

ZMOBILE[®] Datasheet

Modular Platform for Measurement & Control with Power Consumption in Milliwatts

Key Features

- Graphical DSP Programming with LabVIEW
- Fast, Graphical Debugging
- Deterministic Realtime Services in [μs]
- Graphical, Easy Multitasking
- C/C++ Programmable
- Reconfigurable Logic
- Scalable Power for mW/Battery Operation
- Based on the ADI Blackfin[®] Processor
- Out-of-The-Box, Ready-To-Start
- Expansion connector for off-the-shelf process I/O modules or custom-specific boards

Scalable Power for mW Operation

- Wide range power supply (10-28VDC) and battery input, polarity reversal protection
- Automatic power supply to battery switch over
- Fuel gauge interface for battery
- Dynamic power management functions drop the energy consumption
- Main power on/off push button
- Programmable self-shutdown
- Wake-up timer
- Optional battery charger system

Realtime Services

- Reaction to external trigger in [ns]
- Context switching in [μs]

Onboard Process I/O

- 4x Analog In, differential, S&H, unipolar and bipolar 5V/10V, 4-20m, OVP, configurable signal conditioning (anti-aliasing, sallen-key)
- 2x Digital In, Opto or TTL, routable to a counter or IRQ processor-pin.
- 8x Digital Out, Opto or TTL, first channel routable to a timer pin (PWM)
- 14x Debounced Keyboard Inputs
- 5x High Speed UARTs configurable with RS232, 422, 485 or USB

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)

Removable Media & Display

- On board SD-Card connector
- Ribbon cable for a CF-Card carrier board
- Interface to optional Color TFT with Touch

Development Environment

- LabVIEW Embedded and "ZBrain BSP for NI LabVIEW", one VI for every board function
- Starterkit, development platform, testbench

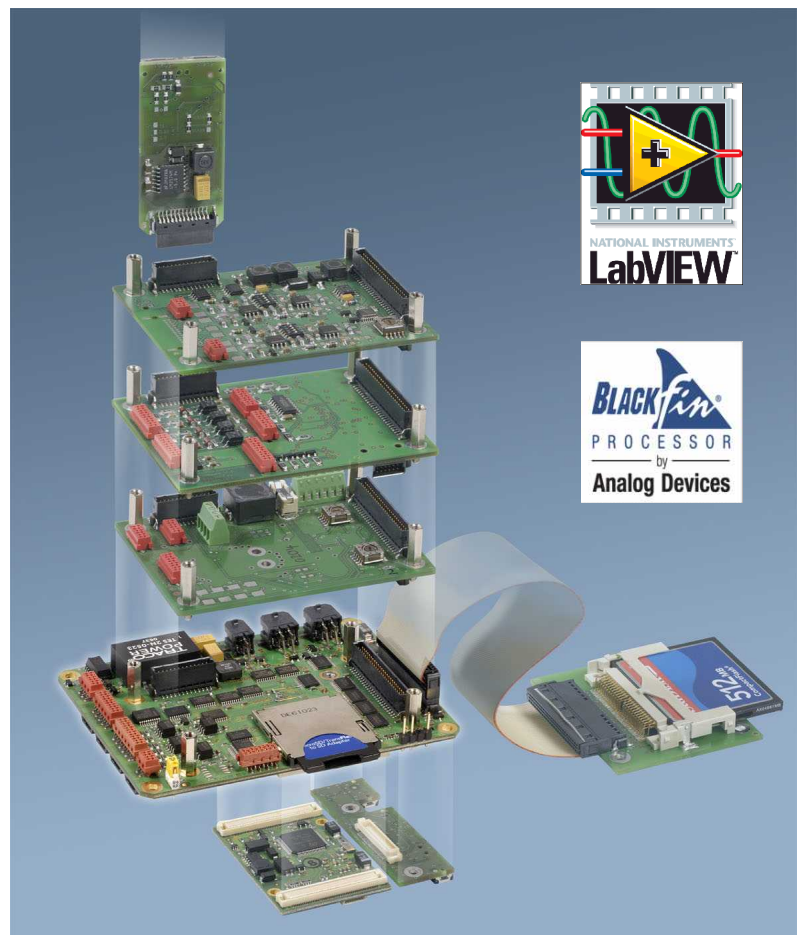
Characteristics

- Power Consumption in mW range
- Temperature range: -20..75°C, other ranges on request.
- Dimensions: 100mm x 76.5mm
- ROHS compliant
- 2 years product warranty

ZMobile is a low-power, rugged mixed-signal module with smart battery and energy management features for standalone embedded systems. It provides onboard analog, digital and serial I/O for typical measurement and control functions. Process I/O can be scaled by plug-in stackable modules for special requirements.

ZMobile is powered by Zbrain CPU modules and easy to program using high level environments like the NI LabVIEW[™] Embedded Module and/or C++.

Custom specific add-on boards, available on request, complete all missing circuits, connectors and interfaces.



Embedded Systems Out-Of-The-Box

Thanks to smart power functions and a tiny form factor, ZMobile is well suited for compact stationary devices and portable instruments like high performance data loggers. It's Blackfin Processor provides high CPU power to perform a variety of measurement and control functions, monitoring and real-time signal processing.

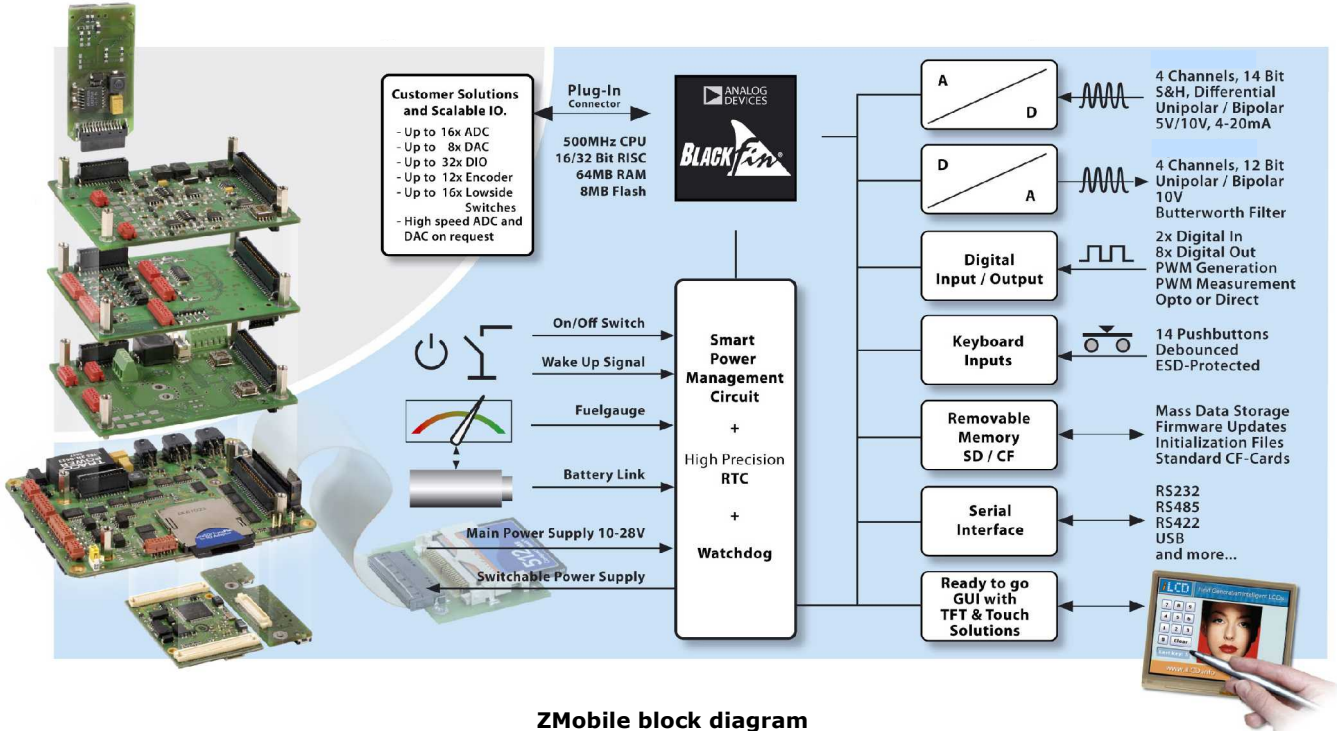
- ▶ Check **ZMobile Development Kit Datasheet**
- ▶ Check **ZBrain BSP for NI LabVIEW Datasheet** for SW Details
- ▶ Check **ZBrain CPU Module Datasheet**
- ▶ Check Flyer **"Rapid Prototyping"** for Reference Projects

Powered by Blackfin Processor by Analog Devices

- 500 MHz 16/32 Bit RISC CPU, DSP+MCU Features
- Dynamic Power Management (coreclock and -voltage)
- Up to 64MB SDRAM at 133 MHz
- 32kB fast erasable Parameter flash (4 Pages)
- 512KB Firmware Flash (8 Pages)
- 8MB Application Flash (64 Pages)
- 1MB fast NV SRAM (external backup battery)
- 22V10 JTAG programmable CPLD, Chipselect logic
- 1x SPI
- 1x SPORT
- 2x RTC
- Onchip Watchdog
- 3x configurable Timer (PWM, 50% Clock, Event Counter, Impulse Measurement)
- JTAG debug interface for ADI Incircuit Emulator

ZMobile Development Tools, Board Support, Services

- **ZMdevkit**, an industrial grade, complete starterkit, development platform and testbench. Included are: 1x ZMobile, 1x Evaluation baseboard, LabVIEW "Base" test drive, ZBrain BSP for NI LabVIEW, Accessories.
- The **ZBrain BSP for NI LabVIEW** includes: 12 Palettes with over 200 function blocks (VI's) on top of the default LabVIEW palette, Realtime, Services, a Graphical Fast Debug Mode, Flash Utilities, boot- and board utilities
- **Professional Target Deployment** for real-time and standalone operation. Included are: "LabVIEW Embedded Module for ADI Blackfin", VisualDSP++ IDDE, ZBrain Emulator
- Problem analysis service and feasibility studies
- Field-proven, known good HW/SW components
- Development of custom specific I/O HW/SW



ZMobile block diagram

Stackable Process IO Modules

- Zadc4SH** 4 channels, S&H unipolar/bipolar 5V/10V, 4-20mA, OVP, gain 1...10'000, sallen key anti-aliasing filter, 2nd order, configurable fnyquist
- Zdac4X** 4 channels, unipolar and bipolar 10V, butterworth filter
- Zenc6X** 1x differential encoder, 2x unipolar encoders, 2x rotation encoders (digital Joysticks), 16x 2kV ESD protected debounced pushbutton inputs, 24 Bit quad counter, prescaler, noise-rejection.
- Zswitch8X** 8x Lowside Switch, 500mA/ch, 4x multiplexed with 5V and 24V Output, short circuit protection, 2x H-Bridges
- Zdio32X** 8x Opto In, OVP, configurable voltage level (5V, 12V, 18V, 24V, 48V), 8x 2kV ESD protected debounced In, 4x Open Collector Opto Out, 8x TTL Out, OVP, 4x differential (RS422) out.
- Zbridge** Additional ZbrainBF533 CPU Module for Dual-CPU Operation, highspeed serial links (uart, sport, spi) to ZMobile Processor.

Zmobile Accessories

- Zmicelink** Adapter for ADI ADZS-HPXXX-ICE
- Zmflashlink** JTAG-Dongle for 512k main flash
- Zmbuslink** Breadboard for Zbus
- ZM232/4** 4 Channel RS232 driver
- ZM422/232** 1 Channel RS233 or RS422 (BF-Uart)
- ZM232cable** Adapter cable for DSUB connector
- ZMadcable** Adapter for AD with 50cm ribbon cable
- ZMCFmodule1** Compact flash plug-in add-on board
- ZMCFmodule2** Compact flash add-on board with cable
- ZMpower** 220VAC Power supply
- ZMbattery** LiIon Battery with Fuelgauge
- ZMvision** Color TFT Interface, 240x320