

LM3S2965 EVALUATION KIT

README FIRST

Stellaris® LM3S2965 Evaluation Kit

The Stellaris LM3S2965 Evaluation Kit for CAN provides a low-cost way to start designing controller area network (CAN) applications with Stellaris microcontrollers. The LM3S2965 Evaluation Board (EVB) can function as either a complete evaluation target, or as a debugger interface to any external Stellaris device. The included USB cable is all that is needed to provide power and communication to the host PC.

LM3S2965 Evaluation Board

Requirements

- You have a PC, with a USB interface, running Microsoft® Windows 2000, XP, or Vista
- You have the Stellaris LM3S2965 Evaluation Kit Documentation and Software CD

Board Set-Up

The LM3S2965 Evaluation Board is configured for immediate use. First connect the LM3S2965 Evaluation Board to the LM3S2110 CAN Device Board using the 10-way ribbon cable included in the kit. The cable inserts into the header labeled CAN on each board. To power the EVB, use the USB cable supplied in the kit. Connect the mini-b (smaller) end of the USB cable to the connector labeled “USB TO JTAG/SWD” on the EVB. Connect the other end (Type A) to a free USB port on your host PC. The USB is capable of sourcing up to 500 mA for each attached device, which is sufficient for the evaluation board. If connecting the board through a USB hub, it must be a powered hub.

LM3S2965 EVALUATION KIT

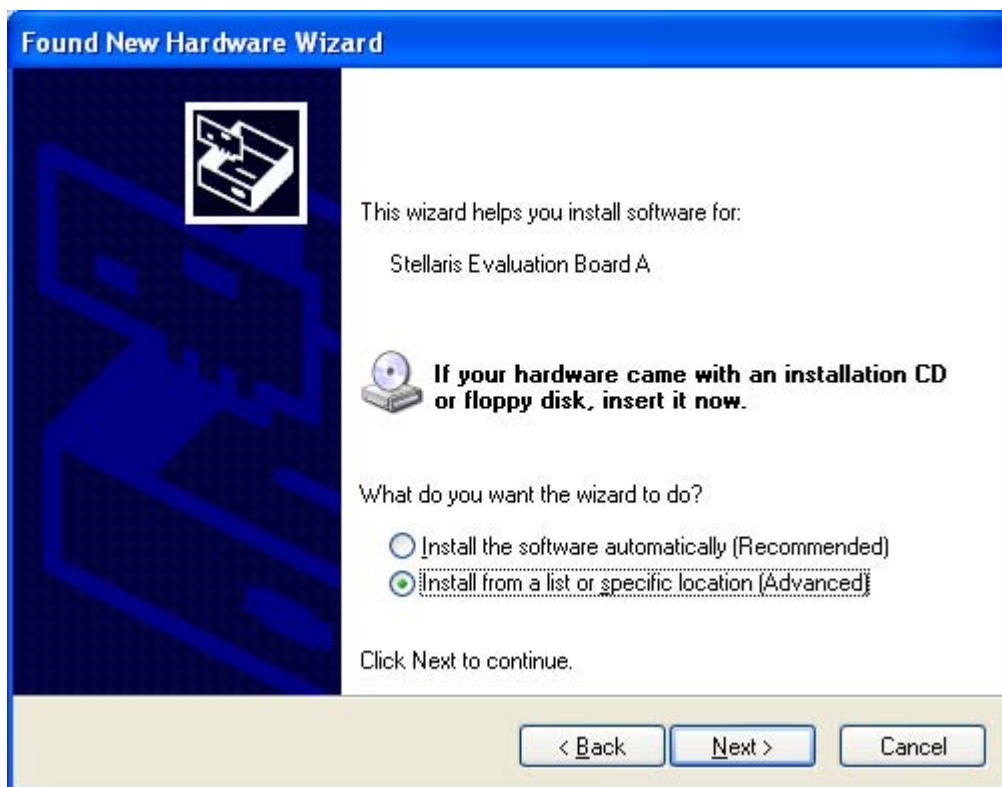
README FIRST

When you plug in the EVB for the first time, Windows starts the Found New Hardware Wizard and asks if Windows can connect to Windows Update to search for software. Select “No, not this time” and then click Next.



LM3S2965 EVALUATION KIT README FIRST

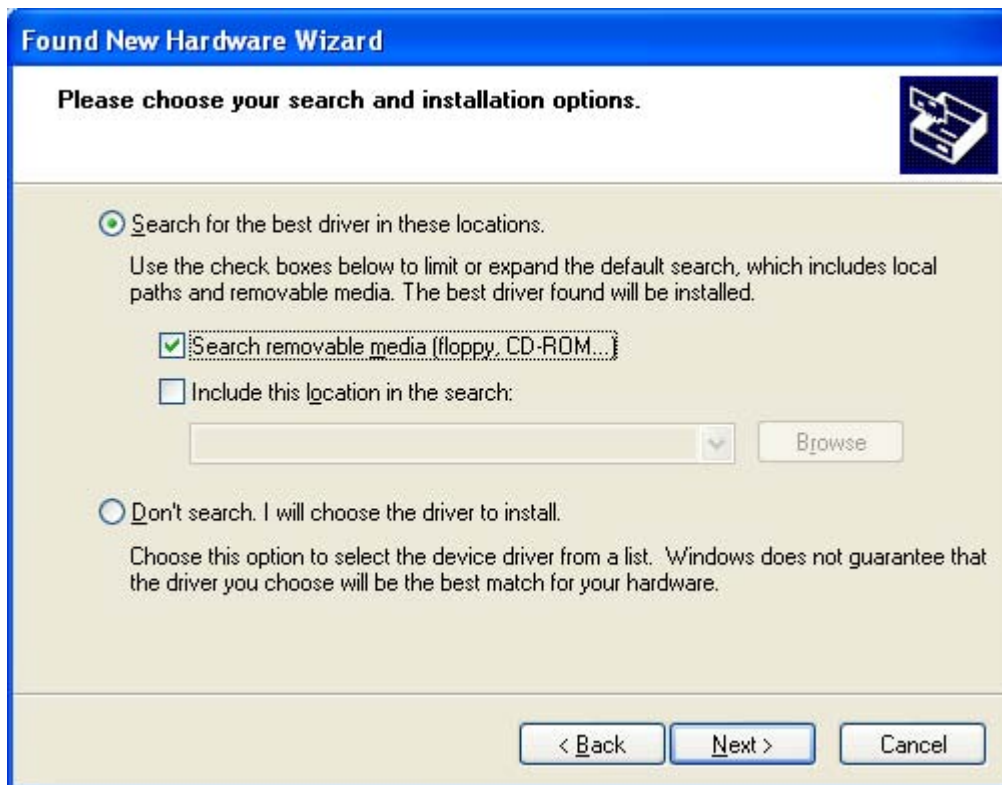
Next, the Found New Hardware Wizard asks you from where to install the software. Select “Install from a list or specific location (Advanced)” and click Next.



LM3S2965 EVALUATION KIT

README FIRST

Make sure the “Documentation and Software” CD that came with the Evaluation Kit is in your CD-ROM drive. Select “Search for the best driver in these locations,” and check the “Search removable media (floppy, CD-ROM...)” option. Click Next.



LM3S2965 EVALUATION KIT

README FIRST

A warning may pop up during the Hardware Installation like the one below; click Continue Anyway.



LM3S2965 EVALUATION KIT

README FIRST

Windows finishes installing the drivers for “Stellaris Evaluation Board A.” When the driver install is finished, the Found New Hardware Wizard window appears like the one below. Click Finish to close the dialog box.



You have just installed the drivers for “Stellaris Evaluation Board A.” The USB device built into the EVB is a composite USB device. After you click Finish, Windows automatically installs a driver for the “Stellaris Evaluation Board B” part of the composite USB device. Follow the same instructions as above to install the drivers for this device.

The Found New Hardware Wizard appears one last time. This is to install the drivers for the “Stellaris Virtual COM Port.” Again, follow the same instructions to install the drivers for this device.

Now all of the hardware drivers for the LM3S2965 Evaluation Board have been installed. These drivers give the debugger access to the JTAG interface and the host PC access to the Virtual COM Port.

With the drivers installed, Windows automatically detects any new Stellaris boards that you attach, and install the drivers for you.

LM3S2965 EVALUATION KIT

README FIRST

Quickstart Application

The LM3S2965 Evaluation Board comes preprogrammed with a quickstart application. Once you have powered the board, this application runs automatically. You have probably already noticed this running as you installed the drivers. A splash screen appears on the OLED display for a few seconds before the application begins.

The quickstart application is a game in which you navigate a character through a maze. Use the directional push buttons to move the character, and the user pushbutton (SELECT) to fire a missile to destroy the monsters. Score accumulates for maze progress and the number of monsters destroyed. The game lasts for only one character “life”; the score displays at the end of the game.

Since the OLED display on the evaluation board has burn-in characteristics similar to a CRT, the application also contains a screen saver. The screen saver only becomes active if two minutes have passed without the user pushbutton being pressed while waiting to start the game (that is, the screen saver never appears during game play).

After two minutes of running the screen saver, the display turns off and the user LED blinks. Exit either mode of screen saver by pressing the user pushbutton (SELECT). Press the button again to start the game.

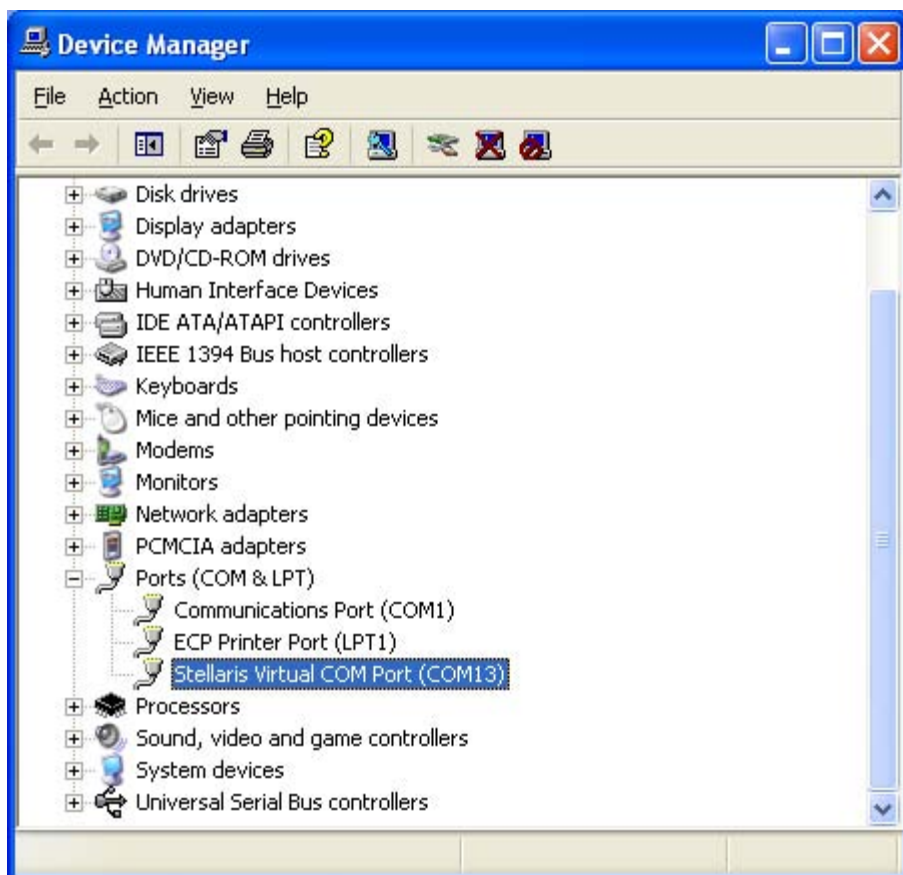
The LM3S2965 Evaluation Board uses the CAN module to communicate with the included CAN device board. During game play, the volume is adjusted by using the “Up” and “Down” buttons on the CAN device board. The Status LED on the CAN device board will blink during various portions of the quick start application.

While the game is being played, a running tally of the score is output through UART0 of the LM3S2965 microcontroller. UART0 is connected to the FTDI’s second serial channel. This serial channel is available to Windows as a Virtual COM port. To view the score, open up a terminal application such as HyperTerminal. Connect using COM#, where # is the number Windows has assigned the Virtual COM port. Set the serial connection to a baud rate of 115200, 8 data bits, no parity, 1 stop bit, and no flow control.

To determine which COM# Windows has assigned to the Virtual COM port on the LM3S2965 microcontroller, follow these steps:

- 1) From the Start Menu, select Control Panel, then double-click the System icon.
- 2) Select the Hardware tab.
- 3) Click on the Device Manager button.
- 4) Click on the + symbol to expand the Ports (COM & LPT) group.
- 5) “Stellaris Virtual COM Port (COM#)” is listed as shown in the figure below. This COM# is the device you connect to using your terminal application. In this example, the COM port is COM13.

LM3S2965 EVALUATION KIT README FIRST



Software Development Tools

The next step is to install and run the software development tools included in the evaluation kit. For more information, see the quickstart guides included on the Stellaris LM3S2965 Evaluation Kit CD. Additional tools may be available through the www.ti.com/stellaris web site.

LM3S2965 EVALUATION KIT

README FIRST

References

The following references are included on the Stellaris LM3S2965 Evaluation Kit Documentation and Software CD and are also available for download at www.ti.com/stellaris:

- *Stellaris LM3S2965 Evaluation Kit User's Manual*
- StellarisWare® Driver Library
- *StellarisWare® Driver Library User's Manual*
- Stellaris LM3S2965 Microcontroller Data Sheet

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