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EMS ELECTRA
ELECTRONIC MANUFACTURING SERVICES

GENERAL CONDITIONS FOR THE BOARDS AND PRODUCTS ASSEMBLY

1. TECHNICAL CAPABILITIES

SMT assembly		
Pannel dimensions (printing/assembly)	460 x 400 mm	Maximum L x W
	740 x 460mm	(one p&p machine)
	50 x 40 mm	Minimum L x W
PCB thickness	0,5 – 4 mm	
Smallest component	0201 inch (0603 metric)	experienced
	01005 (0402 metric)	possible
Minimum pitch for ICs, connectors	0,3 mm	
Biggest component (LxWxh)	55x55x15 mm	(vacuum nozzle)
(LxW)	125x25 mm	(odd shape possible with special or gripper nozzle)
SMT assembly with force control	0,5-50 N	
Reflow	up to 9 zones + cooling	Air or Nitrogen
AOI (post reflow)	2D + 3D	
THT assembly (manual)		
Maximum board size for wave soldering	410 x 380 mm	
Maximum board size for selective soldering	508 x 508 mm	
Testing		
ICT	max 1820 testing points	
Coating	heat curing materials	
Wire processing		
Conductor cross-section	0,05 – 8 mm^2	
Conductor maximum diameter	8 mm	
Conductor minimum length	25 mm	

Note: *If your project does not fit into the above-mentioned specifications, please contact us in order to analyse if we can provide you the requested operations.*

2. TECHNOLOGIES

- Solder paste printing and 2,5D optical inspection, lead-free or tin-lead solder paste
- SMT Glue applied by screen printing or dispensing
- SMT assembly on both layers (top and bottom)
- SMT soldering by reflow (air or nitrogen)
- Automatic optical inspection after reflow 2D and 3D
- Wave soldering (lead-free alloy) and selective soldering (lead-free or tin-lead alloy)
- Firmware programming
- In-circuit testing (ICT); in-house development and production of testing adapters and ICT software
- Functional testing (FT); in-house development and production of testing adapters and FT software
- Manual coating and dip coating
- Box build

- Cables processing (cut, strip, crimp contacts, connectors assembly, cables assembly)
- Packaging (product and export)

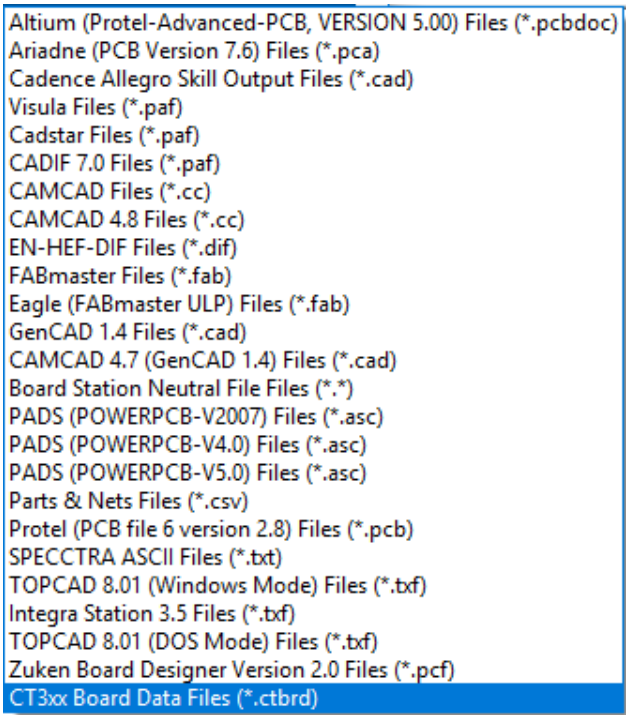
3. INFORMATION NEEDED FOR PREPARING QUOTATIONS:

3.1 Commercial information

- ☐ Quantity of products per production batch and per year.
- ☐ Information about the components registered with the producer/supplier for that project.

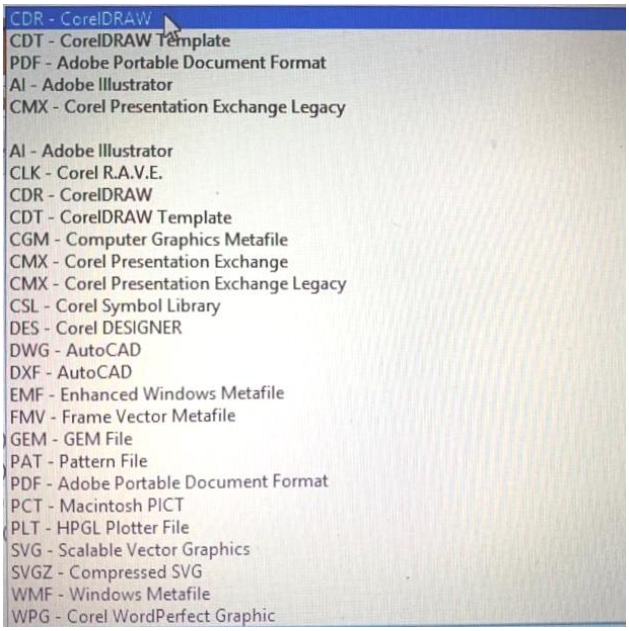
3.2 Technical information about the product

- ☐ Materials list (BOM), containing at least the type, value, reference, and the number of pieces.
  Additional information as order code (or part number), alternative material, and other specific information about the component (tolerance, temperature coefficient, isolation type/quality ...) will be very helpful.
  The materials used for the product assembly, packaging, or other materials used for the project, must be also mentioned in the list (preferably as a separate part of it).
  The materials free issued (sent by the customer) should be marked accordingly.
- ☐ PCB files (Extended Gerber RS-274X format) and drilling/milling files, information about the PCB (number of boards per panel, colours of the solder mask and of the marking, thickness of the PCB and of the copper layer, finishing), information about the stack build for the multilayer PCBs.
  Note 1 The Gerber files are mandatory for producing the solder paste or the adhesive printing stencils.
  Note 2 We can generate the Gerber files from the specialized PCB design files Altium, OrCAD, Protel, Eagle, PADS, MentorGraphics. The exported files need to be verified by the board designer because the exporting process can generate errors which we cannot check.
- ☐ The SMT assembly file (pick&place file) containing at least the reference, the value, x coordinate, y coordinate, turning angle and case;
- ☐ Details about the board assembly (labels and their positions, zones which must be protected during the wave soldering, height, or position of the components ...). Photos of the assembled board (if available) are helpful.
- ☐ If the In-circuit testing (ICT) is requested, we need the board schematics and the file containing the complete information about the board, please see the picture nearby, or separate files including:
  - Test pads list and their coordinates
  - Net list
  - Bill of materials including information about the values' tolerances
  - Electronic schematic, including the test points
- ☐ Details about the firmware programming and board testing;
  - Firmware to be programmed into the microcontroller (or at least the dimension of the microcontroller's firmware), programmer type to be used;
  - Functional testing information - testing procedure, board connections schematics
- ☐ Information about board coating (suggested coating material, zones to be protected during coating) or product potting (potting material, details about the process)



- Details regarding the box building (product's assembly) - drawings about how the boards must be assembled together or within the case, product labelling (content, dimensions, type and position) ...
- Details about the other accessories which should be delivered together with the product – connection cables, user manuals …
- Packaging instructions for individual and group packaging – information about the boxes (dimensions, materials type and quality, graphics printing, internal blisters, or separators), box content, materials to be packed together with the product, labels (content, dimensions, type and position) …
- Applicable standards, special technical requests.

Note: The information for making labels or graphic prints should be sent preferably in vector format (which can be imported into Corel Draw - see photo below) or in high resolution "pdf" format; one of the images must be scaled 1: 1 in order to allow us to scale the image for a correct printing.



You can use the previous list as a checklist, to be sure you are providing all needed information for the production.

IMPORTANT !
We prefer to receive the documentation in electronic format (Excel BOMs for example), for an easier and secure handling and management.