ZOOM™ Geode™ Development Kit

Geode™ LX User's Manual

LOGIC | AMD

REVISION HISTORY

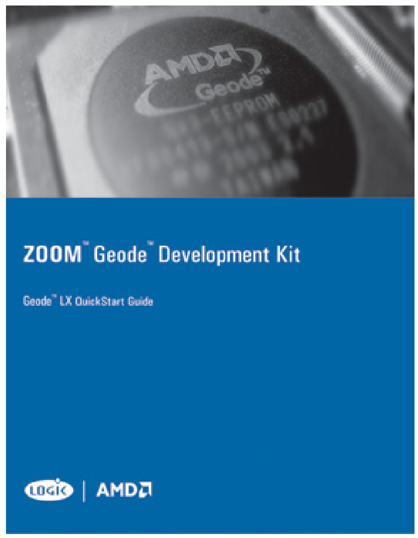
REV	EDITOR	REVISION DESCRIPTION	APPROVAL	DATE
A	Jed Anderson	Release Logic Version	ELH	12/8/05
B	Jed Anderson	Fixed URL in footnote on Pg. 1; Added Section 5 “Configuring for LX 700@0.8W Emulation”	JCA	1/25/06
C	Jed Anderson	Added Hirose connector drawings and updated connector PNs in Section 2.1; Added footnote on Pg. 2	ELH	5/24/06

Table of Contents

Congratulations on your purchase of the Zoom™ Geode™ LX DB800 Development Kit. The Zoom Geode LX DB800 provides a product-ready software and hardware platform for evaluating the functionality of the AMD Geode LX 800@0.9W processor*. This results in an embedded product development cycle with less time, less cost, less risk… more innovation.

1 Getting Started

1.1 Have you read the Zoom Geode LX Development Kit QuickStart Guide?



If the answer is yes, proceed to Section 2 "Development Board Connectors" on page 2. If not, familiarize yourself with the *Zoom Geode LX Development Kit QuickStart Guide* before you read this document. The latest version of the QuickStart Guide is located on the Logic Product Development web site (http://www.logicpd.com/).

1.2 QuickStart Guide Review

Thank you for reading the QuickStart Guide before proceeding through this document. Now you are familiar with the following:

- Development board features
- Required equipment
- Peripheral connectors and connection diagram
- Jumper configurations
- Self test
- Product notes

*The AMD Geode LX 800@0.9W processor operates at 500 MHz. Model numbers reflect performance as described here: http://www.amd.com/connectivitysolutions/geodelxbenchmark.

2 Development Board Connectors

2.1 Geode LX SOM-ETX Module and Mini-ITX Baseboard Connections

The basic signal connections between the Geode LX SOM-ETX module and Mini-ITX baseboard are accomplished using the common ETX standard connectors and footprint. A minimum height of 7.0 mm between the bare PCB boards is required (a minimum height of 3.0 mm is required if using production volume modules).*

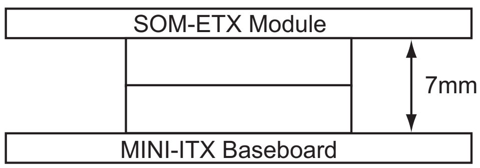


Figure 2.1 – Hirose Connectors Stack Height on Development Kit Modules

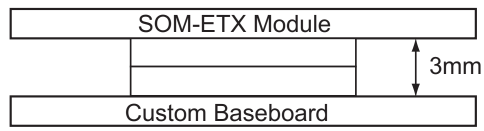


Figure 2.2 – Hirose Connectors Stack Height on Production Modules

- Geode LX SOM-ETX module uses 4X of Hirose 100-pin, 0.6 mm pitch, FX8C-100P-SV2(71) (Male)
- Mini-ITX baseboard uses 4X of Hirose 100-pin, 0.6 mm pitch, FX8C-100S-SV(71) (Female)

Refer to the *Zoom Geode LX Development Kit QuickStart Guide* for connection instructions.

2.2 ATX Front Panel Header (14-pin Header)

The Zoom Geode LX DB800 development board provides an ATX system panel header that accommodates several system front panel functions. The connections to the system panel devices are depicted in Figure 2.3.

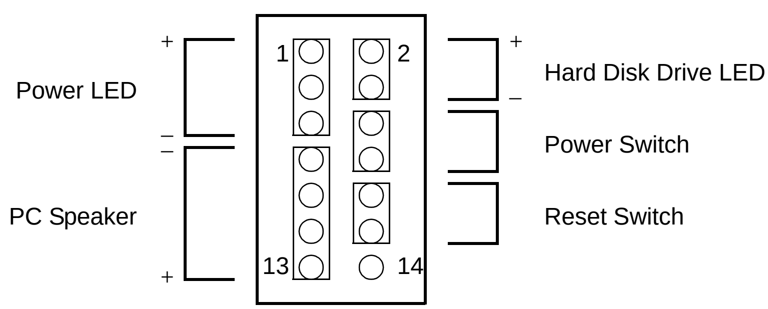


Figure 2.3 – ATX Front Panel Header

2.3 IR/CIR Connector

This connector supports an optional wireless infrared transceiver module via J32, a 4x1 0.100” header.

2.4 ATX Power Connector

The ATX power connector connects to a standard ATX power supply. The power supply cable is designed to fit these connectors in only one orientation. The ATX power supply connector on the development board is located near the CompactFlash connector.

*The SOMLX800-10-XXXGC(R) module is available in production volumes with a 3 mm stack height for custom designs. The 3 mm stack height module is not compatible with the LX DB800 Development Kit Mini-ITX baseboard. Please see the AMD Geode LX 800 SOM Product Brief for more information.

2.4.1 ATX Power Cable Installation

1) Align the ATX Power Supply cable connector with the board connector, making sure the cable connector's plastic clip is facing the board edge.

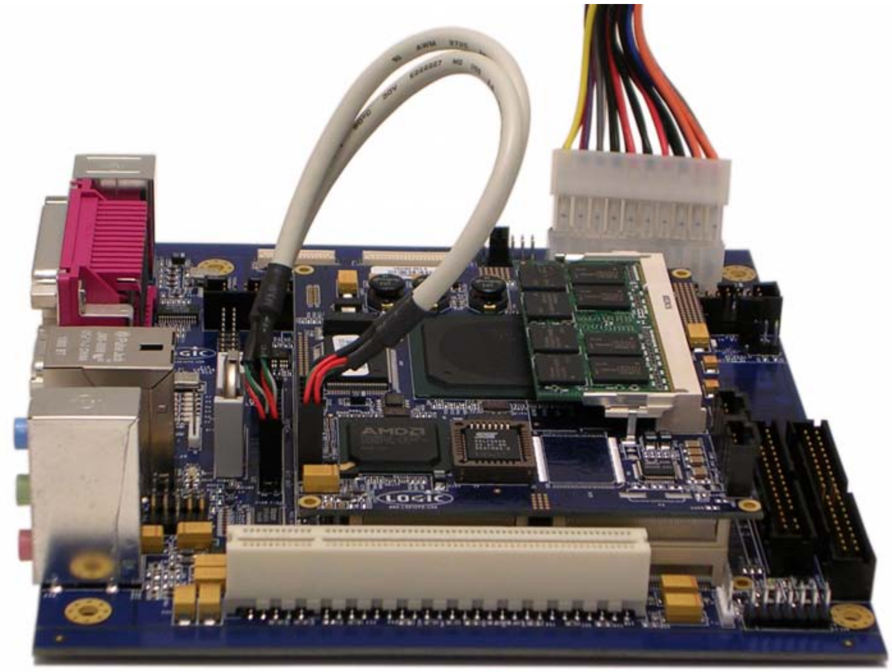


Figure 2.4 – Align ATX Power Supply Cable Connector with Board Connector

2) Firmly insert the cable connector until it is locked in place.

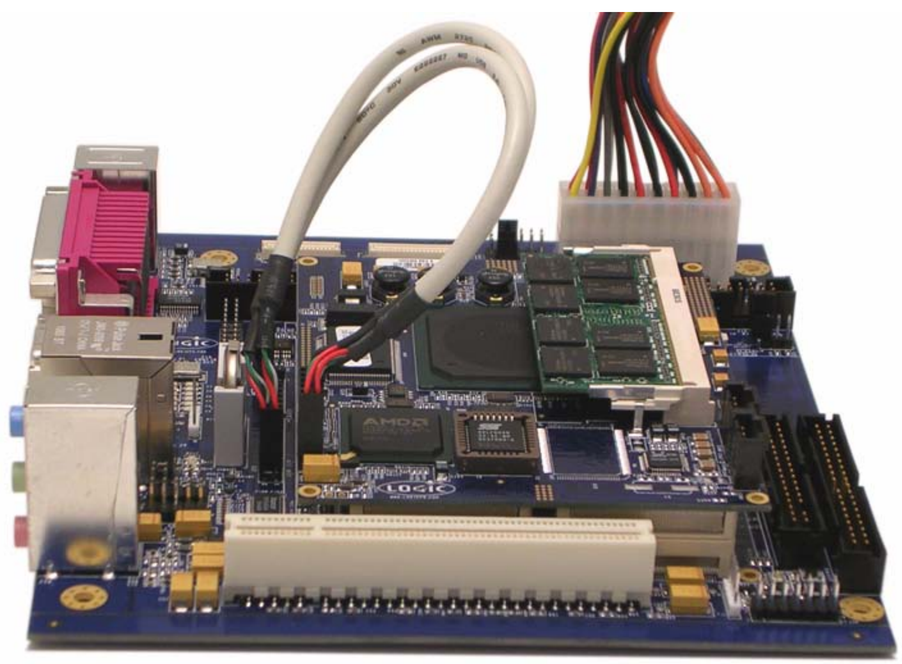


Figure 2.5 – Insert ATX Cable Until Locked

3 Development Board Installation

This chapter describes how to connect peripherals, switches, and indicators to the Mini-ITX baseboard.

3.1 Pre-Installation Precautions

Consider the following precautions before you install development board components or change any development board setting.

- Before you install or uninstall any component, ensure that the ATX power supply is switched OFF or the power cord is detached from the power supply. Failure to do so may cause severe damage to the development board, peripherals, and components.
- Use a grounded wrist strap or touch a safely grounded object, such as the power supply case, before handling components to avoid damaging them due to static electricity.
- Avoid touching the ICs or components.
- Whenever you uninstall any component, place it on a grounded anti-static pad or in the bag that comes with the component.

Note: When lit, the on-board LED indicates that the system is ON, in Sleep mode, or in Soft-Off mode -- not powered OFF.

3.2 IDE Drive Installation

The Zoom Geode LX DB800 development board provides one IDE connector. This connector supports the UltraATA 133/100/66/33 IDE hard disk ribbon cable.

1) Identify pin one on the 80-pin ribbon cable and the IDE connector.

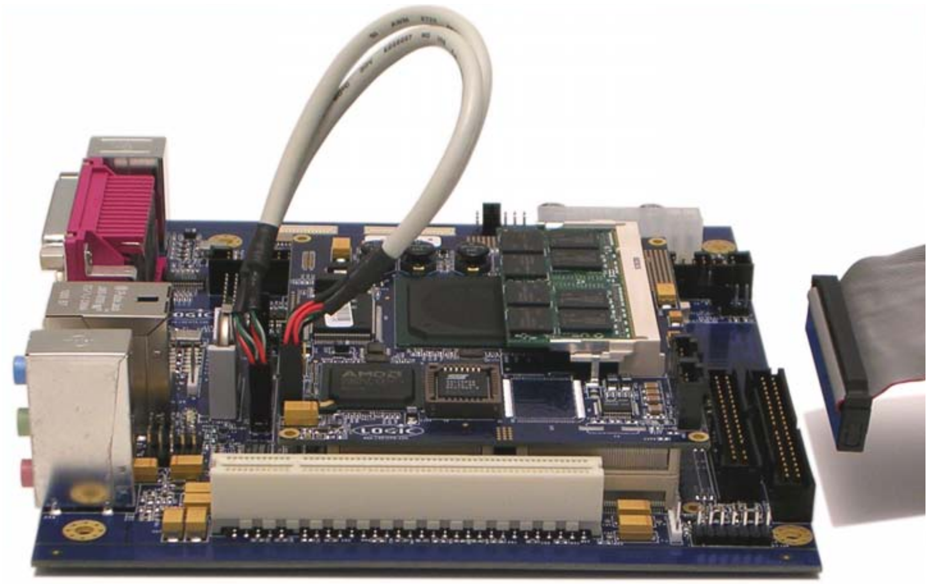


Figure 3.1 – Pin 1 Identification

2) Insert the 80-pin ribbon cable into the IDE connector, matching pin one on the cable and the connector.

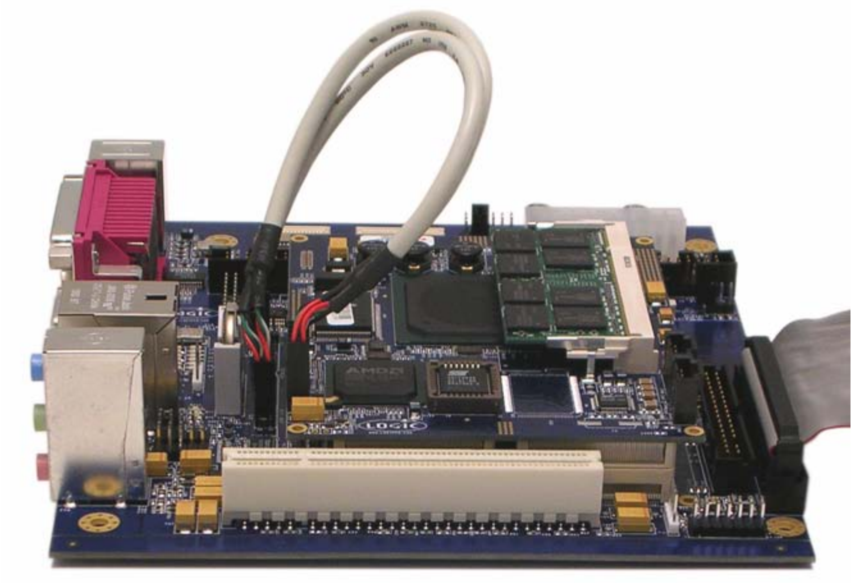


Figure 3.2 – Ribbon Cable Insertion

3.3 PCI Card Installation

The development board provides one 3.3V PCI slot.

1) With the PCI card's major IC components facing away from the development board, align the card with the PCI slot.

Note: Many PCI cards can be inserted in either direction. Make sure the card is correctly inserted, or damage may result.

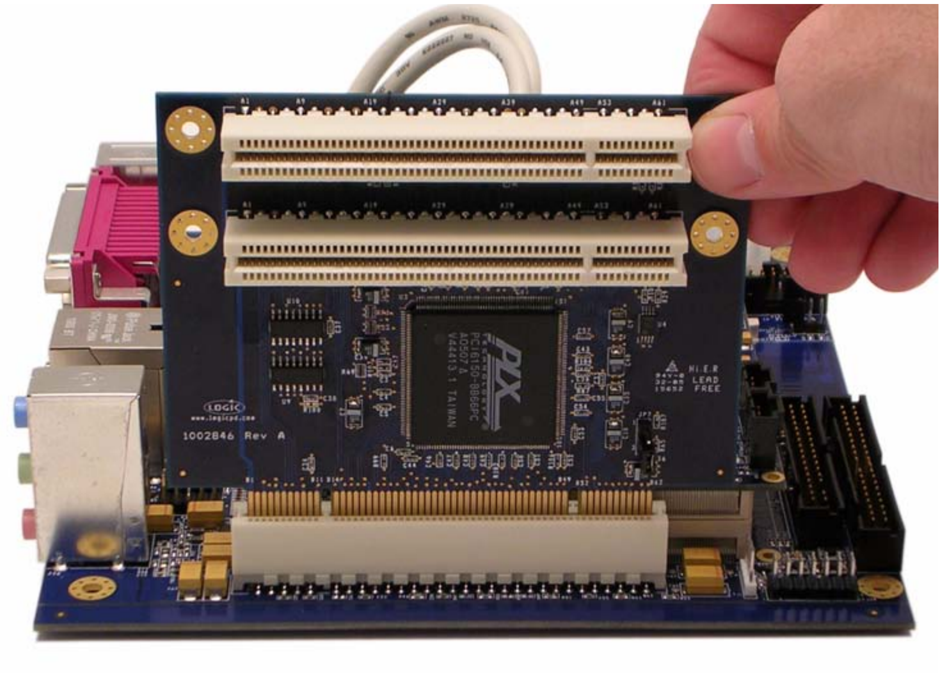


Figure 3.3 – Align Card with PCI Slot

2) Firmly insert the card into the PCI slot.

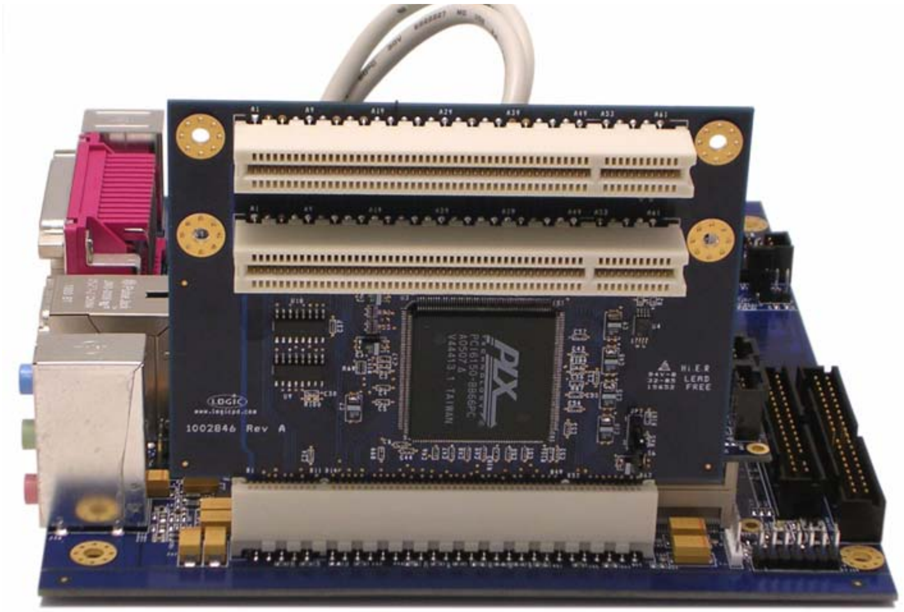


Figure 3.4 – PCI Card in PCI Slot

4 BIOS Information

The Zoom Geode LX DB800 development board supports a programmable Flash EEPROM for BIOS storage.

4.1 BIOS Choices

The Zoom Geode LX Development Kit ships with two BIOS choices, each on its own FlashROM card. The General Software BIOS will be preprogrammed on the FlashROM that is inserted on the board at time of shipment. In a separate plastic case is the FlashROM card preprogrammed with the BIOS from Insyde Software.

4.2 BIOS Updating

The BIOS code for the Zoom Geode LX DB800 development board can be updated through software. General Software and Insyde Software may periodically release BIOS updates to enable new features or to address issues. Use of a FlashROM burning utility (such as those availabe from AMD or General Software) is required to perform these updates.

5 Configuring for LX 700@0.8W Emulation

The Zoom Geode LX DB800 development board is built with an AMD Geode LX 800@0.9W processor*. To evaluate operation with an AMD Geode LX 700@0.8W processor*, follow the steps outlined in the sections below. While this configuration represents the system performance of an LX 700@0.8W processor, power consumption may not accurately reflect an actual LX 700@0.8W processor.

5.1 General Software BIOS

This procedure is for configuring an LX 800@0.9W processor to emulate an LX 700@0.8W processor.

When the board is first powered on, the General Software Logo Screen is displayed. During this portion of the boot process, press “CTRL-C” to enter the BIOS Main Configuration screen, as shown in Figure 5.1.

- Press the “Down Arrow” key on the keyboard until the “Custom Configuration” option is highlighted and press “Enter”.

Figure 5.1 – BIOS Main Configuration Screen

- On the “Custom Configuration” screen, press the “Down Arrow” key until the “CPU/GLIU speed” option is highlighted, as shown in Figure 5.2 and press “Enter”.
- Press the “Right Arrow” key to change the current setting. The proper setting for LX 700@0.8W emulation is “433/333 MHz”. After the proper selection is made, press the “Escape” key to return to the Main Configuration screen.
- Press the “Up Arrow” until the “Write To CMOS and Exit” option is highlighted. Press “Enter” and allow the system to reboot.

*The LX 800@0.9W processor operates at 500 MHz. The LX 700@0.8W processor operates at 433 MHz. Model numbers reflect performance as described here: http://www.amd.com/connectivitysolutions/geodelxbenchmark

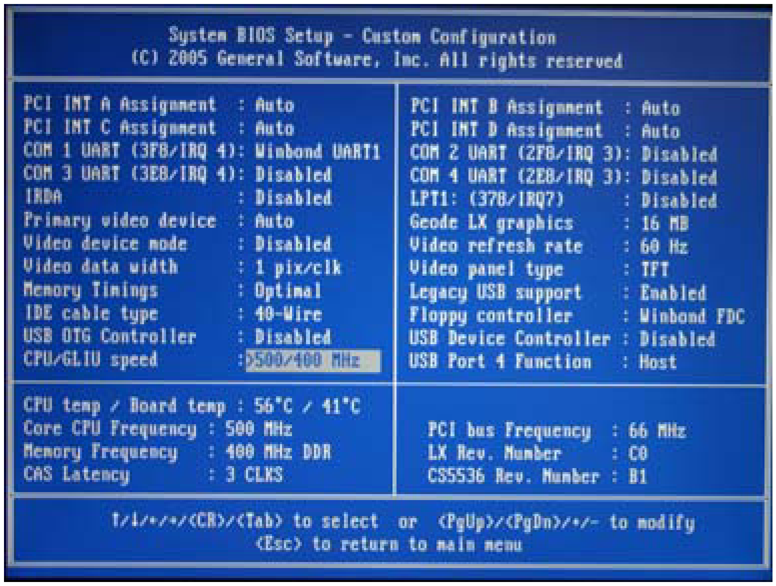


Figure 5.2 – CPU/GLIU Speed

5.2 Insyde Software BIOS

This procedure is for configuring an LX 800@0.9W processor to emulate an LX 700@0.8W processor.

When the board is first powered on, the AMD Geode Logo Screen is displayed. During this portion of the boot process, press “F1” to enter the BIOS Main Configuration screen, as shown in Figure 5.3.

- Press the “E” key on the keyboard to enter the System Clock/PLL Configuration screen, as shown in Figure 5.4.

Figure 5.3 – BIOS Main Configuration Screen

- Ensure the Clock Mode is set to “Clock Determined By: Manual Settings”. To change this setting, press “Enter“.
- Press the “Down Arrow” to highlight “CPU Multiplier”. Press “Enter” and set this to “13”.
- Press the “Down Arrow” to highlight “GeodeLink Multiplier”. Press “Enter” and set this to “10”. Press “Escape” and then press “X” to save the settings and reboot the system.

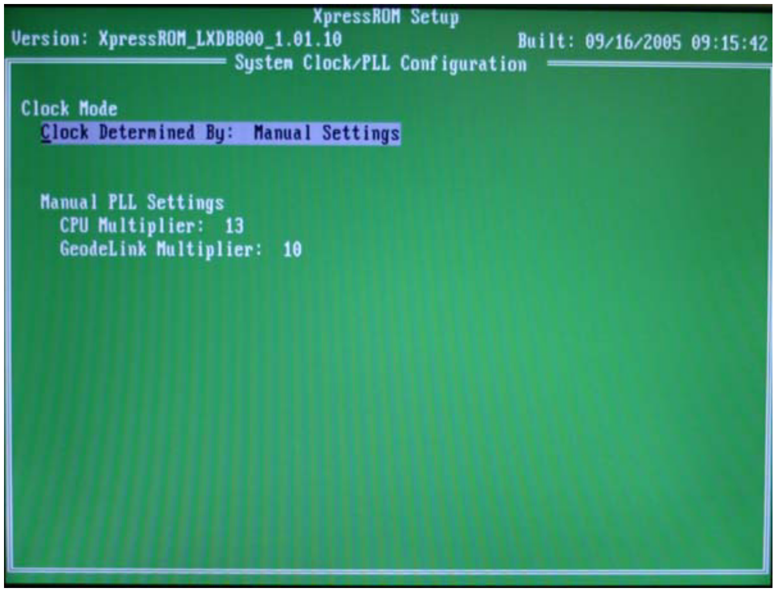


Figure 5.4 – System Clock/PLL Configuration Screen

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