

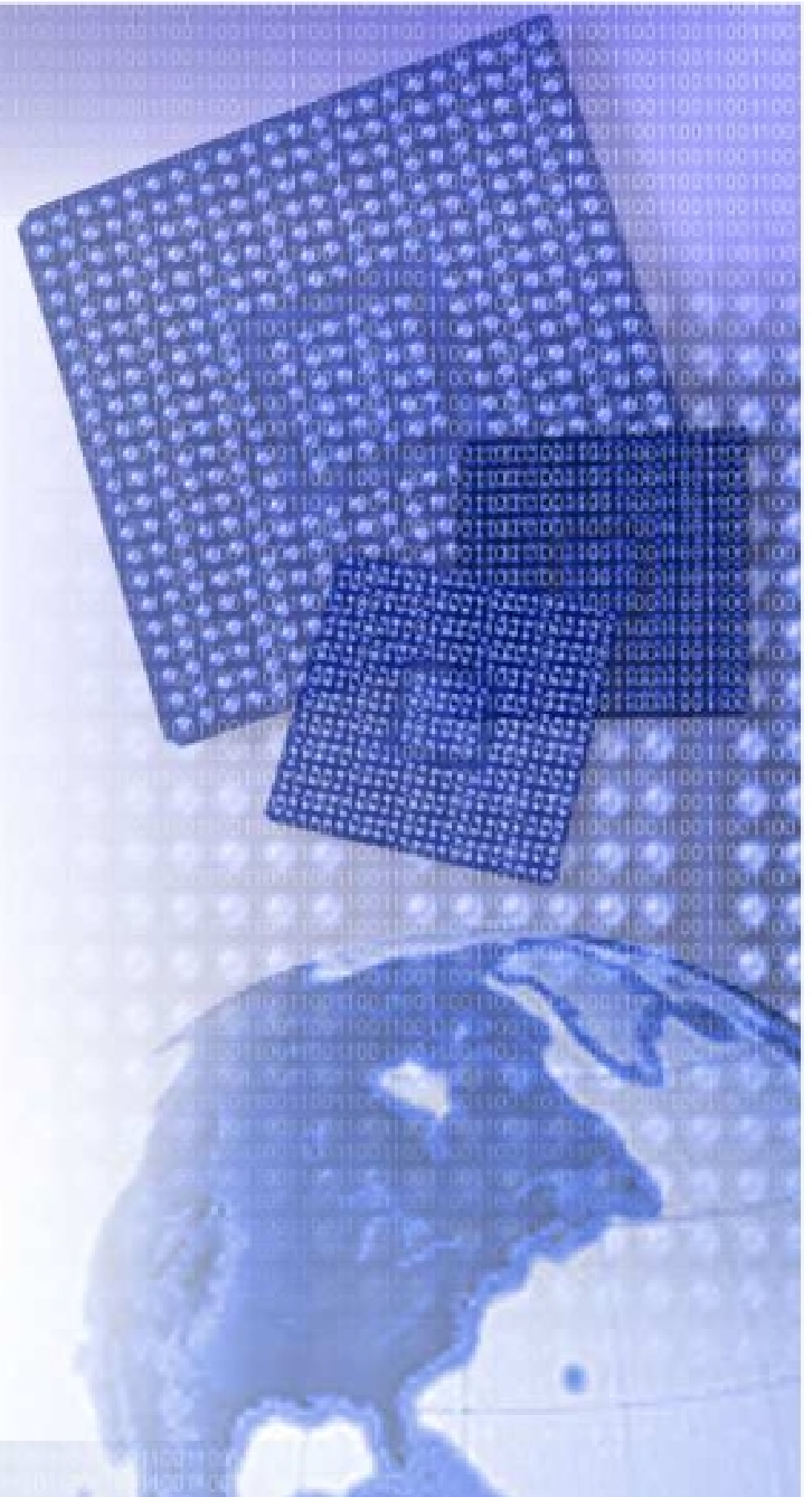


**PicoBlaze™**

Initial Design  
for  
Spartan-3E Starter Kit  
(LCD Display Control)

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Xilinx Ltd  
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Rev.2



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Any problems or items felt of value in the continued improvement of KCPSM3 or this reference design would be gratefully received by the author.

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The author would also be pleased to hear from anyone using KCPSM3 or the UART macros with information about your application and how these macros have been useful.

# Design Overview

This design is provided on the Spartan-3E Starter Kit when it is dispatched from the factory. It confirms that the board is operational by scrolling a simple message across the LCD display and allowing the LED's to be controlled by the rotary knob, press buttons and slide switches.

The principle purpose of this document is to illustrate how PicoBlaze can be used to control the LCD display. It is hoped that the design may form the basis for future PicoBlaze designs as well as provide a general introduction to the board. Some exercises are suggested to encourage further self study.

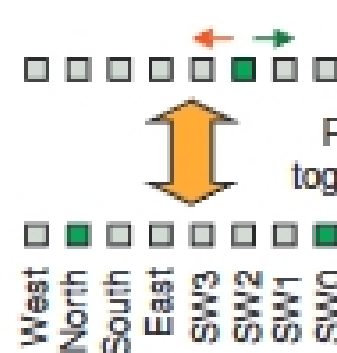
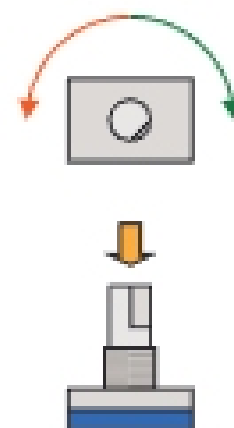
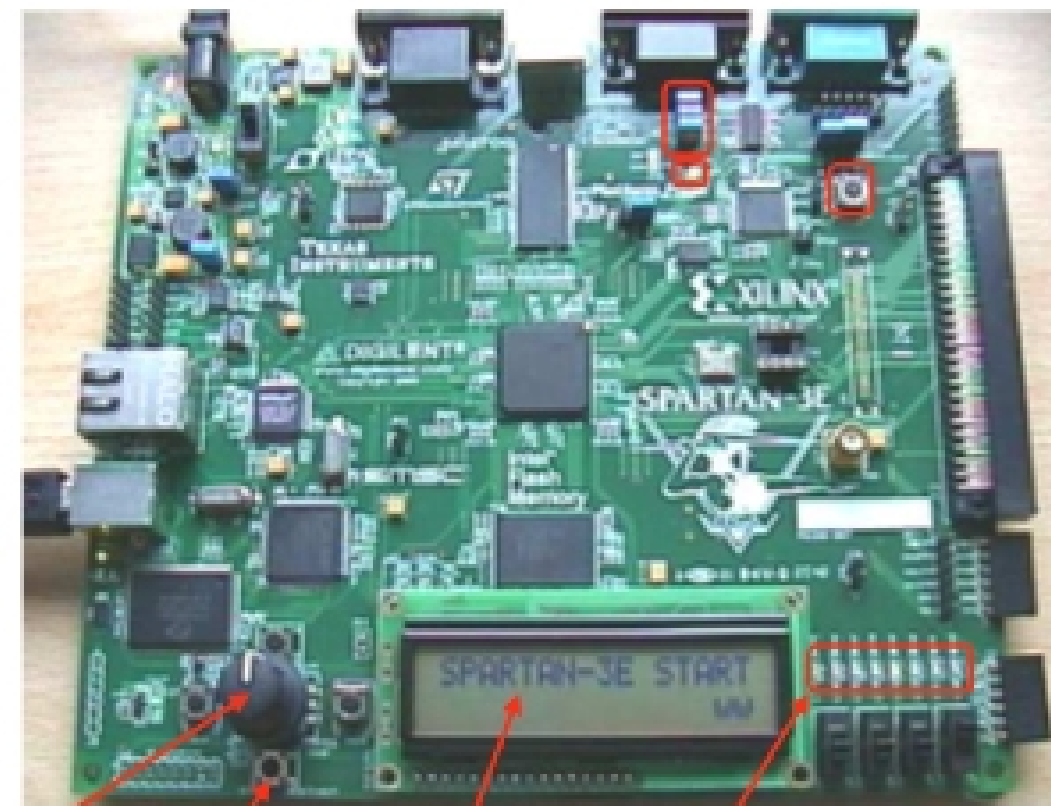
## Try it now – it only takes 30 seconds!

It is recommended that you try this to become familiar with what the design does before continuing to read. If your board is 'fresh out of the box', then simply connect the power supply, switch on and see the design come to life. If it doesn't work (XC-DONE LED remains unlit), check that all 3 jumpers are installed in J30 and press the PROG button again.

If your board has been reprogrammed since it arrived, you can still try the design quickly. As well as the source design files, a compiled configuration bit file is provided which you can immediately download into the Spartan XC3S500E device on your board. To make this task really easy the first time, unzip all the files provided into a directory and then....

**double click on 'install\_s3esk\_startup.bat'**

Assuming you have the Xilinx software installed, your board connected with the USB cable and the board powered (don't forget the switch), then this should open a DOS window and run IMPACT in batch mode to configure the Spartan-3E with the design.



Rotate knob to control position of the illuminated LED

Press and release knob to toggle between control modes

Operate buttons and switches to illuminate each LED

4 press buttons

Scrolling message

8 LEDs

4 slide switches