CAN *Newsletter Online*

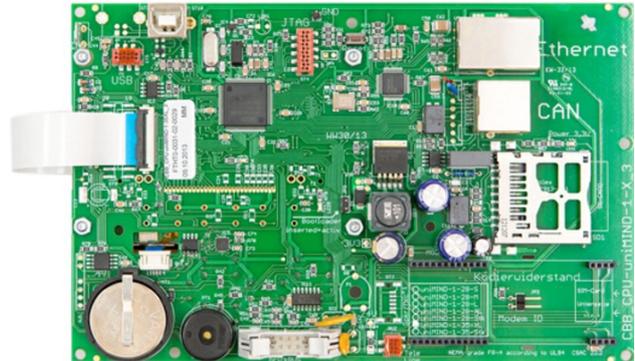I/O SYSTEM

Open-source and modular

Embrick is an open-source, modular-plugin I/O-hardware for direct sensor/actor adaption in professional environments. Imacs showed the controller at the Embedded World.

AS AN OPEN AND FREE I/O SYSTEM, Embrick is supposed to help build compact and industrial suited electronic control systems by assembling small existing/own embedded boards (bricks) via an SPI-based local interface and optional remote buses, for example CAN. It is a single master, multiple slave I/O-system. The different modules can be plugged together to get the required amount of I/Os. This combines the cost-efficient and tailored characteristics of a dedicated embedded system with the flexibility of a PLC system. By using an open frame construction and a SPI coupling method, it is an applicable embedded control solution for one to more than 1000 I/Os. The German company calls this class of controllers EPC (embedded patch-board controller).

The master brick comes with a CAN interface (Photo: Imacs)

Bricks can be used with different mechanical mounting types. Possible installation types include single (as an expansion), patch-board (as a unit in small enclosures) top-hat rail (for use in a control cabinet), and merge (in customized solutions).

To ensure a high acceptance, the system is open and free. Besides buying existing devices, everyone can develop and produce their own components to realize individually tailored measure and control system. After signing the cost free license agreement, the user can get the circuit diagrams of various standard boards and protocol stack software. Only mass producing EMS (without own applications) have to pay a license fee of €1 per brick.

The I/O system can be programmed via various systems, languages, and IDEs (integrated development interface). Currently the following systems are available for master units (others are planed): OS / RTOS (Windows, Linux, Free RTOS, proprietary), programming languages (C, C++, IEC61131), model-based / Soft-PLC (Codesys, Radcase, Enterprise Architect), and C, C++, IDEs (MSVC, Coocox (GCC), MPLab (Microchip), Geany (Rasberry Pi), every other C/C++ IDE)