

From Prototypes to Complete Systems

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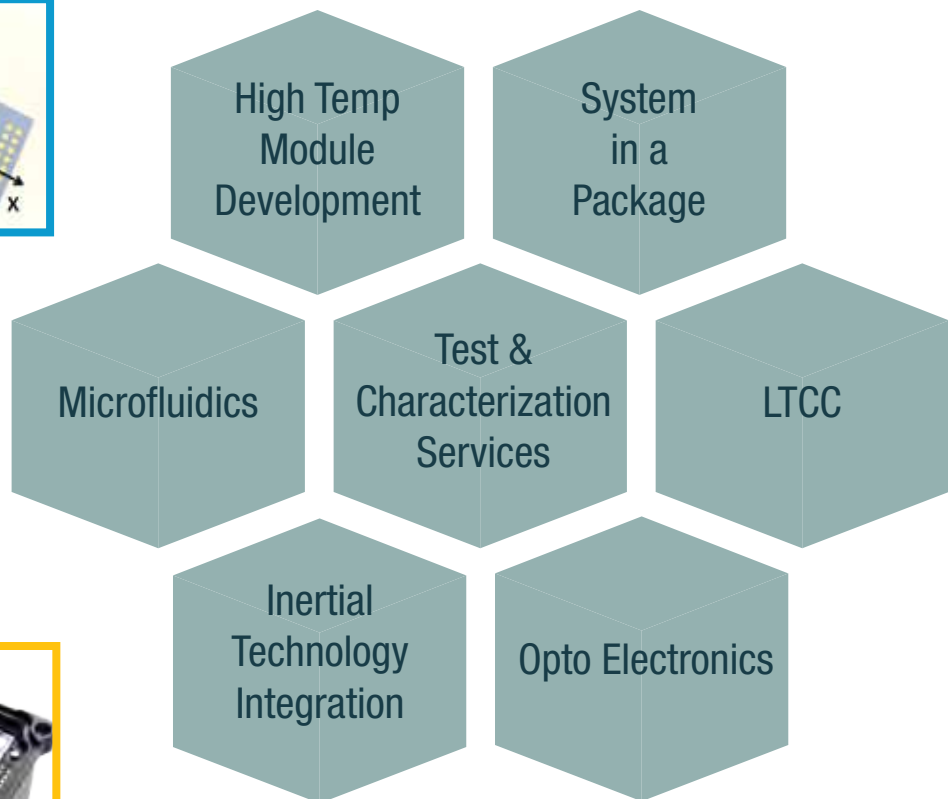
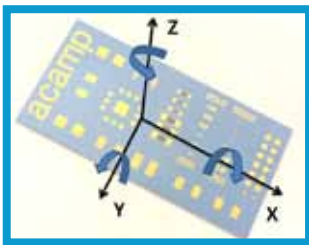
Executive Summary

Incorporated in 2007, ACAMP has been open for business since 2008. Today, we are a leader in enabling our clients to create manufacturable micro-nanotechnology (MNT) hardware solutions for the global market. ACAMP helps clients focus on innovations that are thoughtfully designed and based on real-world needs.

In 2012, ACAMP's 26 employees worked on over 40 projects, ran four seminars and four technology workshops, while coordinating the Wave 2013 conference. ACAMP grew its client base by more than 40 per cent from the previous year, to over 130 local, domestic and international clients.

ACAMP is the only MNT technology services provider in Western Canada to offer complete solutions from prototype to production. ACAMP's client-driven focus on product development, state-of-the-art equipment and business services are keys to our success.

Product Development Capabilities





Duane Macauley



Ken Brizel

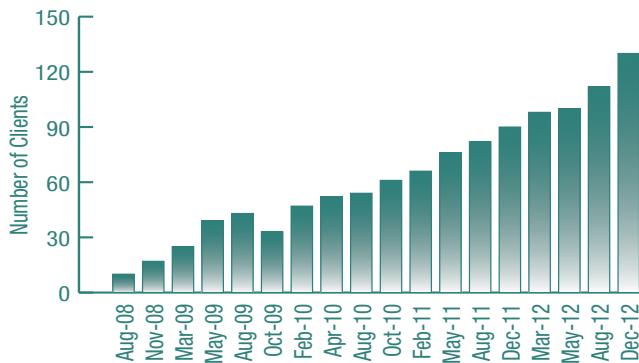
Message

to our clients, funders, suppliers, associates and friends

The end of 2012 marks five years in business for the Alberta Centre for Advanced Micro Nano Technology Products, ACAMP. We continue to service the investable technology community helping clients to make innovative manufacturable prototypes and production a reality. Over the past few years, we have grown our client base from only a few industry players to over 130 by the end of fiscal year 2012. It is imperative that ACAMP maintain its momentum of helping companies commercialize new products.

latest technologies into a wide variety of products for global industries. ACAMP operates as a contract manufacturer and expert advisor in business and manufacturing, including simulation, assembly, testing and characterization of products.

ACAMP has one of the most talented product and business development groups in Canada. Our team comprises more than 20 experienced business professionals and product developers, each with up to 30 years' experience in taking products to market. Our business team enables early stages of product development by serving as liaisons from clients to our engineers, supporting the implementation of their business cases for production.



Our client base continues to grow, by the end of FY2012, ACAMP had 130 MNT clients

We offer services in key areas critical for the commercialization of technology-based products:

- ◆ Marketing and business development – business case implementation, market analysis, presentation support, channel-to-market development
- ◆ Product development – design for manufacturability, from simulation through assembly
- ◆ Packaging and assembly – extensive manufacturing capabilities
- ◆ Testing and characterization – both destructive and non-destructive testing

Financial Results

ACAMP is a not-for-profit company with operating funds provided by the Province of Alberta. Fees for service are cost based and charged relative to the size of the company requesting support. Operating funds provided by the Province of Alberta allow us to provide funding to Alberta-based small to medium-sized enterprise (SME) projects.

In 2012, we achieved a record \$860,000 in revenue generated through fees for service. This revenue covers only a small portion of our total operating cost of \$3.2 million per year. Our revenue is growing based on fees for service. We are clearly benefiting from our customer-focused strategy. We continue to serve diverse end markets. We deliver the manufacturable products and channel development opportunities our clients expect, which have now become the hallmarks for our organization and our vertical-integration business model.

Expanding Client Relationships

We are clear about our goals – that is, to continually focus on developing best-in-class technologies, processes, channel support and performance tailored to the unique requirements of each client. This in turn helps to grow the technology industry and its global reach for their new products.

ACAMP reaches out globally with Seminars and the Wave Conference, to enable entrepreneurs, multinational corporations, investors, suppliers and distributors to come together to expand their market reach and showcase their hardware product technologies.

Looking Forward

We are excited about the future. We are committed to focusing on our clients, delivering superior quality work, improving effectiveness of all of our operations and ensuring our various MNT technology processes are always working at optimal efficiency. We realize customer satisfaction drives our business. We are unyielding in our promise to meet their expectations in quality, delivery and performance. With this in mind and our contributions to growing Alberta's technology Community, we anticipate continued government support for future operations.

At the same time, we continue to look for ways to improve upon our world-class infrastructure, low-cost manufacturing processes, unique capabilities and tools. Through these efforts, we help the investable technology community to continue growing and become more competitive. With a team of passionate, talented and dedicated employees, who are committed to flawless service and corporate integrity, we believe we have the momentum for continued success.

Analysts expect the MNT industry to continue to expand globally. We believe we are well positioned to support clients to exceed industry growth. And while we have reached many significant milestones, we welcome the opportunity to meet new challenges, grow our business and manage a world-class organization.

We look forward to addressing you again next year.

Duane Macauley
Chairman

Ken Brizel
Chief Executive Officer

Product Development

*Products incorporating
state-of-the-art micro
and nano technologies
are investable and valued
in the billions*

Technology Capabilities



Screen printing on ceramic substrates

ACAMP is uniquely positioned in Western Canada to support hardware product development. We offer complete solutions to companies within all industries. From prototype to production, our services enable a wide variety of complex applications such as:

- ◆ Autonomous sensors to monitor physical or environmental conditions
- ◆ Applications in health and medical for determining diseases and encapsulating new targeted drugs
- ◆ Energy applications for seismic, data logging, pipeline pigging, control and communications

Our client-driven focus on product development, state-of-the art equipment and business services are keys to our success and our clients' success. Our engineering development services use world-class infrastructure, low-cost manufacturing equipment, and unique capabilities and tools.

Prototypes to Production

Simulation of Systems, Fluids and Complex Structures

Products are growing more complicated and the engineering challenges are becoming harder to solve. Simulation has revolutionized product development over the past decades by minimizing costly physical testing and accelerating time to market in every industry around the world.

ACAMP can capture designs, model and simulate complex solutions to real world problems, reducing the cost of development and speeding complex products to market.



Automatically stacking ceramic sheets



High-precision diamond dicing saw

LTCC - Low Temperature Co-fired Ceramic

ACAMP supports product development for harsh environments with LTCC technology. By combining conductive, resistive and dielectric materials and firing in a kiln at the same time, LTCC assemblies produce complex multilayer hybrid circuits, including capacitors, inductors, resistors and transformers. These assemblies can be used in applications requiring high temperatures up to 300 °C or low temperatures down to -175 °C, while maintaining electrical and mechanical performance and stability.

Hot Embossing for Microfluidic Lab-on-a-chip

Microfluidic lab-on-a-chip devices are used in health and medical applications requiring precise control and manipulation of fluids that are geometrically constrained to a small scale. The devices integrate one or more functions into a single chip. Examples include mechanical flow control devices like pumps and valves, and sensors like flow meters and viscometers. Hot embossing is a very versatile chip replication method that uses high pressure and elevated temperature to transfer the structures from an electroformed master tool into sheets of polymer. ACAMP's microfluidics team is experienced in using hot embossing techniques to develop high fidelity and high yield production of microfluidic devices.

Fiber Coupled and Free Space Optoelectronic Systems

Optoelectronic systems are developed for environmental monitoring, telemetry, medical, surgical, spectroscopy and communications applications. These systems incorporate electrical-to-optical or optical-to-electrical transducers into instruments such as lasers, LEDs, photo detectors and complex optical assemblies with electronics. ACAMP has the unique ability to develop simulation, packaging and assembly, testing and characterization for complex optoelectronic components and systems.

Inertial Product Assembly and Characterization

Industries such as navigation use inertial systems to continuously calculate via dead reckoning the position, orientation and velocity (direction and speed of movement) of a moving object without the need for external references. In energy, applications include pipeline pigging, directional drilling and seismic detection. Inertial components and systems incorporate motion sensors (accelerometers), rotation sensors (gyroscopes) and magnetometers along with complex digital signal processors and data communication interfaces. ACAMP can assemble, test and characterize these complex systems with state-of-the-art equipment and tools.

Technology Workshops

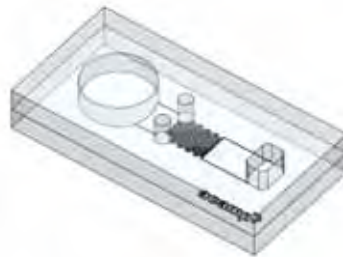
Our team of expert product development professionals coordinate equipment and product development training workshops to inform companies about technology that can improve products. During 2012, ACAMP hosted four workshops: E-Beam Welding, Lasers and Optical Assembly, LTCC Ceramic Assemblies and Microfluidics. Future workshops will cover Sensors, Simulation and Test and Characterization of IMUs.



Probing delicate MEMS devices

Demo Products

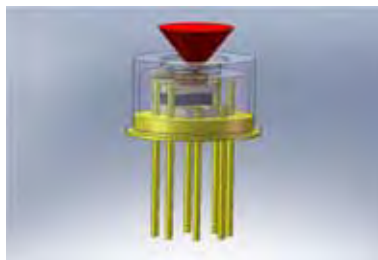
A selection of demonstrator products developed for our clients that showcase ACAMP's capabilities is shown below:



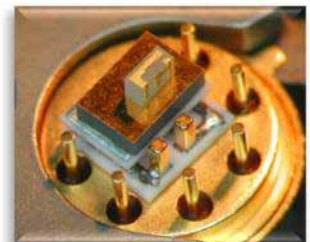
Microfluidic analyte detector



Automated die pick and place



Free Space Laser Assembly



3-Axis Inertial Assembly



Business Development

Taking products to a global market requires business case implementation, market analysis, presentation support and channel to market development

Multinational Relationships

Shell, Siemens, Bayer, Lockheed Martin, Maple Leaf Foods, Medtronic, BASF, VTI/Murata, Sony, Corning, Renesola, Intelligent Energy, Solazyme, Dupont, General Atomics, Asahi Kasei, Nikon, Robert Bosch, and more

Business Case Support



A business case provides justification to develop a proposed product and outlines the required amount of capital and resources to make it happen. Writing a business case is very hard work—implementing the business case is even harder. Our business team is a group of business professionals, each with up to 30 years' experience in taking products to market. Each business development manager is responsible for business case review, program review, connection to funding opportunities, channel development, marketing and applications material support. As the liaison between ACAMP's engineering teams and the client, the business teams help to keep projects on track and on target.

Project Management

Product hardware development requires interdisciplinary expertise and is often constrained by time, funding and deliverables. Through proper planning, organizing, motivating, and controlling resources to achieve specific goals, we are effective in helping to manage the client's project. In 2012, ACAMP supported more than 40 projects across all market areas.

Funding Opportunities

Connecting to funding is critical for the client's project staying on track for development and bringing its products to market. Our business team is well-versed in local, regional and Canadian funding opportunities. We offer support in writing proposals and interfacing with funders and financing agencies.

Channel Development

The popular ACAMP Seminars are a series of quarterly business and technology networking events to bring our clients together with Alberta's innovation community.

We acknowledge the generous support of our seminar sponsors:



Seminars

Each business development manager works to connect clients to global market opportunities. ACAMP sets the stage for productive opportunities by coordinating seminars for entrepreneurs, innovators, suppliers, customers, funders and investors. These events enable knowledge exchange, and business and technology networking.

In 2012, ACAMP coordinated four seminars on:

- ◆ Clean Technology
- ◆ Agriculture and Forestry
- ◆ Conventional Energy
- ◆ Health and Medical

Our overall outcomes—by the numbers:

- ◆ 6 multinational enterprises in attendance
- ◆ 60 unique companies and institutions in attendance
- ◆ 75 per cent of respondents valued the networking time and engaged with relevant industry contacts
- ◆ 78 per cent of survey respondents reported knowledge was improved
- ◆ 85 exceptional presenters
- ◆ 400 seminar attendees

Channel Development

“...I want to thank you and the organizing committee for a wonderful job. This has indeed been one of the most productive conferences I have attended in a while: real business discussions with potential partners. The logistics, timing, location, helpfulness of the staff, and all the other details that go to make a great conference were impeccable.”

Sergio K



John Webb of Maple Leaf, one of 12
Keynote speakers at Wave2011



Networking at dinner

Wave Conference

ACAMP initiated the biannual Wave conference in 2011 to bring together domestic and international business leaders from across all industries. The intent is to connect and develop product channels and introduce attendees to other business leaders in adjacent markets. The conference has proven to be very successful in creating opportunities for small- to medium-sized companies (SMEs) and multinational enterprises (MNEs). In 2012, we helped our clients follow up on leads generated from the 2011 Wave conference:

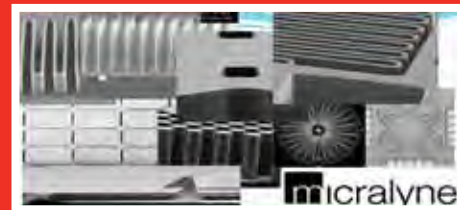
- ◆ Harris & Harris – engaged two of our clients
- ◆ Shell – engaged five of our clients
- ◆ Maple Leaf Foods – engaged 10 of our clients

Preparations also started for our 2013 Wave conference:

- ◆ Date set – May 5 to 8, 2013
- ◆ Location secured – The Fairmont Chateau Lake Louise, Lake Louise, Alberta
- ◆ Theme defined – “Taking Investable Technology Products to Market”
- ◆ Target sectors identified –
 - ◆ Health and Medical
 - ◆ Cleantech
 - ◆ Consumer & Commercial
 - ◆ Conventional Energy
 - ◆ Agriculture and Forestry
 - ◆ Nanonuclear
- ◆ Speakers confirmed –
 - ◆ Dr Chris Hartshorn, Lux Research
 - ◆ Dr Sergio Kapusta, Shell
 - ◆ Alexei A Andreev, Harris & Harris
 - ◆ Travis Earles, Lockheed Martin
 - ◆ Stephen Graham, Maple Leaf Foods
 - ◆ Dr Claus Schmidt, Robert Bosch
 - ◆ Dr Darrel Untereker, Medtronic
 - ◆ Dr Waguih Ishak, Corning
 - ◆ Martin Bloom, Renesola
 - ◆ Dr Harrison Dillon, Solazyme
 - ◆ Dr John Parmentola, General Atomics
 - ◆ Dr Shuichiro Ogawa, Asahi Kasei
 - ◆ Dr Helen Greiner, CyPhy Works
 - ◆ Dr Steven Griffiths, Masdar Institute

Channel Development

In 2012, ACAMP helped more than 130 clients turn prototypes into commercial products, including the clients shown below selected to represent the different sectors we support.



Client Support

Our business teams provide support to the client such as help to develop effective presentation skills. On international trade missions and business trips, our business professionals provide support as if they were a member of the client's team. In 2012, ACAMP supported 130 clients in engaging with their domestic and international customers.

Testimonials

"I would like to acknowledge the assistance we have received from your organization on the completion of the design and introduction to manufacturing...In particular, I would like to acknowledge...high level technical assistance to challenging problems. ...The very professional verification reports produced... helping us understand what we are seeing in practice with the new microphone and these reports are crucial in our meeting the requirements of design control that are required in our industry."

Ron Platt, VP Research & Development, SagaTech Electronics Inc

"ACAMP has been instrumental in getting us from inception to a commercial product in three years. We've developed the world's first portable Nuclear Magnetic Resonance (NMR) spectrometer capable of resolving 5 Hz J-couplings in organic synthesis. I really appreciate ACAMP's focus on business and product development, in addition to R&D. They have helped us with design and product hardening, but have also helped us place key people on our Board of Directors and Advisory Board. It is refreshing to have a group with such good industry expertise as support infrastructure."

Sean Krakiwsky, President & CEO Nanalysis Corp



Financial Statements

Audited Statement of Operations

Income Statement

Alberta Centre For Advanced MNT Products

Statement of Operations

For the year ended December 31, 2012

	2012	2011
	\$	\$
Revenue		
Alberta government grant	4,000,000	720,000
Conference - WAVE 2013	255,376	362,652
Contributed assets	8,500	-
Customer service fees	861,989	804,737
Interest income	22,984	24,014
Seminar fees and resources	34,307	62,676
Western Economic Diversification Canada	-	1,399,815
Revenue deferred to subsequent period	(2,195,107)	-
	2,988,049	3,373,894
Expenditures		
Advertising and promotion	7,934	10,855
Amortization	1,399,432	1,499,624
Bad debt expense	-	18,569
Bank charges and interest	3,828	4,720
Board activities	3,578	3,760
Conferences	23,557	12,078
Conference - WAVE 2013	60,269	406,976
Consultants	222,001	170,250
Freight	16,773	30,655
Insurance	29,392	29,156
Marketing	31,483	68,206
Moving	2,312	1,056
Office	75,997	24,378
Professional fees	20,961	32,806
Rent	130,054	129,385
Repair and maintenance	29,022	39,146
Software license subscription and renewal	78,603	59,189
Supplies	101,481	77,325
Telecommunications	17,765	19,333
Travel	42,041	35,881
Wages and employee benefits	2,180,745	2,226,369
	4,477,228	4,899,717
Deficiency of Revenue over Expenditures Before Other Expenses	(1,489,179)	(1,525,823)
Other Expenses		
Loss on disposition of capital assets	-	(4)
Loss on disposition of securities	(13,677)	(6,567)
Unrealized investment gain (loss) (Note 4)	(614)	(1,079)
	(14,291)	(7,650)
Deficiency of Revenue over Expenditures	(1,503,470)	(1,533,473)

Financial Statements

Audited Statement of Financial Position

Balance Sheet

Alberta Centre For Advanced MNT Products
Statement of Financial Position
As at December 31, 2012

	2012	2011
	\$	\$
Assets		
Current Assets		
Cash	397,084	60,930
Investments (Note 4)	2,071,214	162,554
Accounts receivable (Note 5)	180,507	554,380
Prepaid expenses (Note 6)	114,544	42,744
	2,763,349	820,608
Capital Assets (Note 7)	5,944,822	7,300,809
	8,708,171	8,121,417
Liabilities and Net Assets		
Current Liabilities		
Accounts payable	114,050	218,232
GST payable	-	701
Deferred revenue (Note 8)	2,195,107	-
	2,309,157	218,933
Net Assets		
Unrestricted net assets (Note 10)	454,193	601,675
Equity in capital assets (Note 10)	5,944,821	7,300,809
	6,399,014	7,902,484
	8,708,171	8,121,417

Corporate Information

Management & Partners

Senior Management

Ken Brizel	Chief Executive Officer
Kevin Yallup	Chief Technology Officer
Rosy Amlani	Chief Financial Officer and Vice President Business Development

Board Members

Duane Macauley	CEO, Dynamic Source Manufacturing
Alan Fair	Director, Tailings Canada's Oil Sands Innovation Alliance (COSIA)
Kip Fyfe	Former President, Dynastream
Chris Lumb	CEO, TEC Edmonton
Chris O'Neill	Director Technology, Genalta Power
Steven Slupsky	CEO, Scanimetrics
Ken Brizel	CEO, ACAMP

Funding Partners

Alberta Innovates – Technology Futures
Alberta Enterprise and Advanced Education
Western Economic Diversification Canada
NRC - Industrial Research Assistance Program

Partners

Innovate Calgary
nanoAlberta
nanoBridge
NanoFab
National Institute of Nanotechnology
TEC Edmonton
TRTech
University of Alberta
University of Calgary
University of Lethbridge
University of British Columbia
Advanced Micro/nanosystems Integration Facility
Northern Alberta Institute for Technology



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ACAMP (Alberta Centre for Advanced MNT Products) is a not-for-profit organization that provides specialized business services to MNT clients including Marketing & Business Development, Product Development, and Packaging and Assembly.