

## Linux Demo Software For Universal Driver version 7.0.0

C demo programs and graphical control panel



### DS-MPE-GPIO

PCIe MiniCard Module

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This software is designed for use with Diamond Systems Universal Driver software version 7.0.0 and later on Linux OS which has 2.6.x to 3.x kernel version. This software is incompatible with earlier versions of Universal Driver and other kernel versions. This software is tested on Ubuntu-12.04 (3.2.x), Fedora 11 (2.6.x), and Fedora 17 (3.3.x) Linux OS.

### Graphical Control Panel

For a quick demonstration of the board's capabilities and verification of the board's operation, we suggest to run the graphical control panel included in this demo package. The control panel runs on the QT platform and provides an easy to use, comprehensive demo of most of the board's features.

### C Demo programs

This demo package contains a collection of "console" programs written in C that demonstrate the use of the Diamond Systems Universal Driver version 7.0.0 software to control the DS-MPE-GPIO I/O modules. The demo programs are organized by folder. Each folder contains:

- The C source code
- A ready-to-run executable file
- A makefile to rebuild the program with GCC compiler

The Universal Driver software must be installed first before executing these demos. Refer to the instructions included in the universal driver package below.

To rebuild these programs, the static library file libdscud-7.00.a must reside in the path specified by the makefile. The libdscud-7.00.a is available in the main Universal Driver for Linux software package, which is available for separate download at the following URL:

[www.diamondsystems.com/software/universaldriver](http://www.diamondsystems.com/software/universaldriver)

Subject to the limits outlined in the End User License Agreement, these demo programs may be freely copied, edited, and reused to develop your own applications for the DS-MPE-GPIO I/O modules.

### Simple instructions for using these demo programs

1. Connect the board onto your PCIE compatible SBC. Refer to the board's hardware user manual available on the product's web page at the following URL:  
<http://www.diamondsystems.com/products/dsmpegpio>
2. Install Universal Driver – see the document “DSCUD 7.0 for Linux Installation Instructions.pdf” in the Universal Driver 7.0 for Linux release package.
3. Install these demo programs by copying them to the desired location in the mass storage device of the system containing your DS-MPE-GPIO board.
4. Run the desired demo program.
5. For more detailed instructions, refer to the DS-MPE-GPIO software manual included in the Universal Driver software package.

### List of DS-MPE-GPIO Demo programs included in this release

Program name	Description
MPEGPIOCounterFunction	General counter/timer configuration offering all features
MPEGPIOCounterSetRate	Configures a counter/timer for programmable rate generator
MPEGPIODIOFunction	Configures DIO ports as input or output, reads bytes or bits from ports, and can perform loopback test using an attached cable
MPEGPIOPullUpDownConfig	Configures DIO ports as Pull up or pull down mode
MPEGPIOLEDFunction	Toggles the board LED when the user presses the Space key
MPEGPIOPWMFunction	Programmable pulse width modulation outputs
MPEGPIOUserIntFunction	Generates interrupts using on-board counter/timer or DIO line; increments count with each interrupt and displays value on screen.
DS-MPE-GPIO_GUI	Demonstrates all the major features of the board with a graphical interface.

### Reference list of DS-MPE-GPIO Universal Driver functions and associated demo programs

Many driver functions are included in more than one demo program. This list is intended to provide a handy reference to help you quickly find a demo program that shows a typical use of a driver function for DS-MPE-GPIO. Since most functions have a wide range of possible options, most demos do not show all possible uses of any driver function.

Driver function	Demo program
MPEGPIOInitBoard	MPEGPIODIOFunction
MPEGPIOFreeBoard	MPEGPIODIOFunction
MPEGPIODIOConfig	MPEGPIODIOFunction
MPEGPIODIOConfigAll	MPEGPIODIOFunction
MPEGPIODIOOutputByte	MPEGPIODIOFunction
MPEGPIODIOInputByte	MPEGPIODIOFunction
MPEGPIODIOOutputBit	MPEGPIODIOFunction
MPEGPIODIOInputBit	MPEGPIODIOFunction
MPEGPIOConfig	MPEGPIOPullUpDownConfig
MPEGPIOCounterSetRate	MPEGPIOCounterSetRate
MPEGPIOCounterConfig	MPEGPIOCounterFunction
MPEGPIOCounterRead	MPEGPIOCounterFunction

MPEGPIOCounterFunction	No demo
MPEGPIOPWMConfig	MPEGPIOPWMFunction
MPEGPIOPWMStart	MPEGPIOPWMFunction
MPEGPIOPWMStop	MPEGPIOPWMFunction
MPEGPIOPWMCommand	No demo
MPEGPIOUserInterruptConfig	MPEGPIOUserIntFunction
MPEGPIOUserInterruptRun	MPEGPIOUserIntFunction
MPEGPIOUserInterruptCancel	MPEGPIOUserIntFunction
MPEGPIOLED	MPEGPIOLEDFunction

For more complete descriptions of how to use each driver function, see the DS-MPE-GPIO Universal Driver Manual included in the main Universal Driver software package or the online DSCUD wiki documentation:

[http://docs.diamondsystems.com/dscud/manual Table of Contents.html](http://docs.diamondsystems.com/dscud/manual_Table_of_Contents.html)

For technical support please contact Diamond Systems:

[support@diamondsystems.com](mailto:support@diamondsystems.com)

[www.diamondsystems.com](http://www.diamondsystems.com)