MOST—Training and Workshops

Get the Know-How for Your Projects

One of SMSC’s primary goals is to support its customers with the design process throughout all phases of their product development cycle. SMSC’s MOST® training modules and workshops will provide you with the knowledge and skills you need to effectively develop your MOST related applications. Offering a variety of training modules, SMSC makes it easy for you to plan and tailor the instruction to meet your particular requirements. SMSC’s customized workshops provide project-related assistance to discuss and review specific project challenges face-to-face with SMSC’s MOST experts.

The following training modules are available to help accelerate your design cycle and significantly reduce your time-to-market:

- **MOST Foundation Training**: Covers the basic components and principles of MOST networks, their system management and design. All other training modules are based on this course.
- **INIC Training**: Provides a complete overview on the advanced features and API of the Intelligent Network Interface Controller (INIC) family.
- **Media Local Bus (MediaLB®) Training**: Introduces the principles of the MediaLB high-speed interface and provides an overview on the latest MediaLB tools.
- **MOST Network Analysis Lab**: Presents enhanced analysis features of OptoLyzer® G2 and shows how to use them in typical network analysis scenarios.
- **MOST NetServices™ Training**: Offers a comprehensive overview on both the API and the configuration of the middleware library, which commonly is used to hook up the application to an INIC-based MOST network.
- **MHP Implementation Training**: Provides the techniques to implement MOST High Protocol (MHP) functionality in an INIC-based MOST device and the knowledge required to understand and analyze MHP communication.

Optimized Learning

SMSC’s training environment enables you to directly apply course topics to your daily work.

The advantages of SMSC’s training are:

- Classes are led by experienced trainers and offer a balanced mix of theory and hands-on exercises.
- Hands-on exercises allow students to use the latest tools and software.
- Small class size, limited to six participants, ensures close interaction between students and trainer.
- Detailed documentation in English
- English and German are the standard languages for training, but Swedish and Japanese are available on request for some training sessions.

**Profit from the expertise of the #1 developer of MOST chips, software stacks, tools and services!**
MOST Foundation Training—Build Your MOST Expertise

The MOST Foundation Training provides the knowledge you need to work with MOST. The MOST philosophy as well as its role in modern multimedia networks are discussed. A complete overview on the components and software used in MOST based systems as well as all basic network principles are covered, including the handling of streaming data, packet data and control messaging.

The training contains a mix of lectures and hands-on sections for a thorough introduction to MOST. During the exercises you will utilize popular test and development tools including OptoLyzer G2, MOST Radar, MOST System Management Module (MSMM) and several prototyping tools for MOST.

The MOST Foundation Training is the basis for all other training modules.

Prerequisites: General knowledge of digital hardware and communication techniques

Target Audience:
- Hardware developers of MOST based systems
- Software developers of MOST based systems and applications
- Test engineers
- Group managers

Content:
- Overview of MOST technology, its key features, application examples and the goals of the MOST Cooperation
- Network basics: MOST frame structure, speed grades, transport mechanisms, synchronization, network start up and shut down procedures, NetworkMaster and System State
- Introduction to the MOST Application Framework: FBlocks, functions, OpTypes, hierarchical system management in MOST, basic communication principles
- Handling of streaming data: Bandwidth allocation and administration, audio management in the system
- Control messaging: Message structure, transmission control, addressing, central registry and address resolution, segmentation
- Overview of components: ePHY, oPHY, network interface controllers, companion chips, software stacks
- Introduction to the packet channel: Access and transmission control, packets and formats, high-level protocols for data integrity
- Overview of the isochronous data transfer over MOST

Benefits:
- Understand the basics of MOST networks and the transport mechanisms used
- Understand MOST Control Messages
- Understand basics of system management and addressing
- Set up and operate MOST networks
- Perform basic analysis and troubleshooting

Duration: Two days
INIC Training—Experience How INIC Makes Networks More Reliable

The INIC Training provides a complete overview of general and advanced features of the INIC family and includes a detailed discussion of enhanced network and system stability concepts. Other key topics include the configuration of data routing and an introduction to the MediaLB interface.

This training also offers a practical approach to the INIC, by analyzing its communication with the application and by studying its configuration using test and development tools including OptoLyzer G2, INIC Evaluation Platform, OS81xxx Evaluation Board and INIC Explorer/INIC Remote Viewer.

Prerequisites: Basic knowledge of MOST systems as provided in the MOST Foundation Training and general knowledge of digital hardware and communication techniques

Target Audience: Hardware developers of MOST based systems
Software developers of MOST based systems and applications
Group managers

Content: Overview of INIC features
FBLOCK INIC and INIC API
Communication to the application via Port Message Protocol
Network protection, application watchdog and states of the External Host Controller Interface
Overview of available ports
Troubleshooting options
Overview of INIC data routing: Configuration of ports, sockets and connections
Routing examples: Full streaming I²S™, MediaLB 3-Pin, default configuration, design considerations
Socket and connection management, intelligent muting
Optimized communication mode
Intelligent Channels Feature
MediaLB basics: Topologies, frames and data structure, logical channels
Overview of I/O Companion ICs

Benefits: Understand the architecture and features of the INIC
Use the configuration string to configure the INIC
Understand the communication between INIC and your application
Understand and configure the routing of streaming data
Understand the principles of MediaLB
Use tools to analyze communication and configuration of the INIC

Duration: Two days
MediaLB Training—Get to Know the Serial On-Board Multimedia Bus

The MediaLB Training provides a complete overview of the physical layer and link layer specifications for MediaLB, including aspects of signal timing and termination, MediaLB frame and data structure, and logical channels. Additionally, various options to adapt MediaLB to the needs of your individual system design are discussed.

MediaLB is a serial, on-PCB communication bus, which has been optimized for multimedia applications. It is supported by all INICs as well as by a wide variety of host controllers and specific application processors on the market.

MediaLB communication is analyzed in practical demonstrations using an INIC Evaluation Platform, OptoLyzer Suite and MediaLB Analyzer.

Prerequisites:
- Basic understanding of MOST systems
- Basic understanding of INIC
- Profound knowledge of digital hardware designs
- Experience in design of high-speed circuits

Target Audience:
- Hardware developers who implement MediaLB to connect ICs on a PCB
- Test engineers

Content:
- Short introduction to INIC: Communication, network protection, ports overview
- MediaLB basics: MediaLB 3-Pin and 6-Pin topologies, signal, data and clock lines
- Physical layer specifications: Signal timing, termination
- Link layer specifications: MediaLB controller and devices, physical and logical channels, MediaLB frame and data structure, MediaLB configuration, channel address configuration
- MediaLB logical channels: System, control, asynchronous, synchronous and isochronous channels
- Data routing over MediaLB
- Overview of MediaLB tools and IPs
- Demonstration of MediaLB Analyzer

Benefits:
- Understand the concepts of MediaLB communication
- Configure and implement MediaLB according to the requirements of your design
- Analyze MediaLB communication between the INIC and your application
- Use MediaLB Analyzer for debugging
- Understand and use MediaLB tools and IPs

Duration: One day
MOST Network Analysis Lab—Analyze MOST Networks with OptoLyzer G2

The MOST Network Analysis Lab provides a complete overview of the capabilities and features of the OptoLyzer G2, the state-of-the-art analysis tool for MOST.

This session, offered in a laboratory format, focuses on a practical approach to analyzing the MOST network communication in on-line and off-line modes. After a general introduction, various features of OptoLyzer G2 are demonstrated and you will then learn how to configure them in the OptoLyzer Suite. In addition, several use cases of OptoLyzer G2's node mode are discussed.

Prerequisites: Basic knowledge on MOST systems as provided in the MOST Foundation Training and a general knowledge of digital hardware and communication techniques

Target Audience:
- Test engineers
- Hardware and software developers of MOST based systems and applications who focus on analyzing network communication

Content:
- Overview of features of the OptoLyzer OL3xxx and the OptoLyzer Suite, including software extensions
- OptoLyzer Suite introduction: Getting started, bypass mode versus node mode, sending messages with Transceiver, routing audio data, network data analysis, stress generation
- Analysis of the network: Data recording, trigger implementation, use of simple filters, use of comments and bookmarks, highlighting data with colors, activating high protocols, configuration of complex filters, advanced settings
- Analysis and discussion of typical situations, including network start up and shut down operations, device error situations, segmented messages

Benefits:
- Understand the concept and features of OptoLyzer G2
- Set up and configure OptoLyzer G2 in your test environment
- Record network data
- Analyze network communication on-line and off-line
- Configure various analysis functions
- Learn to recognize typical device error scenarios via the MOST network

Duration: One day
MOST NetServices Training—Get Familiar with the Software Stack for MOST over INIC

The MOST NetServices Training provides you with the knowledge needed to hook up your application to an INIC-based MOST network. This training gives a comprehensive overview of the API and structure of the programming library with a strong focus on practical implementation of typical MOST functionalities, such as handling network events, transmission of streaming data, configuration of command interpreter and notification service.

A mix of lectures and hands-on exercises enables you to speed up project development and helps get you on track with your INIC projects.

The training covers MOST NetServices V2.x and V3.x as well as all INICs and their speed grades. The session can also be customized to focus on specific questions or requirements of the participants.

**Prerequisites:**
- Basic understanding of MOST
- Programming in C

**Target Audience:**
- Software developers of MOST based systems and applications
- Group managers

**Content:**
- MOST NetServices introduction: Role of MOST NetServices in the application and network, modules overview
- MOST NetServices configuration: Dimensioning of message buffers and module parameters
- Tracing and debugging: Understand the PMS protocol, information and mechanisms needed to trace and debug applications
- Low-Level Driver (LLD): Implementations for I²C™/MediaLB/SPI, requirements and pitfalls
- Control communication: Mechanisms for sending, receiving and acting on messages
- MOST Data Packet (MDP) communication: Handling of MDPs, basics of MHP¹, MOST Asynchronous Medium Access Control (MAMAC), Packetizer
- Handling of MOST Ethernet Packets (MEP): Implementation, requirements and pitfalls
- Handling of synchronous/isochronous data: Architecture and use of Socket Connection Manager (SCM) and MOST NetServices API
- Network administration: Available functionality, typical application requirements for master and slave devices and their implementation
- Project progression: Speed up development time and improve system quality using SMSC’s services

**Benefits:**
- Get a structured overview on MOST NetServices modules and their functionality
- Connect your requirements to device implementation
- Acquire valuable insight to help speed up LLD and application development time
- Learn how to avoid common pitfalls
- Learn to use debug services and tools
- Build your own sample application

**Duration:**
Two days

¹. Note: There is a separate training class that focuses on MHP implementation.
MHP Implementation Training—Learn to Implement an MHP Sender/Receiver Device

The MHP Implementation Training provides you with the techniques required to implement MHP functionality in your INIC-based MOST device and equips you with essential knowledge for understanding and analyzing MHP communication. The training starts with an overview of the network protocol and continues with a strong focus on using the MOST NetServices MHP module, which is required to implement a typical MHP sender/receiver device. In addition, MHP functions for compliance testing are explained and important hints for their implementation are given.

Hands-on exercises help you learn how to avoid common pitfalls and speed up project development. The training covers MOST NetServices V2.x and V3.x as well as all INICs and their speed grades. The session can also be customized to focus on specific questions or requirements of the participants.

Prerequisites:
- Basic understanding of MOST NetServices
- Programming in C

Target Audience:
- Software developers of MOST based systems and applications
- Group managers

Content:
- MHP Protocol: Overview of all MHP telegram types and basic communication flows
- Overview of MOST NetServices API
- Configuration of an MHP module
- Implementation of an MHP sender/receiver device
- Impact and requirements regarding LLD
- Parallel Most High Transceiver (PMHT)
- MHP compliance test and test implementation
- MHP analysis: Examples of typical protocol errors

Benefits:
- Get a solid knowledge of the MHP protocol
- Learn how to spot protocol errors and their potential root cause on application side
- Acquire valuable insight to help speed up LLD and MHP application development time
- Learn how to avoid common pitfalls
- Learn how to use debug services and tools
- Build your own sample MHP application

Duration: One day
Workshops—Project-Related Assistance

In addition to its standard training modules, SMSC offers project-related workshops, which provide an excellent opportunity to review your project face-to-face with SMSC’s experts and get solutions for your specific design challenges. SMSC’s extensive experience with MOST technology can help you resolve issues and shorten the development time of hardware and software components. The following topics are covered in our workshops:

- Network interface hardware design and review
- MediaLB implementation
- MediaLB verification
- Video over MOST (MPEG and DTCP)
- MOST NetServices migration
- MHP implementation
- System design and modeling
- System verification and integration
- Proof of concept

**Prerequisites**

Workshop participants must have the following knowledge and skills:

- MOST Foundation Training
- Overview on MOST NetServices
- Understanding of MOST Specification

For software-related topics, SMSC recommends participants have:

- Knowledge of MOST NetServices
- Proficiency in C programming language

**Lead Time**

Special preparation is needed to ensure the success of your customized workshop. Lead times may vary from approximately one to three months.

**Duration**

A workshop typically lasts one or two days, depending on your requirements.

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Organization

**Training Schedule**

For information and registration, please contact us between one and three months in advance of your desired training date. The current schedule of selected training modules is available on our website, where you may also submit an online reservation.

>> http://www.smsc-ais.com/Training_Schedule

**Training Languages**

English and German are the standard training languages. Upon request, Swedish and Japanese are available for some training sessions. Please let us know your language preference at the time of registration.

**Locations**

Locations for training and workshops are:

- Karlsruhe, Germany
- Detroit, USA
- Göteborg, Sweden
- Tokyo, Japan

**Also Included**

Training modules and workshops include:

- Lunch, snacks and drinks
- Detailed training manuals in English

**Hotel Reservations**

We offer assistance in making your hotel reservation. Please ask for more information when you schedule your training session.

**Contact Us**

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