



The Need

Ranked as a world leader in Computer Numerical Control (CNC) tool and cutter grinder machines, ANCA Pty Ltd has been designing and manufacturing automated CNCs and servo drives since 1974. The task of creating the highly-complex electronic control and drive systems for these precision machines requires expertise in a range of engineering disciplines including electrical, electronic and software engineering, plus the ability to quickly produce electronic systems that exhibit both high performance and outstanding reliability.

“ Altium Designer is a feature-rich, flexible and intuitive design software with no boundaries and a very powerful user interface. Altium has assisted ANCA to evolve as a world leader in the CNC Tool and Cutter Grinder market. ”

Ian Rees Electronics Engineer, ANCA Pty Ltd

The success of ANCA's innovative machines reflects the capability of its engineering staff, the company's commitment to technology solutions and the advanced design systems used to develop ANCA products. Along with other leading-edge design tools, ANCA selected Altium Designer to develop the company's sophisticated CNCs for both its own products and as an OEM CNC core for other companies.

The Challenge

ANCA's latest-generation CNC and digital servo drive system, the 5DX, needed to be developed from concept through to completion in just two years in order to exhibit the new system at a key international trade expo in Germany. This is an extremely short development time for complex industrial CNC systems and particularly for creating the advanced electronic subsystems incorporated in the new 5DX machine.

The challenge for ANCA engineers was to successfully create and implement the 20+ complex, high-density PCBs needed for the new CNC machine within the tight development

schedule, while maintaining quality and reliability of the electronics at the highest level. This in turn demanded exceptional capabilities from both ANCA's design engineers and the electronic development tools used to create the 5DX electronics systems - the PCBs for example, needed to be correct and ultra-reliable the first time as costly and time-consuming re-designs were not an option within the allotted timeframe.

The Solution

In line with ANCA's belief that 'you use only the best possible tools to produce the best possible results' (which of course includes ANCA's CNC machines for tool cutting and grinding), the company uses Altium Designer to create and develop the electronics systems for its products. Altium Designer allows ANCA engineers to develop state-of-the-art designs from concept through to completion within a single unified application that not only streamlines the development process through its seamless platform-level flow of schematic-PCB design data, but also brings all electronic design management and documentation into one efficient environment.

With Altium Designer, ANCA is able to eliminate board errors early in the development stage and tightly control PCB production quality using the system's powerful rules-driven design and layout environment, which ensures the integrity of design data and compliance with design constraints through all stages of the development process. To further ensure integrity of its designs during development, ANCA also harnesses Altium Designer's unified mixed-signal simulation facilities for comprehensive circuit performance checking using a choice of SPICE 3f5/XSpice and PSpice component models. Mechanical aspects of the design are verified in the company's Unigraphics NX mechanical modeling and design software.

The Results

By utilizing the capabilities of Altium Designer and ANCA's highly-skilled engineering team, the company achieved the remarkable result of bringing the complex 5DX project to fruition inside the required deadline. There was little tolerance for error during the electronics development process due to the tight schedule and inflexible target

CUSTOMER SUCCESS STORY



date of the German expo. ANCA's development team and Altium Designer kept the project solidly on track – a process enhanced by the high-level of expertise and fast response provided by Altium's technical support, which ANCA described as 'second to none'.

Along with major advancements in ANCA's product technology, such as its high-performance directdrive spindle systems, the new 5DX CNC has been instrumental in consolidating the company as an international leader in its field. ANCA's philosophy of using the best development tools to create the best precision grinding tools has been fully justified by its choice of Altium Designer for the company's electronic product development needs.

Product Information

The AN/FPS-85 space surveillance radar can simultaneously track a large number of earthorbiting targets and scan large areas of space using its sophisticated phased array antenna system composed of almost 6,000 transmitter antennas and 20,000 receiver antennas. With an operating power of up to 30 megawatts at a frequency of around 400 megahertz, the radar system can reportedly detect, track and identify objects the size of a softball moving in a near-earth orbit of 300 miles. The SENSOR re-engineering program seeks to increase the radar's range, accuracy and overall performance while increasing its reliability and lowering maintenance costs through the implementation of the latest electronic technology and software systems.

About ANCA

ITT Corporation, Systems Division provides select government, commercial and international customers with value-added, total worldwide systems solutions for their defense, communications, command and control, range, spacelift, surveillance and force protection needs, as well as full logistics support services for facilities and equipment. ITT Systems Division is an ISO 9001:2000-certified business with more than 7,000 employees operating at 99 locations in the United States and 23 countries. As part of its SENSOR contract responsibilities, ITT Systems Division provides depot-level support and software maintenance, and performs Service Life Extension Programs (SLEP) for the US Air Force Space Command's worldwide network of space surveillance systems.

ABOUT ALTIUM

Altium Limited (ASX:ALU) creates electronics design software. Altium's unified electronics design environment links all aspects of electronics product design in a single application that is priced as affordable as possible. This enables electronics designers to innovate, harness the latest devices and technologies, manage their projects across broad design 'ecosystems', and create connected, intelligent designs.

Founded in 1985, Altium has offices in San Diego, Sydney, Karlsruhe, Shanghai, Tokyo, Kiev, with value added resellers worldwide. For more information, visit www.altium.com. You can also follow and engage with Altium via [Facebook](#), [Twitter](#) and [YouTube](#).