IO Libraries G.02.02.02 Read Me

Welcome to the HP I/O Libraries (SICL and VISA) for both Windows® 95 and Windows NT®. This readme file contains information on the following subjects:

- Installing and Configuring Hardware Interfaces
- What's new?
- Information not yet documented in the manual
- Supported Interfaces
- Notes on Windows 95 I/O Library DLL's
- Notes on installing an E8491A in a system with VXLink
- Notes for Visual BASIC programmers
- Using Device Symbolic Names in SICL
- Known Limitations
- Notes on LAN Support
- Notes on Fast Data Channel (FDC) Support
- Notes on I-SCPI support
- Configuring an HP 82341 or HP 82340 HP-IB with EISA Computers
- Revision History
- Copyright Notices

Installing and Configuring Hardware Interfaces

Before you can use an interface with SICL or VISA, you must configure the interface with the 'I/O Config' utility located in the 'HP I_O Libraries' program folder. I/O Config should be used exclusively to configure all interfaces used with SICL and VISA. I/O Config ensures that all necessary configuration is performed to use your interface with SICL and VISA. I/O Config also communicates information about all I/O resources used by an interface to the operating system so that I/O resource conflicts (between IRQs, I/O ports, memory mapped I/O addresses, etc.) do not occur.

Do not attempt to manually edit the Windows registry or use the Add New Hardware Wizard (in Windows 95) to configure your interfaces for use with SICL or VISA.

What's new?

- An HP icon was added to the system tray. In G.02.01, this icon was only present if you installed the HP E9841A. It is now installed for all interfaces. Clicking this icon gives you convenient access to:
  - VXI Resource Manager (HP E8491A)
  - Visa Assistant
  - I/O Config
  - Documentation (manuals and help files)
  - Visa Message logging and viewing (for debug purposes)
- Adaptec drivers for HP E8491A can now be uninstalled.
- The way VISA scans for devices has been changed:
  - ViOpen will now find devices that were not present when viOpenDefaultRM() was first run.
  - VISA no longer scans for devices when you call viOpenDefaultRM().
  - VISA now scans for new devices each time you call viFindRsrc().

- You can override the automatic scanning for interface cards when you run I/O Config. This will prevent problems on some PC's which malfunction when certain addresses are touched during the configuration process. See the file <SICLbase>\intfcfg\intfcfg.txt for details. The interfaces which can be manually configured are:
  - COM ports (allows more that 9 on Win95)
  - HP 82340
  - HP 82341A/B/C/D
  - HP E2075
- I/O Libraries setup has been improved:
  - You won't be prompted to reboot unless it is necessary.
  - By default, interfaces will be configured automatically.
  - The Uninstall program does a better job of freeing system resources used by non-plug&play I/O cards.

Information not yet documented in the manual

The I/O Configuration program 'Options' menu selections:

- VISA Logging
-       `Off (Default):        * Don't log`
-       `Message Viewer(Win95): * Log to the Message Viewer` application.
-       `Event Viewer  (WinNT): * Log to Windows NT's Event Viewer.`
-       `Debug Window:         * Log using Windows` `OutputDebugString().`

          `(This is useful in debuggers.)`

- SICL Yield (Win95 only)
-       `False (Default):      * SICL does not yield the CPU` `during I/O`
          `True                 * SICL yields the CPU during I/O`

Note: SICL Yield must be 'False' for proper operation of some VXI plug&play drivers. This will prevent a potential deadlock from within a Windows message handler.

Supported Interfaces

This version supports the following I/O interfaces:

- HP E8491A IEEE 1394 to VXI Interface
  - Windows 95 (32-bit applications only)
  - Windows NT (32-bit applications only, multi-CPU's supported)
  - SICL and VISA
- HP E623X VXI Pentium(R) Controller (VXI and HP-IB)
- HP 82350 HP-IB Card (PCI)
- HP 82340 HP-IB Card (ISA)
- HP 82341 HP-IB Card (ISA)
  - Windows 95 (16- or 32-bit applications)
  - Windows NT (32-bit applications only, single CPU only)
  - SICL and VISA
- HP 82335 HP-IB Card (ISA)
  - Windows 95 (16- or 32-bit applications)
  - SICL only

- HP E2075 GPIO Card (ISA)
  - Windows 95 (16- or 32-bit applications)
  - Windows NT (32-bit applications only, single CPU only)
  - SICL only
- Built-in RS-232 Interface
  - Windows 95 (16- or 32-bit applications)
  - Windows NT (32-bit applications only)
  - SICL and VISA
- Built-in LAN Interface, client and server
  - Windows 95 (32-bit applications only)
  - Windows NT (32-bit applications only)
  - SICL and VISA
- VISA GPIB-VXI functionality (VXI communications from a GPIB interface)
  - Windows 95 (16- or 32-bit applications)
  - Windows NT (32-bit applications only)
  - VISA only
  - Support for command modules from many vendors

Notes on Windows 95 I/O Library DLL's

On Windows 95, 16 bit DLL's have a shared data segment that is common to all processes that use the DLL. If a process using an I/O Library DLL terminates abnormally, the shared data segment memory may be left in a bad state and other processes using the DLL will fail. The DLL must be unloaded from memory for this problem to be corrected. If you are experiencing problems, you can ensure that all I/O library DLL's are unloaded, by either rebooting or logging off and then logging back on again. Exiting the hp I/O Libraries control on the system tray (if you are not using an HP E8491A) may help reduce the frequency of occurrence of this problem if it persists.

Notes on installing an E8491A in a system with VXLink

If installing E8491A in a Windows 95 computer that previously had an E1483A or E1383A (VXLink Interface), there are some installation and configuration issues.

Before configuring the E8491A software, you should:

1. Run I/O Config and remove the existing VXLink interface.
2. Edit the C:\WINDOWS\SYSTEM.INI file and remove (or put a semicolon at the beginning of) the line: 'device=c:\epconnec\epcvxi.vxd' (assuming default paths).
3. Delete SURM from the Windows 95 StartUp folder.
4. Rename (or delete) the c:\epconnec directory (assuming default paths).
5. Restart your computer.

Please contact the HP TMO Call Center at 1-800-452-4844 for the latest information.

Notes for Visual BASIC programmers

- The following functions have changed since the manuals were printed. You can pass any data type instead of just strings for the 'buffer' parameter. This allows you to read and write binary data much more easily with Visual BASIC.
    - iread
    - ifread
    - iwrite
    - ifwrite
    - iswap
    - ileswap
    - ibeswap
- The isetbuf function is now supported with Visual BASIC.
- The igetlulist function is not implemented. It currently returns to Visual BASIC with error I_ERR_NOTIMPL.
- The igetaddr function is not implemented. It currently returns to Visual BASIC with error I_ERR_NOTIMPL.
- The ivxirminfo function does not correctly return the last two arrays in the structure (int_handler() and interrupter()). All other fields are correctly returned.
- The igetluinfo function does not correctly return the hwargs() array. All other fields are correctly returned.
- Sample files and a vbreadme.txt file documenting VISA calls from Visual BASIC 4.0 have been included in the following directory (assuming you have installed in the standard location):
- `c:\vxipnp\winnt\hpvisa\samples\vb`   `for Window NT`
- `c:\vxipnp\win95\hpvisa\samples\vb`   `for Window 95`

Using Device Symbolic Names in SICL

This version of SICL supports device symbolic names. You can assign a symbolic name to a device and then use that name in place of the device's address when making an iopen() call. The advantage of doing this is that you don't have to hard-code device addresses in your programs.

Device symbolic names can be defined by editing the registry. First, run either the Windows NT 3.51 utility 'regedt32' or the Windows 95 or Windows NT 4.0 utility 'regedit'. Select 'HKEY_LOCAL_MACHINE', then 'Software', 'Hewlett-Packard', 'SICL', 'CurrentVersion'. Under 'CurrentVersion', add a new key called 'Devices'. This is accomplished by selecting Edit then New then Key from the registry entry's menu. For each symbolic name you want to define, add a new string value in the 'Devices' key. This is accomplished by highlighting the Devices entry and then selecting Edit then New then String Value from the menu. Enter the symbolic name in the name field. Edit the value by double clicking on the name field. Enter the value without quote marks.

For example, the following 'Devices' entries would result in two device symbolic names being defined - dmm refers to a device at hpib7,0 and scope refers to a device at hpib7,9.

```
Name          Data
_____
dmm           "hpib7,0"
scope         "hpib7,9"
```

After adding these entries to the registry, a program could open sessions to the 2 devices by using iopen("dmm") and iopen("scope") instead of iopen("hpib7,0") and iopen("hpib7,9"). If the address to either device changed, you could edit the registry and change the address there instead of modifying your program.

Known Limitations

- SICL for Windows 95 and Windows NT does not support Visual BASIC for Applications included with applications such as Microsoft Excel.
- Using the HP 82335 interface with both SICL and the HP-IB Command Library at the same time on the same interface is not supported. No error will be reported but unexpected results could occur. Note that the HP 82335 is not supported on Windows NT.
- Calling iclose() on a session while an interrupt or SRQ handler is executing for that session can cause unexpected results. You should ensure that this cannot happen in your application.
- Except for the E8491, this product does not support multi-CPU machines on Windows NT.

Notes on LAN Support

- The LAN server on Windows NT does not start automatically after a reboot as the manual says. You need to either start it manually by double clicking its icon in the HP I/O Libraries folder, or you can create a shortcut to it in your StartUp folder.
- VISA viLock()/viUnlock() does not work on devices accessed via LAN.
- TCP/IP Instrument Protocol Specification
  This implementation of the TCP/IP Instrument Protocol is known to differ from the specifications in the following ways:
    o The device_abort RPC is not supported.
    o Rules B.4.17 and B.4.18 of VXI-11.1 are not supported by the current implementation.
    o As noted in observation B.5.1 of VXI-11.1, changes are anticipated to VXI-5. Due to these possible changes and the fact that the current revision of VXI-5 does not require that any particular VXI-5 commands be implemented, the current LAN server implementation does not support VXI-5 operations.

Notes on Fast Data Channel (FDC) Support

This version of VISA uses a separate DLL to support the FDC protocol. This DLL is not supplied by Hewlett-Packard.

- Contact the supplier of your FDC capable hardware for information on how to obtain and install the FDC DLL.
- If you attempt to set FDC-related attributes and the FDC DLL has not been installed, you will receive a VI_ERROR_NSUP_ATTR error.

Notes on I-SCPI Support

I-SCPI was implemented ONLY for BACKWARD COMPATIBILITY and migration purposes. It should not be used for new designs. Additional I-SCPI information is available the file:
```
c:\vxipnp\winnt\bin\iscpinfo.txt (Windows NT)
                  or
c:\vxipnp\win95\bin\iscpinfo.txt (Windows 95)
```
Beginning with version G.02.00 of the I/O Libraries, the 32 bit I-SCPI drivers have changed from a SICL to a VISA based implementation. This change should be invisible to you. Programs which use I-SCPI should continue to function without modification unless a VISA based I-SCPI driver is

not available for an instrument you are using. There will be no new development on the SICL based I-SCPI drivers.

Note that even though the I-SCPI drivers in this implementation are VISA based, I-SCPI may only be used with SICL programs. VISA programs cannot use I-SCPI.

The HP E8491A IEEE-1394 to VXI product will only work with the VISA based I-SCPI drivers.

Currently VISA based I-SCPI drivers are not available for the DDCC-1553 and E1450. If you are using I-SCPI with these devices, you will need to load the SICL based I-SCPI drivers. Note that the VISA and SICL based I-SCPI drivers cannot be used together. You must choose to load either one or the other. The VISA based I-SCPI drivers are loaded by default.

To load the SICL based I-SCPI drivers instead of the default VISA based drivers: If you are updating an existing I/O libraries installation: Run I/O Config in the HP I_O Libraries folder Remove all of your configured interfaces. Be sure to document any special configuration options you have chosen so you can reconfigure correctly when you re-install. Exit I/O Config. Go to the 'Add/Remove Programs' utility in the Windows Control Panel and remove the HP I/O Libraries. Insert the I/O Libraries CD and if it auto-starts an installation, exit without installing. From the Windows 'Start' menu, Click 'Run' and type: 'D:\setup oldiscpi' then click 'OK' (Substitute the correct letter for your CD-ROM drive if it isn't drive D.) At the completion of the setup program, use I/O Config to configure the desired interfaces. After rebooting the computer, the I/O Libraries will be ready for use. If you later want to install the VISA based I-SCPI drivers in place of the SICL based ones, be sure to uninstall the existing I/O Libraries before installing the new version.

Configuring an HP 82341 or HP 82340 HP-IB with EISA Computers

Some personal computers have 32-bit EISA backplanes. If you installed an HP 82341 or HP 82340 HP-IB interface in an EISA slot, you may wish to run the EISA configuration utility provided with your computer. The EISA configuration utility will assign hardware resources to the interface to avoid system conflicts.

When you ran the HP I/O Libraries installation Setup program, the EISA .CFG files were placed in the EISACFG directory under the SICL base directory (for example, under C:\SICL95\EISACFG or C:\SICLNT\EISACFG if you installed the SICL software in the default location).

When you run the EISA configuration utility and assign resources, be sure to use the same settings as used with the HP I/O Libraries configuration utility (I/O Config).

Revision History

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 G.02.02 (January 1999)
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  Enhancements / Fixes
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 - An HP icon was added to the system tray.  In G.02.01, this icon
   was only present if you installed the HP E9841A.  It is now
   installed for all interfaces.  Clicking this icon gives you
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```
    convenient access to:
        + VXI Resource Manager (HP E8491A)
        + Visa Assistant
        + I/O Config
        + Documentation (manuals and help files)
        + Visa Message logging and viewing (for debug purposes)
  - Adaptec drivers for HP E8491A can now be uninstalled.
  - The way VISA scans for devices has been changed:
        + ViOpen will now find devices that were not present when
          viOpenDefaultRM() was first run.
        + VISA no longer scans for devices when you call
          viOpenDefaultRM().
        + VISA now scans for new devices each time you call
          viFindRsrc().
  - You can override the automatic scanning for interface cards
    when you run I/O Config.  This will prevent problems on some
    PC's which malfunction when certain addresses are touched
    during the configuration process.  See the file
    \intfcfg\intfcfg.txt for details.  The interfaces
    which can be manually configured are:
        + COM ports (allows more that 9 on Win95)
        + HP 82340
        + HP 82341A/B/C/D
        + HP E2075
  - I/O Libraries setup has been improved:
        + You won't be prompted to reboot unless it is necessary.
        + By default, interfaces will be configured automatically.
        + The Uninstall program does a better job of freeing
          system resources used by non-plug&play I/O cards.


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    Known Defects
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  - Calling iblockmovex() on an HP E8491 interface to copy data from
    VXI to host computer memory can cause NT to crash if not enough
    memory has been allocated to hold all of the data.
  - Calling viClose() on the last viOpenDefaultRM() session causes
    a small memory leak.  If you need to call viOpenDefaultRM() and
    viClose() in a loop or if you are opening and closing a lot
    of VXI Plug&Play drivers, you should also call viOpenDefaultRM()
    once in the beginning of your program to ensure you are not
closing
    the last viOpenDefaultRM() in a loop.
  - Win95 RS-232/SICL does not give error indication on buffer
    overrun.
  - On Win95 if VISA runs out of resources (too many open sessions,
    for example), it will leave 16 bit DLL's loaded in memory after
    the program exits. The workaround is to logoff and the logon
    again or to reboot windows. A user can also use tools such as
    wps.exe to manually unload the 16 bit DLL's.
  - VISA viLock()/viUnlock() does not work on devices accessed via
    LAN.
  - viOpenDefaultRM fails when using GPIB-VXI over an HP 37204 HP-IB
    extender. The HP-IB extender handshakes all HP-IB address even if
    there are no devices present. This confuses the algorithm used by
    viOpenDefaultRM to identify the devices present. The workaround
    is to manually configure all devices that are physically
```

connected to the affected interface. This is done by running
the I/O configuration utility, selecting the affected interface
and navigating to the 'Edit Visa Config' dialog box. From this
dialog box, you can disable 'identify devices at run-time' and
manually add the devices that are
connected to the interface
- Simultaneous interrupts on different VXI interrupt lines on an
  HP E623x can cause interrupts to cease working until power is
  cycled or the computer is reset (not just re-booted). The
  workaround is to have all devices interrupt on the same VXI
  interrupt line.
- viWrite() and iwrite() to a serial device can fail when the
  serial input buffer has overflowed. The workaround is to call
  viFlush() or iflush() on the receive buffer immediately before
  doing the viWrite() or iwrite().
- The %E conversion exhibits conversion errors. For example:
  executing viPrintf(vi, "%E,%E\n", -3.0e-3, 1.0e-3, 20); will
  send "-3.000001E-03,1.000001E-03" where
  "-3.000000E-03,1.000000E-03" is expected. There is no workaround.
- HP8234x cards do not work on multi-processor Windows NT systems.
  The only workaround currently available is to boot NT in single
  processor mode.
- VISA Config "Auto-add devices" fails with error on
  HP E623x/Win 95. The workaround is to add devices manually.
- EPC-7/8/VXLink/HPE823x do not report bus errors on VXI transfers.
  The value returned when a bus error occurs is all 1's.
- The 'actualcnt' parameter returned by iwrite() to an HP-IB device
  is wrong if a timeout occurs before any bytes are sent. The value
  returned appears to be a large random number. This problem also
  affects viWrite().
- On the HP E623x Embedded Pentium Controller running WinNT, when
  using iblockmovex (SICL) or viMoveIn/viMoveOut (VISA) to move very
  large blocks, if a page fault occurs in the TULIP driver, NT will
  blue screen with an IRQL_NOT_LESS_OR_EQUAL error in BusMgr.sys.
  Apparently BusMgr.sys cannot handle a page fault in the local
  memory buffer. The workaround is to lock the local buffer in
  memory before beginning the transfer. This can be done using the
  Win32 API Calls: SetProcessWorkingSetSize(), VirtualLock() and
  VirtualUnlock(). Note locking large buffers in memory can have
  a negative impact on overall system performance.
- On HP 623x platforms running Windows NT, sending ivxiws() to a
  device that you expect a response from can hang at NT Kernel
  level if the device does not respond. Once this happens, you need
  to reboot NT to recover. The simple workaround is to always set
  a reasonable timeout on the device session before issuing the
  ivxiws() call.
- On HP E623x platforms, SICL iopen() of a locked device will hang
  waiting for the lock. The workaround is do all iopen()'s before
  locking any devices. Note that you cannot set a timeout for the
  iopen() since the timeout must be set on an already open SICL
  session.
- On HP E623x platforms, SICL ilock() does not work across
  processes. Even if a device is locked in one process, it can
  still be accessed in another process.
- A VISA address string containing a leading 0,
  e.g. GPIB0::08::INSTR does not work. Leading 0's must be removed
  in order for VISA to find the desired device,

e.g. GPIB0::8::INSTR.

   G.02.01 (August 1998)

    Enhancements / Fixes

    - A problem with using HP-IB cards on fast PC's was fixed.

   G.02.00 (July 1998)

    Enhancements / Fixes

    - Support was added for the HP E8491 IEEE 1394 to VXI interface.

   G.01.01 (April 1998)

    Enhancements / Fixes

    - A problem with GPIB-VXI accessing non-A16 memory was fixed.
    - A problem on Win95 where I/O Config would occasionally find a
bogus
      HP 82350A card when none were installed was corrected.
    - On WinNT, device drivers are no longer loaded for I/O cards
      that are not configured. This eliminates a potential blue-screen
      problem on some computers.

   G.01.00 (March 1998)

    Enhancements / Fixes

    - Support for the HP 82350A PCI HP-IB card was added.
    - VISA Spec Revision 1.1 is supported beginning in release G.01.00.
      This adds:
        + MEMACC resource: Allows access to the entire VXI A16, A24 and
          A32 Memory Space.
        + viMove(): Moves data between memory and VXI in either
          direction. Access size (VI_WIDTH_8, VI_WIDTH_16 and
          VI_WIDTH_32) is passed
          as a parameter.
        + %b and %y format specifiers have been added to viPrintf and
          viScanf to allow the reading and writing of IEEE 488.2
          Arbitrary Block Program Data and raw binary data.
        + VI_NULL can now be used in place of an OUT parameter in
several
          if the value of the OUT parameter is not needed by
          the programmer.
        + The VISA 1.1 specification provides for but does not require
          VME card support. VME cards will have logical addresses
          between 256 and 511. Their configuration in the system is
          vendor specific. HP has not implemented VISA support for VME

cards at this time.
- The VISA and SICL manuals are included in electronic form on the
  HP I/O Libraries CD-ROM beginning with release G.01.00.
- Two threads in the same process attempting to close the same VISA
  object at the same time will no longer cause a GPF.
- viClose() disables all events and allows time for all interrupt
  threads to complete before the session object is destroyed.
- viMoveIn() and viMoveOut() now work correctly with HP Command
  Modules.
- On Windows 95, I/O Config can now configure up to 256 COM ports.
This
  is done by editing the \intfcfg\intfcfg.ini file. This file is
  installed when the HP I/O Libraries are set up. Refer to the
  documentation in that file for details on how to configure
  additional COM ports.
- viWrite now functions correctly when buffer to be written is in
  read-only memory.
- The missing VISA entry points have been added to the Borland
  version of the VISA32.LIB import library.
- GPIB-VXI DLL now correctly computes the A24 membase on all cards.
- viOut32() no longer returns a bogus error code of
  VI_ERROR_NSUP_WIDTH.
- GPIB-VXI viMoveIn16 now handles FIFO moves correctly.
- I_GPIO constants have been added to the sicl4.bas file.
- Using GPIB-VXI on an HP command module, viIn32() no longer
  reports VI_ERROR_TMO.
- Changing length of VISA name (i.e. gpib0 to gpib11) now works.
- A thread-safe defect in HPIB I/O on Windows NT has been
  corrected.
- HP I/O Libraries setup program on Windows NT no longer fails with
  a very long system 'PATH' environment string.
- iwaithdlr() now works correctly on 16 bit Windows 95 regardless
  of the setting of the Sicl Yield flag.
- iopen(NULL) no longer causes an occasional GPF in 16 bit
  Windows 95.

  F.01.02 (April 1997)

  Enhancements / Fixes

- Windows 3.1 SICL / VTL 3.0 bits have been added to the CD-ROM.
- An 'Options' menu was added to I/O Configuration program. This
  menu allows user changes to VISA logging mode and SICL Yield
  mode:
    * VISA logging is now 'off' by default.
    * SICL Yield mode is now 'false' by default.
- On Windows NT, the LAN Server is not auto-started when it is
  configured. Now, when the LAN Server is configured on Windows NT,
  a dialog box informs the user to either start it manually or add
  a shortcut to it in the StartUp folder.
- A configuration problem on Windows 95 Service Release 2 has been
  fixed.
- A memory leak on Windows NT VXI interface has been fixed.
- An intermittent RS-232 I/O error has been fixed.
- A GPIB-VXI problem with A24 memory access on some VXI cards
  when using an HP Command Module has been fixed.

- I/O Libraries can now be successfully installed on Win95 in a
        path which contains long file names.
      - Folder shortcuts to I/O Library programs now work correctly when
        the I/O Libraries are installed in a path whose name contains
        spaces.
      - The I/O Libraries setup program no longer fails when attempting
        to install on a disk with more than 2Gb of free space.
      - I/O Libraries can now be use on WinNT when not an administrator.
      - Tab-stops in scroll boxes in the I/O Config program have been
fixed so
        they can be edited from the keyboard as well as with the mouse.
      - A potential data corruption problem on HP 82341 card when used
        on some PC's which don't fully meet the ISA backplane spec has
        been fixed.
      - VISA resource strings are no longer case sensitive. Previously
        they were required to be uppercase.
      - On Windows NT, VXI interrupts are no longer lost if they occur
        too close together in time.
      - A number of user interface improvements have been made to the
        Visa Assistant program which ships with the I/O Libraries.

   F.01.01 (December 1996)

    Enhancements / Fixes

    - Simultaneous VXI TTL triggers no longer cause Windows NT to hang
      and require a reboot, when running on an HP E6233A computer.
    - The GPIB-VXI support files are now installed on non-VXI
      platforms. Note: A setup program for these files has also been
      added to the November 1996 release of the HP Plug&Play Driver CD.

   F.01.00 (October 1996)

    Enhancements / Fixes

    - Up to 256 RS-232 ports can now be configured
      (limit used to be 9).
    - The I/O Config program now runs on non-USA versions of Windows NT.
    - ipeek and ipoke are now functions rather than macros. The
      compiler optimizer would, under certain conditions, generate
      wrong size VXI backplane accesses when macros were used.
    - A potential hang problem in Win32 with
      iserialctrl(I_SERIAL_RESET) has been fixed.
    - Many SICL for Visual BASIC 4.0 improvements, particularly for
      binary read/write.
    - Visual Basic iwrite() now correctly sets the 'actual' parameter
      return variable under all conditions.
    - isetbuf() is now supported in Visual Basic 4.0.
    - For 16 bit VISA/VTL in Windows 95, vxipnp\win\bin is now added to
      the PATH and the VPNPPATH environment variable is set.
    - A problem in WinNT 4.0 in which viOpenDefaultRM() caused an
      exception is now fixed.

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