Press Release
Software Add-On for F&S NXP i.MX 6 Modules

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Real-Time with Asymmetric Multiprocessing (AMP) for F&S NXP i.MX 6DualLite/Quad Modules

For the development of real-time systems with embedded Linux on F&S boards, our partner *emlix GmbH* developed a software solution based on asymmetric multiprocessing (AMP). For the usage of modern multi-core processors with two or more cores, one core is being isolated from the software compound and is used exclusively (asymmetrically) with specialized real-time software.

The advantage of this architecture is the strict isolation of real-time tasks – for example a control algorithm – from the rest of the system. emlix has developed real-time applications for the F&S Single Board Computer armStone™A9 and Computer On Module efus™A9, using one of four cores exclusively to drive a control mechanism with 10µs cycle time. With average system usage, the jitter is below 1µs and stays below 5µs under full benchmark load of all CPU cores and the internal memory buses.

The real-time software was programmed using C with a few lines of Assembler code. The control mechanism uses GPIOs. All interfaces and processes irrelevant to real-time, stay on the Linux controlled cores.
This enables simultaneous and unrestricted use of USB, Ethernet, PCIe, control and visualization of graphics for user interfaces and other interfaces.

This add-on offers the customer a further alternative for the development and long-term service of real-time systems based on embedded Linux besides Preempt-RT and Xenomai/Adeos.

This solution is available for boards with i.MX 6 NXP processors by F&S Embedded, Germany.

Website
www.fsembedded.com
www.emlix.com

armStone™A9 Product Site
https://fs-net.de/en/products/armstone/armstonea9/

efus™A9 Product Site
https://fs-net.de/en/products/efus/efusa9/

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