

## ePOS Reference Platform

Reference Part No. M3A-H8S09G01

### Secure, Scalable, Open-Standard ePOS Terminal Architecture

#### Flexible, Low-Cost Architecture from Renesas

The Renesas ePOS Reference Platform is a robust e-transaction terminal architecture that can be customized to work across a diverse range of industry-compliant payment products, including classic payment (EFTPOS), terminals, PC-connected payment terminals, PIN pads and embedded readers. The open-standard architecture incorporates world-class chip technology with embedded security acceleration. Designed for economical implementations and easy transitions from legacy applications and hardware, the Platform delivers high reliability, top-notch security, and EMV and Visa Smart POS compliance at a compelling and attractive price point for terminal manufacturers. The intensive cryptography functions of the CPU are powered by a pre-certified, low-power chipset so that POS manufacturers can easily deliver full-featured competitive systems with minimal integration or certification efforts.



*K71x photo courtesy of Keycorp.*

#### Accelerated Market Deployment & Product Expansion

The Platform provides a strong base for developing a broad range of secure, scalable terminals that meet the performance and cost requirements for payment devices that use one or more payment technologies — magnetic stripe, smart card, contactless and/or biometrics. Adopting this open-standard design accelerates the deployment of secure e-transaction terminals that not only incorporate the latest security standards, but also achieve improved performance and a lower overall cost of ownership. The widely available Renesas H8SX MCU family has a market proven, best-in-class CPU performance, with a clock speed up to 50MHz and much expansion room. The ePOS Reference Platform is also ideal for manufacturers who strive to expand into new e-transaction markets such as vending machines, gas pumps, access control and authorization validation.

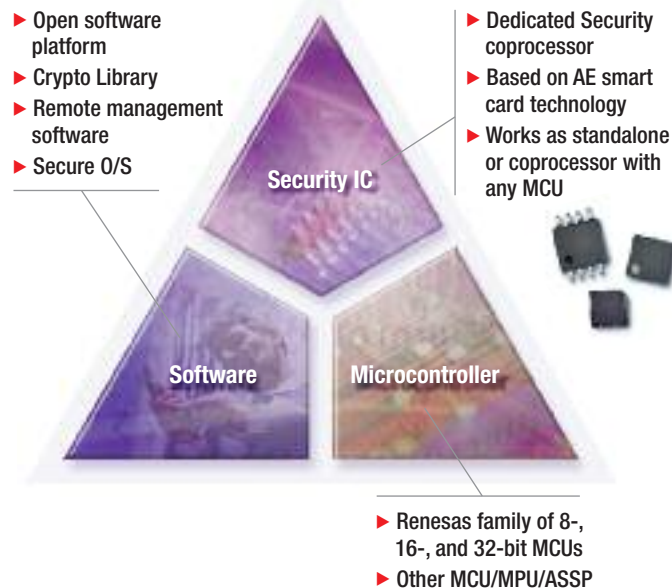
#### Tamperproof Security for Next-Generation eTransaction Terminals

The Platform combines a high-performance 32-bit microcontroller and embedded security technology that incorporates proven smart card technology to provide enhanced security for electronic transaction systems. The solution utilizes the latest multi-chip packaging technology and provides an optimized top-tier board support package (BSP).

#### Versatile Open-Standard Architecture

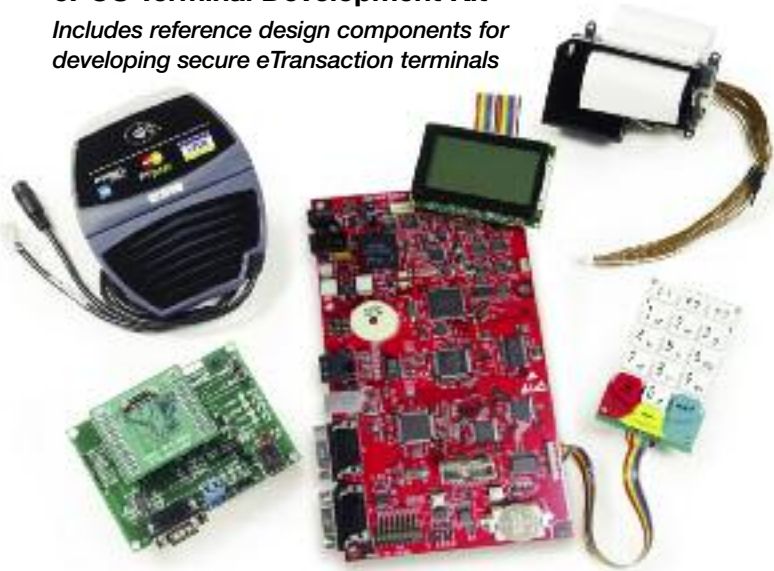
To accommodate diverse applications and ensure a long lifetime for terminal products, Renesas engineered the Platform to support industry-defined open standards for a convenient design environment. This support of open standards allows terminal makers to develop a wide range of industry-compliant payment products in less time with less effort and less risk, and also lets them quickly customize new applications remotely. Moreover, the Platform enables OEMs and ODMs to seamlessly migrate to future evolutions of the Global Platform, EMV and Smart POS standards requirements.

#### Security IC Core Architecture



## ePOS Terminal Development Kit

Includes reference design components for developing secure eTransaction terminals



### Security IC – Proven, Certified Security Implementation

- ▶ Dedicated security coprocessor based on Renesas smart card technology
- ▶ Secured key storage packaged as SOP8 or BGA
- ▶ Security algorithms supported include: RSA, DES, 3DES and SHA-1
- ▶ Common Criteria Certification, Visa Level 3, Mastercard CAST and Multos ITSEC Level 6
- ▶ Optimizes the CPU execution power of the H8SX/1653F MCU

### H8SX/1653 – Versatile, Code-Compatible MCU

- ▶ Best-in-class, code-compatible, high-performance 32-bit MCU
- ▶ Highly integrated for greater performance and reduction of cost, power and size
- ▶ POS engineering can be leveraged in future standards evolutions

### Broad, Flexible Architecture

- ▶ Complete hardware platform incorporating the latest e-financial security standards
- ▶ Single platform can be used for developing classic payment (EFTPOS), terminals, PC-connected payment terminals, PIN pads and embedded readers
- ▶ Supports multiple payment technologies: magnetic stripe, smart card, contactless and biometrics
- ▶ Modular design for forward compatibility with future market requirements while remaining in the scope of today's certification specifications
- ▶ Software and additional accessories available from third parties

## ePOS Reference Platform 3.0

### Specifications and Certifications

Core Technology	
<b>Chipset</b>	
MCU	H8SX/1653F
Core	32-bit CISC
Clock Speed	Speed up to 50MHz, 1cycle instructions
Serial Communication Interface	6 channels SCI (UART, SCIO, ISO7816)
GP I/O Pins	75
Security IC	Security Coprocessor (ISO 7816 I/F)
<b>Memory Configuration</b>	
Internal	
Flash	384KB
RAM	40KB
EEPROM (secured)	64KB + 4KB extra
External	
Flash	4MB (32Mbits)
SRAM	2MB (16Mbits)
<b>ePOS Platform</b>	
Security Standards	RSA, DES, 3DES, AES, and other cryptograms
Smart Card Interface	ISO7816
Magnetic Stripe Reader	Track 1, 2, 3
LCD Interface	20x4 Graphical LED Back Light
Keypad	4x4 Matrix Keyboard
Printer	8 dots/mm - 384 dots/line
Real Time Clock	Battery back-up
Buzzer	Included
USB Port 2.0	Full Speed
RS232	Included
Ethernet/LAN	Included
Modem	Included
Intrusion Detection Sensor Input	Included
External PIN Pad	Supported Option
Contactless	Supported Option
Biometrics	Supported Option
<b>Certifications</b>	
Common Criteria – EAL 4+	Certified
Visa Level 3	Certified
Mastercard CAST	Certified
FIPS Certification 140-2	Certified
USB 2.0 Certification	Certified
<b>Requirements</b>	
Visa PINPED	Compliant
PCI (Payment Card Industry) PED	Compliant
EMV Level 1	Compliant
EMV Level 2 (with Visa Smart POS)	Compliant



For more information, visit [www.america.renesas.com](http://www.america.renesas.com).

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