ECM-XDP3

GETTING STARTED

System requirements

The following system features are required at a minimum to run SourcePoint™:

- Intel® Pentium®-based or AMD-based computer
- Microsoft® Windows® 2000/XP/Vista
- 128 MB RAM
- 60 MB disk space
- CD-ROM drive
- 10/100Base-T LAN connection port, or
- USB connection port

Installation and Configuration Overview

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Step 1: Unpack the equipment

The following equipment should be in your box. If it is not, contact American Arium immediately.
ECM-XDP3 – Emulator base unit with an eXtended Debug Port (XDP3) cable attached.
SourcePoint CD – Interface software
Direct crossover cable (orange) – for direct TCP/IP connection
Ethernet patch cable (blue) – for network TCP/IP connection
USB cable (beige) – for USB connection
Reset adapter cable (black and yellow) - for target system reset.
Documentation – manuals, etc.

Step 2: Install the Arium software

1. Insert the SourcePoint CD into the CD drive of your host computer. The **SourcePointShield Wizard** displays. Complete the wizard.

Note: *You may need to contact your systems administrator to gain administrator privileges.*

Note: *If the setup program does not run automatically, you can start it manually. Choose* ***Run*** *from the* ***Start*** *menu, type the following command, and click* ***OK****.*

<CD-ROM drive>:\disk1\setup.exe

The setup program installs the SourcePoint software onto your host computer. If necessary, you can rerun the setup program to install additional features.

2. During setup, you will be asked for the SourcePoint license file. This file resides on a separate CD that shipped with your unit. Insert the file CD when prompted. It is recommended that you upload the license file to your SourcePoint root directory.

Step 3: Connect the emulator to the host computer

Step 3A: Determine the type of connection you want

A direct TCP/IP or USB connection is the simplest way to connect the host computer and the base unit. Only a single host PC can use the American Arium debugger with this type of connection. A network TCP/IP connection may be your best choice if you already have a network in place. It will allow users from different locations to make use of the debugger if your network security allows such access.

Step 3B: Connect the emulator to the host computer

For a USB connection, use the *beige* USB cable. Connect one end to the base unit at the connector port labeled USB. Connect the other end to the host computer's USB port.

For a direct TCP/IP connection, use the *orange* direct crossover cable. Connect one end to the emulator at the connector port labeled NETWORK. Connect the other end to the host computer at the 10/100Base-T network connector (also known as the RJ-45 connector).

For a network TCP/IP connection, use the *blue* Ethernet patch cable. Connect one end to the emulator at the connector port labeled NETWORK. Connect the other end to your network hub.

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Step 4: Connect the emulator to the target

The purpose of the JTAG cable is to act as a buffer and provide voltage level shifting between the target debug/ITP port and the emulator. Carefully connect the cable to your target's XDP connector.

Note: *Minimum bend radius on the cable is one-fourth inch (6.35 mm).*

In the rare case that the target requires a supplemental reset signal in addition to DBR# present on the XDP, connect the yellow and black twisted reset cable from the RST OUT connector on the front panel to the target RESET push button post.

Step 5: Power up the emulator

1. Connect the power supply to the coaxial power connector on the back of the emulator.
2. Connect the other end to your power source.
3. Flip the On/Off switch on the front of the unit to the On position.

Step 6: Power up your target

Turn on your target.

Step 7: Install the USB driver (if you are using a USB connection)

Note: *If you have not set up a USB connection, skip this step.*

If you have set up the hardware for a USB connection, you are first asked to load the USB driver via a standard Microsoft Windows dialog box.

The driver file you need to load is "AriumUsb.inf", located in the root directory of the CD-ROM or the “USB_Drivers” subdirectory of your SourcePoint installation.

Step 8: Launch and configure SourcePoint

To launch SourcePoint, double-click on the “sp.exe” file in the SourcePoint directory.

Step 8A: Configuring a USB connection

You do not have to configure a USB connection from the SourcePoint interface. It is a “plug and play” connection. SourcePoint will open with the **New Project Wizard** displayed. Complete the wizard to begin working with SourcePoint.

If you want to determine the IP address that was used in configuring the connection or if you want to change that address, select **Options|Emulator Configuration** from the menu bar and click on the **Network** tab.

Note: *Changes made in this tab do not affect the entries in the* ***Emulator Connections*** *dialog box.*

Step 8B: Configuring a TCP/IP connection

You may need to know the serial number of your emulator. It can be found on the bottom of the unit. You may need some or all of the values listed below in order to configure the emulator with the debugger connection, depending on your connection type. In some instances you can use the default values. In others, you may need to contact your network administrator for this information.

Direct TCP/IP Connection

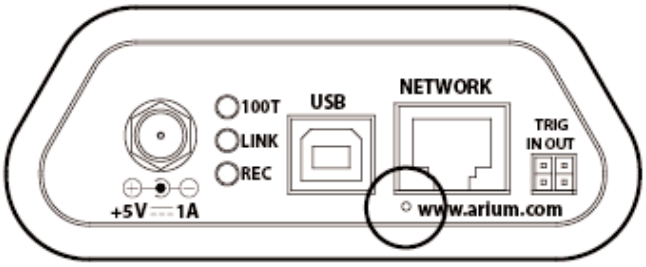
Host PC TCP/IP Address*: 192.168.000.002
Emulator Base Unit TCP/IP Address: 192.168.000.001
Emulator Base Unit Network Mask: 255.255.255.000
Emulator Base Unit Network Gateway: 192.168.000.002

Network TCP/IP Connection

Host PC TCP/IP Address*: N/A
Emulator Base Unit TCP/IP Address: Determined by wizard
Emulator Base Unit Network Mask: Determined by wizard
Emulator Base Unit Network Gateway: Determined by wizard

*This value is set on the network card of your host computer.

At this point, it is a good idea to locate the internal switch access hole on the emulator back panel. You will be asked to access it when you are in the setup wizard.



ECM-XDP3 back panel showing the location of the internal switch.

1. Select **Options|Emulator Connection** from the menu bar if the dialog box is not open already.

2. Click on the **Emulator TCP/IP Setup Wizard** button. Follow the on-screen instructions to properly configure the emulator TCP/IP settings.

Caution: Arium recommends you do not configure a dynamic IP address at initial configuration. Once you have made an initial connection, you may be able to establish a dynamic IP address, depending on your server. Details are provided in the manual/online help files.

Step 9: Configure the emulator connector pins

PREQ/PRDY and Bus Trigger pins (BPM5, BPM4# and BPM2# through BPM0#). Starting and stopping the processor is controlled through one to four pairs of pins: BPM5#/BPM4# pairs in groups A through D. On the **Options|Emulator Configuration|ECM-XDP(3)** tab there are a number of check boxes. Place a check only in boxes that correspond to a PREQ#/PRDY# signal pair connected to an actual processor (uncheck a box if the processor socket is empty). In some groups there will be a special box to check for the case where signals are connected to the debug port PREQ#/PRDY# signals that require termination (pullup) in the debugger, but are NOT to be used for run control. (For example, an Intel microprocessor code named “Tolapai” requires that BPM5#D be pulled up, but not driven as a PREQ#.)

Some microprocessors support "bus triggers." The bus trigger event recognizers are connected to BPM2# down to BPM0# on those processors. The ECM-XDP3 supports bus triggers only on processors connected to the A or B pin sets of the debug port. If the microprocessor supports bus triggers, and if you want to use the feature (want to set *Bus Trigger* type breakpoints), place a check to enable connection to the BPM2# through BPM0# of group A and/or group B, as appropriate. DO NOT PLACE a check in a box if the corresponding pins of the debug port are not the BPM2# through BPM0# pins of a processor, or if the processor does not support bus triggers.

JTAG signal quality. Debugger communication with the target is achieved using the JTAG interface. The debug port can communicate with up to two somewhat independent JTAG chains. There is a separate JTAG clock for each chain - TCK0 and TCK1. Since the JTAG interface takes action upon edges of TCK, the edges of these two clocks are critical; at each device in a chain the edges must be monotonic and must transition through the threshold region quickly to avoid a single edge being detected as multiple transitions. On the **Options|Emulator Configuration|JTAG** tab you may vary the edge rate on TCK0 and TCK1 independently. For properly end-terminated TCK signals (as specified in Intel's *eXtended Debug Port Design Guide* for most systems), select the MEDIUM (about 5 ns) or FAST (about 2 ns) setting. For poorly terminated targets (especially older 25-pin ITP-700 style debug ports adapted to the XDP connector), use the SLOW (about 10 ns) setting.

Jumper E3 inside the ECM-XDP3 selects a SLOW or FAST edge rate on TMS. It is highly unlikely that changing this setting will affect the JTAG operation at all, so it is suggested that the jumper remain in the SLOW position (shunt on the pin-2-to-pin-3 position, away from the "E3" legend). In rare cases, the FAST position may allow use of a higher TCK frequency.

JTAG voltage selection. The ECM-XDP3 allows you to select a JTAG voltage that tracks VTT_ AB (pin 43) on the debug port or is a constant value in the range of 0.9V to 1.5V in steps of 0.1V. This setting is also on the **Options|Emulator Configuration|JTAG** tab. Most targets will work fine with a constant value of 1.2V. One easy way to determine an appropriate setting is to examine the target schematic and see to what voltage the pull-ups on TDI and TDO are connected. If TDI is connected to the same voltage as the VTT_OBS_AB pin of the debug port, then select that option. If TDI is connected to some other voltage, select a constant value equal to that voltage.

JTAG confidence tests. Once TCK edge rates, JTAG voltage, and TCK frequency are chosen, it is strongly suggested that you test for robust JTAG communications. JTAG tests are located on the **Options|Confidence Tests** menu.

BCLK inversion. If needed for proper operation of bus analyzer triggering (available only on certain processors), BCLK may be inverted by changing jumpers inside the ECM-XDP3. By default, shunts are installed on JP1 and JP2, and BCLK is not inverted. To invert BCLK, rotate the pair of shunts 90 degrees to cross connect the two jumpers. Then short each pin on JP1 to its neighbor on JP2.

Hints and Tips

Flash firmware: When SourcePoint is first installed, it may prompt you to update the flash firmware. You should proceed with the flash update using the latest version of the flash firmware that SourcePoint presents to you during this process. The version number is embedded in the name of the flash file. You can also initiate a flash update in SourcePoint by clicking on **Files|Update Emulator Flash**.

Target debug/ITP port problems: Some target systems have signal quality problems when TCK is set at the rate of 16 MHz. You can verify that the emulator is reliably communicating with the JTAG scan chain by running 1,000 trials of the JTAG pattern tests located under **Options|Confidence Tests** in SourcePoint. If problems occur at the 16 MHz TCK rate, try lowering the rate under via the **JTAG Config** button in the **Confidence Tests** window.

American Arium support: If you need assistance, please contact American Arium Technical Support at 877-508-3970 toll free in the US; 714-731-1661 in North America or send an email to support@arium.com. If you bought your unit outside North America, please contact your distributor.