

Addendum for EPP model

GoLogicTM 

PC-hosted logic analyzer

GoLogic™ by NCI

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GoLogic™ 
PC-hosted logic analyzer

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Chapter 1 - Installing an EPP GoLogic

What is EPP?

The Standard Parallel Port (SPP) protocol was defined by IBM for the original PC. Data is transferred in SPP mode using software handshaking. The overhead required by software handshaking makes this a very slow method for transferring data. Therefore, Intel and other companies created the Enhanced Parallel Port (EPP) protocol as a means to provide a high performance link that was backwardly compatible with SPP. The EPP protocol was later made part of the IEEE 1284 standard.

EPP mode uses hardware handshaking to transfer 8-bit values across the parallel port. This is the fastest method to transfer data across a parallel port. IEEE 1284 also defines the Extended Capabilities Port (ECP) standard. While this mode also offers hardware handshaking, we decided that the ECP requirements for FIFO data queues, DMA, and real-time data compression were too expensive to implement and too complex for the GoLogic's needs. The GoLogic only supports EPP mode for this reason.

Using a built-in parallel port

Turn on the PC and enter the BIOS setup. Normally, pressing the Delete or F2 key while starting the computer enters the BIOS setup. However, the procedure varies by computer manufacturer. For example, IBM laptops provide a Windows® application to modify the BIOS. See your computer's manual for instructions on changing the BIOS settings.

From the BIOS setup program, configure the parallel port for EPP mode and note the port's base address (this is normally 0x378 or 0x278). The "LPTx" designation and the IRQ (interrupt request) number are not important. *However, the base address and IRQ number must not conflict with another device's resources.*

The GoLogic does *not* support SPP or ECP modes. Likewise, some I/O chipsets support combination modes such as SPP/EPP or EPP/ECP. If possible, choose EPP mode exclusively. Some BIOS support EPP 1.7 and 1.9. Always choose version 1.9. Finally, some makers label EPP as "PS/2 mode" while in other BIOS these modes are different.

Some motherboard I/O chipsets claim to support EPP, but do not implement this mode correctly. The GoLogic software tests the port and warns you if a problem is detected. If an error is detected and your built-in parallel port is correctly configured for EPP, then a parallel port expansion card must be installed. See the *Setup problems* topic below for details on the incompatible hardware error message.

Using a PCI parallel port card

A parallel port expansion card should be installed if your computer's built-in parallel port does not provide (or correctly implement) EPP mode. Follow the manufacturer's instructions for configuring the card to use EPP mode. See the *EPP Compatibility* topic below for a list of recommended EPP expansion cards.

After installing the EPP expansion card and its drivers, use *Device Manager* to determine the parallel port's base address. See the *Plug-n-play interference from Windows* topic below for details on using *Device Manager*.

Plug-n-play interference from Windows®

Windows® often forces PCI and PCMCIA expansion cards to an unusual address. For example, suppose Windows® assigns the card address 0xE000 rather than the standard base address 0x378 or 0x278. While the GoLogic™ software can use this system-assigned address range, we recommend correcting the base address if possible (see the *Using a custom EPP address* topic below if using Windows® NT). *Device Manager* can often be used to change the parallel port's base address. Start the "System" applet under Control Panel...

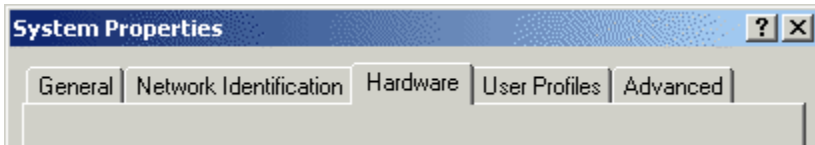


System

Under Windows® 98se and ME, choose the *Device Manager* tab...



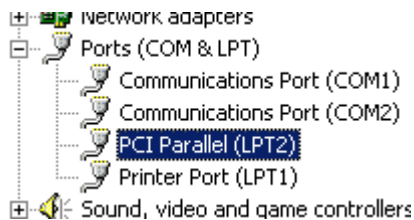
Under Windows® 2000 and XP, choose the "Hardware" tab and click on the *Device Manager* button...



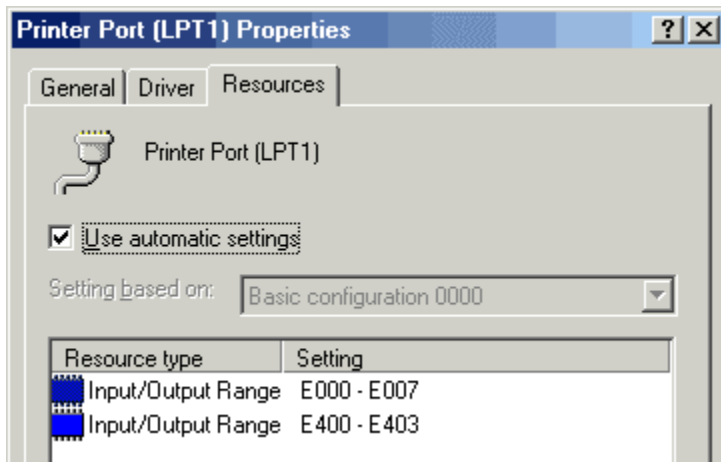
Find the newly installed I/O device in the device list, expand its tree, and double-click on the device...



If no I/O device was added to the list, expand the "Ports (COM & LPT)" tree in the device list and double-click on the newly installed parallel port...



The EPP base address is listed under the "Resources" tab...



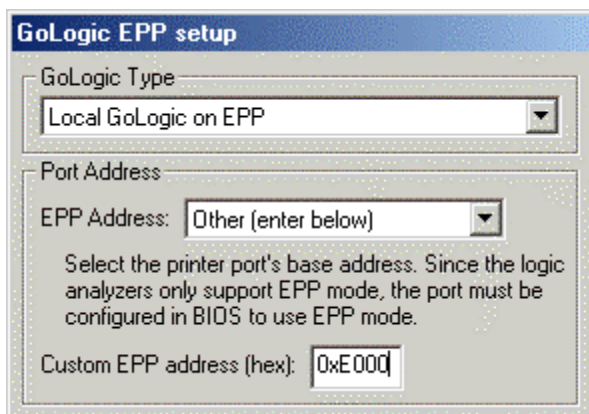
Disable (uncheck) the "Use automatic settings" option. This allows the resources to be customized. If possible, choose a new setting from the "Settings based on:" list. If no alternate settings are provided in the list, select the 0xE000 address then click the "Change Setting..." button. Choose the 0x378 or 0x278 base address. Verify the new address does not conflict with the on-board parallel port or any other hardware.

The upper address (0xE400 in this example) should change automatically when the lower address changes. If not, select the upper address and click on the "Change Setting..." button. The upper address *must* be 0x400 above the lower address (this offset is part of the IEEE 1284 standard). For example, if the base address is 0x378, then the upper address should be 0x778. Likewise, the upper address is 0x678 when the lower is 0x278.

Using a custom EPP address

Windows® NT does not provide a *Device Manager* feature. Likewise, Windows® 2000 and XP often disable the "Use automatic settings" option. In these cases, the EPP base address cannot be changed and the GoLogic custom address option must be used.

Run the "GoLogic Setup.exe" program or the *Edit / Hardware setup...* menu item in the "GoLogic.exe" program and select the "Other (enter below)" option. Enter the custom EPP address in the edit box...



Connect the GoLogic

Connect the parallel cable to the GoLogic and the computer's parallel port. Neither the GoLogic nor the computer will be harmed if this is done while the computer or GoLogic is running.

However, parallel ports are technically cold-plug devices. Therefore, it is best to connect the parallel cable while the computer is off.

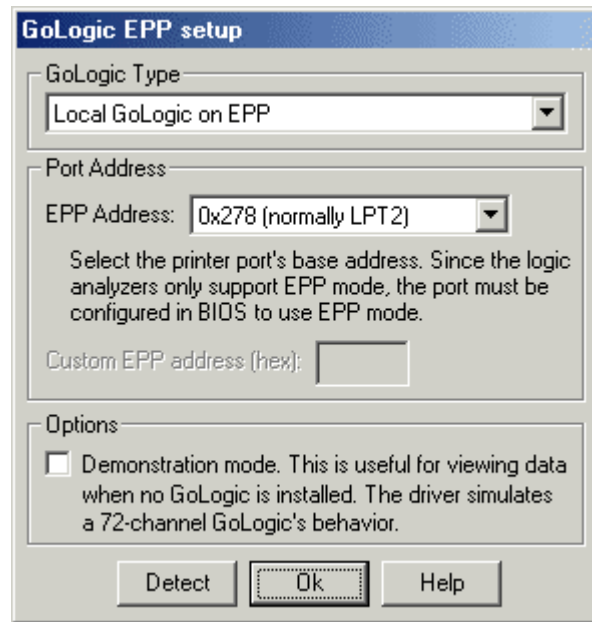
Connect the GoLogic power adapter. . The “Power” LED should be lit.



Use only the 12V, 2.5 amp, 30W transformer provided with the GoLogic. Common “wall-wart” transformers do not provide enough power.

Configure the GoLogic software

When installing the GoLogic software, select the correct parallel port address when prompted. The “GoLogic Setup.exe” program or the *Edit / Hardware setup...* menu item in the “GoLogic.exe” program may be used later...



EPP compatibility

Once the GoLogic is detected on the selected parallel port, the software runs a test to verify that the parallel port supports EPP mode correctly. If the test fails, then the parallel port does not implement EPP mode correctly. An I/O expansion board that correctly supports the IEEE 1284 standard must be installed. We recommend the following EPP expansion cards...

Intek21 PCI High Speed Parallel (www.intek21.com)

SIIG CyberParallel PCI (www.siig.com)

Quatech SPP-100 PCMCIA card (www.quatech.com)

Note: The SIIG card works correctly under NT only when installed at address 0x378. The Windows® NT driver has a bug if the SIIG card is installed at address 0x278. The SIIG card does not have this limitation under Windows® 98se, ME, 2000, or XP and works correctly at all addresses.

The following expansion cards are *known to be incompatible* with the GoLogic™...

Byte Runner Technologies

LAVA Parallel-PCI

Setup problems

“The GoLogic is missing.”

This message indicates the software did not find the GoLogic at the parallel port address in the Hardware setup dialog box. The most probable causes are...

1. The power supply is not connected. Verify the “Power” LED is lit.
2. The parallel cable connection is poor. Verify the connection at the computer and the GoLogic.
3. The computer’s onboard parallel port is not configured in BIOS for EPP mode. The computer’s manual describes how to change the parallel port’s BIOS settings.
4. The wrong parallel port address is selected.
 - a. Close the GoLogic software.
 - b. Use *Device Manager* to verify the parallel port’s address. An EPP port should have at least 5 addresses and two address ranges. The base address is the smaller value in the lower range. For example...

Input/Output Range	278 - 27F
Input/Output Range	678 - 67B
IRQ	7

In the above example, the base address is 0x278. The GoLogic software does not use the IRQ (interrupt request) number.

If the address range only spans two or three values, or only one address range is listed, then the parallel port is not in EPP mode. For example...

Input/Output Range	378 – 37B
Interrupt Request	7

- c. Run the “GoLogic Setup.exe” program and verify the parallel port address agrees with the address you wrote down.
 - d. If running under Windows® NT, 2000, or XP, restart the computer so the “GoLogic.sys” driver is loaded using the new EPP address.
5. Another device’s software is accessing the parallel port. Scanner software is notorious for interfering with other devices installed on the same parallel port.

Printer drivers can be set to “File” instead of parallel port without uninstalling. Later, the printer driver can be restored to use the parallel port. Otherwise, all device drivers and support software using the GoLogic’s parallel port must be disabled or uninstalled.

6. The computer’s built-in parallel port does not implement EPP mode correctly and will not work with the GoLogic. See the *EPP compatibility* topic above more suggestions.

“A hardware error was detected.”

1. The parallel cable connection is poor. Verify the parallel cable connection at the computer and the GoLogic.
2. Another device’s software is accessing the parallel port. See item 5 above.
3. The parallel port does not support EPP mode correctly. See the *EPP compatibility* topic above more suggestions.
4. The GoLogic is damaged. Contact NCI for assistance.

“The GoLogic.sys driver is not loaded.”

Under Windows® NT, 2000, and XP, the low-level drivers are loaded at bootup. As each driver is loaded, the operating system verifies that the driver uses a valid address. The driver is *not* loaded if the address is invalid or conflicts with a driver that is already loaded.

The “GoLogic.sys not loaded” error message indicates Windows® rejected the driver at bootup because the address was invalid. Most likely, an incorrect EPP base address was selected in the GoLogic setup program. Otherwise, an address was selected that conflicted with another hardware device in the computer.

Run the “GoLogic Setup” program and select the correct EPP base address. Restart the computer so the low-level “GoLogic.sys” driver is loaded. After restarting, the GoLogic software should start without the error message.

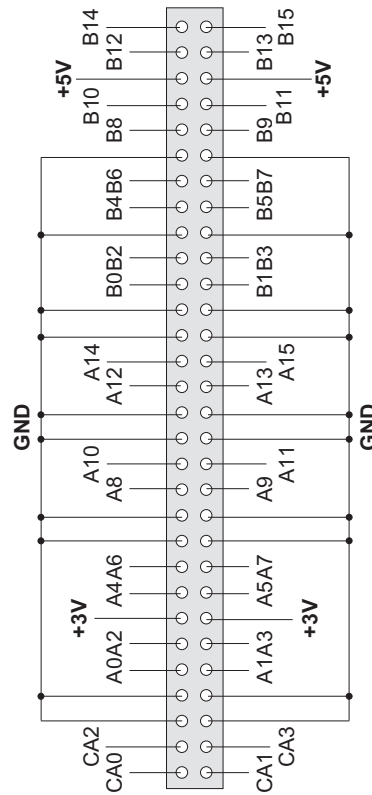
If the problem continues, verify the “C:\Windows\System32\Drivers\GoLogic.sys” file exists. If the file is missing, reinstall the GoLogic software. If the file is still not installed, contact NCI for assistance.

Chapter 2 - Lead set connector pin diagram

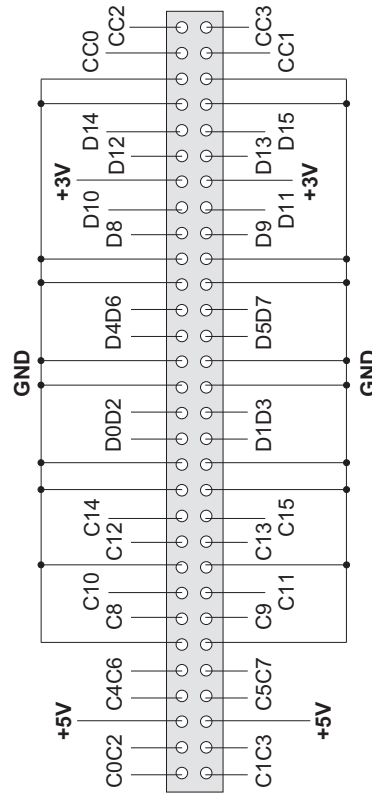
InterCon part 5856-130



Pods A and B

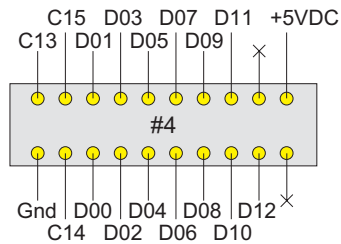
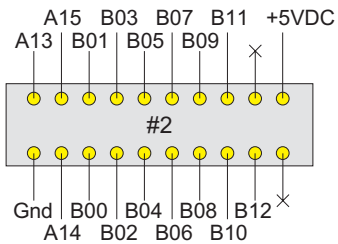
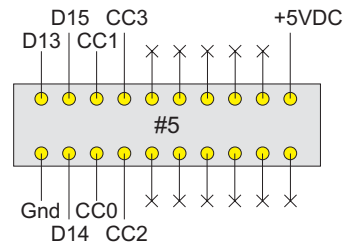
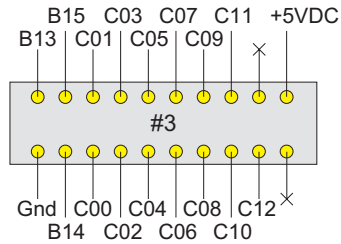
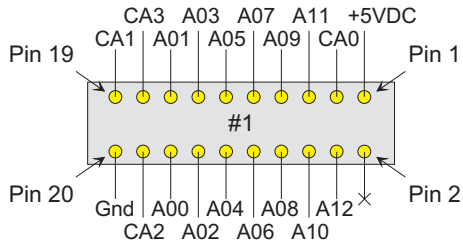
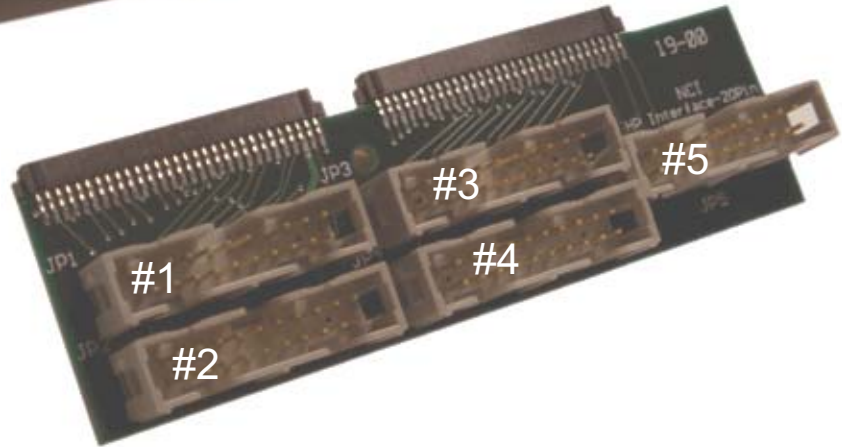


Pods C and D



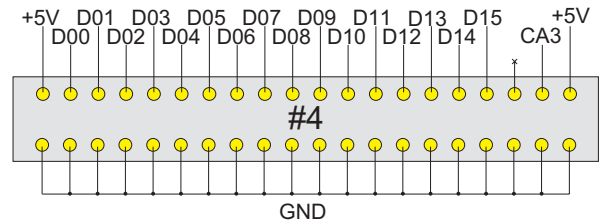
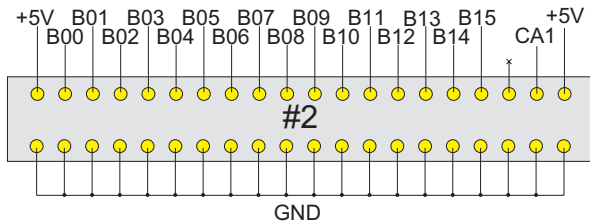
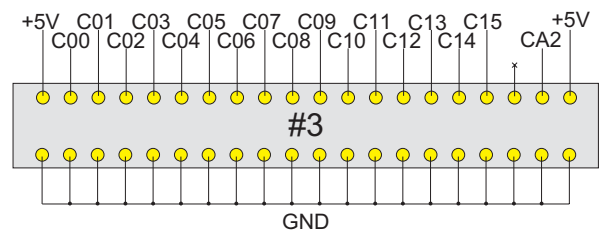
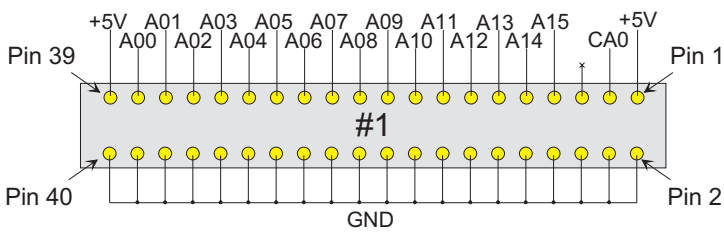
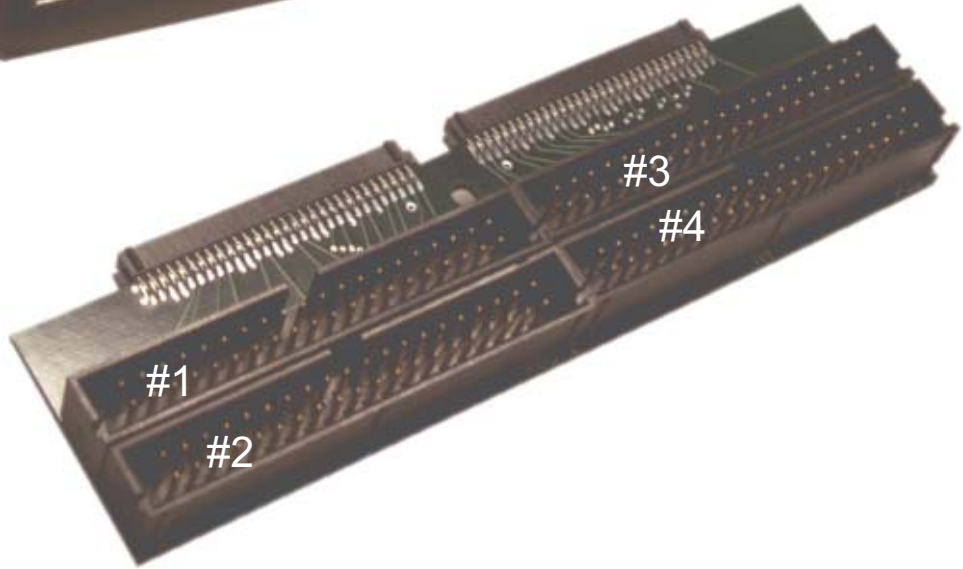
Chapter 3 - Input adapter for 20-pin headers

Not recommended for clock speeds faster than 50 MHz.
Use similar 20-pin headers in your PCB design.



Chapter 4 - Input adapter for 40-pin headers

Not recommended for clock speeds faster than 50 MHz.
Use similar 40-pin headers in your PCB design.



Chapter 5 - Input adapter for Mictor™ interface

Recommended for clock speeds 50 MHz to 125 MHz.
 Use AMP® part 2-767004-2 surface mount Mictor™ connector in your design.

