NOHAU

Parts List
Nohau In-Circuit Emulators

EMUL51-PC
For the 80C51MX Family

Nohau Supports the Philips 80C51MX Architecture

Introduction

What this document is and about pricing

This price list is designed to be used by engineers, buyers and purchasing agents. It is widely quoted and used as an information source by Nohau representatives. The latest version is available from the Nohau website or from your local Nohau representative. You can find the name of your rep by contacting Nohau as listed on this document. Any US dollar prices shown are valid in the USA only.

What an emulator is and what it does

An emulator is a scientific device used by engineers to design their computers faster and more accurately. The emulator temporarily replaces the microcontroller in the customer target system. The emulator behaves exactly like the processor with the added benefit of allowing you to view data and code inside the processor and control the operation of the CPU. You can load user code, view it in machine code or C source, set breakpoints on addresses and preset variables and registers. You can view data changes in real-time with the Shadow RAM feature. The emulator can be operated in stand-alone mode so development work can begin before the target system is available or complete.

The MX emulator configuration

The 80C51MX emulator system is made up of up to three ISA boards that can either be installed inside your PC or in the HSP box according to your requirements. One board is the emulator itself and comes in two memory sizes. Another is the communications interface and is needed only if the emulator and trace boards are installed in the HSP Box. The HSP Box then communicates with the PC via an LPT: or USB port. The third is the optional trace board which provides the trace memory, triggers and Shadow RAM. The emulator in the HSP box is depicted on the front cover of this price list.

What the trace does and why people order one

You can set triggers on specified addresses and data which will stop the emulation and/or trace memory when this action occurs. This alerts you that the specified event has occurred and you may now use the information stored by the emulator to find any hardware or software errors. The trace memory records the microcontroller cycles including data reads and writes for user specified conditions. You can view the trace memory to find out what your code was actually doing at a particular time. Most people purchase the optional trace card due to its unique ability to save many hours of engineering time looking for elusive bugs. It is useful for finding data operations and instruction executes that "should not be there".

Seehau - the Nohau debugger for the emulator

The emulator and its software is designed to be relatively intuitive to use. The Nohau debugging software is called "Seehau" and updates are available free on the website or directly from any Nohau office or representatives anywhere in the world. Seehau is macro based enabling automatic operation. Seehau operates under Windows 95, 98, NT, XP, ME and 2000Pro. For more information about the benefits of Seehau, see www.nohau.com for the latest data sheets or call your Nohau representative.

More info is available

For more information on the entire embedded tool chain, get your copy of "The Embedded Software Engineer's Guide to In-Circuit Emulation" from your Nohau rep or from www.nohau.com. Nohau has other informative documents available from the same sources. Any questions can be directed to your Nohau rep or sales@nohau.com.
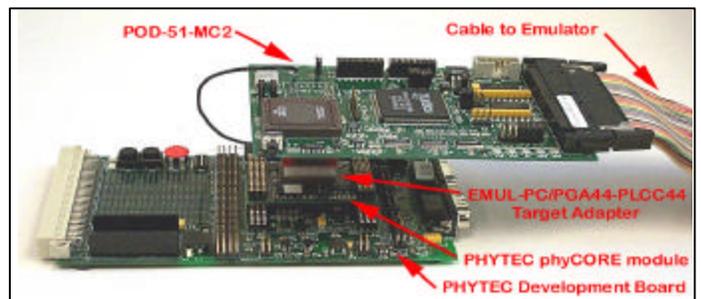
General Features

The emulator parts
The basic Nohau 80C51MX emulator consists of an emulator motherboard, a pod board, power supply, debugger software (Seehau) and a communications interface. You can run this system stand-alone without any target hardware. Add a target adapter and you can run in your target board. Add an optional trace card and you can trigger and record CPU instructions and their bus operations.

Connecting to the PC and the software Seehau
The Nohau emulator is an ISA card that can plug into a PC or be plugged into the HSP box or USB box that connects to a Windows based PC through a parallel port or USB port. The photo here depicts the HSP box interface. The Seehau debugger software that is installed on the PC controls the emulator and provides the graphical user interface (GUI). The trace card is optional and can be added later according to your needs and budget.
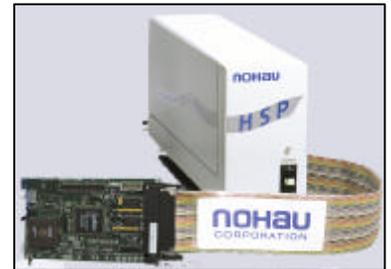
Minimum System Requirements

- Pentium 200 or higher for optimum performance
- 2x or better CD ROM
- 40 MB Free Hard Disk Space

- Windows 95, 98, 2000Pro, Me, XP or NT
- RAM for Windows 95/98/Me: 64MB
- RAM for Windows NT/2000Pro/XP: 128MB

It is possible to run Seehau on slower and smaller machines such as laptops. Nohau technical support reports that Seehau, as any large Windows based program, runs more reliably on larger and faster machines.

Application Notes on our website

The following is a list of information that can be found on Nohau's website. Go to www.nohau.com/documents and then select either the Technical Publications link, the Technical Application Notes link or the Nohau Manual link. There are also data sheets available on our website for the emulator and the Seehau software.

Materials listed under the Technical Publications Link:

The Software Engineers Guide to In-circuit Emulation for the Motorola Microcontrollers.
Product Focus: Nohau gives RTOS users easy access to the Seehau Interface.

Materials listed under the Technical Application Notes Link:

8051 Bank Switching application Notes for Nohau's EMUL51-PC Emulator.

Case Studies -connecting to Targets.

Getting Started with your EPC interfaced Emulator system.

Materials listed under Nohau Manuals / EMUL51-PC:

Seehau 51 Getting Started.

EMUL51 Users Guide.

Complete System Pricing

The systems below are rated 24 MHz at 6 clocks, which corresponds to 48 MHz at 12 clocks.

System with the 256K memory emulator	This is a complete system consists of the following: the emulator board (EMUL51-PC/EA256-MX-24), the pod board, the trace board, the target adapter, the manuals, the HSP box, and the Seehau Debugger.	**EMUL51-PC/ EA256-MX-24 PKG**
768K memory emulator	Same as above but with 768K emulation memory.	**EMUL51-PC/ EA768-MX-24 PKG**

Note: If you would like to substitute the USB for the HSP box then when ordering, add the following : **-USB** to the part #.

Note: For information on upgrading to a larger trace buffer please contact Nohau at sales@nohau.com.

Individual Component Descriptions

Advanced Emulator Boards (EA) for 80C51MX Pods

Emulator board with 256K memory	A 24-MHz advanced MX emulator board with 256K emulation memory. ISA card.	**EMUL51-PC/ EA256-MX-24**
Emulator board with 768K memory	A 24-MHz advanced MX emulator board with 768K emulation memory. ISA card.	**EMUL51-PC/ EA768-MX-24**

Enhanced Trace Options

The optional trace board provides the trace memory, triggers and Shadow RAM. This board plugs into your PC or the HSP Box. The trace is easily added at any time and its software is include inside Seehau. The trace board provides 1 M of code coverage memory and a 32 bit timestamp. The executed instructions and data actions can be viewed in the assembly code mixed with the source code.

Trace Board	50-MHz 64-kiloframe Enhanced Trace Memory Board. The 50 MHz speed corresponds to 25 MHz at 6 clocks.	**EMUL51-PC/ ETR64-50**

Enhanced Hooks Mode Pod for 80C51MX

Pod Board	The 24-MHz pod uses a bondout to support the Philips 8051MX architecture. The pod terminates to a 44-pin PGA and requires the EMUL51-PC/PGA44-PLCC44 adapter. The pod works only with the EMUL51-PC/EA256-MX-24 or the EMUL51-PC/EA768-MX-24 emulator board.	**POD-51MX-MC2**

Target Adapter

EDI 44-pin adapter	EDI/44PGA/PL-L adapter to connect the emulator to a 44-pin PLCC target.	**EMUL51-PC/PGA44-PLCC44**

Communication Interfaces

The High Speed Parallel Box connects to the PC's parallel printer port and lets you use the in-circuit emulator and optional trace board where no ISA slots are available.

HSP Box   The high speed parallel box (HSP) chassis, the communications interface which consists of: **EMUL-PC/BOX-**
               the HSP ISA card (CARD-HSP) and the cable (CBL-HSP), connect to the PC LPT port.   **HSP**

HSP ISA card   The communications interface [HSP ISA card (CARD-HSP) and cable (CBL-HSP)] for an   **EMUL-PC/SET-**
and cable   existing ISA chassis.   **HSP**

HSP with USB   High speed parallel box (HSP) chassis, USB card (CARD-USB) and cable (CBL-USB).   **EMUL-PC/BOX-**
card   This cable will work with all Windows versions that support USB such as Windows   **USB**
               2000Pro, 98 and 95 OSR2. Includes EMUL-PC/USB-HSP.

USB card with The communications interface [USB card (CARD-USB) and cable (CBL-USB)] for an   **EMUL-PC/SET-**
cable   existing ISA chassis. This cable will work with all Windows versions that support USB   **USB**
               such as Windows 2000Pro, 98 and 95 OSR2.

Hardware Upgrades

This service is available only if the unit to be upgraded is a working unit in good condition, as judged by Nohau Corporation. Upgrade warranty period is three months or until the expiration of the original warranty period, whichever is longer. Prices and terms are subject to change.

Advanced Emulator upgrades available for memory size and conversion between types:

EMUL51-PC/EA256-BSW-24 to EMUL51-PC/EA256-MX-24, or

EMUL51-PC/EA256-MX-24 to EMUL51-PC/EA768-MX-24.

Emulator board upgrades

Hardware Modifications

Emulator board modification of :

EMUL51-PC/EA256-BSW-50 to EMUL51-PC/EA256-MX-24, or

EMUL51-PC/EA768-BSW-50 to EMUL51-PC/EA768-MX-24.

Note: Once this modification is performed, the emulator board will no longer be compatible with any 8051 pods other than the POD-51-MX series.

Extended Hardware Warranties

Purchase of each major EMUL51MX–PC item is covered by a one-year warranty as described elsewhere in this list. At the end of the first year, an additional year of hardware service coverage is available. Coverage must be continuous and is not available if coverage has lapsed. An additional year of coverage can also be purchased each year at the time an additional paid year's coverage ends.

No warranty expiration reminder notices will be sent to customers by Nohau.

Emulator extended warranty coverage, 1 yr. For a Standard, Advanced, or Special Emulator Unit.

Trace extended warranty coverage, 1 yr. For a Standard, Advanced or Enhanced Trace Option.

Pod extended warranty coverage, 1 yr. For a pod. Special emulation (bondout) pods are warranted for 1 replacement if Nohau determines that the failure wasn't due to damage caused by the user's action.

HSP extended warranty coverage, 1 yr. For a HSP Chassis unit, box board card and cable.

Non-Warranty Repairs

Repair service for units beyond an applicable initial one-year warranty period, repairs not covered by that warranty, or for customers who have elected to not carry an extended hardware warranty.

Hourly rate

Minimum charge

Maximum charge

Prices are subject to change without notice. Depending on stock availability, orders placed before 12 noon Pacific Time according to ICE Technology's terms and conditions are shipped the same day. Orders placed after noon are shipped the following business day. Unless otherwise noted, the EMUL51-PC emulator, trace, pod, emulator cable, and Nohau HSP box hardware are sold with a one-year warranty, except for special emulation pods. Special emulation pods are warranted for one replacement if ICE Technology determines that the failure was not due to damage caused by the user's action. Optional adapters, cables, and extenders are sold with a 90-day warranty, except that such parts might be subject to a repair charge if damage was caused by the user's actions. ICE Technology makes no warranties, express or implied, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. In no event will ICE Technology be liable for consequential damages. Third-party software and sold by ICE Technology carry manufacturers' warranties. Technical support to be provided by local ICE Technology representative, where applicable. EMUL51-PC is a trademark of ICE Technology. Windows is a registered trademark of Microsoft Corp.