

Lean and Easy Ways to Adopt MOST[®] Technology

Microchip Puts the Synergistic Power of Evolution Right Into Your Hands

OEMs and Tier1s who are experienced users of MOST technology and continuously contribute to refining its benefit from their past work, when creating new designs and concepts for their MOST technology-based infotainment systems. Their in-depth knowledge allows for partitioning features and forming their network nodes as needed. They have an appreciation for the configurability of the involved ICs, and their firmware, tools and software packages that reaches down to the minutest details. Based upon the comprehensive specification and product documentation of the MOST technology, scalable—and MOST technology compliant—networks are devised, planned, built, tested and rolled out to the field.

For OEMs and Tier1s that desire to follow above path, but are looking into the possibilities of MOST technology for the first time, it is useful to have a good starting point. This helps to quickly learn about the basics of MOST technology, and for setting up first conceptual demos in the very early project phases. The latter is useful in reporting the status of the proceedings to senior management. MOST ToGo is a complete, small MOST system that serves as a reference for hardware and software; and an architectural guideline that can be of great help.

Knowing the MOST technology is even in the minutest details may be useful, but is actually not required for using it. There is a path in parallel, which is based upon Microchip products and concepts, and is designed to offer simplified access to MOST technology. These products and concepts address the needs of companies that decide not to go down to the very details. Thus, there is an additional way of creating lean—but powerful—infotainment networks. In addition to MOST ToGo, this presentation elaborates on the following products and concepts:

- Further extending the on-PCB interconnectivity possibilities by adding USB as a standard interface on Microchip's into Intelligent Network Interface Controllers (INICs)
- MOST Technology Linux Driver, the open door to the Linux ecosystem
- Remote control over MOST Technology—Centralized network management of simple devices without microcontrollers

MOST ToGo

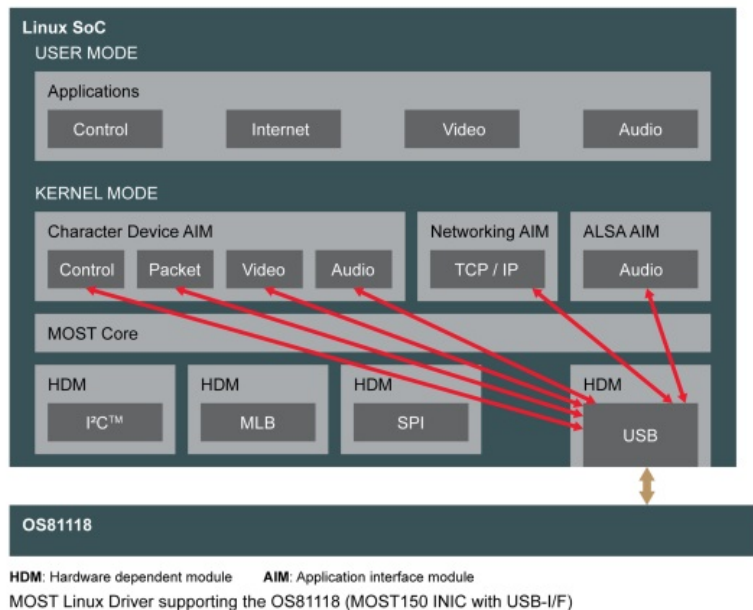
In the well-specified world of MOST Networking, there exists a plethora of very useful and detailed documents of various kinds. MOST ToGo is about the “doing” in accordance with the above documents. It consists of an audio source, an audio sink and a Head Unit controlling both of them. The source code, plus hardware schematics and hardware layout, are part of the product. Specific MOST ToGo documentation explains how MOST ToGo was designed and implemented, and how MOST NetServices and the MOST System Management Module (MSMM) were added. Simply use the principles shown in MOST ToGo as the seed for your individual activities, to create your MOST Technology-based infotainment system.

USB Interface for INICs

Adding USB to the collection of interfaces—available on INIC ICs in varying combinations—extends the range of microcontrollers that can be used as embedded host controllers in the infotainment domain. Through the standard USB PHY or HSIC interface integrated in INIC, applications get access to all data types available on MOST Networks. Thus, even non-automotive SoCs or multimedia controllers can talk through a MOST Network using standard software layers.

MOST Technology Linux Driver

Linux, the open source operating system, has found its way into embedded devices, including industrial and home appliances. As there is also a strong movement in the automotive industry to use Linux in upcoming automotive In-Vehicle-Infotainment (IVI) systems, it made sense to take advantage of the features of Linux for automotive MOST technology applications. The MOST Technology Linux Driver integrates MOST technology seamlessly into the standard Linux interfaces. This provides access to a MOST Network by either simply writing to—or reading from—a virtual file in the dev folder, or by accessing audio through standard Linux tools, or Ethernet data through the Linux TCP/IP stack.



Remote control over MOST technology—Centralized network management of simple devices without their own microcontrollers.

After partitioning the features of a planned MOST technology-based infotainment system, a closer look sometimes reveals smaller, "low-complexity" devices that would not really require a full blown microprocessor. The concept of remote control over MOST technology takes such devices into account. It allows basic administrative functionalities to move from "low-complexity" devices into a central unit, while turning the "low-complexity" devices into remotely controlled "slim" devices. The duties of configuring a slim device's local hardware peripherals are also taken care of by the central unit. As the INIC in a remotely controlled device can act as an I²C™ master, it is possible to send I²C commands from the central unit to the peripherals of the slim device, and vice versa.

Conclusion

When creating IVI systems based on MOST technology, OEMs and Tier1s keep full control due to the comprehensive adaptation features incorporated in Microchip's MOST products. For entering the ecosystem, MOST ToGo provides guidance and real-world examples as starting point, while the USB interface for MOST INIC ICs significantly widens the pool of microcontrollers available for building network nodes. On the operating systems side, the MOST Technology Linux Driver opens the door for using Linux in automotive areas. Last but not least, the concept of Remote Control over MOST technology allows reduced BOMs in certain network nodes, by turning them into slim devices without local microcontrollers.

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