CadPack

Import Part list from ASCII file

Software tool for import part list from ASCII file

Technical Info

Version : 3
Code : 81190400.073

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Contents

Introduction

CAD files are the base for the automatic generation of test program for InCircuit of any technology.

In order to generate the ICT test program in a short time and without errors, both Bed of Nails and Flying Probe testers require the circuit information available on CAD format.

The Import Part list from ASCII file software tool converts data stored in a custom Part list file into SPEA board data format.

Conventions, symbols and abbreviations

In the document, the ⓘ symbol is used to highlight information or notes useful to the reader.

This manual can be updated in accordance with the evolution of the system and associated software.
It may contain preliminary contents or it may not be entirely updated with the latest versions used in the system.

Any remarks on errors and imperfections, or suggestions, can be addressed to:

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1. Part list file data

The Part List is an ASCII text file containing the list of all parts used to assemble the board; sometimes it can be called **Bill of Material** (BOM).

In the Part List all information concerning the mounted and not mounted parts must be present.
For every part the following information must be defined:

Information	Description
Drawing Reference	Reference designator (e.g. U10, R105, D23, etc.).
Part Number	Device code (e.g. 132549.012, C4QW08, 001-58-AA, etc.).
Value	Device value (e.g. 10KΩ, 10µF, 1mH, etc.).
Tolerance	Positive and negative device tolerances (e.g. 1%, 5%, etc.).
Mounting side	The legal values for this item can be: - **Top** (Component side) - **Bottom** (Soldering side) - **Not mounted Top** - **Not mounted Bottom**
Rotation [1]	Device mounting rotation angle (e.g. 0°, 180°, etc.).
Dimensions [1]	Device dimensions.
Case code [1]	Device package (case) code.

[1] **Optional data (not yet managed)**

2. Part list file generalities

The required Part list file can have any name and it must be stored as a MS-DOS ASCII text file.

The SPEA system is based on a PC platform operating in MS-Windows environment.

The files need to be stored into a directory defined by the user.

The SPEA Import from Part list software tool can retrieve the Part list files from every defined disk and directory.

3. Import the Excel Part list

To import an Excel part list it is necessary to save the **Part List** sheet as ***.CSV** file and use the "Import from Part List".

In the Excel file, the drawing reference and the part number must be always present and, if omitted, the other information will be compiled with Leonardo or Board Data Editor.

In the Part list sheet the empty fields are not used (but they can be present).
All the Device Codes are written in the Dev. Type Code sheet.

In the following pages, an example of part list and CSV file is shown.

3.1 Part list example

Drawing Ref.	Part Number	Device Name	Device Type	Value	Tol +	Tol -	Package Name	Package Type
AR1	11450020.049	4816P-002-103	Resistor Array	10K	15	15	SM016SIL	SMD
AR2	11450005.075	4816P-002-102	Resistor Array	1K	10	10	SM016SIL	SMD
C1	12340030.051		Capacitor Polar.	10u	20	20	SMMKTD	SMD
C10	12300021.036		Capacitor	3.3n	20	20	SM0805	SMD
C11	12292210.076		Capacitor	100n	20	20	SM0805	SMD
C14	12340030.051		Capacitor Polar.	10u	20	20	SMMKTD	SMD
C15	12340030.051		Capacitor Polar.	10u	20	20	SMMKTD	SMD
D1	13150010.037	1N4007	Diode		0	0	DMINIMELF	SMD
D10	13150002.046	1N4007	Diode		0	0	DMINIMELF	SMD
D11	13150002.046	1N4007	Diode		0	0	DMINIMELF	SMD
F1	13820008.103	1ET3A	Fuse		0	0	X96BA	SMD
F2	13820008.103	1ET3A	Fuse		0	0	X96BA	SMD
J1	13659175.185	C96DIN90	Connector		0	0	C96DIN90	TH
J2	13659020.104	C32DINHV	Connector		0	0	C32DINHV	TH
J3	13600053.084	CM15X2MR	Connector		0	0	CM15X2MR	TH
LD1	13140001.034	HSMS-C650	Led		0	0	SM0805LD	SMD
LD10	13140001.034	HSMS-C650	Led		0	0	SM0805LD	SMD
LD11	13140001.034	HSMS-C650	Led		0	0	SM0805LD	SMD
R1	11320000.020		Resistor	1K	5	5	SM0805	SMD
R10	11310050.051		Resistor	0	10	10	SM0805	SMD
R11	11310050.051		Resistor	0	10	10	SM0805	SMD
RL1	13510022.056	COTO9091/05/11	Relay		0	0	RLPIC108	TH
RL2	13510022.056	COTO9091/05/11	Relay		0	0	RLPIC108	TH
RL3	13510022.056	COTO9091/05/11	Relay		0	0	RLPIC108	TH
TP1	14130070.073		Test Point		0	0	TPDMINI	TH
TP2	14130070.073		Test Point		0	0	TPDMINI	TH
TP3	14130070.073		Test Point		0	0	TPDMINI	TH
TS1	13533060.091	TSW ELMWOOD	Linear IC		0	0	TERM65GR	TH
U1	13260730.100	75452	Digital IC		0	0	SMSO008	SMD

Drawing Ref.	Part Number	Device Name	Device Type	Value	Tol +	Tol -	Package Name	Package Type
U10	13221100.032	LM7824CK	Voltage Reg.		0	0	TO220CS	TH
U11	13260069.151	TLP131	Opto Coupler		0	0	SMMFSOP6	SMD
U12	13260069.151	TLP131	Opto Coupler		0	0	SMMFSOP6	SMD
W11	13655610.113		Connector		0	0	JMP4X2	TH
W12	13655610.113		Connector		0	0	JMP4X2	TH

3.2 CSV file example

```
Drawing Reference;Part Number;Device Name;Device Code;Device Type;Value;Tol +;Tol -;Package Name;Package Type
AR1;11450020.049;4816P-002-103;651;Resistor Array;10K;15;15;SM016SIL;SMD
AR2;11450005.075;4816P-002-102;651;Resistor Array;1K;10;10;SM016SIL;SMD
AR3;11450012.058;4816P-002-471;651;Resistor Array;470;10;10;SM016SIL;SMD
AR4;11450020.049;4816P-002-103;651;Resistor Array;10K;15;15;SM016SIL;SMD
AR5;11450020.049;4816P-002-103;651;Resistor Array;10K;15;15;SM016SIL;SMD
AR6;11450020.049;4816P-002-103;651;Resistor Array;10K;15;15;SM016SIL;SMD
C1;12340030.051;;11;Capacitor Polar.;10u;20;20;SMMKTD;SMD
C10;12300021.036;;10;Capacitor;3.3n;20;20;SM0805;SMD
C11;12292210.076;;10;Capacitor;100n;20;20;SM0805;SMD
C12;12292210.076;;10;Capacitor;100n;20;20;SM0805;SMD
C13;12340030.051;;11;Capacitor Polar.;10u;20;20;SMMKTD;SMD
C14;12340030.051;;11;Capacitor Polar.;10u;20;20;SMMKTD;SMD
C15;12340030.051;;11;Capacitor Polar.;10u;20;20;SMMKTD;SMD
C16;12340030.051;;11;Capacitor Polar.;10u;20;20;SMMKTD;SMD
C17;12340030.051;;11;Capacitor Polar.;10u;20;20;SMMKTD;SMD
C18;12340030.051;;11;Capacitor Polar.;10u;20;20;SMMKTD;SMD
C19;12292210.076;;10;Capacitor;100n;20;20;SM0805;SMD
C20;12300021.036;;10;Capacitor;3.3n;20;20;SM0805;SMD
C21;12340030.051;;11;Capacitor Polar.;10u;20;20;SMMKTD;SMD
C22;12292210.076;;10;Capacitor;100n;20;20;SM0805;SMD
C23;12292210.076;;10;Capacitor;100n;20;20;SM0805;SMD
C24;12292210.076;;10;Capacitor;100n;20;20;SM0805;SMD
C25;12292210.076;;10;Capacitor;100n;20;20;SM0805;SMD
C26;12292210.076;;10;Capacitor;100n;20;20;SM0805;SMD
C27;12292210.076;;10;Capacitor;100n;20;20;SM0805;SMD
C28;12292210.076;;10;Capacitor;100n;20;20;SM0805;SMD
C29;12292210.076;;10;Capacitor;100n;20;20;SM0805;SMD
C30;12292210.076;;10;Capacitor;100n;20;20;SM0805;SMD
C31;12292210.076;;10;Capacitor;100n;20;20;SM0805;SMD
C32;12292210.076;;10;Capacitor;100n;20;20;SM0805;SMD
C33;12292210.076;;10;Capacitor;100n;20;20;SM0805;SMD
C34;12292210.076;;10;Capacitor;100n;20;20;SM0805;SMD
C35;12292210.076;;10;Capacitor;100n;20;20;SM0805;SMD
C36;12292210.076;;10;Capacitor;100n;20;20;SM0805;SMD
C37;12292210.076;;10;Capacitor;100n;20;20;SM0805;SMD
C38;12292210.076;;10;Capacitor;100n;20;20;SM0805;SMD
C39;12292210.076;;10;Capacitor;100n;20;20;SM0805;SMD
C40;12292210.076;;10;Capacitor;100n;20;20;SM0805;SMD
C41;12292210.076;;10;Capacitor;100n;20;20;SM0805;SMD
C42;12292210.076;;10;Capacitor;100n;20;20;SM0805;SMD
C43;12292210.076;;10;Capacitor;100n;20;20;SM0805;SMD
C44;12292210.076;;10;Capacitor;100n;20;20;SM0805;SMD
C45;12292210.076;;10;Capacitor;100n;20;20;SM0805;SMD
D1;13150010.037;1N4007;30;Diode;;0;0;DMINIMELF;SMD
D10;13150002.046;1N4007;30;Diode;;0;0;DMINIMELF;SMD
D11;13150002.046;1N4007;30;Diode;;0;0;DMINIMELF;SMD
D12;13150002.046;1N4007;30;Diode;;0;0;DMINIMELF;SMD
D13;13150002.046;1N4007;30;Diode;;0;0;DMINIMELF;SMD
D14;13150002.046;1N4007;30;Diode;;0;0;DMINIMELF;SMD
D15;13150002.046;1N4007;30;Diode;;0;0;DMINIMELF;SMD
D16;13150002.046;1N4007;30;Diode;;0;0;DMINIMELF;SMD
D17;13150002.046;1N4007;30;Diode;;0;0;DMINIMELF;SMD
D2;13150010.037;1N4007;30;Diode;;0;0;DMINIMELF;SMD
D3;13150010.037;1N4007;30;Diode;;0;0;DMINIMELF;SMD
D4;13150010.037;1N4007;30;Diode;;0;0;DMINIMELF;SMD
D5;13150010.037;1N4007;30;Diode;;0;0;DMINIMELF;SMD
```

D6;13150010.037;1N4007;30;Diode;;0;0;DMINIMELF;SMD
D7;13150010.037;1N4007;30;Diode;;0;0;DMINIMELF;SMD
D8;13150010.037;1N4007;30;Diode;;0;0;DMINIMELF;SMD
D9;13150000.030;1N4007;30;Diode;;0;0;SMMKTD;SMD
F1;13820008.103;1ET3A;760;Fuse;;0;0;X96BA;SMD
F2;13820008.103;1ET3A;760;Fuse;;0;0;X96BA;SMD
J1;13659175.185;C96DIN90;700;Connector;;0;0;C96DIN90;TH
J2;13659020.104;C32DINHV;700;Connector;;0;0;C32DINHV;TH
J3;13600053.084;CM15X2MR;700;Connector;;0;0;CM15X2MR;TH
J4;13600053.084;CM15X2MR;700;Connector;;0;0;CM15X2MR;TH
J5;13655610.113;JMP4X2;700;Connector;;0;0;JMP4X2;TH
LD1;13140001.034;HSMS-C650;80;Led;;0;0;SM0805LD;SMD
LD10;13140001.034;HSMS-C650;80;Led;;0;0;SM0805LD;SMD
LD11;13140001.034;HSMS-C650;80;Led;;0;0;SM0805LD;SMD
LD12;13140001.034;HSMS-C650;80;Led;;0;0;SM0805LD;SMD
LD13;13140001.034;HSMS-C650;80;Led;;0;0;SM0805LD;SMD
LD14;13140001.034;HSMS-C650;80;Led;;0;0;SM0805LD;SMD
LD15;13140001.034;HSMS-C650;80;Led;;0;0;SM0805LD;SMD
LD16;13140001.034;HSMS-C650;80;Led;;0;0;SM0805LD;SMD
LD17;13140002.042;HSMG-C650;80;Led;;0;0;SM0805LD;SMD
LD18;13140002.042;HSMG-C650;80;Led;;0;0;SM0805LD;SMD
LD19;13140000.026;HSMG-C650;80;Led;;0;0;SM0805LD;SMD
LD2;13140001.034;HSMS-C650;80;Led;;0;0;SM0805LD;SMD
LD20;13140000.026;HSMG-C650;80;Led;;0;0;SM0805LD;SMD
LD21;13140000.026;HSMG-C650;80;Led;;0;0;SM0805LD;SMD
LD3;13140001.034;HSMS-C650;80;Led;;0;0;SM0805LD;SMD
LD4;13140001.034;HSMS-C650;80;Led;;0;0;SM0805LD;SMD
LD5;13140001.034;HSMS-C650;80;Led;;0;0;SM0805LD;SMD
LD6;13140001.034;HSMS-C650;80;Led;;0;0;SM0805LD;SMD
LD7;13140001.034;HSMS-C650;80;Led;;0;0;SM0805LD;SMD
LD8;13140001.034;HSMS-C650;80;Led;;0;0;SM0805LD;SMD
LD9;13140001.034;HSMS-C650;80;Led;;0;0;SM0805LD;SMD
R1;11320000.020;;1;Resistor;1K;5;5;SM0805;SMD
R10;11310050.051;;1;Resistor;0;10;10;SM0805;SMD
R11;11310050.051;;1;Resistor;0;10;10;SM0805;SMD
R12;11390004.080;;1;Resistor;1.8;5;5;SM2512;SMD
R13;11390004.080;;1;Resistor;1.8;5;5;SM2512;SMD
R14;11390004.080;;1;Resistor;1.8;5;5;SM2512;SMD
R15;11390004.080;;1;Resistor;1.8;5;5;SM2512;SMD
R16;11320000.020;;1;Resistor;1K;5;5;SM0805;SMD
R17;11320000.020;;1;Resistor;1K;5;5;SM0805;SMD
R18;11390005.088;;1;Resistor;2.2;5;5;SM2512;SMD
R19;11390005.088;;1;Resistor;2.2;5;5;SM2512;SMD
R2;11320000.020;;1;Resistor;1K;5;5;SM0805;SMD
R20;11390005.088;;1;Resistor;2.2;5;5;SM2512;SMD
R21;11390005.088;;1;Resistor;2.2;5;5;SM2512;SMD
R22;11390004.080;;1;Resistor;1.8;5;5;SM2512;SMD
R23;11390004.080;;1;Resistor;1.8;5;5;SM2512;SMD
R24;11390004.080;;1;Resistor;1.8;5;5;SM2512;SMD
R25;11390004.080;;1;Resistor;1.8;5;5;SM2512;SMD
R26;11320000.020;;1;Resistor;1K;5;5;SM0805;SMD
R27;11310840.092;;1;Resistor;4.7K;5;5;SM0805;SMD
R28;11310840.092;;1;Resistor;4.7K;5;5;SM0805;SMD
R29;11310840.092;;1;Resistor;4.7K;5;5;SM0805;SMD
R3;11320000.020;;1;Resistor;1K;5;5;SM0805;SMD
R30;11311000.021;;1;Resistor;10K;5;5;SM0805;SMD
R31;11310840.092;;1;Resistor;4.7K;5;5;SM0805;SMD
R32;11311000.021;;1;Resistor;10K;5;5;SM0805;SMD
R33;11310840.092;;1;Resistor;4.7K;5;5;SM0805;SMD
R34;11311000.021;;1;Resistor;10K;5;5;SM0805;SMD
R4;11310050.051;;1;Resistor;0;10;10;SM0805;SMD
R5;11310050.051;;1;Resistor;0;10;10;SM0805;SMD
R6;11310050.051;;1;Resistor;0;10;10;SM0805;SMD
R7;11310050.051;;1;Resistor;0;10;10;SM0805;SMD
R8;11310050.051;;1;Resistor;0;10;10;SM0805;SMD
R9;11310050.05;;1;Resistor;0;10;10;SM0805;SMD
RL1;13510022.056;COTO9091/05/11;500;Relay;;0;0;RLPIC108;TH
RL2;13510022.056;COTO9091/05/11;500;Relay;;0;0;RLPIC108;TH
RL3;13510022.056;COTO9091/05/11;500;Relay;;0;0;RLPIC108;TH
RL4;13510022.056;COTO9091/05/11;500;Relay;;0;0;RLPIC108;TH
RL5;13510022.056;COTO9091/05/11;500;Relay;;0;0;RLPIC108;TH
RL6;13510022.056;COTO9091/05/11;500;Relay;;0;0;RLPIC108;TH
RL7;13510022.056;COTO9091/05/11;500;Relay;;0;0;RLPIC108;TH
RL8;13510022.056;COTO9091/05/11;500;Relay;;0;0;RLPIC108;TH
TP1;14130070.073;;800;Test Point;;0;0;TPDMINI;TH
TP2;14130070.073;;800;Test Point;;0;0;TPDMINI;TH
TP3;14130070.073;;800;Test Point;;0;0;TPDMINI;TH
TP4;14130070.073;;800;Test Point;;0;0;TPDMINI;TH
TP5;14130070.073;;800;Test Point;;0;0;TPDMINI;TH

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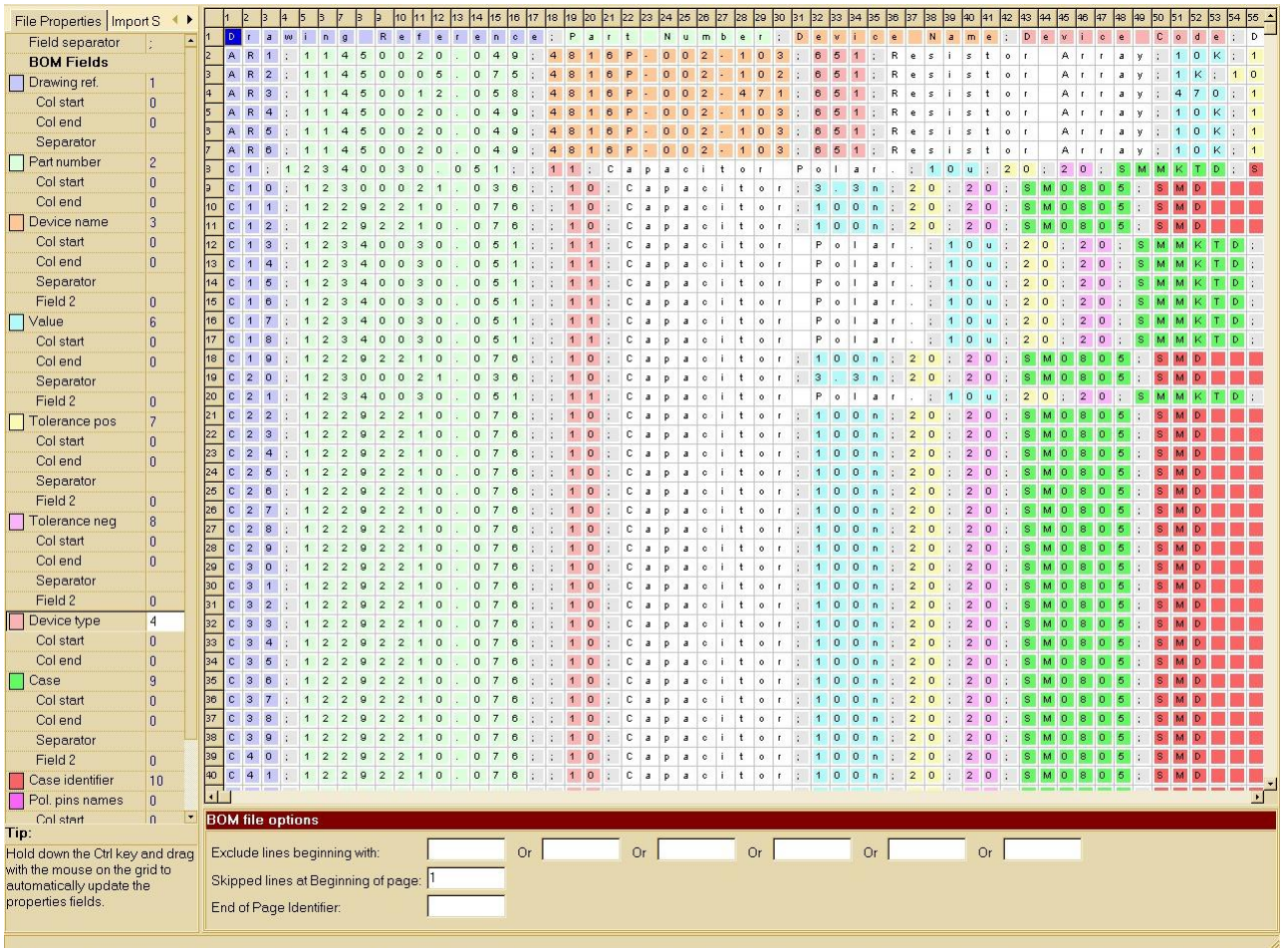
S1;13533060.091;TSW ELMWOOD;150;Linear IC;;0;0;TERM65GR;TH
U1;13260730.100;75452;200;Digital IC;;0;0;SMSO008;SMD
U10;13221100.032;LM7824CK;153;Voltage Reg.;;0;0;TO220CS;TH
U11;13260069.151;TLP131;81;Opto Coupler;;0;0;SMMFSOP6;SMD
U12;13260069.151;TLP131;81;Opto Coupler;;0;0;SMMFSOP6;SMD
U13;13260069.151;TLP131;81;Opto Coupler;;0;0;SMMFSOP6;SMD
U14;13260069.151;TLP131;81;Opto Coupler;;0;0;SMMFSOP6;SMD
U15;13260058.136;74244;200;Digital IC;;0;0;SMSO020;SMD
U16;13260400.061;74273;200;Digital IC;;0;0;SMSO020;SMD
U17;13260058.136;74244;200;Digital IC;;0;0;SMSO020;SMD
U2;13260280.105;74HC04;200;Digital IC;;0;0;SMSO014;SMD
U22;13233600.076;EPM7128SQC10;200;Digital IC;;0;0;100PQFP;SMD
U27;13260069.151;TLP131;81;Opto Coupler;;0;0;SMMFSOP6;SMD
U28;13260069.151;TLP131;81;Opto Coupler;;0;0;SMMFSOP6;SMD
U29;13260069.151;TLP131;81;Opto Coupler;;0;0;SMMFSOP6;SMD
U3;13260068.143;74240;200;Digital IC;;0;0;SMSO020;SMD
U30;13260058.136;74244;200;Digital IC;;0;0;SMSO020;SMD
U35;13260068.143;74240;200;Digital IC;;0;0;SMSO020;SMD
U4;13260390.118;74245;200;Digital IC;;0;0;SMSO020;SMD
U40;13218425.135;TA8435H;150;Linear IC;;0;0;TA8435_1;TH
U41;13260400.061;74273;200;Digital IC;;0;0;SMSO020;SMD
U42;13260400.061;74273;200;Digital IC;;0;0;SMSO020;SMD
U43;13260400.061;74273;200;Digital IC;;0;0;SMSO020;SMD
U44;13260068.143;74240;200;Digital IC;;0;0;SMSO020;SMD
U5;13260069.151;TLP131;81;Opto Coupler;;0;0;SMMFSOP6;SMD
U6;13260069.151;TLP131;81;Opto Coupler;;0;0;SMMFSOP6;SMD
U7;13260069.151;TLP131;81;Opto Coupler;;0;0;SMMFSOP6;SMD
U8;13260069.151;TLP131;81;Opto Coupler;;0;0;SMMFSOP6;SMD
U9;13218425.135;TA8435H;150;Linear IC;;0;0;TA8435_1;TH
W11;13655610.113;;700;Connector;;0;0;JMP4X2;TH
W12;13655610.113;;700;Connector;;0;0;JMP4X2;TH
```

3.3 Fields setting window

The settings can be directly verified on the file. Each field is displayed with a different background color.



4. Typical Part list files extraction and required settings

A setting panel has to be filled in order to extract the component Values, Tolerance and Device Name. The following tables show the settings required to convert the Part list file of the examples:

4.1 Example 1

```
#Sortbgr;Material;Bezeichnung;Wert;CELL-Name;Toleranz;Technologie;Pos.-Typ;BGRP-
Kz.;Aendnr;Kls;Werk;Stufe;Gültig-Ab

R3153;1304186;MEGWI-CH 22R F 0603 BAW SPE0027A323;22R;R0603;F;SMD;L;0;;323;0001;3;08.01.1999
R3155;1254456;MEGWI-CH 82K F 0603 G BAW SPE0028A323;82K;R0603;F;SMD;L;0;;323;0001;3;08.01.1999
R3156;1248197;MEGWI-CH 18K F 0603 G BAW SPE0028A323;18K;R0603;F;SMD;L;0;;323;0001;3;08.01.1999
R3157;1285564;MEGWI-CH 4K7 F 0603 G BAW SPE0028A323;4K7;R0603;F;SMD;L;0;;323;0001;3;08.01.1999
R3158;1285564;MEGWI-CH 4K7 F 0603 G BAW SPE0028A323;4K7;R0603;F;SMD;L;0;;323;0001;3;08.01.1999
R3160;1227661;MEGWI-CH 0R  0603 BAW SPE0025A323;0R;R0603;;SMD;L;0;;323;0001;3;08.01.1999
R3171;1227661;MEGWI-CH 0R  0603 BAW SPE0025A323;0R;R0603;;SMD;L;0;;323;0001;3;08.01.1999
R3176;1304429;MEGWI-CH 680R F 0603 BAW SPE0027A323;680R;R0603;F;SMD;L;0;;323;0001;3;08.01.1999
C10;1246348;KEKO-CH 100N K X7R 0805 BAW SPE0035A315;100N;C0805;K;SMD;L;0;;315;0001;3;08.01.1999
C14;1119117;KEKO-CH 10N J X7R 0805 BAW SPE0014A315;10N;C0805;J;SMD;L;0;003900301011;315;0001;3;18.03.1999
C15;1119117;KEKO-CH 10N J X7R 0805 BAW SPE0014A315;10N;C0805;J;SMD;L;0;003900301011;315;0001;3;18.03.1999
C20;1119117;KEKO-CH 10N J X7R 0805 BAW SPE0014A315;10N;C0805;J;SMD;L;0;;315;0001;3;08.01.1999
DI3654;1252143;DIODE-CH BAS216 G;BAS216;SOD110;;SMD;L;0;;301;0001;3;08.01.1999
DI3655;1252143;DIODE-CH BAS216 G;BAS216;SOD110;;SMD;L;0;;301;0001;3;08.01.1999
DI50;1290932;DIODE-CH BAV70W G;BAV70W;SOT323;;SMD;L;0;;301;0001;3;08.01.1999
DI51;1290932;DIODE-CH BAV70W G;BAV70W;SOT323;;SMD;L;0;;301;0001;3;08.01.1999
DI52;1032704;DIODE-CH BAS85/LL103C G SPE0026A301;BAS85;SOD80;;SMD;L;0;;301;0001;3;08.01.1999
DI53;1032704;DIODE-CH BAS85/LL103C G SPE0026A301;BAS85;SOD80;;SMD;L;0;;301;0001;3;08.01.1999
DI56;1290932;DIODE-CH BAV70W G;BAV70W;SOT323;;SMD;L;0;000000034169;301;0001;3;22.04.1999
DI800;1252143;DIODE-CH BAS216 G;BAS216;SOD110;;SMD;L;0;;301;0001;3;08.01.1999
```

File settings

BOM file options	
Exclude lines beginning with:	**#**

File properties to modify	
Field separator	**;**
Drawing reference	**1**
Part number	**2**
Device name	**4**
Value	**4**

ⓘ **Note:** The **Part Number** field must always be filled.

4.2 Example 2

```
Cod.Articolo    Descrizione                 UM  Quantità  Riferimento

010114RS4R7**   RESIS.CHIP 4,7 5% 1206 SMD      Pz  1   R5
010121RS1M***   RESIS.CHIP 1M 5% 0603 SMD       Pz  2   "R9,R14"
010121RS1K***   RESIS.CHIP 1K 5% 0603 SMD       Pz  7   "R12,R19,R25,R26,R76,R131,R216"
004315TRBC846   BC846B TRANS.NPN 65V IN SOT23   Pz  13  "Q2,Q4,Q5,Q7,Q10,Q15,Q16,Q20,Q23"
004318FZT653*   FZT653 TRANS.Vce=100V NPN 223   Pz  2   "Q3,Q8"
004309FZT753*   FZT753 TRANS.Vce=100V PNP 223   Pz  1   Q9
0043BC807-25*   BC807-25 TRANS.PNP  IN SOT-23   Pz  2   "Q28,Q14"
0064SI9420-DY   SI9420-DY MOS POWER 60V 1A SO8  Pz  1   Q24
010902PTC150R   PTC THERMISTOR 150R 30mA C890   Pz  1   RT1
010121RS47K**   RESIS.CHIP 47K 5% 0603 SMD      Pz  39  R1,R4,R11,R39,R138,R139,R151
010121RS4K7**   RESIS.CHIP 4K7 5% 0603 SMD      Pz  10  "R2,R6,R7,R28,R33,R104,R105"
010121RS10K**   RESIS.CHIP 10K 5% 0603 SMD      Pz  45  R3,R8,R10,R18,R21,R23,R3R44,R45
0082AT29C010*   AT29C010-12JC FL.MEM.1M 32PLCC  Pz  1   IC35
00601274AC08*   74AC08 QUAD 2IN AND GATE SO14   Pz  1   IC36
00600674AC139   74AC139 DUAL 1-4 DEC/DEM SO16  Pz  1   IC37
006000HC4060*   74HC4060 14 STAGE BINAR.SO16 S  Pz  1   IC38
00601374HC27*   74HC27 TRIPLO 3IN NOR SO14      Pz  1   IC39
00600974HC74*   74HC74 DUAL-D-FLIP-FL SMD SO14  Pz  1   IC40
00601374HC132   74HC132 QUAD 2I SM-TR SO14      Pz  1   IC41
00100024C16M8   24C16 SER.ERAS.PROM 2Kx8 SO8    Pz  1   IC42
006021HC4053*   74HC4053DW MULTIPLEXER SO16 L   Pz  1   IC43
0060HIN202IB*   HIN202IB INTERF.RS232 SO16 WD   Pz  4   "IC44,IC45,IC46,IC47"
00601774AC32*   74AC32 QUAD 2IN OR GATE SO14    Pz  1   IC49
```

File settings

BOM file options	
Exclude lines beginning with:	**Cod**

File properties to modify			
Field separator	**<TAB>**		
Drawing reference	**5**		
Part number	**1**		
Device name	**2**	Separator: **<BLANK>**	Field 2: **1**
Value	**2**	Separator: **<BLANK>**	Field 2: **2**
Positive Tolerance	**2**	Separator: **<BLANK>**	Field 2: **3**
Negative Tolerance	**2**	Separator: **<BLANK>**	Field 2: **3**

ⓘ **Note:** The **Part Number** field must always be filled.

4.3 Example 3

```
Projekt: Demo3

+--------------------+------------------------+--------------------+----------------------+-----------------+
|Bauteilname         |Art.Nr.                 |Beschreibung        |Gehäuseform           |            Menge|
+--------------------+------------------------+--------------------+----------------------+-----------------+
| R85,R87,R101,R109  |779-027-60              |2K74                |FM11                  |                9|
| R117,R125,R133,R141|                        |                    |                      |                 |
| R149               |                        |                    |                      |                 |
| R212               |779-052-50              |10R0                |MK4                   |                1|
| C83                |779-141-79              |330u                |CB10_5                |                1|
| C61                |779-141-86              |100u                |CB10_5                |                1|
| L701A              |779-172-54              |PE53119             |KM-5.0                |                1|
| R118,R166,R182     |779-230-19              |RXE040              |RXE_5.1               |                3|
| C67,C68            |779-840-02              |15p0                |1206_C                |                2|
| C5,C6,C7,C8,C9,C11 |779-840-05              |100n                |1206_C                |               64|
| C12,C13,C14,C15,C16|                        |                    |                      |                 |
| C17,C18,C19,C20,C21|                        |                    |                      |                 |
| C23,C24,C25,C26,C27|                        |                    |                      |                 |
| C28,C29,C30,C31,C32|                        |                    |                      |                 |
| C33,C34,C35,C36,C37|                        |                    |                      |                 |
| C38,C40,C41,C43,C44|                        |                    |                      |                 |
| C45,C46,C47,C48,C51|                        |                    |                      |                 |
| C52,C53,C56,C62,C63|                        |                    |                      |                 |
| C65,C66,C69,C70,C71|                        |                    |                      |                 |
| C72,C73,C74,C75,C76|                        |                    |                      |                 |
| C77,C78,C79,C80,C81|                        |                    |                      |                 |
| C82,C85,C91        |                        |                    |                      |                 |
| C42                |779-840-07              |1n00                |1206_C                |                1|
```

File settings

BOM file options			
Exclude lines beginning with:	**P**	Or: **+**	Or: **|B**

File properties to modify	
Field separator	**|**
Drawing reference	**1**
Part number	**2**
Device name	**3**
Value	**3**

ⓘ **Note:** The **Part Number** field must always be filled.

5. Import setting

The options to be checked and/or modified are listed below.

Cad Type	Category		Description
Part list	Options	Use existing PN ⓘ **Note:** Only for Atos2.	If enabled, the devices already present in the Board Data are not only modified. If disabled, all devices present in the Board Data are modified.
		Manually confirm new Part Numbers ⓘ **Note:** Only for Atos2.	If enabled, the programmer can edit data the new part number (or confirm the converted data).
		Update existing Part Numbers	If enabled, the import changes the part number data for all codes. If disabled, the import adds in the part number data only the not already present codes.
		Set the component not present in this file as not mounted	If enabled, the components not present in this file are considered not mounted.
		Set default package type	It allows setting the default package type (SMD, TH or BGA).

5.1 Pin function assignment

This assignment table must be filled in order to execute correctly the CAD file import.

In order to correctly test some polarized devices such as diodes, bipolar transistors, etc., it is basic to correctly identify the pin function (i.e. anode, base, etc.) of each pin.

The fields contained in the table, are described below:

Field	Description
Device Type	Identifies the type of device (example: Resistors, Capacitors, Digital Devices, Diodes etc.).
Pin Function	Function concerning the Pin.
Pin Name	Pin reference.
Cad Pin	Pin reference in Cad file.

5.2 Drawing ref. initials/device type assignment

The file typically contains all information about the devices, such as value, tolerances and type; which are fundamental from the point of view of the test program generation.

The fields contained in the table are described below:

Field	Description
Drawing Reference	Initial letter identifying the **Device Type**.
Device Type	Identifies the type of device (example: Resistors, Capacitors, Digital Devices, Diodes etc.).
Default Tol+, Tol-	Value and tolerance of the device only if required (as for resistors).

It could happen that in the CAD file they are missing. For each drawing reference initial, the displayed table enables to define the following data default values:

- Device type
- Default positive tolerance
- Default negative tolerance

This means that if, for any reason, the CAD file does not contain the information mentioned above, the default values will be used.

6. Component Properties Identification

The SPEA Systems ATPG Software requires to identify the following data for each component:

Passive Components:

- **Component Family**
- **Part Number**
- **Component Value**
- **Tolerance + and -**

Other Components:

- **Component Family**
- **Part Number**
- **Device Name** (commercial name)

The **Component Family** is not specified in the Part List file so it is necessary to fill a table containing the assignment between Drawing Reference initials and Component Family and the CAD Type before executing the import process.

The table also contains the default tolerance for the specified family of the components.

Example:

Device Type	Prefix	Default Tol+	Default Tol-
Capacitor	C	20	20
Resistor	R	10	10
Connector	J		
Digital IC	IC		

For polarized components such as diodes, it is important to identify the pin function (e.g. Anode) of each pin.
Before running the import it is required to edit the pin Id/pin function table.

Example:

Device Type	Pin Function	Pin Id
Diode	Anode	1
Diode	Cathode	2
Polarized Capacitor	Positive	1
Polarized Capacitor	Negative	2

ⓘ **Note:** If the Part list contains only the mounted components, it is required to enable the rule for the components not present in the part list as “not mounted”.

7. Component properties default value

The SPEA Import software automatically assigns a default value if all component properties or part of them are not available in the CAD file.

In this case a further manual ending can be done to perform the required modifications by using the Board Data editor.

The default values are shown in the following table:

Property	Default Value
Component Family	Not identified
Value of component	0
Tolerance	0
Device Name	None