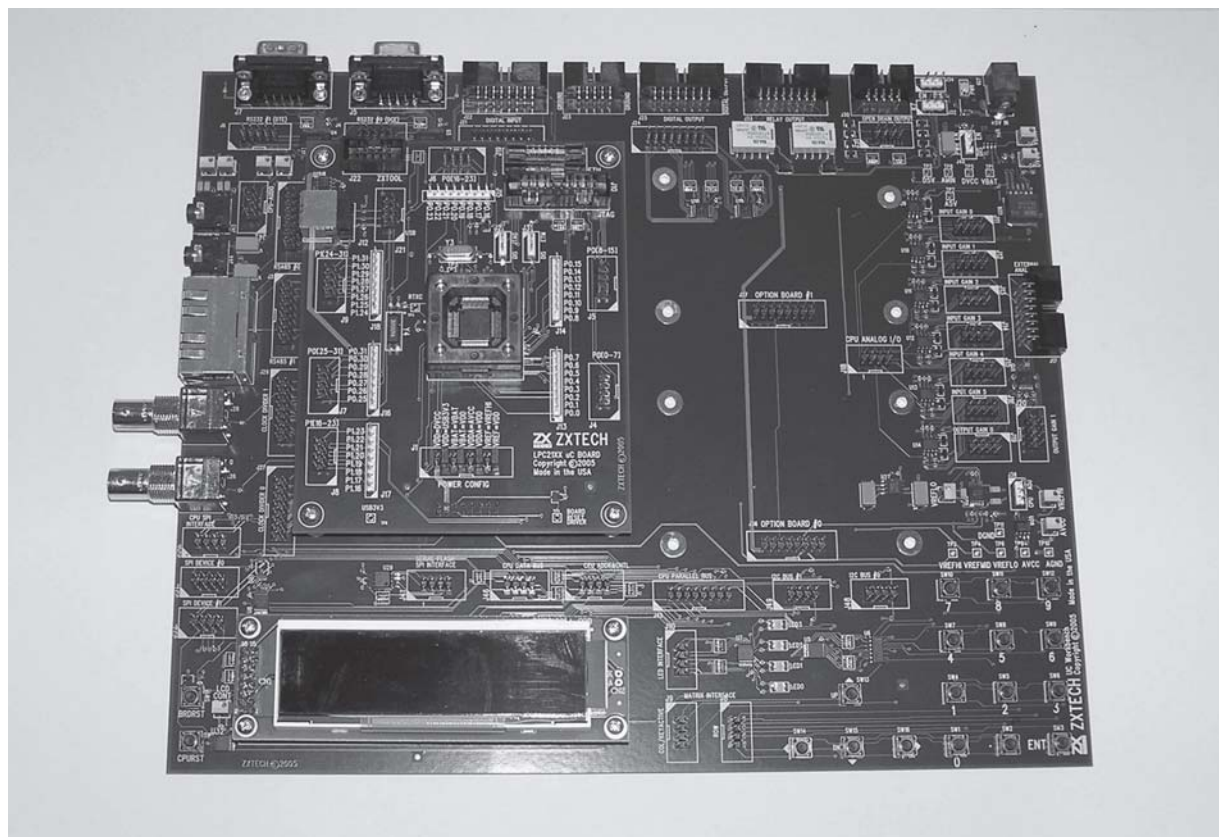# zxWORKBENCH

KEY FEATURES

- ❑ *Single Microcontroller Development Platform for Multiple Microcontrollers*
- ❑ *Large Collection of Built-In Peripherals, Interface Circuits and Test Points*
- ❑ *Large Collection of Adjustable Voltage Sources and References*
- ❑ *Fully Connectorized and Includes Ribbon Cables, Jumper Wires and Power Supply*
- ❑ *Reduces Time-To-Market and Development Costs*

DESCRIPTION

The zxWORKBENCH is a serious microcontroller development platform for serious development work. Evaluation boards are great for becoming familiar with microcontrollers and their associated software development tools. But when serious software development begins, evaluation boards are simply not very effective. Typically, they have very limited numbers and types of interface circuits. Most interfaces have to be built off-board. Generally, they are not very configurable. Reaching beyond the "out-of-box" configuration often requires scrounging for connectors, ribbon cables, jumper wires and the like. All too often, there are few, if any, test points that you can actually clip to and use. For developers working with multiple microcontrollers, the challenges are even greater.

The zxWORKBENCH is a single microcontroller development platform that can be used for development with multiple microcontrollers. Having developed well over 100 microcontroller designs with a myriad of different microcontrollers, the ZXTECH principals created the zxWORKBENCH to simplify and accelerate the microcontroller development process, reducing time-to-market and development costs. The zxWORKBENCH consists of a Baseboard, a Microcontroller Board and an Accessory Kit. The Baseboard includes a rich set of built-in peripherals, interface circuits, voltage sources, connectors and test points. It also includes provisions for up to two future Option Boards. There are a variety of Microcontroller Boards available, supporting various microcontrollers, and more are on the way.

zxWORKBENCH

MICROCONTROLLER BOARDS

zxMSP1XX   For the Texas Instruments MSP430F1XX Family

zxWORKBENCH Interface and Connector. ZIF Sockets for DW20/28 and PM64 Packages. 6 MHz Crystal. 32.768 KHz Crystal. Connectors and Test Points for All Port Pins. JTAG+ Connector. 2X5 Bootloader Connector. Configuration Jumpers.

zxLPC21XX   For the Philips LPC21XX Family

zxWORKBENCH Interface and Connector. ZIF Socket for QFP64. 12 MHz Crystal. 32.768 KHz Crystal. Connectors and Test Points for All Port Pins. USB Connector. 20-Pin JTAG Connector. ETM Connector. ZxTOOL Connector. Configuration Jumpers.

NOTES: One Microcontroller Board is included with the zxWORKBENCH. Additional Microcontroller Boards are available as options. The Microcontroller Boards listed above are the boards that were available at the time of this printing. Visit www.zxtechnologies.com to obtain an updated list of available boards.

BUILT-IN PERIPHERALS

Alphanumeric Display   2X20 Backlit LCD Alphanumeric Display w/ Contrast Control.

LED Display   Four Individual Tri-Color (Red/Green/Orange) LEDs.

Keyboard   Sixteen-Key Keyboard (4X3 Keypad and Inverted-T). Configurable for Individual, Parallel or Matrix Reading Operations. Key-Active Signal.

Serial FLASH File   512KB Serial FLASH File Device. SPI-Interface.

zxWORKBENCH

Reset Pushbuttons	Separate CPU and Board Reset Pushbuttons.
Parallel Bus	Eight Data Bits. Four Address Bits. R/W and DS Control Signals.
I2C Bus	Two Individual I2C Buses with Three Device Connections Each.
Decoded SPI Bus	One Decode SPI Bus with Two Device Connections.
Option Board Slots	Two.

INTERFACE CIRCUITS

RS232	Two Interfaces: Full DB9 DTE, and Full DB9 DCE.
RS485	Two Interfaces. Two RJ45 Connectors. Configurable as Dual Bused or Single Duplex. RJ45 Connectors Configurable as Bused-T. Built-In Bus Terminators w/ Enable.
Digital Outputs	Sixteen Individual Buffered LVC Outputs on Rear Connector. Powered By DVCC.
Digital Inputs	Sixteen Individual Buffered Inputs on Rear Connector. 5V Tolerant LVC-Compatible. Powered by DVCC.
Analog Outputs	Two Individual Buffered Unipolar Outputs on Rear Connector. 0-4.5V Output. Programmable Gain: 1X or 2X.
Analog Inputs	Six Individual Buffered Differential Inputs on Rear Connector. 0-40V Input. Unipolar Output for ADC Relative to VREFLO. Programmable Gain: 0.1X, 0.2X, 0.5X and 1.0X.
Audio Outputs	Two Individual. 3.5mm Jack.
Audio Inputs	Two Individual. 3.5mm Jack. Electret Microphone Bias Jumper.
Open-Drain Outputs	Eight Individual Outputs. 16V@100mA.
High Speed Clock Inputs	Two 50 BNC. 0.1-5.0V Input. Up to 10 MHz. Programmable Divider Per Input: 1, 16, 32, 64, 128, 256, 512, 1024, 2048, 4096, 8192 or 16384.
Relay Outputs	Two Form "C" Relay Outputs.

ADJUSTABLE VOLTAGE SOURCES & REFERENCES

DVCC	Digital VCC/VDD. 1.6V-3.6V.
AVCC	Analog VCC/VDD. 1.6V-3.6V.
VBAT	Battery Backup Voltage. 1.6V-3.6V.
VREFHI	Voltage Reference High. 1.6V-3.6V. Can Accept and Distribute External Source.
VREFLO	Voltage Reference Low. 0V-VREFHI.

ZX-WORKBENCH DEVELOPMENT KIT (zxWORKBENCHmsp1xx or zxWORKBENCHlpc21xx)

1	zxWORKBENCH	Workbench Baseboard & Documentation Set
1	zxMSP1XX or zxLPC21XX	Microcontroller Board & Documentation Set
1	zxPS5V3A	Power Supply, 100-240VAC, 5V@3A
2	zxRIBBON-2X5-6	Ribbon Cable Assembly, Double 2X5, 6"
2	zxJUMPERS-COD-12	Jumpers, Double-Ended, Color-Coded, 12" (Set of 10 Each)
2	zxJUMPERPLUGS	Jumper Plugs (Set of 10 Each)

OPTIONAL ACCESSORIES

zxJUMPERPLUGS	Jumper Plugs (Set of 10 Each)
zxJUMPERS-BLK-12	Jumpers, Double-Ended, Black, 12" (Set of 10 Each)
zxJUMPERS-COD-12	Jumpers, Double-Ended, Color-Coded, 12" (Set of 10 Each)
zxJUMPERS-WHT-12	Jumpers, Double-Ended, White, 12" (Set of 10 Each)
zxLEADS-BLK-24	Leads, Single-Ended, Black, 24" (Set of 10 Each)
zxLEADS-COD-24	Leads, Single-Ended, Color-Coded, 24" (Set of 10 Each)
zxLEADS-WHT-24	Leads, Single-Ended, White, 24" (Set of 10 Each)
zxLPC21XX	Microcontroller Board, Philips LPC21XX
zxMSP1XX	Microcontroller Board, Texas Instruments MSP430F1XX
zxPS5V3A	Power Supply, 100-240VAC, 5V@3A
zxRIBBON-2X5-6	Ribbon Cable Assembly, Double 2X5, 6"
zxRIBBON-2X8-6	Ribbon Cable Assembly, Double 2X8, 6"
zxSHELLS-2X5	Connector Shells (for zxLEADS), 2X5 (Set of 5 Each)
zxSHELLS-2X8	Connector Shells (for zxLEADS), 2X8 (Set of 5 Each)
zxUSB-AB-2M	USB Cable Assembly, A-B, 2 Meters

ZX Technologies, Inc. • 420 N. Carroll Avenue • Suite 150 • Southlake • TX • 76092
Phone: 817.251.6303 FAX: 817.251.6202 Web: www.zxtechnologies.com