



Technical notes on using Analog Devices DSPs, processors and development tools
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Emulator and EZ-KIT Lite® Evaluation System Troubleshooting Guide

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Introduction

The troubleshooting advice in this EE-Note can be used to resolve most installation, connection, and software issues affecting the use of Analog Devices In-Circuit Emulators (ICEs) and EZ-KIT Lite® evaluation systems, avoiding the need to return the suspected faulty emulator or EZ-KIT Lite board.

Please carry out all troubleshooting steps outlined in this document before contacting Analog Devices Processor Tools Support, who can be reached at:

processor.tools.support@analog.com

Should you require further assistance, e-mail Processor Tools Support with the results from carrying out the troubleshooting steps described in this document, as well as the following information:

- VisualDSP++® development tools version, and update if installed
- Architecture
- Driver version
- Operating system
- Emulator/EZ-KIT Lite serial number (if applicable)
- EZ-KIT Lite board, silicon, and bill of materials (BOM) revision



The board revision is typically silk screened on the front of the board, while the BOM revision is a sticky label on the back of the board (only newer EZ-KIT boards have the BOM sticker). The silicon revision is printed directly on the processor.

Authorization to return a unit for repair or replacement is reserved until we are satisfied that the emulator or EZ-KIT Lite board is indeed faulty.

RoHS and New Part Numbers

As of July 2006, new Restriction of Hazardous Substances (RoHS) laws ban the placement on the EU market of new electrical and electronic equipment that contains more than agreed levels of lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyl (PBB), and polybrominated diphenyl ether (PBDE) flame retardants.

More information on RoHS is available on the Analog Devices web site:

www.analog.com/leadfree

The Analog Devices CROSSCORE® Development Tools product line has redesigned all hardware products to comply with the European RoHS directive and has introduced a new part numbering scheme to distinguish between non-compliant products and compliant products.

Compliant part numbers for tools products are identified as “ADZS”. For example:

Old part number: ADDS-BF537-EZLITE

New RoHs part no: ADZS-BF537-EZLITE

Please note that the functionality of the ADZS emulators is essentially identical to the older ADDS emulators.



The ADDS-HPPCI-ICE, which was not transitioned to RoHS compliance, is now obsolete.

Minimum Software Requirements for RoHS Equipment

For Blackfin®, SHARC®, and TigerSHARC® processors, the minimum software version required to work with RoHS-compliant emulators and EZ-KIT Lite evaluation systems is the VisualDSP++ 4.0 June 2006 update.

For ADSP-219x DSPs, the minimum version is the VisualDSP++ 3.5 October 2006 update.



The minimum software version required for using the ADZS-ICE-100B is VisualDSP++ 5.0 Update 7.

Software

Licensing

A list of available licenses and their functionality is provided in [Appendix B – Licensing](#).

Installation

Emulation tools and drivers are included from VisualDSP++ 3.5 onwards. You need not perform a separate emulator software installation (as was the case for previous software versions). The emulator hardware device drivers are installed automatically when the device is plugged in and powered up for the first time.

Installation Problems

If you encounter problems during installation of the drivers, or you are unsure whether the driver has been installed correctly, check your computer’s Device Manager. Your emulator/EZ-KIT Lite board should be listed under ADI Development Tools. If listed, double-click on the device to display the Device Driver properties, and ensure that no errors are listed. If there are errors, record them together with the installed driver version number and send these details to Processor Tools Support. If your device is not listed, try to reinstall the drivers manually.

Installing a Driver Manually

Open the Device Manager and locate the emulator/EZ-KIT Lite board, which should be located under ADI Development Tools. If the device is listed with a yellow exclamation mark, the driver was not installed properly and must be reinstalled, as follows.

To install the driver manually:

1. Double-click on the device.

The Device Properties dialog box appears.


2. Click the Driver tab and choose Update Driver.
3. When the installer requests a location from which to install the driver, navigate to the location that matches your VisualDSP++ version (see [Default Driver Locations](#) below).



If the device has not installed properly and you cannot find it under ADI Development Tools, try doing a scan for any hardware changes from the Device Manager. If you find unknown hardware, try loading the relevant device driver manually by means of the procedure above.

Default Driver Locations

From the VisualDSP++ 4.0 June update onwards, the driver file for all RoHS-compliant emulators and EZ-Kits is `WmUsbIce.sys`.

 The `WmUsbIce.sys` driver file contains support for the ADZS-ICE-100B from VisualDSP++ 5.0 Update 7.

Prior to this, the `WmUsbIce.sys` was the driver for the USB-ICE only, and `WmHpUsb.sys` was the driver for the HPUSB ICE. The driver for all EZ-KIT Lite boards was `WmUSBEZ.sys`.

Listed are the default driver locations for each version of the tools:

VisualDSP++ 5.0

```
[install_drive] : \Program Files\Analog  
Devices\VisualDSP 5.0\Setup\Emu_Drivers
```

VisualDSP++ 4.5


```
[install_drive] : \Program Files\Analog  
Devices\VisualDSP 4.5\Setup\Emu_Drivers
```

VisualDSP++ 4.0

```
[install_drive]: \Program Files\Analog  
Devices\VisualDSP 4.0\Emu_Drivers\
```


VisualDSP++ 3.5

```
[install_drive]: \Documents and Settings  
\[User_name]\Local Settings\Temp\
```


 If you see your HPUSB-ICE in the Device Manager as a USB-ICE, an old version of the `WmUsbIce.sys` may have been installed incorrectly. Try to install the `WmHpUsb.sys` driver manually.

ADZS Software Requirements

The minimum driver version that should be installed for use with RoHS-compliant emulators or EZ-KIT Lite boards is version 1.20.0.0. For Blackfin, SHARC, and TigerSHARC processors, this driver is included in the VisualDSP++ 4.0 June 2006 update and in the VisualDSP++ 4.5 base release.


 The minimum driver version that should be installed for using the ADZS-ICE-100B emulator is version 5.0.7.1.

For ADSP-219x DSPs, the equivalent driver is included in the VisualDSP++ 3.5 October 2006 update.


 The ADZS-USB-ICE does not work with the VisualDSP++ 4.5 base release. The VisualDSP++ 4.5 June 2006 update (or later) must be installed.

Symptoms of using the ADZS-USB-ICE with the VisualDSP++ 4.5 base release are:

- The ICE Test utility will fail at step 3 Testing ICEPAC Memory.
- Upon connecting to the VisualDSP++ emulator session, you will encounter Target Connection Error 0x800048007.

 See [Appendix C – VisualDSP++ Software Updates](#) for information on how to obtain updates.

Upgrading to the VisualDSP++ 4.5 Release

 Disconnect power and the USB cable from your ADDS-HPUSB-ICE and/or ADDS-USB-ICE prior to installing the VisualDSP++ 4.5 release. Do NOT reconnect power or the USB plug to the ADDS-HPUSB-ICE and/or ADDS-USB-ICE until the VisualDSP++ 4.5 installation is finished. Following this advice will ensure that your firmware is updated correctly upon connecting to the VisualDSP++ 4.5 emulator session. Failure to disconnect/reconnect power and USB can result in the wrong firmware being downloaded to your ICE.

If the above warning is not heeded, the ADDS-USB-ICE may be damaged permanently, and the only available option is to have the emulator RMA'd and sent back to Analog Devices. An emulator RMA form accompanies this EE-Note.

Please complete all requested details and provide a description of the problem; then send this document to processor.tools.support@analog.com



- This issue can be recognized by the fact that the ADDS-USB-ICE will no longer be recognized by the Device Manager.
- The ADDS-HPUSB-ICE will NOT be damaged permanently. However, you will need to use the VisualDSP++ 4.0 June 2006 update or the VisualDSP++ 4.5 release.

Target Connection Error 0x80004005 or 0x80044005

You may encounter this error when connecting to a target. This is a general error regarding the miscommunication between the host PC and target board. Common causes of this error include:

- The session setup in the VisualDSP++ Configurator is not correct (wrong DSP/processor type, wrong emulator type, wrong ordering of devices session settings, mismatch between target and session [e.g., connecting to a ADSP-BF533 target using a ADSP-BF535 session])
- The hardware is in a bad state to which the emulator cannot connect. Try resetting the hardware and then reconnecting.
- The target hardware is not powered or is not powered correctly.
- The emulator pod is not connected to the target. Ensure that the pod's JTAG connector is properly attached to the JTAG header on the target board.
- The emulator is in a bad state (e.g., the enable LED is stuck on). Reset the pod by running the ICE Test utility.
- Connection problems can be caused by a corrupt session. Please try recreating your VisualDSP++ session on start up by pressing

and holding the *CTRL* key on your keyboard. After a short while the *Session List* dialog box will appear. Select *New Session*:

- In VisualDSP++ 4.5 and later versions, the *Session Wizard* will open. Select a processor family, processor, connection type, and platform. When recreating an existing session, the session name will be appended with a number, as you can see on the *Select Platform* page. Remove this number and click *Finish*. You will be prompted to replace your existing session. Select *Yes* and then connect to this session by clicking *Activate*.

For versions prior to VisualDSP++ 4.5, the *New Session* dialog box will open. Select your debug target, platform, session name, and processor. Then click *OK*. You will be prompted to replace your existing session. Select *Yes* and then connect to this session by clicking *Activate*.



- If the VisualDSP++ emulator session crashes and you are unable to terminate the *idde.exe* process, unplug the USB cable from the EZ-KIT Lite board.

Hardware

ADZS-ICE-100B Emulator



- This emulator can ONLY be used with Blackfin processors.

USB bus-powered

The ADZS-ICE-100B emulator is the first of our emulator targets to be USB bus-powered so a separate power supply is not required.

Using the ADZS-ICE-100B with custom boards

Due to the open frame design of the ADZS-100B-ICE, care must be taken when locating a JTAG interface connector on a custom target.

You should ensure that no components, if located under the emulator, are taller than 0.15”.

If you plan to use this ICE with an existing custom target board and are concerned that emulator components may short to the target board, an insulator should be used to provide protection.


Consult the *ICE-100B Emulator User Guide*^[3] and the *Analog Devices JTAG Emulation Technical Reference (EE-68)*^[1] for further information

Troubleshooting the ADZS-ICE-100B

Troubleshooting if the emulator does not power or enumerate:

Check the status of the 'MON' and 'PWM' LEDs.


If both the 'MON' and 'PWM' LEDs are not lit you should ensure that JP1 has 2 jumpers installed and operating voltage is set. Consult the *ICE-100B Emulator User Guide*^[3] for JP1 settings

 If JP1 has less than 2 jumpers installed both 'MON' and 'PWM' LEDs will not light.

Next check the driver, if the driver has been uninstalled this can cause both the 'MON' and 'PWM' LEDs to stop functioning.


If 'PWM' LED is lit – This means the emulator is powered up but has not enumerated. Ensure the emulator is installed correctly by checking the Device Manager or running the ICE Test utility which should fail at the 1st step *Opening Emulator Interface*.

If the ADZS-ICE-100B will still not enumerate, please contact Analog Devices Processor Tools Support.

 The *STAT LED* signifies the ICE is ignoring the EMU signal.


JTAG Emulator Power Sequence

Your JTAG emulator should be powered on, and connected to a host PC, prior to attaching it to a target JTAG emulator header. All ADI JTAG emulator products can be attached or removed from a powered “hot” target without any power restrictions.

 When powering down the ICE-100B you should disconnect the USB cable between the emulator and the PC and power down the target board before removing the emulator from it.

Avoid emulation errors by ensuring that the emulation software is not started or executing when power is not applied to the target, or when attaching the JTAG emulator to a target with or without power.


Consult the *Analog Devices JTAG Emulation Technical Reference (EE-68)*^[1] for further information.

 If your USB-ICE or HPUSB-ICE emulator has an 'Enable/Power' LED, this should be green when power is applied. It should be amber when connected to a session or the ICE Test utility is being used.

If the emulator has an 'Enable' LED only, this should be amber when connected to a session or while the ICE Test utility is being used.

At all other times, this LED should be off.

Using Emulators in a Production Environment

 All Analog Devices emulators are not intended to be used in a production environment.

Using in such an environment will void your warranty.

VisualDSP++ Configurator

Use the VisualDSP++ Configurator to define your target's JTAG scan structure. This structure specifies all of the JTAG devices in the scan chain. This information is known as a platform. The VisualDSP++ tools use the platform description to communicate with the hardware.

From VisualDSP++ 4.5 onwards, all the platforms pertaining to Analog Devices EZ-KIT Lite evaluation systems are already defined. If you are connecting to a custom target, you must use the VisualDSP++ Configurator.

You can also use the VisualDSP++ Configurator to create platforms based on different target setups. Also, it can be used to specify a unique, descriptive name for each processor in a multiprocessor system. This will help to distinguish each processor while debugging.

ICE Test Utility

This utility ensures that the JTAG chain is intact; it is used to test your emulation hardware.

Before connecting to a VisualDSP++ emulator session, ensure that each action performed by the ICE Test utility results in a `PASS`.

VisualDSP++ 3.5 Release

In the VisualDSP++ 3.5 release, the VisualDSP++ Configurator and ICE Test utilities are available from the VisualDSP++ 3.5 program group. This is accessible from the computer's `START` menu via `Programs -> Analog Devices -> VisualDSP++ 3.5`.

VisualDSP++ 4.0 Release (and Later)

In the VisualDSP++ 4.0 release (and later), the ICE Test utility is no longer a stand-alone utility. Its functionality is available via the VisualDSP++ Configurator. This is accessible from the computer's `START` menu via `Programs -> Analog Devices -> VisualDSP++ -> VisualDSP++ Configurator`.

Alternatively, you can run the ICE Test utility by choosing `New Session` from the `Session` menu

of the VisualDSP++ IDDE, and then clicking the `Configurator` button in the ensuing `New Session` dialog box.

ICE Test Results

When run, the ICE Test utility performs a series of actions (tests) and reports the status of each action, as follows:

Opening Emulator Interface

Action: Opens the emulator driver and turns on the emulator pod.

Troubleshooting: If this test fails, the most common cause is that the emulator driver is not installed properly.

Resetting ICEPAC Module

Action: Resets the JTAG controller on the emulator hardware and checks for proper reset conditions.

Troubleshooting: If this test fails, there is likely a problem with the ICE Test utility itself. If this step continues to fail, contact Analog Devices Processor Tools Support.

Testing ICEPAC Memory

Action: Tests the memory on the JTAG controller on the emulator hardware and verifies that all locations can be read from and written to. It also resets the JTAG port of each JTAG device located on the target hardware.

Troubleshooting: Generally, if this fails continuously, the emulator is faulty.

Determining Scan Path Length

Action: This step determines the number of different JTAG devices located on the target hardware to which the emulator is connected. This is accomplished by placing all the devices in `BYPASS` mode and scanning a single "1" through the chain. The number of devices in the scan path is determined by the number of shifts required to move the "1" to the end of the scan path.

Troubleshooting: If this test fails, the ICE could be faulty, but it usually indicates a problem with the target.

Performing Scan Test

Action: This step tests the integrity of the TDI-to-TDO scan path on the target hardware using each device's BYPASS register. Each time the test runs, 25 packets of 256 bytes are shifted through the BYPASS registers of all the JTAG devices in the scan path. The data shifted in on TDI (Test Data Input) is compared to the data received on TDO (Test Data Output). The number of bytes shifted is displayed.

Troubleshooting: If mismatches are found, an error is reported and the test fails. For information regarding JTAG (IEEE standard 1149.1) or any JTAG signals/registers, contact the IEEE or visit: <http://standards.ieee.org>

If this test fails, contact Analog Devices Processor Tools Support and provide the details of the reported error.

Continuous Scan Mode

Action: When the Continuous scan option is enabled and you start a test by clicking the ICE Test dialog box's Start button, the test runs normally to the Performing scan test item. From this point on, the test loops continuously until you stop the test by clicking the dialog box's Stop button. This scan mode sends a very large amount of data compared with all the previous tests.

Troubleshooting: If this mode fails it usually means there is noise on the JTAG signals. They should be observed using a scope to see if there is excessive ringing or noise.

ICE Test Troubleshooting Tips and Tricks

Why does the ICE Test utility pass yet I still cannot connect to my board?

The ICE Test utility talks only to the JTAG port on the processor. It sets the processor to bypass mode and shifts bits through the JTAG BYPASS

register. This utility only verifies that the JTAG connection is working, nothing more. These tests do NOT test the /EMU signal, which is specific to Analog Devices and is used by our emulators as a JTAG emulation status flag from the processor. They also do *not* test for issues like shorts, problems with the processor's pins, and so on.

A couple of specific things to check are the state of the bus request signal on power-up and that the processor is not stuck in reset.

If you are using a custom board, it is also recommended to consult *Analog Devices JTAG Emulation Technical Reference (EE-68)*^[1] for details of the JTAG specification to ensure your board conforms to this standard. This EE-Note is available from the Analog Devices web site in Technical Library under any of the architecture-specific links.

If you encounter problems while running the ICE Test utility or connecting to your board, consider the following questions and suggestions:

- Does the ICE Test utility run successfully, or does it fail at any point?
- When you start the ICE Test utility, which LEDs on the emulator light up?
- Try running the ICE Test utility with the emulator not connected to a target board. At which point does it fail?
- For USB emulators, check that Device ID is set to "0" by default. If it is set to something else, it may indicate a problem with the emulator driver.

When reporting a problem to tools support, provide answers to all of the above questions as well as the details of any troubleshooting that was carried out.

If the ICE Test utility completes successfully and you still encounter problems when connecting to your hardware (or the VisualDSP++ connection drops), try running the ICE Test utility again, this time selecting the Continuous Scan check box. This option loops the ICE Test utility

continuously and provides a good test for checking the integrity of the JTAG controller. Run the ICE Test utility in continuous-scan mode for a short while (up to an hour). Provide the details of any failures encountered to Analog Devices Processor Tools Support as well as letting us know which session you are using to connect to your emulator.

Refer to VisualDSP++ Help for further information on the VisualDSP++ Configurator and the ICE Test utility. See [Appendix A – Documentation](#).

JTAG Frequency Selection

This feature is only available for HPUSB-ICE and HPPCI-ICE.

Choosing JTAG Frequency Selection from the VisualDSP++ Settings menu opens the JTAG Frequency Selection dialog box, from which to change the rate at which TCK runs.

After a test is run successfully, click OK to save the selected frequency. This button is available only when all tests have passed at the selected frequency.

If tests fail, you may have to shut down the VisualDSP++ tools and restart your session. Power-cycle the target to prevent any possible lock up that may occur if the frequency test fails.

If you encounter problems launching the tools at a certain frequency, delete your VisualDSP++ session and create a new session. This resets TCK to its default value (10 MHz).

Before connecting to a VisualDSP++ emulator session, always test the frequency in the ICE Test utility. If the frequency fails, the emulator will not work.

The HPPCI-ICE and HPUSB-ICE support a JTAG clock operation of up to 50 MHz.

More information on JTAG frequency selection can be found in the *HPUSB, USB, HPPCI, and MSP430 Emulators User's Guide*^[2]. See [Appendix A – Documentation](#).

JTAG Voltage Detection in the HPPCI-ICE

The HPPCI-ICE is the only emulator that supports JTAG voltage detection. The mode of operation supported by the HPPCI-ICE depends on the connection methods used for the 14-pin JTAG header on your target. More information on this, including pin-out diagrams can be found in *HPUSB, USB, HPPCI, and MSP430 Emulators User's Guide*^[2]. See [Appendix A – Documentation](#).

Possible Windows 2000 SP4 USB Controller Issue

Some users have reported problems configuring or running the ICE Test utility with the HPUSB ICE and the *latest* drivers on Windows 2000 SP4. We believe that the problem occurs only with specific versions of the USB host controller. If you encounter any problems using the HPUSB on Windows 2000 SP4, please send in details of your computer's USB controller.

Some users have found that running the HPUSB ICE through an active USB 2.0 hub resolves the problem.

Default EZ-KIT Lite Switch Settings

Some EZ-KIT Lite board problems can be caused by incorrect switch or jumper settings. Each board setup is different and switches/jumpers may be changed depending on user requirements. If you are having difficulties operating or connecting to the board, you may find the functionality of the board has changed because switch or jumper settings have been changed. Analog Devices recommends that you set your board back to the factory default settings. You can find these default settings in the EZ-KIT Lite manual ([Appendix A – Documentation](#)).

Boot Mode/Reprogrammed Flash on EZ-KIT Lite Board

If you encounter problems connecting to your EZ-KIT Lite board after programming the flash, try changing the boot mode select switch or jumper. By default, EZ-KIT Lite boards boot from flash. If the flash has become corrupt or inoperable, the board may not boot properly, resulting in connection problems. You will find more details on your board's boot mode in the EZ-KIT Lite manual ([Appendix A – Documentation](#)).



Not all EZ-KIT Lite boards have boot mode switches or jumpers. If your EZ-KIT Lite manual does not mention it or you are unclear, contact Analog Devices Processor Tools Support.

Resetting an EZ-KIT Lite Board

4. Exit VisualDSP++ emulator session (if it is still running).
5. If you are using a USB emulator, power it down.
6. Press `Ctrl+Alt+Del` and open the Windows Task Manager.
7. Kill any instance(s) of `IDDE.EXE` that are still active.
8. Unplug the emulator pod from the target.
9. Power-down the target. Wait five seconds, then power-up the target.



If you are using a USB emulator, cycle the USB emulator power in a similar manner.

10. Run the ICE Test utility with the pod disconnected from the target.

An error will occur, of course, but the pod will be cleared.
11. Connect the pod to the target.
12. Run the ICE Test utility again.

13. Check to see that it works this time.
14. Run the VisualDSP++ tools and reconnect to the debug session.

Guidelines for Connecting to an EZ-KIT Lite Board

- Ensure that the USB monitor LED is turned on before attempting to invoke the VisualDSP++ tools.
- Although a lit USB monitor LED is a good sign, it does not always mean that everything is working correctly on the EZ-KIT Lite board.
- If an emulator pod is attached, you cannot connect via the debug agent.

For ROHS compliant EZ-KIT Lite boards (rev 2.0 and above):

- The “FPGA DONE” LED on the EZ-KIT Lite board should light up for a few seconds after the board is powered alone (i.e., with no emulator or debugger attached). This proves that the debug agent has been programmed.
- The “FLAG1 LED” should not light up when no emulator/debugger is attached. If this LED is on, it indicates a failure in the debug agent.

Additional Troubleshooting Steps

Cables/Ports

Ensure proper insertion of cables. If available, replace cables with known working cables. If available, use another port (USB).



The recommended maximum USB cable length for an EZ-KIT Lite board is 3 meters. You may encounter communications problems with a cable length greater than 3 meters.

PC

Ensure that the PC has adequate resources and is working. If available, try the emulator/EZ-KIT Lite board on another PC.

Code

Try a demo program (example) provided with the VisualDSP++ tools.

Power Supply

If available, try another power supply. Ensure that the correct voltage is being used.

Other Emulators/EZ-KIT Lite Boards

If available, use another emulator or EZ-KIT Lite board of the same type (or another type) to ensure that the problem is not related to the particular unit.

Session

Ensure that you are connecting to the correct type of session.

Appendix A – Documentation

Manuals are available for each emulator and EZ-KIT Lite board. Also, there are EE-Notes, online Help, and knowledgebase articles to guide you.

Emulator Manuals

We have two emulator manuals. The *HPUSB, USB, HPPCI, and MSP430 Emulators User's Guide* and the *ICE-100B Emulator User Guide*.

Each emulator User Guide provides directions for installing the emulator hardware and software on your PC. The manual also describes how to configure and use the components of each emulator.

The latest versions of these manuals are available on the Analog Devices web site at:

<http://www.analog.com/processors/manuals>

Alternatively, you can access these manuals within VisualDSP++ online Help at:

Contents -> Manuals -> Hardware Tool
Manuals -> ICES

EE-Notes

Analog Devices provides a comprehensive technical library of Engineer-to-Engineer notes (EE-Notes) for each processor family to assist you with your design projects. These documents are available from the Analog Devices web site at the following URL:

<http://www.analog.com/ee-notes>

If you are working with a custom board, ensure that it conforms to JTAG regulations, as described in *Analog Devices JTAG Emulation Technical Reference (EE-68)*^[1], which describes the JTAG interface requirements for targets using Analog Devices processors and DSPs with embedded JTAG emulation support.

EZ-KIT Lite Manuals

EZ-KIT manuals provide installation instructions, details on operation and configuration of the board components as well as a schematic and bill of materials.

EZ-KIT Lite manuals can also be found online via the Technical Library:

<http://www.analog.com/processors/manuals>

Alternatively, you can access these manuals within VisualDSP++ online Help at:

Contents -> Manuals -> Hardware Tool
Manuals -> EZ-KIT Evaluation Systems

Online Help

VisualDSP++ online Help is available from the VisualDSP++ program group under the heading of VisualDSP++ Documentation. You can also access Help from within the VisualDSP++ IDDE's menu bar by choosing Contents from the Help menu.

Emulator-related information in Help includes:

- VisualDSP++ Configurator (used to align a hardware target to an emulator)
- ICE Test utility (used to test an emulator's basic operation)

- Emulator error codes

You can locate this information easily via the Index or Search panes in VisualDSP++ Help.

Help also incorporates all tools manuals (software and hardware) and processor manuals, so you can easily search across the entire documentation set.

The `Hardware Tool Manuals` item in the `Contents` pane of `Help` window leads to the emulator manual.

Emulator Error Codes

Emulator error codes may appear in a message window when you are starting up the VisualDSP++ tools or in the Output window (while you are working within a VisualDSP++ session). More information on these error codes can be found in VisualDSP++ Help.

Knowledgebase Articles

Another resource for answers to frequently asked questions is the Embedded Processor and DSP knowledgebase. This is on the ADI web site at the following URL:

<http://search.analog.com/dspkb/Home.aspx>

Appendix B – Licensing

ADI, or Full, License

This provides full capabilities of VisualDSP++ (simulation, emulation, and EZ-KIT Lite) sessions.

This license must be registered and validated within 30 days; otherwise, the VisualDSP++ tools will become inoperable until you do validate.

TST, or Test Drive, License

From VisualDSP++ 4.0 Onwards

This license provides support for simulation and emulation ONLY (not for EZ-KIT Lite sessions) for a 90 day period.

VisualDSP++ 3.5 Release

This license provides the full capabilities of VisualDSP++ (simulation, emulation, and EZ-KIT Lite) sessions for a 90 day period ONLY.



Test Drive licenses can be installed only ONCE per machine. If a user tries to reinstall, an error message will appear. Also, Test Drive licenses *cannot* be installed when a KIT license for the same architecture has already been installed on that machine.

KIT, or Evaluation, License

From VisualDSP++ 4.0 Onwards

Once validated, this license provides an initial 90 days of the full capabilities of VisualDSP++ (simulation, emulation, and EZ-KIT Lite) sessions. Thereafter, simulation and emulation become prohibited, and the size of a user program becomes limited.

This license must be registered and validated within 10 days.

VisualDSP++ 3.5 Release

This license provides access to EZ-KIT Lite sessions only. The size of a user program is limited.

This license must be registered and validated within 30 days.



EZ-KIT Lite licenses can be installed only ONCE per machine. If a user tries to reinstall, and error message will appear.

Summary

A summary of the above information is contained in the following two tables.

VisualDSP++ 3.5

	ADI/ENG	KIT	TST
EZ-KIT Lite sessions	√	√	√ (90 days)
Emulator Sessions	√		√ (90 days)
Simulator Sessions	√		√ (90 days)

From VisualDSP++ 4.0 onwards

	ADI/ENG	KIT	TST
EZ-KIT Lite sessions	√	√	
Emulator Sessions	√	√ (90 days)*	√ (90 days)
Simulator Sessions	√	√ (90 days)*	√ (90 days)



90 days refers to the initial 90 day test drive period incorporated into the EZ-KIT Lite license.

Appendix C – VisualDSP++ Software Updates

You can find the latest VisualDSP++ version (including the latest update) on the Analog Devices web site at:

<http://www.analog.com/processors/tools/upgrades>

To obtain the last update for older VisualDSP++ versions, simply click the Tools Upgrade Archives link at the bottom of the page.

Appendix D – RMA (Repair>Returns) Process

Returns Policy

To enable Processor Tools Support to issue you with a return material authorization (RMA) number, which authorizes you to return an emulator for repair, ensure that you have read the following paragraphs.

Basic Troubleshooting

Analog Devices Processor Tools Support must know which troubleshooting steps you carried out and the results. Refer to the techniques listed in this document, and provide as much detail as possible. The majority of emulator problems can be resolved without returning the emulator. Include all of the required information at the time of the RMA request; doing so will speed up problem resolution and enable Processor Tools Support to provide a fast turn-around.

Warranty Details and Proof of Purchase



The ADZS-ICE-100B emulator is sold with a 90 day warranty period. Returns that are submitted beyond the 90-day period will be replaced at a cost of \$50 (USD).

USB-ICE and HPUSB-ICE emulators less than one year old are within warranty, and repairs within that period are free of charge. However, if requested, you must provide proof of purchase for all returns that fall into this category

Returns that are submitted beyond the one-year period will be replaced at a cost of \$600 (US). Once we have confirmed by e-mail that the emulator is likely faulty, we will request a purchase order for this amount to be faxed to us.



The purchase order (PO) must be from a company with a direct account with Analog Devices. If your company does not have such an account, Analog

Devices must receive the PO from your distributor.

Upon receipt of this purchase order, Analog Devices will provide instructions to return your faulty equipment to us. Once we confirm that the returned equipment is indeed faulty, we will arrange for a replacement to be shipped to you. Please note that we will not provide a detailed analysis of the failure.



We are unable to repair or replace any emulator or EZ-KIT that has been used for anything other than its intended purpose (or has been tampered with in any way).

RMA Form

Attached to this EE-Note are two RMA forms. One form is for emulators, and the other form is for EZ-KIT Lite evaluation systems. Fill out the appropriate form, providing all the requested details. Ensure that you have described all the troubleshooting measures you carried out as well as detailed answers to questions listed in this document.

Issue of RMA Number and Return Address

The RMA number is valid for one particular customer and one emulator only. Each emulator must be processed separately. Do not use an RMA number to send back an emulator that Analog Devices has not specifically authorized you to send back. Analog Devices will not accept an emulator without an RMA number.

References

- [1] *Analog Devices JTAG Emulation Technical Reference (EE-68)*. Rev 10, April 15 2008. Analog Devices, Inc.
- [2] *HPUSB, USB, HPPCI, and MSP430 Emulators User's Guide*. Rev 3.0, December 2007. Analog Devices, Inc.
- [3] *ICE-100B Emulator User Guide*. Rev 1.0, September 2009. Analog Devices, Inc.

Document History

Revision	Description
<i>Rev 11 – December 4, 2009 by Colin Martin</i>	Updated to include the ADZS-ICE-100B emulator.
<i>Rev 10 – November 27, 2007 by Colin Martin</i>	Updated to include VisualDSP++ 5.0 information. Changed EE-Note title from “Emulator Troubleshooting Guide” to “Emulator and EZ-KIT Lite® Evaluation System Troubleshooting Guide”.
<i>Rev 9 – May 17, 2007 by Colin Martin and Linda Gray</i>	Complete rewrite.
<i>Rev 8 – October 20, 2006 by Colin Martin</i>	Updated ‘Warranty Details and Proof of Purchase’ section.
<i>Rev 7 – November 07, 2005 by Colin Martin</i>	Updated to include latest VisualDSP++ revision including new emulation features. More detail on troubleshooting.

<i>Rev 6 – October 22, 2004 by Linda Gray</i>	URLs updated according to redesign of www.analog.com site. Updated to current emulator hardware product offer.
<i>Rev 5 – March 26, 2004 by Kathleen Smith</i>	Added Price Change and updated emulator software support. Added actual DSP Tools Technical Support e-mail address and USB-ICEs.
<i>Rev 4 – October 23, 2003 by Kathleen Smith</i>	Added POD repair price, also note of invalidating warranty, corrected URLs.
<i>Rev 3 – April 01, 2003 by Kathleen Smith</i>	Added HPPCI ICE; removed mention of customer serial number.
<i>Rev 2 – December 03, 2002 by Kathleen Smith</i>	Added Emulator Serial Number.
<i>Rev 1 – November 01, 2002 by Kathleen Smith</i>	Initial release.