



VDL TBP ELECTRONICS

## DATA EXCHANGE REQUIRED DATA

### Bill Of Material (BOM)

Format	:	Excel or Ascii	
Content	:	part number	mandatory
		reference designators	mandatory
		description**	mandatory
		quantity	mandatory
		manufacturer	optional
		manufacturer part number	optional
		ATEX certified yes / no	optional
		UL/CSA certified yes / no	optional

\*\*)  
If there is no information about manufacturer and manufacturer part number the description field must be unambiguous in selecting the correct component e.g.  
For a resistor we need value, power, package and tolerance like "SMT RES 4k7 1/8W 0603 1%". For a capacitor we need value, voltage, package, material and tolerance like "SMT CAP 220nF 50V 1206 X7R 10%".

### Approved Vendors List (AVL)

Format	:	Excel or Ascii	
Content	:	part number	mandatory
		vendor name	mandatory
		vendor code	mandatory
		vendor website	optional

### CAD DATA

#### ODB++/ODB-XML format (required format)

This Data Exchange document (data exchange.pdf) defines the requirements and procedures for translating PCB design data and producing ODB++ files. Next table gives an overview of design tools with possibility to generate ODB++ output format.

<b>Vendor</b>	<b>CAD tool</b>	<b>Versions supported</b>
Cadence	Allegro	11.0 and higher
	Orcad-Layout	6.4.2 and higher
Mentor Graphics	Board Station	B2 and higher
	PADS (formerly PowerPCB)	2.0 and higher
	Expedition	WG2002
	Supermax ECAD	9.0 and higher



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Zuken	Visula Board Designer (CR5000) PWS (CR3000)	CADExpert 3.5 (CADIF4) and higher 6.02 and higher 12.0 and higher
Altium	Cadstar P-CAD Protel Designer	Cadstar 6 (CADIF 4) and higher 2.2 (v12) and higher 99SE & DXP (Ascii v3 & 4) 6.0 and higher
Number One Systems	Easy-PC for Windows	8.0 and higher
Pulsonix	Pulsonix	3.0 and higher
Valor	Enterprise 3000	all

**System specific format**

<b>Vendor</b>	<b>CAD tool</b>	<b>Versions supported</b>
Cadence	Allegro Orcad-layout	.out file .max, .min file Board Stations minimum required: geoms_ascii + neutral file
Mentor Graphics	PADS (formerly PowerPCB)	.asc file
Zuken	Expedition Visula Board Designer (CR5000) PWS (CR3000)	.gen file .paf (cadif.file) .pcf, .pnf file directory structure
Altium	P-CAD Protel	.pcb file (Ascii) .pcv (Ascii advanced)
CadSoft	Eagle	Gencad (script)

**Gerber based formats (not recommended)**

PCB plot data	format	Gerber (274D or 274X) HPGL DPF DXF
Drill info	format	... Gerber Excellon Sieb & Meier
Netlist	format	... IPC-356/356D GenCad FATF Mentor Netlist
CPL (Component Placement List)	format minimum content	... Excel or Ascii Refdes X-Y coordinates component rotation Side



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### **Data content**

Component layers	mandatory	
Solder paste layers	highly recommended	
Silkscreen layers		whenever applied
Solder mask layers	mandatory	
Peelable mask layers	highly recommended	
Copper layers	mandatory	
Drill layers	mandatory	

### **PB build-up drawings**

Format	:	drawing or text	
Content	:	PB stack up, board thickness, board finish, board dimensions	

### **PBA assembly drawings**

Format	:	included in CAD data document (.pdf, .hpgl, . ...)	preferred
Content	:	component orientations and polarity markers for each side	

### **(3D) mechanical assembly drawings (if applicable)**

Format	:	STEP file included in CAD data document (.pdf, .hpgl, . ...)	
Content	:	special assemblies like heat sinks, brackets or boxes	

### **Multipanel data (if applicable)**

Format	:	included in CAD data document (.pdf, .hpgl, . ...)	preferred
Content	:	Ascii file with offsets and orientation of single PB's Mul dimensions offsets and orientation of single PB's	not preferred

### **Electrical schematics (required for structural test coverage analysis)**

Format	:	searchable pdf document (.pdf, . ...)	preferred
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### **Data content programmable devices**

Format : many formats of electronic data are supported  
any format needs to be investigated to programmer  
compatibility master PROM

Content : full data content  
checksum  
special program requirements (e.g. sector protection, shall be documented)

### **Functional test requirements**

Format : document (.pdf, .doc, . . .)

Content : all functional test requirements  
if applicable, calibration requirements

### **BSDL-files (required for structural test coverage analysis)**

Format : document (.bsdl, .bsd, . . .)

Content : description of the boundary scan capabilities of the component