



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 Aug 10, 2001

APPLICATION NOTE 595

8051 Microcontrollers: Frequently Asked Questions

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

Ultra High-Speed Flash Microcontroller: All Devices
(DS89C430/DS89C450)

High-Speed Microcontroller: All devices

DS80C390

DS80C400

DS5250

Secure Microcontroller (Basic)

User Guides

[Ultra High-Speed Microcontroller User Guide](#)

[High-Speed Microcontroller User Guide \(HSMUG\)](#)

[HSMUG](#) + [DS80C390 User Guide Supplement](#)

[HSMUG](#) + [DS80C400 User Guide Supplement](#)

[HSMUG](#) + [DS5250 User's Guide Supplement](#)

[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.

More Information

For technical support: www.maxim-ic.com/support

For samples: www.maxim-ic.com/samples

Other questions and comments: www.maxim-ic.com/contact

Automatic Updates

Would you like to be automatically notified when new application notes are published in your areas of interest?

[Sign up for EE-Mail.](#)

Related Parts

DS2250: [QuickView](#) -- [Full \(PDF\) Data Sheet](#)

DS2250T: [QuickView](#) -- [Full \(PDF\) Data Sheet](#)

DS2251T: [QuickView](#) -- [Full \(PDF\) Data Sheet](#)

DS2252T: [QuickView](#) -- [Full \(PDF\) Data Sheet](#)

DS5000FP: [QuickView](#) -- [Full \(PDF\) Data Sheet](#)

DS5000T: [QuickView](#) -- [Full \(PDF\) Data Sheet](#)

DS5001FP: [QuickView](#) -- [Full \(PDF\) Data Sheet](#)

DS5002FP: [QuickView](#) -- [Full \(PDF\) Data Sheet](#) -- [Free Samples](#)

DS5250: [QuickView](#) -- [Abridged Data Sheet](#)

DS80C310: [QuickView](#) -- [Full \(PDF\) Data Sheet](#) -- [Free Samples](#)

DS80C320: [QuickView](#) -- [Full \(PDF\) Data Sheet](#) -- [Free Samples](#)

DS80C323: [QuickView](#) -- [Full \(PDF\) Data Sheet](#) -- [Free Samples](#)

DS80C390: [QuickView](#) -- [Full \(PDF\) Data Sheet](#) -- [Free Samples](#)

DS80C400: [QuickView](#) -- [Full \(PDF\) Data Sheet](#) -- [Free Samples](#)

DS87C520: [QuickView](#) -- [Full \(PDF\) Data Sheet](#) -- [Free Samples](#)

DS87C530: [QuickView](#) -- [Full \(PDF\) Data Sheet](#) -- [Free Samples](#)

DS89C430: [QuickView](#) -- [Full \(PDF\) Data Sheet](#) -- [Free Samples](#)

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