



Problem:

Can I boot my VersaLogic CPU board from the Ethernet controller?

Background:

There are a number of uses for network booting, including but not limited to:

- Booting diskless systems
- Deploying software and OS for new systems
- Automating system maintenance, such as backups
- Automating system checking
- Ensuring security

One standard for network booting is called the Preboot Execution Environment (PXE). PXE works with a network interface card (NIC), such as the Ethernet controller, and makes the NIC a boot device. The PXE boots the client PC from the network by transferring a “boot image file” from a server. This file can be the operating system for the client PC or a pre-OS agent that performs client management tasks. Because PXE is not operating system specific, the image file can load any OS. It provides support for network booting of embedded and other operating systems. The use of PXE requires a PXE-enabled NIC. Most currently available NICs do support PXE.

Note: A PXE is specific to a type of NIC. It is necessary to use the correct PXE for a particular NIC.

Solution:

Most VersaLogic boards have the ability to boot from the Ethernet controller; however, this requires the use of a 3rd party remote boot agent, such as those supplied by Argon Technology, ROM-o-matic, Intel, and others. The remote boot agent may be a BIOS extension, boot floppy, or other boot device, and it must be designed specifically for the NIC used on the CPU board.

Several factors determine whether your VersaLogic board can boot from an Ethernet controller:

- The board must have an Ethernet controller (not all boards do)
- The Ethernet controller must be supported by an Argon boot agent or other trusted boot agent
- The BIOS of your VersaLogic board must support BIOS extensions, if the boot agent functions as a BIOS extension

VersaLogic boards that do not support Ethernet booting are:

- VL-586-1 (no Ethernet controller)
- VSBC-6 (controller not supported)

Note: Argon does not provide a boot agent in the form of a BIOS extension for the EBX-12d (Intel 82541ER controller), but does offer a PXE on Disk option for this NIC.

ROM-o-matic.net and other sites enable you to build and then download a boot agent. These boot agents may be in the form of BIOS extensions or boot disk images.



Boards equipped with an Intel 82574 Ethernet controller, such as the VL-EPMs-21 (Ocelot) and VL-EPM-24 (Tiger) can use the Intel boot agent. (Go to the [Intel Download Center](#) and search for "intel boot agent.")

Note: The Ethernet controller built into the Vortex86DX processor (used on VersaLogic boards such as the VL-EPM-16 Tomcat) is preconfigured with a network boot agent that supports RPL and UNDI/PXE 2.0 protocols. See the [Vortex86DX Support Page](#) for more information.

BIOS Extension Procedure:

To perform this procedure, you will need the correct version of the Flash BIOS Update utility (FBU.EXE), available from the private support site for your VersaLogic board. You will also need a bootable DOS floppy disk.

1. Select a compatible boot agent for your NIC, either from Argon or another trusted supplier. The sales and support staff of Argon are familiar with VersaLogic products and can provide you with the appropriate boot agent for your controller. To see a list of products, visit the [Argon Technology Web site](#) and select PXE Boot Agents from the Products menu. Typically, the file provided to you will have an extension of BIN.
2. Copy the boot agent and FBU.EXE to a bootable DOS floppy and boot with this disk.
3. Run FBU to program the BIOS extension. If you are using FBU Version 3.xx, issue the following command from DOS:
FBU -E *filename*

where *filename* is the name of the boot agent. FBU will then install the BIOS extension.

If you are using FBU version 2.xx:

- a. Start FBU from the DOS command prompt.
- b. Select the Program BIOS Extension option.
- c. Select the appropriate file from the list.

Note: Version 2.xx of FBU requires that the filename begin with the letter E and have an extension of BIN; for example: EABR001.BIN.

- d. Press Enter. The BIOS extension is programmed.
4. After FBU has finished installing the BIOS extension, reboot the system.
5. Enter the CMOS Setup screen by pressing Delete during the early boot cycle, and open the Custom Configuration settings.
6. Set the BIOS Extension setting to Enabled.
7. Save the settings and exit CMOS Setup (Write to CMOS and Exit). The next time you boot, the BIOS extension will attempt to boot from the Ethernet controller.

To boot successfully from the server, the server must be properly configured and connected to the Ethernet hub.

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