



### THE CRIMZON RC BLASTER

- COMPREHENSIVE IR DATABASE
- LEARNING REMOTE CAPABILITY
- 9600/19200 BPS 2-WAY UART
- I<sup>2</sup>C UP TO 10 KBPS
- FOUR USER GPIOS
- SUPPORTS 32K EEPROM
- SUPPORTS SCRIPT UPGRADES
- LOW POWER STOP/SLEEP MODES
- LOW VOLTAGE OPERATION

### TARGET APPLICATIONS

- SET-TOP BOXES (STB)
- DIGITAL VIDEO RECORDERS (DVR)
- DVD RECORDERS
- IPTV
- PDA
- PC ADD-ON CARD APPLICATIONS
- CELL PHONES
- MEDIA CENTER PC
- HIGH-END REMOTE CONTROLS

## Crimzon® RC Blaster™

### Your Complete Turnkey Infrared System-on-Chip Solution

#### Overview

Crimzon RC Blaster is a complete system-on-chip solution that allows you to quickly and cost effectively add universal remote control capability to any of your digital devices. This total turnkey solution provides instant control capability of any infrared home entertainment device, including Satellite/Cable set-top boxes, TVs, DVD/DVR players, VCRs and audio systems through a simple serial interface.

When you embed the Crimzon RC Blaster chip in your design, the Master CPU can control the Crimzon RC Blaster via a simple UART/I<sup>2</sup>C interface. Once communication is established with your system, the Master CPU can access the complete IR database, including North American (NA) coverage for TVs, DVDs, VCRs, Satellite/Cable set-top boxes and audio devices, plus European database coverage specifically for Satellite/Cable set-top boxes. The Crimzon RC Blaster transmits the necessary IR signals through an infrared LED and supports an IR learning feature.

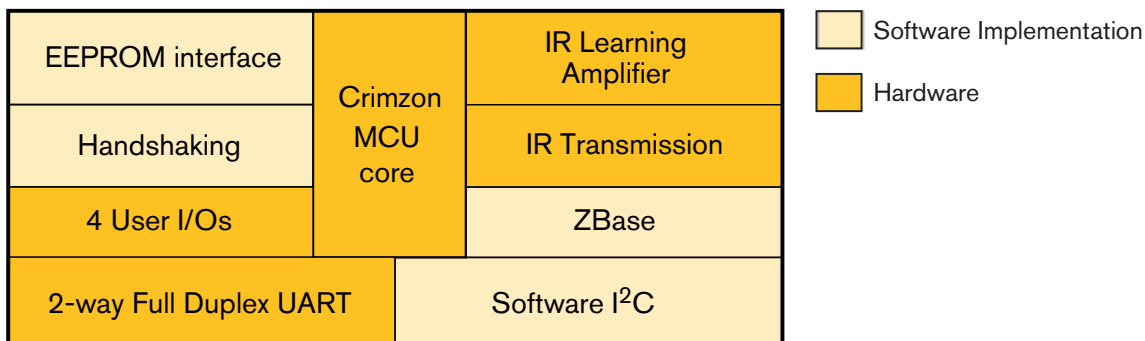
The Crimzon RC Blaster contains over 1,200 infrared code sets that control a wide variety of the most popular home entertainment devices. Included on-chip is an integrated learning algorithm that can capture and replicate infrared signals from any new or existing devices not supported in the database, thereby reducing the need for customer support resources. These learned code sets can be downloaded into the EEPROM to provide for future upgrades to the infrared database code set. These key features provide for a perfect drop-in universal remote control database solution.

The Crimzon® family of Universal Infrared (UIR) solutions are the industry's leading choice for universal remote control (URC) applications. Zilog has offered highly integrated Application Specific microcontrollers and complete URC solutions since 1993. As the market leader in universal remote control applications, Zilog is the only company that offers a complete solution, including highly integrated silicon, ZBase®, our world-class Infrared code database, a wide variety of design tools and engineering support services.

#### Crimzon RC Blaster Key Feature Summary

- Universal Infrared Remote (UIR) code database with coverage in both North America and Europe
- Supports IR learning functionality on all popular brands
- Comprehensive device key coverage including menu, audio, picture-in-picture, guide, information, etc.
- 19.2/9.6 kbps two-way, full-duplex UART
- Four user-programmable General-Purpose Input/Output pins (GPIOs)
- Supports 32 KB EEPROM memory size
- Low STOP mode current of 2  $\mu$ A
- Low voltage operation: 1.9 V–3.6 V
- Supports Zilog's script format for future upgrades of new code sets

## Crimzon® RC Blaster™ Block Diagram



### KEY FEATURES

- ZBASE® & IR ENGINE
- IR LEARNING CAPABILITY

## Crimzon RC Blaster Detailed Feature Set

### ZBASE® & INFRARED ENGINE

ZBase, Zilog's Infrared code database, is a comprehensive IR database containing thousands of user codes for a variety of home entertainment devices. Unlike other solutions in the market that can only guess the market coverage, Zilog can scientifically articulate the market coverage of a database and provide solid results based on the Point-of-Sales report. Our 'Zero Defect' policy ensures precise capture of OEM remote codes to generate usable results for any given individual project.

To stay in line with our quality standards, Zilog has also eliminated many duplicated code sets and created a super set code set. To maximize design efficiency, Zilog has further developed a highly compressed protocol and encoding format that enables many more unique code sets to fit into a smaller memory space. The IR engine links different unique keys and code sets together, decodes the compressed data, and transmits the infrared signal. As a result, the database code density is very high, allowing more code set coverage in the same memory footprint.

ZBase is the core of the Crimzon RC Blaster. Combined, Zilog's solution is second to none, and offers complete flexibility from design to production. Even if you require a custom database, Zilog can work with you to define a set of codes that meets your needs specifically. Please contact your local Zilog sales office and ask about our database customization programs.

### IR LEARNING CAPABILITY

To access the learning remote functionality of the Crimzon RC Blaster, Zilog has developed a complete learning solution with an integrated IR amplifier, learning stack, EEPROM management and application program interface (API). Zilog is the first to provide an Application Specific Standard Solution for learning remote applications.

In comparison to existing solutions in the market, Zilog offers a superior alternative to the competition. In the IR learning functionality alone, Zilog's solution offers some of the following key attributes:

- A tuned IR amplifier that eliminates the need for an external filter and amplification circuit
- A single IR photodiode is needed for learning versus other solutions requiring more complicated methods
- Wider range of IR learning that supports code capture at 0 to 8 inches, versus competitive solutions 2 to 3 inches (this feature greatly enhances the user experience by avoiding trial and error to find the right position to learn a code)
- Fully tested with all popular brands, saving years of development & test on the learning remote application for the user

## Crimzon® RC Blaster™ Detailed Feature Set (continued..)

### KEY HARDWARE FEATURES

- COMMUNICATIONS PERIPHERALS
- USER PROGRAMMABLE I/O

### COMMUNICATIONS PERIPHERALS

The Crimzon RC Blaster can be configured by hardware jumpers and software commands with the selection of the 9600/19200 bps UART and I<sup>2</sup>C communication interfaces. The full duplex UART offers acknowledgement to the commands. The I<sup>2</sup>C is supported up to 10 KBPS. There are also two optional handshaking pins if hard-wire operation is preferred.

Zilog also provides a complete Application Program Interface (API) to the user. Using the API, it is very simple to send UART/ I<sup>2</sup>C commands to the Crimzon RC Blaster. The complete remote functions can be integrated into any system quickly and easily using Zilog's solution.

### USER-PROGRAMMABLE INPUT/OUTPUT PINS

The Crimzon RC Blaster offers four General-Purpose Input /Output (GPIO) pins for the user to program. They can be used to read customer selections or jumper settings. The GPIO can also be used to control transistors to distribute the infrared output signals to four different zones.

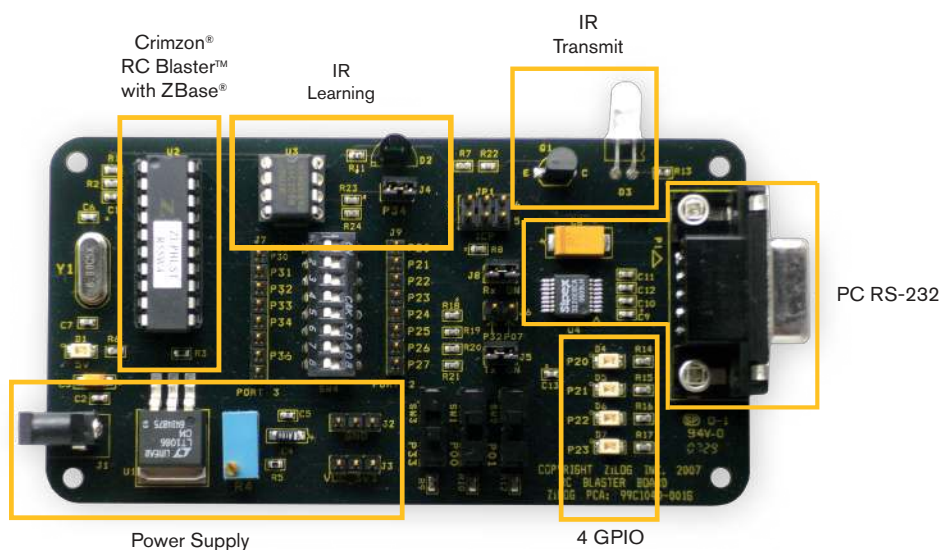
## Crimzon® RC Blaster™ Development Tool Support

The Crimzon RC Blaster is backed by a comprehensive development tools package that includes all the necessary design essentials to get your application up and running in record time. The Crimzon RC Blaster Development Kit contains the following items:

- A Crimzon RC Blaster evaluation board
- An Installation CD that includes
  - PC Test suite software (supports all commands with RS232, I<sup>2</sup>C)
  - All product-related documentation
- A 9-pin RS-232 cable
- A USB-to-Serial adapter with cable

### Hardware Tools & Part Number Ordering Information

- Crimzon RC Blaster Development Kit (part #: ZRCBLST0200KITG)



Crimzon RC Blaster Development Board

## Ordering Information

Order the Crimzon® RC Blaster™ from your local Zilog sales representative by using the part numbers below. For more information, or to download product collateral and/or software, please visit us at [www.zilog.com](http://www.zilog.com).

| Part Number        | Description/Options                        | Pin/Package |
|--------------------|--|-------------|
| ZLFBLS0H2064GRXXXX | 64K Flash; Full Database; IR Learning; API | 20-Pin SSOP |
| ZLFBLS0P2064GRXXXX | 64K Flash; Full Database; IR Learning; API | 20-Pin PDIP |
| ZLFBLS0S2064GRXXXX | 64K Flash; Full Database; IR Learning; API | 20-Pin SOIC |
| ZLFBLS0Q2064GRXXXX | 64K Flash; Full Database; IR Learning; API | 20-Pin QFN  |
| ZLPBLS0H2064GRXXXX | OTP; Full Database; IR Learning; API       | 20-Pin SSOP |
| ZLPBLS0P2064GRXXXX | OTP; Full Database; IR Learning; API       | 20-Pin PDIP |
| ZLPBLS0S2064GRXXXX | OTP; Full Database; IR Learning; API       | 20-Pin SOIC |
| ZLRBLS0H2064GRXXXX | ROM; Full Database; IR Learning; API       | 20-Pin SSOP |
| ZLRBLS0P2064GRXXXX | ROM; Full Database; IR Learning; API       | 20-Pin PDIP |
| ZLRBLS0S2064GRXXXX | ROM; Full Database; IR Learning; API       | 20-Pin SOIC |

**Note:** The 'RXXXX' represented in the part number above refers to the ROM code at the time of ordering. The 'G' denotes "green" silicon and tools that are ROHS compliant. Contact your local Zilog sales representative for more information and a complete list of available devices, or visit Zilog's corporate website at [www.zilog.com](http://www.zilog.com).

## Documentation

The collateral referenced below is just a sample of the documentation available for Crimzon RC Blaster Microcontroller. For a complete listing of all available product specifications and user manuals, please visit us at [www.zilog.com](http://www.zilog.com).

| Document Number | Description  |
|-----------------|--|
| QS0060          | Crimzon® RC Blaster™ Development Kit Quick Start Guide |
| RM0052          | Crimzon® RC Blaster™ Reference Manual                  |
| UM0216          | Crimzon® RC Blaster™ Development Kit User Manual       |



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## Engineering Notes:



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