Calibration Project Process Search (CPPS)

The Calibration Project Process Search (CPPS) looks for experiments in a calibration project of Sentaurus™ Workbench. The tool scans process flows written in the syntax of Sentaurus Process in the same way as DBPS. However, CPPS scans variables of the Sentaurus Workbench. The experiments that match the search criterion are listed in the process list file.

The search criterion – the process search pattern – consists of *conditions* connected by logical *operators* `&&`, `||`, `!`, and grouped by parentheses. The operator `&&` means *and*, `||` means *or*, and `!` means *not*. The conditions consist of a *keyword* and *arguments*, for example, `impl(element==As)` or `nimpl>0`.

In general, the keyword takes only one argument. Only the `impl()` and `diff()` keywords can have more than one argument that are connected by logical operators. Some arguments consist of an argument type and a value connected by *comparators*: `==`, `<=`, `>=`, `<`, `>`, or `!=`. Some arguments do not have comparators or argument types.

Table 1 lists the DBPS process flow keywords and their syntax, which are allowed in the CPPS criterion.

Table 1   Keywords and syntax for CPPS of DBPS

Keyword	Meaning	Argument	Example

`impl()`	Implantation statement scan, true if (1)	element, elem
		energy, en
		dose
		tilt
		rotation, rot
			`impl(elem==as)`
			`impl(en>0 && en<100)`
			`impl(dose>=1e12)`
			`impl(tilt!=0)`
			`impl(rot<1)`

`diff()`	Diffusion statement scan, true if (1)	maxT (maximum temperature)
		`totaltime`
		`peaktime` (time at maximum temperature)
		`pn2` (partial pressure for N_2)
		`po2` (partial pressure for O_2)
		`ph2o` (partial pressure for H_2O)
			`diff(maxT==1000)`
			`diff(totaltime>5)`
			`diff(peaktime!=0)`
			`diff(pn2==1)`
			`diff(po2>0 && po2<1)`
			`diff(ph2o!=0)`

`plot()`	Plot statement scan, true if (2)	X, Xtot, Xtotal, Xactive (where X is one of as, p, b, in, ge, sb, ga, al, n)	`plot(bactive)`
`nimpl`	Number of implantation statements scan, true if (3)	–	`nimpl==1`
`ndiff`	Number of diffusion statement scan, true if (3)	–	`ndiff>0`
`grep()`	Process file scan, true if (2)	<string>	`grep(comment)`
(1) At least one statement exists in the process file, for which the arguments are evaluated as true. (2) At least one statement exists in the process file, for which the argument is evaluated as true. (3) Comparison is evaluated as true.			

Table 2 lists the Sentaurus Workbench variable keyword and its syntax, which is allowed in the search criterion.

Table 2   Keywords and syntax for CPPS of Sentaurus Workbench variable

Keyword	Meaning	Argument	Example
process()	Process variable scan, true if at least one statement exists in the process file, for which the arguments are evaluated as true	<string>	process(USJ)