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In-Circuit Emulators for the 51XA

Examples of How To Order EMUL51XA Systems

* Listed below are three examples of what parts to order for your EMUL51XA system. Use the examples as a guide to help you in your ordering of a Nohau emulator system. To order a system for a different 51XAderivative, select the same component type for that derivative. The following 51XA price list contains all the components you will need to order your complete system. There are photos of systems and adapters to help you in your ordering. If you need assistance please contact your local rep, www.icetech.com/reps, or Nohau technical support: support@icetech.com or sales@icetech.com.

P51XAC3 system

POD-51XAC3-1M/IE-30	Pod Board
EMUL51XA-PC/NIETR128-30	Trace Card
EMUL-PC/EPC	Communications Interface
EDI/44PG/PL-L	Target adapter

P51XAS3 system

POD-51XAS3-1M/IE-30	Pod Board
EMUL51XA-PC/NIETR128-30	Trace Card
EMUL-PC/EPC	Communications Interface
ET/AP4-68-SUB1	Target adapter

P51XASCC/H3/H4 system

POD-51XA-SCC-2M	Pod Board
EMUL51XA-C/TR-SCC-128	Trace Card
EMUL-PC/EPC	Communications Interface
ET/EPP100QF49W	Target adapter

The system will also include the power supply, a BNC trace trigger cable, trace probe set, the User's Guide, and the Seehau Debugger software.

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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. If this document contains no prices then it is called the parts list and is designed for distribution outside of the USA. In this case, contact your local Nohau rep for the price list for your country. Your rep may distribute this document with local prices listed. 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 as assembly 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 Nohau 51XA emulator is a portable, hand-held device and can go anywhere with your laptop and a 5 volt regulated power supply.

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 trace 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.

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 rep anywhere in the world. Seehau is macro based enabling automatic operation. Seehau operates under Windows 95, 98, NT, Me, XP and 2000Pro. For more information about the benefits of Seehau, see www.icetech.com for the latest data sheets or call your Nohau rep.

The XA Family

Controllers currently supported are the C37, G37, G49, S3, SCC/H3/H4. Note the C37 and G37 are commonly referred to as C3 and G3 respectively. The "7" refers to the OTP memory (one-time programmable). The "9" in G49 refers to the FLASH memory. These controllers are supported to their maximum operating frequency.

Single Chip and External Modes

Nohau supports the XA family for both external mode (ROMless) and internal mode (internal ROM) using pods containing a special Philips bondout chip for access to the internal address and data bus while leaving all ports intact and available for use. The emulator does not use any target system resources and does not steal bondout cycles. The emulator can operate stand-alone allowing debugging before your hardware is available. Adapters are available to connect to nearly any target board.

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Introduction (Continued)

Compiler Support

Nohau supports the Altium (formerly Tasking), Hi-Tech Software, Metrowerks (formerly Hiware) and Raisonance C compilers and assemblers. Nohau and its representatives are authorized distributors of these companies and provide technical support. Debugging formats supported are IEEE695, Intel HEX and AOMF-XA. It is possible to make changes to your source code in Seehau and then call your compiler. The resulting object code is then loaded into the emulator for further debugging.

RTOS Support

Nohau provides RTOS support through an ActiveX mechanism. Currently CMX is supported. It is possible to support a customer developed RTOS also. See the Nohau website for details. OSEK support is currently under development.

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@icetech.com.

General Features

Emulator Boards

The emulator parts

The basic Nohau 51XA emulator consists of an emulator motherboard, a power supply, the debugger software (Seehau) and a communications cable. 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.

The emulator basics

The emulator boards are hand-held and have emulation memory and an on-board crystal. Jumpers select either the emulator or user target crystal or oscillator. The communication interface connects the emulator system to a PC computer through a supplied cable. The emulator system can run stand-alone without being connected to any user target board. The emulator requires a separate adapter to connect to a target (see the “Emulator to Target Adapters and Accessories” section).

The Emulator or Pod Board for the XA Emulator

Nohau completely supports the 51XA family. The pod board is the main circuit board. The target adapter plugs into the bottom and the optional trace card plugs into the top. The communications interface and the 5 volt power supply plugs into the emulator board. Nohau emulators operate in true real time without stealing CPU cycles for housekeeping functions.

Connecting to the PC and the software Seehau

The emulator is a hand-held portable design and runs off a regulated 5 volt power supply and connects to a Windows based PC through a Communications Interface. Options are LPT port, ISA card and USB port. 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.

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General Features (Continued)

Trace Cards

EMUL 51XA Trace Background

There are two different trace boards for the EMUL51XA-PC emulators. One is used with the C3, G3, G49 and S3 pods, the second trace supports the SCC/H3/H4 pod board. The trace board for the EMUL-51XA operates to 30 MHz. Trace boards are optional and they can be purchased and added at any time. Trace boards add trace memory for execution, data read and write history recording, triggers and Shadow RAM. The trace display includes address, data, timestamp, processor status, program flow, special bondout bus states, source code and labels. Shadow RAM displays data writes in real time without stealing emulation cycles. The trace board can be viewed and triggers can be configured "on the fly" without stealing CPU cycles for these housekeeping functions.

Target Adapters

Target Adapter Basics

Target adapters are used to connect the emulator to your target system. Adapters should be carefully chosen in terms of cost, reusability, reliability and mechanical sturdiness. Each application requires different solutions. There are many methods used to connect Nohau 51XA emulators to the target boards.

PLCC Plug

The PLCC plug is used for targets with PLCC sockets. There are two types of PLCC plugs. The low profile PLCC plug is typically used for surface mounted sockets. The deep PLCC plug is for sockets that are through hole mounted.

Compilers, code formats and RTOS's

The emulator will accept user code in various formats from assemblers and compilers. Nohau supports all the popular compiler vendors. Source code and labels for both C and assembler will appear in the source windows and trace windows because of these formats. The emulator automatically detects which format is being loaded without user intervention. Nohau is a distributor of many compiler packages. C Compilers and assemblers are available through Altium, Hi-Tech Software, Metrowerks and Raisonance. Nohau also distributes RTOS (Real Time Operating System) packages (See the "Software Support Packages" section). Contact your local Nohau rep for other embedded components they offer.

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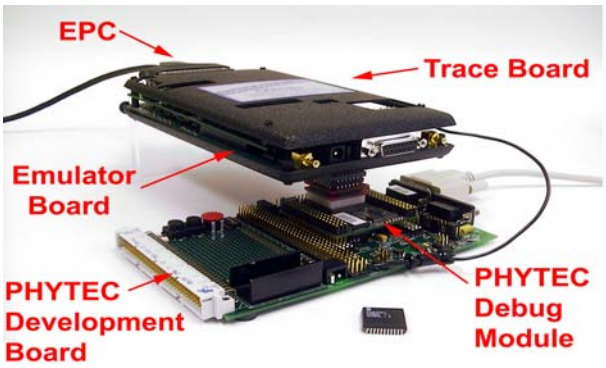
General Features (Continued)

What parts do I need to order?

What parts do I need to order?

A 51XA emulator system consists of the emulator pod or body, a communications system to your PC, and the optional trace card. A target adapter will normally be needed to connect the emulator to the target system. There are various flavours of these components that you will select to configure your desired system. Your local Nohau representative or the Nohau technical support team are able to assist you with selecting the appropriate components. The Seehau debugging software, technical support, warranty, accessories and manuals are automatically included and need not be specified in your order.



Minimum System Requirements

- Pentium 200 or higher
- 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: 64 MB
- RAM for Windows NT/2000Pro/XP: 128 MB

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 in 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.icetech.com/documents and then select either the Technical Publications link, the Technical Applications link or the Nohau Manual link.

Materials listed under the Technical Publications link:

The Software Engineer's Guide on How To Increase Your Debugging Skills Using the Philips 8 and 16 bit Microcontrollers.

Nohau EMUL-XA-SCC Pinouts.

Product Focus: Nohau gives RTOS users easy access to the Seehau User Interface.

Materials listed under the Technical Applications link:

Connecting the Nohau EMUL-XAC3 Emulator to the PHYTEC phyCORE-XAC3 Rapid Development Kit.

Case Studies: Connecting the Nohau In-Circuit Emulator to Actual Customer Targets.

Materials listed under the Nohau Manual link:

Select the EMUL51XA-PC this is the 51XA User's Guide.

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Pod Boards

General Features

These pods support both Internal Mode (when the chip is started with /EA high) and External Mode (when the chip is started with /EA low). Hardware breakpoints can be set either on “internal” code addresses or “external” code addresses. All pods include a power supply. All derivatives are supported.

Note: *Data/Address Bus Configurations—The configuration of an 8-bit data bus and a 12-bit address bus in external mode is not supported.*

Note: *Pod board - speed configurations and considerations for different operating modes are listed on pages 8-10.*

P51XAC3

16-MHz pod board	A 16-MHz pod board for the P51XAC3 with 256K emulation RAM. The emulation RAM can be configured as half code, half data or all code. Only 16 bit data bus width is supported. A separate 44-pin adapter to connect to the target is required. (See the “Emulator to Target Adapters and Accessories" section.) The pod includes the power supply (PWRSUP6), the Seehau debugger software, and the EMUL51XA-PC/MANUAL User’s Guide.	**POD-51XAC3-256/IE-16**
20-MHz pod board	A 20-MHz pod board for the P51XAC3 with 256K emulation RAM. See the preceding description.	**POD-51XAC3-256/IE-20**
25-MHz pod board	A 25-MHz pod board for the P51XAC3 with 256K emulation RAM. See the preceding description.	**POD-51XAC3-256/IE-25**
30-32-MHz pod board with 256K of emulation RAM	A 30-MHz up to 32-MHz pod board for the P51XAC3 with 256K emulation RAM. See the preceding description. The 30 MHz version is the most ordered model.	**POD-51XAC3-256/IE-30**
30-32-MHz pod board with 1-MB of emulation RAM	A 30-MHz up to 32-MHz pod board for the P51XAC3 with 1-MB emulation RAM. See the preceding description.	**POD-51XAC3-1M/IE-30**
30-32-MHz pod board with 2-MB of emulation RAM	A 30-MHz up to 32-MHz pod board for the P51XAC3 with 2-MB emulation RAM. See the preceding description.	**POD-51XAC3-2M/IE-30**

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P51XAG3

Note: *Because the G3 chip features are a subset of the S3, with the appropriate adapter, listed under "Emulator to Target Adapters and Accessories" section, an S3 pod can be used to emulate a G3 processor.*

16-MHz pod board with 256K emulation RAM	A 16-MHz pod board for the P51XAG3 with 256K emulation RAM. The emulation RAM can be configured as half code, half data or all code. This pod supports both 8 and 16 bit data bus width. This pod supports 3.3V and 5V Vcc. A separate 44-pin adapter to connect to the target is required. (See the "Emulator to Target Adapters and Accessories" section.) The pod includes the power supply (PWRSUP6), the Seehau debugger software, and the EMUL51XA-PC/MANUAL User's Guide.	**POD-51XAG3-256/IE-16**
20-MHz pod board 256K	A 20-MHz pod board for the P51XAG3with 256K emulation RAM. See the preceding description.	**POD-51XAG3-256/IE-20**
25-MHz pod board 256K	A 25-MHz pod board for the P51XAG3 with 256K emulation RAM. See the preceding description.	**POD-51XAG3-256/IE-25**
30-MHz pod with 256K emulation RAM	A 30-MHz pod board for the P51XAG3 with 256K emulation RAM. See the preceding description. The 30 MHz 256K version is the most ordered model.	**POD-51XAG3-256/IE-30**
30-MHz pod with 1-MB emulation RAM	A 30-MHz pod board for the P51XAG3 with 1-MB emulation RAM. See the preceding description.	**POD-51XAG3-1M/IE-30**
30-MHz pod with 2-MB emulation RAM	A 30-MHz pod board for the P51XAG3 with 2-MB emulation RAM. See the preceding description.	**POD-51XAG3-2M/IE-30**

P51XAS3

16-MHz pod board with 256K emulation RAM	A 16-MHz pod board for the P51XAS3 with 256K emulation RAM. The emulation RAM can be configured as half code, half data or all code. This pod supports both 8 and 16 bit data bus width. This pod supports 3.3V and 5V Vcc. A separate 68- or 80-pin adapter to connect to the target is required. (See the "Emulator to Target Adapters and Accessories" section.) The pod includes the power supply (PWRSUP6), the Seehau debugger software, and the EMUL51XA-PC/MANUAL User's Guide.	**POD-51XAS3-256/IE-16**
30-MHz pod with 256K emulation RAM	A 30-MHz pod board for the P51XAS3 with 256K emulation RAM. See the preceding description. The 30 MHz 256K version is the most ordered model.	**POD-51XAS3-256/IE-30**
30-MHz pod with 1-MB emulation RAM	A 30-MHz pod board for the P51XAS3 with 1-MB emulation RAM. See the preceding description.	**POD-51XAS3-1M/IE-30**
30-MHz pod with 2-MB emulation RAM	A 30-MHz pod board for the P51XAS3 with 2-MB emulation RAM. See the preceding description.	**POD-51XAS3-2M/IE-30**

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P51XAG49

16-MHz pod board with 256K emulation RAM	A 16-MHz pod board for the P51XAG49 with 256K emulation RAM. The emulation RAM can be configured as half code, half data or all code. An 8- or 16-bit data bus width is supported. A separate 44-pin adapter to connect to the target is required. (See the "Emulator to Target Adapters and Accessories" section.) The pod includes the power supply (PWRSUP6), the Seehau debugger software, and the EMUL51XA-PC/MANUAL User's Guide.	**POD-51XAG49-256/IE-16**
20-MHz pod board 256K	A 20-MHz pod board for the P51XAG49 with 256K emulation RAM. See the preceding description.	**POD-51XAG49-256/IE-20**
25-MHz pod board 256K	A 25-MHz pod board for the P51XAG49 with 256K emulation RAM. See the preceding description.	**POD-51XAG49-256/IE-25**
30-MHz pod with 256K emulation RAM	A 30-MHz pod board for the P51XAG49 with 256K emulation RAM. See the preceding description. The 30 MHz 256K version is the most ordered model.	**POD-51XAG49-256/IE-30**
30-MHz pod with 1-MB emulation RAM	A 30-MHz pod board for the P51XAG49 with 1-MB emulation RAM. See the preceding description.	**POD-51XAG49-1M/IE-30**
30-MHz pod with 2-MB emulation RAM	A 30-MHz pod board for the P51XAG49 with 2-MB emulation RAM. See the preceding description.	**POD-51XAG49-2M/IE-30**

P51XASCC/H3/H4

30-MHz pod with 2-MB emulation RAM	A 30-MHz pod board for the P51XASCC/H3/H4 with 2-MB emulation RAM. Requires a separate 100-pin adapter to connect to the target. (See the "Adapters and Accessories" section.) Includes power supply (PWRSUP6), Seehau debugger software, and the EMUL51XA-PC/MANUAL User's Guide.	**POD-51XA-SCC-2M**
30-MHz pod with 4-MB emulation RAM	A 30-MHz pod board for the P51XASCC/H3/H4 with 4-MB emulation RAM. See the preceding description.	**POD-51XA-SCC-4M**

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Pod Board - Speed Configurations and Considerations

POD-51XAG3 and POD-51XAG49 / IE Speed Configurations and Considerations

1 MHz to 25 MHz in 16-Bit Mode: WM0 must be equal to 1 in BTRL (see the following table, "External Bus Signal Timing Configuration").

External Bus Signal Timing Configuration

	CR1, CR0	CRA1, CRA0	DW1, DW0	DWA1, DWA0	DR1, DR0	DRA1, DRA0
0	Supported	Supported	N/A	Not supported	N/A	Supported
1	Supported	Supported	N/A	Supported	N/A	Supported
10	Supported	Supported	N/A	Supported	N/A	Supported
11	Supported	Supported	N/A	Supported	N/A	Supported

25 MHz to 30 MHz in 16-Bit Mode: WM0 must be equal to 1 in BTRL (see the following table, "External Bus Signal Timing Configuration").

External Bus Signal Timing Configuration

	CR1, CR0	CRA1, CRA0	DW1, DW0	DWA1, DWA0	DR1, DR0	DRA1, DRA0
0	Not supported	Not supported	N/A	Not supported	N/A	Not supported
1	Supported	Supported	N/A	Supported	N/A	Supported
10	Supported	Supported	N/A	Supported	N/A	Supported
11	Supported	Supported	N/A	Supported	N/A	Supported

1 MHz to 20 MHz in 8-Bit Mode: WM0 must be equal to 1 in BTRL (see the following table, "External Bus Signal Timing Configuration").

External Bus Signal Timing Configuration

	CR1, CR0	CRA1, CRA0	DW1, DW0	DWA1, DWA0	DR1, DR0	DRA1, DRA0
0	Supported	Supported	Not supported	Not supported	Supported	Supported
1	Supported	Supported	Supported	Supported	Supported	Supported
10	Supported	Supported	Supported	Supported	Supported	Supported
11	Supported	Supported	Supported	Supported	Supported	Supported

20 MHz to 30 MHz in 8-Bit Mode: WM0 must be equal to 1 in BTRL (see the following table, "External Bus Signal Timing Configuration").

External Bus Signal Timing Configuration

	CR1, CR0	CRA1, CRA0	DW1, DW0	DWA1, DWA0	DR1, DR0	DRA1, DRA0
0	Not supported	Not supported	Not supported	Not supported	Not supported	Not supported
1	Supported	Supported	Supported	Supported	Supported	Supported
10	Supported	Supported	Supported	Supported	Supported	Supported
11	Supported	Supported	Supported	Supported	Supported	Supported

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POD-51XAS3 / IE Speed Configurations and Considerations

1 MHz to 20 MHz 16-Bit Mode: WM0 must equal 1 in BTRL. Table 1 shows the external bus signal timing configurations.

Table 1. Configurations for 1 MHz to 20 MHz in 16-Bit Mode

	CR1, CR0	CRA1, CRA0	DW1, DW0	DWA1, DWA0	DR1, DR0	DRA1, DRA0
0	Supported	Supported	N/A	Not supported	N/A	Supported
1	Supported	Supported	N/A	Supported	N/A	Supported
10	Supported	Supported	N/A	Supported	N/A	Supported
11	Supported	Supported	N/A	Supported	N/A	Supported

20 MHz to 30 MHz in 16-Bit Mode: WM0 must equal 1 in BTRL. Table 2 shows the external bus signal timing configurations.

Table 2. Configurations for 20 MHz to 30 MHz in 16-Bit Mode

	CR1, CR0	CRA1, CRA0	DW1, DW0	DWA1, DWA0	DR1, DR0	DRA1, DRA0
0	Not supported	Not supported	N/A	Not supported	N/A	Not supported
1	Supported	Supported	N/A	Supported	N/A	Supported
10	Supported	Supported	N/A	Supported	N/A	Supported
11	Supported	Supported	N/A	Supported	N/A	Supported

1 MHz to 20 MHz in 8-Bit Mode: WM0 must equal 1 in BTRL. Table 3 shows the external bus signal timing configurations.

Table 3. Configurations for 1 MHz to 20 MHz in 8-Bit Mode

	CR1, CR0	CRA1, CRA0	DW1, DW0	DWA1, DWA0	DR1, DR0	DRA1, DRA0
0	Supported	Supported	Not supported	Not supported	Supported	Supported
1	Supported	Supported	Supported	Supported	Supported	Supported
10	Supported	Supported	Supported	Supported	Supported	Supported
11	Supported	Supported	Supported	Supported	Supported	Supported

20 MHz to 30 MHz in 8-Bit Mode: WM0 must equal 1 in BTRL. Table 4 shows the external bus signal timing configurations.

Table 4. Configurations for 20 MHz to 30 MHz 8-Bit Mode

	CR1, CR0	CRA1, CRA0	DW1, DW0	DWA1, DWA0	DR1, DR0	DRA1, DRA0
0	Not supported	Not supported	Not supported	Not supported	Not supported	Not supported
1	Supported	Supported	Supported	Supported	Supported	Supported
10	Supported	Supported	Supported	Supported	Supported	Supported
11	Supported	Supported	Supported	Supported	Supported	Supported

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POD-51XAC3 / IE Speed Configurations and Considerations

1 MHz to 25 MHz in 16-Bit Mode: WM0 must be equal to 1 in MIFBTRL (see the following table, "External Bus Signal Timing Configuration").

External Bus Signal Timing Configuration

	CR1, CR0	CRA1, CRA0	DW1, DW0	DWA1, DWA0	DR1, DR0	DRA1, DRA0
0	Supported	Supported	N/A	Not supported	N/A	Supported
1	Supported	Supported	N/A	Supported	N/A	Supported
10	Supported	Supported	N/A	Supported	N/A	Supported
11	Supported	Supported	N/A	Supported	N/A	Supported

25 MHz to 30 MHz in 16-Bit Mode: WM0 must be equal to 1 in MIFBTRL (see the following table, "External Bus Signal Timing Configuration").

External Bus Signal Timing Configuration

	CR1, CR0	CRA1, CRA0	DW1, DW0	DWA1, DWA0	DR1, DR0	DRA1, DRA0
0	Not supported	Not supported	N/A	Not supported	N/A	Not supported
1	Supported	Supported	N/A	Supported	N/A	Supported
10	Supported	Supported	N/A	Supported	N/A	Supported
11	Supported	Supported	N/A	Supported	N/A	Supported

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Trace and Triggers - Internal / External Data Trace Options

C3, G3, G49 and S3 Traces

This trace board connects directly to the C3, G3, G49 or S3 pod. It records both the internal and external address and data busses at their full width. It can trigger and filter on both internal and external address and data bus. You cannot use the filter/trigger function at the same time as the code coverage feature since the same memory is used for both functions. (For a version of the trace with full 1-MB trigger/filter, Shadow RAM and Code Coverage, see EMUL51XA–PC/NIETR512-30).

Note: *The XA trace board had a redesign in 2000. The new board has an "N" (for new) added to the part number as in "NIETR". The two trace boards, old and new, are functionally equivalent. The trace board for the SCC emulator is a third version and is not compatible with the other two. The "IETR" part numbers are no longer available. They have been replaced with the "NIETR". The old trace card is still supported by the software.*

128K

The trigger and filter on the external address busses can take place within a 256K area. This area is mappable throughout the 4-MB address space in one of sixteen 256K blocks. A 256K Shadow RAM is also mappable throughout the 4-MB address space in one of sixteen 256K blocks. The code coverage feature is also mappable 256K in sixteen blocks.

16-MHz trace board	A 16-MHz trace board with 128K deep buffer.	**EMUL51XA-PC /NIETR128-16**
20-MHz trace board	A 20-MHz trace board with 128K deep buffer.	**EMUL51XA-PC /NIETR128-20**
25-MHz trace board	A 25-MHz trace board with 128K deep buffer.	**EMUL51XA-PC /NIETR128-25**
* 30-MHz trace board	A 30-MHz trace board with 128K deep buffer. The 30 MHz 128K version is the most ordered model.	**EMUL51XA-PC /NIETR128-30**

512K

The trigger and filter on the external address busses can take place within a 1-MB area. This area is mappable throughout the 16-MB address space in one of sixteen 1-MB blocks. A 1-MB Shadow RAM is also mappable throughout the 16-MB address space in one of sixteen 1-MB blocks. The code coverage feature is also mappable 1 MB in sixteen blocks.

30-MHz trace board	A 30-MHz trace board with 512K deep buffer. This trace board has a 512K frame depth and covers the entire 1-MB address space for triggers, filters, Shadow RAM and code coverage.	**EMUL51XA-PC/NIETR512-30**

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Trace and Triggers - Internal/External Data Trace Options (Continued)

SCC/H3/H4 Trace

This trace board connects directly to the SCC/H3/H4 pod only. The trigger and filter on the external address busses can take place within a 1-MB area. This area is mappable throughout the 16-MB address space in one of sixteen 1-MB blocks. A 1-MB Shadow RAM is also mappable throughout the 16-MB address space in one of sixteen 1-MB blocks. The code coverage feature is also mappable 1 MB in sixteen blocks. You cannot use the filter/trigger function at the same time as the code coverage feature since the same memory is used for both functions.

30-MHz trace with 128K deep buffer	A 30-MHz trace board with 128K deep buffer. This trace board has a 128K frame depth and covers the entire 1-MB address space for triggers, filters, Shadow RAM and code coverage.	**EMUL51XA-PC /TR-SCC-128**
30-MHz trace with 512K deep buffer	A 30-MHz trace board with 512K deep buffer. This trace board has a 512K frame depth and covers the entire 1-MB address space for triggers, filters, Shadow RAM and code coverage.	**EMUL51XA-PC /TR-SCC-512**

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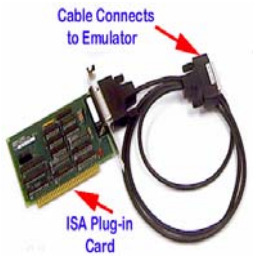
Communication Interfaces

These communication interfaces must be connected to a pod board to operate (order separately). The communication interface includes a cable that connects to the pod board.

ISA plug-in board

This communication interface is an ISA plug-in board (EMUL-LC/ISA) that communicates with the pod board.

EMUL-PC/LC-B



EPC - LPTx printer port

Emulator Parallel Cable which communicates with the pod through a standard PC parallel port (LPTx).

EMUL-PC/EPC

USB Interface

The new USB interface is available now. This cable connects to the USB connector on the appropriately equipped PC and to the emulator with the standard 25 pin D shell connector. This cable will work with all Windows versions that support USB and they are Windows 98, Me, XP and 2000Pro.

EMUL-PC/USB

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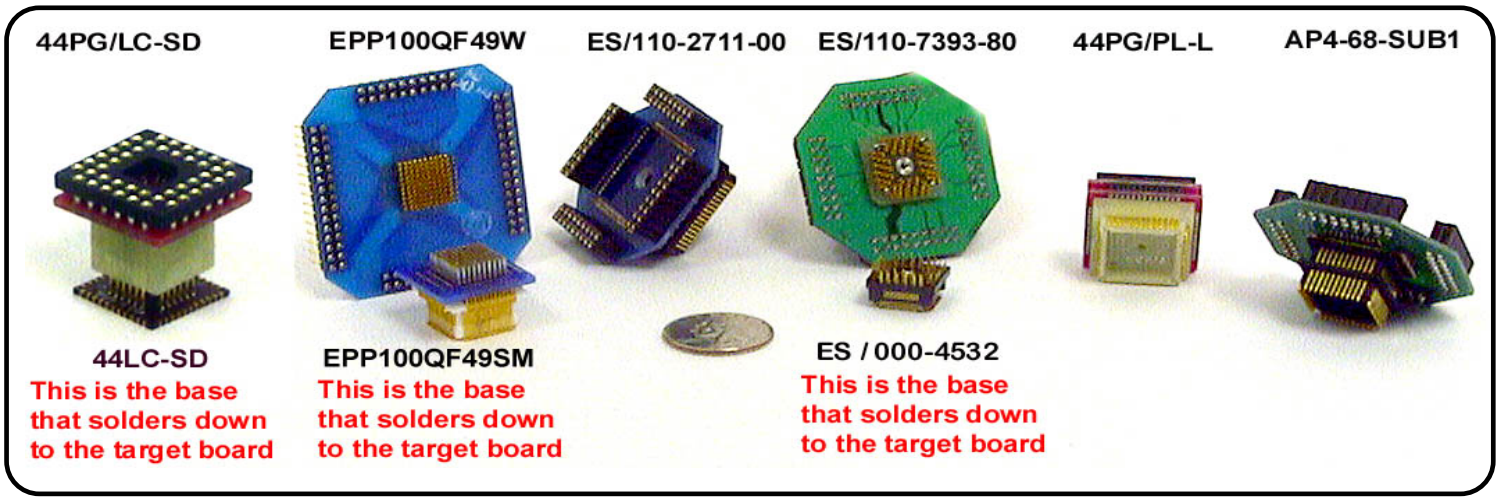
Emulator to Target Adapters and Accessories

Adapter Summary - Use this chart to select the correct adapter

MCU	C3, G3 and G49	S3	SCC/H3/H4
PLCC socket adapters	EDI/44PG/PL-L 44 Pin.	ES/110-2711-00 44 Pin.	
	MCK44-PGA/PLCC 44 Pin.	ET/AP4-68-SUB1 68 Pin.	
		MCK/ADP-68PGA/PLCC 68 Pin.	
Solder-down adapters	EDI/44PG/LC-SD 44 Pin.	ES/110-7393-80 80 Pin.	ET/EPP100QF49W 100 Pin.
	EDI/44PG/QFS31-SD 44 Pin.		
Replacement solder-down base	EDI/44LC-SD 44 Pin.	ES/000-4532 80 Pin.	ET/EPP100QF49SM 100 Pin.
	EDI/44QFS31-SD 44 Pin.		

* Note: For solder-down adapters, a replacement for the solder-down base is available separately since they cannot be reused after being soldered to a target base.



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Emulator to Target Adapters and Accessories (Continued)

Adapters for C3, G3 and G49 Pods

44-pin adapter for PLCC socket	An adapter to plug a 44-pin pod into a 44-pin PLCC socket.	**EDI/44PG/PL-L**
44-pin solder down adapter assembly	A solder down adapter assembly used to connect a 44-pin PGA pod to a 44-pin PLCC footprint. The base is soldered to the user target board. Includes the top and one EDI/44LC-SD base.	**EDI/44PG/LC-SD**
Replacement base	A replacement base only. A 44-pin PLCC solder down base for the EDI/44PG/LC-SD.	**EDI/44LC-SD**
44-pin solder down adapter assembly	A solder down adapter assembly used to connect a 44-pin PGA pod to a 44-pin LQFP footprint. The base is soldered to the user target board. Includes the top and one EDI/44QFS31-SD base.	**EDI/44PG/QFS31-SD**
Replacement base	A replacement base. A 44-pin LQFP solder down base for the EDI/44PG/QFS31-SD.	**EDI/44QFS31-SD**
44-pin PGA socket to 44-pin	A McKenzie adapter for a 44-pin PGA socket to a 44-pin PLCC plug.	**MCK44-PGA/PLCC**

Adapters for S3 Pods

44-pin Adapter

44-pin adapter	An adapter for a 44-pin PLCC socket. This adapter is used for emulation of the XA-G3 with the XA-S3.	**ES/110-2711-00**

68-pin Adapters

68-pin adapter	An adapter for a 68-pin PLCC socket.	**ET/AP4-68-SUB1**
68-pin PGA 68-pin PLCC	A McKenzie adapter for a 68-pin PGA socket to 68-pin PLCC plug.	**MCK/ADP-68PGA/PLCC**

80-pin Adapters

80-pin adapter with top and base	An adapter for a 80-pin LPFQ. Includes one top and one ES/000-4532 base.	**ES/110-7393-80**
Replacement 80-pin adapter base	A replacement base only. A 80-pin LQFP solder down base for the ES/110-7393-80.	**ES/000-4532**

Adapters for SCC/H3/H4 Pods

100-pin adapter with top and base	An adapter for a 100-pin LQFP. Includes one top and one ET/EPP100F49SM base.	**ET/EPP100QF49W**
Replacement 100-pin adapter base	A replacement base only. 100-pin solder down base for ET/EPP100QF49W.	**ET/EPP100QF49SM**

Accessories

Replacement power supply	A replacement 6-amp power supply. This power supply is included with all EMUL51XA-PC pods and is not normally intended to be sold separately.	**PWRSUP6**

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Evaluation Boards

Evaluation boards for the G3, G49, and SCC/H3/H4 are available from FDI: www.teamfdi.com.

Evaluation boards for the C3, C49, G3, G49, and SCC/H3/H4 are available from PHYTEC.

Evaluation Boards From PHYTEC

Evaluation boards from PHYTEC can be purchased through Nohau, your local Nohau representative or directly from PHYTEC: www.phytec.com or 1-800-278-9913.

phyCORE Module for the XAGx	This is a series production module designed for use in a customer final product or a PHYTEC development board. This phyCORE module contains an on-chip FLASH of the XAG49, RAM and support circuitry in a compact package. To connect a Nohau emulator for program development, a special debug module is available.	**PCM-004-S**
phyCORE Kit for the XAGx	This Rapid Development kit includes the PCM-004-S phyCORE module as well as the PHYTEC Development Board with an included AC adapter and DB-9 cable.	**KPCM-004-S**
Debug Module for the XAGx	This module has the same electrical characteristics and pinout as the phyCORE module and is used in its place during the debugging phase. The Nohau emulator plugs into the debug module via the EDI/44PG/PL-L converter adapter. No additional target adapter is needed although the Nohau Flex cable and isolator boards can be used.	**DCM-004**
phyCORE Module for the XACx	This is a series production module designed for use in a customer final product or a PHYTEC development board. The XA's compatibility mode enables easy migration from 8051-compatible devices to this 16-bit architecture. It has a CAN Controller and external FLASH. For memory extensive applications, this microcontroller enables memory models with up to 1-MB for CODE as well as XDATA memory. To connect a Nohau emulator for program development, a special debug module is available.	**PCM-003**
phyCORE Kit for the XACx	This Rapid Development kit includes the PCM-003 phyCORE module as well as the PHYTEC Development Board with an included AC adapter and DB-9 cable.	**KPCM-003**
Debug Module for the XACx	This module has the same electrical characteristics and pinout as the phyCORE module and is used in its place during the debugging phase. The Nohau emulator plugs into the debug module via the EDI/44PG/PL-L converter adapter. No additional target adapter is needed although the Nohau Flex cable and isolator boards can be used.	**DCM-003**
phyCORE Module for the XAHx	This is a series production module designed for use in a customer final product or a PHYTEC development board. This phyCORE module has an on-chip support of four independent serial communication channels with DMA support. The P51XA-HX is well suited for ISDN and Multi-Protocol-Communication applications. To connect a Nohau emulator for program development, a special debug module is available.	**PCM-008**
phyCORE Kit for the XAHx	This Rapid Development kit includes the PCM-008 phyCORE module as well as the PHYTEC Development Board with included AC Adapter and DB-9 cable.	**KPCM-008**
Debug Module for the XAHx	This module has the same electrical characteristics and pinout as the phyCORE module and is used in its place during the debugging phase. The Nohau emulator plugs into the debug module via an adapter. No additional target adapter is needed although the Nohau Flex cable and isolator boards can be used.	**DCM-008**

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Software Support Packages

Compiler Packages

Altium (formerly TASKING, Inc.)

C Compiler / Assembler

Includes a C compiler, assembler, linker, simulator and EDE package. **TASKING/TK012-002**

Hi-Tech Software

C Compiler

Hi-Tech HTXC51XA family C Compiler. **HI-TECH / HTXC51XA**

Metrowerks (formerly Hiware Software)

C Compilers / Assemblers / Debuggers / Simulators

Code Warrior full package	**CE8051XA1.0**
Standalone C/C++ Compiler	**CE8051XACC1.0**
Code Warrior KEY for the upgrade	**CE8051XAUPG1.0 KEY**
Code Warrior KEY for the full package	**CE8051XA1.0KEY**
Code Warrior KEY for the C/C++ compiler	**CE8051XACC1.0KEY**

Raisonance @ www.raisonance.com

C Compiler / Assembler / Simulator

Includes an IDE, Macro-assembler, linker, utilities, 8KB simulator, 8KB ROM-Monitor and Tiny RTOS.	**Raisonance / MAXA**
Includes the MAXA package with the ANSI C compiler.	**Raisonance / RCAXA**
Includes RCAXA package but with the full version ROM-Monitor and Simulator.	**Raisonance / RKitPXA**
Includes the RKitEXA package with the KR-XA, Code compressor, Multiproc. Simulator and RTOS.	**Raisonance / RKitEXA**

RTOS Packages

CMX Systems, Inc.

CMX-RTX is a truly preemptive, multi-tasking, RTOS supporting the entire 51XA microcontroller family. This RTOS offers the smallest footprint, the fastest context switching times, and the shortest interrupt latency times available on the market today. Each additional user is $2,300 each. **8051XA-CMX-RTX**

CMXKAware is an Active X object that runs in conjunction with the Seehau debugger software. It presents all of the RTOS specific information on the screen. This RTOS debugging module can control the emulator. This feature exists as a working screen shot that can be viewed in the Seehau software package. Access it by clicking on - View/RealtimeOS/Select/CMXKAware. No target resources are used. **8051XA-CMXKAware**

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Hardware Upgrade Price

This service is available only if the unit to be upgraded is a working unit in good condition, as judged by Nohau Corporation. Trace upgrades available: speed and buffer size. Pod upgrades available: speed, emulation RAM size. Upgrade warranty period is three months or until the expiration of the original warranty period, whichever is longer.

Trace board upgrades Price difference plus 100.00

Example: Upgrade to IETR128-25 from IETR128-20: 4595.00 - 4395.00 + 100.00 = 300.00

POD board upgrades Price difference plus 100.00

Example: Upgrade to IE-30 from IE-16: 2995.00 - 2595.00 + 100.00 = 500.00

Note: *The communication interface does not need to be upgraded when upgrading pod or trace boards.*

Extended Hardware Warranties

Purchase of each major EMUL51XA–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 been allowed to lapse. An additional year of coverage may also be purchased each year at the time an additional paid year's coverage ends.

It is the customer's responsibility to renew hardware warranties. No warranty expiration reminder notices will be sent to customers by Nohau.

Communication interface extended warranty coverage, 1 year

Trace extended warranty coverage, 1 year

***Pod extended warranty coverage, 1 year**

* Bondout pods are warranted for one replacement if Nohau determines the failure was not due to damage caused by the user's action.

Where to get help

For help in configuring your system, choosing an emulator, a pod board, adapters, a trace card or any other items please contact Nohau or your local representative.

Telephone: 800.686.6428 or 650.375.0409 **Email:** sales@icetech.com

Fax: 650.375.8666 **Website:** www.icetech.com