
Corsair Technology, Inc.



REMOTE PRINT FACILITY

**Reference Guide
for Xpress and the SPIN-X/LPD
Version 3R2C**

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Contents

| | |
|--|-------------|
| 1. Introduction | 1-1 |
| SPIN-X/XPRESS | 1-1 |
| 1.1. Remote Print Facility (RPF) Server | 1-2 |
| 1.2. SPIN-X Common Data Bank (CDB) | 1-3 |
| 1.3. RPF Clients | 1-3 |
| 1.4. SPIN-X/XPRESS PC | 1-3 |
| 1.5. Station Local Queues | 1-3 |
| 1.6. Format Definition Program (FDP) | 1-3 |
| | |
| 2. Installation | 2-1 |
| 2.1. SPIN-X/XPRESS System Requirements | 2-1 |
| 2.1.1. Other System Requirements | 2-1 |
| 2.1.2. SPIN-X/XPRESS Component Requirements | 2-1 |
| 2.2. Installation from the Release Tape | 2-1 |
| 2.2.1. Loading the Release Tape | 2-2 |
| 2.2.2. Setting the RPF Parameters | 2-4 |
| 2.3. Format Definition Program (FDP) Configuration for XPRESS | 2-8 |
| Using FDP | 2-8 |
| 2.3.1. SERVER Command | 2-9 |
| 2.3.2. CDB Command | 2-11 |
| 2.3.3. FORMAT Command for XPRESS devices | 2-12 |
| 2.3.4. Queue Commands | 2-12 |
| 2.3.5. Sample FDP-INPUT File | 2-13 |
| 2.3.6. TELCON Definition | 2-13 |
| 2.3.7. Remote Print Facility (RPF) Server Run-stream | 2-14 |
| 2.3.8. RPF Client @ADD stream for XPRESS execution | 2-14 |
| 2.4. Installation of the SPIN-X Common Data Bank (CDB) | 2-15 |
| 2.5. Client Userid Configuration | 2-15 |
| 2.6. OS2200 Configuration | 2-15 |
| 2.6.1. Defining Type 2 Symbiont Class Local Stations | 2-15 |

| | |
|---|------------|
| 3. Remote Print Facility Operation | 3-1 |
| 3.1. Overview | 3-1 |
| 3.1.1. RPF Host Programs: | 3-1 |
| 3.1.2. RPF Utility Programs: | 3-1 |
| 3.2. Starting the RPF Server | 3-2 |
| 3.2.1. RPF Server Options | 3-2 |
| 3.2.2. RPF Server keyins | 3-3 |
| 3.3. Starting an RPF Client for XPRESS | 3-4 |
| 3.3.1. RPF Client execution parameters for XPRESS | 3-4 |
| 4. Installation Verification & Troubleshooting | 4-1 |
| 4.1. Installation Verification Procedure for XPRESS files | 4-1 |
| 4.2. Utility Programs | 4-2 |
| 4.2.1. SRVMON | 4-2 |
| 4.2.2. CLEANQ | 4-3 |

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Appendices

| | |
|--|------------|
| A. Remote Print Facility (RPF) Error Messages | A-1 |
| A.1. RPF Server Error Messages | A-1 |
| Error codes | A-6 |
| A.2. RPF XPRESS/Client Error Messages | A-7 |
| B. Installation of SPIN-X Central | B-1 |
| B.0.0.1. Configuring the Exec for SPIN-X Central (Optional) | B-2 |
| Defining the XPRESS "Printer" for SPIN-X Central | B-2 |
| Type 2 Onsite Configuration SGS's - Channels | B-3 |
| Type 2 On-Site Configuration SGS's - Sub-Channel | B-3 |
| Type 2 Symbiont Class SGS's | B-4 |
| Output SGS's | B-4 |
| B.0.0.2. Updating the Format Definition File for Spin-X Central | B-5 |
| C. Installation Checklist | C-1 |

The Remote Print Facility (RPF) software (previously called the Xpress Server and Client) is used to drive remote printers from a Unisys 2200 system. RPF supports the SPIN-X/XPRESS PC product. The SPIN-X/XPRESS PC software drives printers that can be reached by a PC.

SPIN-X/XPRESS PC

SPIN-X/XPRESS (XPRESS) is a powerful remote print spooler that accepts print jobs from Unisys 1100/2200 and IBM/MVS environments. XPRESS receives mainframe print jobs and sends them to printers attached to a LAN or to printers directly attached to the XPRESS PC. This allows a printer or group of printers to be shared between multiple hosts as well as multiple host operating environments (OS 1100 and/or IBM/MVS).

XPRESS can support a variety of printers. High and low speed printers may be attached using centronics parallel or serial interfaces. LAN attached printers can be shared between users on the LAN and users sending prints from mainframes. Channel attached printers that would normally be connected to a mainframe channel can be driven remotely from an XPRESS PC.

XPRESS supports a wide variety of communications platforms. Prints can be directed to XPRESS using TCP/IP with the ASCINPUT, INT14, UPIF or IPIF interfaces. UPIF or IPIF are also supported on a standard Uniscope line. X25 is supported for high speed transfers. Async and SNA are also supported.

1.1 Remote Print Facility (RPF) Server

The Remote Print Facility Server is a batch program that reads OS2200 print files directly from station local queues and passes them to RPF/XPRESS clients. RPF/XPRESS clients in turn send these files to a SPIN-X/XPRESS PC for printing .

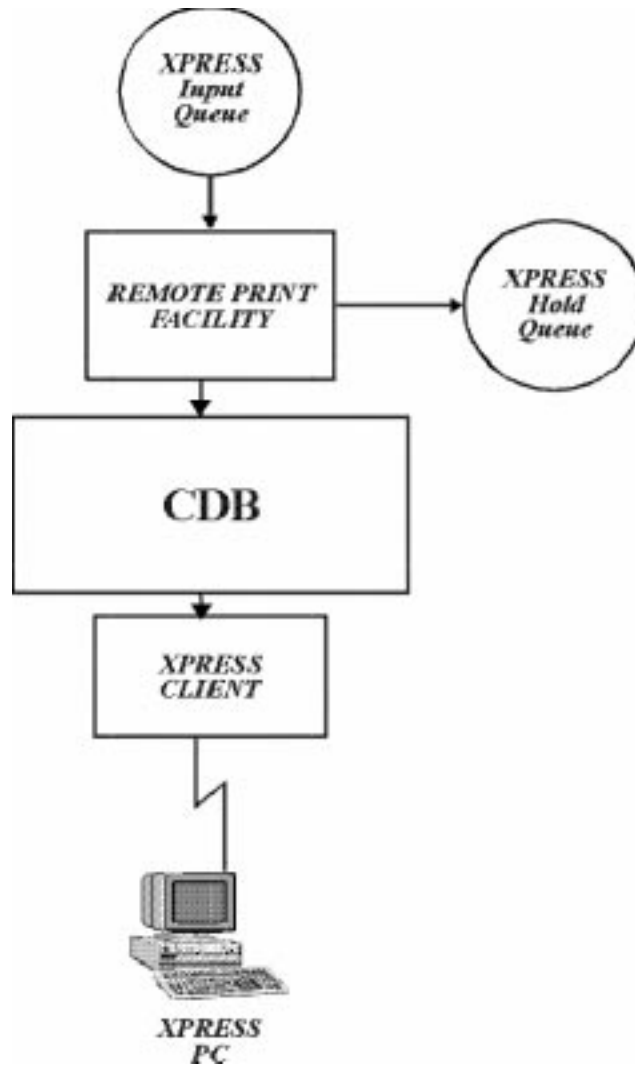


Figure 1-1

1.2 SPIN-X Common Data Bank (CDB)

The Common Data Bank (CDB) is a security gate between the RPF server and the RPF clients. The server will pass print files through the CDB to the clients. The clients pass acknowledgments and requests for more print records to the RPF server through the CDB.

1.3 RPF Clients

The RPF Client in the XPRESS mode is an OS2200 based absolute program executed by a remote site. A remote PC running in demand mode will invoke the RPF Client. A variety of terminal emulation modes are supported between the PC and the Client. Requests from the XPRESS PC are accepted by the client and passed through the CDB to the server. Subsequent responses from the server are then passed back to the XPRESS PC by the Client.

1.4 SPIN-X/XPRESS PC

The SPIN-X/XPRESS PC is a DOS based remote print spooler. This system provides remote operator control of printers, from the low speed desktop printer to high speed channel attached Xerox lasers printers. An XPRESS PC allows control of print jobs to be moved from the central computer room to a remote location. The XPRESS PC operator has the ability to reprint jobs, move jobs from hold, ready and printed queues, change priorities and much more.

1.5 Station Local Queues

Print queues used by the RPF system are Station Local Queue names configured in the Operating System. There are two types of queues used by RPF. INPUT queues are Station Local print queues from which the RPF Server receives print files to be processed. HOLD queues are used by RPF to store print jobs that are not in the proper format to process or that could not be delivered due to an error or configuration problem.

1.6 Format Definition Program (FDP)

FDP provides configuration information to the RPF server and clients. The FDP program reads parameters and builds a database for the RPF components to process. Information such as how to format data from a print queue is specified to FDP as are many other parameters for the system.

2.1 SPIN-X/XPRESS System Requirements

The RPF XPRESS components will work properly with all currently supported operating system levels.

2.1.1 Other System Requirements

STATION LOCAL queues must be configured as described later in the installation instructions.

2.1.2 SPIN-X/XPRESS Component Requirements

The following related SPIN-X products are supplied on the release tape:

FDP 4R4E.17 or higher is required.

CDB 2R1 or higher is required.

2.2 Installation from the Release Tape

The installation process will create the files and run-streams required by the RPF system for XPRESS.

The installation process consists of SSG menu screens (shown here in Courier font) which allow the user to enter various configuration parameters required in the creation of the RPF files and run-streams. Processor version numbers and default values for the current release may be different than those shown here.

Our install procedure is intended for initial setup and not for production. Before FDP can be run, it will be necessary to edit the FDP-INPUT file that results from the install process in order to change queue names and printer names etc. to conform with the ones at your site. At this point it would be a good idea to run the sample setup to make sure it is working correctly. Once this is accomplished, moving on to the production setup will be a relatively easy step consisting of updating your FDP input file to include additional print queues, formats and printers. Multiple printers and formats can be accessed through the Queue_Control_List in the Server command for the Format Definition Program (FDP). The user is referred to Section 2.4.1.

IMPORTANT NOTE: Xpress users updating to the new version are warned not to overwrite their production version of * FDP- INPUT during the install of the new version. Save it under a new name.

2.2.1 Loading the Release Tape

It is important to note that the RPF System administrator should log on to the host during the tape load process with the system security userid: alternatively, the account number assigned for use by the RPF Server should be given SSSMOQUE and SSSCONSOLE privileges.

From a demand terminal, enter:

```
@ASG,JT TAPE,eqp,reel,,NORING
@MOVE TAPE.,1
@ASG,T TEMP.,F///1000
@COPY,G TAPE.,TEMP.
@TEMP.INSTALL
```

Where 'eqp' is the equipment type of your release tape (U47, U9S, or U9V), and 'reel' is the tape reel number of your release tape.

The following main menu screen is displayed:

```
SPIN-X/Remote Print Facility Installation
Version 3R2B
*****
* COPYRIGHT 1991-1998 Corsair Technology, Inc. *
* * * * *
* SPIN-X, SPIN-X /CENTRAL, SPIN-X/RMS, SPIN-X/RPF, SPIN-X/LPR/LPD and *
* SPIN-X/XPRESS are trademarks of Corsair Technology, Inc. *
* Corsair Technology, Inc. *
* Atlanta, Georgia 30318 U.S.A. *
* All Rights Reserved. *
*****
```

- A) Load tape - must be the first option selected
- B) Set Remote Print Facility parameters, and install files
- C) Display Remote Print Facility parameters
- Q) Exit

Enter the appropriate item letter to proceed with installation

```
(A,B,C,Q) >
```

Option A must be selected initially, to load the release tape files into mass-storage files. You must then select a qualifier for the Remote Print Facility (RPF) files that will be created. If you do not provide a qualifier, the default qualifier shown will be used.

NOTE: This documentation assumes that a qualifier of RPF is used.

```
Enter the qualifier to be used for Remote Print
Facility files
```

The file qualifier specified will be used by the installation process when cataloging the Remote Print Facility Files.

```
Xmit blank for default qualifier: (RPF) >
```

The following screen is displayed before the release tape files are loaded:

```
The following files will be created:  
RPF*INSTALL(+1)  
RPF*SERVER(+1)  
RPF*CLIENT(+1)  
RPF*UTILITY(+1)  
RPF*FDP-INPUT(+1)
```

The FDP version on this release tape is 4R4E-17.
You must use this version when executing FDP to
build the Server and Client database files.

The CDB version on this release tape is 2R1C. If
your site already has this CDB version installed,
you can skip the SOLAR/COMUS CDB installation.

```
Do you want to install CDB 2R1C? (<Y>/N) >
```

If you answer Y, a SYSSLIB\$*[cdbname](+1) CDB file will be created. The release
tape files are loaded and the RPF*INSTALL file replaces the TEMP file. You can abort
the installation process at any time by responding with an @EOF to any message, and
resume it later by executing:

```
@RPF*INSTALL.INSTALL
```

2.2.2 Setting the RPF Parameters

The main menu is displayed again, but without option A since the tape has been loaded.
Enter the B response.

```

                SPIN-X/Remote Print Facility Installation
                    Version 3R2e
*****
* COPYRIGHT 1991-1998 , Corsair Technology Inc.                *
*                                                                *
* SPIN-X, SPIN-X/CENTRAL, SPIN-X/RMS, SPIN-X/RPF, SPIN-X/LPR/LPD AND *
* SPIN-X/XPRESS are trademarks of Corsair Technology, Inc.      *
*                                                                *
*                               Corsair Technology, Inc.          *
*                               Atlanta, Georgia 30318 U.S.A.    *
*                               All Rights Reserved.              *
*****

```

- B) Set Remote Print Facility parameters and install files
- C) Display Remote Print Facility parameters and install files
- Q) Exit

Enter the appropriate item letter to proceed with installation

(B,C,Q)

The configuration parameters which may appear on your screen during the install process are shown below. In each case the default value shown in parenthesis is given as a response to the prompt.. After all parameters have been set, enter option C to continue with the installation.

Project-id

Enter the Project-id for the Server @RUN cards

This Project-id will be used in:

The SERVER/RUN run-stream in the RPF*SERVER file.

Xmit blank for default Project-id (RPF) >

Account Number

Enter the account number for the Server @RUN cards

This account number will be used in:

The SERVER/RUN run-stream in the RPF*SERVER file

Xmit blank for default (YOUR-ACCOUNT) >

Userid

```
*****
* NOTE: The RPF Servers interface with the EXEC to *
* perform specialized functions. The Userid for the *
* Server runs must have SSMOQUE and SSSCONSOLE *
* privileges *
*****
```

Enter the Userid for the Server @RUN cards

This Userid will be used in:

The SERVER/RUN run-stream in the RPF*SERVER file.

Xmit blank for default (MY-USERID) >

XPRESS Client Name

Enter the XPRESS Client name (Userid)

This is the Userid of the demand session XPRESS Client run, that will ADD the CLIENT/XPRESS add-stream in the RPF*CLIENT file. It is defined as the CLIENT name in the FDP QUEUE_CONTROL_LIST statement in the RPF*FDP-INPUT file.

Any number of XPRESS Client runs may be attached to an RPF Server, but only one is created here. Additional Client runs can be copied from the one created here, but all must have unique Userids.

Xmit Blank for default Userid (XPRCL) >

RPF Server Keyin Name

Enter the Remote Print Server keyin name

This is the keyin name the console operator will use to communicate with the SERVER/RUN RPF Server. It is defined as the KEYIN-PREFIX in the FDP SERVER statement in the RPF*FDP-INPUT file.

The keyin name must start with a character and may not be the same as any other established console keyins.

Xmit Blank for default name (RPF*) >

Common Bank Library File Name

Enter the CDB Common Bank Library file name

This is the SOLAR or COMUS CDB product name and the SYS\$LIB\$ library file name for the CDB associated with the specified BDI number. It is used in the INSTALL/SOLAR and INSTALL/COMUS add-streams in the SYS\$LIB\$*XPRCDB library file. It is also used as the CDB name in the CDB and SERVER statements in the FDP RPF*FDP-INPUT file.

The CDB is used to transfer print files from the RPF Server to the XPRESS Clients.

A SOLAR or COMUS local installation is required to install this Alternate File Common Bank (AFCB).

Xmit blank for default name (XPRCDB) >

CDB Base Descriptor Index (BDI)

Enter the CDB Bank Descriptor Index (BDI)

This is the BDI number to be established with the XPRCDB CDB product name. It is used in the INSTALL/SOLAR and INSTALL/COMUS add-streams in the SYS\$LIB\$*XPRLPDCDB library file. It is also defined as the BDI in the FDP CDB statement in the RPF*FDP-INPUT file.

BDI numbers currently reserved for users are:

0400300 through 0400323

then:

The first 10 (12 octal) numbers from each group of 100 octal numbers from 0400400 through 0403100

then:

0403200 through 0403777

0405500 through 0405777

0406000 through 0406061

Xmit blank for default BDI value (0400605) >

Server Name

Enter a 1-8 character Server name

This is the Server name to be used by the RPF Server and the XPRESS Clients. It is defined as the NAME in the FDP SERVER statement in the RPF*FDP-INPUT file, and is used by the SERVER/RUN in the RPF*SERVER file.

Xmit blank for default name (RPFSEV) >

Continue installation process

The appropriate files and run-streams are then created using the specified configuration parameters. Before returning to the main menu, the following informational screens are printed:

The RPF*SERVER program file contains:

```
SERVER          - The RPF Server absolute element
SERVER/RUN      - The RPF Server batch run-stream
```

The RPF*CLIENT program file contains:

```
CLIENT/XPRESS  - The XPRESS Client @ADD stream
```

The batch run streams should be executed from SYS\$LIB\$*RUN\$ to ensure that they are started with the correct account number and Userid.

Xmit to continue

The RPF*FDP-INPUT file is an SDF file containing a sample RPF configuration with an XPRESS Client. This file is an annotated sample only, and must be edited to define the Clients, queue names, and formats desired at your site.

The RPF*UTILITY program file contains utility programs including:

```
FDP            - The File Definition Processor
CLEANQ         - Resets the in-progress status of queued print
                 files
SRVMON         - The CDB utility program
```

There are /DOC elements in this file describing these utilities.

The SYS\$LIB\$*[CDBNAME] library file contains:

```
SPINXCDB       - The Common Data Bank absolute element
INSTALL/SOLAR  - The add stream for installing the CDB
                 with SOLAR
INSTALL/COMUS  - The add stream for installing the CDB
                 with COMUS
```

You must be logged on under the Security Officers Userid to install the CDB with SOLAR or COMUS.

Installation is now complete, you may enter Q on the main menu to exit.

2.3 Format Definition Program (FDP) Configuration for XPRESS

The Format Definition Program (FDP) reads an FDP-INPUT SDF source input file and creates database files used by SPIN-X Central and RPF Servers and Clients.

The same [qualifier]*FDP-INPUT file can provide configuration information for SPIN-X Central and for RPF Servers and Clients. However, it is usually best to run separate FDP-INPUT files for RPF and SPIN-X/Central. Optionally, a single *FDP-INPUT file may contain commands for multiple RPF Servers.

This section discusses FDP as it relates to the RPF Server and Clients. Complete information on the FDP/Central configuration for SPIN-X Central usage is described in the SPIN-X/Central Reference Guide.

Using FDP

The File Definition Program requires an input file named [qualifier]*FDP-INPUT. The file qualifier must be the same as that used in the RPF Server and Client run-streams. The sample FDP_INPUT file created by the installation process can be edited to insert the appropriate configuration parameters for your site.

The latest version of the FDP program was placed in the [qualifier]*UTILITY file created during the installation process, and is executed as follows:

```
@QUAL [qualifier]
@*UTILITY.FDP
```

FDP creates the following database files, used by the RPF Servers and Clients:

```
*SRI$DATABASE(+1) .
*SRI$FLATFILE(+1) .
*SRI$CLIENTDB(+1) .
```

The following sections describe the FDP parameters (commands) required by the RPF Servers and Clients.

In the syntax explanations, the parentheses indicate a value for a parameter; while bracketed text whose elements are separated by a vertical bar ('|'), indicate an either/or choice (the parentheses, brackets and vertical bar would not actually appear in the input file).

Each separate command (i.e. FORMAT and DEVICE) must appear on a new line, but may be continued from one line to the next, by ending with a semicolon (;).

Anything appearing after a ' . ' (space-period-space) will be treated as a comment, also, any characters appearing after column 80 will be ignored.

Generally parameters are delimited by commas or spaces and in most cases may appear in any given order. A command is terminated when there is no continuation indicated.

2.3.1 SERVER Command

The SERVER command defines a single RPF Server to FDP. Multiple Servers can be defined, but a single Server can support up to 85 Clients. If more Clients are required then multiple Servers must be defined.

The syntax of the Server command is:

```
SERVER;

NAME = (Server name); .Maximum of 8 alphanumeric characters.

KEYIN_PREFIX = (Server keyin); .Maximum of 8 alphanumeric characters.

CDB_NAME = (CDB name, from CDB statement - required for Xpress mode);

QUEUE_CONTROL_LIST = (combinations of Client name (userid), input
queues, devices and format names )
```

| | |
|--------------------|--|
| NAME | An alphanumeric name to identify this Server. This name is used by the Server, CDB, and Clients to associate the queue names with the appropriate Clients. |
| KEYIN_PREFIX | The keyin name the operator uses to communicate with this Server. This name must start with a character and should end with an '*' (e.g. RPF*). |
| CDB_NAME | The name of the SPIN-X CDB from a CDB command that is to provide service for this Server and its Clients (this parameter required for Xpress mode only). |
| QUEUE_CONTROL_LIST | This parameter list associates the queue and device names with specific Clients. QUEUE_CONTROL_LIST may be abbreviated Q_C_L. |

The format of the QUEUE_CONTROL_LIST is:

```
QUEUE_CONTROL_LIST = ;
    ((clientid1, ;
        (input queue/hold queue/device/format)), ;
    (clientid2, ;
        ((input queue/hold queue/device/format), ;
        (input queue/hold queue/device/format))), ;
    (clientidn, ;
        ((input queue/hold queue/device/format), ;
        (input queue/hold queue/device/format))))
```

An entry in the QUEUE_CONTROL_LIST must be made for each input queue processed by the Server.

The use of commas and parentheses, as shown above, is described below:

The input queue, hold queue, device and format are enclosed by the innermost set of parentheses. This set of positional parameters is separated from the clientid field by a comma.

If more than one input queue is associated with a client, then the queues and their associated fields and parentheses are separated by commas and then enclosed by a second set of parentheses.

If there is more than one client, then each client and its associated queues is enclosed in a third set of parentheses and separated from every other set of clients and queues by commas.

A final set of parentheses will enclose the entire list (everything to the right of the "=" sign).

The following describes each item in the above syntax:

clientid: For XPRESS this is an OS2200 Userid employed by a client. The Client userid is used by the Server as the key to associate input queues to specific Clients. When a Client makes a request for a print file, the Server searches the associated input queues for any print files to transfer.

input queue: a STATION LOCAL in which the Server looks for files to process. A given input queue will contain files to be read directly by the Server.

hold queue: a STATION LOCAL into which files are moved that cannot be processed by the Server because of incorrect format.

device: an XPRESS remote host printer name. For XPRESS files, the name given here is usually put in the XPRESS PC alias list for this printer in the XPconfig utility.

format: This is the name of the format defined in the XPRESS PC to be used for printing the file.

Note that if the FORMAT name is the same as the INPUT QUEUE name, a QUEUE statement is not required.

Example:

```
SERVERNAME=SERVER1,KEYIN_PREFIX=RPF*,CDB_NAME=SPINXCDB,;
QUEUE_CONTROL_LIST=;
  ((CLNT1, (( INCL11/HOLDQ1/XPR1/SVRF03),;
            ( INCL12/HOLDQ1/XPR1/SVRF05))),;
  (CLNT2, (( PS80/HOLDQ3/docuprint/PS80),;
            (LS132/HOLDQ3/hplaser1/LS132))))
```

Explanation:

Line 1: The Server's name, "SERVER1", should also be placed on the first field of the Server processor call. The keyin name for Server commands is "RPF*", and this Server uses the SPINXCDB Common Bank.

Lines 3 - 4: The Client with userid CLNT1 has two input queues associated with it for input: INCL11 and INCL12. Each uses the same STATION LOCAL as a hold queue. Print files from either INCL11 and INCL12 are destined for XPRESS printer XPR1 (or the printer for whom XPR1 is an alias). The formats SVRF03 and SVRF05 are defined by FDP FORMAT commands.

Lines 5 - 6: Lines 5 and 6 follow the same pattern as lines 3 and 4. The format and input queue names are the same, so no queue statement is used.

NOTE: DOS Device names such as LPT1, COM1, CHAN etc. are reserved for DOS. Do **not** use these names for your user defined device names.

2.3.2 CDB Command

The CDB command defines to FDP a SPIN-X Common Data Bank (CDB) from the CDB installation. A single CDB can support up to 64 Servers, but multiple CDB's can be configured if desired. The format of the CDB statement is:

CDB;

NAME = (Alphanumeric CDB name); .Maximum of 12 characters

BDI = (The octal CDB BDI number);

MAX_SERVERS = (Maximum number of Servers the CDB will service);

MAX_CLIENTS = (Maximum number of Clients the CDB will service)

| | |
|-------------|--|
| NAME | The name used to identify this CDB within the FDP configuration only. This name is referenced by the SERVER statements. |
| BDI | The Bank Descriptor Index (BDI) from the SPIN-X CDB installation. |
| MAX_SERVERS | The maximum number of Servers this CDB will service at any given time. The absolute maximum is 64. This value should be set to at least 2 greater than the anticipated number of production servers, to allow for SRVMON execution and for test server execution. Table space of 40 words per Server is allocated in the CDB when it is initialized. |
| MAX_CLIENTS | The maximum number of XPRESS Clients this CDB will service at any given time. The absolute maximum is 2000. Each Server allows a maximum of 256 Clients. Each Server can service up to 256 Clients, If more are to be supported, multiple Servers are required. Table space of 10 words per Client is allocated in the CDB when it is initialized. |

Example:

```
CDB NAME = SPINXCDB1, BDI=0400602, MAX_SERVERS=4, MAX_CLIENTS=10
```

2.3.3 FORMAT Command for XPRESS devices

The FDP FORMAT command provides the Server with page layout information for processing XPRESS print files. The name in a FORMAT command must not duplicate an FDP QUEUE name.

Note that a parameter value specified for the first FORMAT statement in the FDP-INPUT file becomes the default value for all subsequent FORMAT statements. The default values listed below are for when the parameter is not specified in the first FORMAT statement.

```

FORMAT NAME = (name),;
      TYPE = [XPRESS],;
      LINES = (lines per page),; . default is 66
      WIDTH = (maximum characters per line),; . default is 150
      DENSITY = [6 | 8 |12] . lines per inch: default is 6
      TOP-MARGIN = (number of lines for top margin),;
                  . default is zero (0)
      BOTTOM-MARGIN = (number of lines for bottom margin),;
                    . default is zero (0)

```

where:

| | |
|---------------|---|
| NAME | The name of the FORMAT statement, which is a maximum of 6 alphanumeric characters. This name is referenced from the 4th field of a QUEUE_CONTROL_LIST entry in the SERVER statement. For XPRESS devices, this name must match the XPRESS Format name. |
| TYPE | Device type, which must be XPRESS for the RPF Server and Clients to process XPRESS files properly. |
| LINES | The number of lines per page at 6 LPI. This number includes the number of lines specified for top and bottom margins. Default is 66. |
| TOP-MARGIN | Number of blank lines to be inserted at the top of each page. Default is zero. |
| BOTTOM-MARGIN | Number of blank lines appended to the end of each page. Default is zero. |
| DENSITY | Number of lines-per-inch, which must be 6, 8, or 12. Default is 6. |
| WIDTH | Maximum number of characters per line. Default is 150. Print lines that exceed this value will be truncated. |

The remaining parameters are applicable to LPD devices only.

2.3.4 Queue Commands

The QUEUE command identifies to the Server those input queues whose print files it will process directly versus those queues whose printfiles are pre-processed by SPIN-X Central. If the queue is of type XPRESS, then the Server will process the print file directly.

A QUEUE command is required for each input queue in the QUEUE_CONTROL_LIST keyword of the SERVER command if it is not the same as the print format name. The name in a QUEUE command must not duplicate an FDP FORMAT name.

Example:

```

QUEUE NAME=INCL11,TYPE=XPRESS . Input queue for direct

```

2.3.5 Sample FDP-INPUT File

The sample below is an FDP-INPUT as it might appear after a completed install process during which all the default (italicized) parameters were accepted.

```
. This is a sample RPF FDP-INPUT file showing an XPRESS Client.
.
. Some parameters have been inserted by the installation process, others
. must be done by the user.
.
. The CDB statement defines the CDB name and BDI used by the RPF Server
. and XPRESS Clients.
.
CDB NAME=XPRTSTCDB, BDI=0400605, MAX_SERVERS=5,; MAX_CLIENTS=20
.
. The SERVER statement defines the RPF Server attributes. It's queue
. control list defines all XPRESS Client queues processed by this
. Server. (The queue names should be configured as STATION LOCALs)
.
SERVER NAME=RPFSEV1, KEYIN_PREFIX=RPFKEY* CDB_NAME=XPRTSTCDB,;
QUEUE_CONTROL_LIST= ;
                ((XPRCL1,((Q100/Q999/printername1/HPS80 ),;
                        (Q101/Q999/printername1/HLS132))),;
                (XPRCL@ ,((Q103/Q999/printername2/ DPS80),;
                        (Q104/Q999/printername2/DLS132))))
.
. Input QUEUE names are referenced by the SERVER QUEUE_CONTROL_LIST
. statement. Their only purpose here is to satisfy internal FDP requirements
.
.
QUEUE NAME=Q100, TYPE=XPRESS
QUEUE NAME=Q101, TYPE=XPRESS
.
. XPRESS FORMAT statements
.
. FORMAT names are referenced by the SERVER QUEUE_CONTROL_LIST statement
. These FORMAT names must also be configured in the XPRESS system.
. Note that the first FORMAT statement in the file supplies the default
. values for all subsequent FORMAT statements.
.
FORMAT NAME= HPS80, TYPE=XPRESS, LINES=66, WIDTH=80, TOP=6,; BOT=3
FORMAT NAME=HLS132, TYPE=XPRESS, LINES=66, WIDTH=132
```

2.3.6 TELCON Definition

There are sample line class definitions in Appendix B of the Xpress installation manual.

2.3.7 Remote Print Facility (RPF) Server Run-stream

This sample run-stream assumes that the RPF Server has been installed in an RPF*SERVER file. The numbered lines correspond with the numbered explanations below.

This run-stream should be put into SYSSLIB\$*RUN\$ to ensure that the correct account/userid is used.

```

1.  @RUN,A/JKL SERVER,account/userid,RPF,999,99999
2.  @SYSSLIB$*COMUS.CLOD,A          . Go privileged
    @SYM,DF PRINT$                  . Breakpoint the print file
    @CAT,P SERVERPF(+1).,F//9999
    @BRKPT PRINT$/SERVERPF
3.  @QUAL RPF
    @USE SRI$DATABASE.,*SRI$DATABASE . Assign the db files
    @ASG,A SRI$DATABASE.
    @USE SRI$FLATFILE.,*SRI$FLATFILE.
    @ASG,A SRI$FLATFILE.
    @COPY,A *SERVER.SERVER,TPF$     . Execute SERVER from TPF$
4.  @.SERVER,AFL RPFSEV
    @PMD,E
    @BRKPT PRINT$

```

1. Use an account number and userid that has SMOQUE\$ and KEYIN\$ privileges, the Security Officer's userid is normally used. The JKL options are only needed if SERVER is to be executed with the real-time R-option.
2. Use whatever the site normally uses to place the run into privileged mode.
3. Use the same qualifier that was used for FDP and the SERVER file, and assign the FDP database files.
4. Use the same Server name as specified in the FDP-INPUT file SERVER statement.

2.3.8 RPF Client @ADD stream for XPRESS execution

CLIENT interfaces with the RPF Server to process print files for XPRESS. Any number of CLIENT's can be attached to a Server but each must have a unique userid (client name).

CLIENT is executed for XPRESS as follows:

```

@QUAL RPF          . Define the default qualifier
@USE SRI$CLIENTDB.,*SRI$CLIENTDB. . Assign the FDP Client file
@ASG,A SRI$CLIENTDB.
@ERS TPF$.        . Execute Client from TPF$.
@COPY,A *CLIENT.CLIENT,TPF$.
@FREE *CLIENT.
@.CLIENT

```

2.4 Installation of the SPIN-X Common Data Bank (CDB)

The SPIN-X Common Bank Library (CDB) must be installed using SOLAR or COMUS.

The installation process creates both a SOLAR/INSTALL and a COMUS/INSTALL add-stream element in a SYSSLIB\$*[libname] file. The COMUS element is for sites that may not have SOLAR installed.

The following sample element is the SOLAR/INSTALL element created in the SYSSLIB\$*[libname] file after an install that accepted all the defaults (in italics).

```
PRODUCT name,XPRCDB level,2R1 mode,AFCB;
FILE      mode,AFCB source,SYSSLIB$*XPRCDB ;
          dest,SYSSLIB$*XPRCDB attributes,WRITEABLE,NOROLLOUT
AFCB      mode,AFCB file,SYSSLIB$*XPRCDB ;
          bank, 0400605,SPINXCDB,SPINXCDB, ;
          ''DYNAMIC'', ''TS QUEUING'', ''GUARANTEED ENTRY POINT''
```

2.5 Client Userid Configuration

SIMAN is used to create the userids and account numbers for the RPF Servers and XPRESS Clients.

The userids and account numbers used for the RPF Server run-stream must be configured for SSSMOQUE and SSCONSOLE privileges.

The account numbers and userids (Client names) for the XPRESS client run-stream do not require any special privileges.

2.6 OS2200 Configuration

2.6.1 Defining Type 2 Symbiont Class Local Stations

XPRESS and LPD use STATION LOCALs for their various print queues as follows:

1. Input queues to which print files are @SYM'd. Separate queues are currently required for XPRESS and LPD files, and for each print format needed.
2. Hold queues for files that cannot be processed due to improper file format, unknown printer name, etc.

Station INCL11 Local

Station SPXCL1 Local

Station HOLDQ1 Local

These Station Locals are also configured to RPF using the FDP Queue Control List.

3.1 Overview

3.1.1 RPF Host Programs:

| | |
|--------|--|
| SERVER | The main Server program, executed from a batch run-stream. It processes all FDP-configured print queues, passing print files through the SPIN-X CDB to the appropriate XPRESS Clients. |
| CLIENT | The Client program, executed from a demand session for XPRESS print files. A separate Client run is required for each XPRESS PC used. |
| XPRCDB | The Xpress Common Data Bank executed as an Alternate File Common Bank (AFCB). It passes print files received from the Server to the Clients. |

3.1.2 RPF Utility Programs:

| | |
|--------|---|
| FDP | The File Definition Processor, normally executed in demand mode. It builds the configuration database files used by the RPF Server and Clients. |
| SRVMON | A privileged-mode program used to query or reload the CDB for contingency reasons. |
| CLEANQ | A privileged-mode program used to reset print queues for contingency reasons. |

3.2 Starting the RPF Server

The suggested RPF Server run-stream is shown in the installation chapter, and should be placed in SY\$LIB\$*RUN\$ to ensure that it is started with the intended account number and userid. It can then be started with an 'ST SERVER/RUN' console keyin.

It is important that the run-stream contain the correct @QUAL statement for the qualifier used for the FDP database files, and that these files are not assigned by anyone else during the Server's initialization phase.

If the FDP or SETUP file configuration is changed, it is necessary to terminate and restart the Server for the changes to take effect.

3.2.1 RPF Server Options

- A** Generate PERCON-compatible type 10112 System Log entries. A type 10112 log entry is generated when a print file is started and when it is completed. The completion log entry reflects when the file has been processed by the Server, not when it has actually been printed.
- B** Generate type 11502 System Log entries instead of type 10112. This is an alternate log entry type to be used instead of type 10112 described above, for sites that may not want to use the same number as the standard PERCON log entries. The A and B options are mutually exclusive.
- F** L-option print file logging is breakpointed to an RPF*[serverid]\$MSG(+1) mass storage file instead of the default PRINT\$ output file. 'serverid' is the CDB server name defined by the FDP SERVER statement.
- I** Any binary character encountered in a print file is changed to an ascii (040) space character. A binary character is an octal value not within the 040-0176 ascii character range.
- L** Enable print file logging to the PRINT\$ file, which includes:
 - . FDP configuration information when the SERVER is initiated.
 - . When a CLIENT connects and disconnects via the CDB.
 - . When a print file is started and completed.
- M** The \$450 (margin change) and \$451 (density change) special control images are not generated. This is an option for special XPRESS users only.
- P** For XPRESS files only, the '*' carriage control character normally used for the first print line following a page eject is changed to a '+' character. This option is only required if backward compatibility with older XPRESS versions is required (before ver 2.00).
- R** After initialization is complete, SERVER goes real-time with a priority level of 35. Both the Server and Client can be run at OS1100 real time priority by adding the "R" option to the processor call options. There is, however, a potential impact to demand users on heavily loaded systems. If the "R" option is used, make sure extra PCT expansion options are provided on the @RUN card for the Server's batch job. For example,


```
"@RUN,/JKL".
```
- T** Process @SYM'd tape files. Normally tape files are ignored. Note that this is currently a limited implementation in that only the first file on the tape can be printed, the @SYM,A option and part names are ignored. Also, the printing of tape files should be closely supervised because other print file activity will stall if a tape is @SYM'd but not mounted.
- W** Allow bad 060 SDF control images, which are normally invalid margin control parameters. If an invalid SDF control image is encountered in a print file, an error message is inserted into the file. If the W-option is used, the control image is ignored and the rest of the print file is processed. If the W-option is not used, the print file is terminated.

3.2.2 RPF Server keyins

These console keyins are used by the operator or system administrator to control the operation of the RPF Server.

They are issued by the console command:

RPF* <command> where RPF* is the console keyin name specified in the FDP SERVER statement. If a different keyin name was selected during the installation process, make the appropriate substitution.

example:RPF* /ID

The following commands are available:

- **none** Lists the number of active Clients.
- **/LOGC** Starts a new fcycle of the log file. After this command has been issued, the previous fcycle may be read by an editor to display events in the log file.
- **/LOCK** Suspends processing of new print files. Currently active files are not affected.
- **/UNLOCK** Allow processing of new print files again.
- **/TERM** Causes the RPF Server to terminate if there are no active jobs. The "/LOCK" command is recommended to insure that the server will quit accepting prints. Note that the /TERM command will give an error message if files are currently being transferred and will have to be issued again when no jobs are active.
- **/STAT** Prints CDB status information, including the number of Servers and Clients attached to the CDB. This command also provides diagnostic information needed only by Spin-X technical support.
- **/DUMP** Dumps the CDB data areas to a SPIN-X*CDB-DUMP(+1) print file for diagnostic purposes.
- **/ID** Identifies the RPF Server and CDB version levels.
- **/KILL** Immediately terminates the server. Any active print files are terminated and left in an 'in-process' status in the SMOQUE entry. (See the CLEANQ information for removing this 'in-process' status.

3.3 Starting an RPF Client for XPRESS

The suggested Client add-stream is shown in the installation chapter, and can be @ADD'd from the [qualifier]*CLIENT file with a simple '@ADD [qualifier]*CLIENT/XPRESS' statement. This statement is normally placed in the SIMAN control-image entry so it will be automatically executed when the XPRESS-PC signs on to the host.

It is important that the add-stream contain the correct @QUAL statement for the qualifier used for the FDP database files, and that these files are not assigned by anyone else during the Client's initialization phase.

If the FDP file configuration is changed, it is necessary to terminate and restart the Client for the changes to take effect.

An RPF XPRESS Client is essentially a demand run started by the XPRESS PC. Since the demand runid is the same as the userid (Client name), it is recommended that userids be kept to 5 characters or less to avoid confusion if a 'runid duplicated, new runid is [new runid]' situation occurs.

Starting and termination of XPRESS Clients is done by the XPRESS-PC.

3.3.1 RPF Client execution parameters for XPRESS

The simple @ADD stream shown in the installation chapter is recommended, but the following optional parameters allow for specialized execution.

The FDP processor creates an SRI\$CLIENTDB database file containing records that associate each userid (Client name) with a specific Server name and a specific CDB BDI number. If SRI\$CLIENTDB is not assigned to the run as shown above, CLIENT will assign SYS\$XPRESS\$*SRI\$CLIENTDB as the production database file.

The SRI\$CLIENTDB database file and/or the file's Server name and CDB BDI number can be overridden by optional parameters on the CLIENT control statement as follows:

```
@Client  server-name, bdi-number, fdp-qualifier
```

where: server-name - If specified, overrides the Server name in the SRI\$CLIENTDB file.

bdi-number - If specified, overrides the CDB BDI number in the SRI\$CLIENTDB file.

fdp-qualifier - If specified, overrides the SYS\$XPRESS\$ SRI\$CLIENTDB file qualifier.

Note that a void field must contain a trailing comma (,) to properly identify a subsequent field. For example, if using the default Server name and BDI number but using an SRI\$CLIENTDB file with a different qualifier, the control statement would be:

```
@CLIENT , , [test-qualifier]
```

The appropriate SRI\$CLIENTDB file to use is determined as follows:

1. If an internal (USE name) SRI\$CLIENTDB filename was assigned externally, it's assignment is used. e.g.

```
@USE    SRI$CLIENTDB,MYQUAL*MYFILE.  
@ASG,A  SRI$CLIENTDB.
```

2. If an 'fdp-qualifier' is specified in field-3 of the CLIENT control statement, it is used as the SRI\$CLIENTDB file qualifier.
3. SY\$XPRESS\$*SRI\$CLIENTDB is used.

Note the following:

If there is a Server name in field-1 of the @CLIENT statement and it differs from the Server name in the file, a warning message is printed.

If there is a BDI number in field-2 of the @CLIENT statement and it differs from the BDI number in the file, a warning message is printed.

If the SRI\$CLIENTDB file cannot be assigned, cannot be read properly, or there is no record for the run's userid, there must be a Server name and BDI number in the @CLIENT statement. If not, the run error terminates.

4 Installation Verification & Troubleshooting

This section explains how to deal with common problems which may arise while installing RPF. Some useful utility programs are also discussed. If the answer to a specific question is not provided here, feel free to call Customer Support.

4.1 Installation Verification Procedure for XPRESS files

Trouble-shooting is approached with a divide and conquer strategy. Each link is tested in the chain of events which moves a job from the host queue to which it has been @SYMmed through the the RPF Server, the CDB, and the Client to the Xpress PC. But before getting into the testing of Xpress, it is a good idea to first test the validity of the printer connection to the Xpress PC by sending a printjob from the Xpress PC to the Xpress printer that was set up during the install.

After installing RPF on the host, you can follow the steps below to verify successful completion of the installation of the host software:

1. @SYM a test file to the Station Local you have chosen as the input queue for XPRESS.
2. Start the Server if it is not already up with the keyin "ST *servername*" where *servername* is the name given for the Server during installation.
3. Start the XPRESS Client by logging on with its userid, then perform the following ECL command to execute the Client:

@ADD *qualifierCLIENT.CLIENT/ADD**

4. If you press ENTER, you should receive "//UNKNOWN"; this indicates that your message has reached the Server and since there is no content to the message the Server does not know what you want. This also indicates that the Server can pass a message to you through the CDB and the Client. Respond with

{SOE}//FILE
... where {SOE} is the Unisys terminal emulator Start of Entry character.
(FILE must be capitalized).

5. If the files have processed normally, you will receive the message "//ACK". If the files have not processed normally, you will receive the message "//NAK". If you received a "//NAK", then the install is incorrect, because //NAK indicates that the CDB has checked the table of Clients and could find nothing for this Client userid (there should be something there because you have just @SYMmed a file to the XPRESS input queue).
6. If you receive a //NAK DOWN at step 4, then you have communicated with the CDB but the CDB cannot contact the Server. This could indicate a down Server, a wrong BDI number or incorrect FDP parameters.
7. If you received a "//ACK" in step 5, this indicates that a printfile was found in the CDB for this client. If desired, respond with "{SOE}//SEND00" to receive a data block. If "//ILLFI?" is received instead, the input file is not correctly formatted.
8. Now enter "{SOE}//DEL" to remove the test printfile from the print queue.

9. The Client may be unloaded by entering "{SOE}//QUIT".

4.2 Utility Programs

The following utility programs have been placed into the `[qualifier]*UTILITY` file during the installation process.

4.2.1 SRVMON

SRVMON is a CDB utility program used by privileged users for diagnostic or contingency purposes. It is placed in the `[qualifier]*UTILITY` file during the installation process.

The SRVMON control statement has two formats:

If executed from a batch run or a breakpointed demand run, the CDB BDI number must be specified on the control statement. If the BDI number is not specified on the SRVMON statement, and execution is from a non-breakpointed demand run, it must be entered in response to the following type-and-read message:

Enter CDB's octal BDI number >

Format 1: To initialize the CDB.

```
@[qualifier]*UTILITY.SRVMON,I max-servers/max-clients[,cdb-bdi]
```

where: max-servers = Maximum number of servers that will be attached to the CDB at one time. Allow at least one greater than anticipated since SRVMON attaches as a Server.

max-clients = maximum number of clients that will be attached at one time.

The RPF Server is self-initializing so this command is only required for contingency purposes, or to override the maximum number of Servers or Clients in the FDP database file.

If the CDB is already initialized, the output will display the maximum numbers currently configured.

Format 2: To dump, reload, or print CDB statistics.

```
@[qualifier]*UTILITY.SRVMON,[D|R|S|X] [cdb-bdi]
```

where option:

D - Dump CDB data areas to a `SPIN-X*CDB-DUMP(+1)` file.

R - Reload the CDB, if no Servers or Clients attached.

S - Display CDB status information.

X - Reload the CDB, terminate attached Servers and Clients.

If SRVMON is executed with no options, a brief description of the parameters and options is printed.

The following is a sample print output of an `@SRVMON,S` execution. Much of the information is meaningful only to the SPIN-X technical staff, but it is useful to the site to show the active Servers and Clients currently attached to the CDB.

```
'@SRVMON,S 0400703'
SRVMON 2R1C SPIN-X CDB Interface (950222 1335:02) 950510 1514:00
SRVMON is using CDB BDI number 0400703
CDB 2R1C BDI: 400703 Address Limits: 001000:012747 Size: 5095
MaxServer: 5 MaxClient: 20 Mask1: 0037 Mask2: 0017 QCnt: 16
Txfr lock: 00 responder: 000000 locker: 000000 data chars: 7
G_Rlock: 00 G_Slock: 00 Active Servers: 2 Requestors: 5
Idx: 3 Srv: SYWHP SWL: 451351 Name: RUN*SYWHP ClTerm: 0

Idx: 4 Srv: SVPRD SWL: 504201 Name: SVPRD

Idx: 5 CLNT0 Req: CLNT0 SWL: 511561 Lck: 00/000000 Srv: 4
Rcvr Sleep: 00/000000 Rcvr Flags: 10
Idx: 8 LPDC3 Req: LPDC3 SWL: 175631 Lck: 00/000000 Srv: 4
Rcvr Sleep: 00/000000 Rcvr Flags: 10
Idx: 9 LPDC2 Req: LPDC2 SWL: 321231 Lck: 00/000000 Srv: 4
Rcvr Sleep: 00/000000 Rcvr Flags: 10
Idx: 10 LPDC1 Req: LPDC1 SWL: 213451 Lck: 00/000000 Srv: 4
Rcvr Sleep: 00/000000 Rcvr Flags: 10
Idx: 15 LPDC4 Req: LPDC4 SWL: 346551 Lck: 00/000000 Srv: 4
Rcvr Sleep: 00/000000 Rcvr Flags: 10
CDB version: CDB 2R1C
SRVMON exit
```

Sample print output of an @SRVMON,S execution

4.2.2 CLEANQ

CLEANQ will reset the 'in-process' status from all files in a single print queue. It is executed as follows:

```
@[qualifier]*UTILITY.CLEANQ [queue name]
```

CLEANQ requires the user to have SMOQUE\$ privileges.

CLEANQ should only be executed for print queues that have files left with the in-process status set because of an abnormal RPF Server termination.

Unpredictable results will occur if the in-process flag is reset when the file is being processed by any program.

A Remote Print Facility (RPF) Error Messages

For all error messages, any I/O error codes or ACSF\$ facility status codes are described in the *UNISYS Executive Requests Reference* manual. Basic Service Package (BSP) and SDFIO error codes are described in the *UNISYS SYSLIB Reference* Manual.

All error messages described as 'internal error' indicate that something in one of the RPF components or operating system has become corrupted. Terminating all components and reloading the CDB before restarting the Server and Clients is recommended. If the problem persists, further analysis is required.

A.1 RPF Server Error Messages

ACSF\$ [error code] on above control statement. ... attempting to process a [filename] file

A facility error occurred attempting to catalog, assign, or free the intermediate LPD file indicated. The ACSF\$ error code indicates the reason for the failure.

@ASG,T LPD\$TEMP.,F///5000 -failed ACSF\$ status [octal status word] (Self-explanatory descriptions of the status word bits follow)

The attempt to assign the temporary mass-storage file used for processing LPD setup images has failed. Either an internal RPF Server error has occurred or the batch run-stream has somehow been corrupted.

Assign RPF*[servername]\$MSG failed: (ACSF\$ status word)

If the RPF Server F-option is used, status messages are written to a new fcycle of an RPF*[servername]\$MSG file instead of PRINT\$. The attempt to assign this file failed, where the status word indicates the reason for the failure. This message is printed on the console only.

[setup image from FDP FORMAT record] Bad filename specification in above setup image

The file name and optional element name specification in an FDP LPD setup image is expected to be in the normal UNISYS filename format:

'qualifier*filename(fcycle)/readkey.elementname/version'

where all fields are optional except 'filename' itself. There is a syntax error in the filename specified.

BRKPT PRINT\$ -- failed: status: (ACSF\$ status word)

The attempt to breakpoint the PRINT\$ file to the alternate print file failed, where the status word indicates the reason for the failure. This message is printed on the console only.

BSP RFTI\$ error [error code] on file [filename] [, file is not a program file]

An error occurred trying to read the file table index for the file shown. The BSP error code indicates the reason for the failure. This message is self-explanatory if 'file is not a program file' is added to the message. The filename is from a setup image in an FDP LPD FORMAT record.

BSP RPFET\$ error [error code] on file [filename]

An error occurred attempting to read the element table for the file shown. The filename is from a setup image in an FDP FORMAT record. The BSP error code indicates the reason for the failure.

Cannot specify both 'A' and 'B' options for logging activity

The A-option to generate type 10112 log entries and the B-option to generate type 11502 log entries, are mutually exclusive.

CDB detected the RPF Server index not within defined range

This is an internal error either in RPF Server or the CDB.

CDB init for [n] RPF Servers and [n] clients failed: CDB error [error code]

This error only occurs if the CDB has never been initialized or has been reloaded for some reason. The CDB error code is described in the SPIN-X Technical description and indicates the reason for the failure. The number of Servers and clients shown are from the FDP database file. The SRVMON utility program can be used to reload and initialize the CDB with the intended maximum number of Remote Print Facilities and clients.

Contingency at [address] [relative address] in [element]

***** RPF Server aborted due to a contingency error *****

An internal error occurred at the RPF Server address indicated.

Contingency occurred in CDB

This is an internal error either in RPF Server or the CDB.

Create RPF*[servername]\$MSG(+1) failed: (ACSF\$ status word)

If the RPF Server F-option is used, status messages are written to a new fcycle of an RPF*[servername]\$MSG file instead of PRINT\$. The attempt to catalog this file failed, where the status word indicates the reason for the failure. This message is printed on the console only.

Error status returned by TRMRG\$ processing

Error:

End of CDB overlaps start of RPF Server D-bank
Facility error creating dump print file
Facility error queuing dump file to printer
Other RPF Servers are active in the CDB
Program not registered in CDB as a RPF Server
Symbiont error writing dump to file
Timeout waiting for FORK\$ of KEYIN\$ activity
Timeout waiting for FORK\$ of SMOQUE\$ activity

These are internal errors either in RPF Server or the CDB.

EXEC level pre-40R2 does not allow ASCII accounting log entries

Warning message, no SYSLOG\$ log entries will be generated.

Fatal BANK\$ error [BANK\$ error code] for Client [Client name]

A BANK\$ error occurred attempting to acquire memory space for I/O buffers. The BANK\$ error code is described in the UNISYS Executive Requests Manual. Either the configuration defined by FDP is too large or an internal error has occurred.

Fatal error: memory exhausted, reduce configuration by [n] words

The total memory requirements for client tables and I/O buffers exceeds the amount of memory available. The 'n' number of words is the amount of memory needed in excess of that available. The number of clients and or queue lists for this RPF servername must be reduced.

File [SRI\$DATABASE or SRI\$FLATFILE] is [empty/unloaded/hardware disabled]

Self-explanatory. You will probably need to execute FDP with the appropriate file qualifier to build new fcycles of the database files.

Internal error in CDB processing; CDB aborted

This is an internal error either in RPF Server or the CDB.

Invalid buffer/string base address or length
Invalid calling argument for CDB; basing error
Invalid CDB function requested
Invalid function requested for this caller type

These are internal errors either in RPF Server or the CDB.

Invalid header label in SRI\$FLATFILE

The FDP database flatfile has been corrupted. Execute FDP with the appropriate file qualifier to build new fcycles of the database files.

Invalid HOLDQ queue name: [queue name]

The HOLDQ queue name shown, that is specified in the FDP SERVER statement is not configured in the operating system.

Invalid KEYIN-ID specified on processor call

The optional RPF Server /KEYIN on the processor control statement is greater than 7 characters. Note also that this keyin cannot begin with a number, and that the Remote Print Facility appends an '*' to it.

Invalid queue name: [queue name]

The input queue name shown, that is specified in the FDP SERVER statement, is not configured in the operating system.

I/O error [error code] reading setup file

The LPD setup images are written to this temporary file when the RPF Server is initialized. An I/O error occurred reading this file to insert these images into a print file. This is an internal RPF Server error.

I/O error (error code) reading SRI\$FLATFILE

The I/O error code indicates the reason for the failure. The FDP database flatfile has probably been corrupted. Execute FDP with the appropriate file qualifier to create new fcycles of the FDP database files.

I/O error [I/O error code] writing file [filename]

An I/O error occurred writing a print file data block to an LPD intermediate queue file. The I/O error code indicates the reason for the failure.

KEYIN\$ error:

Return buffer outside program limit
Return buffer shorter than 5 words
Call packet size not multiple of 3
Call packet shorter than 6 words
No return data -or- packet is busy
Illegal keyin for user program
User-id failed security checks
Invalid keyin requested
Return buffer is too small
At least one keyin remains waiting
No keyins are queued
Invalid function or TIP type run
Program not registered for keyins
Too many keyin types requested

These errors are error codes sent from the operating system to the RPF Server when registering for operator keyin input. Either the RPF Server run does not have the proper security privileges or an internal RPF Server error has occurred.

MSAM Error [code] [opening/reading/closing] [filename], I/O status [code]

An error occurred attempting to access the SRI\$CLIENTDB database file. The MSAM error code and/or the I/O status code indicates the reason for the failure. Either the file has become corrupted or the qualifier used in the CLIENT add-stream is not what is intended.

**MSAM error [status1/status2] (I/O err [error code])
[OPENING/READING/CLOSING] SRI\$DATABASE file**

A PCIOS error occurred accessing the FDP database file. The status field 1 and 2 error codes are described in the UNISYS PCIOS Reference Manual. If an I/O error, the I/O error code is also shown. If it is an invalid key error, also printed is:

Cannot find [keyword] record'

where the 'keyword' indicates which FDP record failed. A

Cannot find SERVER[servername] record

message indicates a mismatch between the RPF servername in the database file and on the @SERVER control statement. Other errors may indicate a corrupted or improperly created FDP database file.

No clients configured for this RPF servername

Self-explanatory, FDP must be executed with a queue control list containing at least one client name.

No devices configured

There are no input queues defined in the FDP database for this Remote Print Facility name. FDP must be executed with at least one queue control list.

No RPF servername given in first field of processor call

The '@filename.SERVER' control statement must specify an RPF servername that agrees with an FDP SERVER statement.

[Element/Version] not found in [filename]

The element [/version] named in a SETUP statement in an FDP FORMAT record does not exist in the filename specified.

Processor call error, the RPF Server must be called as a processor

The RPF Server must be executed in the '@filename.SERVER ---' processor form, as opposed to the '@XQT filename.SERVER' form.

**Quarter-word mode not set on entry to CDB
Requester not registered in CDB for device specified
Requester not registered in CDB for this RPF Server
Requester not waiting in CDB for send data**

These are an internal errors either in RPF Server or the CDB.

SDFIO [I/O] error [error code] on file [filename]/[element]

An error occurred reading an image from the SDF file (or element) shown. The filename (and element name) are from a setup image in an FDP FORMAT record. The SDFIO or I/O error code indicates the reason for the failure.

SECURITY ERR ABORT

The RPF Server must be executed with a userid that is allowed SMOQUE\$ privileges. As a general rule, the RPF Server should be executed in a batch run under the security officer's userid and account number.

RPF Server index not unique; check name on processor call
RPF Server internal error;
RPF Server already initialized
RPF Server is not privileged for this function
RPF Server not registered in CDB
RPF Server's buffer to CDB is too small

The RPF Server run does not have the correct privileges or an internal error occurred in the RPF Server or the CDB.

RPF Server name on processor call must be 1..8 characters

Self-explanatory. The RPF Server name must agree with the FDP SERVER statement.

Service not configured for userid [userid]

The userid (client) shown has requested output from this Server but is not configured for this Server in the FDP database. An //ILLID (illegal) message is returned to this userid.

SMOQUE\$ error:

Activated without file in queue
ambiguous mode settings
@ASG or @FREE failed
Caller failed security test
Change function not completed
Illegal data supplied
Illegal device, group or station
Illegal entry length
Illegal function
Illegal mode for function
Label sector area truncated
Output entry truncation
Packet or buffer out of limits
Requested file was not found
Req. mode not set for function
Set/Clear inprogress bit conflict
Status 0400000 - Undefined
Unrecoverable EXEC I/O error

These messages are errors that the Operating System returns to the RPF Server when doing an 'ER SMOQUE\$' to obtain print files to process. They indicate an internal RPF Server error or some sort of corruption or conflict in the Operating System's symbiont queues.

Too many clients configured; Current max is 255

Self-explanatory, there are too many Client names configured for this Server name in the FDP database file.

Too many specifications on processor call line

There is probably a syntax error in the @SERVER control statement. The RPF Server is normally executed with the RPF servername being the only specification.

UNABLE TO @ASG FILE [SRI\$DATABASE or SRI\$FLATFILE]; STATUS: [status]

Error attempting to assign the FDP database or flatfile, where 'status' is the ACSF\$ status word indicating the cause of the failure. If the status code is 400010000000 (file not catalogued), compare the qualifier of the FDP file with the projectid and/or the @USE name in the RPF Server run-stream.

RPF Server CDB has not had its configuration loaded yet

This is an internal error either in RPF Server or the CDB.

RPF Server configuration file invalid or obsolete format

The FDP SRI\$DATABASE file has been corrupted or was created with an obsolete FDP processor. Execute the current version of the FDP processor to create new fcycles of the FDP database files.

RPF [servername] ABORTING

Common error exit message showing the RPF servername specified.

RPF SERVER CONTROL MESSAGE: FILE FORMAT ERROR

This message is inserted into the print file being processed. Some kind of error occurred while trying to retransmit a file.

RPF SERVER CONTROL MESSAGE: PRINTING TERMINATED; File error code [n] (status [n]) - 'description of error code'

This message is inserted into the print file being processed. It is caused by an error return from the DIDSIO routine for normal RPF files, or from SDFIO for files created by SPIN-X Central. The error codes have the following meanings:

Error codes

- 0** Unrecoverable I/O error. The status word contains the I/O error code described in the *UNISYS Executive Requests Manual*. An I/O error code of 5 usually means that the @SYM'd file is either empty or does not contain the proper SDF end-of-file control image.
- 1001** Unknown file label encountered in input file. The status word contains the address of the bad label image.
- 1002** Unknown SDF image encountered in input file. The status word contains the address of the bad SDF image.
- 1003** Incorrect SDF type 060 control image encountered in input file. The status word contains the address of the bad SDF image. (See discussion of W-option below)
- 1004** Unsupported character set encountered in input file. The status word contains the length and address of the image containing the bad character set.
- 1005** Unrecoverable internal failure has occurred. The DIDSLIB routine has detected a 'never should happen' error. The status word is zero.
- 1006** DIDSIO call error. The status word contains the DIDSLIB return status. This is an internal error that 'should never happen'.
- 1007** Invalid DIDS or SDF image encountered in print file. The status word contains the address of the bad image. This error can be caused by an invalid SDF control image in the file, or by an internal DIDSLIB error.
- 1008** DIDSOC called without file having been previously opened. The status word is zero. This is an internal DIDSIO logic error.

NOTE: If the W-option is used, a DIDS error 1003 (bad 060 control record) will print an error message but will not terminate the file. This error is usually caused by a margin control image with invalid values.

A.2 RPF XPRESS/Client Error Messages

ACSF\$ [error code] on above statement, [filename]

A facility error occurred attempting to assign or free the SRI\$CLIENTDB FDP database file indicated. The ACSF\$ error code indicates the reason for the failure. Either the SRI\$CLIENTDB file has been corrupted or the file qualifier used by CLIENT does not agree with the file's qualifier.

CDB bdi nbr is not on CLIENT statement or in SRI\$CLIENTDB file

The CDB bdi number must be specified in the FDP CDB statement or in the 2nd field of the CLIENT control statement.

CDB BDI [number] not an octal value

The CDB bdi number specified in the CLIENT control statement must be an octal value, e.g. 0400605.

CDB BDI [number] is out of range

The CDB bdi number must be with the range allowed for users, as specified in the SPIN-X RPF manual or the Unisys SYSLIB manual

CLIENT CDB [bdi number] overrides [bdi number] in SRI\$CLIENTDB file

Warning message. The CDB bdi number in the CLIENT control statement differs from that in the FDP SRI\$CLIENTDB database file.

CLIENT [server Name] overrides [server name] in SRI\$CLIENTDB file

Warning message. The CDB server name in the CLIENT control statement differs from that in the FDP SRI\$CLIENTDB database file.

Client [userid] not found in SRI\$CLIENTDB file

An attempt has been made to start a CLIENT execution for which the userid is not configured in the FDP SRI\$CLIENTDB database file. Verify that the SRI\$CLIENTDB file qualifier in the add-stream is what is intended.

Duplicate request to [receive/send] data

The communication between the Client or XPRESS PC and the Server has gotten out of sync. Restarting the Client should correct the problem.

Format error in [record number] for [filename]

An error has been detected in the print file indicated. The file is moved to the configured hold queue.

I/O error on read from read\$, status: [I/O error code]

I/O error on write to print\$, status: [I/O error code]

An I/O error occurred reading or writing a print file data buffer to or from the XPRESS PC. The I/O error code indicates the reason for the failure.

No CDB bdi number in SRI\$CLIENTDB file

The CDB bdi number must be specified in the FDP CDB statement or in the 2nd field of the CLIENT control statement.

No Server active for this Client in the CDB

The RPF Server has terminated while a print file was being transmitted. The file will restart when the Server is restarted.

No server name on CLIENT statement or in SRI\$CLIENTDB file

The CDB server name must be specified in the FDP FDP-INPUT file or in the 1st field of the CLIENT control statement.

Specified [server name], is greater than 8 characters

The CDB server name specified in the CLIENT control statement must be a maximum of 8 characters.

CDB detected the Server index not within defined range
Client data buffer too large for service by CDB
Client de-registered from CDB while queued
Client not registered in CDB
Client program not found in CDB tables
Contingency at [address] [address of \$(lc) in element]
Contingency occurred in CDB
Device already registered in CDB
Error status returned by trmrg\$ processing
Fatal error from CDB: [error code] Function: [function code]
Internal error in CDB processing; CDB aborted
Invalid buffer/string base address or length
Invalid calling environment for CDB; basing error
Invalid CDB function requested
Invalid function requested for this caller type
No table space available in CDB for this Client
Quarter-word mode not set on entry to CDB
Server is not privileged for this function
Server not registered in CDB
SERVER response [response] for //[command]

These are all internal errors.

B

Installation of SPIN-X Central

SPIN-X Central is a batch program that converts OS1100 printfiles into a format that the RPF Server can understand. Central can print directly to various brands of channel attached printers or else transfer the converted data to the RPF Server via a Station Local queue. If RPF is already being used, then Central is only needed if accounting capability is required, if printfiles need to be put onto or read from tape, or if bulk file transfer capability is required (that is, transfers to the Server with all line spacing assumed to be one).

See Figure B-1 below for an illustration of the relationship between the various software components if Central is used. The "output queue" shown below is for the output of a dummy central printer to which files have been @symmed. The Xpress Host Server and Client are now the RPF Server and Client.

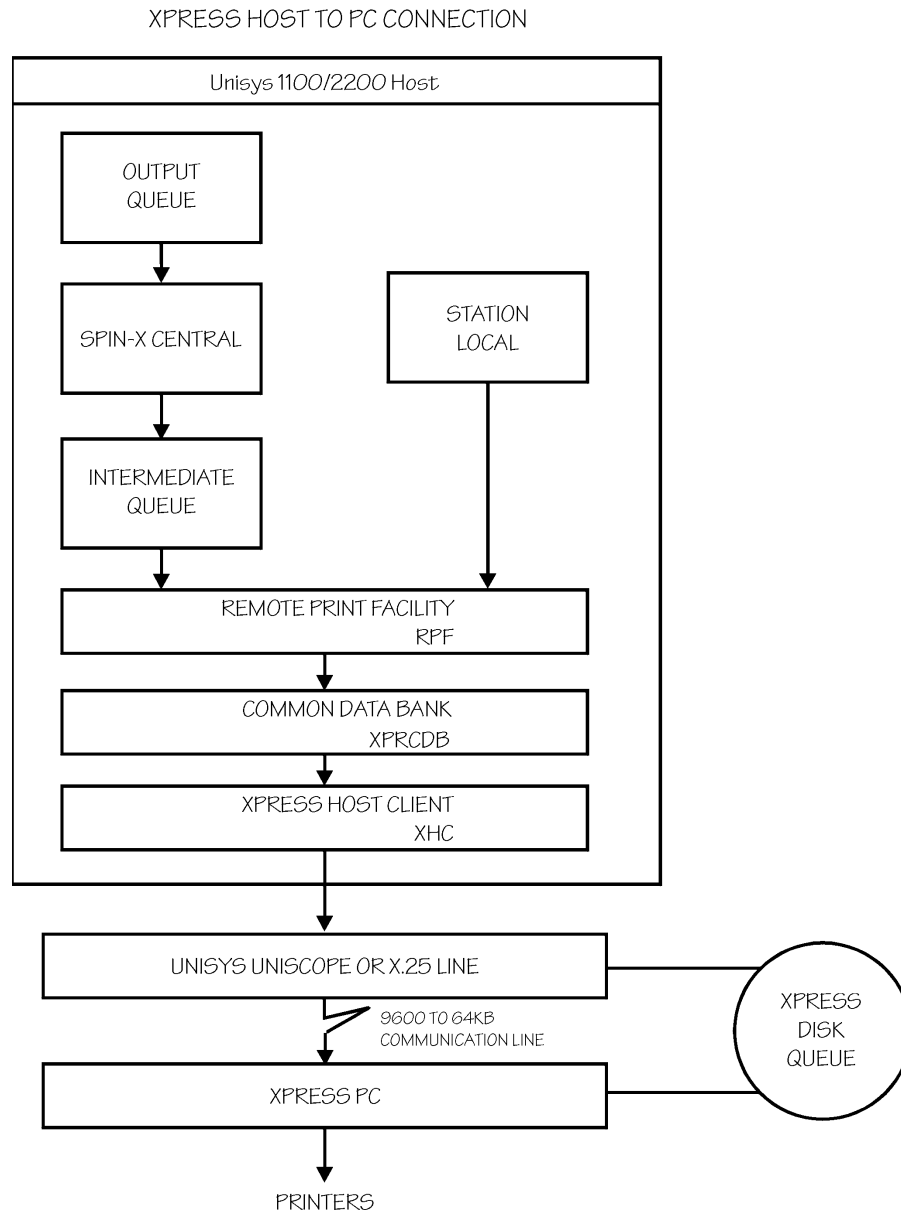


Figure B-1

As with RPF, Central requires both installation and configuration. The items to be configured consist of the following:

1. **EXEC**- Station queues are used to transfer data between SPIN-X Central and the RPF Server. Additionally, Station queues are used as holding queues for improperly formatted files. When SPIN-X Central is being used, a dummy central printer device is configured. Exec "OUTPUT" groups which represent different print formats for the users' data are associated with the dummy printer.
2. **FDP** - If you are using Central, then refer to the appropriate SPIN-X manual for FDP statements that work for Central. FDP provides configuration information to both SPIN-X Central and the RPF Server, however the File Definition Program is used differently by Central than by RPF, so it is treated separately in the RPF manual and the SPIN-X Central manual. It is, however, the same utility for both programs.
3. If SPIN-X Central is installed, FDP will also provide the Server with the Station Local from which the Server will accept files pre-processed by Central.

The rest of this section deals with the configuration of the Exec and File Definition Program. For information on installing SPIN-X Central, refer to the appropriate SPIN-X manual.

B.0.0.1 Configuring the Exec for SPIN-X Central (Optional)

The following section describes how to configure the Exec for SPIN-X Central. These steps are optional; if your location does not use SPIN-X Central, proceed to Configuring FDP.

Defining the XPRESS "Printer" for SPIN-X Central

If SPIN-X Central is used, then a dummy central printer needs to be defined in the Exec for each Xpress printer under Central control. OUTPUT queues are also defined for each dummy central printer. SPIN-X Central uses these OUTPUT queues as a method to determine the print format for a printfile.

This section assumes the reader is familiar with configuring a device to a byte or block multiplexor, or FIPS channel as described in the *OS1100 Exec System Software Installation and Configuration Guide*.

This section explains those additions which are necessary to update your system configuration. There are two classes of System Generation Statements (SGS) that need to be added:

1. Type 2 Onsite Configuration SGS's- (for the channel module on the 1100/2200, the block mux channel on the System 11, the printer and its controller),
2. Type 2 Symbiont Class SGS's- (for the printer, its controller and the various printing format queues).

Type 2 Onsite Configuration SGS's - Channels

First, you must determine the channel module you wish to use for the printer and assure that its NODE statement is correct. This requires knowledge of the type of multiplexor channel being used (byte, block or FIPS). Several examples of NODE statements to define channel modules for Unisys 1100/2200 processors are shown below:

- 1100/80 IOU's Using A Byte Multiplexor Channel

NODE I0MOD0 IS CHBYTE AND CONNECTS TO IOU0 VIA CHANNEL 0

- 1100/80 IOU's Using A Block Multiplexor Channel

NODE I0MOD1 IS CHBEBM AND CONNECTS TO IOU0 VIA CHANNEL 0

- 1100/60 or 1100/70 IOU's Using A Block Multiplexor Channel

NODE I0MOD0 IS CHBEBM AND CONNECTS TO IOU0 VIA CHANNEL 0

- 1100/90 or 2200 IOP's Using A Block Multiplexor or FIPS Channel

NODE I0MOD0 IS CHBMX AND CONNECTS TO IOP0 VIA CHANNEL 0

- System 11's Using A Block Multiplexor Channel

NODE BMC0 IS BMC,41

Type 2 On-Site Configuration SGS's - Sub-Channel

Next, select an available sub-channel address for the printer's control unit and also a device address for the printer. Then, decide on the system mnemonics to be used for the printer and its control unit, and create the NODE statements to define both. The following are examples of these statements for different Unisys processors:

- For control units connected to an 1100/80, 1100/60 or 1100/70:

NODE CUXPR1 IS SYMSUB AND CONNECTS TO I0MOD0 VIA SUB-CHANNEL 6

- For control units connected to an 1100/90 or 2200:

NODE CUXPR1 IS SYMSUB AND CONNECTS TO I0MOD0 VIA SUB-CHANNEL 14

- For control units connected to a System 11:

NODE CUXPR1 IS SYMSUB AND CONNECTS TO BMC0 VIA SUB-CHANNEL 6

- The NODE statement to define a printer is the same for all Unisys processors:

NODE XPR1 IS SYMDEV AND CONNECTS TO CUXPR1 VIA DEVICE-ADDRESS 0

Type 2 Symbiont Class SGS's

The first Type 2 Symbiont Class SGS to be added is the TERM statement, which defines onsite paper peripherals to your Unisys 1100/2200. Next, the DEVICE statement should be added to describe your printer. (The DEVICE statement is used by SPIN-X Central but not by Xpress). Commonly, sites using SPIN-X Central configure the printer as a Unisys 0770 or 0776 printer. The following is an example of the TERM and DEVICE statements needed to define the printer:

```
. XPR1 is a dummy printer
  TERM CUXPR1 BYTEMUX
  DEVICE XPR1, 0, CUXPR1 PRINTER, 770 PRI, 00 66, 132, 6, 6, 3
```

Output SGS's

Finally, you must include an OUTPUT SGS for each print queue associated with the printer. For example, the OUTPUT SGS's shown below would be used to define the default set of queues which match the print formats found in the distributed Format Definition File.

Examples:

```
OUTPUT XPR01 XPR1
OUTPUT XPR02 XPR1
OUTPUT XPR03 XPR1
OUTPUT XPR04 XPR1
OUTPUT XPRX XPR1
```

An OUTPUT SGS must be supplied for each print queue you wish to be associated with the XPRESS printer. These queues are then available to users via the third field of the @SYM command.

B.0.0.2 Updating the Format Definition File for Spin-X Central

If Central is used in conjunction with RPF, then FDP must be configured for RPF printers and queues. The SPIN-X Format Definition Program Input File, which is provided on the SPIN-X Central Release Tape for the 1100/2200, allows each site to specify the printing attributes to be associated with each print format. This file (*FDP-INPUT.), as supplied, defines a single RPF XPRESS printer, XPR1, and several print formats.

Two approaches may be taken with the FDP-INPUT file as supplied:

1. Use the supplied Format Definition File. In this case, you must use the supplied device mnemonic, XPR1, and existing format names, or...
2. Create a new Format Definition File which defines the new device mnemonic and/or print format names. In this case, it is necessary to modify the FDP-INPUT file and run the Format Definition Program to create the new Format Definition File. See the *SPIN-X Central Reference Guide* for more on this.

NOTE: Whenever the Format Definition Program is used to change the SPIN-X Central configuration, the output files generated must be copied to their corresponding production versions under the SYSS\$PRINTER\$ qualifier. The addstream FDP/TOPRODUCTION is provided in the Central release tape to copy the newly generated files to the appropriate production files. After this addstream is performed, the SPIN-X Central run must be brought down (if active) and back up for the changes to take effect. Refer to Chapter 3 of the *SPIN-X Central Reference Guide* for information about using the Format Definition Program with SPIN-X Central.

NOTE: If a single FDP-INPUT file is used for both RPF and Central, then the RPF FDP CDB, SERVER, QUEUE, and FORMAT commands should be appended to the **end** of the FDP-INPUT from the SPIN-X Central install. Once the new FDP commands are entered into FDP-INPUT, be sure to compile them using @FDP. For instructions on running FDP, see the *SPIN-X Central Reference Guide*.

The definitions supplied for Xpress in the *FDP-INPUT file from the SPIN-X Central Release Tape follow:

```
.EXAMPLE SPIN-X CENTRAL FORMAT COMMANDS FOR XPRESS FEATURE
.
Format Name=XPR01,LINES=66, TOP=6,BOT=3,DENSITY=6
.
Format Name=XPR02,LINES=88, TOP=8,BOT=4,DENSITY=8
.
Format Name=XPR03,LINES=132, TOP=6,BOT=3
.
Format Name=XPR04,LINES=6, TOP=0,BOT=0
.
    Example queue for 6 line address label jobs.
.
Format Name=XPRX,TRANSFER=BULK .This example queue is for file transfers
.
.
DEVICE NAME=XPR1,TYPE=XPRESS,OUTPUT=INTQ1
```

...where INTQ1 is the name chosen for the intermediate Queue between SPIN-X Central and the RPF Server. As with all other queues, INTQ1 must be configured in the Exec and the Operating System generated before FDP is run.

SPIN-X/RPF Installation Checklist

1. Operating System Levels.

Xpress will operate on any Unisys supported operating system.

2. Configure OS2200 with Station Local Queue Names.

** it is recommended that extra queues be configured to allow for growth without having to do additional system generations.

| | SAMPLE VALUE | SITE VALUE | COMPLETED |
|---|--------------|------------|-----------|
| 2.1 INPUT PRINT QUEUE (The queue name to which files are @SYM'd. One queue is configured for each Xpress format. | LS132 | | |
| 2.2 RPF Server Hold Queue | DSI9 | | |
| 2.3 INTERMEDIATE QUEUE for Central (if this product is also installed) | DSI1 | | |

3. Configure communications between the Xpress PC and the host.

This varies greatly from site to site - see Appendix B of the Xpress PC manual for the Unisys and Appendix C for the IBM. Chapter 8 of the Xpress manual covers the connectivity options for Xpress - there are many.

4. Install the RPF release tape as described in the manual.

5. Edit the FDP-INPUT file to define the client and queue names.

6. Execute FDP from the utility file to build the FDP database files.

7. Move the RPF component run-streams into sys\$lib\$*run\$. The RPF server must have SMOQUE\$ and KEYIN\$ privileges.