CR-5000

SWS Translator

Contents

Chapter 1 SWS Translator Overview

This chapter provides an overview of data conversion between SWS and System Designer , and describes the software configuration and the related SWS and System Designer files.

1.1 CR-3000/SWS to CR-5000/System Designer

This program converts SWS Schematic (symbols, circuit blocks, circuit sheets) into System Designer Schematic .

1.2 System Designer to CR-3000/SWS Standard ASCII Format

This program outputs System Designer Schematic in SWS ASCII FORMAT .

1.3 PMASTER (.PCP) to LCDB

This program converts the PMASTER into a LCDB , and creates the following files:

- Circuit design part library parameter file (.prf)
- Parts infomation file (.dbf)
- Component infomation file (.cmp)
- Search infomation file (.rlt)

The PMASTER specification has been modified since the release of Revision 11.0 of CR-5000/PWS.
Available are both a program to convert PMASTER of Revision 10 or earlier and that to convert PMASTER of Revision 11.0 or later.

1.4 LCDB to Component Property Definition File

This program converts the LCDB into the Component Property Definition File(PMASTER ASCII format).

Chapter 2　Basic Operation

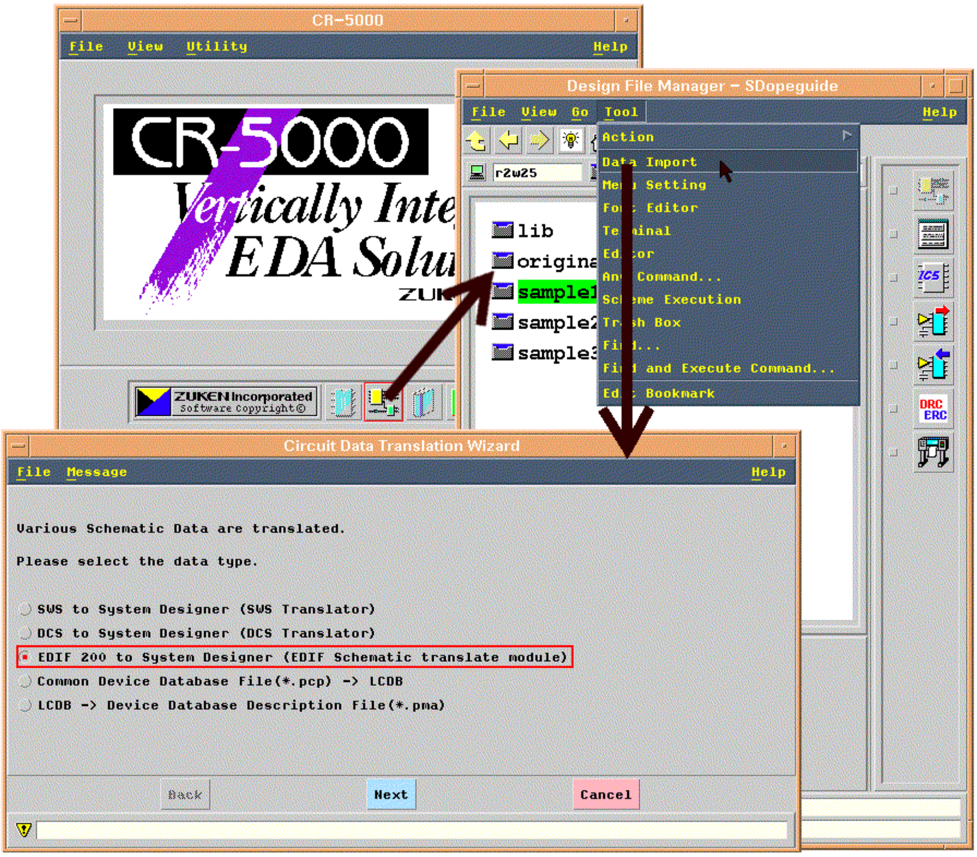
The Data Converter is a general-purpose tool that can register and easily execute batch programs for startup with options of a format specified by the CR-5000 . This chapter explains the data converter user interface.
SWS is composed of several batch programs. There are 3 method that these batch programs are triggered.
1st method is "Circuit data translation wizard".
The 2nd method is "Data converter".
The 3rd method is "Shell command".

2.1 Basic Operation of the Circuit Data Transration Wizard

2.1.1 Startup

The following command opens up the CR-5000 root menu.(UNIX only)

```
% cr5000 [Return]
```



Various Schematic Data are translated.

Please select the data type.

- ○ SWS to System Designer (SWS Translator)
- ○ DCS to System Designer (DCS Translator)
- ● EDIF 200 to System Designer (EDIF Schematic translate module)
- ○ Common Device Database File(*.pcp) -> LCDB
- ○ LCDB -> Device Database Description File(*.pma)

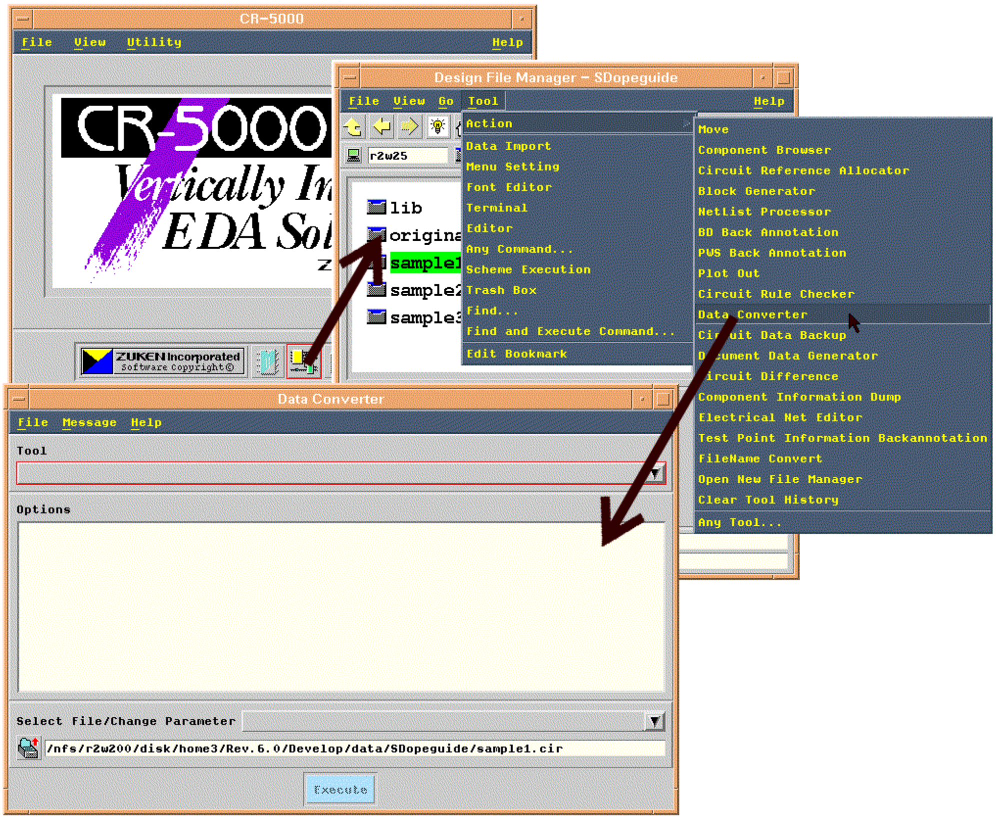
Click System Designer Icon on CR-5000 Root menu. Select menu File/Import on System Designer .

2.2 Basic Operation of the Data Converter Menus

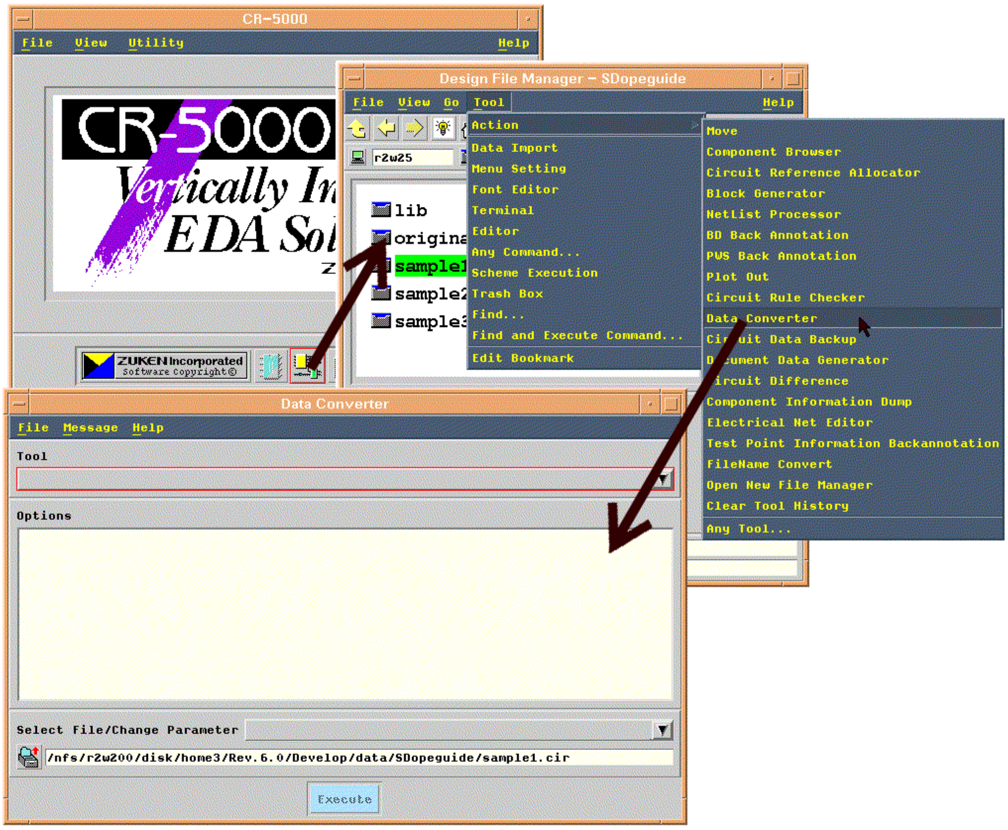
2.2.1 Startup

The following command opens up the CR-5000 root menu.(UNIX only)

```
% cr5000 [Return]
```



/nfs/r2w200/disk/home3/Rev.6.0/Develop/data/SDopeguide/sample1.cir



/nfs/r2w200/disk/home3/Rev.6.0/Develop/data/SDopeguide/sample1.cir

Click System Designer Icon on CR-5000 Root menu. Select target file (ex. circuit,sheet or any target file). Select menu Action/Data Converter.

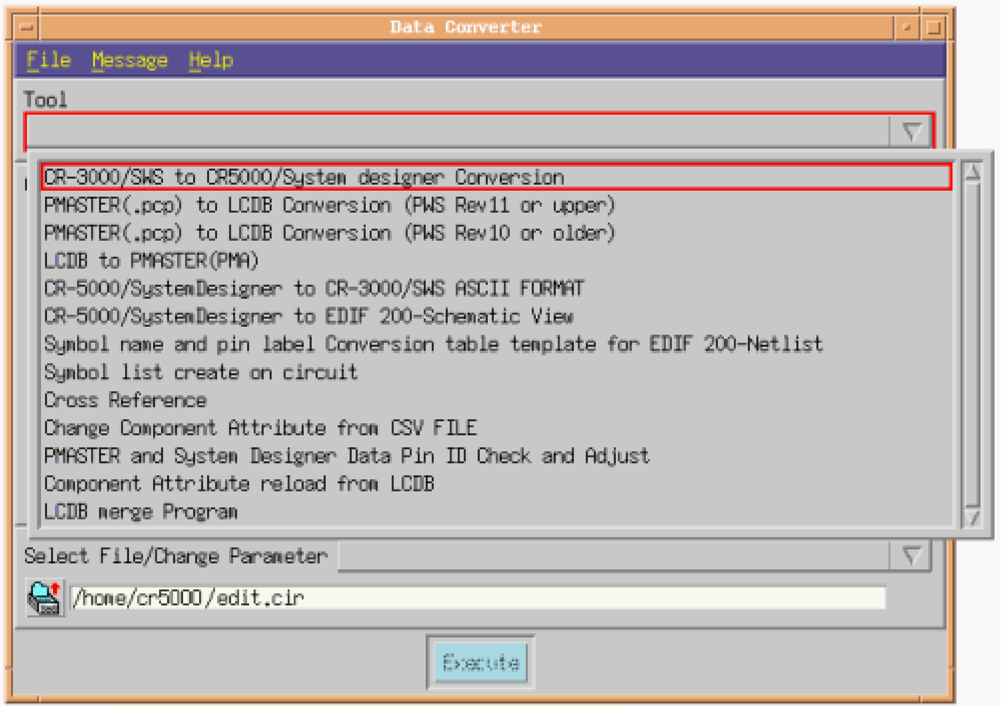
2.2.2 Quitting

If "File..."is selected from the Data Converter menu, a Pull-down menu appears. The tool can be quitted by selecting "Exit" from the Pull-down menu .

When quitting the tool, or when "Save" is selected from the Pull-down menu , a confirmation dialog box asking to confirm whether the List Box startup parameters are to be saved or not appears. If "Ok" is clicked, the parameter settings are saved in $HOME/CR5000/ds/battool.rsc.

2.2.3 Tool Selection

Select the desired tool from the tool selection Option list .



CR-3000/SWS to CR5000/System designer Conversion
PMASTER(.pcp) to LCDB Conversion (PWS Rev11 or upper)
PMASTER(.pcp) to LCDB Conversion (PWS Rev10 or older)
LCDB to PMASTER(PMA)
CR-5000/SystemDesigner to CR-3000/SWS ASCII FORMAT
CR-5000/SystemDesigner to EDIF 200-Schematic View
Symbol name and pin label Conversion table template for EDIF 200-Netlist
Symbol list create on circuit
Cross Reference
Change Component Attribute from CSV FILE
PMASTER and System Designer Data Pin ID Check and Adjust
Component Attribute reload from LCDB
LCDB merge Program

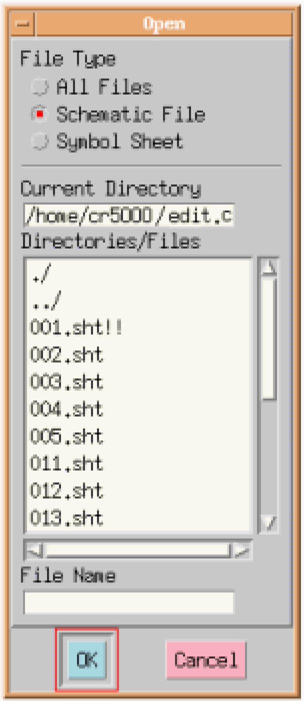
Select File/Change Parameter
/home/cr5000/edit.cir

When you select a tool, the system loads the activation parameters and displays a list of activation options in the list box.
The activation parameters are loaded from $HOME/cr5000/ds/battool.ini. If this file is not found, parameters are loaded from $ZDSROOT/info/bat tool.rsc.
For the tool target parameters, a file (directory) selected from the File Manager is set up. (It is not set up if the file extension of the target does not match the selected file.)

2.2.4 Changing the Startup Parameters

To copy a parameter you want to modify to the "File Selection/Parameter Change" column, click it in the list box. After making your modifications, press the RETURN key. The parameter is written back to the list box.
The history option list shows previously set parameters. Use this list when to reset a previously-used parameter. (A maximum of ten history parameters is stored in battool.ini.)

2.2.5 File Opener Selection



File Type
○ All Files
● Schematic File
○ Symbol Sheet

Current Directory
/home/cr5000/edit.c

Directories/Files
./
../
001.sht!!
002.sht
003.sht
004.sht
005.sht
011.sht
012.sht
013.sht

File Name

File Type

When parameters have defined extensions, the system will display files having appropriate extensions.
Only files having the appropriate extensions will appear in the list.

Directory Name

If the directory name field at the top of the File Opener is selected, a directory name can be input from the keyboard.
If either the check mark to the right of the field is selectedor the Return key is pressed, the filename and directory name appear underneath.
If the X mark is selected, the original directory name is restored.
The directory name can also be selected using the list described below.

List

The area in the center of the File Opener where filenames and directory names are displayed is the opener list.
A file can be selected by single-clicking on the filename and then either clicking the "Ok" button or pressing the Return key. The file can also be selected by double-clicking on the filename.

The filename appears in the filename field at the bottom of the File Opener .
If a directory name is double-clicked, the filenames and directory names that reside within that directory appear in the list.

Button

If the "Ok" button is clicked, the filename selection is finalized.
If the "Cancel" button is clicked, the File Opener disappears and the original screen reappears.

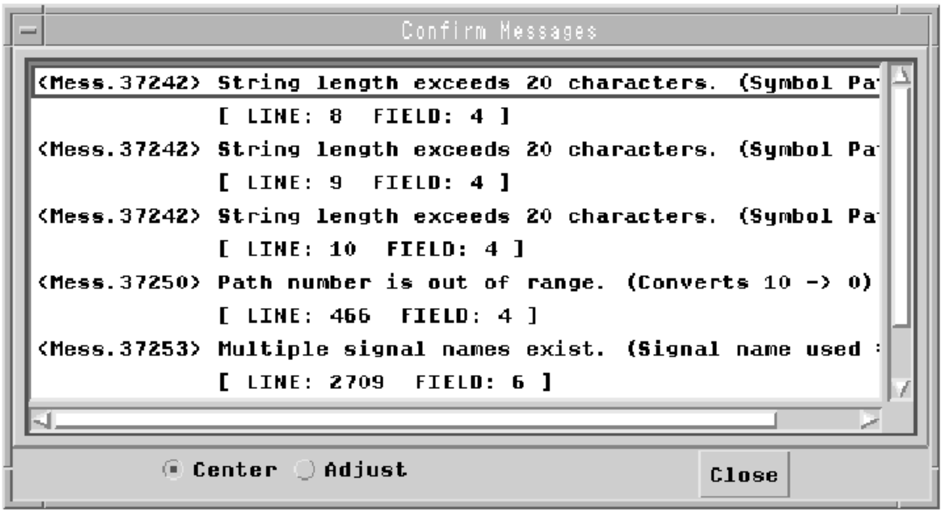
2.2.6 Tool Execution

Once all parameters have been set, the tool can be started up by clicking the "Execute" button.
When starting up or quitting a tool, a guide message is displayed. After confirming the message, click the "Ok" button.

2.2.7 Error and Warning Message Confirmation

Click on "Error" or "Warning" in the Pull-down menu .

When the program has created an "error" or "warning" file ("program name + wrn" or "program name + err"), the contents are displayed in the following message confirmation dialog box .



```
<Mess.37242> String length exceeds 20 characters. (Symbol Pa
             [ LINE: 8  FIELD: 4 ]
<Mess.37242> String length exceeds 20 characters. (Symbol Pa
             [ LINE: 9  FIELD: 4 ]
<Mess.37242> String length exceeds 20 characters. (Symbol Pa
             [ LINE: 10  FIELD: 4 ]
<Mess.37250> Path number is out of range. (Converts 10 -> 0)
             [ LINE: 466  FIELD: 4 ]
<Mess.37253> Multiple signal names exist. (Signal name used :
             [ LINE: 2709  FIELD: 6 ]
```

● Center ○ Adjust

When an object ID is output to the error and warning file, clicking that ID allows you to select the corresponding object. (The appropriate circuit sheet must be open.)

Chapter 3 Functions and Operation of Each Tool

This chapter explains the function and operation of each tool included in SWS Translator .

3.1 CR3000/SWS to CR-5000/System Designer Conversion Program

3.1.1 Procedure

The procedure for converting SWS Schematic (Symbol file , Block file , Schematic sheet file) into System Designer Schematic is as follows.

- Start up Data Converter .
- Select the desired tool from the tool selection Option list .
- Set the startup parameters.
- Click the "Execute" button and start up the tool.

3.1.2 Parameter Settings

This section explains the parameters that are required in order to start up CR-3000/SWS to CR-5000/System Designer.
CR-3000/SWS to CR-5000/System Designer has the four following modes.

(1) Conversion of SWS symbols into System Designer symbols
If an SWS symbol is specified as a Target , that symbol is converted into a System Designer symbol and symbol name ".smb" is created in the same directory. This is a System Designer symbol.
SWS symbols can have up to four figures. System Designer symbols cannot have multiple graphics, so multiple symbols are created according to the following rules.

```
Symbol file LS04 figure number 0 -> LS04.smb
            LS04 figure number 1 -> LS04_1.smb
            LS04 figure number 2 -> LS04_2.smb
            LS04 figure number 3 -> LS04_3.smb
```

If a directory containing an SWS symbol is specified as a Target , the symbols in that directory are converted as a batch, and the System Designer symbols are created within the same directory.

(2) Conversion of a SWS Schematic sheet file into a System Designer Schematic sheet file
If a SWS Schematic sheet file (filename + 001 to 256) is specified as the Target ,"file name + .cir" is created in the System Designer circuit directory, and Schematic sheet file (sheet number + ".sht") is created in this directory.
If a SWS Schematic sheet file is specified without a sheet number, all sheets are converted.

```
Circuit sheet  sample.001    -> sample.cir/001.sht
sample.002    -> sample.cir/002.sht
sample.256    -> sample.cir/256.sht
```

(3) Conversion of a SWS Block file into a System Designer Block file
If SWS Block file (file with "=") is specified as the Target , a System Designer circuit directory, "block filename + .cir" (excluding "="), and System Designer Block file file and symbol are created.

```
Circuit block = block.001    -> block.001.smb
                block.001    -> block.001.cir/001.sht
                             -> block.001.blk
```

(4) Conversion of SWS Schematic into System Designer Schematic
If an SWS circuit directory is specified, all circuit sheets in that directory and all blocks and symbols used are converted as a batch.

Property conversion file

The property conversion table file maps out which SWS properties (element name,tentative name, circuit symbol, etc.) are to be converted to which properties of the CR-5000 circuit design system. It also defines various options. If the property conversion table is not specified, $ZDSROOT/etc/eng/swstrans.htb is used instead.

Target

Specifies the SWS circuit sheet, symbol sheet, block file, or directory. Because the target depends on the mode, refer to the mode descriptions provided earlier.

(Caution)
The abbreviated element name correspondence file (DEF_DEVN) has been changed.
Starting with Rev 4.0, it is described in the property conversion table.

3.1.3 Property conversion table

The property conversion table file maps out which SWS properties (element name,tentative name, circuit symbol, etc.) are to be converted to which properties of the CR-5000 circuit design system. It also defines various options.
The SWS property conversion table file name must have the following format: any eight alphanumeric characters + file extension .htb.
Lines preceded by # will be regarded as comment lines.

Conversion Definitions Related to Property Names and Viewers

You are responsible for defining the rules for conversion of SWS properties to System Designer properties. Properties not annotated here are not converted.

Syntax

```
$SwsZdsKey
{
( field1 field2 field3 field4 field5 field6 )
}
```

Contents of fields.

field 1: Keyword of SWS property

field 2: Property name of System Designer

field 3: ID (integer from 1 to 32) of property viewer
- A viewer is not generated when "-" (minus) is specified.
- If a set ID number has the same the number as another property, a number that has not been used is automatically set as the ID number.

field 4: Viewer generation flag
- This flag is referred to only during symbol conversion.
- It generate viewer in the specified position when a symbol contains no property.
- DEF1: Generates a viewer at reference point 1.
- DEF2: Generates a viewer at reference point 2.
- ORG : Generates a viewer at the symbol origin.
- OFF : Generates no viewer.

field 5: Property viewer display flag
- ON : Forcibly turns on the viewer display.
- OFF : Forcibly turns off the viewer display.
- DISP: Results in the same display as shown in SWS circuit.

field 6: Specification of property viewer color
- DISP : Displays in the color specified by the color number of SWS common information. (A unified flag is also valid.)
- -1 : Displays in the default color of System Designer.
- 0-15 : Specified color number

Syntax

```
$SwsZdsKey
{
( field1 field2 field3 field4 field5 field6 )
}
```

Contents of fields.

field 1:	Keyword of SWS property
field 2:	Property name of System Designer
field 3:	ID (integer from 1 to 32) of property viewer A viewer is not generated when "-" (minus) is specified. If a set ID number has the same the number as another property, a number that has not been used is automatically set as the ID number.
field 4:	Viewer generation flag This flag is referred to only during symbol conversion. It generate viewer in the specified position when a symbol contains no property. DEF1: Generates a viewer at reference point 1. DEF2: Generates a viewer at reference point 2. ORG : Generates a viewer at the symbol origin. OFF : Generates no viewer.
field 5:	Property viewer display flag ON : Forcibly turns on the viewer display. OFF : Forcibly turns off the viewer display. DISP: Results in the same display as shown in SWS circuit.
field 6:	Specification of property viewer color DISP : Displays in the color specified by the color number of SWS common information. (A unified flag is also valid.) -1 : Displays in the default color of System Designer. 0-15 : Specified color number

Key words indicating SWS properties are as follows:

swsPropertyKey	SWS property
DEVN	Device name
FUNCN	Temporary name
REFN	Reference name
SYMBOLID	Symbol ID
SIGN	Signal name (including path name)
LABELn[a]	Label
PIN_NAME	Pin name
PIN_NO	Pin number
COMP_KIND[b]	Symbol attributes
COMP_TYPE[b]	Symbol attributes

[a] 1 to 255 can be specified for label number n.
[b] Must be included in description.

Table 3.1 Reserved Keywords for SWS Property Conversion Tables

For multiple labels having the same label number, the system will convert the labels to the following format: "Property name" + "" + "Numeric value."
For example,given three labels with label No. 5, converting "LABEL5" to "sdlabel" will convert the labels to the three property names of sdlabel, sdlabel_1, and sdlabel_2.

Conversion Definitions Related to Object Colors and Fill Pattern

Color information can be specified for each object type. Change the settings only when you want to manipulate the color numbers of each object for conversion.

Syntax

```
$ObjectsColor
{
   ( field1 field2 field3 )
}
```

Contents of fields.

field 1:	Specification of object type SYMBOL : Symbol BLOCK : Block symbol TEXT : Character text SIG_LINE : Net BUS_LINE : Bus LINE : Line CIRCLE : Circle and circular arc HATCHING : Paint
field 2:	Specification for object color DISP : Displays in the color specified by the color number of SWS common information. (A unified flag is also valid.) -1 : Displays in the default color for System Designer. 0-15 : Specified color number
field 3:	Specification of paint type (Only paint conversion)

Symbol Path Correspondence Table

The table defines which of the Symbol Path Nos. (0 - 4) of SWS should be assigned to which System Designer Symbol Path No.

Syntax

```
$SymbolPath {
    ( field1 field2 )
}
```

Contents of fields.

field 1:	Symbol path numbers (0 to 4) in SWS
field 2:	Symbol path numbers in System Designer corresponding to the symbol path numbers in SWS

Block Path Correspondence Table

The table defines which SWS Block Path Nos. (0 - 4) should be assigned to which System Designer Block Path No.

Syntax

```
$BlockPath {
   ( field1 field2 field3 )
}
```

Contents of fields.

field 1:	Block path number in SWS.(0 to 4)
field 2:	Block path number in System Designer corresponding to the block path number in SWS for block symbol.

Character Table Correspondence Table

The table defines which SWS Character Table Nos. should be assigned to which System Designer Text Table No.

Syntax

```
$TextTableNo {
   ( field1 field2 field3 )
}
```

Contents of fields.

field 1:	SWS text table number.
field 2:	Text table number in System Designer for font numbers 0 and 1 (ASCII) of SWS
field 3:	Text table number in System Designer for font number 9 (2 byte code) of SWS

Fill Pattern Table Correspondence Table

This table can be viewed only when you select DISP for the fill pattern type under the $ObjectsColor HATCHING item. When the hatching is converted by DISP,type0 will display only a frame, and type1 will display solid fill pattern. Since this is quite different from SWS images, defaults type0 and type1 have been set to 2.

Syntax

```
$FillStyle {
  ( field1 field2 )
}
```

Contents of fields.

field 1:	Hatching types (0 to 3) in SWS
field 2:	Paint numbers (0 to 3) in System Designer

Character string of drawing number added to symbol name

```
AND    -> AND.smb AND_1.smb AND_2.smb ...
AND_1  -> AND_1.smb AND_1_1.smb AND_1_2.smb ...
```

This setting helps to avoid symbol name duplication.

Syntax

```
$FigureStr {
( field1 field2 )
}
```

Contents of fields.

field 1:	Drawing numbers (0 to 3) in SWS
field 2:	Character string of drawing number added to symbol name

Other Conversion Options

The table defines various options available for conversion. Specified with arguments in earlier versions up to Rev.3.1, the abbreviated element name correspondence file (DEF_DEVN) has now been changed. It is described in this table.

Syntax

```
$SwsZdsOption {
( field1 field2 )
}
```

Contents of fields.

field 1:	Option name
field 2:	Value of option

Name of Option	Setting for Option	Remarks
DEF_DEVN	Abbreviated Element Name Definition File	Describe an absolute path.
COPY_DEVN	Element name copying property name	Describe the property name if you wish to copy an original element name existing before application of the Abbreviated Element Name Definition File to another property.
DATA_RSC	Data resource to be refered	If no resource is specified, the master is refered.
ENV_RSC	Environment resource to be refered	If no resource is specified, the master is refered.
RSC_MODE	Handling of data and environment resource	reference: Only the specified resource is refered. copyOnly : Only the specified resource is locally copied. copyWrite: The specified resource is locally copied, and the common SWS information is added to the resource. (Same as in the former Specification)
ERR_SKIP	ON / OFF	ON: Error processing is skipped, except for vital errors.
DRAW_HOLINE	ON / OFF	ON: An outline of a non-convertible hatching is drawn.
FIT_TABLE10	ON / OFF	ON: Text table No. 10 is changed to an approximate table number.
DELETE_ASIGN	ON / OFF	ON: An automatic SWS signal name is converted unchanged to the net label.

Table 3.2 Names of Conversion Options

3.1.4 Restrictions

(1) Hatching

- Hatching Type
  The Data resource default are used for the Hating Type.
- Hating Window
  Can not convert its have window.(Warning message output)
  Can not convert its crossing self.(Warning message output)

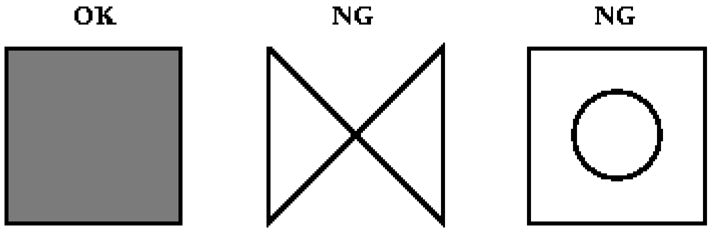


Figure 3.1 Hating Example

(2) Colors
The Data resource default colors are used for the display colors of graphics and properties.

(3) Text table (Text table Number 10)
SWS Text table No.10 changable Height and Width free size. But System Designer do not have such free size table.
Therefore, the text size after transration may differ substantially from the text size of a original circuit. (Warning message output)

3.2 CR-5000 Circuit Data to SWS Standard ASCII Format Conversion Program

3.2.1 Procedure

The procedure for converting SWS Schematic (symbols, circuit blocks circuit sheets) into System Designer Schematic described below.

- Start up Data Converter .
- Select the desired tool from the tool selection Option list .
- Set the startup parameters.
- Click the "Execute" button and start up the tool.

3.2.2 Parameter Settings

This section explains the parameters needed for System Designer to CR-3000/ SWS Standard ASCII Format startup.

Property conversion file

The Property conversion file defines which System Designer properties the SWS properties (device names, temporary names, circuit symbols, etc.) are converted into.
The conversion direction is the opposite of CR-3000/SWS to CR-5000/System Designer .
If this file is not specified, $ZDSROOT/etc/SwsPrDef.htb is used.

Target

Specifies either a Schematic (.cir), a Schematic sheet file (.sht), a symbol sheet(.smb),a block file (.blk) or a directory.
The file type of the target is determined according to the suffix.
When Specifies Top Schematic (.cir), this program convert All data.(circuit,blocks,symbols).

When Specifies symbol library directory, this program convert all symbols in that directory.

Output file

Target	option value
Schematic sheet file (.sht)	output file
Symbol sheet(.smb)	output file
block file(.blk)	output file
Schematic (.cir)	output directory
Symbol Library directory	output directory

Table 3.3 How to Specify output option

When target is Schematic (.cir) or directory,this program output in Specified directory.

(1) Schematic (.cir)
(example) XXXX.cir/001.sht, 002.sht -> /output/XXXX_1.ssf, XXXX_2.ssf

(2) directory
(example) /symb/R.smb, C.smb .... -> /output/R.ssf, C.ssf, ...

3.2.3 Conversion Data

Follows SWS ASCII FORMAT.

3.2.4 Property Conversion Table

In earlier versions up to Rev. 3.1, the property conversion table file was shared with the SWS circuit -> CR-5000 circuit translation program. From Rev.4.0 on, a dedicated file (swstrans.htb) served as the property conversion table for the SWS circuit -> CR-5000 circuit translation program. SwsPrDef.htb now serves exclusively for the CR-5000 circuit data -> SWS standard ASCII format translation program.

The property conversion table description format is described below.
The property conversion table file name must have the following format: any eight alphanumeric characters + file extension .htb.
A line within the file corresponds to one property name and must be described in $SwsZdsKey, with each line comprising four fields.
Lines preceded by # are regarded as comment lines.

The CR-5000 circuit data -> SWS standard ASCII format translation program does not use a CR-5000 pViewerID and display flag having the following syntax.

Syntax
(swsPropertyKey CR-5000PropertyName CR-5000pViewerID displayFlag)

Field contents

swsPropertyKey	: Keyword indicating an SWS property
CR-5000PropertyName	: Property name after conversion
CR-5000pViewerID	: Property viewer number (1 to 32)
displayFlag	: Property viewer display ON/OFF

An example of the description of Property conversion file is shown below.

```
Example)
   ##########################################################
   #
   #    SWS's KeyWord     Property   PViewerId    display
   #
   ##########################################################

   $SwsZdsKey {
      ( DEVN              partName          1        ON )
      ( FUNCN             function          2        OFF )
      ( REFN              reference         3        ON )
      ( SYMBOLID          layoutName        4        OFF )
      ( SIGN              netLabel          1        ON )
      ( PIN_NAME          pinLabel          1        ON )
      ( PIN_NO            pinNumber         2        ON )
       ( COMP_KIND        componentKind     -        ON )
       ( COMP_TYPE        componentType     -        ON )
   }
```

The keywords that indicate SWS properties are as follows:

Table 3.4 Reserved Keywords for SWS Property Conversion Tables

swsPropertyKey	SWS property
DEVN	Device name
FUNCN	Function name
REFN	Reference
SYMBOLID	Symbol ID
SIGN	Signal name (including BUS name)
LABELn[a]	Label
PIN_NAME	Pin name
PIN_NO	Pin number
COMP_KIND[b]	Symbol attributes
COMP_TYPE[b]	Symbol attributes

[a] 1 to 255 can be specified for label number n.
[b] Must be included in description.

3.2.5 Restrictions

(1) Maximum value for numeric portion of automatically generated signal name "SIGMAX"
This is reset to "0".

(2) Symbol path
SWS is limited to a file path name of 20 characters. Even if the symbol path exceeds 20 characters, processing continues and a warning message indicating that the 20 character limit was exceeded is output.

(3) Common path
Data resources No. 0 to No. 4 are used as a common path.

(4) Number of characters
Even if the property value exceeds limit length, processing continues and a warning message indicating that the limit was exceeded is output.

(5) Unusable character

Even if the unusable character for SWS (ex. 2 byte character), processing continues and a warning message output.

(6) Attribute character string

Table 3.5 Attribute Character String Restrictions

Keyword	Restriction
property viewer(value length_0)	Not output
Horizon/vertical flag	Judge Horizon/verticality from the angle , or parents object angle.
Font Number	Fix 0 (SWS default. If 2 byte code Fix 9)

(7) Components (SYM records)

Table 3.6 SYM Record Restrictions

Keyword	Restrictions
Symbol file name	Warning output if exceeds at 14 characters
Circuit symbol offset	SWS default "1"
Alignment reference point	Component origin

(8) Block files

When creating an SWS block file (= circuit name.xxx), specify a System Designer block file (.blk) as the Target . Note that conversion is not possible if the symbol sheet (.smb) is not in the same directory as the block file (.blk).

(9) Signal lines

Signal lines with a length of "0" arise in circuits such as that shown in Fig. 3.3 where pins are connected directly to one another, or in circuits where a pin is connected to a construct point in the middle of a signal wire. SWS does not permit connection of diagonal signal lines to "T"-shaped or "+"-shaped nodes. When this type of signal wire is input to the ASCII input program, abnormal data may be generated. When using System Designer to CR-3000/SWS Standard ASCII Format to convert a circuit to SWS, avoid connections such as those shown in Fig. 3.3.

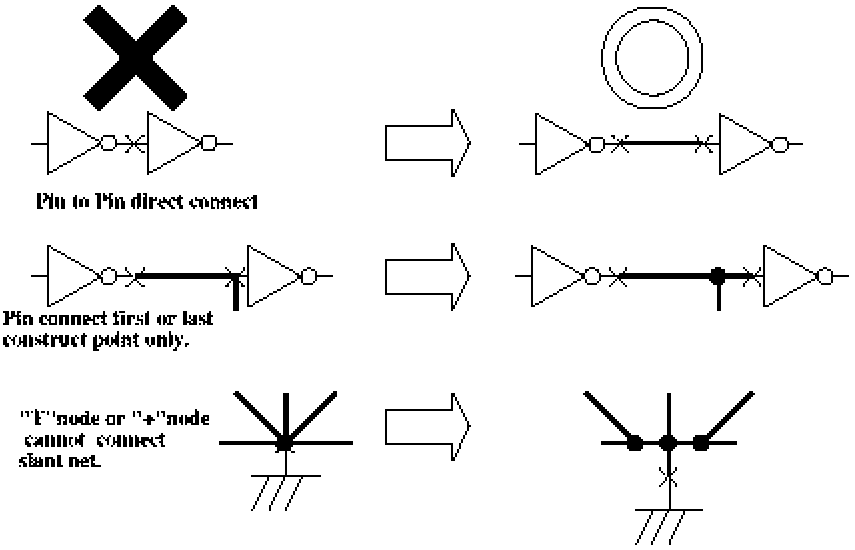

Pin to Pin direct connect
Pin connect first or last construct point only.
"T"node or "+"node cannot connect slant net.

Figure 3.2 Signal Wire Restrictions

(10) About connection Pin and signal

In the case that the circuit figure is transformed with the form ASCII input program of SWS , the connection between a terminal and signal line may inconnect. As for this the terminal number of the symbol of SWS , occurs from 1 in the case that continuously be not a number. Please implement the batch program Conn-All of SWS , in the case that such unconnection condition occurred.

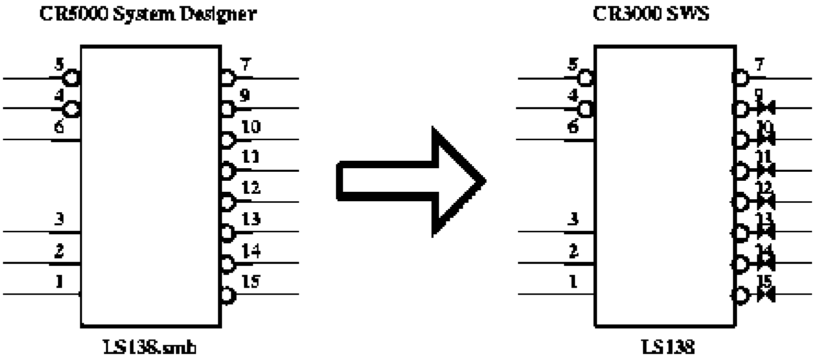


Figure 3.3 Case of Unconnection

3.3 PMASTER (.PCP) to LCDB

This program converts the PMASTER into a LCDB , and creates the following files.

- Circuit design part library parameter file (.prf)
- Parts infomation file (.dbf)
- Component infomation file (.cmp)
- Search infomation file (.rlt)

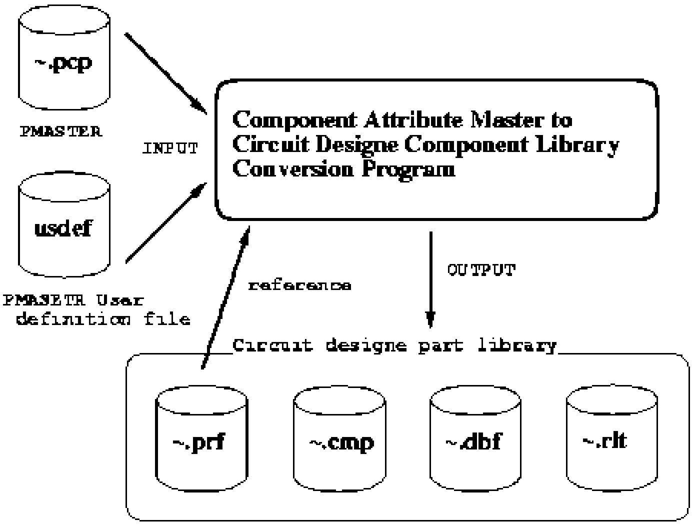

~.pcp
PMASTER
usdef
PMASETR User definition file
INPUT
Component Attribute Master to Circuit Designe Component Library Conversion Program
reference
OUTPUT
Circuit designe part library
~.prf
~.cmp
~.dbf
~.rlt

Figure 3.4 PMASTER (.PCP) to LCDB Functions

(Caution)
The part property master format has been modified since PWS Rev11. Since versions following Rev11 and earlier versions through Rev10.2 are not binary compatible, two programs are provided. Check your PWS version and select the appropriate program.

3.3.1 Procedure

The procedure for converting the PMASTER to an LCDB is described below.

- Start up Data Converter .
- Select the desired tool from the tool selection Option list .
- Set the startup parameters.
- Click the "Execute" button and start up the tool.

3.3.2 Parameter Settings

This section explains the parameters needed for PMASTER (.PCP) to LCDB startup.

Circuit design part library parameter file

Circuit design part library parameter file is the file where described the data structure of LCDB .
When I designate LCDB , addition write is possible.

User definition file

A User definition file contains descriptions of user-defined items in the PMASTER .
When I designate User definition file , user definition item can output to the part information file (.dbf).
For details, refer to the CR-3000 User’s Manual.

3.3.3 Conversion Data

The items in Table 3.7 are converted from PMASTER to LCDB .

The data that is transformed complies with the definition of Circuit design part library parameter file.

Table 3.7 Items Converted from the PMASTER to the LCDB

LCDB	output file	PMASTER
cdbName	.dbf	Device name
partName	.dbf	Device name
functionName	.cmp	Symbol name[a]
componentName	.dbf	[b]
isCommonTerminal	.cmp	Common pin attributes
pinNumber	.cmp	External pin number
pinLabel	.cmp	[c]
highInCurrent	.cmp	HIGH level maximum input current
lowInCurrent	.cmp	LOW level maximum input current
highOutCurrent	.cmp	HIGH level maximum output current
lowOutCurent	.cmp	LOW level maximum output current
[d]	.dbf	User-defined items
componentType	.cmp	[e]
gateCount	.cmp	Number of gates
equivalence	.cmp	Equivalent pin definition
io[f]	.cmp	Power/ground/unused pin attributes, terminal input/output attributes

[a] Refer to conversion rule 1.
[b] Refer to conversion rule 2.
[c] Refer to conversion rule 3.
[d] Refer to conversion rule 4.
[e] Refer to conversion rule 5.
[f] Refer to conversion rule 6.

- Conversion rule 1 (functionName conversion rule)
  Depending on the type, components may or may not be converted.

Converted	Not converted
Gate	Power supply box
Component package (1 symbol)	Component package

- Conversion rule 2 (componentName conversion rule)
  Component names are converted after processing the PMASTER data. Components are classified into three types (gates, component packages, power supply boxes) and are then converted as shown below.

Component type	Conversion rule
Gate	Device name +"_"+ symbol name
Component package	Device name +"_package"
Power supply box	Device name+".pbox"

- Conversion rule 3 (pinLabel conversion rule)
  The conversion data differs according to the component type.

Component type	Conversion rule
Gate	Pin name
Component package	External pin name
Power supply box	Pin name

- Conversion rule 4 (User-defined item conversion rule)
  When the user definition item transforme,please designate a user definition file (usdef).
  When new LCDB crate, this program write the labels in User definition file to the Circuit design part library parameter file automatically
  When additional write to LCDB , only transform the label of Circuit design part library parameter file and User definition file agreed.

- Conversion rule 5 (componentType conversion rule)
  A component type decides from a SWS component differentiation.

Component type	componentType
Gate	gate
Component package	parts
Power supply box	gate

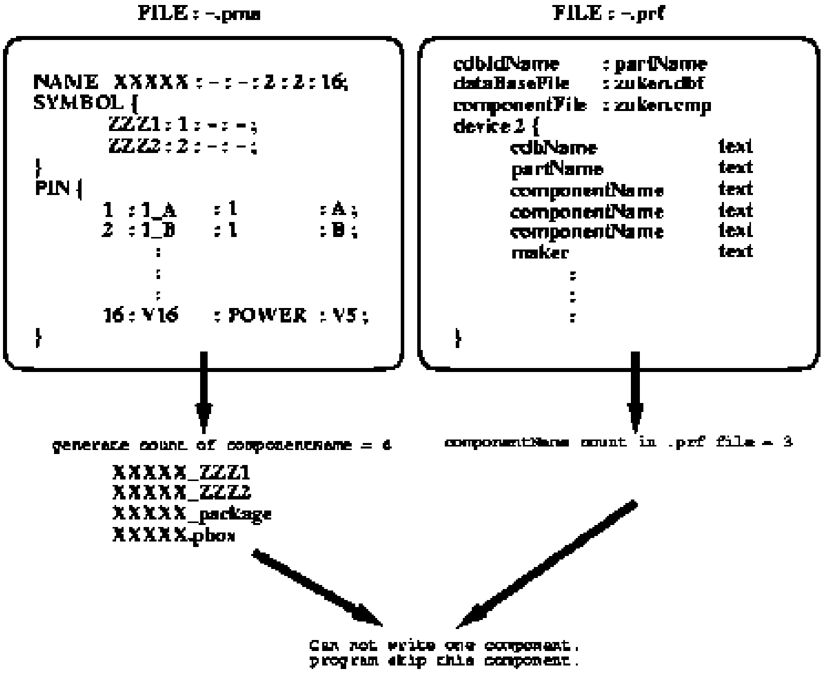
- Conversion rule 6 (io conversion rule)
  In PMASTER , the power supply and ground and unused pin attributes are contained in the external pin information (PIN) while the pin input/ output attributes are contained in the pin attribute information (IO_CURRENT). In the LCDB , the information is contained in the property "io".

Attributes	Property "io"
Power supply pin attributes	VCC
Ground pin attributes	GND
Unused pin attributes	NC
Pin attributes (input)	INPUT
Pin attributes (output)	OUTPUT
Pin attributes (input/output)	BIDIRECT

3.3.4 Restrictions

- 2 byte character code (In user definition item)
  LCDB can not use 2 byte character code.
- Duplicate of "cdbName","componentName"
  When write to LCDB of established addition and designate a prf file, In the case that cdbName and componentName of the redundancy name occurred doing warning output the processing to a corresponding element is skipped.

- In the case that the number of componentName is not sufficient.
  When component number(that is made from 1 element of pmaster) is more than number of' componentName' in .prf the processing to a corresponding element is skipped.



```
NAME  XXXXX : - : - : 2 : 2 : 16;
SYMBOL {
        ZZZ1 : 1 : - : -;
        ZZZ2 : 2 : - : -;
}
PIN {
       1  : 1_A     : 1          : A ;
       2  : 1_B     : 1          : B ;
              :
              :
              :
       16 : V16     : POWER  : V5 ;
}
```

```
cdbIdName        : partName
dataBaseFile     : zuken.dbf
componentFile    : zuken.cmp
device 2 {
        cdbName                  text
        partName                 text
        componentName            text
        componentName            text
        componentName            text
        maker                    text
                :
                :
                :
}
```

```
generate count of componentname = 4
        XXXXX_ZZZ1
        XXXXX_ZZZ2
        XXXXX_package
        XXXXX.pbox
```

```
componentName count in .prf file = 3
```

```
Can not write one component.
program skip this component.
```

Figure 3.5 Case of componentName count is not sufficient.

3.4 LCDB to Component Property Definition File

This program converts an LCDB into a PMASTER (.pma).

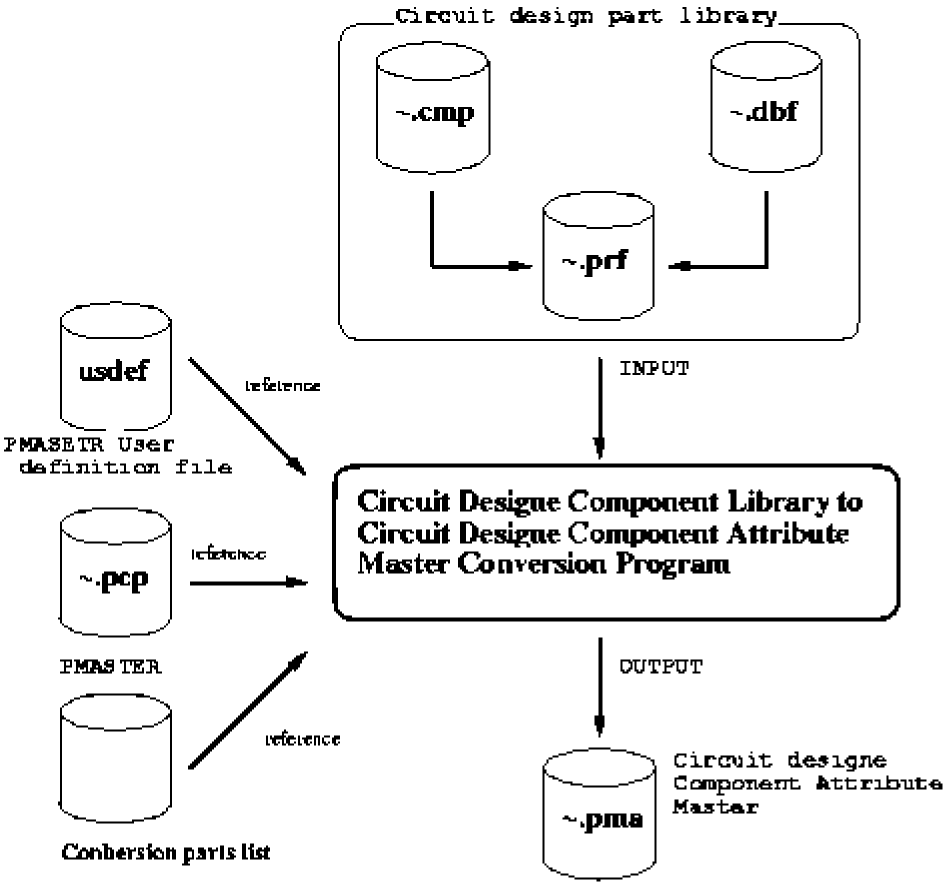

Circuit design part library
~.cmp
~.dbf
~.prf
INPUT
usdef
PMASETR User definition file
reference
~.pcp
reference
PMASTER
reference
Conbersion parts list
Circuit Designe Component Library to Circuit Designe Component Attribute Master Conversion Program
OUTPUT
~.pma
Circuit designe Component Attribute Master

Figure 3.6 LCDB to Component Property Definition File Functions

3.4.1 Procedure

The procedure for converting the LCDB to a PMASTER (.pma) is described below.

- Start up Data Converter .
- Select the desired tool from the tool selection Option list .
- Set the startup parameters.
- Click the "Execute" button and start up the tool.

3.4.2 Parameter Settings

This section explains the parameters needed for LCDB to Component Property Definition File startup.

Automatic NC pin creation for numeric value pin numbers

The system automatically creates empty pin numbers as NC (No-connect) for parts that use pin numbers of integral values 1 or greater.

Circuit design part library parameter file

Circuit design part library parameter file is the file where described the data structure of LCDB .
Please designate this file without fail.

User definition file

A User definition file contains descriptions of user-defined items in the PMASTER .
When I designate User definition file , user definition item can output to the part information file (.dbf).
For details, refer to the CR-3000 User’s Manual.

Conversion library choise file

The Conversion library choise file is used when selecting the necessary devices from among those registered in the LCDB and outputting them to the PMASTER (.pma). If all devices are to be output, it is not necessary to specify this file. The Conversion library choise file contains one cdbName per line.

```
Example)
        SN74HC00
        SN74HC01
        SN74HC02
        SN74HC04
```

3.4.3 Conversion Data

The items in Table 3.8 are converted from the LCDB to the PMASTER.

Table 3.8 Items Converted from the LCDB to the PMASTER

LCDB	PMASTER (.pma)
partName	Device name
functionName	Symbol name
isCommonTerminal	Common pin attribute
pinNumber	External pin number
pinLabel[a]	Pin name
pinLabel[b]	Pin name
pinLabel[c]	External pin name
highInCurrent	HIGH level maximum input current
lowInCurrent	LOW level maximum input current
highOutCurrent	HIGH level maximum output current
lowOutCurent	LOW level maximum output current
gateCount	Number of gates
equivalence	Equivalent pin definition
io	Power/ground/unused pin attributes,terminal input/output attributes
Device property[d]	User-defined item

[a] pinLabel of Gate component
[b] pinLabel of parts component
[c] External pin names are automatically generated as "PIN + serial number".
[d] ditem in .dbf file(Can not convert without User definition file)

The following items are in the PMASTER but are not in the LCDB, so they are not converted.

Table 3.9 Items That Are in the PMASTER But Not in the LCDB

PMASTER
"Component level" in basic component information
"Logic" in basic component information
"Maximum current consumption" in current information

The following items are in the LCDB but are not in the PMASTER, so they are not converted.

Table 3.10 Data That Is Not converted

LCDB data
cdbName
comoonentName
symbolName
blockName
cpin[a]

[a] Properties newly added to the pin section by the user

3.4.4 Restrictions

The following item becomes an error with pmreg, although processing is continued and become all the Warning handling and be not able to make may cause the obstruction pcp and also to the application with PWS PMASTER. Please modify lcdb.

- Capital and Small characters
  PMASTER is controlling data with all the capital letter. (User definition item except for)
  On the other hand, LCDB can treat both capital letter/small letters as

data.pmreg transforms a small letter as a capital letter. Therefore, the redundancy of a property value occurs and may cause a transformation error. In this case can not do back anontation with pws.

- Number of characters
  If a character string exceeds PMASTER’s limit on the number of characters, the excess characters are truncated.
- Alphabetic pin numbers
  Because pinNumber is converted to an external pin number, it must be a number from 1 to 1000.

Chapter 4 Startup from the Shell

Each program included in the SWS Translator can be started up from the shell. This chapter describes how to start up the batch programs included in the SWS Translator from the shell.

However, because batch startup from the shell is not possible in the Windows 3.1 version, each program should be started up from the data converter.

4.1 Startup Option Format

Options are passed to each program using the same format, which is shown below. However, because batch startup from the shell is not possible in the Windows 3.1 version, each program should be started up from the data converter.

```
Program name [Option parameter group] Target data name
```

The different types of option parameter groups are shown below.

Option name and argument	Meaning
-r Filename	Reference filename specification
-l Library filename	Reference library filename specification
-p Parameter filename	Parameter filename specification
-x Extension name	Output file extension specification
-o Output file path name	Output file path name specification
-m Mode name	Processing mode specification
-p:Parameter name value	Parameter specification
-V	Version output
-e Error file path name	Message file output specification
-w Log/warning file path name	Log/warning file output specification

- Note)
  The absolute path name must be used for file and directory specification.

4.2 Startup Methods for Each Program

The startup methods for each program are shown below.

4.2.1 CR3000/SWS to CR-5000/System Designer Conversion Program

(1) Program name

Platform	Program
HP-UX	$ZDSROOT/bin/HP64/sws2zdsk.sh
SOLARIS	$ZDSROOT/bin/SOLARIS/sws2zdsk.sh
WindowsNT	$ZDSROOT/bin/Win32/sws2zdsk.exe

Caution: The program names have been changed since the release of Revision 4.0.

(2) Startup option group

Option name	Argument	Meaning
-m	Either sch, smb, blk,or cir	Conversion mode specification
-r	File path (.htb)	Property conversion file
-o	Directory path	Output directory
-V	None	Output program version

(3) Target

The specification differs according to the conversion mode.

Refer to the section 3.1.2 "CR-3000/SWS to CR-5000/System Designer Parameter Settings".

4.2.2 CR-5000 Circuit Data to SWS Standard ASCII Format Conversion Program

(1) Program name

Platform	Program
HP-UX	$ZDSROOT/bin/HP64/zds2sasc.sh
SOLARIS	$ZDSROOT/bin/SOLARIS/zds2sasc.sh
WindowsNT	$ZDSROOT/bin/Win32/zds2sasc.exe

(2) Startup option group

Option name	Argument	Meaning
-r	File path (.htb)	Property conversion file
-o	Output file (.ssf)	SWS ASCII FORMAT
-V	None	Program version output

(3) Target

Specify one of the System Designer Symbol file , Block file , or Schematic sheet file.

4.2.3 PMASTER (.PCP) to LCDB

(1) Program name

Platform	For PWS Rev11 or Upper version PMASTER
HP-UX	$ZDSROOT/bin/HP64/pcp2lcdb.sh
Solaris	$ZDSROOT/bin/SOLARIS/pcp2lcdb.sh
WindowsNT	$ZDSROOT/bin/Win32/pcp2lcdb.exe

Platform	For PWS Rev10.2 or Lower version PMASTER
HP-UX	$ZDSROOT/bin/HP64/pcp2lcdb10.sh
Solaris	$ZDSROOT/bin/SOLARIS/pcp2lcdb10.sh
WindowsNT	$ZDSROOT/bin/Win32/pcp2lcdb10.exe

(2) Startup option group

Option name	Argument	Meaning
-r	File path (usdef)	User definition file[a]
-r	File path (.prf)	Circuit design part library parameter file
-V	None	Program version output

[a] Refer to the CR-3000 User's Manual.

(3) Target

Specify the PMASTER .

4.2.4 LCDB to Component Property Definition File

(1) Program name

Platform	Program
HP-UX	$ZDSROOT/bin/HP64/lcdb2pma.sh
Solaris	$ZDSROOT/bin/SOLARIS/lcdb2pma.sh
WindowsNT	$ZDSROOT/bin/Win32/lcdb2pma.exe

(2) Startup option group

Option name	Argument	Meaning
-m	NCGEN	Auto generate Numeric pin Number with io=NC
-r	File path (usdef)	User definition file[a]
-r	File path (.pcp)	PMASTER
-p	File path	Conversion library choise file
-o	File path	Output file
-V	None	Program version output

[a] Refer to the CR-3000 User's Manual.

(3) Target

Specify the Circuit design part library parameter file .