

APPLICATION NOTE

Using 20020 Series ARCNET Controllers with DOS and Windows 3.1x

AN-209

INTRODUCTION

The 20020 ARCNET controller represents the latest generation ARCNET technology with improved diagnostics and capabilities over earlier generation ARCNET controller chips. Since the 20020 is not software compatible with earlier 9026 and 9065 chips, different drivers are required when using the 20020 with PC-based operating systems such as Novell's NetWare or Microsoft's Windows. This application note discusses some of the driver issues.

PC COMPATIBLE 20020 ARCNET ADAPTERS

Contemporary Controls (CC) can provide several PC compatible ARCNET adapters that would operate with standard operating systems. All of CC's PC compatible adapters have the same register locations in I/O space even though they comply with different physical bus structures. Therefore, this application note applies to all 20020 adapters as follows:

| | |
|---------|---|
| PCM20 | PC Card Compatible 20020 ARCNET Adapter |
| PCX20 | ISA Compatible 20020 ARCNET Adapter |
| PC10420 | PC/104 Compatible 20020 ARCNET Adapter |
| STD20 | STD Compatible 20020 ARCNET Adapter |
| SBX20 | SBX Compatible 20020 ARCNET Adapter |

For the STD20 or SBX20 to operate in a PC environment, their host CPUs must be PC compatible.

USING THE 20020 UNDER MS-DOS TO A NETWARE SERVER

We recommend using Open Datalink Interface (ODI) compatible drivers to access Novell's NetWare 3.X and 4.X file servers. The ODI standard supports multiple protocols and multiple LAN adapters in a single workstation. Refer to Novell's NetWare "NetWare ODI Shell for DOS" manual for installation details. Some of the required files can be found on NetWare disks.

Three files allow workstations to communicate to other workstations and file servers.

LSL.COM—The Link Support Layer file enables the workstation to communicate over several protocols.

ODI20WS.COM—This is the 20020 ODI compliant driver which communicates directly to the 20020 ARCNET adapters and is available from CC.

IPXODI.COM—This is the protocol stack that manages communications between network stations.

These three files must be included into the AUTOEXEC.BAT file. Your file requires the following sequence in the order shown.

```
LSL
ODI20WS
IPXODI
NETX
```

The NETX file is the shell file which may differ in name depending upon the DOS version. For Novell 4.X servers, use VLM. If the above four files are located in a particular directory (such as ODI20), be sure to include the appropriate CD commands in the batch file. We recommend keeping all four files in the same directory.

You will also need a NET.CFG file supplied by CC which defines the 20020 adapter parameters. Edit this file with the DOS editor if changes to the adapter's configuration need to be made. Read the comments in the file for additional guidance. At a minimum you need to specify the following:

| | |
|-------------------|---|
| Port 300 | 16 contiguous locations are required beginning at the specified base address. We recommend 300. |
| INT 5 | Specify interrupt source. We recommend IRQ5. |
| NODE ADDRESS FF | Specify an initial node address between 1 and FF. Do not use zero. |
| SPEED 2500 | Specify the baud rate in Kbps. Remember that -CXS, -CXB, -TPS and -TPB transceivers could be damaged if the speed is not 2500. The -485X will operate at either 2500 or 5000 while the -485 and -485D will operate at all speeds. |
| CLOCK 20MHz | Set the clock to 40MHz only if using the 20020-5. |
| MEDIA MODE NORMAL | Use NORMAL for non-backplane mode operation. For backplane mode operation, use BACKPLANE. With CC products, only use backplane mode with the -485 transceiver. The -485D and -485X use non-backplane mode. |

Once the NET.CFG file has been modified, include the file in the same directory as the above mentioned files. Complete the installation by following the instructions in the Novell documentation.

PC Card Environment

For laptop or notebook computers, the PCM20 PC Card Adapter is used when a PCMCIA slot is available. An additional file must be provided to operate in a Novell application with the PCM20. Make sure that Card and Socket services are loaded first in the AUTOEXEC.BAT file. Usually this is the case since these files are provided by the computer manufacturer. The file PCM20.EXE, provided by CC, is loaded after card and socket services and before LSL.COM. Follow the same instructions as discussed previously in order to complete the installation. With the TSR PCM20.EXE loaded, the PCM20 will appear like any other 20020 ARCNET adapter.

USING THE 20020 UNDER WINDOWS TO A NETWARE SERVER

If you are running Microsoft's Windows 3.1 and would like to access a NetWare server, configure the AUTOEXEC.BAT file the same way as was done for a MS-DOS machine. Once the AUTOEXEC file is executed, you can startup Windows. You will notice the presence of additional drives indicating that Windows recognizes the file server drives.

USING THE 20020 UNDER WINDOWS FOR WORKGROUPS

Microsoft's Windows for Workgroups (WFW) 3.11 allows for the support of two networks: Novell's NetWare and Microsoft Network. Install the ODI driver the same as was done with MS-DOS, but this time we need to add a program called ODIHLP.EXE to the AUTOEXEC.BAT file. This program from Microsoft should in be inserted between ODI20WS.COM and IPXODI.EXE. The section of the AUTOEXEC.BAT file that we are interested in should look like the following:

```
LSL
ODI20WS
ODIHLP
IPXODI
NETX
```

Load ODIHLP.EXE in the same directory as all the other ODI related programs. Restart the computer and start Windows for Workgroups.

Double-click on the Network Setup icon. While in the Network Setup window, select Networks. Click on the Install Microsoft Windows Network button and the No additional network button. Click on the OK button. At the Network Setup window select Drivers. Using the Add Adapter screen select IPXODI Support Driver (ArcNet). At the Add Protocol screen select ODI ArcNet Support transport with NetBIOS. Therefore, the Network Driver window should display:

IPXODI Support Driver
(ArcNet) [ODI/NDIS]
ODI ArcNet Support transport
with NetBIOS

You will need various programs that can be found on the “Windows for Workgroups,” setup diskettes. Keep these disks handy since WFW will ask for the location of various programs.

Network setup is now complete. You will be asked to restart Windows and you should. Assign names for each computer on the network and attempt to read another computer’s files. If successful, your installation is complete.

To install support for WFW over an existing Novell system, install WFW as prescribed in the Microsoft’s Windows for Workgroups 3.11 manual. Add the ODIHLP program as described earlier. After successfully logging on to your Novell NetWare system, start WFW by typing WIN at the DOS prompt. Double-click on the network icon, then on the network setup icon. Within the network setup window, double-click on the networks... button. Within the networks window, click on the “other” button and a list of supported networks will appear. Scroll through the list until you find Novell NetWare [Workstation Shell X.S]. Select the version you are running by clicking with the mouse and this

will be displayed in the box next to the “other” button. Click on the “OK” button once, and again in the following window. Now, WFW will prompt you for the needed Novell files which are found on the NetWare “Client for MS Windows” diskette. When installation is complete, reboot the system. Support for both Windows for Workgroups and NetWare is now possible.



Contemporary Control Systems, Inc.
2512 Wisconsin Avenue • Downers Grove, Illinois 60515 • USA
TEL +1-630-963-7070 **FAX** +1-630-963-0109 **E-MAIL** info@ccontrol.com
WWW <http://www.ccontrol.com>



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