Canada's National Design Network®

HIGHLIGHTS

2020 2021

CMC Microsystems

About Us

CMC Microsystems is a not-for-profit organization accelerating research and innovation in Canada. Founded in 1984, CMC lowers barriers to technology adoption by creating and sharing platform technologies.

What We Do

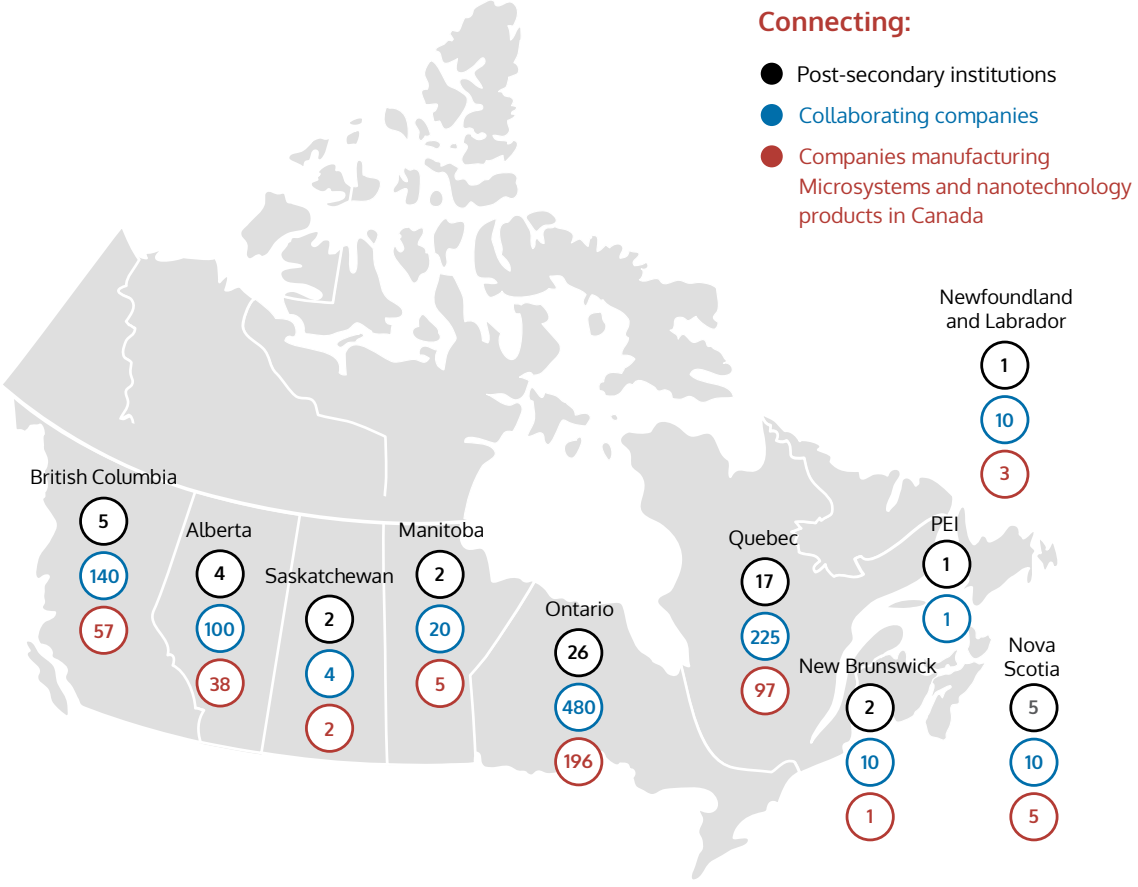
CMC and CNDN facilitate access to state-of-the-art design, manufacturing, and testing facilities for microsystems technologies. We give Canada's top researchers and innovators simplified access to the best tools to design, develop, and test their ideas.

We focus on five foundational technologies:

Let's Connect! www.CMC.ca/About-Us

Canada's National Design Network®

A Canada-wide collaboration between more than 65 universities/colleges to connect 10,000 academic participants with 1,000 companies to design, make and test microsystems and nanotechnology prototypes.



By the Numbers

Industrially Relevant Research

A strong national network delivering globally competitive, industrially relevant research and innovation.

Research Excellence

4,030
Publications

155
National and International Awards

Industrial Impact

50
Licensed Technologies

245
Patents (applied for/issued)

14
Startups

610
HQP moved to Industry in Canada

We Create and Share Knowledge

Consistent growth in training aspiring research leaders and connecting industry with research.

Trained HQP

325

Graduate Courses

485

Undergraduate Courses

Collaborative Initiatives

430

Collaborations with industry valued at $34M

430

Inter-university collaborations in Canada and abroad

90

Collaborations with government and not-for profit organizations

CAD | FAB | LAB

Capability to keep researchers at the leading edge.

CAD

High-performance Computer Aided Design tools and environments for successful design from over 20 vendors

- **85 CAD tool suites** available via desktop or through CMC Cloud
- **7,400 users**
- **480 user guides,** design flows, and training materials
- **30 training courses and events**
- **15 webinars**

FAB

Multi-project wafer services, value-added packaging and assembly services and in-house expertise for first time-right prototypes

- **50 technology runs** through **8 foundries worldwide**
- **320 designs fabricated**
  - 270 fabricated through CMC's global network of industry-scale fabrication foundries
  - 50 developed through Canada's MNT network of 40 university-based labs

LAB

Device validation to system demonstration

- **680 programmable development systems**
- **80 pieces of test equipment for rent**
- Online support system with over **2,000 cases closed annually**

Microelectronics

The semiconductor industry is heading toward a collaborative and comprehensive "silicon to services" model. This shift will mean that the industry will cover a more integrated product and service offering. This model builds on the ideas of Platform as a Service (PaaS), open-sourced hardware, and building silicon from disaggregated, pre-verified chiplets to slash costs and reduce time-to market for heterogeneous designs.

Microelectromechanical Systems (MEMS)

MEMS growth is fueled by established sectors of the economy such as automotive and consumer goods, and is poised to become critical in advanced manufacturing of medical technologies and diagnostics, machine health, smart buildings, and edge computing.

IoT & Edge AI

We enable critical research in the IoT & Edge AI ecosystem which includes applications like artificial intelligence, machine learning, heterogeneous computing, and 5G networking. This sector is vital for future growth in Canada and is expanding incredibly quickly.

Photonics

Photonics technology is widely used in modern technology infrastructure, where it delivers many essential functions ranging from data transmission to sensing. The photonics industry is ripe for widespread integration between different systems and across applications. With increased integration comes the potential for explosive growth.

At CMC, we view photonics as a systems-enabling technology, and are working towards a future where photonic functionality is built into all chips and integrated with technologies such as microelectronics.

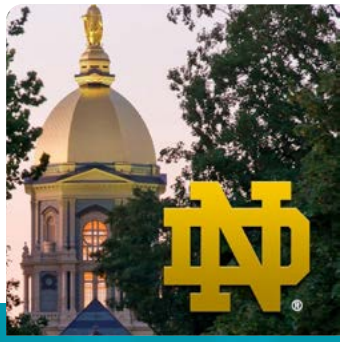
Quantum

Quantum computers solve problems with complexity that exceeds the computing capacity of conventional supercomputers, opening new possibilities for applications across different fields including AI and ML, biochemistry, finance, and cybersecurity. Quantum technologies are generally considered one of the greatest disruptive innovation opportunities in the world today.

Success Stories

"This platform is highly portable and able to reach vulnerable populations across Canada and around the world."

– PROF. EBRAHIM GHAFAR-ZADEH, YORK UNIVERSITY



"CMC's support through their micro-nanotechnology (MNT) program and MNT Award gave us access to training and a wide range of tools such as a cleanroom, characterization facilities, and testing facilities throughout the study. The entire workflow of fabrication, characterization, and testing was made possible under one roof at 4D LABS at SFU. We would not have been able to access these state-of-the-art facilities without CMC support."

– DR. BYRON GATES, SFU

"It wouldn't have been possible without CMC. They set up the infrastructure and provided tech support throughout the process."

– PROF. MATTHEW MORRISON, UNIVERSITY OF NOTRE DAME

"CMC facilitates my students' learning and makes them competitive in the engineering world. CMC makes a huge difference. They fuel my research."

– PROF. MOHAMMAD ZARIFI, UNIVERSITY OF BRITISH COLUMBIA

"I'm extremely grateful for CMC and professors across Canada who help deliver the program. It's been wonderful to work together on something that has such a large impact."

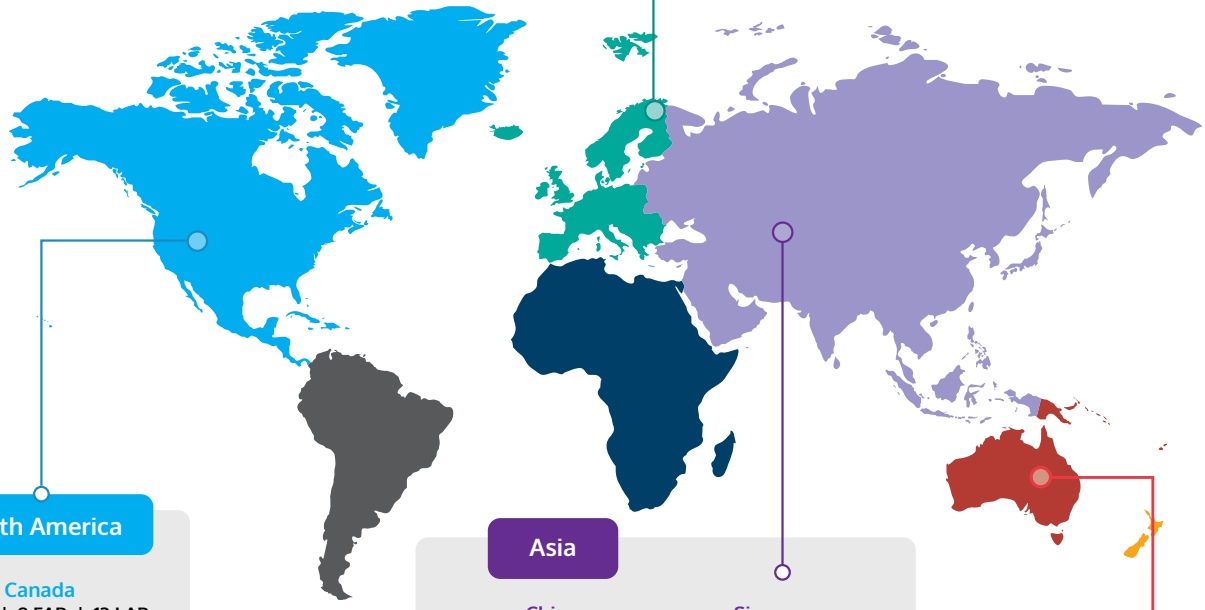
– PROF. LUKAS CHROSTOWSKI, UBC

"From day zero, CMC helped me make connections that could be very valuable as we grow. They're going to play a crucial part in commercially enabling this technology."

– DR. KYLE BRIGGS

Global Partners

The global industrial supply chain made accessible by CNDN.



Europe

1 European collaborative organization

Ireland
1 FAB

UK
1 CAD
1 Systems & Components

France
2 FAB
1 Co-operative Initiative

Sweden
1 CAD

Netherlands
2 FAB

Belgium
1 FAB

Germany
1 CAD | 2 FAB

Austria
1 FAB

North America

Canada
14 CAD | 8 FAB | 13 LAB
19 Systems & Components
42 University MNT Labs

USA
15 CAD | 5 FAB | 11 LAB
8 Systems & Components
1 Co-operative Initiative

Asia

China
1 Co-operative Initiative

South Korea
1 Co-operative Initiative

Japan
1 Co-operative Initiative

Singapore
3 FAB

Taiwan
2 FAB
3 Systems & Components
1 Co-operative Initiative

Australia

1 FAB
1 Collaborative Organization