

### How RAMAER uses Ucamco's Integr8tor Software as an effective Sales Tool

**OED Report**

Report generated on: 2009-05-11 12:05:11

Job Id: [282] Multi\_274x4x

Customer: [282] Multi\_274x4x

Article Id:

Contact Person:

Name:

Email:

**Board Summary**

Copper Layers: 6 Total Drill Holes: 1172

Drill Layers: 1 Total Drill Tools: 8

Board Size: 145.1 mm x 106.7 mm

Smallest Drill Hole: 0.400 mm

Largest Drill Hole: 3.500 mm

Drill Hole Density: 786 holes/6m2

Soldermask: Both (top <-> bottom) Overall Smallest Touchwidth: 0.150 mm

Legend: Both (top <-> bottom) Overall Smallest Clearance: 0.150 mm

Paste: Overall Smallest Ring: 0.217 mm

**Files**

File	Format	Function	Position
silkscreen.gbr	gbr274x	legend	top
masktop_274x	gbr274x	soldermask	top
component_274x	gbr274x	Cu	1
inner2_274x	gbr274x	Cu	2
inner3_274x	gbr274x	Cu	3
inner4_274x	gbr274x	Cu	4
inner5_274x	gbr274x	Cu	5
solder_274x	gbr274x	Cu	6
maskbot_274x	gbr274x	soldermask	bottom
silkscreen.gbr	gbr274x	legend	bottom
drill.nc	ncdrill2	drill	14
drillraw_274x	drlfilp	drillmap	non
Components.pdf	item	document	

**OED Report**

drill.rpt text document

**PCB**

	Width	Height	Length
	mm	mm	mm
Outline	145.1	106.7	518.4

**Customer Panel**

	X	Y
#PCBs		
Panel Size		
Offset		
Spacing		

**Production Panel**

	Panel Size	Useful Area	Boards per Panel	Panel Fill
	mm	mm		%
13x12	330.0 x 305.0	310.0 x 285.0	4	72
18x12	457.0 x 305.0	437.0 x 285.0	4	51
24x18	610.0 x 457.0	590.0 x 427.0	10	63
24x20	610.0 x 508.0	590.0 x 480.0	15	85
28x24	711.0 x 610.0	691.0 x 590.0	20	80
32x24	812.0 x 610.0	792.0 x 590.0	25	88

**Copper Layers**

	Pos.	Min.Tack	Min. Cr.	Min.Ring	Min. Cr. to PLT	Min. Cr. to NPL
		mm	mm	mm	mm	mm
component_274x	1	0.210	0.200	0.217	0.429	0.271
inner_274x	2	NA	NA	0.220	0.340	0.190
inner2_274x	3	0.150	0.150	0.217	0.370	0.150
inner3_274x	4	0.150	0.150	0.217	0.370	0.152
inner4_274x	5	NA	NA	0.220	0.340	0.190
solder_274x	6	0.210	0.200	0.217	0.430	0.391

**OED Report**

	Pos.	Min. Cr. to Out.	Min. Cr. to Score (top)	Min. Cr. to Score (right)	Min. Cr. to Score (bottom)	Min. Cr. to Score (left)	Copper Area
		mm	mm	mm	mm	mm	%
component_274x	1	0.327	0.850	1.548	1.972	0.680	0.29
inner2_274x	2	0.298	0.300	0.300	2.850	0.300	1.33
inner3_274x	3	0.499	0.653	1.548	NA	0.680	0.28
inner4_274x	4	0.680	1.029	1.548	NA	0.680	0.16
inner5_274x	5	0.298	0.300	0.300	2.850	0.300	1.31
solder_274x	6	0.327	1.029	1.126	1.972	0.680	0.22

**Drills**

	Type	Tool No.	End Dia.	Tool Dia.	Holes	Span
			mm	mm		
drill_anc	plated	1	0.400		1104	1-6
drill_anc	plated	2	0.500		16	1-6
drill_anc	plated	3	0.800		38	1-6
drill_anc	plated	5	0.850		8	1-6
drill_anc	plated	8	3.500		4	1-6
drill_anc	non-plated	4	0.800		1	1-6
drill_anc	non-plated	6	1.200		1	1-6
drill_anc	non-plated	7	1.600		2	1-6

**Bare Board Test**

	Type	Holes	Stays	Smallest	Largest	Min. Ring	Min. Cr. Copper
				mm	mm	mm	mm
1-6	plated	1108	5	0.400	3.500	0.217	0.340
1-6	non-plated	4	3	0.800	1.600		0.150

**Process Parameters**

	Side	Terrible Points	SMD Pads	Smallest SMD Pitch
			mm	mm
component_274x	top		1570	1512
solder_274x	bottom		35	0

Faced with fierce global competition, at Ramaer we are constantly looking for ways to speed up processes, reduce errors and cut costs. For our front-end operations, from quoting to tool-generation, this means automation. We have worked in partnership with Ucamco for many years, starting in the Barco days. In July 2008 we installed their Integr8tor software to automate data input and analysis in the sales department. Today we can deliver faster and more accurate quotations. Our sales people are not just making quotes, they are quoting intelligently, based on a fuller understanding of the job and the customers' requirements. By spending less time spent preparing quotations, the sales department have more time to follow up quotations with customers and prospects. For our customers Integr8tor has meant that they get an exact quotation faster and a more meaningful dialogue with us as suppliers.

Historically, as in most companies, our sales people prepared cost calculations against the customers' written specifications or using a Gerber viewer. For anything but the simplest jobs this meant that they could miss potential production problems. When we received the order we had to swallow any additional costs ourselves or renegotiate the price with an unhappy customer. Complex jobs had to be sent to the CAM department for detailed analysis. This wasted valuable CAM time if we did not get the order.

Today our sales people load the incoming data directly into Integr8tor. The software reads the CAM data automatically, builds the stack-up and runs a detailed design analysis within minutes. Integr8tor outputs a set of key figures which are entered into the costing system to provide an accurate price. In the majority of cases the process is entirely automatic. If the data is incomplete or ambiguous, Integr8tor flags up the issues and requests manual assistance via straightforward menus and clear on-screen graphics.

Some critical production information such as copper weights, board thickness or special materials cannot

be embedded in Gerber data. Today this information is entered manually, which takes time, even with Integr8tor's clear menu structure. One of the benefits we have found over the years we have worked with Ucamco is their fast response to requests for new functionality. They have already developed an intelligent reader which scans the customers' specifications, automatically extracts this key non-Gerber data and enters it directly into Integr8tor.

We believe that our customers will respond very positively to this new functionality. They already appreciate the speed with which we can return a price to them and the knowledge that the price is exact. As Integr8tor runs a complete design analysis, we can feed back any manufacturability issues before we receive an order. Our customers appreciate the extra confidence that the job will be produced correct and without unexpected delays.

For our OEM customers Integr8tor brings an additional benefit. Our sales engineers can offer suggestions to enhance the manufacturability of their design, allowing them to cut the costs of production, improve yields (and hence lower costs) and enhance the boards long-term performance.

In summary, after 1 year in operation, Integr8tor has proved its value as an investment. Our costing and planning is faster and more accurate as it is based on a realistic understanding of each job as soon as it is received. We are confident that Ucamco has the engineering skill and expertise to work with us to develop the product even further to help us achieve our business goals.

John Kuitert  
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Ramaer, based in Helmond, Netherlands is a leading PCB manufacturer in Europe. Their mission is to ensure continuity through superior products and services and to be a reliable partner for all customers, employees and suppliers.  
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