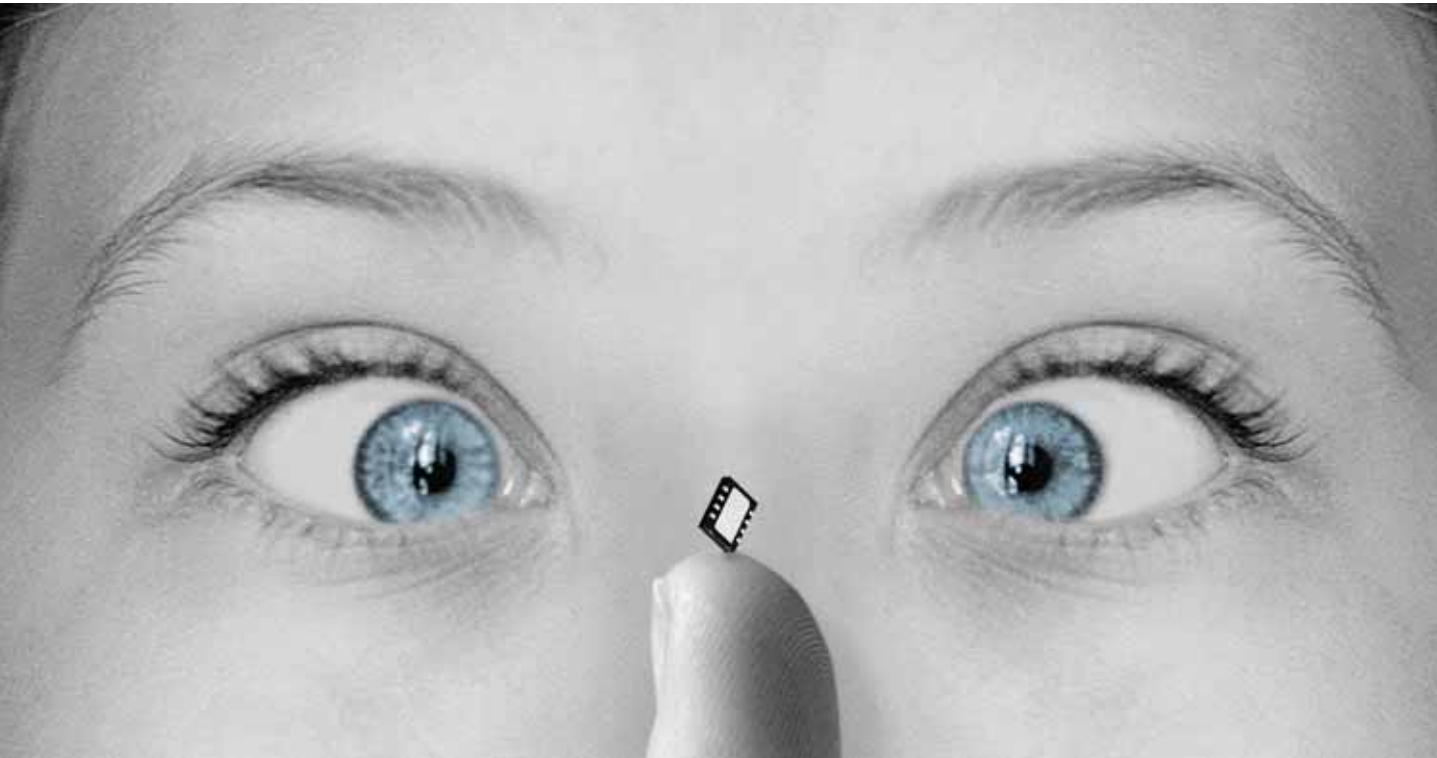


# ST7UltraLite

A powerful set of peripherals in the  
smallest 8-pin microcontroller



August 2006

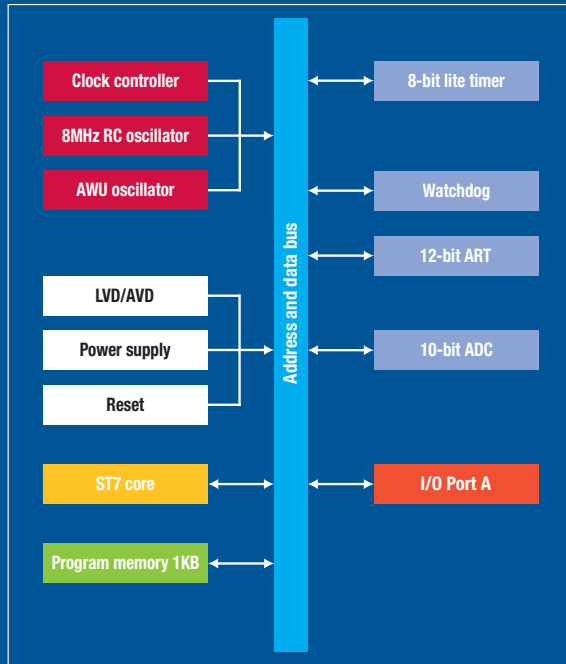
The new ST7FLiteUS series is available in tiny 8-pin packages, which are intended to be used in simple but highly cost-sensitive applications. It completes the popular and easy-to-use ST7Lite Flash MCU family, covering the lowest pin count/memory range, and extending the embedded peripherals into inexpensive, very small devices, which enable users to develop applications quickly and easily.

### Applications

- Small appliances
- Security
- Motor control
- Consumer
- 32-bit peripheral expander
- Thermal regulation
- Industrial

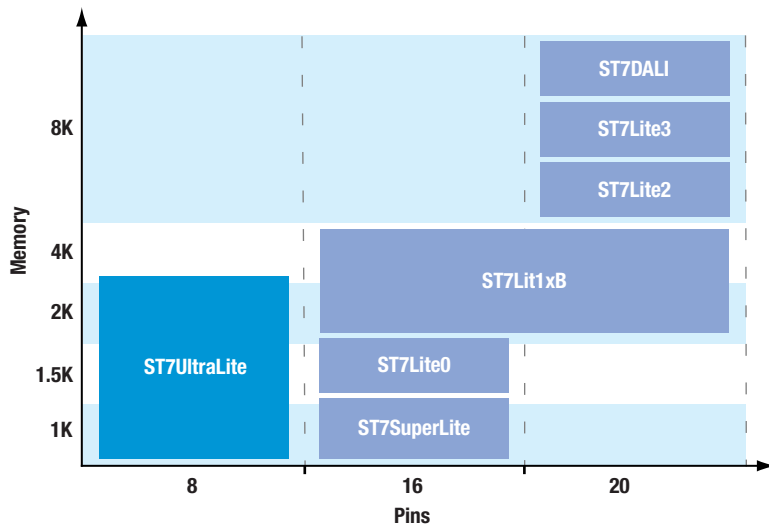


*ST7UltraLite Primer – complete, low-cost mini application*



### ST7Lite family product range

The new MCUs are available in 8-pin SO, DIP and DFN packages. The DFN version is the smallest 8-pin MCU in the market thanks to the 0.9 mm thickness package with a surface area of only 15.75mm<sup>2</sup>.



# ST7UltraLite

## Features and benefits

Features	Benefits
The UltraLite DFN8 package is only 0.9mm high. Less than 16mm <sup>2</sup>	The smallest 8-pin in the 8-bit world
-40 to 125°C extended temperature range	Satisfies every system requirement
Multiple internal clock sources. Smart clock management: switching on fly between internal and external clock sources. Internal RC oscillator	No external clock required, cost reduced and pins saved for I/Os
Up to five channels, 10-bit A/D converter with 3.5µs conversion time	The fastest, high accuracy A/D converter in this market segment
8-bit timer with watchdog, real-time base, input capture, 12-bit timer with output compare and PWM	Full timer set on board
Five high sink I/Os out of 6 I/Os	Six I/Os in 8 pins
Low voltage detector and auxiliary voltage detector	A smart system to prevent unsafe out of range power supply working modes
Five power saving modes	Allows system flexibility and low power consumption

## Device summary

Part number	Program memory type		Prog. (bytes)	RAM (bytes)	Data E <sup>2</sup> PROM (bytes)	A/D inputs	Timer functions			LVD levels	I/Os (high current <sup>2</sup> )	Package	Supply voltage	Special features
	Flash	FAST ROM					12 or 16-bit (IC/OC/PWM)	8-bit (IC/OC/PWM)	Others					
8 pins	ST7LITEUS2	•	•	1K	128		1x12-bit (0/1/1)	1(1/0/0)	WDG, RTC	3	5(5)	DIP8/S08/DFN8	2.4 to 5.5V	8MHz internal RC oscillator, AWU, ROP, ICP, IAP, 5 I/Os + 1 additional output
	ST7LITEUS5	•	•	1K	128	5x10-bit		1(1/0/0)	WDG, RTC	3	5(5)	DIP8/S08/DFN8	2.4 to 5.5V	
	ST7LITEU02	•	•	2K	128			1(1/0/0)	WDG, RTC	3	5(5)	DIP8/S08/DFN8	2.4 to 5.5V	
	ST7LITEU05	•	•	2K	128	5x10-bit		1(1/0/0)	WDG, RTC	3	5(5)	DIP8/S08/DFN8	2.4 to 5.5V	
	ST7LITEU09	•	•	2K	128	128		5x10-bit	1(1/0/0)	WDG, RTC	3	5(5)	DIP8/S08/DFN8	

• Under development

## Development tools

A complete range of development hardware/software systems for ST7UltraLite is available from ST and third-party tool suppliers. These include solutions to help quickly and easily evaluate microcontroller peripherals, develop and debug applications and program microcontrollers.







### Getting started is easy, fun and affordable

The ST7UltraLite Primer (ST7FUS-PRIMER) has everything users need to try out the useful, ultra-tiny ST7LiteUS while running and fine-tuning a clever buzzer/light sensor application. The solution includes demonstration hardware, sample application software and RIDE integrated development environment for in-circuit debugging and programming via USB. The REva starter kit for ST7Lite (ST7FLITE-SK/RAIS) is a low-cost, complete solution for evaluating and starting application development for any device in the ST7Lite family. It includes a REva motherboard with a host of evaluation features and daughter boards featuring ST7FLiteUS, ST7FLite0, ST7FLite1B and ST7FLite3 devices, the RLink in-circuit debugger/programmer and Raisonance's RIDE integrated development environment.

### Low-cost to high-end development tools

Developers can benefit from free software tools including the Cosmic and Raisonance C compilers, which are available in free versions that output executables up to 16KB in size.

For debugging and programming, a complete range of development and debugging systems are available, which include the very low-cost, versatile RLink in-circuit debugger/programmer with advanced break point capabilities, mid-range ST7MDT10-DVP3 emulator and the high-end ST7MDT10-EMU3 emulator. All are driven by the free ST7 Visual Develop (STVD7) integrated development environment.

Part number	Description	
<b>Starter kits</b>		
ST7FUS-PRIMER	Low-cost, introductory buzzer/light sensor application with ST7FLiteUS, internal RC, ADC, PWM, EEPROM and LVD evaluation features, and in-circuit debugging/programming via USB host interface using RIDE integrated development environment.	 ST7FLITE-SK/RAIS
ST7FLITE-SK/RAIS	Complete, low-cost starter kit with ST7FLiteUS, ST7FLite0, ST7FLite1B and ST7FLite3 MCUs, and CAN, UART, SPI, I <sup>2</sup> C and ADC evaluation features.	 ST7FLITE-SK/RAIS
<b>In-circuit debuggers and emulators</b>		
STX-RLINK	Ultra low-cost, in-circuit debugger/programmer supporting ICC connection for ST7, as well as industry standard JTAG connections for uPSD and STR7/9. USB host interface, no power supply required.	 ST7MDT10-EMU3
ST7MDT10-DVP3	Cost-effective, real-time ST7 emulator offering advanced breakpoint and trace capabilities plus in-circuit debugging and programming. USB host interface.	 STX-RLINK
ST7MDT10-EMU3	High-end, real-time ST7 emulator offering advanced breakpoint, trace and profiling capabilities, plus in-circuit debugging and programming. USB, Parallel, Ethernet host interfaces.	 ST7-STICK
<b>Programmers</b>		
STX-RLINK	Ultra low-cost, in-circuit debugger/programmer supporting ICC connection for ST7, as well as industry standard JTAG connections for uPSD and STR7/9. USB host interface, no power supply required.	 ST7SB10-SU0
ST7-STICK	In-circuit programmer supporting ICC connections for ST7. Parallel host interface, power supply included.	
ST7SB10-SU0	Programming sockets for ST7LiteS/U/O MCUs, for use with any tool with in-circuit programming capability (STX-RLINK, ST7-STICK, ST7-EMU3, ST7DVP3).	

## Third-parties

### Development tools

Cosmic Software	<a href="http://www.cosmicsoftware.com">www.cosmicsoftware.com</a>
Raisonance	<a href="http://www.raisonance.com">www.raisonance.com</a>
Softec Microsystems	<a href="http://www.softecmicro.com">www.softecmicro.com</a>

### Programming tools

BP Microsystems	<a href="http://www.bpmicro.com">www.bpmicro.com</a>
Data I/O	<a href="http://www.data-io.com">www.data-io.com</a>
Dataman	<a href="http://www.dataman.com">www.dataman.com</a>

### Programming tools

Eltec	<a href="http://www.eltec.com">www.eltec.com</a>
HI-LO	<a href="http://www.hilosystems.com.tw">www.hilosystems.com.tw</a>
Leap	<a href="http://www.leap.com.tw">www.leap.com.tw</a>
Raisonance	<a href="http://www.raisonance.com">www.raisonance.com</a>
RK-System	<a href="http://www.rk-system.com.pl">www.rk-system.com.pl</a>
Segger	<a href="http://www.segger.com">www.segger.com</a>
Softec	<a href="http://www.softecmicro.com">www.softecmicro.com</a>
System General	<a href="http://www.sg.com.tw">www.sg.com.tw</a>
Xeltek	<a href="http://www.xeltek.com">www.xeltek.com</a>



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