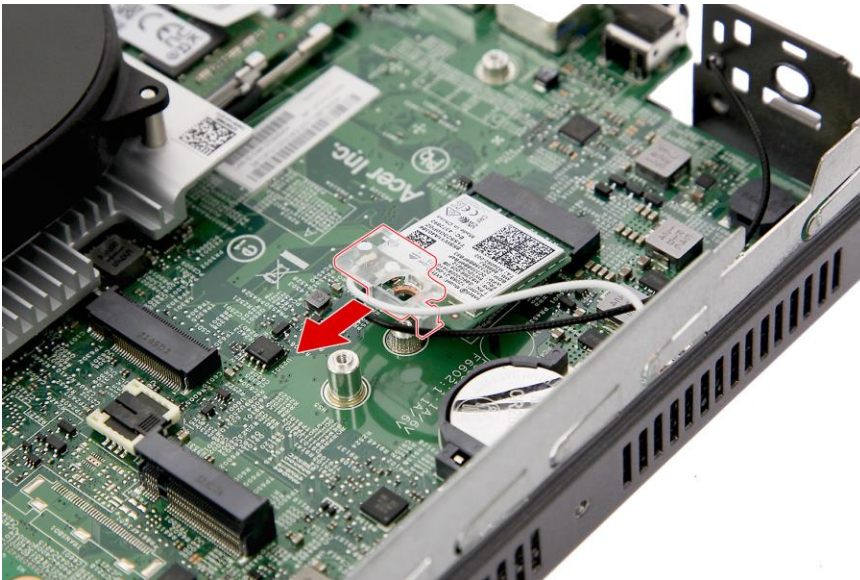
4. **Remove the WLAN module**

    4.1. Remove the screw securing the WLAN module to the mainboard.

    4.2. Detach the WLAN bracket from the WLAN module.
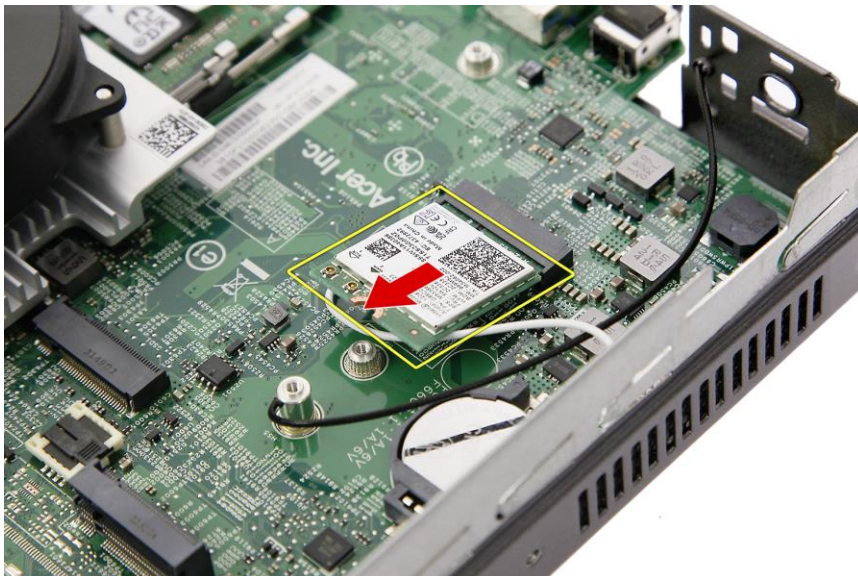
4.3. Disconnect the WLAN antenna cables from the WLAN module.

NOTE: For reference during machine reassembly, note which cable color corresponds to the main and auxiliary connectors.

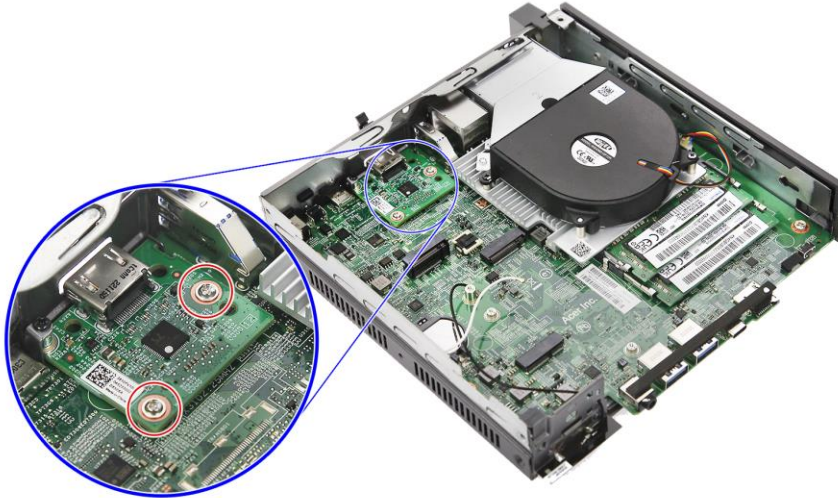**4.4.** Remove the WLAN module from the mainboard.

⚠️ **Note:** WEEE Annex VII component. A circuit board >10 cm2 has been highlighted with the yellow rectangle as shown above. Please follow local regulations for disposal of detached circuit boards.
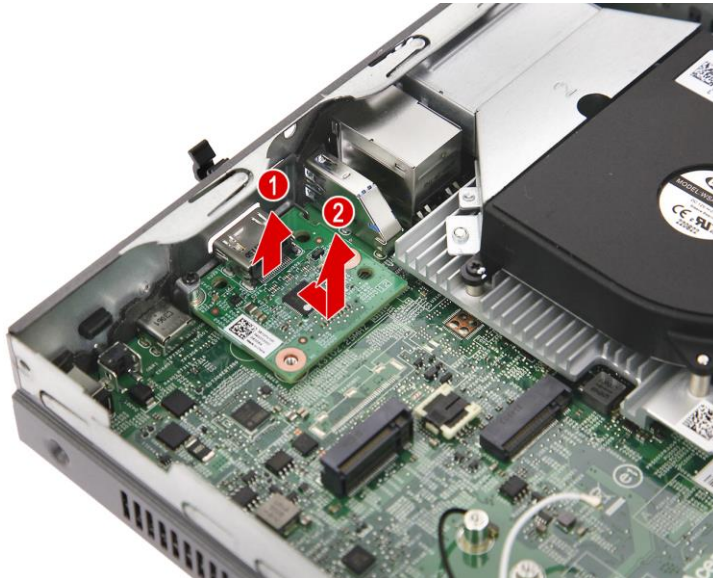
Optional Port Module Removal

5. Remove the Optional Port Module (Display Port / HDMI / D-SUB / USB Type A/C)

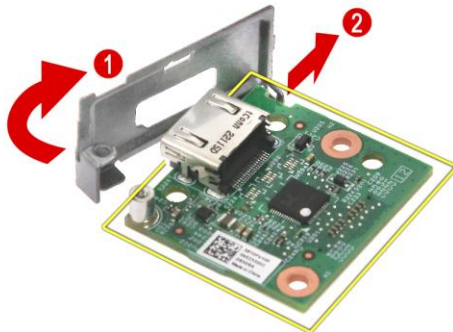   **5.1.** Remove the two screws securing the optional port module to the mainboard.

    5.2. Detach the optional port module from the mainboard.

5.3. Remove the screw securing the optional port module to the port bracket.

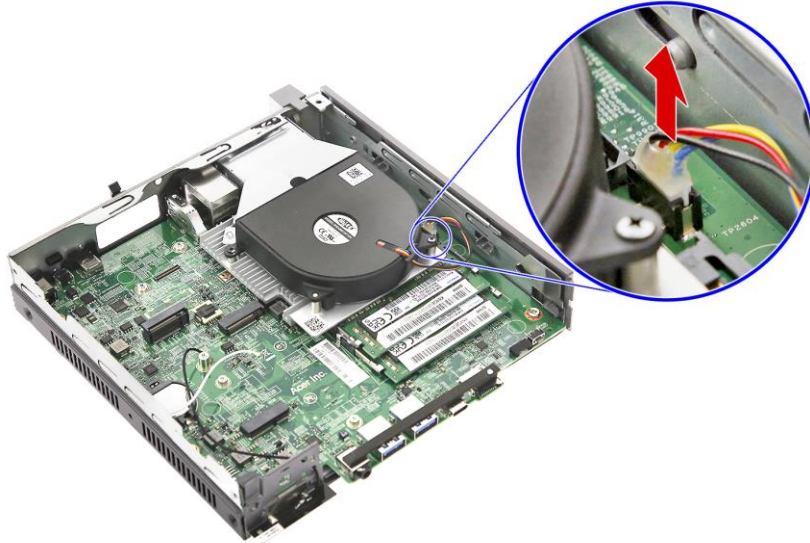**5.4.** Remove the optional port module from the bracket.

⚠️ **Note:** WEEE Annex VII component. A circuit board >10 cm2 has been highlighted with the yellow rectangle as shown above. Please follow local regulations for disposal of detached circuit boards.

Heatsink Fan Removal
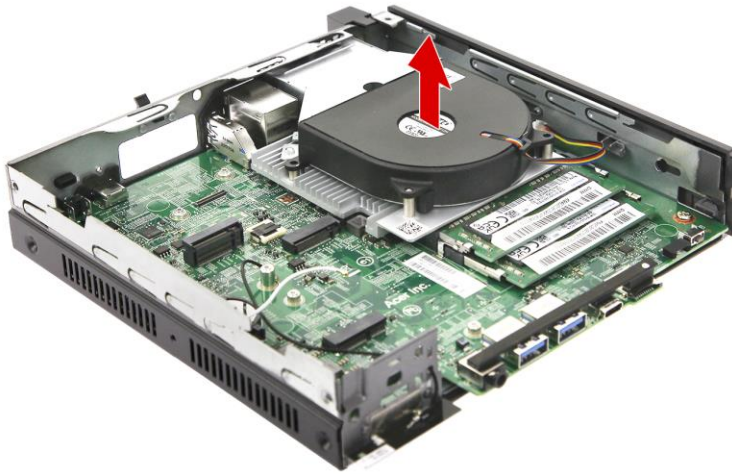
6. Remove the Heatsink Fan

    6.1. Disconnect the heatsink fan cable from the mainboard.

    6.2. Remove the two screws securing the heatsink fan to the thermal module.

6.3. Detach the heatsink fan from the mainboard.
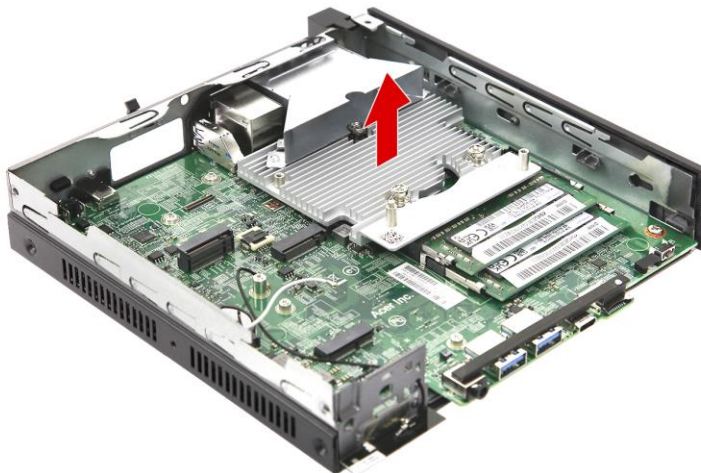
Thermal Module Removal

WARNING: The heatsink becomes very hot when the system is on. Wait for the heatsink to cool off before proceeding with below steps.

7. Remove the Thermal Module

    7.1. Loosen the three (3) captive screws securing the thermal module to the mainboard.

    7.2. Remove the thermal module from the mainboard.

Memory Module Removal

8. **Remove the Memory modules**

    8.1. Release the latch on both sides of the DIMM slot (**1**) and remove the DIMM module from the slot (**2**).
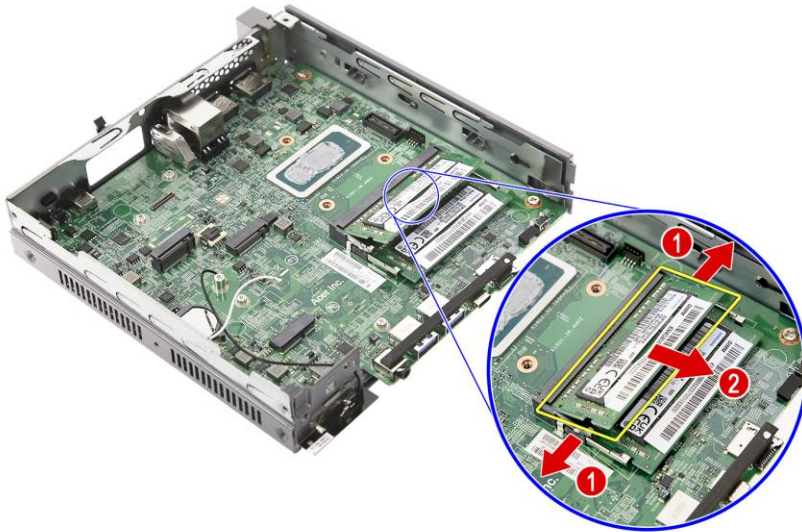
⚠️ **Note:** WEEE Annex VII component. A circuit board >10 cm2 has been highlighted with the yellow rectangle as shown above. Please follow local regulations for disposal of detached circuit boards.

    8.2. Repeat Step **8.1** to remove the remaining memory module.

Side Cover Removal

9. Remove the Side Cover

9.1. Disengage the latches securing the side cover to the chassis (**1**) then detach the side cover from the chassis (**2**).

10. Remove the Mainboard

    10.1. Remove the four screws securing the mainboard to the chassis.

    10.2. Gently lift the mainboard off the chassis.
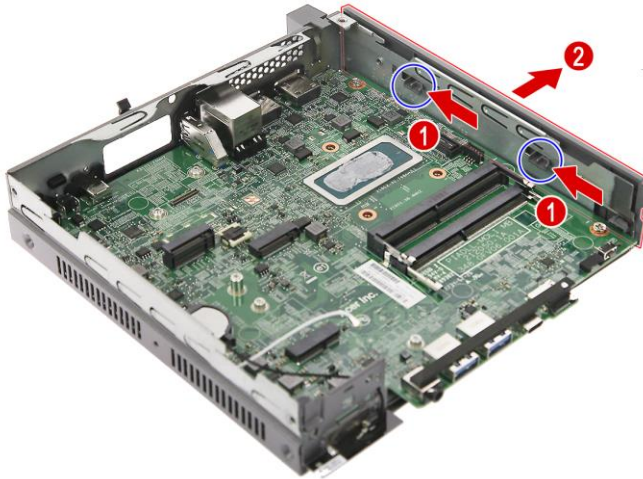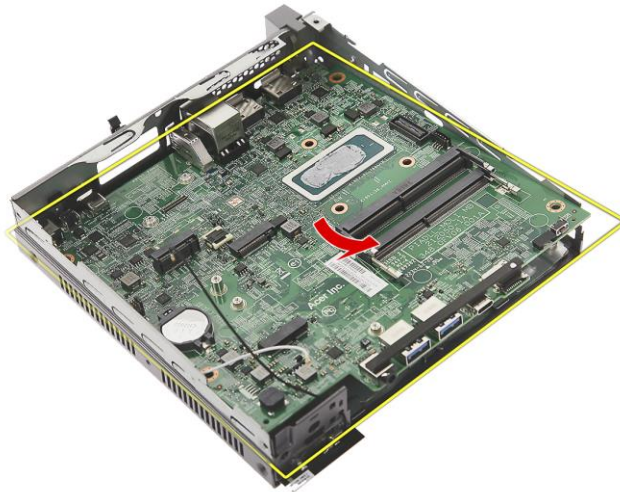

Note: WEEE Annex VII component. A circuit board >10 cm2 has been highlighted with the yellow rectangle as shown above. Please follow local regulations for disposal of detached circuit boards.

RTC Battery Removal

11. Remove the RTC battery

11.1. Gently push the RTC battery sideways (**1**), then lift it off the mainboard (**2**).

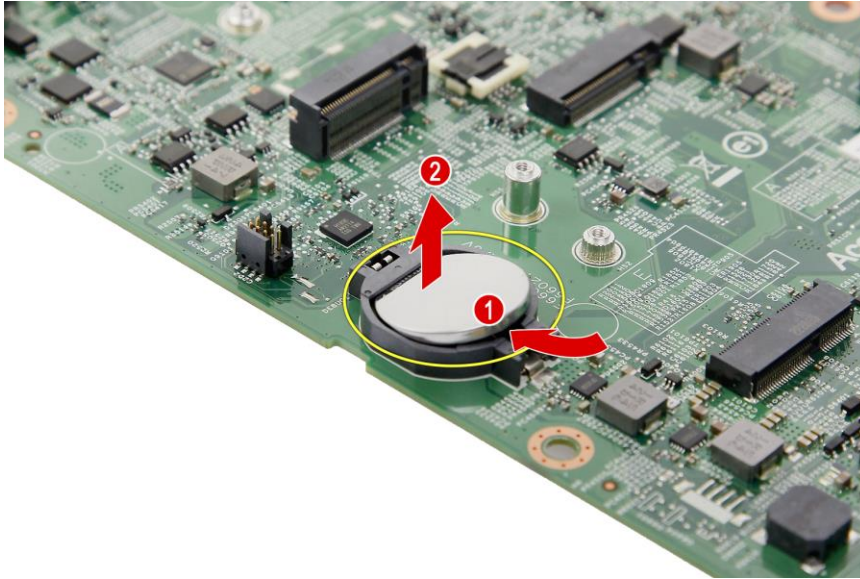⚠ **Note:** WEEE Annex VII component. The RTC battery has been highlighted with the yellow circle as shown above. Please follow local regulations for disposal of used batteries.

⚠ **Caution:** Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

Troubleshooting

This chapter provides troubleshooting information for the CXI5 Chromebox Service Guide.

- Power-On Self-Test (POST)
- POST Error Messages List

Power-On Self-Test (POST)

Each time you turn on the system, the Power-on Self Test (POST) is initiated. Several items are tested during POST, but for the most part transparent to the user.

The Power-On Self Test (POST) is a BIOS procedure that boots the system, initializes and diagnoses the system components, and controls the operation of the power-on password option. If POST discovers errors in system operations at power-on, it displays error messages on screen, generates a check point code at port 80h or even halts the system if the error is fatal.

The main components on the main board that must be diagnosed and/or initialized by POST to ensure system functionality are as follows:

- Microprocessor with built-in numeric co-processor and cache memory subsystem
- Direct Memory Access (DMA) controller
- Interrupt system
- Three programmable timers
- ROM subsystem
- RAM subsystem
- CMOS RAM subsystem and real time clock/calendar with battery backup
- Onboard parallel interface controller
- Embedded hard disk interface and one diskette drive interface
- Keyboard and auxiliary device controllers
- I/O ports
    - One parallel port
    - One PS/2-compatible mouse port
    - One PS/2-compatible keyboard port

POST Error Messages List

If you cannot run the diagnostics program tests but did receive a POST error message, use "POST Error Messages List "to diagnose system problems. If you did not receive any error message, look for a description of your error symptoms in "Error Symptoms List".

If you are unable to correct the problem by using the "BIOS Messages List" table and "Error Symptoms List" table, go to "Undetermined Problems".

To diagnose a problem, first find the BIOS error messages in the left column. If directed to a check procedure, replace the FRU indicated in the check procedure. If no check procedure is indicated, the first Action/FRU listed in right column is the most likely cause.

BIOS Messages	Action/FRU
BIOS ROM checksum error - System halted	The checksum of the BIOS code in the BIOS chip is incorrect, indicating the BIOS code may have become corrupt. Contact your system dealer to replace the BIOS.
CMOS Battery Failed	The CMOS battery is no longer functional. Contact your system dealer for a replacement the BIOS.
CMOS Checksum Error- defaults loaded	Checksum of CMOS is incorrect, so the system loads the default equipment configuration. A checksum error may indicate that CMOS has become corrupt. A weak battery may have caused this error. Check the battery and replace if necessary.
CPU at run	Displays the running speed of CPU.
Display switch is set incorrectly	The display switch on the motherboard can be set to either monochrome or color. This message indicates the switch is set to a different setting than indicated in Setup. Determine which setting is correct, and then either turn off the system and change the jumper, or enter Setup and change the Video selection.
Press ESC to skip memory test	The user may press Esc to skip the full memory test.
HARD DISK initializing - Please wait a	Some hard drives require extra time to initialize.
HARD DISK INSTALL FAILURE	Cannot find or initialize the hard drive controller or the drive. Make sure the controller is installed correctly. If no hard drives are installed, be sure the Hard Drive Selection in Setup is set to NONE.
Hard disk(s) diagnosis fail	The system may run specific disk diagnostic Routines. This message appears if one or more hard disks return an error when the diagnostics run.
Keyboard Error Or No Keyboard Present	Cannot initialize the keyboard. Make sure the keyboard is attached correctly and no keys are pressed during POST. To purposely configure the system without a keyboard, set the error halt condition in Setup to HALT ON ALL, BUT KEYBOARD. The BIOS then ignores the missing keyboard during POST.
Keyboard is locked out - Unlock the key	This message usually indicates that one or more keys have been pressed during the keyboard tests. Be sure no objects are resting on the keyboard.
Memory Test:	This message displays during a full memory test, counting down the memory areas being tested.

| Memory test fail	If POST detects an error during memory testing, additional information appears giving specifics about the type and location of the memory error.
Override enabled - Defaults loaded	If the system cannot boot using the current CMOS configuration, the BIOS can override the current configuration with a set of BIOS defaults designed for the most stable, minimal-performance system operations.
Press TAB to show POST screen	System OEMs may replace the Phoenix Technologies Award BIOS POST display with their own proprietary display. Including this message in the OEM display permits the operator to switch between the OEM display and the default POST display.
Primary master hard disk fail	POST detects an error in the primary master hard drive.
Primary slave hard disk fail	POST detects an error in the secondary master hard drive.
Secondary master hard disk fail	POST detects an error in the primary slave hard drive.
Secondary slave hard disk fail	POST detects an error in the secondary slave hard drive.

Exploded Diagrams
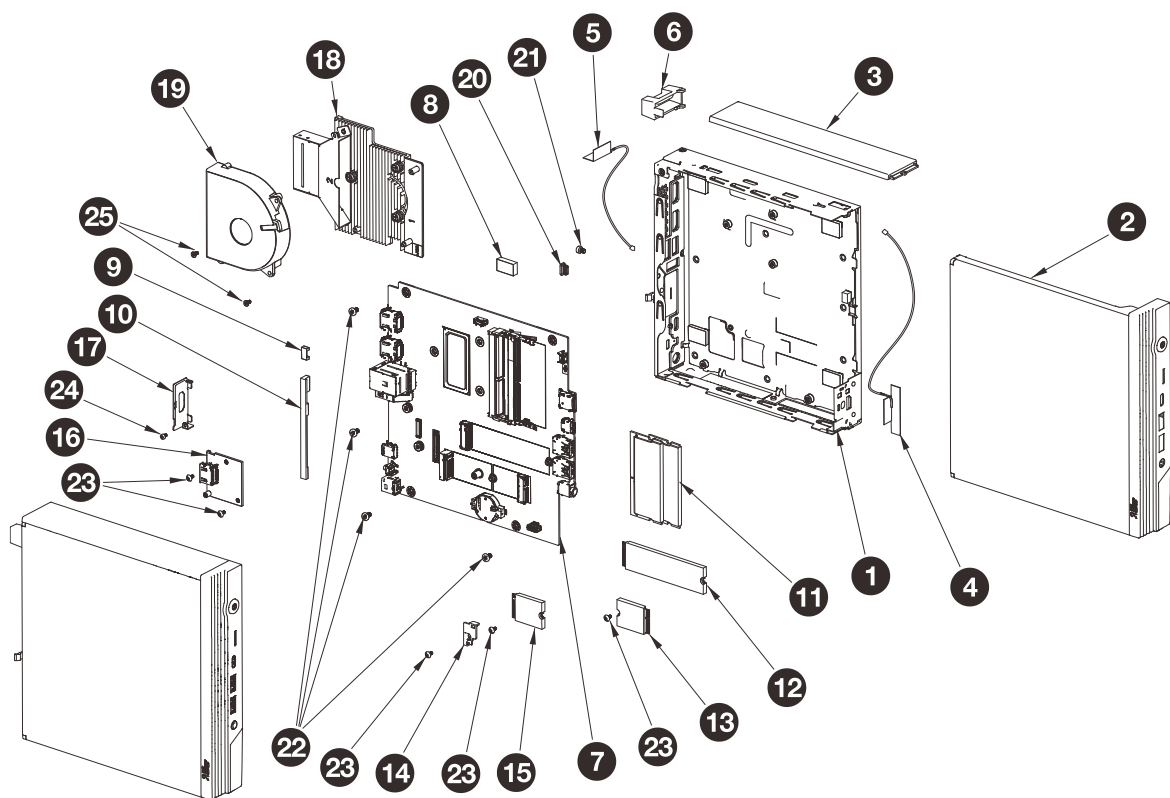
Figure 1   System Exploded Diagram

FRU (Field Replaceable Unit) List

Please contact your local service center to find out how to obtain the part or replace your device

To remove your personal data

- Sign out of your Chromebox.

- Restart by pressing and holding **Ctrl + Alt + Shift + R**. A recovery screen will appear that says, **"Reset This Chrome Device."**

- In the bottom right corner of your screen, select **Powerwash > Continue**. After pressing **Continue**, your Chromebox will start to reset your device and will restart itself multiple times. This could take a few minutes.

- Once the welcome screen appears, prompting you to sign in to your Google account/ choose your WiFi network, your device has been reset successfully to factory settings.