Keywords: high-speed, secure, microcontrollers, faq, development board, evaluation kit, interrupt vector table, security processor, DS5000, DS5000T, DS5000FP, DS5001FP, DS5002FP, DS2250, DS2250T, DS2251T, DS2252T, DS5250, DS80C310, DS80C320, DS80C323

APPLICATION NOTE 595

8051 Microcontrollers: Frequently Asked Questions

Aug 10, 2001

Abstract: The 8051 Microcontroller: Frequently Asked Questions offers the reader quick answers to possible problems encountered while using Maxim microcontrollers such as the DS89C450, DS80C320, DS80C323, DS80C390, DS5250. These high-speed and secure processors are pin and code 8051-compatible industry standard parts.

Where can I get more detailed information on the features and general operation for a specific microcontroller? Much of the information I need does not seem to be in the data sheet.

The data sheet is intended to be a short overview and listing of electrical specifications. To properly use our microcontroller products, you must also download the appropriate User Guide (plus required supplements) from our Web site.

The following list indicates which User Guides are associated with which products:

Microcontroller Family	User Guides
Ultra High-Speed Flash Microcontroller: All Devices *(DS89C430/DS89C450)*	Ultra High-Speed Microcontroller User Guide
High-Speed Microcontroller: All devices	High-Speed Microcontroller User Guide (HSMUG)
DS80C390	HSMUG + DS80C390 User Guide Supplement
DS80C400	HSMUG + DS80C400 User Guide Supplement
DS5250	HSMUG + DS5250 User's Guide Supplement
Secure Microcontroller (Basic)	Secure Microcontroller User Guide

What development tools, such as emulators, development boards and compilers, are available for the microcontroller products?

Maxim maintains a list of some of the support tools vendors for our microcontroller products on our Third-Party Hardware/Software Development Tools Web page. This list includes compilers, emulators, development/prototyping kits, programming adapters, reference texts, and other items useful when designing or debugging embedded systems.

How do I program the microcontroller?

Most commercially available device programmers support Maxim microcontrollers. However, many customers who own "older" programmers may not have Maxim devices listed on their supported devices menu. If you do not see the Maxim device listed, please contact the manufacturer of your programmer for a software update that will support the Maxim device that you wish to program.

Ultra-high-speed flash microcontrollers and secure microcontrollers can be programmed in-circuit using their internal bootloader. Ultra-high-speed flash microcontrollers can also be programmed with the DS89C450 evaluation kit, which includes the MTK software package. Adapters are commercially available to allow surface-mount packages to be programmed by the evaluation kit.

I have lost the source code for my secure microcontroller. If I return it to Maxim, can you get the code out?

No. Once locked, the code can be erased, but not extracted.

The high-speed microcontroller doesn't work in my old 8051 design. Why?

Either the external memory interface is too slow or the code utilizes S/W timing loops. See application note 56, "The DS80C320 as a Drop-In Replacement for the 8051/8032 Microcontroller."

Do I have to recalculate baud rates from my old, slow 8051 code when upgrading to the high-speed microcontroller?

No. The timers on the High-Speed Microcontrollers will default to 8051-compatible; divide by 12 mode on power-up.

Where can I buy a "fundamental mode" crystal?

Any major crystal vendor can make fundamental mode crystals. The following crystal vendors have pledged to keep sample stock in order for customers to build prototypes:

- Statek (408-639-7810)
- C-MAC (+44 1460 74433)
- Abracon (714-448-7070)
- M-TRON (605-665-9321)

Can I purchase an industrial temperature version of the DS500x/DS225x module?

No. The lithium batteries are not designed for extreme temperatures. The DS5001FPN and DS5002FPN (industrial temperature processors) can be used along with a user-defined battery and SRAM to build an industrial temperature module.

Can I get a faster version of the DS5002FP or does Maxim offer a product with security and a high-speed core?

The DS5250 security processor provides the security features of the DS5002FP and the high-speed core of the DS80C320. Please contact our Technical Support Center for more information.

Related Parts		
DS2250	Soft Microcontroller Module	Free Samples
DS2250T	Soft Microcontroller Module	Free Samples
DS2251T	128k Soft Microcontroller Module	Free Samples
DS2252T	Secure Microcontroller Module	Free Samples
DS5000	Soft Microcontroller Module	Free Samples
DS5000FP	Soft Microprocessor Chip	
DS5000T	Soft Microcontroller Module	Free Samples
DS5001FP	128k Soft Microprocessor Chip	Free Samples
DS5002FP	Secure Microprocessor Chip	Free Samples
DS5250	High-Speed Secure Microcontroller	
DS80C310	High-Speed Microcontroller	Free Samples
DS80C320	High-Speed/Low-Power Microcontrollers	Free Samples
DS80C323	High-Speed/Low-Power Microcontrollers	Free Samples
DS80C390	Dual CAN High-Speed Microprocessor	Free Samples
DS80C400	Network Microcontroller	Free Samples
DS87C520	EPROM/ROM High-Speed Microcontrollers	Free Samples
DS87C530	EPROM Microcontrollers with Real-Time Clock	Free Samples
DS89C430	Ultra-High-Speed Flash Microcontrollers	Free Samples
DS89C450	Ultra-High-Speed Flash Microcontrollers	Free Samples

More Information
For Technical Support: http://www.maximintegrated.com/support
For Samples: http://www.maximintegrated.com/samples
Other Questions and Comments: http://www.maximintegrated.com/contact

Application Note 595: http://www.maximintegrated.com/an595
APPLICATION NOTE 595, AN595, AN 595, APP595, Appnote595, Appnote 595