

inDART-ST7FLITE0

In-Circuit Debugger for STMicroelectronics ST7FLITE0 FLASH Devices.



MG00367

SofTec Microsystems extends the support of the STMicroelectronics ST7 family announcing the availability of inDART-ST7FLITE0, a low-cost FLASH in-circuit debugger and programmer targeted to ST7FLITE0 devices.

ST7FLITE0 Device Overview

The ST7FLITE0 microcontroller represents the smallest and chipper device of the ST7 family. The following list holds some of the main characteristics of this microcontroller:

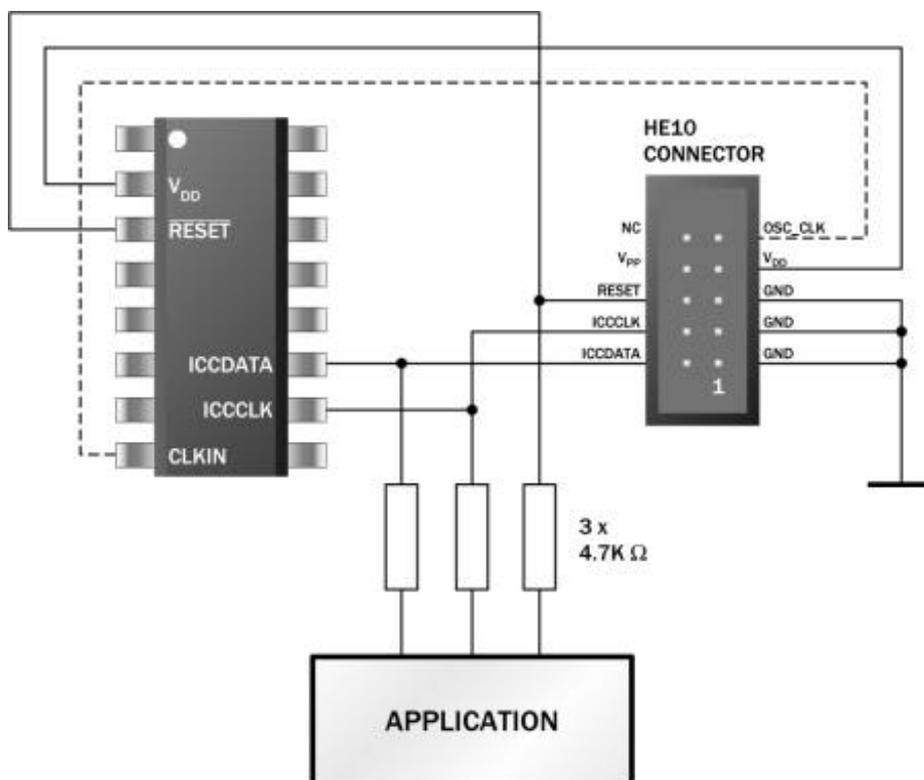
1. Flash Microcontroller
2. ISP programmable
3. Very Low Cost
4. 8-Bit Core ALU
5. 1.5K Bytes Flash Memory
6. 128 Bytes RAM Memory
7. 128 Bytes Data EEPROM Memory
8. 16 Pins
9. 8-Bit PORT A and PORT B
10. 8-Bit ADC
11. 12-Bit Autoreload Timer
12. LITE Timer

inDART-ST7FLITE0 is a powerful entry-level tool for STMicroelectronics ST7-based systems. inDART-ST7FLITE0 takes advantage of STMicroelectronics' STVD7 (STMicroelectronics Visual Debug) Integrated Development Environment and the ICP (In-Circuit Programming) feature to program the FLASH memory of the ST7 family of microcontrollers. Together with STVD7, inDART-ST7FLITE0 provides you with everything you need to write, compile, download, in-circuit emulate and debug user code. Full speed program execution allows you to perform hardware and software testing in real time.

The inDART-ST7FLITE0 package includes the tool inDART-ST7FLITE0 in-circuit debugger, the CD-ROM with the user interface software, a demo board with a microcontroller included (on Design Kit packages only), and a complete documentation (in PDF format).

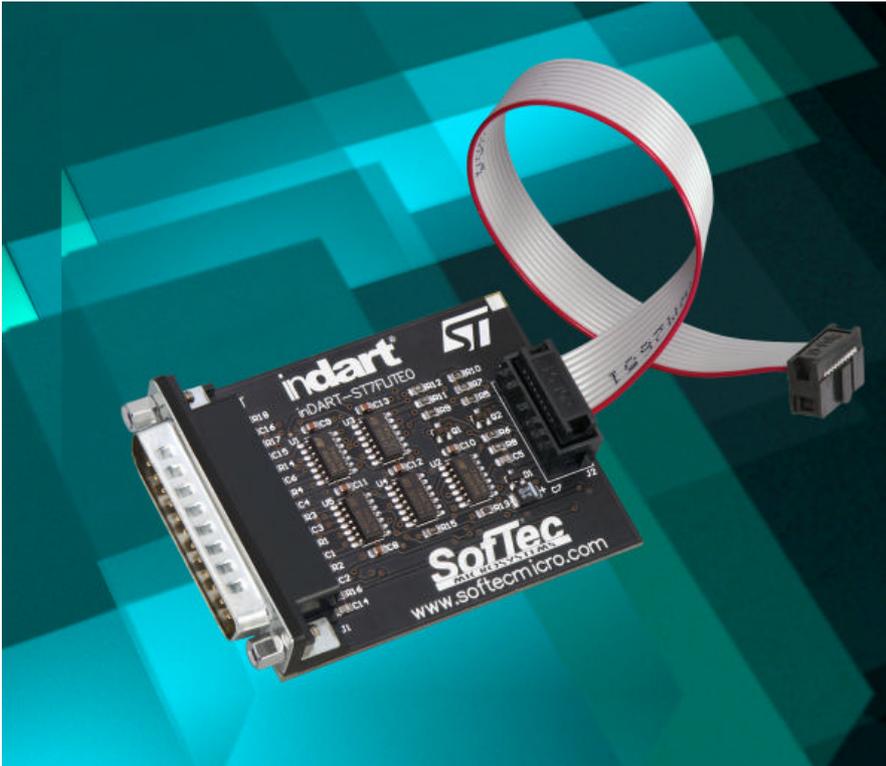
The tool is connected to the host PC through a parallel port (a parallel cable is included just on Design Kit packages), and it is plugged into the target board through an ICP connection.

In-Circuit Programming (ICP)



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ICP is a new way to program STMicroelectronics microchips. The user does not need to program the microcontroller and then plug it to the target board. The ICP feature allows you to update the content of FLASH program memory when the chip is already plugged on the application board. ICP programming uses the ICC (In-Circuit Communication) serial protocol to interface a programming tool like inDART. The ICP feature can be implemented with a minimum number of added components and board area impact. inDART-ST7FLITE0 uses the standard, 10-pin ST7 ICP connector to program and in-circuit emulate the target device. In-circuit programming is a feature used in other inDART-ST7 Series models too. ICP permits real time emulation and full electrical compatibility due to the presence of the microcontroller on the board. All the information indispensable to manage the ICP interface is available in the ST7 datasheet (available for download at www.st.com).



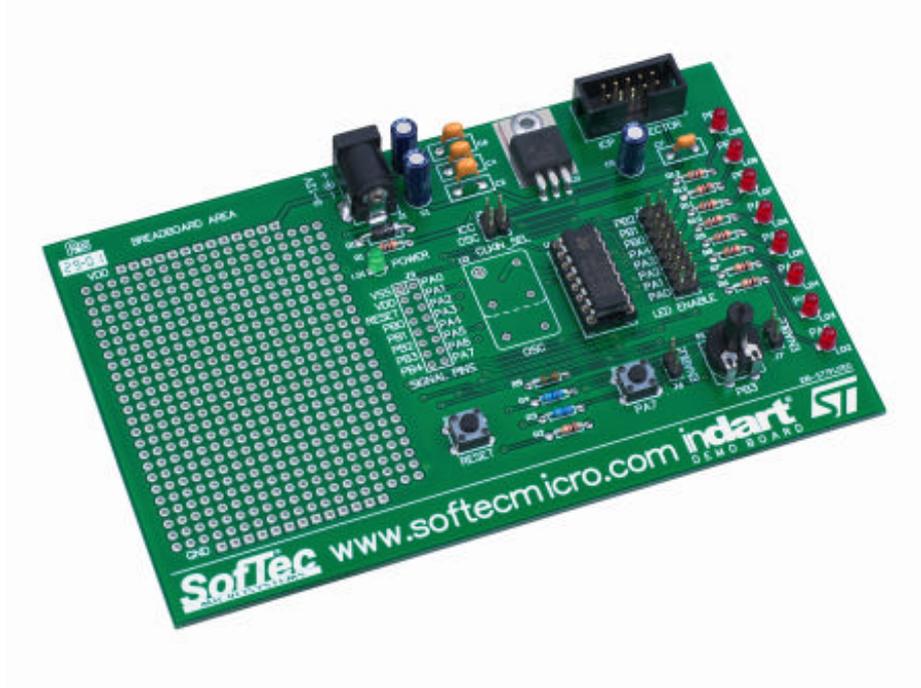
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inDART-ST7FLITE0 Working Principles

inDART-ST7FLITE0 is an in-circuit debugger as well as a programming tool. It programs files into the ST7FLITE0 microcontrollers and offers debugging features like real-time code execution, stepping, and breakpoint. The emulation can be stopped or started at any time, it is also possible to add or remove breakpoints after the emulation has been started. Its debugging features are achieved thanks to a small portion of monitor code (180 bytes), which is automatically and transparently added to the user code and programmed into the target microcontroller.

Contrariwise to traditional in-circuit emulation (where the target application is executed and emulated inside the emulator), inDART-ST7FLITE0 uses the very same target microcontroller to carry on in-circuit execution. This means that all microcontroller's peripherals (timers, A/D converters, I/O pins, etc.) are not reconstructed or simulated by an external device, but are the very same target microcontroller's peripherals. Moreover, the inDART-ST7FLITE0 debugging approach ensures that the target microcontroller's electrical characteristics (pull-ups, low-voltage operations, I/O thresholds, etc.) are 100% guaranteed.

The Demo Board.



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On the Design Kit package, a full-featured experiment board (IDB-ST7FLITE0) is also included. The demo board can be used for evaluation/experiments in the absence of a target application board. On the Starter Kit package, the demo board is not included. However, you can build your own (minimal) target application by using the ST7FLITE0 sample provided and the schematic diagram depicted in the inDART-ST7FLITE0 User's Manual.

The IDB- ST7FLITE0 Demo Board has the following hardware features:

1. An ST7FLITE0 microcontroller (you can also use any of the FLITE0family devices);
2. A standard ICP connector through which the inDART ST7FLITE0 communicates with the microcontroller;
3. Eight high-efficiency (low-current) LEDs connected to Port A/B;
4. A potentiometer;
5. Two push-buttons;
6. A provision for an external oscillator, together with a jumper to select the microcontroller's external oscillator or the clock source from the ICP connector's OSC_CLK pin;
7. A connector for a 9-12 V, 100 mA power supply;
8. A connector area to access the I/O pins of the microcontroller for expansion prototyping;
9. A prototyping area where the user can add his own components.

The Versions

SofTec Microsystems considers the inDART ST7FLITE0 tool as an entry-level development device. Its user can be a professional programmer, as well as any electronic fan that wants to experiment the programming and debugging features of a microcontroller. inDART ST7FLITE0 is available in two versions:

1. InDART ST7FLITE0/SK Starter Kit (programmer/debugger with a microcontroller ST7FLITE0 included), to be used needs a target board.
2. InDART ST7FLITE0 Design Kit, that includes a Demo Board plus the parts already present in the Starter Kit.