

IEEE 11073

SDC Stack & Integration Kit

WHAT IS THE IEEE 11073 SDC STACK AND INTEGRATION KIT?

The IEEE 11073 Service-oriented Device Connectivity (SDC) family of standards defines an interoperable, secure, and vendor-independent communication interface for medical devices. It enables dynamic discovery, data exchange, and collaboration between devices in modern clinical environments.

The IEEE 11073 SDC Stack and Integration Kit – referenced to as SDC Stack – from Vector is a holistic, ready-to-use solution that allows medical device manufacturers to integrate the SDC standard quickly and reliably. It provides all necessary components to implement SDC-compliant Provider, Consumer, and hybrid Provider–Consumer applications.

The stack abstracts the complexity of the SDC standards and provides a stable, well-documented foundation for developing interoperable medical devices while reducing integration risks and time-to-market.

OVERVIEW OF ADVANTAGES

Fit for Regulatory Approval

Developed in accordance with medical device standards, reducing development effort and supporting efficient regulatory approval.

Proven Communication Expertise

Backed by more than 35 years of experience in communication software, ensuring professional-grade quality and long-term reliability.

Secure Development & Cybersecurity Expertise

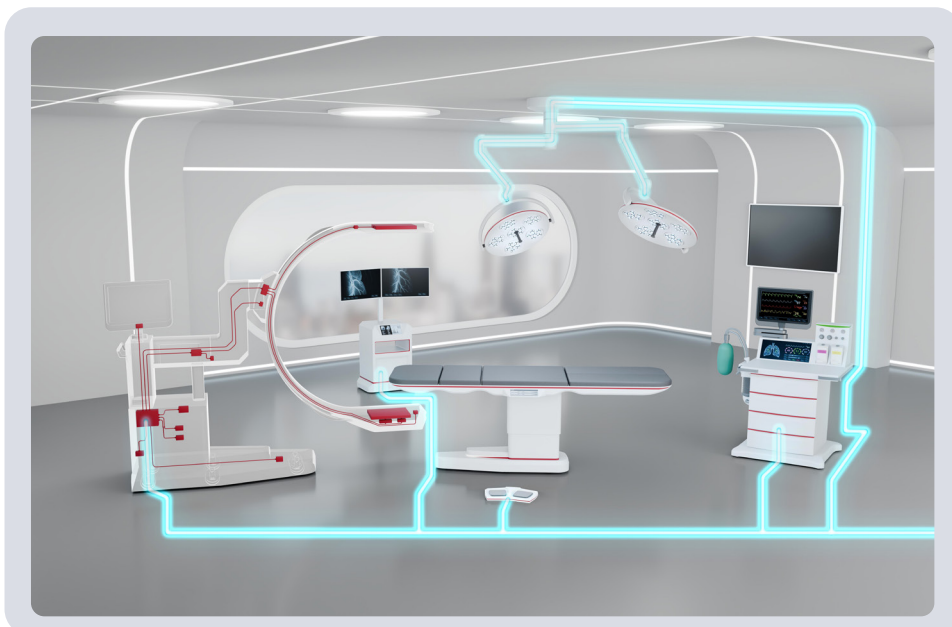
Secure development practices and cybersecurity risk analysis guided by OSCP-certified experts.

Scalable Performance Architecture

Designed for fast transaction handling and stable performance even under high system load.

Validated for Clinical Use

An end-to-end testing strategy from performance benchmarks to system validation in realistic clinical scenarios ensures robustness, interoperability and reliability.



Develop networked medical devices of tomorrow with our SDC Stack

REGULATORY REQUIREMENTS AND STANDARDS

The SDC Stack is developed in full compliance with the IEEE 11073 SDC family of standards. Newly published standards and updates are continuously integrated.

Development follows a fully documented, audit-ready software development lifecycle process and is part of a quality management system certified according to **EN ISO 13485**. The process meets the highest requirements for medical software and cybersecurity, including compliance with:

EN ISO 14971
IEC 62304 (Safety Class C)
IEC 82304
IEC 62443-4-1
IEC 81001-5-1
IEC TR 60601-4-5
EN 60601-1-8

A complete, audit-ready documentation package is included to support regulatory submissions for medical devices up to EU MDR Class IIb.

Functions

The SDC Stack implements the SDC service classes relevant for practical implementation based on the core standards and key purposes (see illustration).

SUPPORTED PLATFORMS AND ENVIRONMENTS

The SDC Stack is implemented in **modern C++17** and designed for high portability across different hardware platforms.

System Requirements

Our SDC Stack is tested on several platforms and runs in various environments:

Processor Architectures:

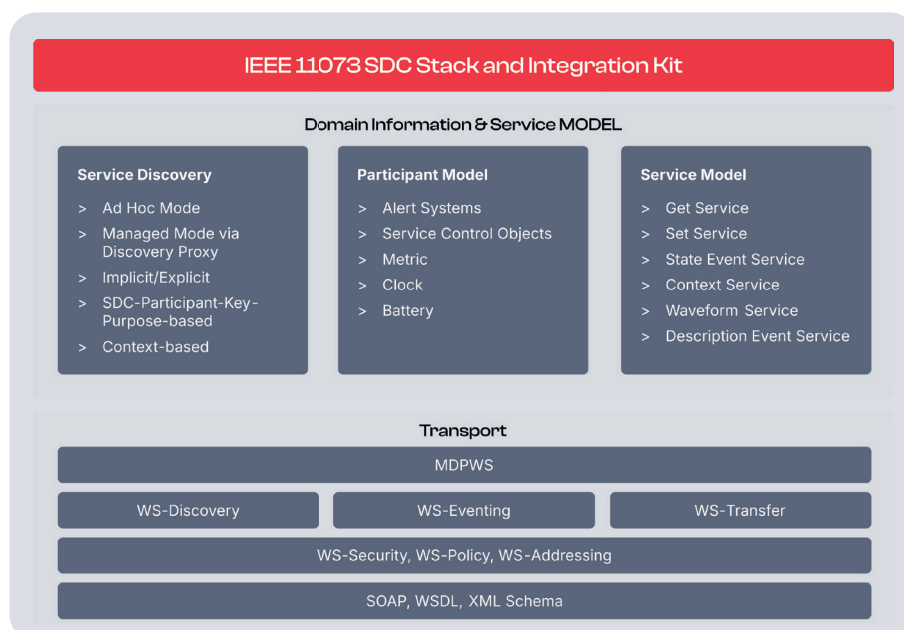
The stack runs on **ARM Cortex A-based microprocessors** independent of performance class and has been tested on systems ranging from resource constrained platforms to high performance configurations.

Supported Operating Systems: A POSIX compatible operating system is required, ensuring predictable behavior and efficient portability across embedded, desktop, and virtualized environments. The SDC Stack is developed and tested using **GCC 11** under **Ubuntu** and **Yocto**. Porting to additional platforms is possible upon request.

Development Environment with CANoe

In addition to the SDC Stack, Vector offers a tool chain for the entire development area based on the V-model. **CANoe** provides comprehensive support for prototyping, simulation, testing, verification and validation.

With native IEEE 11073 SDC support, CANoe enables realistic simulation of entire SDC networks, including both providers and consumers. It supports both interactive and automated workflows and seamlessly integrates into CI/CT pipelines, enabling continuous testing throughout the development lifecycle.



Overview of the Vector SDC Stack:
 Support of key SDC service classes.