

# Landscape LCD EZ-Extender Board Support Package (BSP) v1.0.0 Release Notes

Thank you for installing the Landscape LCD EZ-Extender Board Support Package (BSP). The BSP provides software and documentation in support of the Landscape LCD EZ-Extender Board.

The Landscape LCD EZ-Extender BSP is designed for use with CrossCore® Embedded Studio (CCES) for Analog Devices Processors software development tools. The CCES development environment aids advanced application code development and debug, such as:

- Create, compile, assemble, and link application programs written in C++, C, and assembly
- Load, run, step, halt, and set breakpoints in application programs
- Read and write data and program memory
- Read and write core and peripheral registers
- Plot memory

For more details on CCES, please visit [www.analog.com/cces](http://www.analog.com/cces). For more on the Landscape LCD EZ-Extender, please visit <http://www.analog.com/en/evaluation/bf-extenderlcd/eb.html>.

The Landscape LCD EZ-Extender BSP provides comprehensive software support for the Landscape LCD EZ-Extender board. Specifically, drivers, examples are included for the following components:

1. Driver for AD714x CapTouch Programmable Controller device
2. Driver for Sharp LQ035Q1DH02 LCD
3. Driver for AD7879/AD7889 Low Voltage Controller for Touch Screens device

The BSP also provides comprehensive examples which demonstrate the on-chip drivers and services.

The CCES Help environment provides complete hardware and software documentation.

## License Checking

There are no license requirements for the Landscape LCD EZ-Extender BSP.

## Installation Logging

The installer does not create a log file by default. If you encounter installation issues, you can generate an installation log file by running the installer from the command prompt.

Change to the directory containing downloaded installer executable and run the following from the command prompt:

```
ADI_LandscapeLCD_EI2_EZExtender-Rel1.0.0.exe /v"/l*v c:\installer.log"
```

## Support and Assistance

- Submit your questions online at:
  - <http://www.analog.com/support>
- E-mail your Processor and DSP software and development tools questions from within CrossCore Embedded Studio:
  - [processor.tools.support@analog.com](mailto:processor.tools.support@analog.com)
- E-mail your Processors and DSP applications and processor questions to:
  - [processor.support@analog.com](mailto:processor.support@analog.com) OR
  - [processor.china@analog.com](mailto:processor.china@analog.com) (Greater China support)
- Post your questions in the Processors and DSP online technical support community in Engineer Zone at:
  - <http://ez.analog.com/community/dsp>

## Software Requirements

To build the projects included in the Landscape LCD EZ-Extender BSP, CrossCore Embedded Studio version 1.0.1 or later is required..

## Test Configurations

The software versions used to test are:

CrossCore® Embedded Studio version 1.0.1 with Landscape LCD EZ-Extender BSP version 1.0.0.

At the time of release, the tested hardware revision is:

- ADSP-BF518 EZ-KIT Lite® PCB Revision 1.0, BOM Revision 2.5, Silicon Revision 0.2.
- ADSP-BF526 EZ-KIT Lite® PCB Revision 1.1, BOM Revision 1.8, Silicon Revision 0.2.
- LandscapeLCD\_EI2\_EZExtender Revision 1.1, BOM Revision 1.3

# Getting Started

## Adding a Driver to a Project

When adding a driver provided with LandscapeLCD\_EI2\_EZExtender to your project, the IDE will add the sources for the driver to the CCES Project folders, starting at "system". There will be a folder specific to the driver(s) or service(s) you have added under this folder.

## Creating a project which includes a driver provided with Landscape LCD EZ-Extender Board BSP

In order to create a project you should follow the instructions provided in the CrossCore Embedded Studio help. As part of the project creation, the page "Add-in selection" contains a list of all the available add-ins for the project that you are creating based on the installed products and the project's chosen processor and type. You can see the drivers in support of the ADSP-BF518/ADSP-BF526 EZ-KIT Lite under the "Device Drivers and System Services" category. Within this category you will see "Landscape LCD EZ-Extender Board Drivers" which contains the drivers for the AD714x CapTouch Programmable Controller device, Sharp LQ035Q1DH02 LCD and AD7879/AD7889 Low Voltage Controller for Touch Screens device.

While creating a new project, add-in generates a call to `adi_initComponents()`. For more information on `adi_initComponents()`, please refer to the CCES help section:

CrossCore® Embedded Studio 1.0.1 > Graphical Development Environment > System Configuration

## Adding driver provided with Landscape LCD EZ-Extender Board BSP driver to an existing project

Every CrossCore Embedded Studio project contains a System Configuration file called `system.svc` which is located in the root of the project. The file is the IDE's interface for managing the various pre-written software components used in the "system" implemented by a project. Double-clicking any `system.svc` file in a navigation view opens that file in the System Configuration Utility which allows you to see the add-ins that you currently have in your project. Click on "Add..." and select the Landscape LCD EZ-Extender Board Drivers add-in which is under the "Device Drivers and System Services" for the on-board which contains the drivers for the AD714x CapTouch Programmable Controller device, Sharp LQ035Q1DH02 LCD and AD7879/AD7889 Low Voltage Controller for Touch Screens device.

## Configuration

There are no LCD EZ-Extender Board Drivers configuration options available in the IDE.

## Interrupts

CrossCore Embedded Studio provides a coherent interrupt management mechanism which allows for the same interface to be used in RTOS and non-RTOS applications. This means that interrupt service routines in all applications must be written in C and use the `adi_int` interface. Any thread-safety requirements or interactions with tasks are handled by the `adi_int` interface. For more information on the `adi_int` API, in CrossCore Embedded Studio go to Help > Search and enter `adi_int`.

Examples of the usage of this interrupt management mechanism are the System Services and Device Drivers provided with Crosscore Embedded Studio. By using the `adi_int` interface, the same services and drivers can be used in all applications regardless of whether an operating system is used.

## Examples

### EXAMPLES FOR DRIVERS:

1. Example to demonstrate AD714x CapTouch driver on BF518 EZ-Board
2. Example to demonstrate Sharp LQ035Q1DH02 LCD driver to display a color bar on BF518 EZ-Board
3. Example to demonstrate AD7879 Touch Screen driver on BF518 EZ-Board
4. Example to demonstrate AD7147 CapTouch driver on BF526 EZ-Board
5. Example to demonstrate Sharp LQ035Q1DH02 LCD driver to display a color bar on BF526 EZ-Board
6. Example to demonstrate AD7879 Touch Screen driver on BF526 EZ-Board

## Location

In order to locate Landscape LCD EZ-Extender Board BSP examples, you can use the following method:

Open CrossCore Embedded Studio's Example Browser which can be found in CrossCore Embedded Studio under Help. Select in the Product section Landscape LCD EZ-Extender for a full list of examples.

## Documentation

General information on the driver model can be found in CCES help under

CrossCore® Embedded Studio 1.0.1 >BF\_Landscape\_LCD\_EI2\_EZ-Extender 1.0.0  
> System Services and Device Drivers

## MISRA-C Support

MISRA C is a software development standard for the C programming language developed by the Motor Industry Software Reliability Association (MISRA). Its aims are to facilitate code safety, portability, and reliability in the context of embedded systems, specifically those systems programmed in ANSI C. The compiler detects violations of the MISRA rules at compile-time, link-time, and run-time.

As of release 1.0.1 All system services and device drivers are MISRA-C compliant (the specific suppressions are listed in the header files).

### **System Services and Device Driver Thread Safety**

All system services and device drivers (SSDD) use mutexes and semaphores to ensure thread-safety. If an RTOS is present then the SSDD will use the RTOS mutex and semaphores. If an RTOS is not present then the SSDD will use a non-RTOS implementation of mutexes and semaphores (spin locks).

### **Known issues with Landscape LCD EZ-Extender Board Support Package (BSP)**

None