

ZMOBILE[®] Development Kit Datasheet

What Is In The Box ?

1x ZMobile

- Low-power, mixed-signal platform
- Graphical DSP Programming with LabVIEW
- 4x analog in
- 14x keyboard inputs
- 8x DOUT
- 2x DIN
- 5x serial I/O
- Reconfigurable logic
- Expansion connector for additional process I/O boards

1x Evaluation Baseboard

- 8x LED's
- 14x pushbuttons/switches
- 4x potentiometres
- 1x Color touchscreen display 320x240 (optional)
- 1x CF-Card connector
- 1x RS232
- 1x RS485/422 (configurable)
- 1x USB
- Battery Connector, power connector
- Buzzer
- JTAG Debugging interface

1x ZMobile BSP for NI LabVIEW

- 30 days evaluation period
- 12 VI Palettes including more than 200 VIs on top of the default LabVIEW palettes
- Realtime Services, Graphical Multitasking
- Graphical Fast Debug Mode (FDM)
- Firmware utilities
- Application and parameter flash utility
- Bootloader and board diagnostics

1x NI LabVIEW "BASE"

(30 days Evaluation Version)

Scalable Process I/O

- Up to 32x Analog In (unipolar, bipolar 5V/10V, 4-20mA).
- Up to 16x Analog Out (0...10V, +/-10V)
- Up to 32x Digital In (Opto, TTL, Button)
- Up to 32x Digital Out (Opto, TTL, Diff)
- Up to 12x Encoder Inputs
- Up to 16x Lowside Switches
- CAN & Ethernet (ZMobileLV only)

Accessories

- Documents
- Getting started tutorial
- Examples
- Compact flash card
- RS232 cable
- Power adapter

Upgrade to Professional Target Deployment

- **1x National Instruments LabVIEW Embedded Module for ADI Blackfin**
- **1x ZBrain BSP for NI LabVIEW** (full license)
- **1x ZBrain Emulator:** high-speed interconnection between PC and Target for code downloading and realtime debugging

Rapid Prototyping with the ZMdevkit

Faster to the prototype, faster to the product !

The **ZMdevkit** is an industrial grade, complete starterkit, development platform and testbench. It's designed for standalone measurement and control applications based on LabVIEW[™] on Blackfin[®]. Schmid Engineerings "**ZBrain BSP for NI LabVIEW[™]**" adds integrated and deterministic **Realtime Services** to the default LabVIEW Embedded Module for ADI Blackfin.

The kit provides analog, digital and serial process I/O. This allows to simulate all I/O's to design software frameworks, algorithms and test strategies long before the HW/SW is applied to the real-world. Included are potentiometers, switches, LED's, RS232, RS485, RS422, USB, buzzer, battery interface, a compact flash card slot and an optional color TFT with touch.

Thanks to additional I/O connectors and jumpers, the developer can easily switch back and forth between the real world and the simulation environment.

After completion, the ZMobile and TFT can be plugged out and re-used in the operational system.



ZMdevkit: A Unique Out-Of-The-Box Experience combines Powerful Graphical Programming with Realtime Services and high DSP/ Microprocessor Computing Power

- ▶ Check **ZMobile Datasheet** for Hardware Details
- ▶ Check **ZBrain CPU Module Datasheet**
- ▶ Check "**ZBrain BSP for NI LabVIEW**" **Datasheet** for Software Details
- ▶ Flyer "**Rapid Prototyping**" for Reference Projects

Application Development with the ZBrain BSP for NI LabVIEW

ZBrain VI Palettes for Embedded Functions



This Board Support Package gives access to the Blackfins DSP power and to every board function of the mixed signal platform ZMobile. On top of the standard LabVIEW VIs, **over 200 VIs** for typical embedded system functions can be drag & dropped from the palette into the LabVIEW diagram.

Three Design Steps from the Idea to the Solution

1. Design with Fast Debug Mode

Conveniently design application frameworks and algorithms with instant results. Schmid Engineering's new and unique graphical Fast Debug Mode (FDM) is based on a Hardware-In-The-Loop and interpreter technology, boosting development cycles by factors. A serial link (RS232,USB) connects a PC to the target and gives LabVIEW full access to all board functions.

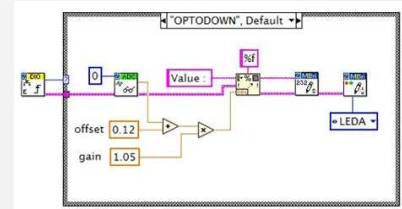
2. Realtime Test with Compiled Code

The LabVIEW diagram is translated into deployable code and downloaded to the target for tests under real-time conditions.

3. Target Flashing

Bootable code is burned into the targets flash memory for standalone operation.

National Instruments LabVIEW Evaluation Version



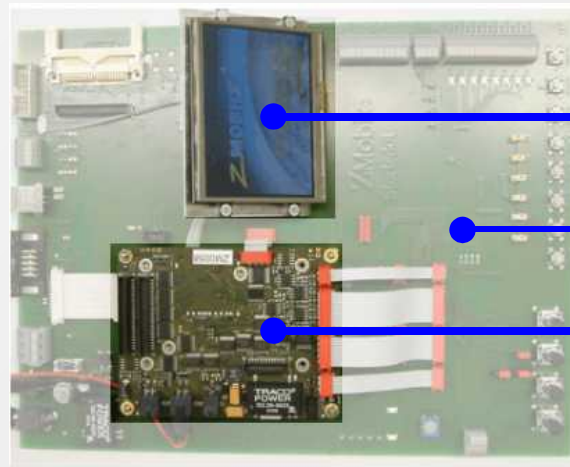
LabVIEW is a powerful graphical programming environment featuring inherent parallel program execution. Low-level details are abstracted by high-level VIs (Virtual Instruments)

If LabVIEW is not yet installed on the PC, a free trial version can be used. The ZMobile Development system fully supports the standard NI LabVIEW "BASE" edition.

Scalable Tool Investments

Application Development only requires LabVIEW "Base" and the ZBrain BSP for NI LabVIEW. The target turns into a smart I/O device when operated in this mode, allowing to complete nearly 95% of the LabVIEW diagram in the familiar "drag & drop & run" style.

Upgrading to **Professional Target Deployment** with the LabVIEW Embedded Module for ADI Blackfin offers code downloading into the target and standalone operation under real-time conditions.



Touchscreen Display
(re-usable)

Evalboard

ZMobile
(re-usable)

Professional Target Deployment for Realtime and Standalone Operation

Default National Instruments LabVIEW Embedded Module



- NI LabVIEW Embedded Module for ADI Blackfin Processors with a built-in C-code generator and link to the default Blackfin toolchain
- Blackfin optimized signal processing functions
- Analog Devices VisualDSP++ Environment included
- Two price models depending on existing licenses

Schmid Engineering's ZBrain BSP for NI LabVIEW



- More than 200 VIs on top of the standard LabVIEW VI-Palette
- **Realtime Services with typical response times : ext. trigger [ns], context switching [µs]**
- Graphical Fast Debug Mode **FDM**
- Application flash utility, boot loader, board diagnostics

Analog Devices VisualDSP++ Environment



- Integrated User Interface
- Debugging Channels
- C/C++ Compiler, Linker, Loader
- VDK Multitasking Kernel
- Flashloader Utility
- Included in the LabVIEW Embedded Module for Blackfin

High-Speed ZBrain Emulator



- USB2.0 compliant
- Code Downloading
- Application Update
- Firmware Update
- System Parameter Modification
- Graphical Fast Debug Mode
- Graphical Realtime Debugging