# HSM/320 & /520

## Dallas High Speed Microcontroller Development System

SYSTRONIX®

801-534-1017
www.systronix.com

*Prototype quickly using the new Dallas High Speed Microcontroller Family with the HSM/320 & /520 from Systronix.*

*July1999 version now supports DS87C520 at 33 MHz. Includes enhanced firmware plus new RAD51 IDE& assembler!*


The hot new HSM/320 & /520.

8.3 MIPs. 128 KBytes NVRAM. 2 UARTs. Windows RAD51 assembler & IDE.

Only $99-$179.

What are you waiting for? Kick your 8051 application into warp drive. HSM/320 was designed with a clean sheet approach to maximize performance from the radical new Dallas High Speed Micros. It delivers true zero wait-state 33 MHz performance.

Easy program loading from a PC serial port. No jumpers to change or chips to unplug.

Use our BCI51PRO BASIC compiler - or new RAD51 assembler and IDE.

*Accept no substitutes. Take no prisoners.*

- 5-13VDC power input, on-board voltage regulator
- All processor ports brought out to clearly labelled headers
- Dual UARTs, dual RS232 ports
- 2 test pushbuttons (high & low) and 2 test LEDs need only 1 mA drive
- Generous prototyping area for SMT SOIC (wide and narrow), and through-hole DIP, SIP & ZIP
- 128 KBytes NVRAM, true zero wait-state 33 MHz performance.
- Powerful serial loader& utility EPROM.
- Assembler and example programs.
- Standard 100mm by 160mm size
- Technical data and secure on-line ordering at www.systronix.com

### What are Dallas High-Speed Microcontrollers?

Dallas High Speed Microcontrollers (HSMs) are high performance, low power, CMOS 8051 code-compatibles with a radical new processor core. Instead of a generic 8051's 12 clocks per instruction cycle, the HSMs complete an instruction cycle in only 4 clock periods. Combine that 3X performance boost with clock speeds up to 33 MHz and you've got an 8.3 MIP CMOS controller!

Other unique features include five external interrupts, an on-board watchdog timer, power-fail interrupt, dual UARTs, dual data pointers, and flexible power-conservation options. For data, contact Dallas Semiconductor at 972-371-4000 or www.dalsemi.com, or follow the links from www.systronix.com.

### True 33 MHz Zero Wait-State Performance

The High Speed Micros have improved I/O Port capacitive load drive capability, especially on Port 0. This is different enough from generic 12- and 16- MHz 8051s to merit careful system design. Add the timing requirements of 25- and 33- MHz memory access and it's clear that just stuffing an HSM controller into an old, slow 8051 board will only deliver part of the performance you could have. HSM/320 is rigorously designed to meet all manufacturer's timing requirements over worst case temperature and power variations, with no wait states. Accept no substitutes.

### Full 128 KBytes of Code and Data NVRAM

The High Speed Micros have the same 16-bit address space as 8051s, for up to 64 KBytes each of code and data. HSM/320 delivers with a full complement of memory. Systronix proprietary memory interface circuitry combines a 128Kx8 SRAM, a CMOS PLD, a MaxCap, and a power-control supervisor chip. The result is 60 KBytes each of code and data (both are nonvolatile), and a 4 KByte memory mapped I/O space.

### Smart Loader/Demonstrator EPROM

The powerful Systronix auto-bauding loader does much more than program HEX files into the development board's NVRAM. You can read and write all controller registers, internal data and external data memory, set stretch cycles,test interrupts, and more. You can peek and poke all memory-mapped I/O space - very handy for testing peripherals you've added. All of this can be done manually or via script files sent from an RS232 serial port of ANY computer - Wintel, Mac, Linux, SUN, whatever. All you need is a basic communications program.

### Includes new Systronix RAD51 IDE and 8051 Assembler

HSM/320 & /520 include the new Systronix RAD51 Integrated Development Environment (IDE) and 8051-family assembler. Requires Windows 95/98/NT. 16-bit Windows and DOS tools are also included.

### Related Products

Systronix now also supports the Dallas DS87C530 with an adapter which plugs onto the basic HSM/320 board. HSM/550 supports the new Dallas DS87C550 EPROM/ADC/PWM High Speed Processor.

**HSM/320: $149**

33 MHz HSM/320 with 33.0000 and 22.1184 MHz crystals. Complete system with manual, power cube, and software.

**HSM/520: $165 (OTP) or $179 (windowed/erasable)**

33 MHz HSM/520 board with DS87C520 controller, either plastic OTP or ceramic window erasable. Includes same crystals and accessories as HSM/320.

**Lite: $99**

22 MHz system, without controller or power cube, and with manual on disk.


# Systronix® Inc.

555 South 300 East #21, Salt Lake City, Utah, USA 84111
Tel:(801)-534-1017 Fax:(801)-534-1019 www.systronix.com


## DETAILED DESCRIPTION

**Processor socket & support** DIP40 for any 5-volt DS80C320 family member including DS87C520. Code can be located in the internal EPROM of applicable family members by changing a board jumper. Internal 1 KBye of data memory of DS87C520 can be used seamlessly in conjunction with 60 KBytes of on-board data memory.

**Memory** 128 KByte NVRAM (120 KBytes usable) divided into 60 KBytes of code and 60 KBytes of data. NVRAM is backed up with a MaxCap for 3-4 week typical power-off nonvolatility.

**Power** Unregulated 6-13 VDC or 5 VDC regulated. 5.5x2.5 mm unregulated input power jack. Regulator is reverse-polarity, short-circuit and over-temperature protected.

**Serial I/O** Two RS232 serial I/O (DB9M), one for each UART in the 80C320/520. The RS232 buffers can be disconnected if you wish to add your own buffer for RS485, RS422, etc.

**Prototype Area** Generous 5.3 x 1.4 inch prototype area. Dual strips of SOIC-to-through hole pads on front and rear of board. Perfect for prototyping with surface mount devices. Heavy power and ground busses on .025" headers. Every pad is surrounded by ground plane - perfect for low-noise analog circuitry. Front of proto area plane is VCC, back is GND, with exposed diamonds in the solder mask for easy power and ground connection.

**Expansion** Memory mapped I/O space at FXXXH is decoded and brought out to a .025" post. A 16V8 DIP20 PLD fits perfectly below the A0-A15 bus headers to simplify additional decoding or strobe generation.

**Easy Program Loading** Serial program loading can be initiated by on-card pushbutton. No special software is needed - use any terminal communication program on any brand of computer. LEDs indicate RUN and LOAD modes. The serial loader is only active in LOAD mode. In RUN mode it is inactive, giving your program complete control of all controller memory and resources.

**Size** Standard 100x160 mm single Eurocard size, hundreds of enclosures available (some stocked by Systronix) including RF shielded, NEMA rated, etc.

**Environmental** Commercial temperature 0 to 70 deg C.

**Support & Warranty** Unlimited friendly technical support. One year warranty against defects.

## All systems include:

- Printed user manual (on disk in Lite version)
- Wall cube power supply, 120 VAC input, 6 VDC 800 mA output (not in Lite)
- Systronix RAD51Windows 95/98/NT IDE and assembler
- Schematics (on disk in Lite version)
- Sample programs in RAD51 assembly code and Systronix BCI51 Real-time Compiled BASIC

rev 1999 Oct 06 bab