MOST PCI Tool Kit –
from System Design to System Integration

May 7th 2008

SMSC™
SUCCESS BY DESIGN

Agenda

- MOST – The Automotive Infotainment Backbone
- Typical MOST System development process
- MOST PCI Tool Kit
- Comprehensive Development phase support

MOST – The Automotive Infotainment Backbone

SMSC™
SUCCESS BY DESIGN

What is MOST?

Media

Oriented

Systems

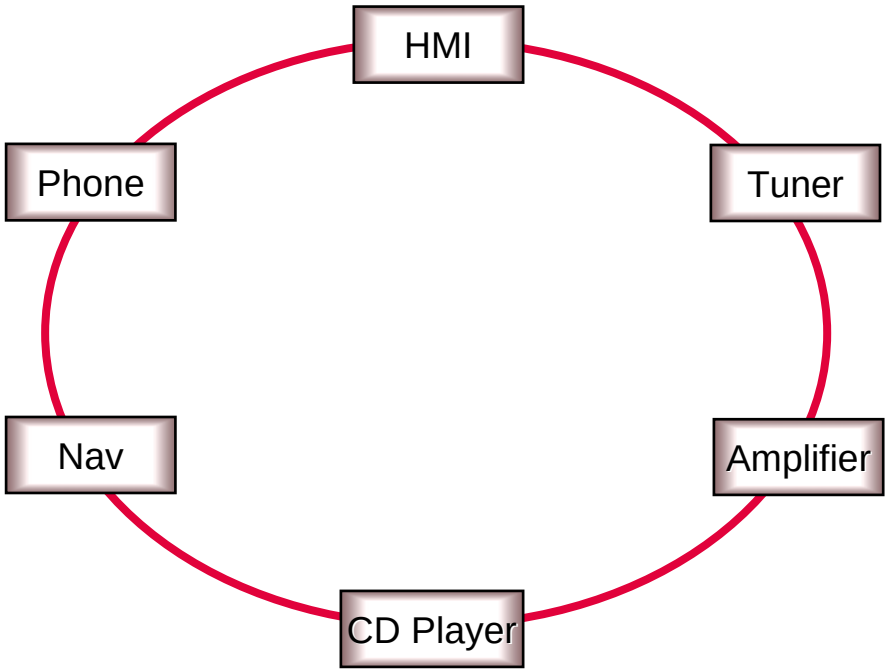
Transport

Key focus for MOST is to provide

- efficient,
- reliable,
- low-cost

Networks for Automotive Infotainment Systems and also for other applications with high bandwidth requirements.

MOST Network Basics

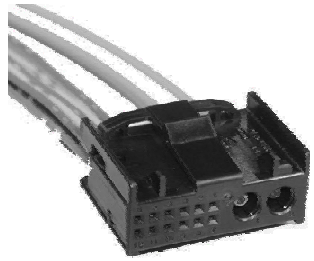


MOST25 Network example:

- Maximum of 64 nodes per ring
- Maximum distance of 10m between two nodes
- Point-to-point optical network

Technical Key Features

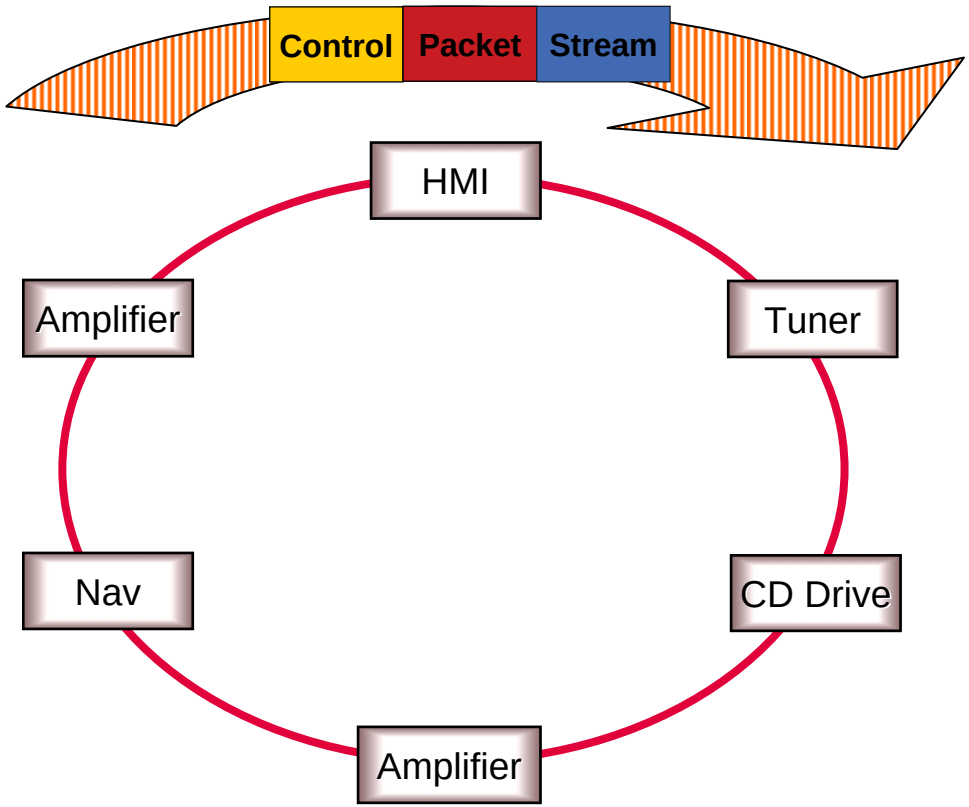
- MOST networks can operate on various physical layers
  - oPHY – Polymer Optical fiber
  - ePHY – Twisted-pair cables



- MOST Networks with different bandwidths are available
  - MOST25
  - MOST50
  - MOST150…

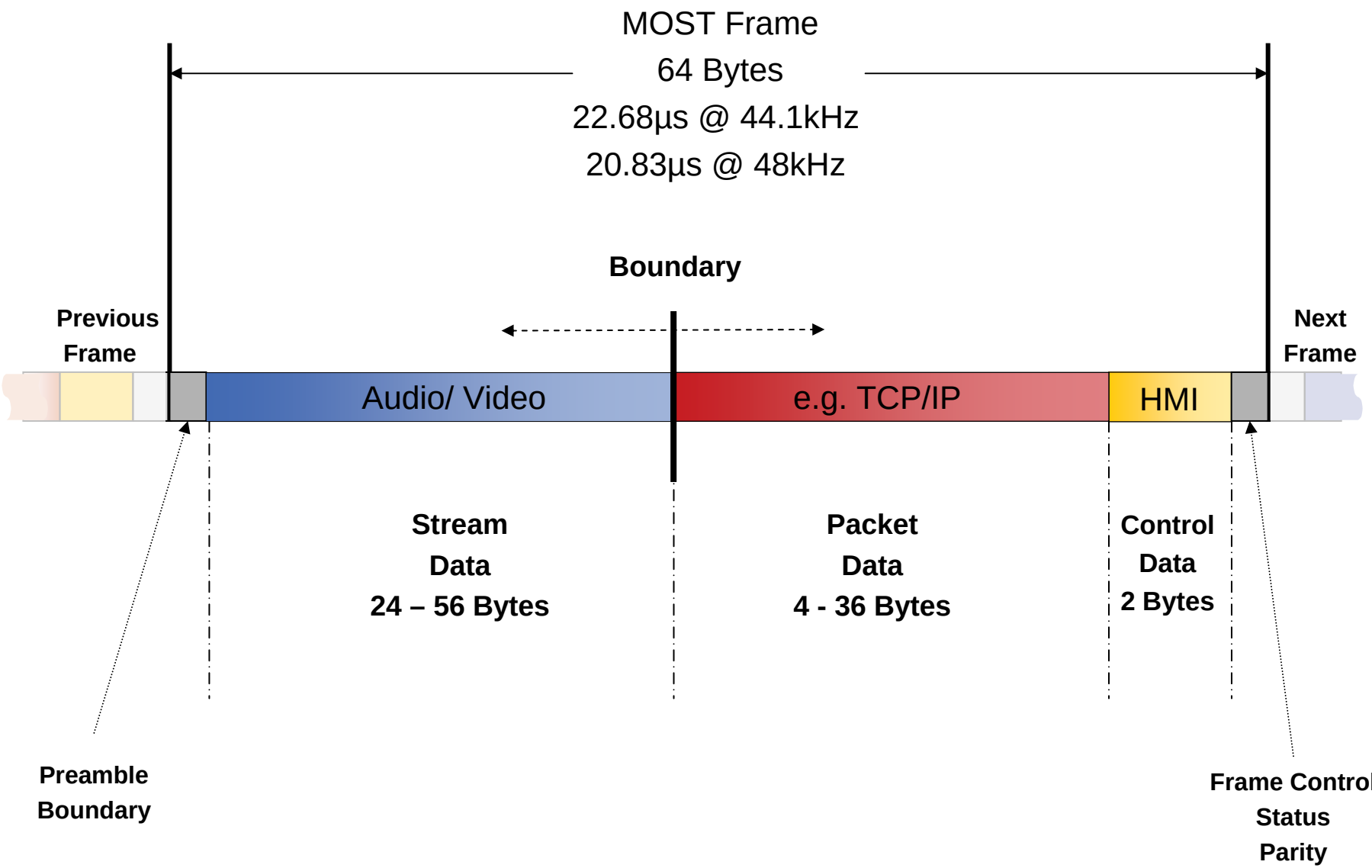
- Network bandwidth / data rate typically slaved either
  - to standard audio Frame rate
    FS = 44.1kHz
  - or to standard DVD Frame rate
    FS = 48kHz (frame rate)

Data Transport in MOST



- MOST frame rate is the same as CD or DVD sample rate
- Sender puts streaming data regularly on the ring, e.g.
  4B per frame for one audio sample
  4…32B per frame for MPEG2 DVD streams
- Each MOST frame travels once around the whole ring, i.e. streaming data from one source can be received by multiple sinks.

Structure of a MOST Frame



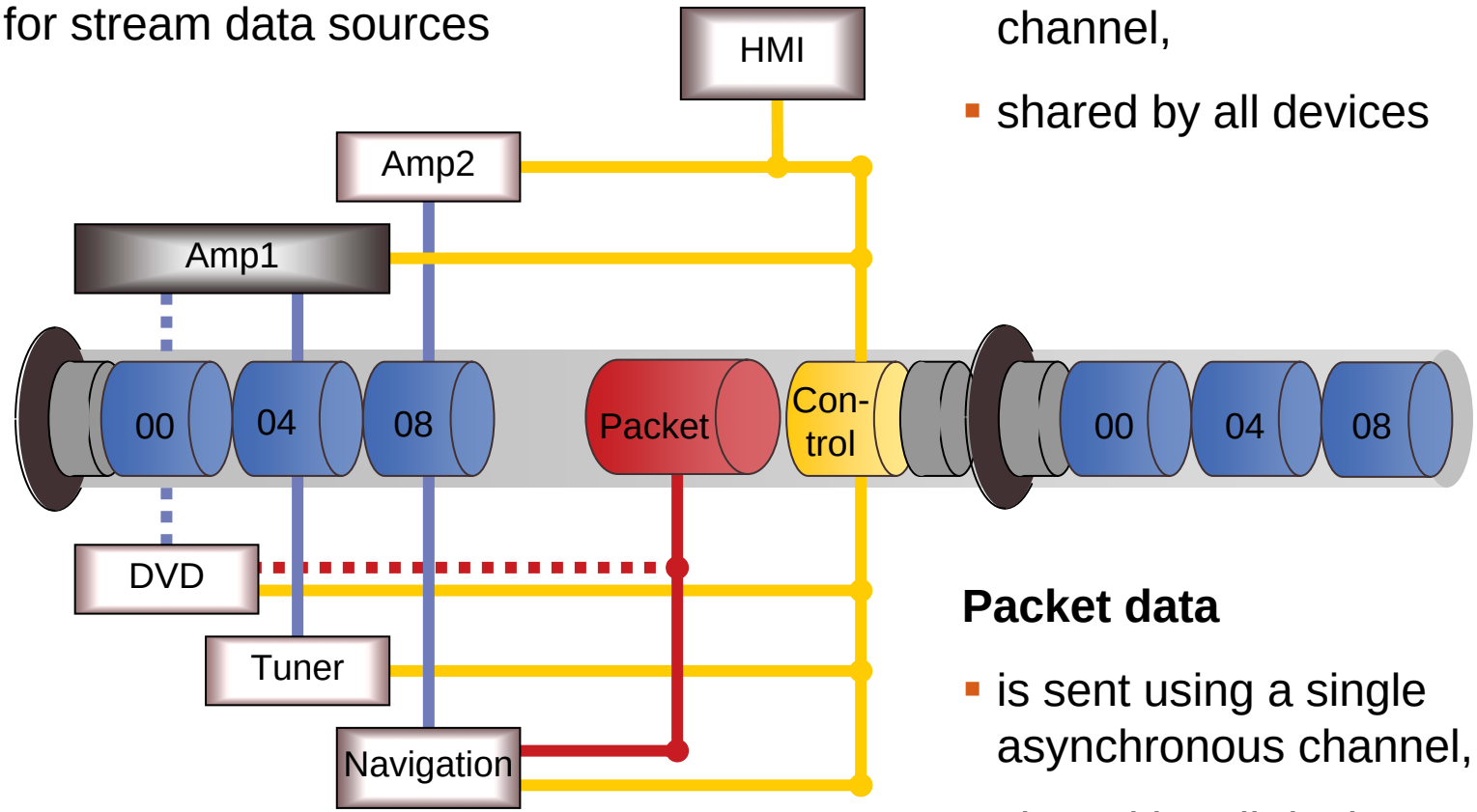
Transport Mechanisms - Data Types

- Stream data:
  - Audio, video real time data
  - Up to fifteen 16-bit stereo channels
- Packet data
  - Navigation data, software download
  - PC networking, TCP/IP, etc.
- Control data
  - Controlling of MOST devices
  - System management and administration
  - Status reporting

Transport Mechanisms

Stream data

- is transported in several time-multiplexed logical channels,
- providing reserved bandwidth for stream data sources



Control channel

- is used for system management communication,
- using a single asynchronous channel,
- shared by all devices

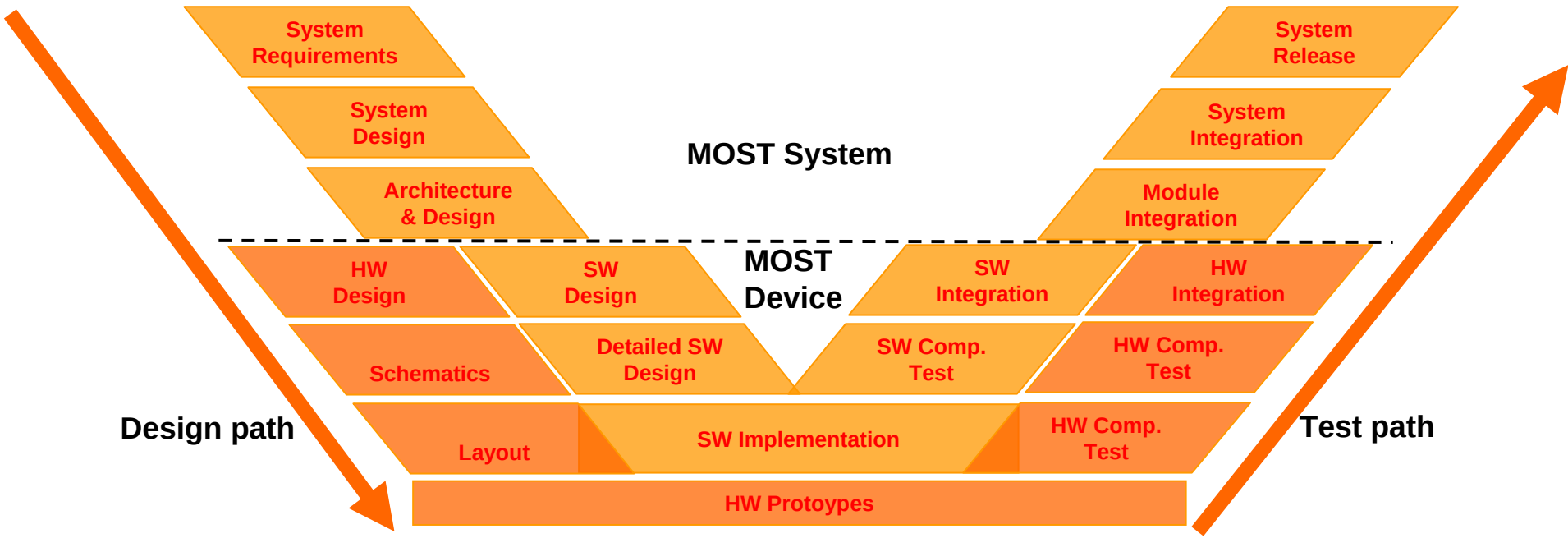
Packet data

- is sent using a single asynchronous channel,
- shared by all devices

Typical MOST System development process

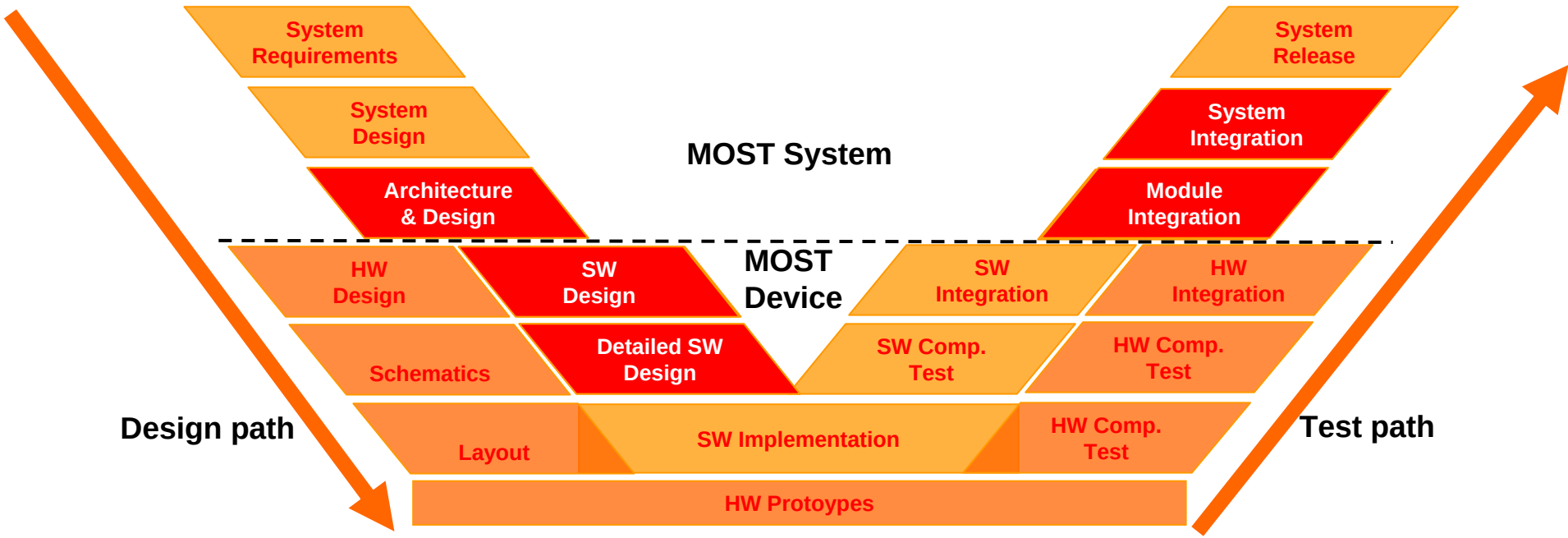
Development process of MOST Systems

- Two process pathes
  - Design path- from MOST system down to MOST devices
  - Test path – from MOST devices up to MOST system
- MOST device oriented phases are separated in hardware and software path



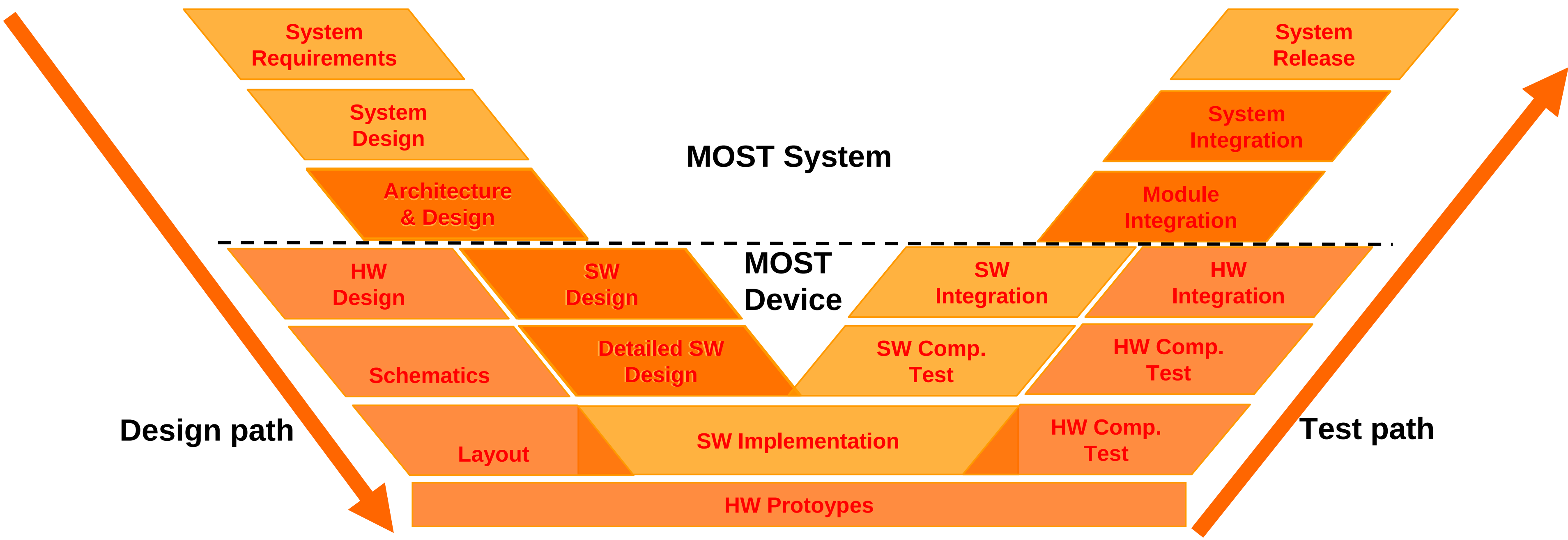
Problems in the development process

- Missing MOST devices in System architecture phase
- Missing hardware in SW design phase
- Missing counterparts in Module integration phase
- Missing final MOST devices for comprehensive system integration



How to resolve those problems ?

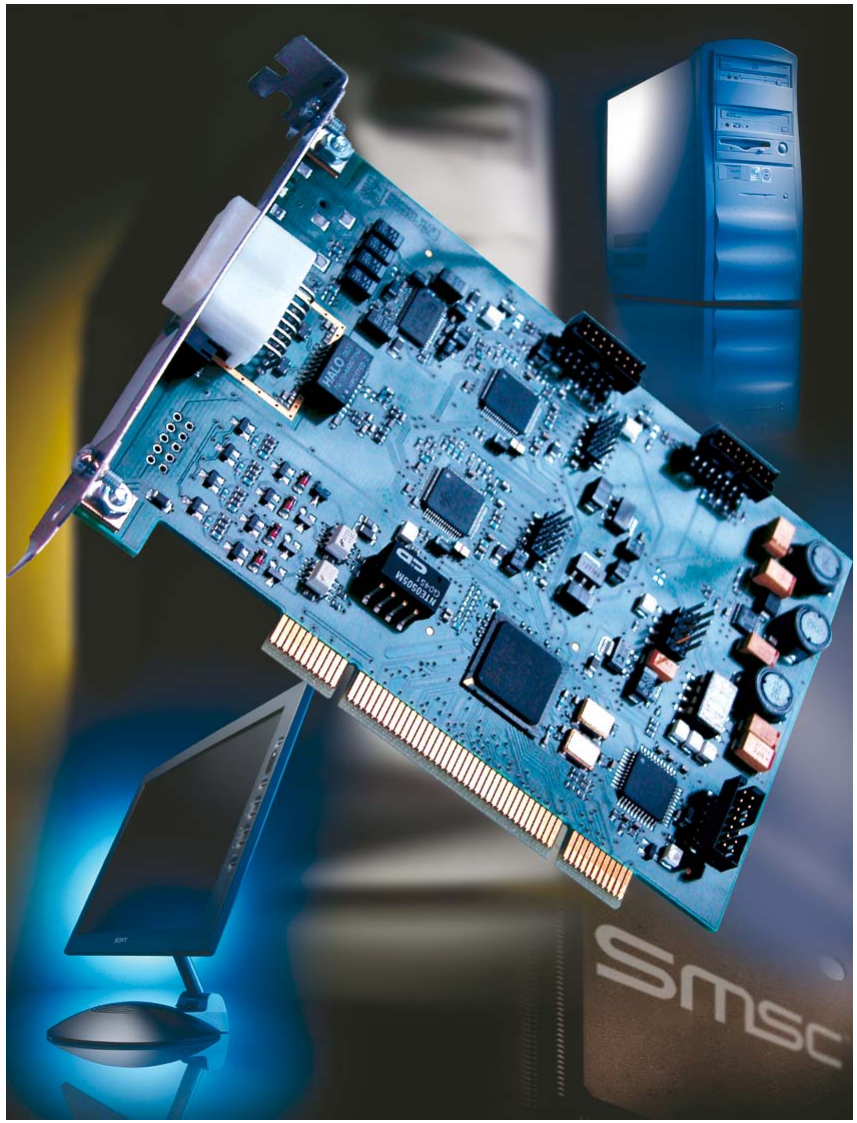
- Missing MOST devices in System architecture phase
  MOST Device simulation
- Missing hardware in SW design phase
  Universal Programming platform
- Missing counterparts in Module integration phase
  Flexible Test platform
- Missing final MOST devices for comprehensive system integration
  MOST Device Simulation



The solution – MOST PCI Tool Kit

- MOST PCI Tool Kit is the ideal solution for…
  - Device simulation
  - Programming platform
  - Test platform

…in any MOST environment

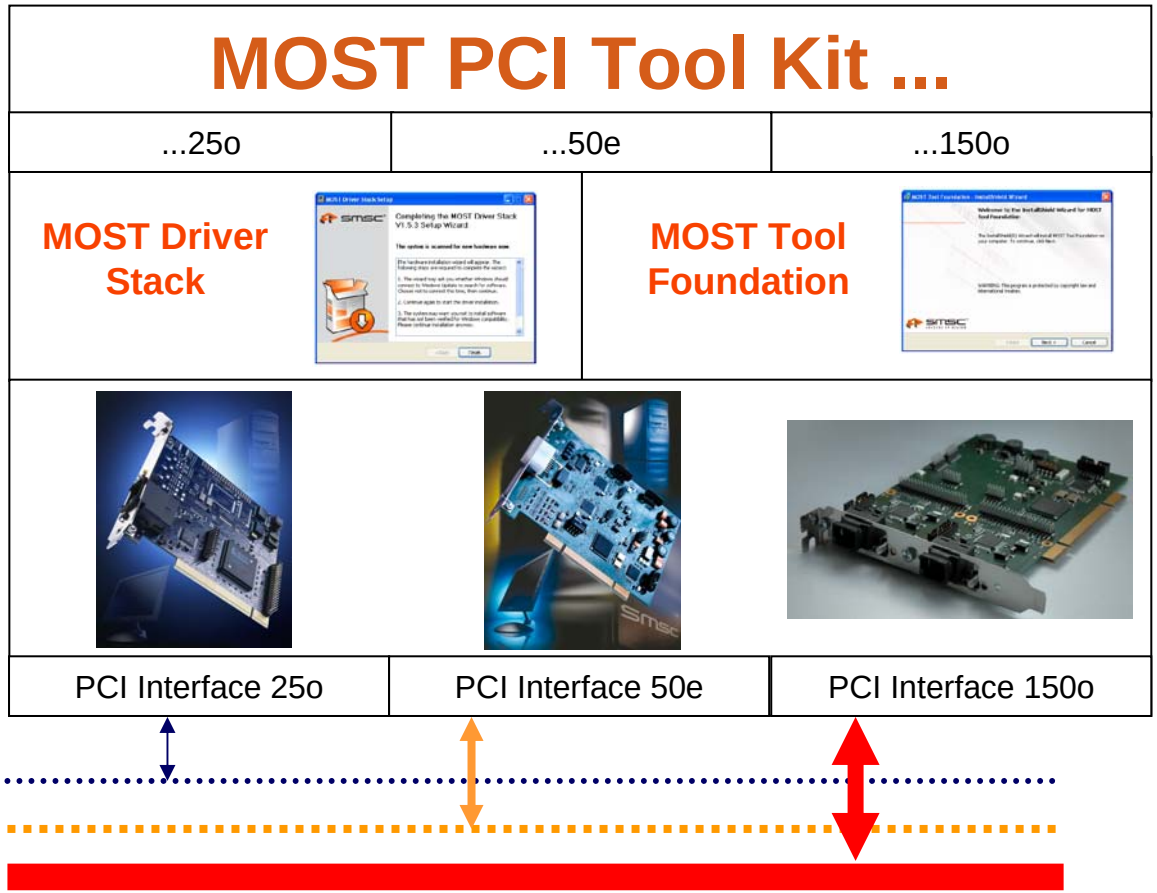


MOST PCI Tool Kit

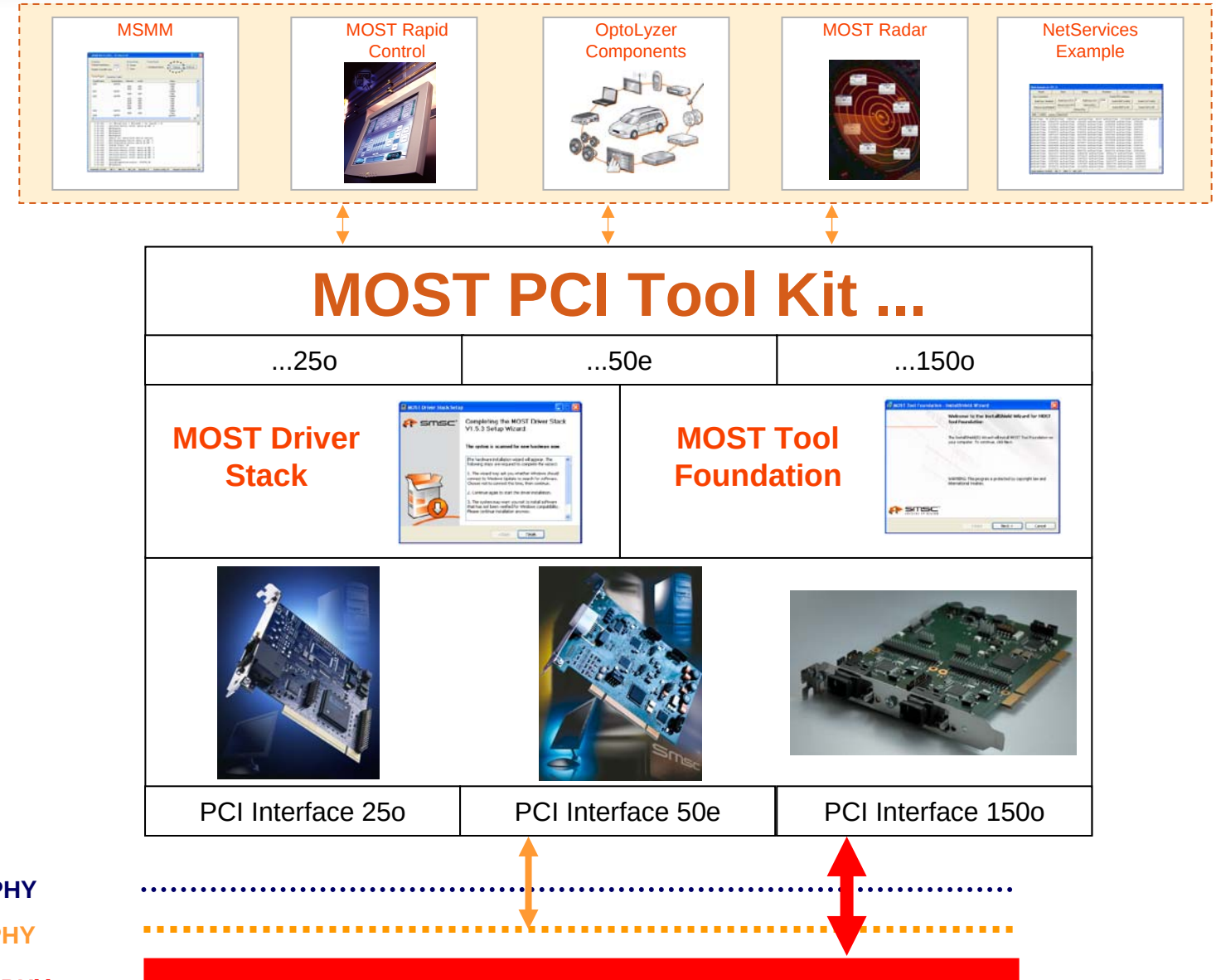
SMSC™
SUCCESS BY DESIGN

MOST PCI Tool Kit Concept

- Complete coverage from MOST system design to MOST system integration
- Uniform and powerful software for Windows PCs
- All MOST speedgrades and Network Interface controller architectures supported
- Software Extensions offer new capabilities

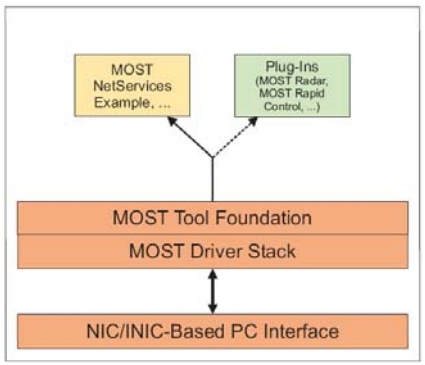


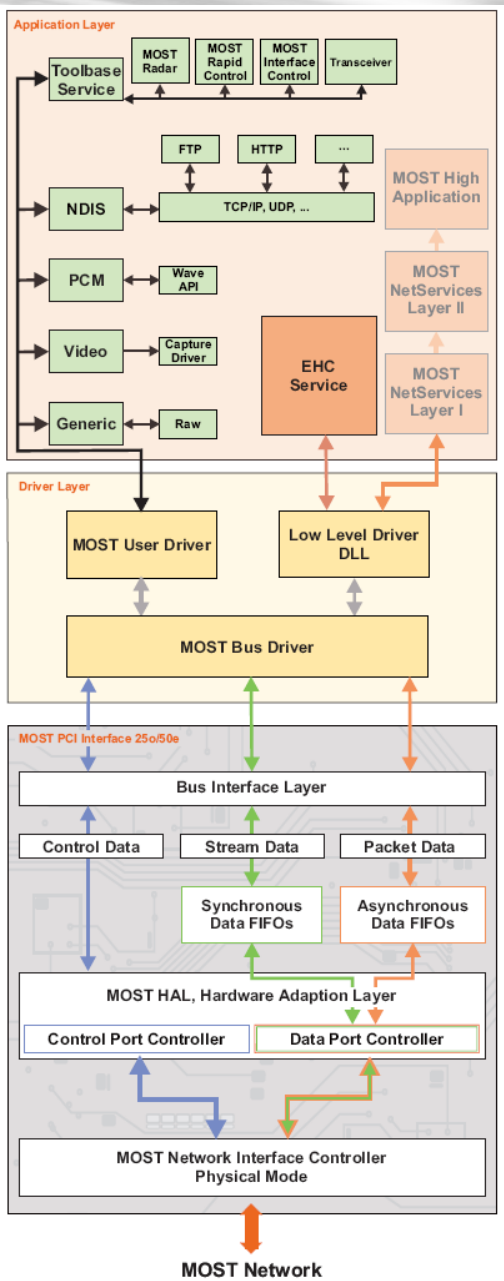
MOST PCI Tool Kit Concept



MOST Tool Kit Details

- Various drivers for multiple use cases
  - Control
  - Networking (NDIS)
  - Audio (Stream)
  - Video (Stream)
- Extendable with multiple Plug Ins
  - MOST Radar
  - MOST Rapid Control
  - OptoLyzer Components (ActiveX)
  - MSMM Win 32 Executable
- Use cases
  - Development platform
  - MOST device simulation
  - Test and develop platform
  - Flexible EOL test solution





MOST PCI Tool Kit 25o NIC

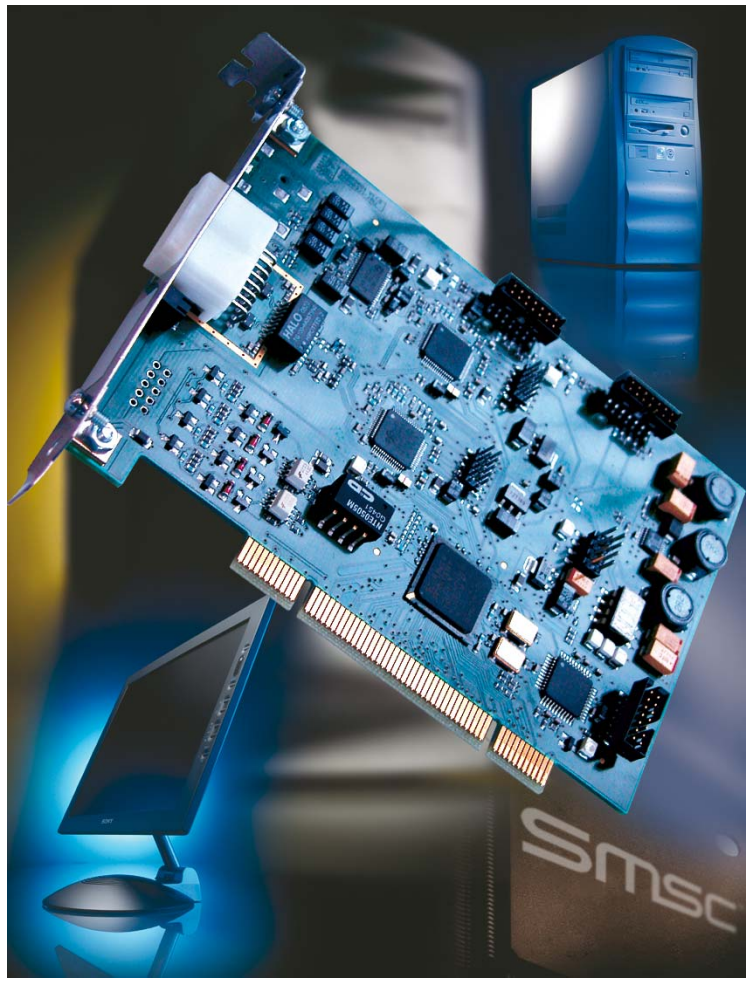
- MOST PCI Interface 25o NIC
- OS8104
- High Performance MOST25 oPHY Node Mode
- Full access to MOST bandwidth
  - Control
  - Packet
  - Stream
- MOST NetServices V1 encapsulated
- Driver package
  - NDIS
  - Audio
  - Video

- Optional available
  - MOST Rapid Control
  - MOST Radar
  - MOST NetServices Layer1 ActiveX
  - MOST High Active
  - MSMM Win32 Executable

MOST PCI Tool Kit 25o/50e/150o (INIC)

- MOST PCI Interface 25o (INIC)
- OS81050
- High performance MOST25 oPHY node
- Full access to MOST bandwidth
  - Control
  - Packet
  - Stream
- MOST NetServices V2 encapsulated
- Driver package
  - NDIS
  - Audio
  - Video

- Optional available
  - MOST Rapid Control
  - MOST Radar
  - MSMM Win32 Executable

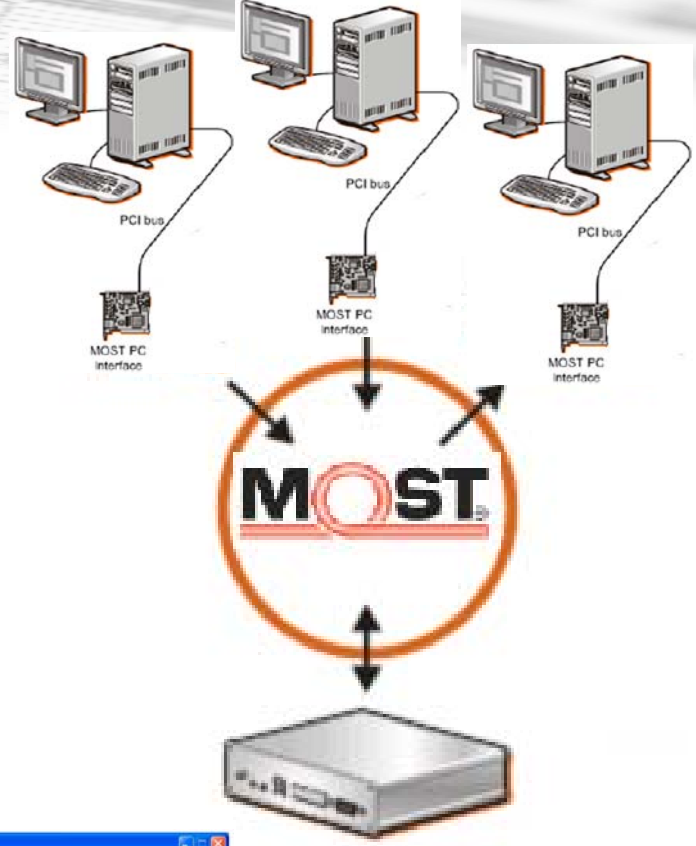


Comprehensive MOST Development phase support

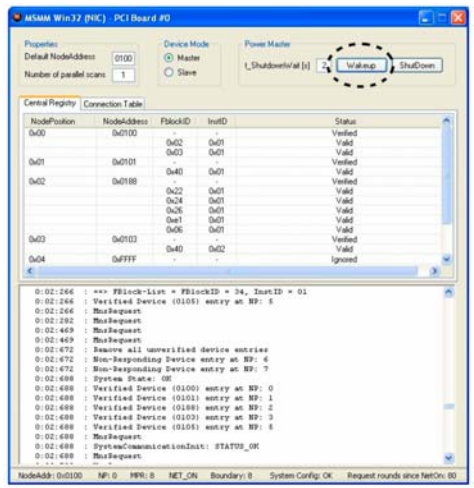
SUCCESS BY DESIGN

MOST Device Simulation

- Simulate MOST devices on a Standard PC to work together with the Device under Test (DUT)

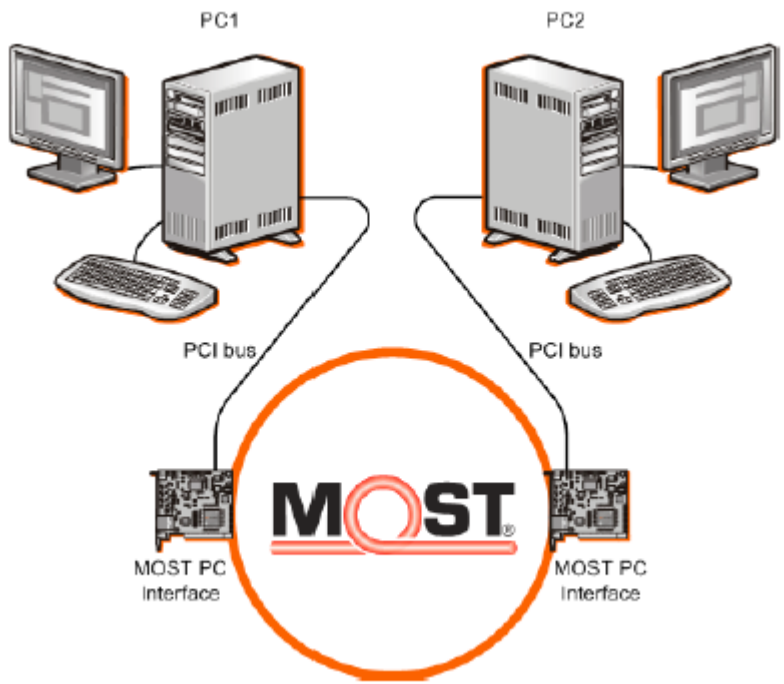


- Standard PC with MOST PCI Tool Kit can simulate any MOST device
  - By implementing custom application on top of MOST NetServices DLL
    - Plain programming on the PC
  - By using the MOST System Management Module
    - Network Master
    - Connection Master
  - By using MOST Rapid Control



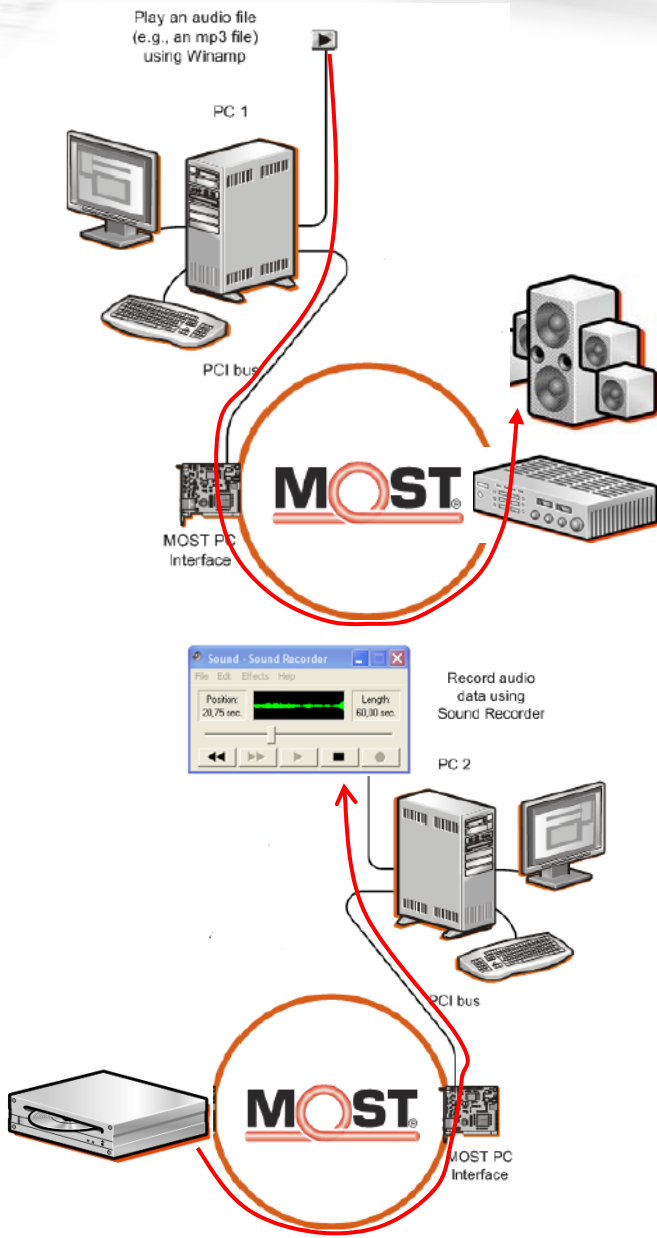
MOST Programming Platform

- Early development of firm- and software when final MOST device is not available
- Use Standard PC with MOST PCI Tool Kit for application development
- Plain programming on top of MOST NetServices DLL



MOST Test Platform

- Basic testing specific functionalities
- During development and implementation
- Standard PC with MOST PCI Tool Kit as tester by using
  - Audio driver for Amp or Audio Source test
  - Video driver for Video sink/source test
  - Networking driver for packet data test
  - Control driver for basic or advanced test (e.g. MOST High Protocol)



More information needed ?

Please visit us at the

SMSC Booth

Hall1, No.1928

Thank you very much for your attention

Further information available at www.smsc-ais.com

SMSC™
SUCCESS BY DESIGN