

**NAME**

xpstar - extract Pstar network description out the database

**SYNOPSIS**

**xpstar** [-NPQdfghikmnptuvxy -w width -z name -O name  
-C file -D name -F outfile -S stimfile -X lib] cell

**OPTIONS**

- N** Do not extract the sub-cell(s), but add a line **#include "cell.pstar"** for each sub-cell to the output file (when option **-h** is used).
- P** Use Philips llrpd/llrnd models for penh/nenh/ndep and add "s=1".
- Q** Use Philips p/n models for penh/nenh/ndep.
- d** Use original database names for instance names.
- f** Send output to a file *cell.pstar* instead of *stdout*.
- g** Connect a large grounded resistor to each node of the two nodes that are connected by a net statement.
- h** Also extract hierarchy (used local sub-cells).
- i** Also extract imported sub-cells (when option **-h** is used).
- k** Output all cells as sub-circuits and do not print a title card.
- m** Add model definitions for devices in the output file.
- n** Always add terminals for n-bulk connections.
- p** Always add terminals for p-bulk connections.
- t** Do not output unconnected instances.
- u** Do not automatically add terminals for bulk connections.
- v** Enable verbose mode.
- w** Use *width* for the output listing.
- x** Use node number = 0 for nodes whose name start with "gnd" or "GND".
- y** Use node number = 0 for nodes whose name start with "vss" or "VSS".
- z prefix** Use node number = 0 for nodes whose name start with *prefix*.
- O name**  
Use node number = 0 for the node that has this name.
- C file** Use the specified *file* as the control file.
- D name**  
Define a label *name* for conditional reading of the control file (always converted to uppercase).
- F outfile**  
Send output to the specified file instead of *stdout*.
- S stimfile**  
Append the file *stimfile* to the output file. The *stimfile* can contain input stimuli and simulation control statement (such as print and plot commands and the *run* statement). This file is just copied, no checking or interpretation of its contents is done.
- X lib** Exclude specific certain library cells from the listing (when options **-hi** are used). This is very useful if you have a design with your own imported libraries. This option may be given several times. There are two exclude possibilities: (1) all lib's starting with absolute path (for example "-X /usr/ocean"); (2) the lib with basename (for example "-X primitives").

**DESCRIPTION**

*Xpstar* is a program to extract a Pstar circuit description out of the database. Default, only a circuit description of the cell itself is extracted and no sub-cells are extracted. When using the **-h** option the program will also extract all (local) sub-cells that are not a function (see "SLS: Switch-Level Simulator User's Manual") or a device.

The Pstar circuit description is used by the Philips Pstar analogue simulator.

See also the description in the *xspice* manual page. For example, for the determination whether or not a cell is a device.

When extracting Pstar circuit descriptions, the program *xpstar* will automatically determine bulk terminals (see the *xspice* manual page). For each bulk terminal, the program will *not* automatically generate an appropriate voltage source, unless the **-m** option is used. Note that for Pstar, the **-m** option does not include model definitions, because these are stored somewhere else.

*Xpstar* uses default the Pstar built-in device model names. For bipolar npn/pnp transistors respectively "tn" and "tp". For MOS transistors nenh(ndep)/penh respectively "mn" and "mp". However, with option **-P** you can use "llrnd" and "llrpd". And else, with option **-Q** you can use "n" and "p" instead. Note that a **model** specification in the control file for nmos (nenh/ndep) or pmos (penh) overrules above choices.

**THE CONTROL FILE**

For *xpstar* a control file may be used. The default name of the control file is "xspicerc". First, the program tries to read this file from the current working directory. Next, it tries to open the control file in the process directory. Note, the control file may also be used for other programs.

See the *xspice* manual page for a complete description of all possible parameters. Only some remarks for *xpstar* are given here.

Note that by the **-P** and **-Q** option the following parameters are automatically scaled:

<b>w,l</b>	with factor 1e6
<b>ps,pd</b>	with factor 1e6
<b>peri</b>	with factor 1e6 (parameter starting with...)
<b>as,ad</b>	with factor 1e12
<b>area</b>	with factor 1e12 (parameter starting with...)

**CONTROL FILE CONDITIONALS**

See the *xspice* manual page for more details.

For example for *xpstar* specify the following condition:

```
#if PSTAR
    no_bulk npn pnp
#endif
```

**THE SPICEMOD FILE**

When option **-m** is used, the *xpstar* program tries to read the *spicemod* file from the process directory. The contained SPICE models are *not* used. However, this file can contain control statements that must be used for the extracted devices. For more details see the spicemod(4ICD) manual page. Note that these control do not overrule a "model" statement of the control file or a specified "devmod" dw/dl.

**EXAMPLE**

```
% xpstar -fhP latch
```

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**MODIFIED BY**

S. de Graaf (xpstar code, this manual page)  
P. Elias (xpstar option **-Q**)

**FILES**

*cell.pstar* (output file, when option **-f** is used)  
*xspicerc* (default control file for xpstar/xspice/...)  
*spicemod* (models file for xpstar/xspice/...)

**SEE ALSO**

csls(1ICD), cspice(1ICD), putdevmod(1ICD), space(1ICD), xcontrol(1ICD), xsls(1ICD), xspice(1ICD).  
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