

OS81082 INIC50 ePHY

Intelligent Network Interface Controller for MOST

Features

- Complete MOST[®] Network interface on a single chip
 - Fully encapsulated
 - Optimized for a 50 Mbps electrical physical interface (UTP)
- Embedded MOST Network management
 - Network protected mode
 - Hardware & application watchdog timer
 - Intelligent muting
- Media Local Bus (MediaLB[®]) serial port
 - Supports all MOST data types:
 - Synchronous data streaming
 - 1 kByte packet data support
 - FIFO-based control data support
 - Eases inter-chip communication and streaming
 - PCM streaming ports alternatively usable as I²S streaming port
- I²C control port
- Dedicated application reset output
- Operating voltages 3.3/2.5 V
(3.3 V to 2.5 V regulation with one external pass transistor)
- 64-pin package
- Temperature range -40 °C ... +95 °C

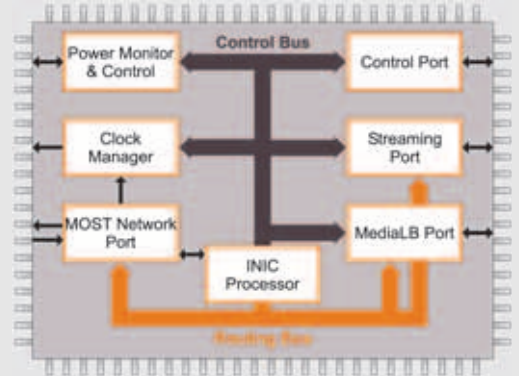
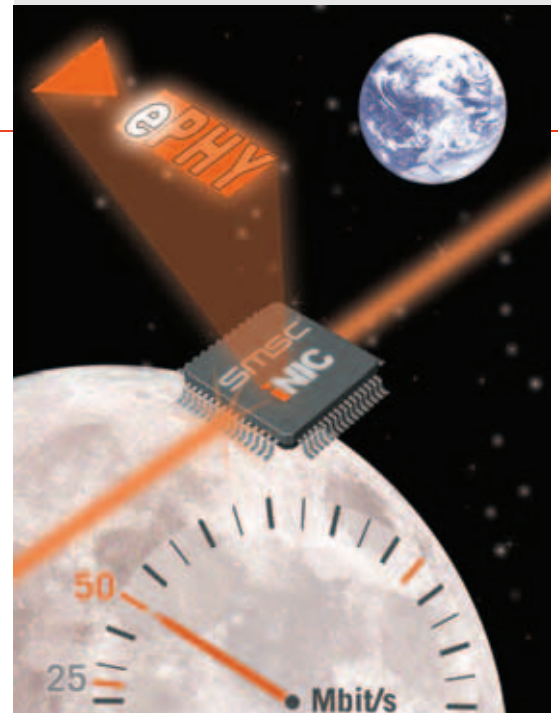
Description

The OS81082 INIC is a highly integrated Intelligent Network Interface Controller (INIC) for the 50 Mbit/s MOST Network (MOST50). The integrated electrical physical layer (ePHY) signal conditioning circuitry offers differential I/O that directly interfaces to a passive ePHY transformer. This enables MOST data transmission via unshielded twisted pair (UTP) cable.

The INIC provides full encapsulation of all functions necessary to develop a MOST compliant device. It allows an easy implementation of MOST into a device.

The INIC also provides supervision of the application, and a protected mode is entered during malfunction or absence of an application (i.e., start-up). This protected mode prevents application malfunctions from influencing the integrity of the network and the system.

The INIC includes the MOST NetServices stack's MiniKernel, thus providing MOST compliant real time behavior. This significantly relieves the External Host Controller (EHC) from realtime processing tasks. ⇨



Ordering Information

The OS81082 INIC50 ePHY is available as:

OS81082 INIC Engineering Sample

Order No. B10178

OS81082 INIC Tape & Reel

Order No. B10179

The INIC makes a MOST device accessible according to the rules of the MOST Specification, even without an application running on an EHC.

The OS81082 INIC provides a message-based interface with the same physical interface and API as the OS81050 INIC. It is encapsulated by a Function Block (FBlock INIC). This allows the EHC to control the INIC in the same way as other functions in the system.

Software

In the INIC's architecture time-critical, resource-intensive and fail-safe relevant parts of the network functionality are handled by the on-chip MOST NetServices. This includes significant properties of the mandatory Function Block (FBlock) NetBlock. A MOST device based on INIC is able to answer requests to the NetBlock, even if the application is not running or not yet started on an EHC, thus providing maximum robustness for the network client. The figure on the right shows the software architecture for the INIC. It consists of an on-chip stack and the MOST NetServices API V2 that run on the EHC.

MOST NetServices API V2 Migration

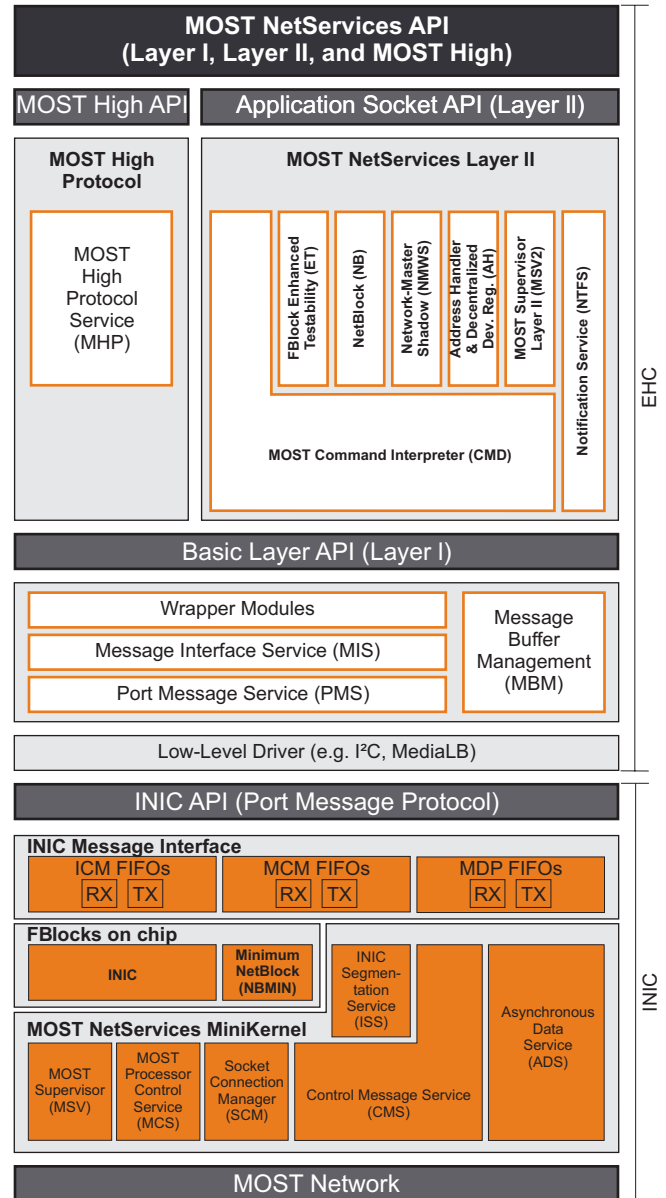
The following software services are integrated on-chip as parts of the MOST NetServices MiniKernel:

- MOST Supervisor (MSV)
- MOST Processor Control Service (MCS)
- Socket Connection Manager (SCM)
- Control Message Service (CMS)
- Asynchronous Data Service (ADS)
- Minimum NetBlock (NBMIN)
- INIC Segmentation Service (ISS)

Wrapper modules within the MOST NetServices API V2 restore the Basic Layer (Layer I) of the former MOST NetServices API V1 on the External Host Controller.

The INIC interfaces to external hardware using I²C and PCM streaming ports. Additionally, it provides the interface MediaLB. MediaLB supports high-speed communication for all MOST data types.

Software Architecture



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