

Charge SOM

An open, low-footprint EVSE controller with Open-Source charging stack.

The Charge SOM is a future-proof powerhouse based on iMX93 for AC and DC charging stations. With universal compatibility, advanced safety features and lots of options for customization, the Charge SOM is the core of your EVSE portfolio. The module (80 x 70 mm) has a standard board-to-board connector and can be used in virtually any EVSE application – like AC Powerboards for AC charging stations or DC carrierboards with high voltage (HV) contactor control.

Key Features

IEC 61851 & SAE J1772 Compatibility

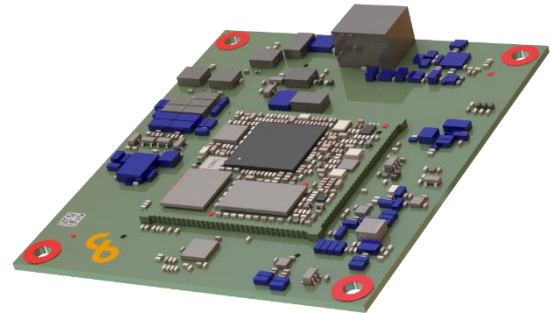
- Works with CCS1 / CCS2 and NACS according to IEC 61851, SAE J1772, and ISO 15118, ensuring smooth communication with all types of EVs.

Safety Compliance

- Renesas co-processor monitors and controls CP and PP signals, DC circuit breakers and other vital components
- PT1000 plug temperature monitoring
- Firmware meets IEC 61508 standard

Software Stack Optimization

- Plug-and-Play with EVerest, the popular Open-Source charging stack
- Also available as commercial LTS version including professional support
- Maintained Yocto BSP
- Also ready for Vector's vSEClib and SwitchEV's JOSEV



HomePlug Green PHY Standard & ISO 15118 Support

- Classic coupling of Powerline signal to CP
- Utilizes the Vertexcom MSE1022 chip

Advanced Security

- TPM for secure hardware-based key storage
- RTC for precise timekeeping
- Integrated EdgeLock secure enclave in iMX93 SoC

Host Controller

- NXP iMX93 1.7 GHz
- 1 GB DDR4 RAM
- 8 GB eMMC

Interfaces

- **USB:** 2 ports for versatile connectivity
- **Ethernet:** 1 x 10/100 MBit/s
- **SPI:** 2 channels for serial communication with peripherals
- **RS232 TTL:** 3 channels for serial data transmission.
- **CAN:** 2 channels (RX/TX) for robust, error-resistant communication
- **LVDS:** 1 channel for high-speed data transfer.
- **Specialized Inputs/Outputs:** CP, PP, PE, PLC_P, PLC_N for control and monitoring of charging processes
- **PT1000:** 4 channels
- **RS485:** e.g. Modbus RTU
- **Wi-Fi, Bluetooth, 5G** to the carrier board
- additional PLC and IEC 61851 monitors possible