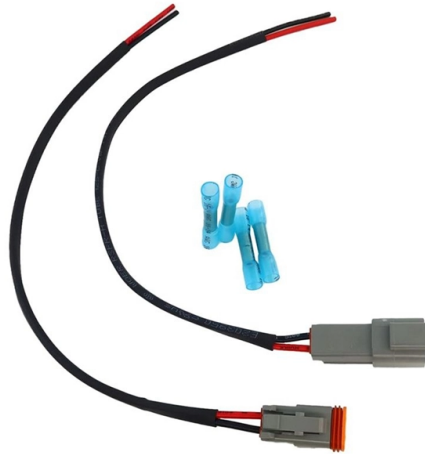


ST Interface Techniques



Overview

ST's portfolio of interfaces includes standard interfaces (such as RS-232, RS-422, RS-485, LVDS, and USB), I/O expanders, level translators, application-specific interfaces for smart cards and Ethernet, and IO-Link Transceivers. TFT displays are a fundamental part of modern embedded systems, from compact wearable devices and consumer products to industrial control panels and smart home interfaces. STM32 microcontrollers remain one of the most popular MCU families for driving TFT LCDs due to their performance range. STM32 microcontrollers, built around the ARM Cortex-M3 core, offer an efficient balance of performance, cost, and power consumption for embedded applications. With series like STM32F101, F103, F105, and F107, they provide flexible options in speed, memory, and connectivity. Compared to legacy 8-bit. In this guide, we'll explore various debugging techniques specifically tailored for STM32 microcontrollers. From basic LED debugging to sophisticated trace capabilities, you'll learn how to identify and resolve issues in your STM32 projects effectively. Thompson sells branded programmers, adaptors and cables. We'll use an inexpensive ST-LinkV2. These introductory and comprehensive STM32 tutorials are contributed by Shawon Shahryiar, a technologist, hardware maker, educator and EEE graduate from Ahsanullah University of Science and Technology, Dhaka to allow quick learning of ARM processor programming and interfacing.

Article Content

Oct 30, 2025

Interface IC and Transceiver IC

ST's portfolio of interfaces includes standard interfaces (such as RS-232, RS-422, RS-423, RS-485, LVDS, and USB), I/O expanders, level translators, application-specific interfaces for smart cards and

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Space-time interface-tracking with topology change (ST-TC)

To address the computational challenges associated with contact between moving interfaces, such as those in cardiovascular fluid-structure interaction (FSI), parachute FSI, and

Mar 21, 2026

Program STM32 ARM Cortex with ST-Link SWD Interface

This is an inexpensive ST-Link V2 programmer connected to a BluePill development board with an STM32 ARM cpu. Pay close attention to the

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Hello, and welcome to this presentation of the STM32 Universal ...

It can also interface with ISO/IEC 7816 smartcards and IrDA devices. It also provides certain features that are useful when implementing Modbus communications. Applications making use of the USART

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STM32 tutorials

These introductory and comprehensive STM32 tutorials are contributed by Shawon Shahryar, a technologist, hardware maker, educator and EEE graduate from

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Mastering Interaction Techniques

Explore the world of interaction techniques in HCI, from basics to advanced methods, and discover how to create user-friendly interfaces.

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A hybrid interface method for three-dimensional multiphase flows

Successful interface methods for multiphase flows need to be designed to operate well in the opposite extremes of strongly surface tension-dominant flows on the one hand and strongly

Nov 16, 2025

Understanding Structured Text (ST) Language for ICS

Defined by the IEC 61131-3 standard, ST is a high-level, text-based language that brings the power of structured programming to industrial automation.

May 15, 2026

Structured text

Structured text, abbreviated as ST or STX, is one of the five languages supported by the IEC 61131-3 standard, designed for programmable logic controllers (PLCs). It is a high level language that is

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The STM32 Step-by-Step Guide Will Make an Expert

Follow the STM32 step-by-step guide to go from beginner to expert ST developer with hands-on tutorials and projects.

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Interaction Techniques and Technologies in Human-Computer

This book offers a thorough exploration of interaction design by examining various technologies, interaction techniques, styles, and devices. This book • Assists readers in acquiring a

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Software API compatible with the bridge interface of STLINK-V3 and ...

The bridge API initializes the microcontroller of the STLINK-V3 subsystem and controls the communication through its interfaces: I2C, SPI, CAN, and optionally CAN FD. It also allows the

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STM32H7-Peripheral-USART interface (USART)

The USART receiver implements different user-configurable oversampling techniques for data recovery by discriminating between valid incoming data and noise. This allows a trade-off between the

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Pseudo Ternary Line Coding and the ST Interface

ISDN and the first layer of Frame Relay use a coding scheme called pseudo-ternary signaling, which is used by the S/T interface. This technique provides DC balance and non-voltage

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ST's portfolio of interfaces includes standard interfaces (such as RS-232, RS-422, RS-423, RS-485, LVDS, and USB), I/O expanders, level translators and application-specific interfaces for smart cards

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ATT& CK Navigator The ATT& CK Navigator is a web-based tool for annotating and exploring ATT& CK matrices. It can be used to visualize defensive coverage,

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Basics of Structured Text (ST) Programming

In this article, we are going to discuss the basics of PLC programming utilizing Structured Text. As one of the IEC-61131 PLC programming languages,

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Inside STM32: Architecture, Programming Interfaces, and Debugging ...

With series like STM32F101, F103, F105, and F107, they provide flexible options in speed, memory, and connectivity.

Sep 27, 2025

Serial Peripheral Interface (SPI)

Introduction Serial Peripheral Interface (SPI) is an interface bus commonly used to send data between microcontrollers and small peripherals such as shift

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Projection methods coupled to level set interface techniques

In this work, we consider hydrodynamic problems with cold flame propagation by merging a second-order projection method for viscous Navier-Stokes equations with modern techniques for

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Understanding the Most Common TFT Interfaces Used

This article provides a clear overview of the most commonly used TFT interfaces on STM32 MCUs—SPI, 8080/6800 parallel, RGB (LTDC), and

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Projection methods coupled to level set interface techniques

Thus, the level set approach avoids the complex bookkeeping that plagues discrete parameterization techniques when the interface changes topology. Another advantage is that the

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Introduction to debug toolbox for STM32 MCUs

To address the above concerns, this application note provides a toolbox describing the most common debug techniques and their application to popular recommended IDEs for STM32

Jun 06, 2026

Datasheet

STM32F401xD STM32F401xE Arm® Cortex®-M4 32b MCU+FPU, 105 DMIPS, 512KB Flash/96KB RAM, 11 TIMs, 1 ADC, 11 comm. interfaces

Jun 18, 2026

STBus communication system concepts and definitions

Abstract This document introduces the concepts and definitions referring to the STBus, the communication system (interconnect) developed for system-on-chip (SoC) applications and whose

Jan 04, 2026

STM32 SPI Communication Tutorial | HAL Example,

In this tutorial, we will learn how to use SPI with an STM32 microcontroller step by step. We will start by understanding how SPI works and

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Surfaces and Interfaces | Surface and Interface Characterization ...

Surface and interface characterization techniques offer unique insights into the structural, electronic, and chemical dynamics occurring at material boundaries, providing essential information

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STM32 Debugging Techniques

In this guide, we'll explore various debugging techniques specifically tailored for STM32 microcontrollers. From basic LED debugging to sophisticated trace

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