

STR730F Flash family

32-bit ARM-based Flash microcontrollers



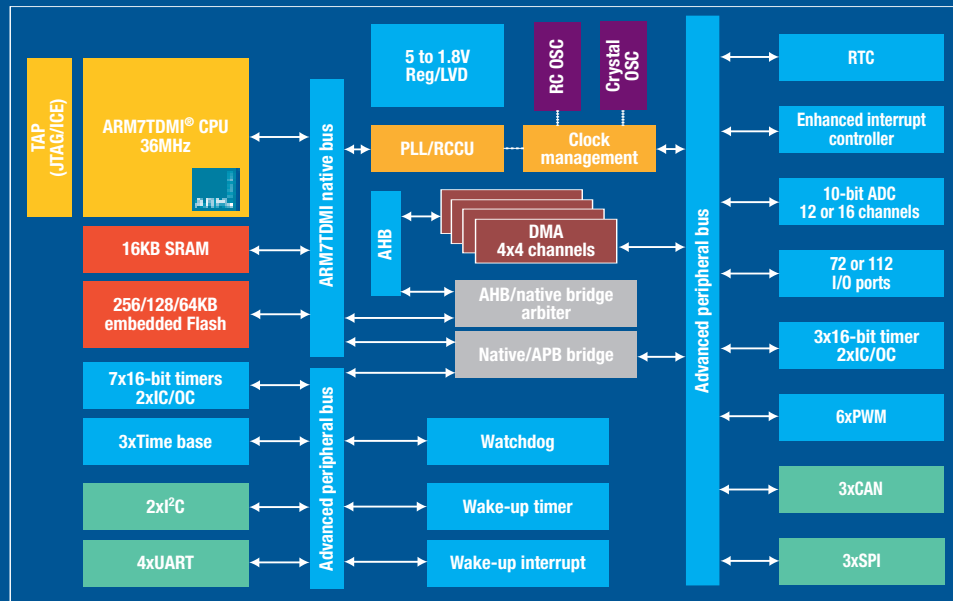
March 2006

STR730F Flash microcontrollers from **STMicroelectronics** are a new generation of super-integrated, single-chip devices. They combine the industry standard ARM7TDMI® RISC microprocessor with embedded Flash and powerful peripheral functions, including up to 20 timers, 4xUARTs and 3xCANs. They are ideal for embedded applications requiring a compact yet powerful MCU, as well as versatile, scalable solutions such as user interfaces, factory automation systems and appliances. Additionally, the STR730F family features a single 5V power supply particularly suited to industrial applications.

Built on the leading ARM™ architecture, the STR730F Flash series allows fast response to emerging requirements, enabling the rapid implementation of changes at low-cost. This family of standard ARM microcontrollers is ideal for a wide range of needs, both now and in the future.

Applications

- Industrial
 - Circuit breakers
 - Factory automation
 - Home automation
 - Industrial networks
 - PLCs
 - Copier/printers
- Building, fire and security
 - Alarm systems
- POS
 - Receipt printers
 - Bill validation
 - Tax control machines
 - Cash registers
- Appliances
- HVAC
- Motor control
- Medical
- Others (handfree car kits, wheel chairs, fish finding sonar)



100-pin TQFP and 144-pin TQFP and BGA, -40 to 105°C operating temperature range, single power 5V

Abbreviations

AHB: Advanced high-speed bus

APB: Advanced peripheral bus

DMA: Direct memory access

Full design control

The STR730F family features a unique combination of peripherals with up to 20 timers, 3xCANs, 16xPWMs signals and 4xUARTs. Offering versatile package options which enable re-use for a full range of products, it helps users to build cost-effective, powerful and innovative solutions and optimize the design process.

Optimize performance

The STR730F family features up to four clock sources, numerous internal clock dividers and multipliers, an internal RC, 32KHz or 2MHz software configurable, a dual APB architecture, five low-power modes and one dedicated

low-power voltage regulator. This combination of advanced options allows performance to be fine-tuned to the smallest detail. It also provides significant power saving functionality due to its many low-power modes.

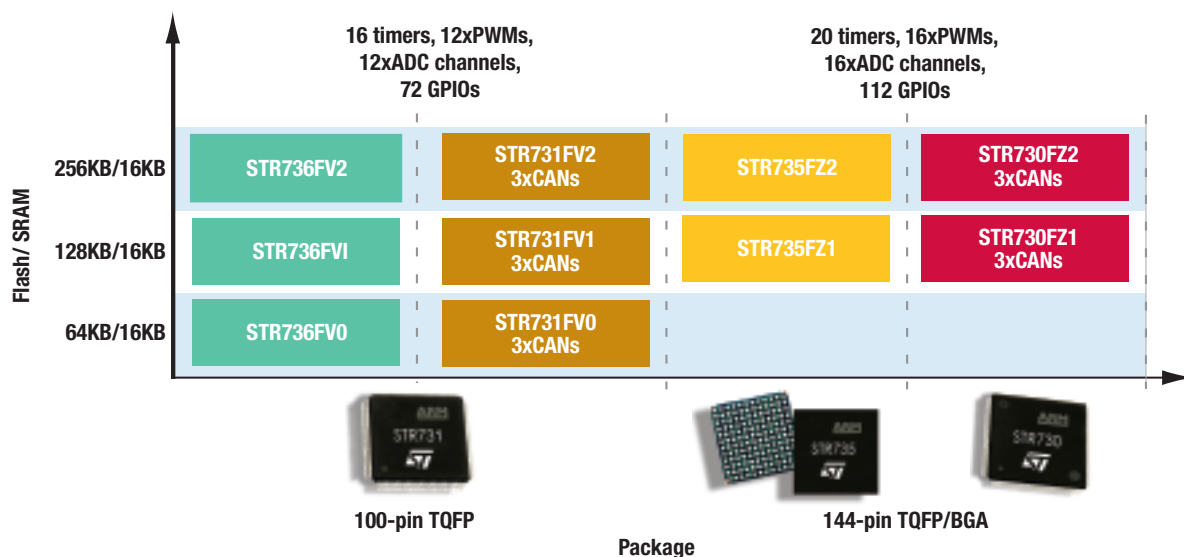
Total control of software

With ST's complete STR7 software library and comprehensive set of application notes, the STR730F offers total software control and improved time to market. The superb combination of the industry standard, and globally recognized, ARM7 core and extensive support for all major tool providers offers a fast route to best-fit and an optimized development process.

STR730F Flash family

Features and benefits

Features	Benefits
High-performance industry standard core ARM7TDMI RISC 32-bit CPU	Future-proof micro controllers that easily adapt to customer requirements
Extensive software and tools including the complete STR7 library supporting all standard peripherals and the CAN	Dramatically reduces development time and increases ease-of-use
Largest choice of peripherals and interfaces including 4xUARTs, up to 20 timers and up to 3xCANs	Reduces system cost with all peripherals in one chip
Flexible power and clock management <ul style="list-style-type: none"> Five low-power modes Low-power voltage regulator Dual APB buses architecture Multiple clock sources 	Let you have full control over your power consumption and performance/power tradeoffs
Single 5V power supply	Native supply of industrial applications. No 3.3V conversion needed
High-quality embedded Flash (data retention 20 years at 55°C)	Suitable for long-life equipment
16 x channels DMA	Lower CPU load, optimized access to memory
Rich package options including the tiny proven 10x10 LFBGA144	Optimizes your developments: the same device in different options will fit all your product range
Temperature range: -40 to 105°C	Increase domain of validity for the application to +105°C



Device summary

Part number	Program memory Flash (KB)	RAM (KB)	A/D inputs	Timer functions		Serial Interface	I/Os (high current)	Packages	Supply voltage	Special features
				16-bit (IC/OC/PWM)	Others					
STR731FV0	64	16	12x10-bit	15 (12/12/12)	WDG, RTC	3xSPIs/ 2xI ² Cs/ 4xUARTs	72 (0)	TQFP100	4.5 to 5.5V	3xCANs, 16xDMAs, on-chip RC oscillator
STR736FV0	64	16	12x10-bit	15 (12/12/12)			72 (0)	TQFP100		16xDMAs, on-chip RC oscillator
STR730FZ1	128	16	16x10-bit	19 (20/20/16)			112 (0)	TQFP144/LFBGA144		3xCANs, 16xDMAs, on-chip RC oscillator
STR731FV1	128	16	12x10-bit	15 (12/12/12)			72 (0)	TQFP100		3xCANs, 16xDMAs, on-chip RC oscillator
STR735FZ1	128	16	16x10-bit	19 (20/20/16)			112 (0)	TQFP144/LFBGA144		16xDMAs, on-chip RC oscillator
STR736FV1	128	16	12x10-bit	15 (12/12/12)			72 (0)	TQFP100		16xDMAs, on-chip RC oscillator
STR730FZ2	256	16	16x10-bit	19 (20/20/16)			112 (0)	TQFP144/LFBGA144		3xCANs, 16xDMAs, on-chip RC oscillator
STR731FV2	256	16	12x10-bit	15 (12/12/12)			72 (0)	TQFP100		3xCANs, 16xDMAs, on-chip RC oscillator
STR735FZ2	256	16	16x10-bit	19 (20/20/16)			112 (0)	TQFP144/LFBGA144		16xDMAs, on-chip RC oscillator
STR736FV2	256	16	12x10-bit	15 (12/12/12)			72 (0)	TQFP100		16xDMAs, on-chip RC oscillator

Development tools

STMicroelectronics' 32-bit ARM core-based microcontrollers are supported by a complete range of high-end and low-cost development tools to meet the needs of application developers. The range of development packages includes third-party solutions that come complete with a graphical development environment and an in-circuit emulator/programmer featuring a JTAG application interface. These support a range of embedded operating systems (OS) while several royalty-free OSs are also available.

Third-parties

Aiji System (艾奇系统)	www.aijisystem.com	Hitex	www.hitex.com	Nohau	www.nohau.com
Anby (安比)	www.anby.cn	IAR	www.iar.com	PLS	www.pls-mc.com
ARM	www.arm.com	Isystem	www.isystem.com	Raisonance	www.raisonance.com
Ashling	www.ashling.com	Keil	www.keil.com	Rowley	www.rowley.co.uk
Embest (恩倍思)	www.embedinfo.com	Lauterbach	www.lauterbach.com	Segger	www.segger.com
Greenchips (芯之)	www.greenchips.com	Manley (曼利)	www.manley.com.cn		
GreenHills	www.ghs.com	Micrium	www.micrium.com		

Evaluation board

Complete development platforms from ST include the STR730FZ2 microcontroller.

Starter kits

Starter kits for STR7 microcontrollers are low cost and out-of-the-box solutions to evaluate and start development on ST's ARM core-based MCUs. Starter kits for ARM are available from ST and third-parties such as IAR, Hitex, Keil and Raisonance.



RealView Developer Kit for ST (RVDK for ST)

The RealView Developer Kit for ST is a complete, low-cost development solution based on ARM's RealView Developer Suite (RVDS).

e-Support

Extensive documentation is available through our website, www.st.com/mcu including application notes, datasheets, programming manual and user manuals. Software can also be downloaded.

Part number	Description
Starter kits	
STR730-SK/IAR	KickStart Kit from IAR, includes IAR embedded workbench for ARM (EWARM – 32K code-size limited version), J-Link (USB/JTAG) in-circuit emulator, as well as IAR demonstration boards
STR730-SK/RAIS	REva Starter Kit from Raisonance, includes RIDE (16K code-size limited version) with GNU C/C++ compiler, debugger, RLink (USB/JTAG) in-circuit emulator, demonstration motherboard and daughter board for STR730F
STR730-SK/HIT	ARM Starter Kit from Hitex, include HiTOP5 (16K code size limited version) with GNU C/C++ compiler, debugger, Tantino (USB/JTAG) in-circuit emulator, evaluation board for STR730F
Evaluation board	
STR730-EVAL	STR73xF series evaluation board with socket
RVDK	
STR7-RVDK	ARM RealView Developer Kit for ST and ARM7™, including RealView ICE Micro Edition hardware. No time restriction
STR7-RVDK/BAS	ARM RealView Developer Kit for ST, Basic Edition for ARM7 with RealView ICE Micro Edition hardware. One year license at limited cost
STR-RVICE/ME	RealView ICE Micro Edition hardware emulator with Preview Edition CD (45 day evaluation version)
STR-RVDK/CPP	C++ support option



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