

HSM/550

Early Production Release
1999 June 02

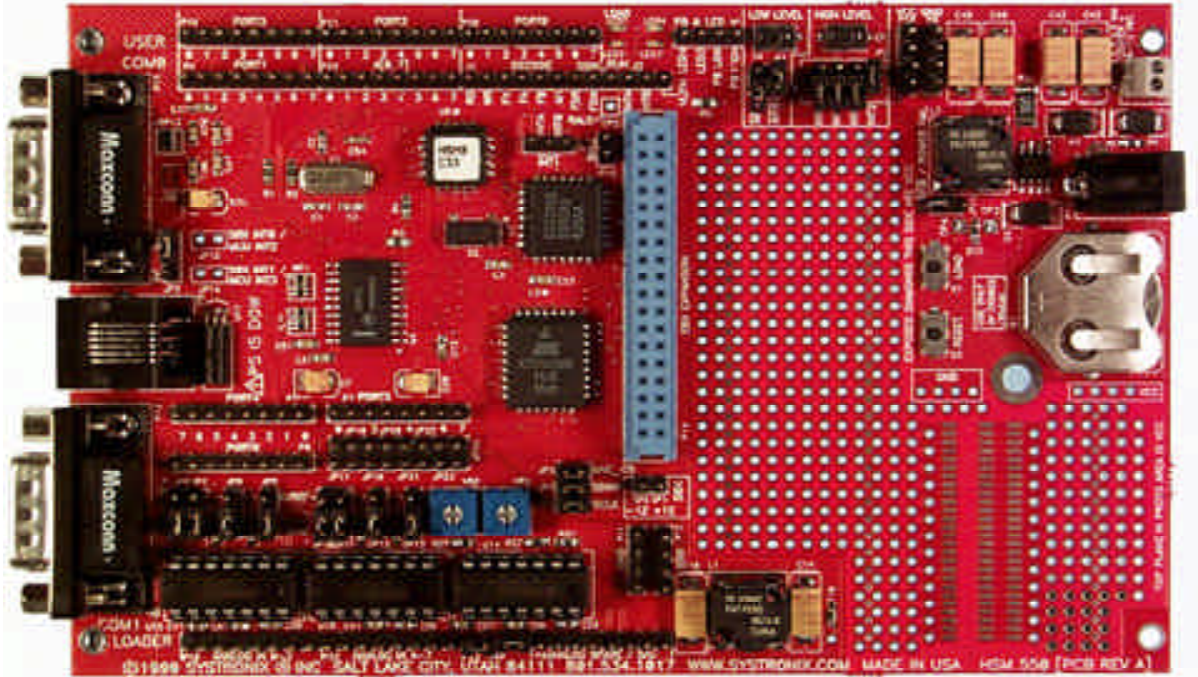
SYSTRONIX®

Dallas 87C550 High Speed Microcontroller Rapid Development & Prototyping System

*The new HSM/550
is a ready-to-use
DS87C550
development
system.*

*Powerful Dallas
High Speed
Microcontroller core
with 10-bit ADC and
8- or 16-bit PWM.
Plus 12-bit DAC,
analog buffers,
clock & calendar,
and more.*

*Notice the blue SBX
expansion
connector and
generous prototype
area.*



Develop with the new
87C550 High Speed
Microcontroller.

8 MIPS. 120 KBytes
NVRAM. ADC, PWM,
RS232, MicroLan,
SBX. Prototype area.

Only \$249.

Rev up your development with a
warp-speed 8051 core, on-board
ADC, DAC, PWM and more!

HSM/550 features eight channels
of 10-bit ADC, one 12-bit DAC,
four channels of PWM, and analog
signal conditioning.

True zero wait-state performance.
Easy program loading from a PC
serial port. Dallas MicroLan/
iButton port for low-cost remote
sensing & control.

Includes the new Systronix
RAD51 8051 assembler and
development environment! Device
drivers and example programs
with source code are included.

- All processor ports brought out to clearly-labelled headers.
- 120 KBytes NVRAM, zero wait states.
- Dual UARTs, dual RS232 ports
- Pushbuttons (high & low levels) and LEDs.
- Powerful serial loader & utility EPROM.
- 6-18 VDC power input, with low-noise, high-efficiency switching regulator.
- Generous prototyping area for SMT SOIC (wide and narrow), and through-hole DIP, SIP & ZIP
- Optional keypads and LCDs
- Standard 100mm by 160mm size
- Real technical support included!
- Latest info: www.systronix.com, or email to sales@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. HSMs complete an instruction cycle in only 4 clock periods instead of 12. Combine that 3X performance boost with clock speeds up to 33 MHz and you've got an 8.3 MIP CMOS controller!

The DS87C550 includes five external interrupts, an on-board watchdog timer, power-fail interrupt, dual UARTs, dual data pointers, built-in ADC, and 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 32 MHz Zero Wait-State Performance

The High Speed Micros require faster memory and I/O circuitry, and have much faster strobe slew rates. HSM/550 is rigorously designed to meet all manufacturer's timing requirements over worst case temperature and power variations, *with no "wait states"*. HSM/550 uses a 32 MHz crystal in order to utilize readily available 55 nsec SRAMS and to tolerate heavy loads on the address/data bus.

60 KBytes each of Code and Data plus 4 KByte I/O space

The High Speed Micros have the same 16-bit address space as 8051s, for up to 64 KBytes each of code and data. HSM/550 delivers with a full complement of memory: 60 KBytes each of code and data (both are nonvolatile), and a 4 KByte memory mapped I/O space.

I/O Options

The industry standard 8-bit SBX "mezzanine bus" interface is an easy way to plug on additional memory mapped I/O from dozens of vendors, or create your own with our SBX prototyping board. The Systronix SBX1 board supports parallel interface LCDs and matrix keypads, and 24 bits of rugged bidirectional digital I/O.

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/550 includes the new Systronix RAD51 Integrated Development Environment (IDE) and 8051-family assembler. Requires Windows 95/98/NT.

How do I order?

Please refer to our *Product Matrix & Price List* and *Order Form* (available on our web site) for detailed option and ordering information. Our web site will always have the newest information on released products. Or call us!

SBX1 LCD and Keypad Option:

This feature-packed SBX board includes a 16-pin latching header for an LCD, a 4x5 keypad decoder, 24 bits of bidirectional I/O capable of sinking 150 mA, and a piezo buzzer. The digital I/O header is a standard Opto-22 type 25x2 for easy industrial I/O buffering.

Price (preliminary- subject to change):

HSM/550 \$249 (single), \$239 (2+), \$??? price on higher quantities. SBX-1 LCD, keypad and I/O board: \$??? SBX-Proto board with decoder/strobe PLD \$???

TECHNICAL DETAILS

Microcontroller Socketed PLCC68 Dallas DS87C550-33 MHz with a 32 MHz crystal. All ports are presented on labelled headers.

Memory 60 KBytes of code and 60 KBytes of data in NVRAM. 4 KByte I/O space. Replacable lithium battery.

Power Unregulated 6-18 VDC input from a 5.5x2.5 mm jack. Efficient switching regulator is reverse-polarity, short-circuit and over-temperature protected. 5V @ 500 mA available for user. Four layer board with isolated analog power plane and pi-filtered analog power.

Serial I/O Two RS232 serial I/O, one for each UART.

Analog I/O Eight channels of 10-bit ADC with op-amp buffers. Precision 2.048V reference. Input range of each channel is jumper selectable 0-2.048, -2.048 to +2.048, or 0 to 4.096. One channel of 12-bit analog output, op-amp buffered with a range of 0-4.096 volts (resolution of 1 mV per count). Two free opamps with adjustable gain of 1 to 11. Opamps are standard quad type in DIP sockets.

PWM and Capture/Compare Four channels of 8-bit PWM can be cascaded to form dual 16-bit PWM. Timer2 has multiple capture/compare modes.

Digital I/O The C550's ports 4, 5, and 6 are presented on labelled headers. SBX cards provide additional I/O options.

LEDs and Switches Two pushbuttons (low and high levels) and two LEDs are provided for experimentation. The pushbuttons can drive one or more of the C550's interrupts.

Clock & Calendar DS1284 with lithium battery (also provides NVRAM backup). Calendar or interval interrupts can be jumpered to the controller.

Expansion 8-bit SBX connector with up to 16 decoded addresses and two interrupts. Dallas MicroLan/iButton port for low-cost remote sensing & control. Memory mapped I/O space is decoded at FAXXH and FBXX, as are read and write strobes at FDXXH.

Easy Program Loading Serial program loading of HEX files initiated by on-card pushbutton. The auto-bauding serial loader is only active in LOAD mode. In RUN mode it is inactive, giving your program complete control of all controller 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 Friendly technical support. One year warranty against defects, and fast turn-around on repairs.

All systems include:

- Printed user manual & technical reference
- Wall cube power supply
- Systronix RAD51 assembler & IDE for Windows 95/98/NT
- Sample programs in assembly code and Keil C

SYSTRONIX®

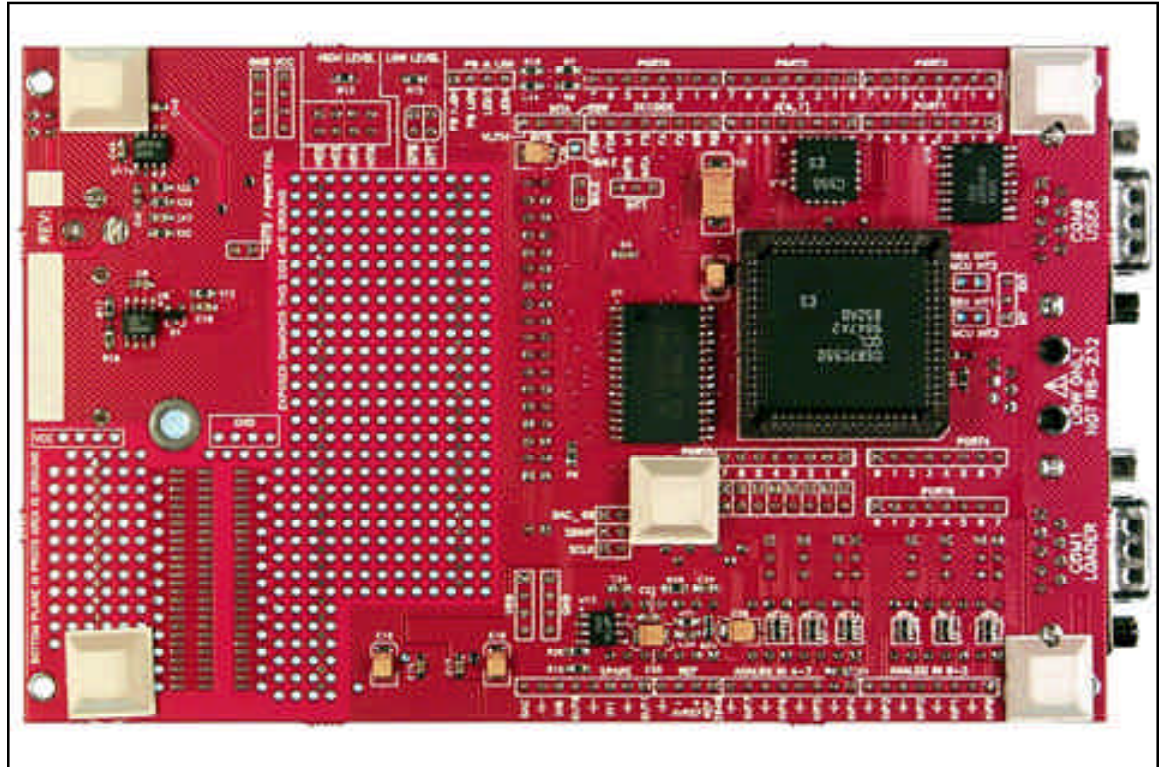
555 South 300 East #21, Salt Lake City, Utah, USA 84111
Tel:+1-801-534-1017 Fax:+1-801-534-1019 www.systronix.com

revised 1999 jun 02 bab

HSM/550 bottom view showing the DS87C550 controller.

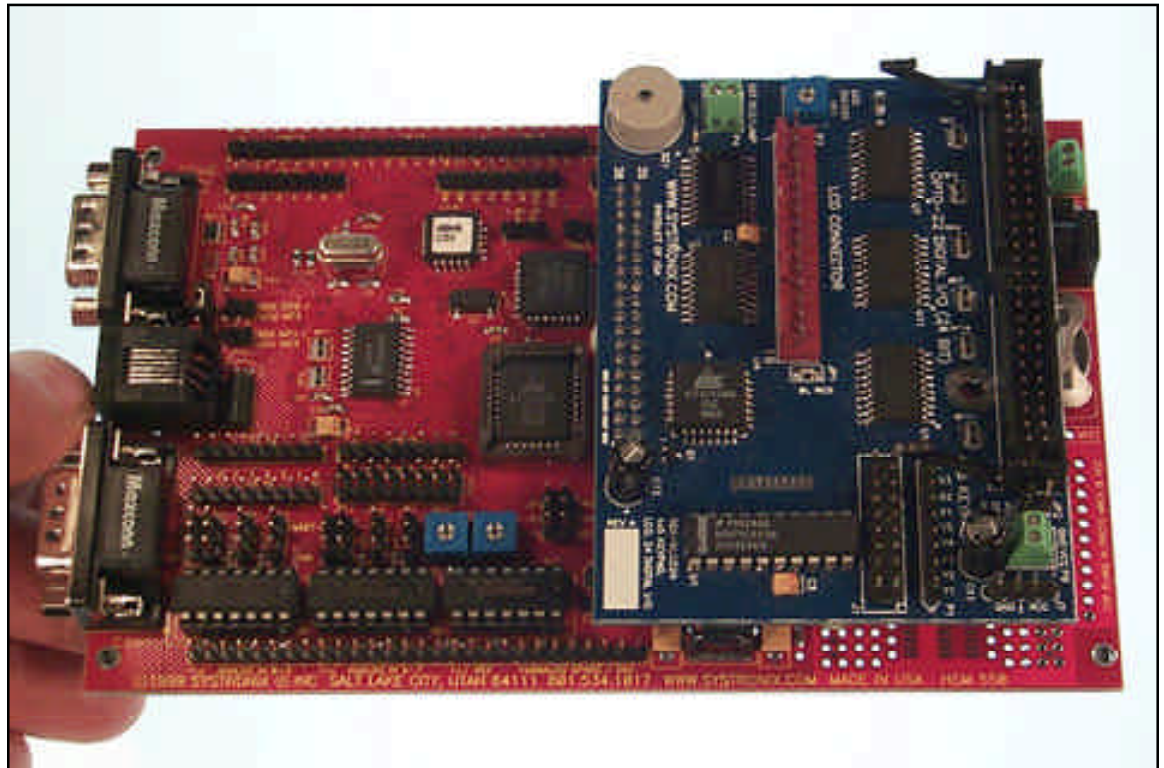
Putting the controller on the bottom of HSM/550 enables plugging in an In-Circuit Emulator while maintaining access to all top-side test points and the prototype area. You can even use an ICE with an SBX board installed.

Headers and test points are labelled on both top and bottom surfaces.



HSM/550 early prototype version shown with Systronix SBX1 I/O expansion board.

Total height of the two-board combination is about 1.5 inches, (not including 25x2 and keypad cables).

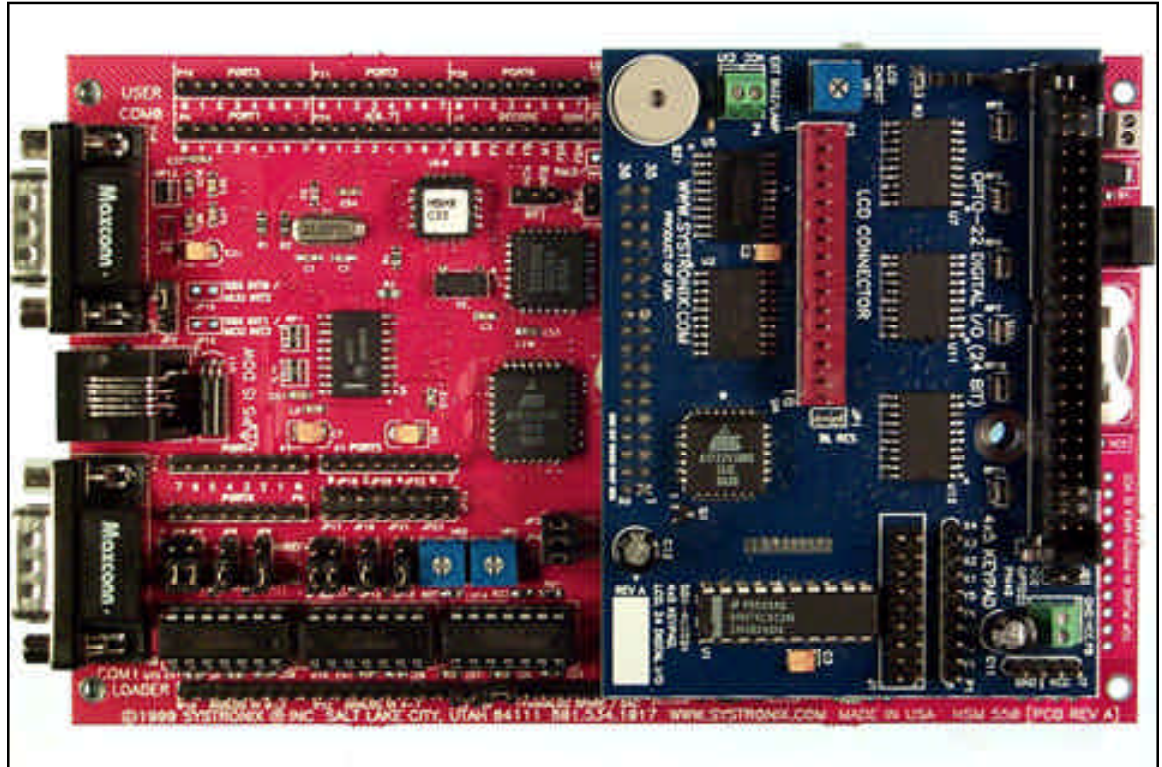


SYSTRONIX®

555 South 300 East #21, Salt Lake City, Utah, USA 84111
Tel:+1-801-534-1017 Fax:+1-801-534-1019 www.systronix.com

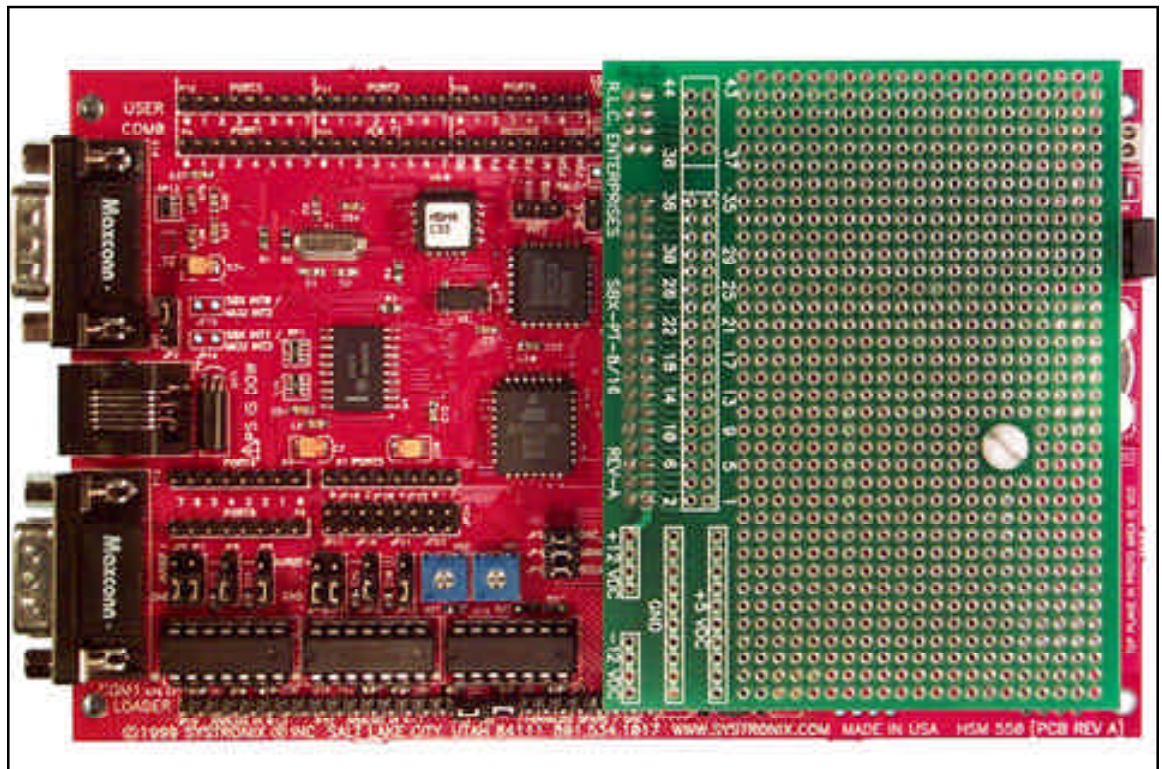
HSM/550 shown with Systronix SBX1 I/O expansion board.

SBX1 adds a parallel LCD interface on the red 16x1 header (with contrast adjustment and backlight power), a 4x4 or 4x5 keypad decoder, a buzzer, and 24 bits of open-drain bidirectional I/O via the Opto-22 compatible 25x2 latching header.



HSM/550 shown here with a third-party SBX bare prototyping board. This adds 7 square inches of prototype area.

Coming soon: a Systronix SBX bare prototyping board and an SBX development board with decoder and strobe PLD



SYSTRONIX®

555 South 300 East #21, Salt Lake City, Utah, USA 84111
Tel:+1-801-534-1017 Fax:+1-801-534-1019 www.systronix.com