

## NAME

`xcontrol` - set and list extraction state of cells

## SYNOPSIS

```
xcontrol [-macro | -regular | -device | -library | -remote]
          [-strict | -free | -freemasks[:mask,..]] [-v] cell...
xcontrol -cleanup [-v] [cell...]
xcontrol -convert [-v]
xcontrol -default [-v] [cell...]
xcontrol -list [ct] [it] [cell... | -cl | -icl]
xcontrol -liste [ct] [it] [cell... | -cl | -icl | -obs | -new | -old]
```

## OPTIONS

<b>-macro</b>	Set the extraction state to Macro.
<b>-regular</b>	Set the extraction state to Regular.
<b>-device</b>	Set the extraction state to Device.
<b>-library</b>	Set the extraction state to Library.
<b>-remote</b>	Set the extraction state of imported cells to remote state.
<b>-strict</b>	Set the interface type to Strict.
<b>-free</b>	Set the interface type to Free.
<b>-freemasks</b>	Set the interface type to Freemasks. When no masklist is specified, old masklist of entry is used.
<b>-cleanup</b>	Remove (all) obsolete cell entries from <code>xcontrol</code> file.
<b>-convert</b>	Convert format of extraction state information in the project.
<b>-default</b>	Set (all) cells to the default status.
<b>-list</b>	List the extraction state of the database cells. When option 'ct' is specified, only of that cell-type. When option 'it' is specified, only of that interfacetype.
<b>-liste</b>	List only the entries of cells in the <code>xcontrol</code> file.
<b>-cl</b>	List only celllist (local) cells.
<b>-icl</b>	List only impcelllist (imported) cells.
<b>-obs</b>	List only obsolete cell entries.
<b>-new</b>	List only newest cell entries.
<b>-old</b>	List only oldest cell entries.
<b>-v</b>	Set verbose mode.

## DESCRIPTION

The `xcontrol` program sets or reads the extraction state and interface type of the cells that are local or imported from another project. See below for a description of these settings.

Note that the requested set action takes always place and touches the timestamp of the cell entry.

When the option **-list** without a cell is specified, all cells in the project and their extraction state will be shown.

When the option **-convert** is specified, the dataformat of the extraction state information of the cells that are present in the IC design database is converted.

The extraction state of all cells in the project will be read, converted in the new format provided by `dmPutCellStatus()`, and the old extraction state information of each cell will be removed.

## EXTRACTION STATUS and INTERFACE TYPE

A cell can have different extraction statuses, as well as different interface types. Extraction statuses and their meaning are as follows:

- regular** the module is extracted hierarchically or flattened, depending on the extractor option.
- macro** the module is always flattened during extraction.
- library** the module is not extracted, it is included in the extracted circuit as an instance and a (previously extracted) library circuit is available for it.
- device** the module is not extracted and is included in the extracted circuit as a network primitive.

Interface types and their meaning are as follows:

- strict** when the module is used as an instance, it only connects to its parent module via its terminal areas.
- free** when the module is used as an instance, it connects to its parent module via its terminal areas as well as via all polygons that are connected to its terminal areas.
- freemasks** when the module is used as an instance, it connects to its parent module via its terminal areas as well as via all polygons of the specified mask type(s) that are connected to its terminal areas.

## EXAMPLES

The first example converts the current (old) database project into the (new) xcontrol format:

```
% xcontrol -convert
```

The second example sets the celltype "macro" of two cells:

```
% xcontrol -macro inv oscil
```

The third example sets the interfacetype "freemasks" with 3 masks (the masks have to be in the project) of the cell oscil:

```
% xcontrol -freemasks:cpg,caa,cmf oscil
```

The fourth example sets the celltype "device" and the interfacetype "free" of 2 cells verbose:

```
% xcontrol -device -free -v term3 poly5
term3 Device Free Jun 13 15:00:12 2000
poly5 Device Free Jun 13 15:00:12 2000
```

The fifth example lists all cells in the actual project with their extraction state. The first row is the cellname, the second the celltype, the third the interfacetype and the fourth the last date of change. If the interfacetype is Freemasks, the masks of this cell are written just on the next line.

```
% xcontrol -list
local cells:
aa C Regular Strict No status found
inv L Macro Strict Jun 13 14:49:57 2000
oscil L Macro Freemasks Jun 13 14:51:02 2000
```

```
Mask(s): cpg cca cmf
poly5 LC Device Free Jun 13 15:00:12 2000
term3 LC Device Free Jun 13 15:00:12 2000
```

imported cells:

```
rc1 L Regular Strict Jun 13 14:47:38 2000
rc2 LC Regular Strict Jun 13 14:47:38 2000
```

The sixth example sets all local and imported cells to default. The local cells are set to regular, strict and the imported cells are set to the status from the imported project.

```
% xcontrol -default
```

#### **AUTHOR**

M. Grueter, S. de Graaf

#### **FILES**

```
project/.dmxdata          (in/output xcontrol file)
project/layout/celllist   (input file)
project/layout/impcelllist
                          (input file)
project/layout/cell/is_macro
                          (old file, deleted)
project/circuit/celllist  (input file)
project/circuit/impcelllist
                          (input file)
project/circuit/cell/devmod
                          (old file, deleted if empty)
```