

MICROSAR Ethernet オンライン

Agenda VectorAcademy

実施方法:	このコースはリモート形式で提供されます
所要時間:	7.0h (10:00-17:00)
受講対象者:	ベクターMICROSAR 製品ユーザー
受講目安・前提知識:	「AUTOSAR ベーシック」及び「AUTOSAR in Practice (AiP)」 「Ethernet ベーシック」の受講者(もしくは、それぞれのオンライントレーニング)
ゴール:	AUTOSAR 準拠の Ethernet モジュールの動作・設定の理解

1. 概要

AUTOSAR ベースの ECU での Ethernet の使用法の概要を理解し、MICROSAR.ETH スタックをコンフィグレーションする為の実践的スキルを習得します。

2. アジェンダ

- > Overview and introduction
 - Motivation for Ethernet in vehicles
 - Difference to traditional vehicle networks
 - Protocols and History of Ethernet in AUTOSAR
 - Vector's MICROSAR solution
- > Basics of Ethernet and TCP/IP
 - PHY: MDI/MII, most commonly used PHY layers and ECU Hardware setup
 - MAC/VLAN Data Link Layer addressing and Switches
 - Internet Protocol IPv4/IPv6 Network Layer addressing and routers
 - ARP, NDP, ICMP
 - Transport Protocols (UDP, TCP), Transport Layer addressing
 - Dynamic Host Configuration Protocol (DHCP)
- > Ethernet in the AUTOSAR Software Architecture
 - Socket based communication using TCP/IP vs. PDU and Signal based communication in traditional vehicle networks approach in AUTOSAR (SOAD + PDU Container)
 - AUTOSAR Software Architecture
- > Overview of Automotive Protocols and use cases
 - Requirements emerging from modern E/E architecture and distributed system approach
 - Summary of protocols SOME/IP(-SD), DoIP, TSN, AVB, XCP, NM
- > Diagnostics Over IP (DoIP)
 - AUTOSAR Software Architecture with DoIP
 - The DoIP Protocol
 - DoIP use cases DoIP Node vs. DoIP Gateway
 - Illustration of configuration principle in SOAD, DoIP and PDUR
- > SOME/IP and Service Discovery (SD)
 - Service Oriented communication with SOME/IP, Sd and SoAd
 - Control Flow (SD) and Data Flow (SOME/IP)
 - Illustration of configuration principle in SoAd, Sd, LdCom

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- > UDP Network Management (UdpNm)
Network Management
MICROSAR configuration elements and principles
- > Universal Calibration Protocol (XCP)
Integration into the ETH stack
Illustration of configuration principle in SOAD, XCP
- > Time-Sensitive Networking (TSN) and AVB Use Case
Demarcation of TSN vs AVB
Time Synchronization Cluster in AUTOSAR
TSYN
STBM
Time Synchronization on CAN, FR, ETH
Synchronization message sequences on CAN, FR, ETH
Time Stamping and Time Bases on CAN, FR, ETH
Service Module STBM
AVB