



TMDSEMU200-U

XDS200 USB Debug Probe

The XDS200 is a debug probe (emulator) used for debugging TI embedded devices. The XDS200 features a balance of low cost with good performance as compared to the low cost XDS110 and the high performance XDS560v2. It supports a wide variety of standards (IEEE1149.1, IEEE1149.7, SWD) in a single pod. All XDS debug probes support Core and System Trace in all Arm and DSP processors that feature an Embedded Trace Buffer (ETB). For Core Trace over pins the [XDS560v2 PRO TRACE](#) is required.

The XDS200 connects to the target board via a TI 20-pin connector (with multiple adapters for TI 14-pin, Arm Cortex 10-pin and Arm 20-pin) and to the host PC via USB2.0 High Speed (480Mbps).

TMDSEMU200-U is currently manufactured by Blackhawk-DSP. In the past the product was manufactured by Spectrum Digital. The two products are equivalent.

The XDS200 comes in a package consisting of:

- XDS200 debug pod
- TI 20-pin to TI 14-pin converter adapter
- TI 20-pin to Arm 20-pin converter adapter
- TI 20-pin to Arm Cortex 10-pin converter adapter
- USB2.0 cable
- Quick start guide

Devices supported:

- SimpleLink™ MCUs (CC13xx, CC26xx, CC3x, MSP432)
- C2000™ microcontrollers
- TM4C microcontrollers
- Hercules™ microcontrollers
- Sitara (AM335x, AM43xx, AM57xx, AM64xx, AM65xx, AMIC1xx*)
- Automotive SoCs (TDAx ADAS, DRAx infotainment)
- mmWave sensors (IWR/AWR14xx, IWR/AWR16xx, IWR68xx)
- OMAPL13x SoCs
- C674x and C66x (Keystone I) Floating point DSPs
- C642x and C645x
- 66AK2 and TCI66x Multicore DSP + Arm® SoCs (Keystone II)
- C55x Low-power DSPs
- UCD3x digital power devices
- PGA970 SoC
- Other TI SoCs with PRU, C674x, C66xx, Cortex M, Cortex R and Cortex A cores

Devices NOT supported:

- MSP430™ microcontrollers
- AWR12xx mmWave sensors

- C54x
- C62x, C670x, C671x, C672x, C640x and C641x
- F24x/C24x
- AMIC1xx

You will need:

- An installation of **Code Composer Studio v6** (or newer)
- A host PC that matches the minimum requirements of the Code Composer Studio IDE
- A target board that features one of the compatible JTAG headers

You may need:

- An adapter to allow connecting to target boards that features different JTAG headers

Shipping information:

- Blackhawk DSP:
 - Product box dimensions: 152mm x 152mm x 32mm (6.0in x 6.0in x 1.25in)
 - Packaged product weight: 120g (4.0oz)
- Spectrum Digital:
 - Product box dimensions: 130mm x 130mm x 50mm (5.0in x 5.0in x 2.0in)
 - Packaged product weight: 120g (4.0oz)

Features

The XDS200 is the mid-range family of JTAG debug probes (emulators) for TI processors. Designed to deliver good performance and the most common features that place it between the low cost XDS110 and the high performance XDS560v2, the XDS200 is the balanced solution to debug TI microcontrollers, processors and wireless devices.

The XDS200 is designed to replace the aging XDS510 family of JTAG debuggers with higher JTAG data throughput, added support for cJTAG (IEEE1149.7) and ARM Serial Wire debug modes at a reduced cost.

Following the trend for space reduction on modern TI development boards, all XDS200 variants feature a standard TI 20-pin connector as the primary JTAG connectivity to the target. In addition to that, all variants also feature modular target configuration adapters for TI and ARM standard JTAG headers (the offer of adapters varies per model).

The XDS200 supports the traditional IEEE1149.1 (JTAG), IEEE1149.7 (cJTAG) and ARM's Serial Wire Debug (SWD) and Serial Wire Output (SWO), and supports interface levels from +1.5v to +4.1v.

IEEE1149.7 or Compact JTAG (cJTAG) is a major improvement over the traditional JTAG, as it supports all its features while using only two pins, and is available in selected TI wireless connectivity microcontrollers.

Serial Wire Debug (SWD) is a debug mode that uses two pins (JTAG uses four) and transfers data at a higher clock rate when compared to JTAG. Serial Wire Output (SWO) adds one more pin that allows performing simple Trace operations on selected microcontrollers that contain a Cortex M core.

All XDS200 models support a USB2.0 High Speed (480Mbps) connection to the host. Some models available from 3rd parties also support Ethernet 10/100Mbps and power consumption monitoring on the target board.

The XDS200 family is fully compatible with TI's Code Composer Studio IDE. This combination gives a complete hardware development environment which includes an Integrated Debug Environment, Compiler, and full hardware debugging capability on selected TI microcontrollers, processors and wireless connectivity microcontrollers.

Other XDS products:

- [XDS110](#)
- [XDS110 EnergyTrace HDR](#)
- [XDS560v2 System Trace with USB](#)
- [XDS560v2 System Trace with USB and Ethernet](#)
- [XDS560v2 PRO TRACE Receiver](#)

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Technical documentation

Certificate

[TMDSEMU200-U EU Declaration of Conformity \(DoC\)](#)

Related design resources

Hardware development

EVALUATION BOARD

[DK-TM4C123G](#) — TM4C123G USB+CAN Development Kit [DRV8301-69M-KIT](#) — Three Phase BLDC & PMSM Motor Kit with DRV8301 and InstaSPIN-enabled Piccolo TMS320F28069M MCU [DRV8301-HC-C2-KIT](#) — Three Phase BLDC & PMSM Motor Kit with DRV8301 and Piccolo MCU [DRV8312-C2-KIT](#) — Three Phase BLDC Motor Kit with DRV8312 and Piccolo MCU [EK-TM4C1294XL](#) — ARM® Cortex®-M4F-Based MCU TM4C1294 Connected LaunchPad™ Evaluation Kit [MSP-TS432PZ100](#) — 100-pin Target Development Board for SimpleLink™ MSP432P4x MCUs (microcontroller not included) [TMDSDOCK28027](#) — TMS320F28027 Experimenter Kit [TMDSDOCK28035](#) — F28035 Piccolo Experimenter's Kit [TMDSDOCK28069](#) — F28069 Piccolo Experimenter Kit [TMDSDOCK28343](#) — Delfino C28343 Experimenter's Kit [TMDSDOCK28M36](#) — H63C2 Concerto Experimenter Kit [TMDSDOCKH52C1](#) — H52C1 Concerto Experimenter Kit [TMDSEVM5517](#) — C5517 Evaluation Module (EVM) [TMDSHVBLPFCKIT](#) — HV Bridgeless PFC Developer's Kit [TMDSHVMTRINSPIN](#) — High Voltage Motor Control Kit with InstaSPIN-FOC and InstaSPIN-MOTION enabled Piccolo MCU [TMDSILPFCKIT](#) — C2000 2 Phase Interleaved Power Factor Correction Kit with integrated power metering [TMDSPREX28335](#) — C2000 Peripheral Explorer Kit [TMDSRSLVR](#) — C2000 Resolver to Digital Conversion Kit [TMDSSOLARUINVKIT](#) — Solar Micro Inverter Development Kit [TMDXEVM3358](#) — AM335x evaluation module [UCD3138ALLCEVM150](#) — UCD3138A LLC Evaluation Module [UCD3138HSFBCEVM-029](#) — UCD3138 Hard Switching Full Bridge Converter Evaluation Module [UCD3138OL40EVM-032](#) — UCD3138 Programmable Digital Power Controller Open Loop Evaluation Module (40-pin version) [UCD3138OL64EVM-031](#) — UCD3138 Programmable Digital Power Controller Open Loop Evaluation Module (64-pin version) [UCD3138PFCEVM-026](#) — UCD3138 Digital Power Factor Correction Pre-regulator Evaluation Module [UCD3138PSFBCEVM-027](#) — UCD3138PSFBCEVM-027 Evaluation Module [XEVMK2LX](#) — 66AK2L06 Evaluation Module

DAUGHTER CARD

[UCD3138064EVM-166](#) — UCD3138064 Control Card Evaluation Module

DEBUG PROBE

[TMDSEMU560V2STM-U](#) — XDS560v2 System Trace USB Debug Probe [TMDSEMU560V2STM-UE](#) — XDS560v2 System Trace USB & Ethernet Debug Probe [TMDSEMUPROTRACE](#) — XDS560v2 PRO TRACE Receiver & Debug Probe

DEVELOPMENT KIT

[CC2538DK](#) — CC2538 Development Kit [DK-TM4C129X](#) — IoT Enabled ARM® Cortex®-M4F MCU TM4C129X Connected Development Kit [TMD570LS31HDK](#) — Hercules TMS570LS31x/21x Development Kit [TMDSDOCK28335](#) — TMS320F28335 Experimenter Kit [TMDSHVMPPTKIT](#) — High Voltage Isolated Solar MPPT Developers Kit [TMDSHVMTRPFCKIT](#) — High Voltage Motor Control and PFC Developer's Kit [TMDSHVRESLLCKIT](#) — HV Resonant LLC Developer's Kit [TMDSLCDK6748](#) — TMS320C6748 DSP development kit (LCDK) [TMDSRM48HDK](#) — Hercules RM48x Development Kit [TMDX570LC43HDK](#) — Hercules TMS570LC43x Development Kit [TMDXRM46HDK](#) — Hercules RM46x Development Kit [TMDXRM57LHDK](#) — Hercules RM57Lx Development Kit

Software development

IDE, CONFIGURATION, COMPILER OR DEBUGGER

[CCSTUDIO](#) — Code Composer Studio™ integrated development environment (IDE)

Support & training

TI E2E™ forums with technical support from TI engineers

- [\[FAQ\] TMDSEMU200-U: Update firmware in XDS200 emulator](#)
Part Number: TMDSEMU200-U How to update firmware in XDS200 emulator?...
- [TMDSEMU200-U: Pinout information for XDS200 debug probe](#)
Part Number: TMDSEMU200-U Is there pinout information on this part for the 20 pin connector...
- [TMDSEMU200-U: Designing a Debug-Interface for the XDS200](#)
Part Number: TMDSEMU200-U Hello, I have troubles designing an debugging interface with the XDS200. The plan is to use the XDS200 to program and debug my hardware containing the 28377S. The questi...
- [CCS/TMDSEMU200-U: Spectrum Digital XDS200 not working](#)
Part Number: TMDSEMU200-U Tool/software: Code Composer Studio I received a new Spectrum Digital XDS200 and connected it to my Windows 10 Dell PC and a AM572x EVM. I am using CCS 9.1. These are...
- [TMDSEMU200-U: I would like to use TMDSEMU200-U for CC1310 and CC2630](#)
Part Number: TMDSEMU200-U I would like to use TMDSEMU200-U for CC1310 and CC2630. However, I can't read how the pin assignments correspond, and I'm having trouble designing. Therefore, I wou...
- [CCS/TMDSEMU200-U: emulator connection problem using CCS](#)
Part Number: TMDSEMU200-U Tool/software: Code Composer Studio On macOS and Linux, I have difficulty connecting to the XDS200 emulator. I always receive the following output for the Test Connec...

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<https://www.ti.com/tool/TMDSEMU200-U#overview/6-13-22>