



Microsystems Provide a Competitive Edge for Canada's Agricultural Community

Dr. Palmer is excited about the potential of his microsystems innovation for future agricultural applications such as organic farming. He is focused on providing simple and cost-effective solutions that enhance the productivity and competitiveness of the Canadian farmer.

Dr. Ronald Palmer knows the value of microsystems research to Canada's agricultural community. Years of research supported by CMC, commitment to his vision, and the integration of microsystems technologies have enabled innovation in "autosteering" technology for tractors at the University of Regina. With five pre-production models completed, countless distributors promoting the technology at trade shows, and a pricing strategy that undercuts leading global farm equipment vendors by an average of 70 percent, Dr. Palmer is taking this innovation to market.

Autosteering allows the farmer to operate equipment such as the tractor more efficiently, minimizing error and overlap when cultivating crops. Dr. Palmer's autosteering innovation offers the farmer increased

productivity through the integration of different technologies: GPS (Global Positioning System) technology, FPGA (field-programmable gate arrays), DSP (digital signal processing), an electronic gyro, embedded software, and principles of linear regression. These technologies help to manage one of the most common and costly problems facing the Canadian farmer: cross-track error or inaccurate positioning of the equipment against the intended track.

Leading agricultural equipment vendors in the United States are introducing similar autosteering hardware at a cost of US\$24,000 per tractor. In Australia, the starting price to add autosteering technology to a tractor is about US\$18,000 per unit. Dr. Palmer is entering the market at CDN\$5,000 per unit, making leading-edge agricultural innovation more cost-effective, accessible and feasible for the average farmer.

Dr. Palmer has capitalized on the research infrastructure provided by CMC for over 18 years to continually advance his research for diverse agricultural applications. "Without consistent access to CMC-supported tools and technologies, the potential to develop working prototypes would have been much more limited," says Dr. Palmer. "The opportunity to fabricate working microchips is essential for proof of concept when taking innovations to market."

Dr. Palmer knows the value new microsystems innovations will deliver: "As interest in autosteering innovation is skyrocketing, I am delighted that the Canadian farmer will reap the benefits." *cmc*