UpBoard Installation Guide

Contents

UpBoard Installation Guide for the IBM PS/2

You **must** have your **PS/2 Reference Disk** and DOS version 3.3 (or greater) either on; (i) floppy disk, or (ii) on your hard disk to proceed with the installation of the UpBoard.

Existing R-83 PICK/PC Machine start here (you **must** have the Pick Disk #1)

- Perform the necessary "backup" procedures for each partition on your hard disk. For a Pick R83 partition you need to do a FILESAVE.
- You will need to "KILL" the Pick partition to make room for the UpBoard system. To do this insert your **Pick Disk #1**, reboot the system, and select the **(K)ill** option. *Do not do this until you have a completed FILESAVE.*

Non R-83 PICK/PC start here

DO you have a "bootable" DOS partition of at least 5MB? **YES** → go to **Install THE UpBoard.**

- Insert your DOS 3.3 (or greater) Disk #1 into the A drive and boot the system.
- Type **FDISK** at the **A>** prompt and create a primary DOS partition of at least 5MB.
- Type **FORMAT C:/S** at the **A>** prompt to format a "bootable" primary DOS partition.
- Copy DOS commands and files onto the hard disk by typing: **COPY *.* C:**. Repeat this step with the second DOS disk in drive A if DOS is delivered on more than one floppy.

Install the UpBoard

- Turn the power OFF, unplug the power cable from the back of the system and remove the cover from the PC. You may also want to refer to your system manual about adding and configuring boards and using the configuration program.
- With the power off install the UpBoard into any available slot.
- Plug the power cord into the back of the PC, insert your PS/2 Reference Disk into the diskette drive and turn the power switch on. The system will tell you that it has found a board that it doesn't recognize (the UpBoard you just installed). When the on-screen instructions ask you whether or not it should run Automatic Configuration, respond **NO**.
- Select item 5, **Copy an Option Diskette**, from the main menu and insert the **UpBoard/Pick Installation Diskette** into the disk drive when prompted to enter the *Option Disk*. The UpBoard .ADF file will then be copied from this diskette onto your PS/2 Reference Disk.
- Return to main menu and select item 3, **Set System Configuration**. From this sub-menu select item 5, **Run Automatic Configuration**. The system should now be ready to run with the UpBoard installed. To verify the that the UpBoard has been added to your configuration you may want to select item 1, **View Configuration**, from the System Configuration menu.

Install the UpBoard DOS Support Software

- After "rebooting" the system insert the UpBoard **"Installation Diskette"** into drive A, and type **A:INSTALL.**

  This procedure will create a Pick directory, copy the files from the Installation Diskette into the Pick directory on the hard disk, and will enter the UpBoard **"Configuration System"** at the System Overview Screen.

- The **modify system configuration** option will be highlighted at the bottom of the System Overview Screen. Hit a carriage return which will take you to the **Main Menu.**

- *Within the Configurator you can use the up and down arrow keys or numbers to select menu categories, and the right and left arrow keys or letters to select field choices. You can use the **ESCAPE** key to exit the current screen and abandon any changes that were made.*

Create the UpBoard Pick Partition on the hard disk

- Select the "Disk Configuration" option on the Main Menu using the down arrow or by typing a **2**, followed by a **return.**

  This screen will display all partitions currently defined on your hard disk(s), as well as, all unused portions of disk. The Configuration System will automatically select the largest unused section of disk for the UpBoard/Pick partition.

- Go to the **What Next?** option, using the down arrow or typing the number 5.

- Select the **Create Partition** field using the right arrow or typing the letter B.
  Hit a **return** to format the UpBoard/Pick partition on the hard disk.

  This process can take from10 minutes to 2 hours depending on the size of your disk/partition.

- When completed go to the **What Next?** option and select return to the Main Menu.

- Select the **Return to Overview Screen** option from the Main Menu using the down arrow or the number 6.

- Save the modified configuration by hitting a **B** followed by a **return.**

  (All of the previous work has been done in DOS. Now for the first time Pick and the UpBoard will be accessed.)

- If everything up to this point has been done correctly the system will display the following Pick prompt:

  (C)old start or (S)ystem Initialize.

  (If it does not, review all previous steps for compliance. If you are convinced that you have done everything exactly as specified and still have trouble call Seattle Lab support for assistance at: **(206) 821-5433).**

Install Pick ABS and BASE FILES

At the **(C)old start or (S)ystem Initialize** prompt:

- Place the **ABS Diskette** into drive A and type **S**.
  - Select the correct tape/disk boot device (normally number 6, High Density Floppy)
  - Enter a **Y** to rewind the tape/diskette
  - Enter a **1** to select ABSLOAD
  - Enter a **Y** to confirm the operation.

  The system will take about a minute to Initialize the ABS area, and then print several lines of plus signs and then return to the **(C)old start or (S)ystem Initialize** prompt.

- Place the diskette labeled **Base Files Diskette** into drive A and type **S**.
  - Select the correct tape/disk boot device (normally number 6, High Density Floppy)
  - Enter a **Y** to rewind the tape/diskette
  - Enter a **2** to select FILE RESTORE
  - Enter a **Y** to confirm the operation.

  The system will perform the File Restore and then automatically begin the Coldstart proceedure.

Install JET - Compusheet+ - AccuPlot

- You will be asked whether you wish to install the bundled software (Jet, CompuSheet+, & AccuPlot). If you answer Yes, you will be prompted through the loading of the bundled software diskettes.

System Console and Parallel Printer settings

- The system will next display the settings for the system console and parallel printer and ask if you would like to make any modifications. If you answer Yes you will enter the system editor to modify the USER-COLDSTART PROC.

The System is now ready to load your software and data!

- To load your user accounts get to TCL on SYSPROG and execute the following commands.

  SET-SCT
  RESTORE SYSTEM * *(This will load all accounts on tape that are not on the system.)*

The data frame size for the UpBoard is 2048 bytes. If you are restoring data created on a machine with a different data frame size you should use the **RESIZE** option with the **RESTORE** command:

RESTORE SYSTEM * (R

The system will then prompt you to enter the data frame size (rounded down to the nearest 500) of the system which created the tape.

How to setup DOS to automatically "boot" the UpBoard.

- To have the system automatically boot into Pick when it is turned on you would need to append the following lines to your DOS file called AUTOEXEC.BAT in the root directory of the C drive:

  CD\PICK <CR>
  PICK /A <CR>

  The system will now boot directly into Pick whenever the machine is powered on.

- To enable the UpBoard to utilize PC extended memory, on 386 class machines, you would change the second line above to read

  PICK /A /EX

UpBoard Installation Guide for PC/ATs

You **must** have DOS version 3.3 (or greater) either on;
(i) floppy disk, or (ii) on your hard disk to proceed with the installation of the UpBoard.

Existing R-83 PICK/PC Machine start here (you **must** have the Pick Disk #1)

- Perform the necessary "backup" procedures for each partition on your hard disk. For a Pick R83 partition you need to do a FILESAVE.
- You will need to "KILL" the Pick partition to make room for the UpBoard system. To do this insert your **Pick Disk #1**, reboot the system, and select the **(K)ill** option. *Do not do this until you have a completed FILESAVE.*

Non R-83 PICK/PC start here

DO you have a "bootable" DOS partition of at least 5MB? **YES** → go to **PREPARE THE MACHINE.**

- Insert your DOS 3.3 (or greater) Disk #1 into the A drive and boot the system.
- Type **FDISK** at the **A>** prompt and create a primary DOS partition of at least 5MB.
- Type **FORMAT C:/S** at the **A>** prompt to format a "bootable" primary DOS partition.
- Copy DOS commands and files onto the hard disk by typing: **COPY *.* C:**. Repeat this step with the second DOS disk in drive A if DOS is delivered on more than one floppy.

Prepare the machine

- Turn the power OFF, unplug the power cable from the back of the system and remove the cover from the PC.
- Unscrew and remove all Serial I/O cards and Tape Drive Controllers from the system. At this point the only cards in the system should be a video card and a hard/floppy disk controller.

Install the UpBoard

- Remove the Upboard from the box and verify that the jumpers are set as pictured in the **"Configuring the UpBoard"** section of this guide.
- With the power off install the UpBoard into any available 16-bit slot. (It is preferable to install the UpBoard behind a short length card, such as a video adapter, for enhanced cooling of the board).
- Plug the power cord into the back of the PC and turn the power switch on. The system should boot to the DOS prompt.

Install the UpBoard DOS Support Software

- Insert the UpBoard **"Installation Diskette"** into drive A, and type **A:INSTALL.**

  This procedure will create a Pick directory, copy the files from the Installation Diskette into the Pick directory on the hard disk, and will enter the UpBoard **"Configuration System"** at the System Overview Screen.

- The **modify system configuration** option will be highlighted at the bottom of the System Overview Screen. Hit a carriage return which will take you to the **Main Menu.**

- *Within the Configurator you can use the up and down arrow keys or numbers to select menu categories, and the right and left arrow keys or letters to select field choices. You can use the **ESCAPE** key to exit the current screen and abandon any changes that were made.*

4MB UpBoard - only (For a 2MB UpBoard go to "Create Pick Partition")

- The first Main Menu option, **UpBoard Configuration**, will be highlighted. If you are installing a 4MB UpBoard you will hit a **return** at this point to modify the UpBoard Configuration.
- To tell the configurator about your 4MB UpBoard go to the second category, **Memory Size**, by hitting a down arrow or the number 2. You would then use the right arrow or the letter **C** followed by a **return** to select 4MB.
- Next, go to the **What Next** option using the down arrow or by typing a **3**, and hit a **return** to save the changes.

Create UpBoard Pick Partition on the hard disk

- Select the "Disk Configuration" option on the Main Menu using the down arrow or by typing a **2**, followed by a **return**.

  This screen will display all partitions currently defined on your hard disk(s), as well as, all unused portions of disk. The Configuration System will automatically select the largest unused section of disk for the UpBoard/Pick partition.

- Go to the **What Next?** option, using the down arrow or typing the number 5.
- Select the **Create Partition** field using the right arrow or typing the letter B.
  Hit a **return** to format the UpBoard/Pick partition on the hard disk.

  This process can take from10 minutes to 2 hours depending on the size of your disk/partition.

- When completed go to the **What Next?** option and select return to the Main Menu.
- Select the **Return to Overview Screen** option from the Main Menu using the down arrow or the number 6.
- Save the modified configuration by hitting a **B** followed by a **return**.

  (All of the previous work has been done in DOS. Now for the first time Pick and the UpBoard will be accessed.)

- If everything up to this point has been done correctly the system will display the following Pick prompt:

  (C)old start or (S)ystem Initialize.

  (If it does not, review all previous steps for compliance. If you are convinced that you have done everything exactly as specified and still have trouble call Seattle Lab support for assistance at: **(206) 821-5433).**

Install Pick ABS and BASE FILES

At the **(C)old start or (S)ystem Initialize** prompt:

- Place the **ABS Diskette** into drive A and type **S**.
  - Select the correct tape/disk boot device (normally number 6, High Density Floppy)
  - Enter a **Y** to rewind the tape/diskette
  - Enter a **1** to select ABSLOAD
  - Enter a **Y** to confirm the operation.

  The system will take about a minute to Initialize the ABS area, and then print several lines of plus signs and then return to the **(C)old start or (S)ystem Initialize** prompt.

- Place the diskette labeled **Base Files Diskette** into drive A and type **S**.
  - Select the correct tape/disk boot device (normally number 6, High Density Floppy)
  - Enter a **Y** to rewind the tape/diskette
  - Enter a **2** to select FILE RESTORE
  - Enter a **Y** to confirm the operation.

  The system will perform the File Restore and then automatically begin the Coldstart proceedure.

Install JET - Compusheet+ - AccuPlot

- You will be asked whether you wish to install the bundled software (Jet, CompuSheet+, & AccuPlot). If you answer Yes, you will be prompted through the loading of the bundled software diskettes.

System Console and Parallel Printer settings

- The system will next display the settings for the system console and parallel printer and ask if you would like to make any modifications. If you answer Yes you will enter the system editor to modify the USER-COLDSTART PROC.

Check that Pick is alive and well

- Logon to SYSPROG, exit out of the menu by hitting a **return**, and perform a couple of standard Pick commands (i.e. **POVF, WHAT, WHERE, LIST ONLY MD NOPAGE**, etc.) to make sure Pick is alive.
- At TCL type: **:SHUTDOWN <CR>** .

Installing and testing the Cartridge Tape drive.

- Turn the power OFF, and unplug the power cord from the back of the system.
- Inspect your tape controller to verify that it is set to IRQ 5, DRQ 3, and DACK 3. (DRQ & DACK set the DMA channel).
- If the tape unit was being used in an R83 Pick/PC the I/O address switch should already be set to 338h. If not, set the I/O address to 338h as per the tape device manual or the **"Configuring Cartridge Tape Drives/Controllers"** section of this guide.
- Connect the cable to the controller card and the tape unit, and insert the controller card into the system.
- Plug the power cord into the PC and turn the power switch ON. The system should boot to the **C>** prompt. Type **CD\PICK <cr>** to change to the Pick directory and then type **CONFIGURE <cr>**.
- Select the **Modify Configuration** option from the Configuration Overview Screen, and then select the **Tape/Floppy Adapter Configuration** option from the Main Menu.
- Make sure that your Floppy drive **A** is defined correctly. If you have a second floppy go to the **What Next?** field, select the **Add an Adapter** field and choose **Floppy B**.
- To configure your cartridge tape drive go to the **What Next?** field, and select the **Add an Adapter** option. You will be presented with a menu of available tape devices/manufacturers. Select the applicable manufacturer (if in doubt select **Everex**) and hit return. In most cases the I/O address, IRQ, and DMA settings do not need to be modified. Simply go the **What Next?** option and save these settings.
- At the **Tape Adapter Configuration** screen go to the **What Next?** option and choose **Save.** At the Main Menu select the **Return to Overview Screen** option and save the configuration by hitting a **B** and a return.
- Type in **PICK** at the **C>** prompt to boot Pick. The tape drive should initialize, and the **(C)old start or (S)ystem Initialize** prompt should be displayed. Type a **C** to boot the system. At the LOGON prompt go into SYSPROG, and exit the menu by hitting a **return**.
- Test the Tape Unit. At TCL type:

  SET-SCT (to select the cartridge/cassette) then
  SAVE SYSTEM SYSPROG (DIFT.

  This should do the equivalent of an ACCOUNT-SAVE. (If the tape unit does not work correctly verify the I/O address, IRQ, and DMA settings on the controller card and make sure these correspond with the values defined in the UpBoard Configurator.)
- Type **:SHUTDOWN** to return to DOS.

Installing and testing Serial Port Adapters.

- Turn the power OFF, and unplug the power cord from the back of the system.
- If the Serial Port Adapter(s) was being used in an R83 Pick/PC you should not need to modify any settings on the adapter(s) with the exception of a second Arnet Mutiport, a second Monolith Flexcom, a second Comtrol Hostess, or an AST 4-port. If you are installing a new adapter or, you qualify as one of the above exceptions, or you are unsure about the adapter settings please refer to the manual delivered with the adapter and/or the **Serial Port Adapter Configuration** section of this guide.
- Insert the port adapter(s) into the system.
- Plug the power cord into the PC and turn the power switch ON. The system should boot to the **C>** prompt. Type **CD\PICK <cr>** to change to the Pick directory and then type **CONFIGURE <cr>**.
- Select the **Modify Configuration** option from the Configuration Overview Screen, and then select the **Serial Adapter Configuration** option from the Main Menu.
- Go to the **What Next?** field and select the **Add an Adapter** field. You will be presented with a menu of available Serial Adapter manufacturers. Select the applicable manufacturer and hit return. If the adapter was installed in a Pick/PC you should not need to change the Base Port address, IRQ, and Status Register settings. Simply go the **What Next?** option and save these settings.
- Repeat the previous step for each serial adapter installed in the system.
- When all adapters are configured go to the **What Next?** option and choose **Save.** At the Main Menu select the **Return to Overview Screen** option and save the configuration by hitting a **B** followed by a return.
- Type in **PICK** at the **C>** prompt to boot Pick. The **(C)old start or (S)ystem Initialize** prompt should be displayed. (If you receive "Hardware Configuration Errors" before this prompt the port adapter associated with the TTY lines is not configured correctly. Check the port adapter settings and verify that these correspond with the values defined in the UpBoard Configurator.) Type a **C** to boot the system. At the LOGON prompt go into SYSPROG, and exit the menu by hitting a **return**.
- Test the Serial Ports. At TCL type **TANDEM 1** (to tandem to the first port), log on to SYSPROG, then **LIST ONLY MD NOPAGE.** When the listing is finished type **OFF** and then hit the **ESCAPE** key twice to exit TANDEM. Repeat this step for each port configured on the system. (If ports "hang" during the listing process escape tandem and type **LIST-LINES**. If the OBUF vaule for that port equals 1023 the status register or IRQ setting on the adapter may not correspond to the value defined in the UpBoard Configurator.)

The System is now ready to load your software and data!

- To load your user accounts get to TCL on SYSPROG and execute the following commands.

  SET-SCT
  RESTORE SYSTEM * *(This will load all accounts on tape that are not on the system.)*

The data frame size for the UpBoard is 2048 bytes. If you are restoring data created on a machine with a different data frame size you should use the **RESIZE** option with the **RESTORE** command:

RESTORE SYSTEM * (R

The system will then prompt you to enter the data frame size (rounded down to the nearest 500) of the system which created the tape.

How to setup DOS to automatically "boot" the UpBoard.

- To have the system automatically boot into Pick when it is turned on you would need to append the following lines to your DOS file called AUTOEXEC.BAT in the root directory of the C drive:

  CD\PICK <CR>
  PICK/A <CR>

  The system will now boot directly into Pick whenever the machine is powered on.

- To enable the UpBoard to utilize PC extended memory, on 386 class machines, you would change the second line above to read

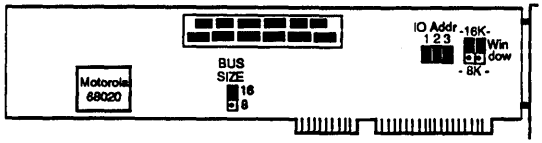
  PICK /A /EX

Configuring the UpBoard, Model R1

Default Settings

The physical description and default jumper settings for the UpBoard, Model R1 are as follows:

Jumper Settings for UpBoard Model R1:



The UpBoard configuration as delivered should work in most PCs. In the event an UpBoard fails to boot in a particular machine you may want to refer to the following guidelines.

Setting the I/O Address

The I/O Address jumpers are the only settings on the UpBoard Model R1 that you should ever change. The default I/O Address of 280h should not conflict with most serial port adapters, however, if a conflict should be encountered the following alternative I/O addresses are available for the UpBoard Model R1:

I/O Address 1	2	3	I/O Base Address
X	X	X	280h ** Factory Default
X	X	.	288h
X	.	X	290h
X	.	.	300h
.	X	X	310h
.	X	.	600h
.	.	X	610h

X = Jumper installed
. = Jumper not installed

Memory Window Address Conflict

If you are having a problem getting the UpBoard to *"boot"* you may be experiencing a *Memory Window Address Conflict.* Similar memory address schemes are used by video cards, IDE hard disk controllers, and SCSI hard disk controllers. To verify and resolve conflicts you should check the documentation for the other devices in your system.

Another method you may use to determine if another device is using a particular memory address is to *inspect* that address using *DOS debug.* To do this you would first remove the UpBoard from the machine and then you would execute the command ***debug*** from the DOS directory containing this command. At the hyphen you would enter **D D800:000** and hit return.

This address is probably free if the system displays all Fs. Otherwise, there is problably another device (or ROM) using this area of memory. To check the other memory address windows available with the UpBoard you would exchange **D800** in the previous statement with the address you would like to inspect. To exit debug you would enter a **Q** and hit return.

The default memory address window for the UpBoard Model R1 is **D800.** Other memory addresses which can be used with the Model R1 are:

C000 C400 C800 CC00
D000 D400 DC00

The Memory Window Address for the Model R1 is software selectable and would be changed by entering the desired address in the UpBoard Configuration screen.

Troubleshooting the UpBoard

There are a couple of symptoms which are indicative of a possible hardware/configuration problem with the UpBoard. The most common symptom is that the system hangs and drops into the monitor debugger. If this happens during your initial installation. check the UpBoard jumper settings and try to boot the system again. *To exit the monitor debugger, you would enter a "G" to continue or an "X" to exit to DOS.*

Symptom - When accessing certain serial ports the system hangs.

1. Possible I/O address or IRQ conflicts between the UpBoard (or another card in the system) and the serial I/O adapter. Insure that the I/O card(s) is not using IRQ9 (used by the UpBoard Model R1), and verify that the I/O address settings do not conflict with any other cards in the system.

Symptom - The UpBoard fails memory test.

1. Make sure that physical board settings correspond to the settings entered in the Configurator.
2. Check for conflicts with the UpBoard's Memory Address Window. *See previous section.*
3. Verify bad memory by booting Pick with the "/M" option.

Symptom - "UpBoard not found" message @ boot time.

1. Make sure that the UpBoard is "seated" securely in a 16-bit slot and reseat if necessary.
2. Check that the I/O Address defined in the Configurator corresponds to the setting on the board.

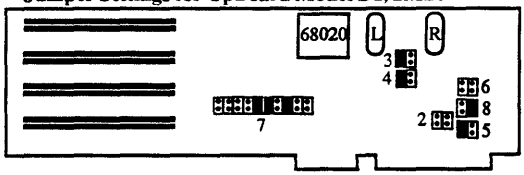
If the UpBoard continues to have problems please contact our office for additional technical support.

Configuring the UpBoard, Model D1

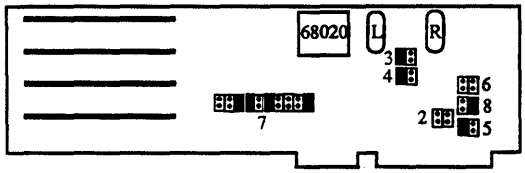
Default Settings

The physical description and default jumper settings for the UpBoard, Model D1 are as follows:

Jumper Settings for UpBoard Model D1, 2MB:



Jumper Settings for UpBoard Model D1, 4MB:



The UpBoard as configured when it is delivered should work in most PCs. In the event an UpBoard fails to boot in a particular machine you may want to refer to the following guidelines.

Troubleshooting the UpBoard

There are a couple of symptoms which are indicative of a possible hardware problem with the UpBoard. The most common symptom is that the system hangs and drops into the monitor debugger. If this happens during your initial installation, check the UpBoard jumper settings, insure that all socketed chips are firmly in place, and try to boot the system again. *To exit the monitor debugger, you would enter a "G" to continue or an "X" to exit to DOS.*

Symptom - When accessing certain serial ports the system hangs.

1. Possible I/O address or IRQ conflicts between the UpBoard (or another card in the system) and the serial I/O adapter. Insure that the I/O card(s) is not using IRQ2 (used by the UpBoard, Model D1), and verify that the I/O address settings do not conflict with any other cards in the system.

Symptom - The UpBoard fails memory test.

1. Make sure that physical board settings correspond to the settings entered in the Configurator.
2. Check for conflicts with the UpBoard's Memory Address Window. *See next section.*
3. Verify bad memory by booting Pick with the "/M" option.

Symptom - "UpBoard not found" message @ boot time.

1. Make sure that the UpBoard is "seated" securely in a 16-bit slot and reseat if necessary.
2. Check that the Memory Address defined in the Configurator corresponds to the setting on the board.

Symptom - When the system is cold (i.e. first turned on) it hangs or drops into the monitor debugger.

1. Exit to DOS, let the machine warm up for five minutes, and reboot Pick.

If the UpBoard continues to have problems please contact our office for additional technical support.

Memory Window Address Conflict

If you are having a problem getting the UpBoard to *"boot"* you may be experiencing a *Memory Window Address Conflict.* Similar memory address schemes are used by video cards, IDE hard disk controllers, and SCSI hard disk controllers. To verify and resolve conflicts you should check the documentation for the other devices in your system.

Another method you may use to determine if another device is using a particular memory address is to *inspect* that address using *DOS debug.* To do this you would first remove the UpBoard from the machine and then you would execute the command ***debug*** from the DOS directory containing this command. At the hyphen you would enter **D D800:000** and hit return. This address is probably free if the system displays all **F**s. Otherwise, there is problably another device (or ROM) using this area of memory. To check the secondary UpBoard address you would enter **D C800:000** at the hyphen and hit return. To exit debug you would enter a **Q** and hit return.

The default memory address window for the UpBoard, Model D1 is **D800.** If the memory window address of the conflicting device cannot be changed you can select the secondary Model D1 memory address (**C800**) by inserting a jumper on the lefthand set of pins on jumper block 6.

The I/O addresses used by the Model D1 are determined by the memory window selected. When the default memory window, D800, is selected the UpBoard uses I/O addresses 280H-287H and 290H-29FH. When the memory window is changed to the secondary address of **C800** the I/O addresses are changed to **130H-137H** and **140H-14EH.**

Installing the UpBoard in a PC/XT

If you are going to install the UpBoard Model D1 in a PC/XT or compatible you will need to remove the jumper from jumper block 3. This will select 8-bit transfers.

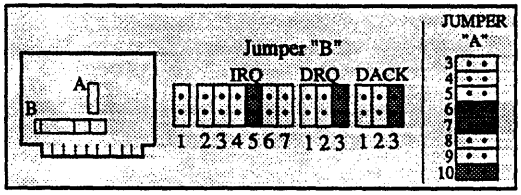
Configuring Tape Drives/Controllers

The UpBoard supports most of the cartridge tape drives which are supported by PC/Pick 3.0. As a general rule cartridge tape drives for PC/Pick are set to use I/O address 338h, IRQ 5, and DMA channel 3. These settings are presented as defaults when configuring cartridge tape drives in the UpBoard configurator. Therefore, if a tape drive was configured to work with PC/Pick you should be able to install the drive in the system, add the tape drive using the UpBoard configurator, and accept the default settings presented. *Alternative I/O addresses (in addition to 338h) which may have been used with PC/Pick are 300h and 330h.*

If you are installing a new drive you would normally want to set the controller to use the above settings. Most controllers have printed labels for the IRQ and DMA jumper blocks. *Please note that the DMA channel is set with the DRQ and DACK jumpers which must both be set to the same channel.* To set the I/O address you may need to refer to the device manual for the correct switch/jumper settings to select I/O address 338h. Below are the swicth settings for the Everex, Wangtek, and Archive controllers.

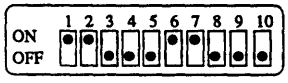
Setting Archive Controllers

The documentation for the Archive tape drives & controllers only gives jumper settings for I/O addresses 100h, 200h, & 220h. To set the controller to use the standard 1/4" tape address of 338h you would place jumpers on the sets of pins labeled 6, 7 & 10 of Jumper "A". The illustration for Jumper "B" shows the default settings for IRQ 5 and DMA 3.



Setting Wangtek Controllers

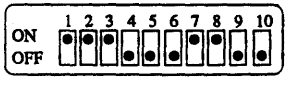
"ON = CLOSED" "OFF=OPEN"



I/O address = 338h

Setting the Everex 811 Controller

"ON = CLOSED" "OFF=OPEN"



I/O address = 338h

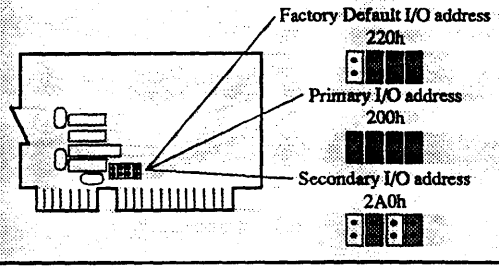
Cartridge Tape Drives Supported

Following is a list of the cartridge tape drives currently supported by the UpBoard. If your tape drive is not on this list please contact our office for more information.

- **Archive FT60 & FT150**
- **Everex 60** w/ Everex 811 controller
- **Gigatrend QIC02 DAT** w/ Everex 811 controller
- **Monolith MegaSAFE 6000 & MegaSAFE 6150**
  (configure as a Sankyo)
- **Sankyo (Caliper) 60MB & 150MB**
- **Tecmar QIC-60, QT series**
- **Wangtek 5099EN (60mb)**
- **Wangtek 5150 (150mb)**

Cipher ATC-16 1/2" tape Controller

The UpBoard currently supports the standard AT controller delivered by Cipher for use with the F880 and M990 1/2" tape drives. The default I/O Address when delivered from the factory is 220h. This address conflicts with the DigiBoard PC/16 Pick PALs 240/241, the PC/16 DOS PALs 248/249, and the secondary setting for the Monolith Econocom 16.
Our primary recommendation for this device is I/O address 200h (this address conflicts with PC/16 DOS PALs 248/249). Our secondary recommendation is address 2A0h (this address conflicts with PC/16 Pick PALs 240/241 and the secondary Econocom 16 setting).



Other Tape Notes

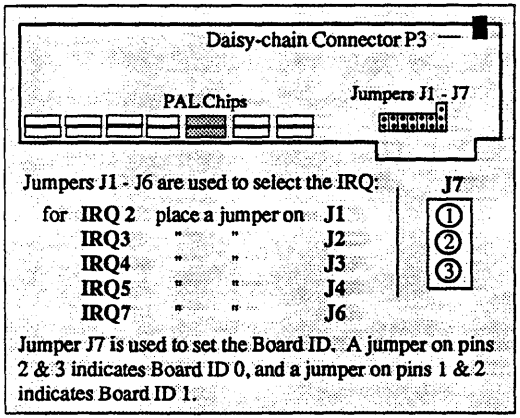
- The UpBoard system uses 2K data frame sizes. When restoring data from systems using different frame sizes you should use the **RESTORE** command with the "R" option to resize the files while loading. ***This is especially important when restoring a tape created on an Ultimate system, under a later relase, in order to rehash the files.***
- The UpBoard is unable to restore from media created on Pick PC release 2.1 or below.

Configuring DigiBoard Serial Adapters

DigiCHANNEL PC/16

The UpBoard supports the standard "Pick" versions of this product, as well as, the standard "DOS" versions. Seattle Lab has also contracted with DigiBoard to create a special version of the PC/16 specifically for use with the UpBoard (as the third 16-way in a 49-user system).

The port I/O addresses and status registers are determined by the **PAL** chips installed on the board. There are currently five separate **PAL** sets available for the PC/16. The standard **"Pick"** PALs are identified by the numbers 238-239, and 240-241. The standard **"DOS"** PALs are identified by the numbers 246-247, and 248-249. And the special **"UpBoard"** PAL set is identified by the numbers 499-500. Please reference the board diagram below for the location of the PAL chips and jumper descriptions.



Installing PC/16s with "Pick" PALs

When installing PC/16s with **"Pick"** PALs you must set a different IRQ (either 3 or 4) for each board and insure that the jumper shunt for **J7** is set on pins 2 & 3 (board id 0). You should also make sure that the shunt is in place on the **Daisy-chain Connector P3.** *You may **not** daisy-chain PC/16s with the Pick PALs.*

Installing PC/16s with "DOS" PALs

When installing PC/16s with **"DOS"** PALs you ***must*** set the board IDs correctly (board ID 0 for PALs 246-247 and, board ID 1 for PALs 248-249). If you are installing both DOS PC/16s you ***must*** select the same IRQ for both boards and "daisy-chain" the boards by removing the shunt from **Connector P3** and connecting the two boards with the daisy-chain cable (available from DigiBoard).

Installing the "UpBoard" PC/16

The PC/16 with the **"UpBoard"** PAL set must be set to a different IRQ than any other card in the system and its' board ID should be 0.

17-user System (1 DigiBoard PC/16)

Any of the five variations of the DigiBoard PC/16 may be installed as the only serial port adapter in a system.

33-user System (2 DigiBoard PC/16s)

When installing two PC/16s in a system you may use: (1) two PC/16s with DOS PALs; (2) two PC/16s with Pick PALs, or; (3) use the UpBoard PAL PC/16 with any one of the other PC/16 variations.

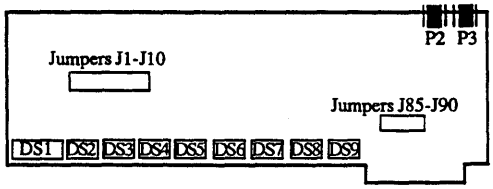
49-user System (3 DigiBoard PC/16s)

When installing three PC/16s in a system with the UpBoard Model R1 you may use: (1) 2 - PC/16s with DOS PALs (set to IRQ 3 and daisy-chained) with the UpBoard PAL PC/16 (set to IRQ 4), or; (2) 2 - PC/16s with Pick PALs (set to IRQs 3 & 4) with the UpBoard PAL PC/16 (set to IRQ2). If installing with the UpBoard Model D1 you may use only option number one above.

DigiChannel PC/8

The PC/4 and PC/8 models require you to set a separate DIP switch to select the I/O address for each port and the status register for the board. DIP Switch #1 (DS1 - *see below*) is used to set the address of the status register. DIP switches DS2 through DS9 (DS2 - DS5 on the PC/4) are used to set the I/O addresses for each port of the PC/8 board. You must select eight contiguous I/O addresses for proper use with the UpBoard. The status register may be any non-conflicting address.

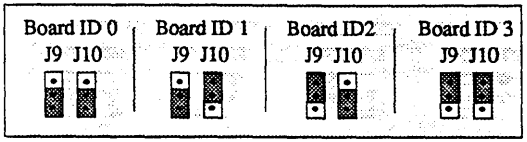
The default port I/O address settings for the first PC/8 (IRQ 3) begin at **1B0h** with status register **188h.** The default addresses for the second PC/8 (IRQ 4) begin at **2B0h** with status register **288h.** The switch settings for these addresses and for a third & fourth board are presented on the reverse side of this sheet. For additional settings please refer the the DigiCHANNEL PC/X manual.



Jumpers J85-J90 are used to select the IRQ to use with this board. IRQ3 is selected by placing a jumper on J85, IRQ4 with a jumper on J89, and IRQ2 with a jumper on J90.

Jumpers J1-J8 are used to set the individual ports to use an odd or even IRQ. When selecting IRQ 3 (factory default) you would place the jumper shunts on pins 1 & 2 (top). When selecting IRQ4 or IRQ2 you would place the jumper shunts on pins 2 & 3 (bottom).

Jumpers J9 and J10 are used to set the board identification number. Board IDs other than **0** are used only when "daisy-chaining" boards together, as discussed below.



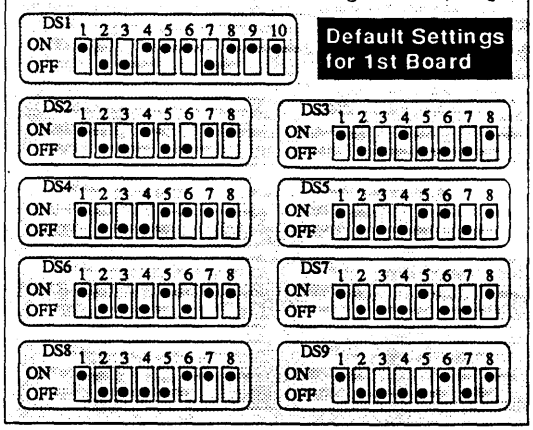
Daisy-Chaining Multiple PC/8s

When installing two or more PC/8s in a system you may "daisy-chain" all of the boards together using a single IRQ. When daisy-chaining multiple boards, each I/O port must be set to a unique address for each channel on each board while the status register and IRQ jumper (either 3 or 4) would be set the same on all boards. Following are the steps you would take to install daisy-chained PC/8s.

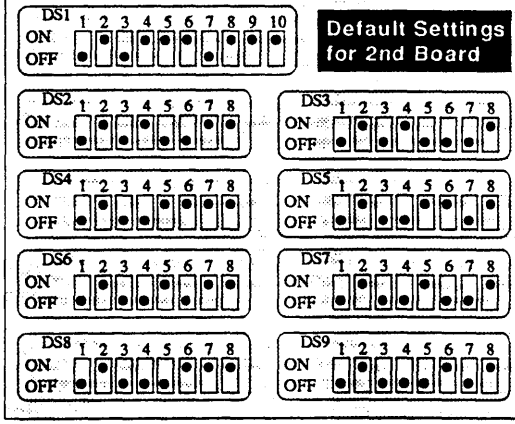
1. Set the 1st PC/8 to use IRQ 3, I/O addresses 1B0h-1EFh (DS2-D9), Status Register 188h (DS1), and Board ID 0.
2. Set the 2nd PC/8 to use IRQ 3, I/O addresses 2B0h-2EFh, Status Register 188h, and Board ID 1.
3. Set the 3rd PC/8 to use IRQ 3, I/O addresses 130h-16Fh, Status Register 188h, and Board ID 2.
4. Set the 4th PC/8 to use IRQ 3, I/O addresses 230h-26Fh, Status Register 188h, and Board ID 3.
5. Remove the jumper shunt from P2* on each PC/8 and connect the boards together using the proper daisy-chain cable (depending on the number of boards in the chain), purchased from DigiBoard.

* *Use P3 instead of P2 when selecting IRQ 4 instead of IRQ 3.*

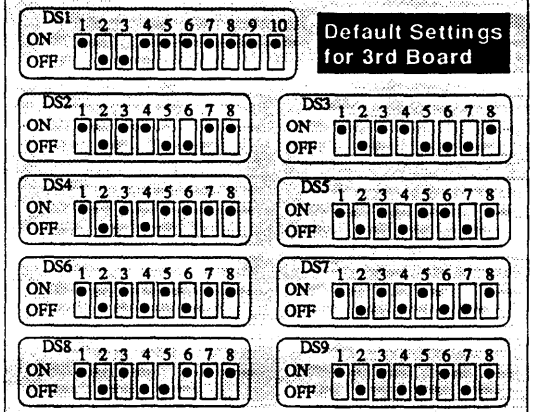
I/O Addresses 1B0h-1EFh, Status Regsiter 188h, IRQ 3



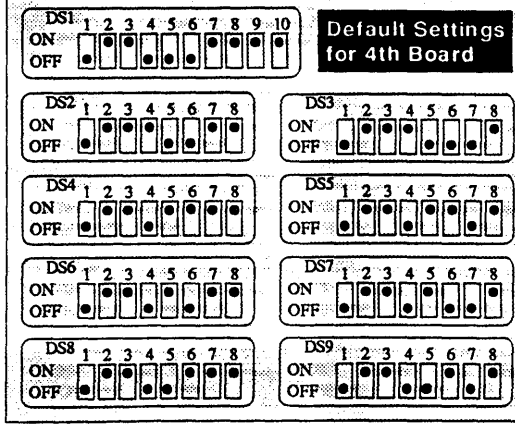
I/O Addresses 2B0h-2EFh, Status Regsiter 288h, IRQ 4



I/O Addresses 130h-16Fh, Status Regsiter 180h, IRQ 2



I/O Addresses 230h-26Fh, Status Regsiter 270h, IRQ 7



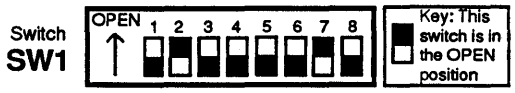
Configuring Monolith Serial Port Adapters

The UpBoard currently supports the Flexcom 8000 and EconoCom Series serial port adapters from Monolith Corporation (800) 255-7425.

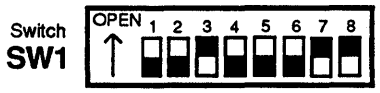
Flexcom 8000 Series

The Flexcom 8000 series is available in two models. The 8400 supports 4 users and the 8800 supports 8 users. The Flexcom may be configured to run on either IRQ 3 or IRQ 4, and has only two available settings for I/O address usage. These configurations are as follows:

IRQ 3, Base Port address 198, status register 188h



IRQ 4, Base Port address 298, status register 288h

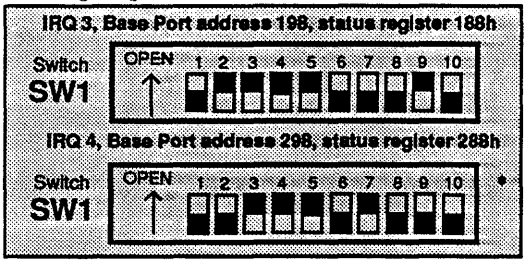


** See Below*

Econcom 4/8

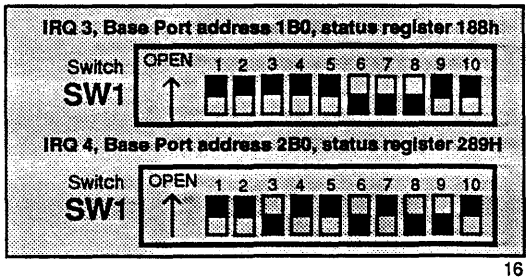
Specific options for the Econocm 4/8 adapters are being created for the UpBoard "Configurator" and will be available in a later release of the UpBoard software. However, these cards may be configured as a FlexCom 8400/8800 or as a DigiBoard PC/4/8.

Configuring the Econocom 8 as a FlexCom 8000:



* *Please note that these settings conflict with the UpBoard's primary address settings. If you need to use this address you should set the UpBoard to its secondary memory address as discussed in the UpBoard Configuration sheet.*

Configuring the Econocom 8 as a DigiBoard PC/8:



EconoCom 16

The Econocom 16 Rev. 2 allows the adapter to be configured at any of ***four*** non-conflicting I/O address settings, and supports upper-rank IRQs. This offers greater flexibility when putting together larger system configurations.

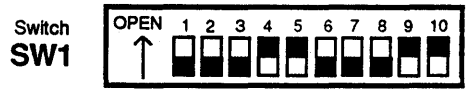
In the following switch setting diagrams, the I/O addresses utilized are determined by switches one, two, and three. The actual address locations used in each configuration are defined in the ***I/O Address Map*** provided in the UpBoard Technical Bulletin, Vol. 1, Issue 3.

Switches 4 and 5 allow you to set the type of handshaking protocols which will be used by the adapter. Currently the UpBoard supports XON/XOFF handshaking only which is set with switches 4 and 5 in the open position. Future UpBoard releases will support other types of handshaking in addition to XON/XOFF.

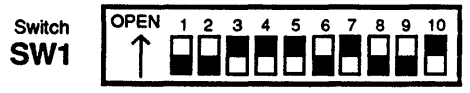
Switches 6 through 9 determine IRQ selection.

Following are four non-conflicting settings for the Econocom 16 Rev. 2. You may use any combination of these settings when installing an UpBoard system.

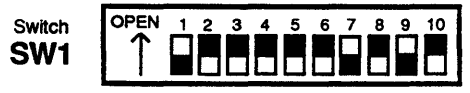
First Board: I/O address switch = "000", IRQ = 3



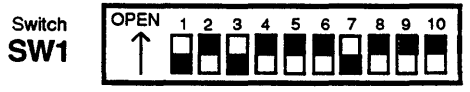
Second Board: I/O address switch = "001", IRQ = 4



Third Board: I/O address switch = "011", IRQ = 10

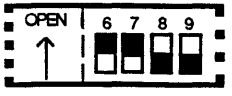


Fourth Board: I/O address switch = "010", IRQ = 11

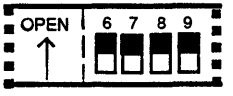


Additional IRQ settings:

IRQ 12



IRQ 15



Configuring Arnet Multiport Adapters

The Multiport manufactured by Arnet Corporation is available in both an 8-port and 4-port configuration, the 4-port a subset of the 8-port.

An Arnet 8-way may be configured one of two ways when used in a Pick-PC, Release 3.0 or below. For IRQ 3 the UART I/O address is 180H and the Option I/O address is 1C0H. For IRQ 4 the UART I/O address is 280H and the Option I/O address is 2C0H.

The UpBoard system is more flexible and allows you to set your Arnet 8-way to any available IRQ, UART I/O address, and Option I/O address. Additionally, you can connect up to four Multiport on the same IRQ.

IRQ Settings

The IRQs which are normally available for serial adapters in an UpBoard based system are IRQ3 and IRQ4. The following table shows the switch settings for selecting IRQs 3 & 4 on the Arnet Multiport:

	Switch 3					
IRQ	1	2	3	4	5	6
2 *	on	off	off	off	off	off
3	off	on	off	off	off	off
4	off	off	on	off	off	off

* IRQ2 is available only with the UpBoard Model R1.

UART I/O Address Settings

Each Multiport must have a unique set of UART I/O address settings as determined by Switch 1.

The UpBoard uses port I/O address 280H. Therefore, an Arnet adapter configured with the default Pick-PC I/O address settings for IRQ4 conflicts with the UpBoard. We strongly recommend changing the UART I/O address of the Arnet card in this situation.

Following are the recommended UART I/O settings for the Arnet:

	Switch 1				
Address	1	2	3	4	5
180H **	on	on	off	off	on
100H *	on	on	on	off	on
140H *	on	off	on	off	on
200H †	on	on	on	on	off
240H	on	off	on	on	off
2C0H	on	off	off	on	off

* *Settings 100H and 140H conflict with the UpBoard Model D1 secondary I/O address 130H .*

** *PickIPC default for first Arnet (IRQ3).*

† *Setting conflicts with the Cipher 1/2" tape controller*

Option I/O Address

Each Multiport must also have a unique Option I/O address as set by Switch 2. Below is a table of the recommended Option I/O address settings. This address corresponds to the "Status Register" in the UpBoard "configurator."

	Switch 2						
Address	1	2	3	4	5	6	7
1C0H	on	on	on	off	off	off	on
1D0H	on	off	on	off	of	off	on
1E0H	on	on	off	off	off	off	on
310H	on	off	on	on	on	off	off

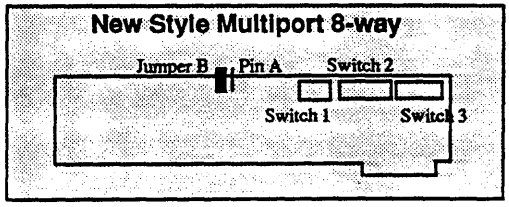
Installing Multiple Arnet Adapters

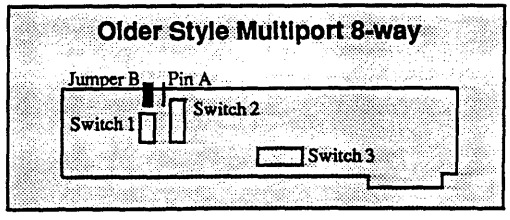
When installing two or more Multiport 8-ways in a system you may want to "daisy-chain" all of them to a single IRQ to reduce IRQ contention. To "daisy-chain" multiple adapters:

1) Remove Jumper B from the first card and attach a jumper wire to the righthand pin of those two pins.
2) Connect the other end of this wire to Pin A on the second card. Set all 6 switches on Switch 3 of the second card to the off position.
3) This connection scheme is repeated for each additional Multiport card. Make sure Jumper B is left in place on the last Multiport in the series.

The IRQ for all Multiports in the system would be set using Switch 3 on the first card in the series.

Each Multiport in a multi-card series must have a unique UART I/O address and Option I/O address as set by Switches 1 and 2.





Configuring Comtrol Hostess 4/8 Adapters

The UpBoard supports the HOSTESS 4 and 8 port adapters from Comtrol Corporation. The Hostess adapter is the only half-length 8-port card currently supported by the UpBoard, and is ideal for small chassis and portable PCs.

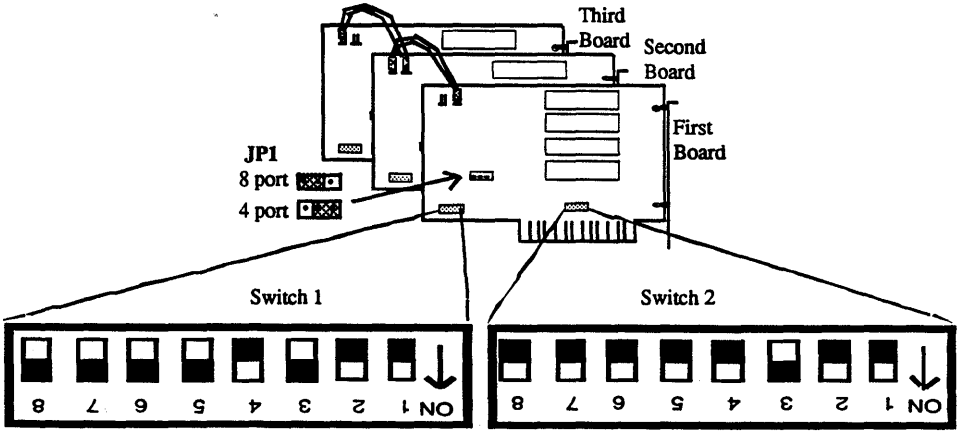
If you have more than one Hostess board installed in your system, you can choose a different IRQ by making a different selection on Switch 2 of each card.

However, if you want to use the same IRQ for all of the Hostess boards in your system you can "daisy-chain" up to four Hostess boards together.

The IRQ selection would be made on Switch 2 of the first board in the chain. The IRQ selection on all other boards would be disabled (switches 2-1 to 2-7 would be "off").

Next you would connect the boards together using daisy-chain connectors as the diagram below indicates.. These connectors are available from Comtrol.

Each board in the chain must have a unique set of non conflicting I/O addresses as set by Switch 1. Note that only the first board in the daisy-chain configuration has an IRQ enabled on Switch 2.



Switch 1 sets the I/O addresses for the card. The example above shows the setting for I/O address 140h. Each adapter in the system needs to have its own unique I/O address setting (see below).

Key: This switch is in the OFF position

Switch 2 sets the IRQ for the card. This example shows the switch settings to select IRQ 3. Each card in the system must have a different IRQ selection unless the boards are daisy-chained together.

	Switch 1							
Address	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1 ***
140h	on	on	on	on	off	on	off	off
240h	on	on	on	off	on	on	off	off
180h	on	on	on	on	off	off	on	off
280h †	on	on	on	off	on	off	on	off
100h ††	on	on	on	on	off	on	on	off
2C0h ††	on	on	on	off	on	off	off	off

* Switch 1-1 is "off" for the Hostess 8-port card and "on" for the Hostess 4-port card.

† This address setting conflicts with the primary UpBoard I/O address.

†† These settings may be used instead of any of the first four settings without conflicts.

Below are the switch settings for the valid IRQ selections in an UpBoard system. *Please note that IRQ 5 is used for cartridge tape and IRQ 7 is used by the parallel printer. If you select these IRQs you may not be able to use these devices.*

	Switch 2							
IRQ	**8 ***	**7**	**6**	**5**	**4**	**3**	**2**	**1**
3	off	off	off	off	off	on	off	off
4	off	off	off	off	on	off	off	off
5	off	off	off	on	off	off	off	off
7	off	on	off	off	off	off	off	off

* Switch 2-8 is "off" for the Hostess 8-port card and "on" for the Hostess 4-port card.