Reference design provides turnkey implementation of EMV-compliant contactless payment terminal

Developing a contactless payment terminal for Visa payWave and MasterCard PayPass cards has become quicker and easier with the launch today of an EMV pre-certified reference design by ams AG.

The reference design, developed in collaboration with smart card software vendor Alcineo, implements all the functions of a contactless payment terminal, from the 13.56 MHz RFID interface to the transaction protocols specified by Visa and MasterCard.

Available immediately to manufacturers of payment terminals, vending machines, ticketing machines, laptops/tablets and other payment equipment, the ams/Alcineo design provides a complete, production-ready blueprint. It includes the RF front end, communications protocol stacks and transaction software, a 3.0” LCD display from Kyocera with an edge-mounted antenna, SAM module, keypad, 5V power supply

and plastic housing.

The design is available for evaluation by OEMs as a demonstration kit priced at €600. The kit includes Gerber (electronics) design files and schematics, a bill of materials, Level 1 and Level 2 demonstration software libraries and mechanical specifications.

Security and card compatibility are critical requirements of contactless card payment terminals, and the EMV standard for Visa (payWave) and MasterCard (PayPass) systems is both complex and rigorous. It governs both the RF communications interface for connecting to a card in close proximity to a terminal's display screen, and the communication layers for verifying and authorizing transactions.

The ams/Alcineo reference design comes pre-certified for EMV compliance (based on the 2.1a test specification). This means it is guaranteed to comply with the EMV standard when implemented as supplied. OEMs can therefore use the ams/Alcineo design to reach the market quickly with an EMV-compliant design, without as large an investment in electronics or software design time or resources as has been required until now.

The reference design is streamlined and cost-effective, using the highly integrated AS3911 NFC initiator/reader chip from ams. This chip offers a high 1W RF power output, so no additional booster circuitry is required to achieve reliable communication with payment cards. The Alcineo CL1 layer is a compact but fully featured communication stack, implementing the digital element of the EMV contactless communication protocol. The library has been tested and is ready for EMV terminal test approval at level 1.

Alcineo's EMV CL2 kernel is a modular payment solution that perfectly suits the EMV contactless payments architecture, and fully supports payWave and PayPass.

Valuable features in the ams/Alcineo reference design will help OEMs to meet their customers' requirements more effectively. A capacitive and inductive wake-up capability enables the terminal to be switched into a power-saving Sleep mode when not processing a transaction. The design also offers an automatic antenna tuning (AAT) feature, so that the antenna does not need to be manually trimmed on the production line. And offering unique automatic modulation depth adjustment, the terminal equally supports both the A and B variants of the ISO14443 standard.

Bruce Ulrich, Product Line Director at ams, said: 'The RF specifications for EMV terminals are highly complex and the performance criteria are very tightly specified, so it can be challenging to design in the RF hardware. Our new reference design takes this entire burden away from the terminal OEM and, together with Alcineo's software, provides a ready-to-manufacture solution for contactless payments.'

Arnaud Corria, general manager of Alcineo, said: 'this partnership not only gives Alcineo the benefit of the highly skilled team at ams but also enables us to promote our embedded solutions. We are proud to be involved in this great project.'

The ams/Alcineo reference design is being demonstrated on the ams stand (3D105) at the Cartes show (Paris, 6-8 November).

Price & availability

The ams/Alcineo reference design demonstration kit is available now, priced at $765. It can be ordered direct from ams at www.ams.com [1].

Technical Support (AS3911)

A separate demonstration board for the AS3911 reader IC is also available. For further information on the AS3911 or to request samples, please visit ams.com/eng/AS3911 [2].

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Links:
[1] http://www.ams.com
[2] http://ams.com/eng/AS3911