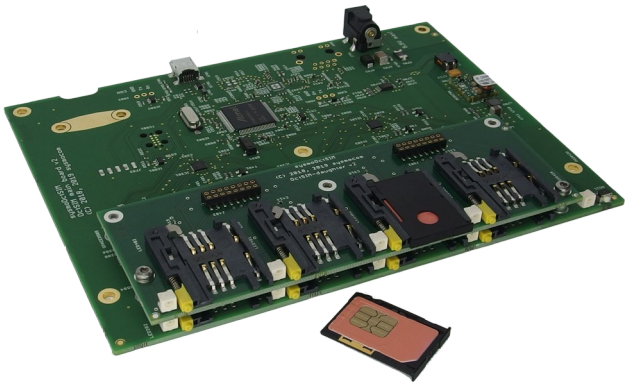
sysmoOCTSIM data sheet

sysmocom
systems for mobile communications GmbH



Introducing sysmoOCTSIM

The sysmoOCTSIM is an eight-slot smart card reader printed circuit board assembly (PCBA) with USB-CCID interface.

Targeted users are system integrators who use the sysmoOCTSIM to build their own products, such as SIM banks for cellular network quality monitoring or roaming testing. Multiple SIM cards connected to a single USB port / USB host can be used in a variety of applications, such as

- least-cost routing of voice, SMS or data services to different cellular networks of different operators
- remotely deployed systems for automatic remote roaming probes, providing roaming testing services to operators – particularly in combination with the remote SIM functionality.
- remotely deployed systems for service / QoS testing of cellular networks
- test equipment for interoperability, load and functional testing of cellular infrastructure equipment.

The edge-loaded SIM slots and the LEDs with light-guide option allow the sysmoOCTSIM to be mounted in slim enclosures with front operation, or to stack multiple sysmoOCTSIM to build dense card reader solutions with more than eight smart cards.

All cards can be individually accessed and replaced without taking other cards offline.

sysmocom can provide fully assembled enclosed rack-mountable products based on sysmoOCTSIM, housing 96 smart cards in 2U, or 192 smart cards in 4U.

sysmoOCTSIM will be delivered without any smart cards. Compliance to the ISO 7816-3 specification ensures interoperability with any ISO7816-3 compatible contact smart card – including but not limited to SIM/RUIM/USIM/ISIM/TSIM cards.

In addition to the USB connection, the sysmoOCTSIM exposes documented JTAG/SWD and serial connectors for the built-in microcontroller, enabling customers to engage in development and customization of firmware and applications. The sysmoOCTSIM allows also in field reprogramming of it's firmware by means of USB DFU.

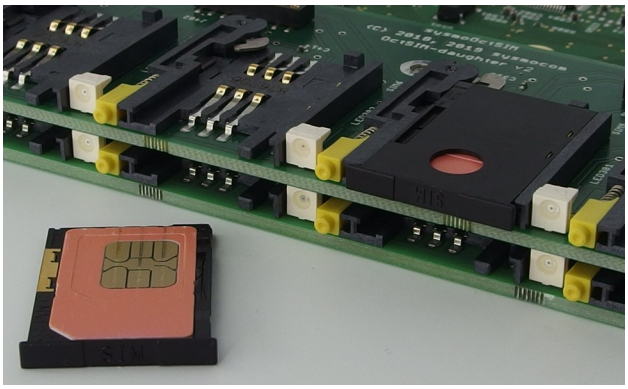
The complete sysmoOCTSIM firmware and bootloader are developed by sysmocom as Free / Open Source Software (FOSS) and can be found at http://git.osmocom.org/osmo-ccid-firmware/ and http://git.osmocom.org/osmo-asf4-dfu/, respectively.

Functional description

A sysmoOCTSIM appears as a single USB device to the host. It implements a single USB-CCID class interface with eight slots. Using the USB-CCID protocol ensures maximum interoperability with operating systems and drivers.

Contrary to other products on the market, all eight slots are fully independent; each smart card has its own reader (including UART) and there can be simultaneous / concurrent transactions on all eight slots.

All major operating systems provide drivers for CCID, on GNU/Linux pcsc-lite/libccid is the de-facto standard software for interfacing smart card readers and smart cards.



Remote SIM operation / SIM switching

sysmoOCTSIM can be combined with the sysmoQMOD (quad mPCIE modem with built-in remote SIM function) and the osmo-remsim software to build complete end-to-end remote SIM systems.

This allows the alternating use of multiple SIMs with each of the modem by switching between those SIMs via software.

The remote SIM functionality is possible via Internet connection, making it easy to test new SIM cards for roaming capabilities. As the number of remote SIMs is not limited, the remote SIM functionality works also perfect for automated SIM cycling and subsequent testing of e.g. service availability in dedicated local networks.

© 2019 sysmocom – systems for mobile communications GmbH. All rights reserved.

sysmoOCTSIM data sheet

sysmocom
systems for mobile communications GmbH

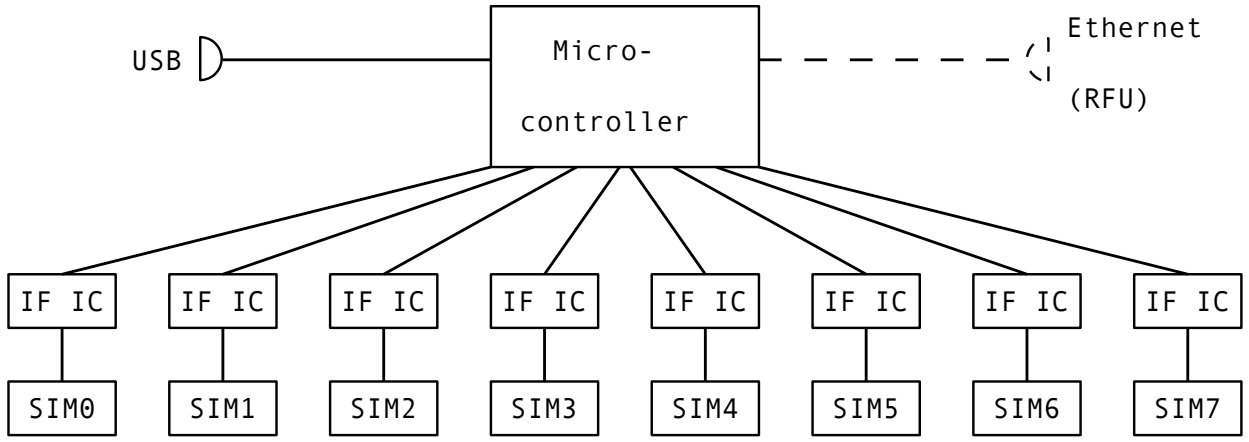
Mechanical / Electrical Specification

Dimensions of PCB	160 x 120 mm, Stacking height: min. 13.5 mm (more detailed on request)
Mounting	M3 Mounting Holes for spacers/stands
SIM/UICC smart card slots	8, ETSI/3GPP 2FF form factory, edge-launch sim slots
Smart Card Voltage	5V, 3V and 1.8V
Smart Card Clock rate	5 MHz, 10 MHz, 20 MHz.
Smart Card Baud Rate	up to 300 kBps tested, higher speeds possible
USB port	USB-mini-B or 2.54mm pin header (factory option)
Debug facilities	microcontroller serial port (3.3V UART), JTAG/SWD
Microprocessor	Atmel SAM D54/E54
LED	4 x WWAN LED, 4 x programmable LED, light guide mounts
Input Voltage	5 V DC (typ), 700mA max.
Future Extensions (factory options)	built-in Ethernet port; operation without external USB host

Software / Logical Specification

USB Protocol/Interface	• USB-CCID as per “Smart Card CCID version 1.1” by USB-IF • USB-DFU as per “Device Firmware Upgrade 1.1” by USB-IF
Smart Card Protocol	ISO 7816-3 T=0 (support for T=1 can be added upon customer request)
Boot Loader	http://git.osmocom.org/osmo-asf4-dfu/
Main Firmware	http://git.osmocom.org/osmo-ccid-firmware/

Block Diagram



sysmocom – systems for mobile communications GmbH
Alt-Moabit 93, 10559 Berlin, GERMANY

Phone: +49-30-60987128-0
Fax: +49-30-60987128-9
e-mail: info@sysmocom.de
web: http://sysmocom.de/

© 2019 sysmocom – systems for mobile communications GmbH. All rights reserved.