

What is AMI Debug Rx?

AMI Debug Rx is a low-cost debug tool built around the debug port feature common to today's USB 2.0 EHCI controllers. AMI Debug Rx is designed as replacement for the PCI "port 80" POST Checkpoint Card.

Can AMI Debug Rx get checkpoints from any PC?

No, the system BIOS has to have support for AMI Debug Rx built in. More computers with AMIBIOS8 and Aptio firmware are getting AMI Debug Rx support added to their BIOS every day. The long-term goal is for AMI Debug Rx support to be standard in new systems using AMIBIOS. If your computer doesn't support AMI Debug Rx, contact your system manufacturer to see if they will add support.

Is AMI Debug Rx the same as a PCI checkpoint card?

AMI Debug Rx has many improvements over the traditional POST Checkpoint Card:

- Doesn't require a PCI or ISA slot, which are harder to find on today's systems
- Doesn't require the system case to be opened
- Translates the checkpoint to a descriptive string
- Stores checkpoint data for later analysis
- Features a text terminal for enhanced debug operations and upgrade capabilities
- Enables source-level debug features for developers

Does my system support AMI Debug Rx?

Check the user manual or BIOS setup to find out.

Systems with AMIBIOS8 & Aptio 4.x BIOS may have AMI Debug Rx support enabled. Check the "Advanced" screen in BIOS setup for a string indicating the support is present.

Example: "AMI Debug Rx Enabled!"

If AMI Debug Rx is supported, the system will use the "USB debug port" to transmit checkpoint data. The system documentation should identify this port so AMI Debug Rx can be used for diagnostics.

How do I use AMI Debug Rx in Checkpoint Mode?

- Set the OPTION SWITCH to CHECKPOINT
- Power off the system under test
- Connect the AMI Debug Rx USB0 CONNECTOR to the "USB debug port" on the system under test
- Power on the system under test.
- If connected properly, the AMI Debug Rx unit will power on and start displaying checkpoint values
- If the device powers on but does not display checkpoints, make sure it is connected to the "USB debug port"

What is the difference between CHECKPOINT and DEBUG modes on the OPTION SWITCH?

In CHECKPOINT mode, AMI Debug Rx will display POST Checkpoint data sent to the USB debug port.

In DEBUG mode, AMI Debug Rx acts as a USB Host-to-Host debug device (connecting a debug target system to a debug host application). This mode is for use with debug software such as AMI Debug for UEFI or AMI Debug for AMIBIOS8.

I see numbers on the AMI Debug Rx screen, but what do they mean?

Those numbers are "POST Checkpoints" ... codes used by the BIOS to communicate boot progress and error information. Each code matches a specific BIOS event.

The SELECT button switches the display mode to show the same data with string descriptions and timing information. AMI Debug Rx contains a string table for AMIBIOS8 and Aptio 4.x firmware that translates common checkpoints into useful strings. If you need more detailed information, visit www.ami.com/support and download a more detailed checkpoint list for AMIBIOS8 and Aptio 4.x.

I want to save this checkpoint data and look at it later. How do I save the session?

Use the MENU button to enter the device menu. Use the arrow keys to navigate. Find the **Save Session** option and hit SELECT. From here, pick one of the four data areas (1, 2, 3, 4) using the arrow keys, then hit SELECT to save to that session. Once a session is selected the device will return to the menu.

How do I review a saved session?

Saved sessions are retrieved using the **Load Session** command or the USB Virtual COM (VCOM) terminal interface.

Checkpoint data can be viewed using the **Load Session** menu command or the **download & display** terminal commands. UEFI debug strings from a saved session can only be viewed using the **download & display** terminal commands.

The AMI Debug Rx User Manual describes these commands in more detail.

How do I clear the AMI Debug Rx checkpoint session and start with a blank session?

There are two ways to do this ...

1. Unplug the device then plug it back in. This will remove power from the device and restart with a blank session (don't worry, data in saved sessions will not be erased).
2. Enter the menu and select the **Start New Session** option. This will clear the session in memory (don't worry, saved sessions are not erased ... that's a different command).

What is VCOM?

AMI Debug Rx can produce a virtual USB serial COM port when connected to another computer. This is referred to as "VCOM" and allows terminal software to access the device. The VCOM feature allows users to interact with the device in a shell environment. The AMI Debug Rx User Manual describes these commands in more detail.

What OS will VCOM work under?

Drivers for Microsoft Windows, Linux and Mac OSX are available. Please refer to the AMI Debug Rx User Manual for more information.

How do I locate the USB Debug Port?

System documentation will not always clearly identify the USB debug port used with AMI Debug Rx. There are utilities that can help locate the port, such as free [Microsoft USBView](#) (USB Connection Viewer) program. The debug port is typically the device connected to **[Port1]** on the “USB2 Enhanced Host Controller” or “EHCI” interface.

How does AMI Debug Rx get power?

AMI Debug Rx is a “bus powered” USB device, so it draws power from the USB connection (USB0 and USB1). If the computer connected to AMI Debug Rx is powered off, then the device will shutdown.

AMI Debug Rx can draw power from the USB0 & USB1 connectors at the same time. If one of the connectors is attached to a running system then power will not be lost if the other system is turned off. Note that saved sessions are not lost when power is removed from the device.

I don't see any checkpoint data when I turn on my computer. How do I make sure AMI Debug Rx is setup properly for checkpoints?

Check the following items ...

- Is the OPTION SWITCH set to CHECKPOINT mode? If not, change the switch position and reset the system under test (SUT).
- Was AMI Debug Rx connected after the SUT was powered on? AMI Debug Rx must be connected before the SUT is powered on or prior to a system reset. If AMI Debug Rx is not detected at reset, then checkpoints over the USB debug port are disabled. Reset the system after AMI Debug Rx has been connected.
- Does the BIOS support AMI Debug Rx functionality? Check for the support string in BIOS setup (“AMI Debug Rx Enabled!”) under the Advanced menu, or refer to the system documentation.
- Is the device connected to the USB debug port on the SUT? If the USB debug port is not properly identified by the manufacturer, then try each port (reconnect, reset, observe result).

AMI Debug Rx displays checkpoint strings, but they don't match the BIOS properly. How do I make AMI Debug Rx select the correct string table?

Verify that the “Checkpoint Table Select” menu option is configured correctly. This option sets the checkpoint string table used to translate POST Checkpoint values.

- **Autoconfig** - AMI Debug Rx will use BIOS data to determine the correct checkpoint table (default setting).

- **Aptio 4.x** - force checkpoint string lookups to use Aptio 4.x data (string table 1)
- **AMIBIOS8** - force checkpoint string lookups to use AMIBIOS8 data (string table 2)
- **Custom** - force checkpoint string lookups to use a user-provided table (string table 3)

My AMI Debug Rx checkpoint strings are blank or produce garbage characters. How do I fix the checkpoint strings?

If checkpoint strings are corrupted, or the area where the string should be is blank, then the string tables stored in AMI Debug Rx device may be corrupted. These string tables can be restored using the VCOM terminal interface.

Use the `erase` command to clear a string table (example: `erase strings 1`).

Use the `upload` command to upload a replacement string table (example: `upload strings 1`).

- String table 1 is reserved for AMI Aptio 4.x.
- String table 2 is reserved for AMIBIOS8.
- String table 3 is for custom checkpoint string tables.

Can I use a USB Hub with AMI Debug Rx?

Using a hub with AMI Debug Rx is not recommended and may cause problems with the device.

AMI Debug Rx will only work when directly connected to the USB debug port on the system under test. A USB hub cannot be used with the USB debug port.

When connecting the AMI Debug Rx to a computer to access the VCOM terminal, it is recommended to directly connect the device to one of the system USB ports. If a USB hub is used it must comply with the USB 2.0 Specification. An older USB hub (USB 1.1 Specification) will not work with AMI Debug Rx.

Will XMODEM work with VCOM and HyperTerminal in Microsoft Windows?

Due to differences between the Microsoft HyperTerminal XMODEM implementation and the standard XMODEM protocol, the AMI Debug Rx `upload` VCOM command is not compatible with HyperTerminal. Other terminal programs will support AMI Debug Rx using XMODEM, including Ayera TeraTerm.

How do I make Ayera TeraTerm find the COM port used by the AMI Debug Rx VCOM port?

The USB VCOM port produced by AMI Debug Rx may be mapped to a high COM port address (example: COM5, COM10). The TeraTerm configuration file can be modified to resolve this problem.

Look in `teraterm.ini` for the entry for `MaxComPort`. Change `MaxComPort` to a higher value (example: `MaxComPort=16`). Save the file and restart the TeraTerm application. Ports above COM4 should now be accessible.

The OPTION MODE switch has a position between the DEBUG and CHECKPOINT setting, but it's not labeled. What does the middle position do?

This is the type of question we here at AMI like to hear from our customers. This shows the superior observational skills of the AMI customer, whose attention to detail demands a diagnostic and development product like AMI Debug Rx.

No, that's not a proper answer to the question ... the author of this document is just complimenting the reader until he can devise an appropriate response. The author, being a person with a marketing background, understands the need for customers to have a positive impression of a company's products, and hopes complementing the reader's observational skills makes them further appreciate AMI and its approach to today's technology problems.

The mystery of this switch may also compel detail-oriented users to pursue the AMI Debug Rx User Manual, a fine document which the aforementioned author with a marketing background spent hours composing ... only to rewrite large sections of it based on feedback from AMI quality assurance. Users who have read this high-quality document may already know the answer to the mystery of the center switch position.

This center switch position is reserved for a future feature, which will be provided to users as part of a firmware upgrade.

So the center switch position does nothing?

By adding this reserved position, AMI Debug Rx is more easily upgraded after purchase to enable new debug features.

The center switch position also compels users to read this FAQ, which is useful in the noble pursuit of knowledge.

I can't find my question in this FAQ. What do I do?

Please refer to the "AMI Debug Rx – User Manual" document for more detailed information on using AMI Debug Rx for platform diagnostics and debugging.

I can't find my question there either. Help ...

That's not actually a question, but we'll be happy to help you anyway. Visit <http://www.ami.com/support/> to submit your question or locate other support documentation.