

## Press Release

### Embedded Open Source including Hardware

**SSV complements open source software functions with an open source embedded hardware concept. This gives the customer complete control over both the bill of materials of the hardware parts and all software components.**

**Hanover, May 2023.** Open source operating systems, such as Linux and Zephyr, plus countless other software modules with identical user licenses now form the mainstream in the design of an embedded systems solution. In the hardware sector, the situation is completely different: the market is dominated by legally protected intellectual property for semiconductor chips and embedded computing modules. For the semiconductor market, this condition is due to high investments for know-how formation, development tools and production costs understandable. In the embedded module supply chain, however, this is not the case. In some cases, microchips are simply placed on a small printed circuit board according to the application specifications of a microcontroller, which is developed using the same methods and CAD tools as the module user's electronic assembly. The production process and the machinery used for this are also usually identical.

Computer-on-Modules (CoM), Embedded System Modules (ESM) or even System-on-Modules (SoM) offered by external partners create numerous dependencies for the user. Some of them were clearly noticeable during the supply chain crisis of the past few years. To help address such challenges, SSV now offers the CAD data sources for various SoM circuits and PCBs as part of a "Deeply Embedded System" product concept that includes a customized software stack with Debian Linux and firmware functions for integration into own electronic assemblies. This gives the user control over the complete bill of materials, both in terms of the active and passive hardware parts and with regard to the software components (SBoM, Software Bill of Materials). This enables him to react independently to necessary changes during the entire product life cycle, e.g. to take appropriate circuit-related measures in the event of EMC problems, to replace a microcontroller that is difficult to obtain, or to perform software updates.

With the eDNP/8331, the first practical virtual SoM alternative is now available. SSV sees the application focus for this open source, integrable embedded system in IoT connectivity and IoT security. Therefore, the available hardware and firmware supports wireless wide area network connections via cellular (from NB-IoT to LTE-M to LTE-A) as well as Low Earth Orbit (LEO) IoT satellite connections. To optimize cybersecurity, an IEC 62443-4-1 threat analysis is offered as a service to identify the potential threats to the interfaces of a user circuit and to determine suitable protection measures.

#### **About SSV Software Systems GmbH:**

SSV Software Systems GmbH was founded in Hanover in 1981 as a development service provider for microprocessor applications for logistics and automation. Since the early 1990s, the company has been developing and producing its own hardware assemblies and systems for industrial use. The application focus is on industrial M2M (Machine-to-machine) and IoT (Internet of Things) communication. The latest developments include a product family for "fully data-based embedded systems functions". Here, both the hardware CAD data and source codes for the operating system and firmware are transferred to the user to enable "deeply embedded integration" in the user's own assembly.

**For further questions, please contact:**

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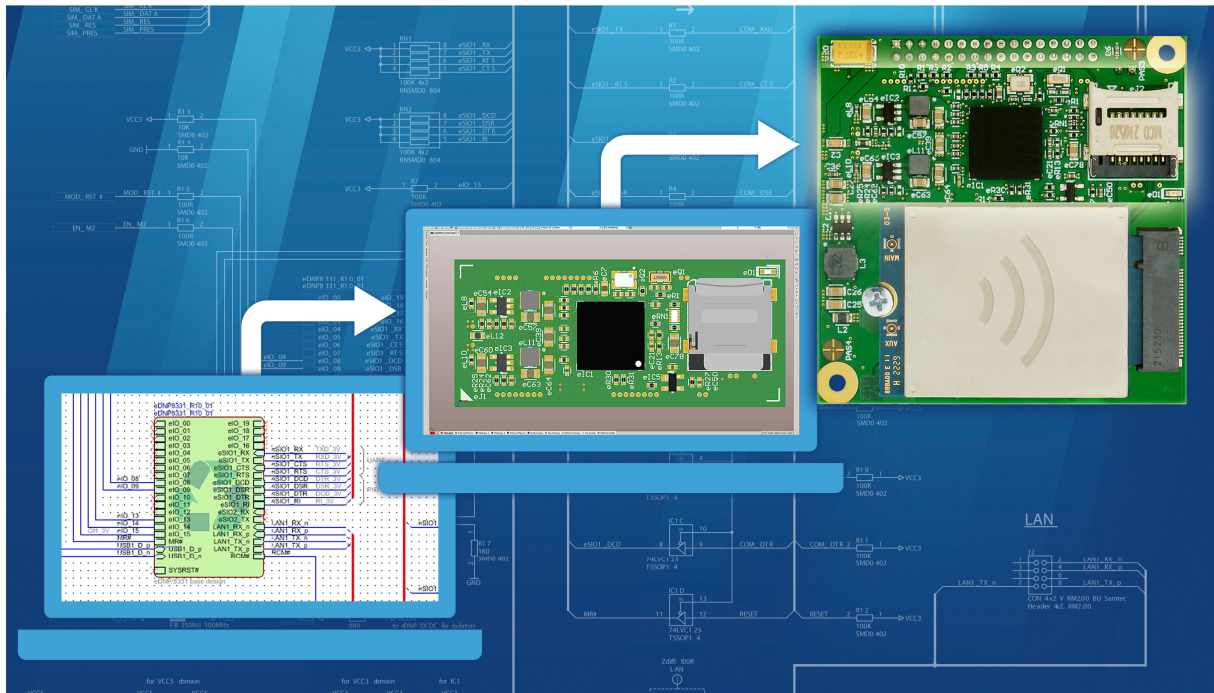
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You can find the corresponding images for this press release on our website [www.ssv-embedded.de](http://www.ssv-embedded.de).

**Image:**



**Image caption:**

The open source hardware component of the eDNP/8331 forms an Altium snippet. This CAD function block is available as both a schematic and PCB data set for the widely used "Altium Designer" development environment. A circuit developer can import this data into his or her own PCB design at the component level. For the Flash memory of the final board, a bootable image with U-Boot boot loader, Debian Linux and other firmware functions is provided, that can be extended with further features to suit the individual application.