

# STMICROELECTRONICS 8 and 16-Bit Microcontrollers

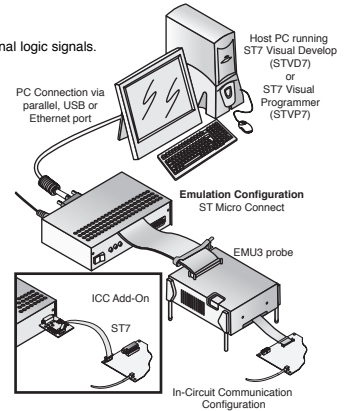


## EMULATORS FOR THE ST7 FAMILY

The ST7 real time development system consists of various hardware and software components, which together form a flexible and sophisticated system designed to provide comprehensive development support for the ST7 family of microcontrollers.

### Features:

- A common hardware development system mainframe supports the entire ST7 family of microcontrollers.
- 64K bytes of user modifiable and configurable emulation RAM, allows memory mapping of all ST7 family devices as well as modelling hypothetical memory configurations.
- Logic analyzer events may trigger a breakpoint or simply define data capture parameters, in accordance to user preferences.
- Simple connection of the emulator system to the host PC via RS-232 serial channel or parallel port.
- Log files allow storage and subsequent redisplay of any display screen for subsequent analysis
- Real-time source level emulation allows viewing on high level source code rather than on disassembled target code for optimum user friendliness.
- Unlimited breakpoints may be set for any opcode fetch or any address access, and conditions may be defined for the generation of 2 external synchronization signals.
- 1K by 32-bit wide trace memory for logic analyzer allows complex and sequential events to be defined on any combination of address and data, as well as 3 internal and 5 external logic signals.
- Emulation system may be driven by a Windows-based GNU debugger software or DOS software running on host PC, allowing full control and monitoring of hardware resources.
- Multiple windows allow concurrent real-time display of source code, microcontroller resources, internal registers, trace data, etc.
- Command files can be used to execute a set of debugger commands in batch mode.
- Editable configuration files ensure tailoring of working environment to user preferences.



MOUSER STOCK NO.		Supported Devices	Price Each
Mfr.	Mfr. Part Number		
511	ST7MDT10-EMU3	ST72260G1, ST72262G1, ST72262G2, ST72264G1, ST72264G2, ST7FLITE05, ST7FLITE09, ST7FLITE20, ST7FLITE25, ST7FLITE29 and ST7FDALI	4200.00
511	ST7MDT20J-EMU3	ST72F321J9, ST72F321J7, ST72F324J6, ST72F324J4, ST72324J2, ST72F324K6, ST72F324K4, ST72324K2, ST72F344J4, ST72344J2, ST72F344K4 and ST7234442	4149.60
511	ST7MDT20J-TEB	Active probe to convert MDT20M to MDT20J	1635.20
511	ST7MDT20M-EMU3	ST72321M9, ST72F321M9, ST72321M7, ST72F321M7, ST72521M9, ST72F521M9, ST72521M7 and ST72F521M7	4045.00
511	ST7MDT20M-TEB	Active probe to convert MDT20J to MDT20M	2256.80
511	ST7MDT20M-EMU2B	ST72621J4, ST72621J2, ST72621L4, ST72622L2, ST72621K4, ST72622K2, ST72623F2, ST72611F1, ST72F611F1 and ST72P611F4	3016.00

## ST7FMC THREE-PHASE MOTOR CONTROL STANDARD FAST CORE SMD ARCHITECTURE

ST7FMC Three-Phase Motor Control Standard Fast Core Architecture 8-Bit The ST7MC family is built around an industry-standard 8-bit core. All devices feature standard MCU peripherals, and ST's on-chip motor control peripheral, the Motor Control Cell, which consists mainly of a three-phase Pulse Width Modulator multiplexed on six high-sink outputs, with a highly flexible Back EMF (BEMF) zero-crossing detector and co-processor unit for the sensorless control of permanent magnet Brushless Direct Current (BLDC) motors. ST's patented 'three resistors' sensorless control method - in conjunction with on-chip comparators, op-amp - provides the lowest possible system cost and the highest system integration for BLDC motor control.

### Abbreviations:

- IAP = In-application programming
- ICD = In-circuit debugging
- ICP = In-circuit programming
- LVD = Low-voltage detection
- PLL = Phase locked loop
- ROP = Readout protection
- RTC = Real time clock timer
- SCI = Serial communications interface
- SPI = Serial peripheral interface

For quantities of 100 and up, call for quote.

MOUSER STOCK NO.		Package Type	Features & Characteristics								Special Features	Price Each
Mfr.	Mfr. Part Number		Prog. Mem.	Memory Type	RAM	E <sup>2</sup> PROM	A/D inputs	Timers	Serial Interface	I/Os (HI-Curr)		
511	ST7FMC1K2T6	TQFP-32	8K	Flash	384	-----	8x10-Bit	1x8-Bit, 1x16-Bit	LINSCI	17 (3)	Sensorless brushless motor control cell, ICD, ICP, IAP, LVD, CSS/PLL, ROP, RTC, nested interrupts	5.18
511	ST7FMC2S6T6	TQFP-44	32k	Flash	1024	-----	11x10-Bit	1x8-Bit, 2x16-Bit	LINSCI, SPI	26 (6)	Sensorless brushless motor control cell, ICD, ICP, IAP, LVD, CSS/PLL, ROP, RTC, nested interrupts	6.36

## SAFE ST7 EVALUATION BOARD

These evaluation boards are intended to help in the evaluation of the behavior of ST7 microcontrollers, as well as complete solutions including MCU firmware and PC software.

### Embedded Peripherals:

- Integrated LVD/AVD (low voltage detector/auxiliary voltage detector) to avoid external circuitry and data losses
- Safe backup clock (CSS: clock security system)
- High sink I/Os (up to 50mA) to drive directly LEDs and buzzers
- IAP: In-application programming
- ICP: Flash in-circuit programming

### Target Devices:

ST7260, ST72262, ST72264 soldered on the board, pre-programmed with examples of software applications that demonstrates the safe behavior of the ST7LITE4, ST7226x and ST72F32x.

MOUSER STOCK NO.		Supported Devices	Price Each
Mfr.	Mfr. Part Number		
511	ST7FOPTIONS-EVAL	ST7LITE4, ST7226x and ST72F32x	328.90

## ST7 INDART IN-CIRCUIT DEBUGGER

STMicroelectronics partners with SofTec Microsystems to provide the ST7 community with low-cost, but very powerful tools. These kits provide you with everything you need to write, download and in-circuit debug user code for all flash-based ST7 microcontrollers. InDART-ST7 takes advantage of the STVD7 ST integrated development environment (ST7 Visual Debug) and the ICP (in-circuit programming) capability. InDART offers hardware and software debugging features such as real-time code execution, stepping and breakpoints.

511	ST7C334-INDART	ST72311, ST72124, ST72314, ST72334	258.70
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## ST7 FLASH STICK (ST IN-CIRCUIT COMMUNICATION KIT)

The ST in-circuit communications kit (STICK) is an ideal introduction to the world of ST7 flash microcontrollers. It is a complete kit for programming the flash ST7 microcontroller. The STICK acts as a communications interface between your PC and the ST7 flash microcontroller soldered on your application board. It can program ST7 flash devices powered with any voltage within their datasheet specified range.

### Features:

- ST7 visual programmer software (STVP7)
- Interface board
- Power supply
- All necessary cables

MOUSER STOCK NO.		Supported Devices	Price Each
Mfr.	Mfr. Part Number		
511	ST7-STICK/US	ST7LITE Series, ST7226x Series, ST7232x Series, ST72252x Series, ST7256x Series	93.60

## ST7 DEVELOPMENT KITS

The ST7-DVP3 consists of two boards. The main emulation board (MEB) is identical for every ST7-DVP3 development kit and the target evaluation board (TEB) is specific to one, or a family of ST7MCUs. Therefore, what makes each ST7-DVP3 development kit distinct (and defines its emulation capabilities) is the type of TEB it contains. The ST7MDT20-DVP3 TEB is capable of emulating all of the microcontrollers listed in the supported devices, however, to perform in-situ emulation (where the development kit is connected to your application board as if it were the actual microcontroller), you need to have the appropriate connectors.

The in-circuit emulation of TQFP devices requires the purchase of an optional package, in addition to the standard package.

MOUSER STOCK NO.		Supported Devices	Price Each
Mfr.	Mfr. Part Number		
511	ST7MDT20-DVP3	ST72321J7, ST72321J9, ST72324J2, ST72324J4, ST72324J6, ST72324K2, ST72324K4, ST72324K6	1260.00
511	ST7MDT20-T44/DVP	ST72321J7, ST72321J9, ST72324J2, ST72324J4, ST72324J6	375.20
511	ST7MDT20-T64/DVP	ST72321R6, ST72321R7, ST72321R9, ST72521R6, ST72521R7, ST72521R9	655.20

## ST7 ENGINEERING PROGRAMMING BOARD (EPB)

The ST7 EPB series of programming boards is able to program all ST7 microcontrollers with OTP, EPROM, EEPROM or flash memories, regardless of socket type. Certain programming boards also support ISP (in-situ programming) or ICP (in-circuit programming). These boards are driven by ST programming software (ST Visual Programmer (STVP7)), which includes all useful functions such as verify, blank check, read master and others.

MOUSER STOCK NO.		Supported Devices	Price Each
Mfr.	Mfr. Part Number		
511	ST7MDT1EPB2/US	ST72101G1, ST72101G2, ST72212G2, ST72T213G1, ST72251G1, ST72251G2, ST72104G1, ST72104G2, ST72215G2, ST72216G1, ST72254G1 and ST72254G2	380.00
511	ST7MDT10-EPB/US	ST7LITE0x, ST7LITE2x, ST7226x	366.80
511	ST7MDT20-EPB/US	U2: ST7262x, U3: ST7263B, U5: ST7265x	468.00