

Release Note

RIO for AIX 4.2.x

5600019-12

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At Release 1.6, RIO supports AIX 4.2.x. This release note describes features added to RIO; it supplements or replaces (as indicated) the information contained in the RIO for IBM AIX User's Guide Issue 1, (referred to as 'The User's Guide').

New features :

- support for new type ISA host card (s)
(existing ISA card support retained)

Bug fixes :

- are described in the README file installed with driver,
/usr/lpp/devices.rio/README.

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1. Upgrading RIO software

This is the recommended procedure for upgrading a RIO device driver installation, and is the guaranteed method to ensure that old versions are completely removed before the current version is installed.

1. Firstly, follow the instructions for removing RIO software below.
2. Secondly, follow the instructions for installing RIO software below.

2. Removing RIO Software

Refer to Section 2.2 of The User's Guide.

3. Installing RIO software

These instructions replace Section 2.1 (on page 5) of The User's Guide.

To install the Device Driver follow the instructions below:

1. Log in as root.
2. For best results, check the products listed below are installed on your machine:
4.2.0.0 bos.printers.rte
4.2.0.0 bos.terminfo
3. If not installed, then use the CD / Tape of your AIX Operating System to install them.
4. Insert the RIO AIX device driver diskette into the appropriate drive.
5. Enter the command :

```
installp -acX all
```

The RIO Software will install.

4. Installing an ISA Host Card

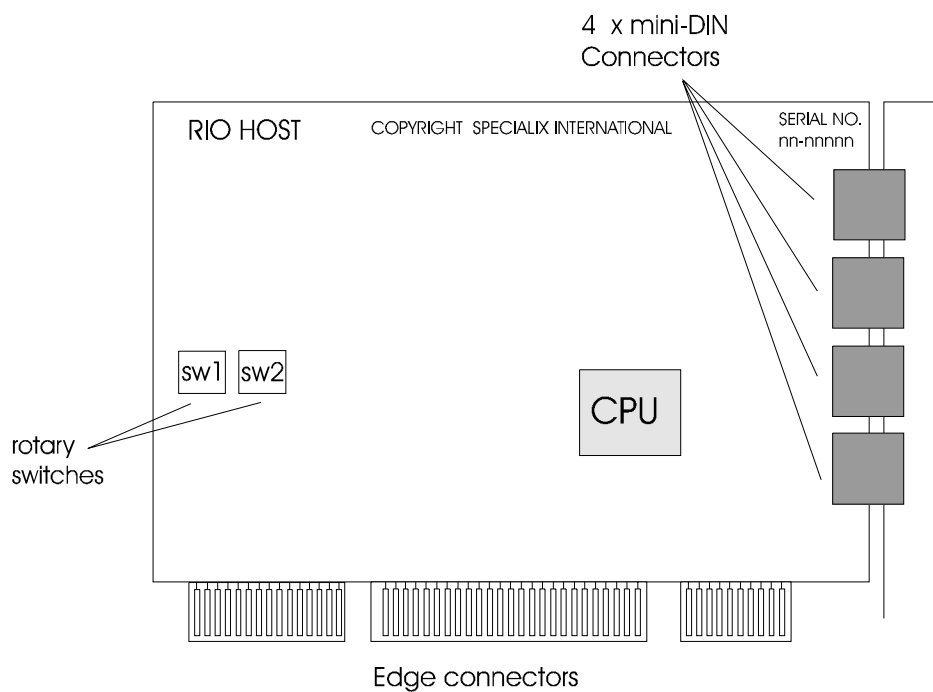
Caution : There are now two types of ISA host card.

Installing an ISA host card involves six stages (detailed on the following pages) :

- Establishing which type of ISA Host Card you have
- Establishing a Base Address for the Host Card
- Pre-configuration checks - executing the 'smit' installation procedure *without* the card installed to verify that the chosen Base Address does not result in bus resource conflicts
- Setting the Host Card's Base Address using rotary or DIL switches and jumper(s) on the card's surface, (depending on which type of ISA host card you have)
- Installing the card in your machine
- Configuring the card using 'smit'.

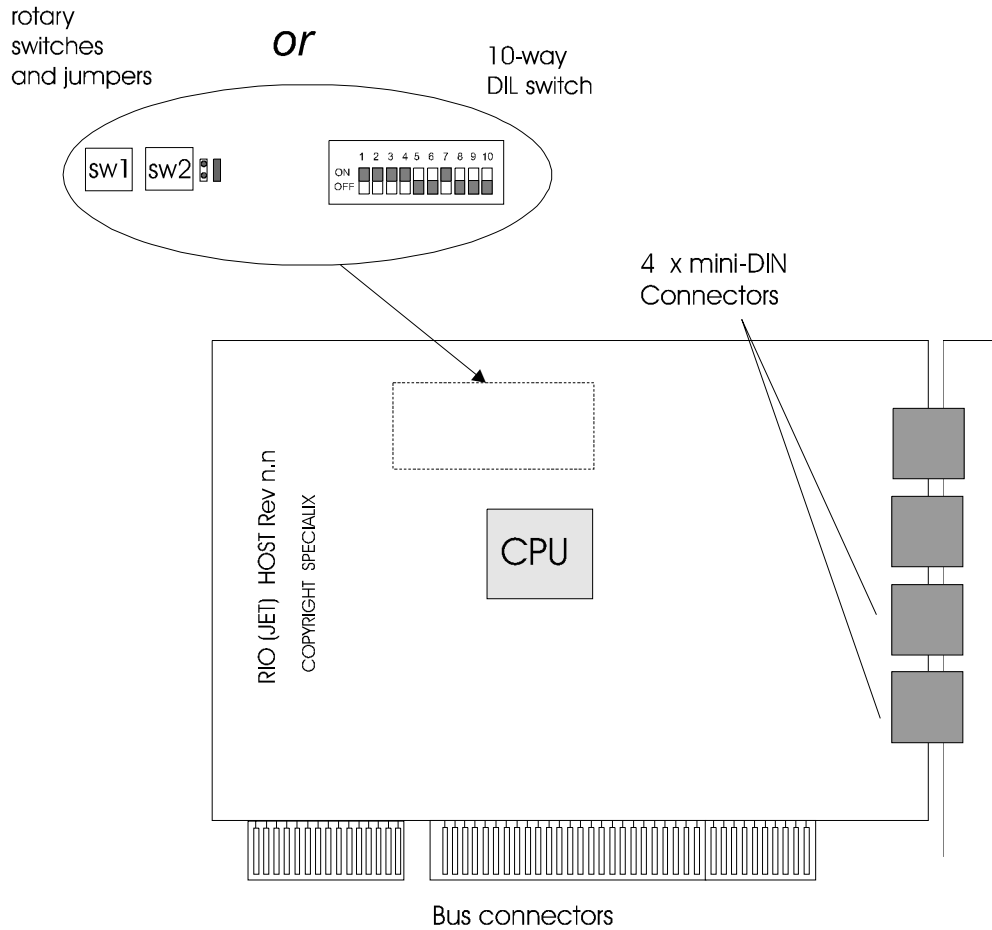
4.1 Establishing ISA Host Card Type

Establish which type of ISA Host Card you are using by comparing your Host Card(s) with the diagrams of ISA Host Card Types A & B below.



ISA Host Card Type-A

Note: Type-A is the existing type of RIO ISA Host Card.



ISA Host Card Type-B

Note: Type-B is the new type of RIO ISA Host Card.

4.2 Establishing Base Address and Interrupt level for an ISA Host Card

Before attempting to install RIO ISA Host Cards you will need to ascertain an available Base Address and interrupt level for each one. This may be done by considering the Base address, occupied address range and interrupt level for each ISA device already installed in your system, together with the requirements of your RIO host card(s). You may find it useful to read the section in this release note headed "Setting the Base Address for an ISA Host Card Type-A" or "Setting the Base Address for ISA Host Card Type-B" as appropriate for the Host Card type that you have.

4.3 Pre-configuration checks for ISA Host Cards

To ensure that the address and interrupt level you intend to use are suitable, the RIO AIX device driver supports pre-configuration checking. To take advantage of this facility follow the procedure below.

1. Log in as root
2. Run 'smit' with RIO menu options by entering the command :

```
smit rio
```

Select the "RIO Host Adapter" option.

'smit' displays RIO Host Adapter menu options as shown below.

```
RIO Host Adapter
```

Move cursor to desired item and press Enter.

```
List All Specialix RIO Host Adapters
Change/Show a Specialix RIO Host Adapter
Add a Specialix RIO PCI/MCA Adapter
Add a Specialix RIO ISA Adapter
Remove a Specialix RIO Host Adapter
```

```
F1=Help
F9=Shell
```

```
F2=Refresh
F10=Exit
```

```
F3=Cancel
Enter=Do
```

```
F8=Image
```

3. Select "Add a Specialix RIO ISA Adapter" option. A smit sub-window will be displayed with a list of available ISA device types.

Note RIO may be the only ISA device type listed.

4. Select the "rio isa Specialix RIO Host Adapter (ISA)" option. A further smit sub-window will be displayed with a list of Parent Device types as shown below.

Note Your machine may have more than one ISA bus.

RIO Host Adapter

Move cursor to desired item and press Enter.

List All Specialix RIO Host Adapters
Change/Show a Specialix RIO Host Adapter
Add a Specialix RIO PCI/MCA Adapter
Add a Specialix RIO ISA Adapter
Remove a Specialix RIO Host Adapter

```
Parent Device
Move cursor to desired item and press Enter.
bus1 Available 04-A0 ISA Bus
F1=Help          F2=Refresh      F3=Cancel
F8=Image         F10=Exit        Enter=Do
F9=/=Find        n=Find Next
```

5. Select the ISA bus that hosts your RIO card. The smit “Add a Specialix RIO Host Adapter (ISA)” window will be displayed as shown below.

```
Add a Specialix RIO Host Adapter (ISA)
Type or select values in entry fields.
Press Enter AFTER making all desired changes.

Device Class          [Entry Fields]
Device Subclass      adapter
Device Type          isa
Parent Device        rio
* Bus Memory address bus1
* Bus interrupt level 9

F1=Help          F2=Refresh      F3=Cancel      F4=List
F5=Reset         F6=Command     F7=Edit        F8=Image
F9=Shell         F10=Exit       Enter=Do
```


- Enter the chosen Base Address in the “Bus memory address” field, (the cursor will be placed in the field ready for data entry). Refer to the “Installing Host Cards” section above for details of determining a suitable Base Address.

Note do not specify ‘0x’ before the hexadecimal address value.

Press the down arrow key ↓ to highlight the “Bus interrupt level” field. Select “List”, (terminal dependant - F4 key in the examples shown here), to display a list of possible values. Use the up and down arrow keys - ↓ & ↑ - to highlight your chosen bus interrupt level, press enter to select it.

Press enter again if you are satisfied that you have entered the correct details. Otherwise re-enter correct values.

This action requires confirmation and ‘smit’ will display the sub-window shown below.

```

                                Add a Specialix RIO Host Adapter (ISA)

Type or select values in entry fields.
Press Enter AFTER making all desired changes.

Device Class                    [Entry Fields]
Device Subclass                 adapter
Device Type                    isa
Parent Device                  rio
* Bus Memory address           bus1
* Bus interrupt level          [50000] X
                                11 +

ARE YOU SURE?

Continuing may delete information you may want
to keep. This is your last chance to stop
before continuing.
Press Enter to continue.
Press Cancel to return to the application.
█

F1 F1=Help          F2=Refresh       F3=Cancel
F5 F8=Image        F10=Exit        Enter=Do
F9

```

- Press return - ‘smit’ will execute the command; whilst in progress (a few seconds) the ‘smit’ window will indicate ‘command: running’.

8. When the command is complete you will have either a successful or a failed pre-configuration check:

i) Successful Pre-Configuration check

If the pre-configuration checks are successful, i.e. NO BUS RESOURCE CONFLICTS are detected, a “failed” message will be displayed because the RIO configuration method, once it has carried out bus resource checks, attempts to configure an ISA Host Card that is not present. The ‘smit’ window shown below will be displayed.

```
COMMAND STATUS

Command: failed      stdout: yes      stderr: no

Before command completion, additional instructions may appear below.

Method error (/usr/lib/methods/cfgrio +ca):
0514-053 Error returned from sys_config.
cfgrio: Bus Memory Address incorrect, Faulty Host Card or No Host Card present
```

```
F1=Help      F2=Refresh    F3=Cancel    F6=Command
F8=Image     F9=Shell      F10=Exit     /=Find
n=Find Next
```

Select “Exit”, (terminal dependant - F10 key in the examples shown here).

The chosen Base Address and interrupt level are acceptable and you can be confident that your RIO host card will not conflict with other ISA devices in your system. If you have further host cards for which Pre-Configuration checks are required, repeat this section for each one. When you have carried out successful Pre-Configuration checks for each host card proceed with the next section “Setting the Base Address for an ISA Host Card”.

i) Failed Pre-Configuration check

If the pre-configuration checks fail, i.e. BUS RESOURCE CONFLICTS are detected, a “failed” message will be displayed. The ‘smit’ window shown below will be displayed.

```
COMMAND STATUS
Command: failed      stdout: yes      stderr: no
Before command completion, additional instructions may appear below.
Method error (/usr/lib/methods/cfgrio +ca):
0514-001 System error:
cfgrio: Busresolve=52; Adapter conflict detected. (,)
```

```
F1=Help      F2=Refresh    F3=Cancel    F6=Command
F8=Image     F9=Shell      F10=Exit     /=Find
n=Find Next
```

Select “Exit”, (terminal dependant - F10 key in the examples shown here).

Either the chosen Base Address and/or Interrupt Level are NOT acceptable. Determine another Base Address and/or interrupt level, following the guidelines in the section headed “Establishing the Base Address for an ISA Host Card” above and follow the instructions in this section again.

4.4 Installing ISA Host cards in your machine

With the correct switch and jumper settings made, the ISA host cards may be installed in your machine. Refer to The User Guide.

4.5 Configuring ISA Host Cards

Use 'smit' to configure the host card(s) by following the instructions in the section headed "Pre-configuration checks for ISA Host Cards" above; when you get to step 8., the 'smit' window (shown below) indicates successful configuration.

```

                                COMMAND STATUS
Command: OK          stdout: yes      stderr: no
Before command completion, additional instructions may appear below.
io0 Available

F1=Help      F2=Refresh  F3=Cancel   F6=Command
F8=Image     F9=Shell    F10=Exit   /=Find
n=Find Next
```

4.6 Setting the Base Address for an ISA Host Card

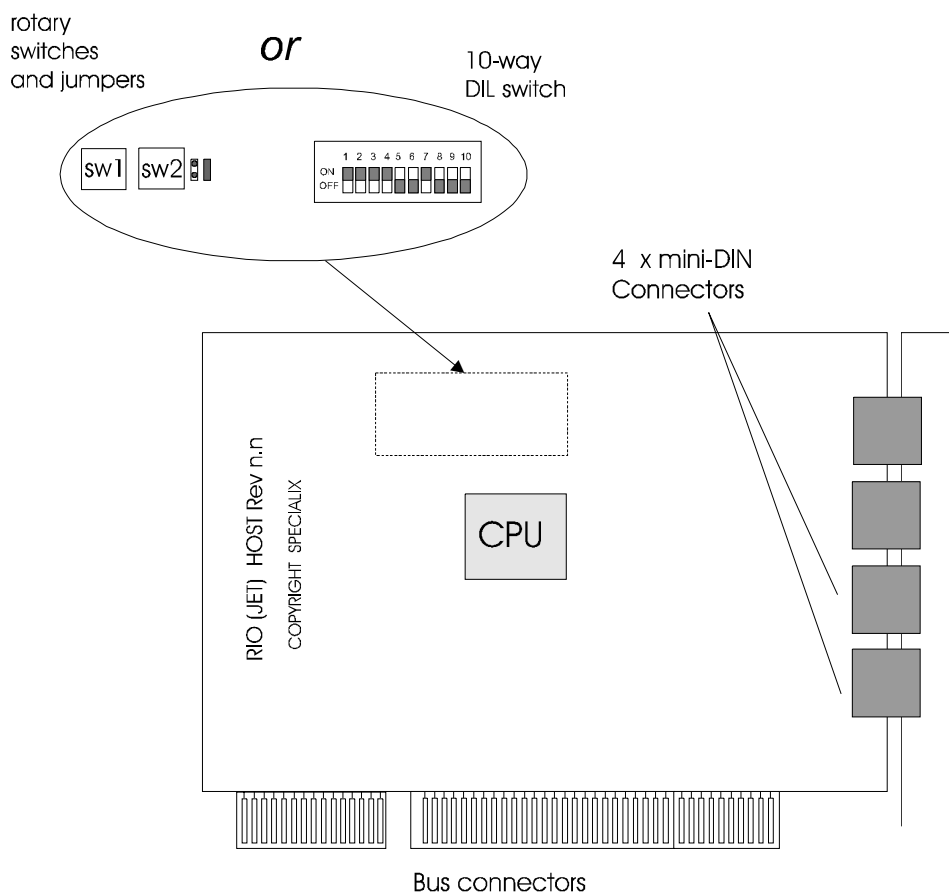
When the Base Address for each ISA Host Card has been established and successful Pre-Configuration checks have been carried out, set the required memory address and ISA bus mode for each card to be installed using switches on the card's surface. Details are shown in the Sections 'Setting the Base Address for ISA Host Card Type-A' and 'Setting the Base Address for ISA Host Card Type-B' below.

4.6.1 Setting the Base Address for ISA Host Card Type-A

Refer to The User Guide.

4.6.2 Setting the Base Address for ISA Host Card Type-B

You have two ways of setting the base address and ISA bus mode of an ISA Host Card Type-B; 10-way DIL switch, or a pair of rotary hex switches and a pair of headers.



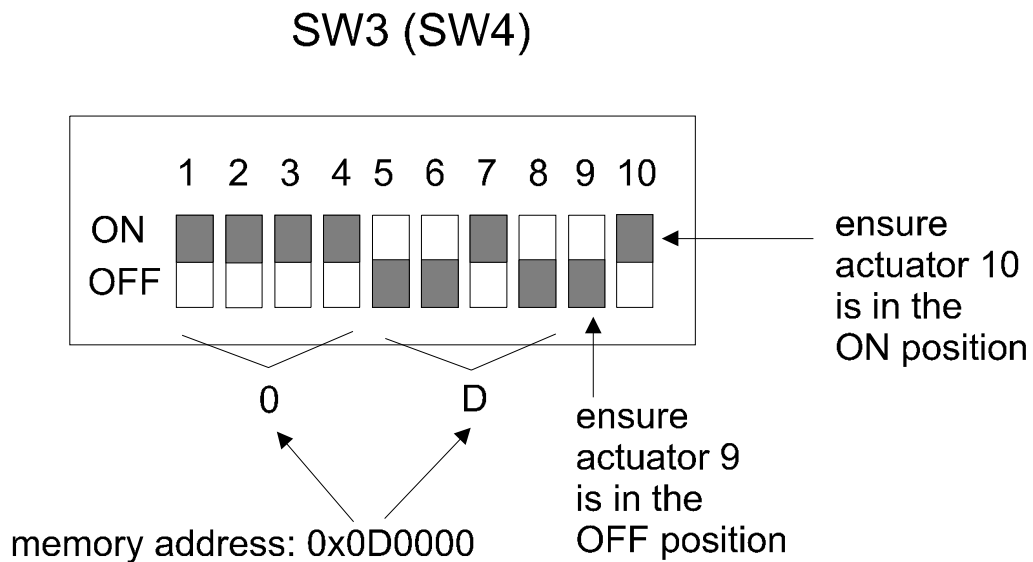
10-way DIL switch

The 10-way DIL switch is marked on the card as either Switch 3 or Switch 4. The switch has ten actuators, which can be in either the ON or OFF positions (see diagram below). ON = 0 OFF = 1 (in binary). The memory address is expressed in hexadecimal e.g. 0x0D0000 but entered into the card in a binary form, i.e. OFF or ON (for 1s and 0s respectively).

The functions of the actuators on Switch 3 (4) are as follows:

Actuator Number(s)	Function
1-4	set the value of the most significant nibble of the address of the card in memory. (e.g ON, ON, ON, ON (equates to binary 0000) for the nibble 0 in 0D)
5-8	sets the value of the second most significant nibble of the address of the card in memory. (e.g OFF, OFF, ON, OFF (equates to binary 1101) for the nibble D in 0D)
9	ensure actuator is in the 'OFF' position
10	ensure actuator is in the 'ON' position

For example, for address 0x0D0000 set the actuators numbered 1 thro' 10 as shown below:

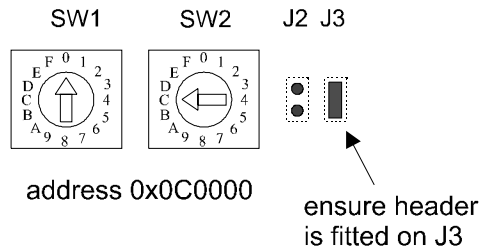


Hex Rotary Switches and Header

If your ISA card Type B is fitted with a pair of hexadecimal rotary switches and header, the function of these components is as follows:

Component	Function
SW1	sets the value of the most significant nibble (e.g. 0 in 0D) of the address of the card in memory.
SW2	sets the value of the second most significant nibble (e.g. D in 0D) of the address of the card in memory.
J2	ensure header is not fitted
J3	ensure header is fitted

For example, to set address 0x0C0000 adjust the rotary switches as shown below:



Leave the jumper J2 with header not fitted.
Ensure header is fitted on jumper J3.
The header required is 0.1" (inch) pitch (not supplied).

5. Technical Support

Please refer to the User guide for this product for contact details. Alternatively see our website.