Integr8tor – doing what it says on the tin

One of the world's most technically competent manufacturers in the global high technology PCB industry, Graphic PLC manufactures a wide range of highly advanced PCBs for its demanding, high reliability markets. These include the defence and aerospace sectors, as well as advanced medical and industrial marketplaces. Following extensive tests on a number of alternatives that would support its quoting and engineering needs, Graphic selected Ucamco's Integr8tor system for the quality, stability, reliability and accuracy of its results, and for its compatibility with Graphic's existing Orbotech systems environment. With the open, flexible support of Adeon and Ucamco, Graphics can now automatically and fully analyse client data with unprecedented speed. Integr8tor has freed at least one engineer from the quoting process, and is being integrated across Graphics' pre-production processes to enable well-analysed, clear data to flow seamlessly throughout the business, increasing efficiencies and reliability while improving Graphic's customer service performance no end.

Group Managing Director David Pike and Engineer Chris Hunter explain:

Graphic PLC has been in business with the same ownership for over 45 years, making us rare, if not unique, in the PCB industry. That's because our focus lies where we believe Europe's PCB manufacture has a future: leading edge technology for demanding industries such as defense and aerospace, as well as some pretty sophisticated products for the medical and advanced industrial sectors. Our chosen marketplaces demand absolute reliability from us, in advanced technologies such as flex and flex-rigid circuits, stacked and staggered sequential microvias, copper and resin-filled vias, high CTE structures, carbon core and multi resin filled systems. We also do a lot of work with buried resistance and buried capacitance, and are involved in embedded technologies. We're dealing with quite a range of products at the very high end, in volumes that range from prototype one-offs, to thousand-strong series, for customers in the UK and across Europe, in South Africa, Australia, and the USA. Through our China-based JV with Somacis, we are even supplying high-end products from and to the Far East. Over the years we've made a name for ourselves as one of the world's most technically competent manufacturers in the high technology PCB industry.

About 35% of our business is fast-turn work, with leadtimes in the order of 10 days and under. Which means that, right from the customer quoting stage, speed is of the essence for us. That's why we decided to implement a system that would help us with incoming customer data. We are no different from any other PCB manufacturer in that our clients want correct quotes from us ASAP. The problem was that we were quoting for such complex products that it was impossible to capture all the data necessary to create fast, accurate quotes. So we evaluated all the alternatives, and after putting them all through extensive tests, we selected Ucamco's Integr8tor. We had never worked with Ucamco before, so we really put Ucamco and Integr8tor through their paces – given our business, we can't afford to make mistakes. Integr8tor impressed us immensely: for the quality, stability, reliability and accuracy of its results, and for its compatibility with our existing Orbotech systems environment. Key for us was that Integr8tor should be a plug-in package into which we could input the customer's data easily, and see immediately the exact board build.

With Integr8tor, we can automatically and fully analyse any data set that is sent to us for quotation. And it's fast. Whereas before a CAM engineer would have to load the data into an individual CAM package, Integr8tor allows us to input the customer's dataset semi-automatically, so by the time we're ready to look at it for quotation, Integr8tor has done the complete analysis.

Integr8tor interrogates the data using tens of thousands of Design Rule Checks, identifies the build, and analyses the job for its manufacturability and its price class. Now, we no longer have to look through the dataset on each and every layer, so the time savings are immense. And the payback is excellent – it's saved us at least one engineer in quoting, and now our whole quoting process is managed by the sales department, rather than engineering.

One of the strengths of Integr8tor is that it automatically and reliably recognises whether an outcome can be trusted or not. Where incoming client data quality is poor, Integr8tor automatically optimises it and passes it on correctly so that our quotes are accurate. Where this is not possible, we know we can trust Integr8tor to flag problems clearly and accurately in an electronically transferrable format so that we can address them quickly with the client before proceeding. Even on the very rare occasions that it is slow in analysing a job, Integr8tor still gives us invaluable information, by indicating that, either for data quality, or for the complexity of the product, this job will take a long time in CAM too, so we can feed that into our scheduling and customer quoting to give more accurate leadtimes.

Our decision to implement Integr8tor was not just about exceptional technology: it was also about people and service. We have had an excellent working relationship for years with André Bodegom of Adeon, Ucamco's representative in the UK, and he was a major influence in our decision to go with Integr8tor. We were equally impressed with the people at Ucamco. Importantly for us, Ucamco has a UK-based Application Engineer, Adam Newington, who fine-tuned the system initially for our specific needs. Ucamco's Engineers in Gent also distinguished themselves with their open, helpful and flexible attitude. Their approach, right from the beginning of the evaluation process, and before we had made our decision, was always "Yes, we can help you". Our engineers have always had direct access to Ucamco's engineers, and together we were able to write customer-specific scripts that we embedded within Integr8tor so that we can automatically apply our customers' tailored rule sets to their incoming data, improving our performance no end.

Ucamco is also helping us to ensure that Integr8tor is well integrated across our business. This will start with our Printed Circuit Professional system from Softwires, as Integr8tor currently processes a lot of data that does not automatically transfer to PCP. We also want to automate the transfer of stackup and all the data supporting board build, so with Ucamco's help, we are putting our entire materials library into Integr8tor, enabling it to define the materials we use, their characteristics and our suppliers. To this end, Ucamco is also working with Polar on a link to Polar's Speedstack. This will enable us to automatically assign materials to the build at an earlier stage and carry out a proper analysis, far earlier than we do now, on what will essentially be the working board. The benefits of this are immense given that materials affect costs significantly. As well as streamlining and improving the interface between Integr8tor and PCP, this will allow us to optimise our business in other areas, for example, by sending the data to purchasing to start pre-ordering the material. Our plan is to integrate Integr8tor further across our business as we see a big advantage in having well-analysed data flowing automatically throughout our business, from as early as the quote stage.

This is the first time we have worked with Ucamco, and our experience has been second to none. The product is excellent, does what it says on the tin, and comes with great service from Adeon and Ucamco.

About Ucamco

Ucamco (formerly Barco ETS) is a market leader in PCB CAM software, photoplotting and direct imaging systems, with a global network of sales and support centers. Headquartered in Ghent, Belgium, Ucamco has over 25 years of ongoing experience in developing and supporting leading-edge photoplotters and front-end tooling solutions for the global PCB industry. Key to this success is the company's uncompromising pursuit of engineering excellence in all its products.

For more information on Integr8tor, please contact Ucamco:
Phone: +32 (0)9 216 99 00
Email: info@ucamco.com
Web: www.ucamco.com

About Graphic Plc

Graphic is one of the most technically competent manufacturers of high-technology printed circuit boards. With headquarters located in the heart of the English countryside, Graphic focuses on leading edge technology released to the most demanding international quality standards. Constantly looking at innovative solutions to customer requirements. Graphic is an expert at prototyping and developing new "first to market" products. With facilities in the UK, United States and in China for medium to large volume production, the Graphic Group is able to offer the complete service from Application Engineering support to volume PCB manufacture**.**

For more information, please contact Graphic:
Phone: *+44 (0) 1363 774874*
Email: *sales@graphic.plc.uk*
Web: *www.graphic.plc.uk*

About Adeon Technologies

As a professional partner of the European electronics industry, Adeon's business philosophy is to enable its customers to meet their critical business objectives by providing solutions for the fabrication and assembly of professional electronics through hard-, & software systems, and services.

For more information, please contact Adeon:
Phone: *+31 (0)76-5410008*
Web: *www.adeon.nl*