Embedded Systems Canada (emSYSCAN) is a 5-year, $48 million project proposed by 200 faculty members and currently involving 37 universities. The project is one of several connected with CMC Microsystems (CMC), the manager of the National Design Network (NDN). Over the past five years, more than 7000 researchers in the NDN have benefited from industrial tools, technologies, and support services valued at over $120 million. More than 500 Canadian companies have collaborated with academic researchers or hired graduate students with microsystems competence and experience.

**Embedded Systems Canada Project**

The emSYSCAN project provides platform-based microsystems design and prototyping environments to enable, stimulate, and extend nationwide university research. This infrastructure is expected to be used by an additional 425 (and growing community of) faculty members who participate in the microsystems oriented NDN. Several generations of infrastructure systems will be delivered that will serve as tools to explore programmable and adaptive microsystems incorporating micro-electromechanical systems (MEMS), microfluidics, photonics, microelectronics, embedded systems/software and novel, nano-scale devices. These technologies will be instrumental in providing value in the leading edge products of the next decade and will support a wide array of applications including all of those identified as strategic priorities by Canadian governments. emSYSCAN infrastructure will shorten the microsystems development cycle leading to rapid commercialization, publication, and training of highly qualified personnel within a national and international multi-disciplinary research environment.

The $48 million award of Canada Foundation for Innovation (CFI) funds for the emSYSCAN project was finalized in 2010/11, with disbursement beginning in 2011/12. The project is cast into a five-year period (2010-2015) delivering multiple generations of microsystems platforms. The infrastructure consists of national research labs connected by secure links to a management hub, with operations based at CMC (refer to Figure 1).

**emSYSCAN Design Environments**

The university sites will have access to a wide range of multi-technology design environments (e.g. for photonics or embedded software), development systems (e.g. configurable PCB platform or network processing platform), and rapid prototyping capability, as well as a range of support and training services. emSYSCAN will provide researchers with a comprehensive toolbox of technologies and methodologies that will enable an unprecedented range of internationally competitive research into all aspects of microsystems design. In particular, it is intended as an aid in developing next-generation microsystems, multiple-technology embedded architectures, design methodologies, and novel manufacturing technologies.

The categories of equipment are:
- Computer-Aided Design (CAD) tools and Intellectual Property (IP)
- Multi-Technology Design Environment “Desktop” Development Systems
- Rapid Prototyping (Characterization, Integration and Assembly)
- Real-time Embedded Software Lab
Figure 1: emSYSCAN National Infrastructure

How to Get More Information

For more information regarding emSYSCAN contact
Peter Stokes, Director CFI Projects, stokes@cmc.ca 1.613.530.4676

CMC-delivered products and services support the entire design, make, test cycle. For an overview check the Products and Services Catalog: http://www.cmc.ca/WhatWeOffer/Documents/ProductCatalog.aspx

Additional information is available from CMC’s Canada’s National Design Network document: http://www.cmc.ca/AboutCMC/~media/AboutCMC/NDN_brochure_english.pdf