

ZATARA SERIES ADVANTAGE

SUMMARY

- SINGLE-CHIP SOLUTION
- BEST FEATURE SET IN POS
- PCI PED & EMV PRE-CERTIFIED
- TOTAL SOLUTION SUPPORT
- ZILOG ECOSYSTEM ALLIANCE

TARGET APPLICATIONS

- PAYMENT
- IDENTITY
- HEALTHCARE
- ACCESS CONTROL
- E-GOVERNMENT
- E-ADMINISTRATION

Zatara Series ARM ASSP High-Performance 32-bit Solution for Secure Transactions

Overview

With more than 20 years of experience as the vendor of choice for the secure transaction industry, Zilog continues this tradition of excellence with the Zataratm Series 32-bit ARM ASSP. Based on the ARM® Architecture, the Zataratm Series Application Specific Standard Products (ASSPs) are high-security and high-performance 32-bit Reduced Instruction Set Computing (RISC) System-on-Chips (SoCs), specifically designed for the secure transactions market.

A Complete Single-Chip Solution

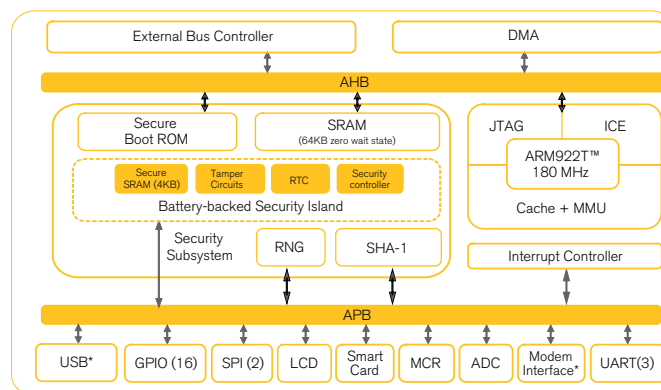
The Zataratm Series integrates security and application management functions required to build the next generation of trusted devices. Key device attributes that form the foundation of the product family include the following:

- A high performance 32-bit ARM9™ core
- Robust data security with an integrated security sub-system
- Embedded card reading with smart card and magnetic stripe capabilities
- Flexible communication interfaces, including an integrated soft modem*, USB*, etc.

Due to the highly integrated peripheral set and embedded security features found on the Zataratm Series devices, many cost and time benefits can be realized at the end user level by way of minimized component count, lower power consumption and lower bill of material costs - all of which equate to faster development time and reduced manufacturing costs and faster time-to-market for our customers.

To maximize safety and security, Zataratm Series devices are EMV (L1) and PCI PED pre-certified. Since these standards are becoming more and more of a requirement in today's security devices, Zilog has taken extra steps in ensuring that your end devices are protected with trusted silicon and software.

Zatara Series Block Diagram



*: Selected parts only (see order information for more details)

Key Feature Summary

- ARM 9™ core
- Security Subsystem
 - Embedded secure boot ROM
 - Battery-backed security island
 - NIST 800-22 compliant random number generator
 - FIPS 180-2 compliant SHA-1 hash generator
 - 64 KB embedded zero wait-state SRAM
 - 4 KB of embedded secure SRAM with fast zeroization
- Magnetic Card Reader (MCR)
- SmartCard controllers
- Integrated modem*
- LCD Monochrome Controller
- USB Dual-Role Controller (OTG)*
- 76 General Purpose Input/Output and Pin Muxing (16 dedicated)
- DMA, SDRAM, and interrupt controllers
- Power management features

KEY FEATURES

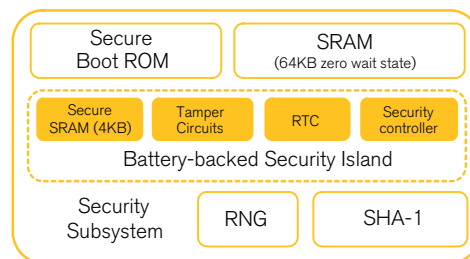
- **SECURITY SUBSYSTEM**
- **PERIPHERAL SET FOR POS**
- **COMM. INTERFACES**

Feature Details of the Zatara Series 32-Bit ASSP

SECURITY SUBSYSTEM

The security subsystem provides

- Physical and Environmental protection
- Key Generation and Hash Algorithms
- Secure Storage and Zeroization
- Secure Boot



The internal battery power regulator supports the secure memory, the security controller, the tamper switches and the RTC. Tamper detection is done through a variety of sensors, including tamper switches, clock frequency and glitch protection as well as wire mesh sensors. In addition, the Zatara Series ASSPs integrate true 32-bit random number generation and hash generation per the SHA-1 protocol. Maintain peace of mind and greater protection for your end applications with the Zatara Series Security Subsystem.

COMPREHENSIVE PERIPHERAL SET

The Zatara Series offers a broad offering of peripherals that meet the needs of the secure transactions marketplace:

- Smart card controllers (2) that interface directly to an ON semiconductor (NCN6001) or Phillips (TDA8002) Smart Card interface
- Magnetic Card Reader (MCR) that directly interfaces to the magnetic head and has simultaneous three-track reading. ISO 7811-3 and 7811-6 compliant
- Integrated soft modem through Integrated Data Access Arrangement (DAA) interface for connecting a Conexant modem (model #CX20493-5X)*
- Integrated LCD interface, directly compatible with popular monochrome LCD displays, text or graphic modes. The LCD display supports interfacing to 4-bit or 8-bit data; 3-control and 1-contrast.

COMMUNICATION INTERFACES

Communication interfaces available on the Zatara Series include:

- External Bus Interface to standard asynchronous memories including SRAM, ROM, Flash and standard PC100/133 SDRAM
- Up to 76 GPIO pins (16 dedicated)
 - All configurable as edge interrupts or level interrupts
 - Full input/output or tri-state control
- Three UARTs
 - 1 x 8-wire interface
 - 2 x 4-wire interface (UART2 shared with IrDA encoder/decoder)
- Two dedicated SPI interfaces
- USB*
 - USB 2.0-compatible
 - Full Speed; On-the-Go (OTG)

*: Selected parts only (see order information for more details)

KEY FEATURES

■ PLATFORM SOFTWARE

Feature Detail of the Zatara Series ZA9L 32-Bit ASSP (continued...)

PLATFORM SOFTWARE SUPPORT

The Zatara Series platform software supports the greatest flexibility and stability on any OS environment (proprietary, Linux, etc.) to meet our customers' needs in their development environment.

The Zatara Series Platform software package includes:

- Board Support Package (BSP) – root file system, tool chain, device drivers, boot loader, binary file signing tool
- Linux Development Platform – ported Linux operating system

Zilog Ecosystem Advantage

Zilog has formed key alliances with leaders in the security industry to provide our customers with the best possible array of security-ready platforms. Our partners work closely with us to complement and enhance the Zatara Series platform.

Here are just a few of the strategic partners in the Zilog security ecosystem:



Zilog's Zatara Series platform offers the most interoperable, secure and integrated solution for secure transactions in the market today.

Development Tool Support

The Zatara Series 32-bit ARM® solution includes the secure hardware platform, software environment and comprehensive set of development tools. The Zatara POS Reference Design Kits consists of:

- Reference Design Board with full collateral and schematics
- Zatara Series platform software package
- Zatara Series CPU silicon
- Signum JTAG (optional)

The Zatara Series microprocessors are based on ARM technology, allowing you to take advantage of a wide variety of tools and 3rd party support available for ARM-based architectures. High performance, robust security and a rich feature set combine with Zilog's quality and industry reputation to make the Zatara Series 32-bit ASSP the right choice for your trusted devices.

Hardware Tools Ordering Information

- POS Reference Design Kit (part #: ZA9L0000300ZABG)

The POS Reference Design Kit contains the CPU card (processor, SDRAM, SRAM, Flash, Magnetic card reader, tamper switches and lithium battery) and application board (smart card, keypad, USB, Ethernet, printer interface, LCD, Compact Flash and Secure Digital card interface, RJ45 socket), and full BSP and ported Linux Development platform.

- POS Reference Design Kit with Signum Emulator (part #: ZA9L0000300ZEMG)

The POS Reference Design Kit contains the CPU card (processor, SDRAM, SRAM, Flash, Magnetic card reader, tamper switches and lithium battery) and application board (smart card, keypad, USB, Ethernet, printer interface, LCD, Compact Flash and Secure Digital card interface, RJ45 socket), and full BSP and ported Linux Development platform. This kit also includes a Signum JTAG Emulator that aids in the debug of your design in real-time.

- ZA9L1 Upgrade Kit (part #: ZA9L1000300MODG)

The ZA9L1 Upgrade Kit contains the CPU card (processor, SDRAM, SRAM, Flash, Magnetic card reader, tamper switches and lithium battery) only. The purpose of this kit is to upgrade your existing ZA9L0 POS Reference Design Kits mentioned above.

- ZA9L1 POS Reference Design Kit (part #: ZA9L1000300ZABG)

The POS Reference Design Kit contains the CPU card (processor, SDRAM, SRAM, Flash, Magnetic card reader, tamper switches and lithium battery) and application board (smart card, keypad, USB, Ethernet, printer interface, LCD, Compact Flash and Secure Digital card interface, RJ45 socket), and full BSP and ported Linux Development platform.

- ZA9L1 POS Reference Design Kit with Signum Emulator (part #: ZA9L1000300ZEMG)

The POS Reference Design Kit contains the CPU card (processor, SDRAM, SRAM, Flash, Magnetic card reader, tamper switches and lithium battery) and application board (smart card, keypad, USB, Ethernet, printer interface, LCD, Compact Flash and Secure Digital card interface, RJ45 socket), and full BSP and ported Linux Development platform. This kit also includes a Signum JTAG Emulator that aids in the debug of your design in real-time.

Silicon Ordering Information

Order the Zatara Series devices and tools 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.

Part Number	Security Subsystem	Smart Card Reader	Mag Stripe Reader	Embedded Modem	Dual Ext. Interface	USB	Tamper	I/O Lines	Timers with PWM	DMA Channels	ADC Channels	UARTS	SPI	Temp Range	Pin & Package
ZA9L00XXNW1LSG	✓	✓	✓	✓	✓		4	76	9	8	6	3	2	Std.	256-Pin BGA
ZA9L00XXNW1LXG	✓	✓	✓	✓	✓		4	76	9	8	6	3	2	Ext.	256-Pin BGA
ZA9L01XXNW1LSG	✓				✓		4	76	9	8	6	3	2	Std.	256-Pin BGA
ZA9L01XXNW1LXG	✓				✓		4	76	9	8	6	3	2	Ext.	256-Pin BGA
ZA9L10XXNW1LXG	✓	✓	✓		✓	✓	12	76	9	8	6	3	2	Ext.	256-Pin BGA
ZA9L10XXNW1LXG	✓				✓	✓	12	76	9	8	6	3	2	Ext.	256-Pin BGA

*: Refers to switches and wires

Documentation

For a complete listing of all available application notes, product specifications, user manuals, and sample libraries, please visit us at www.zilog.com.

Document Number	Description
AN0246	ESF Modem Driver Application Note
AN0252	Physical Security Guidelines Application Note
AN0264	Configuring GPIO Ports Application Note
AN0275	Zatara ZA9L0 and ZA9L1 Migration Application Note
AN0276	Physical Security Guidelines for ZA9L1 Application Note
PS0260	Zatara Series Essential ASSP (ZA9L0) Product Specification
PS0273	Zatara Series ASSP (ZA9L0) Product Specification
PS0277	Zatara Series ASSP (ZA9L1) Product Specification
QS0052	Board Support Package Quick Start Guide
QS0062	Linux Development Platform Quick Start Guide
RM0048	Board Support Package API Reference Manual
UM0205	Zatara Series Development System User Manual
UM0211	Zatara Series Boot Loader and Binary File Signing Tool User Manual

Note: The above documentation is restricted unless a signed NDA is provided and approved from an authorized Zilog representative. Detailed product specifications are subject to export control laws and regulations of the United States. Contact Zilog at techsupport@zilog.com for more information. All rights reserved.



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As used herein

Life support devices or systems are devices which (a) are intended for surgical implant into the body, or (b) support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in a significant injury to the user. A critical component is any component in a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system or to affect its safety or effectiveness.

Document Disclaimer

The product brief contains an overview of the silicon feature set and operating parameters and should not be considered as the final specification. See the product specification for the actual feature set and operating parameters for this product. This publication is subject to replacement by a later edition. To determine whether a later edition exists, contact:

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