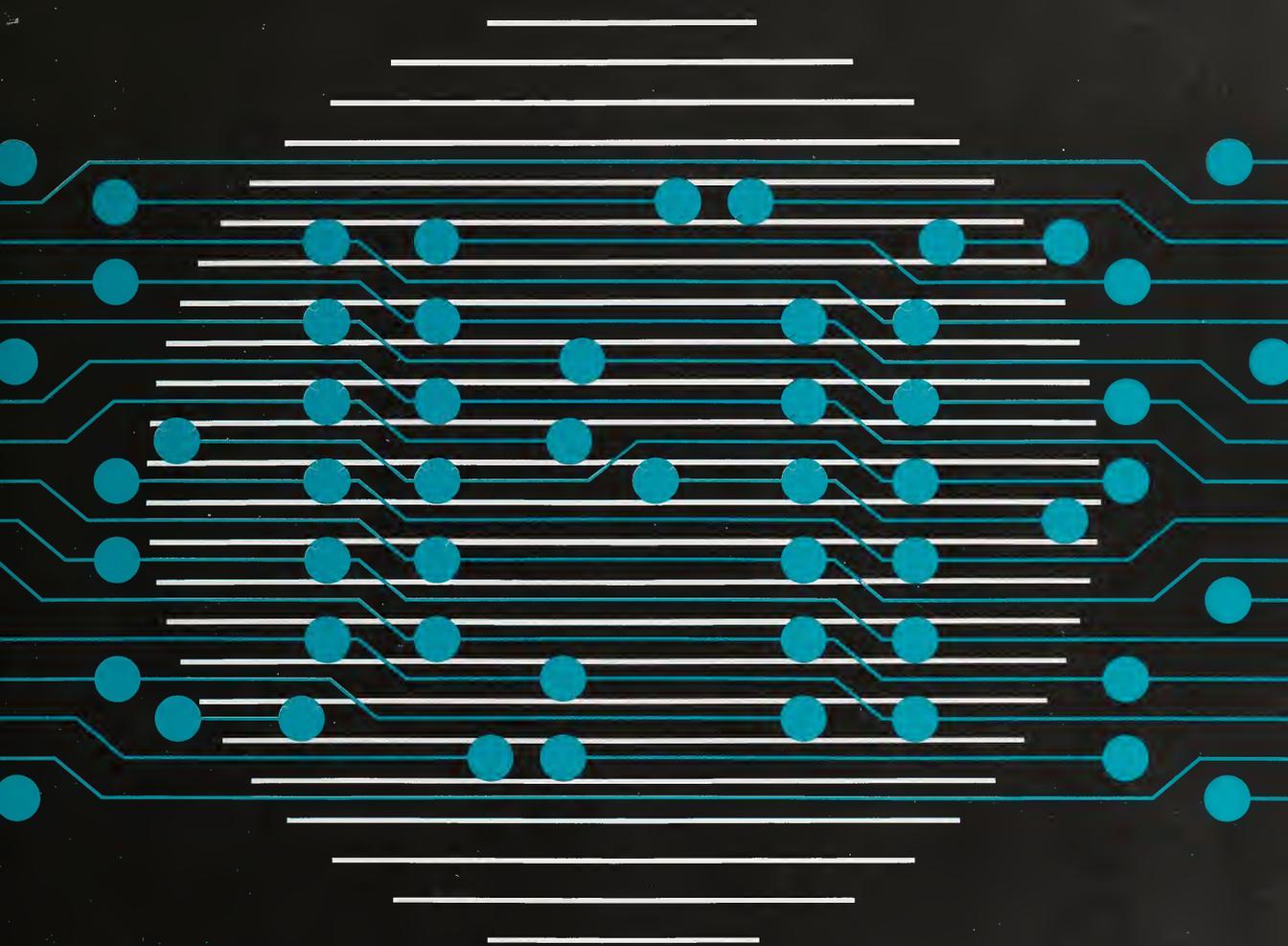


2-1989-2

# Electronics



**Alberta**  
TECHNOLOGY, RESEARCH  
AND TELECOMMUNICATIONS

DN 8571636



# A Message from the Minister

■ The impact of developments in electronics and microelectronics continues to change the way our society thinks, works and plays. Behind-the-scenes, the growing technological demands of this complex industry require the utmost in resourcefulness, initiative, and commitment.

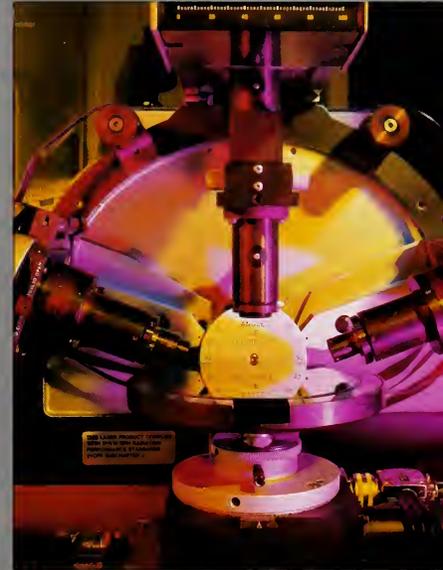
■ In Alberta, we are committed to the continued development of a vigorous electronics environment supported by a unique, dynamic interaction between industry, government and our universities.

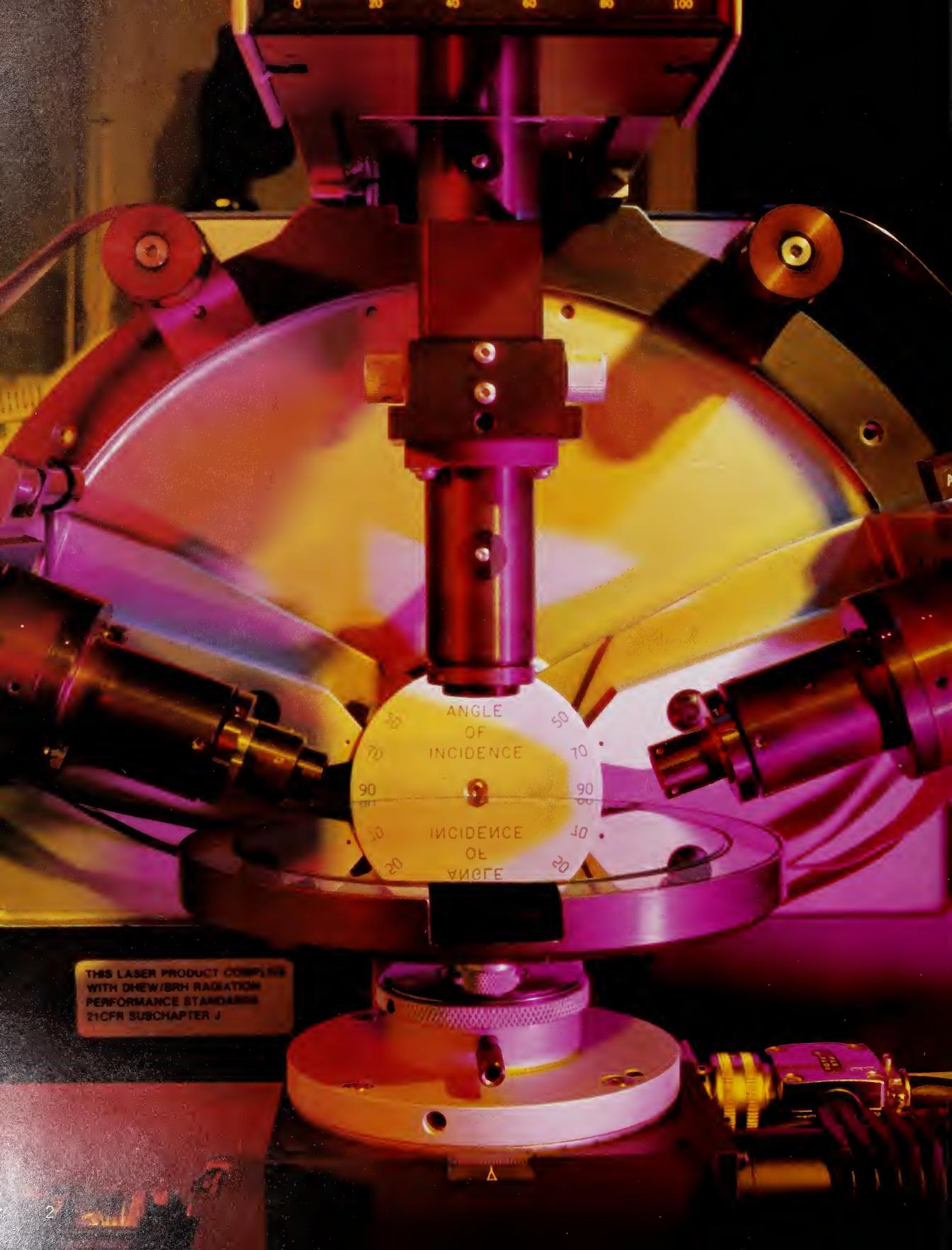
■ Alberta's long range goal — to advance electronics technologies — is one important part of our Provincial strategy of economic expansion and diversification.

■ Our strengths in such industries as energy and natural resources, agriculture, forestry and engineering form a solid foundation from which knowledge-intensive industries flourish and our economy thrives.

■ Alberta is rich in the elements essential to electronics industry growth: the productivity required to meet world markets, and the opportunities necessary to successful business achievement. This publication will introduce you to our enterprising electronics industry.

Leslie G. Young  
Minister  
Technology, Research  
and Telecommunications





THIS LASER PRODUCT COMPLIES  
WITH DHEW/BRN RADIATION  
PERFORMANCE STANDARDS  
21CFR SUBCHAPTER J

# Changing Our World

■ The silicon chip was invented less than a generation ago, yet our world has changed so much through expanding applications that what once was science fiction has become science fact. Electronics and microelectronics are now integral parts of our society and our lifestyle.

■ A characteristic of the electronics industry is an extremely rapid rate of change and advancement. Electronics products are continuously redesigned so that they will be more powerful, smaller, lighter in weight and less expensive.

■ Alberta-based companies not only keep pace with this rapidly changing world, but understand the need to incorporate leading edge technologies such as custom chips, chip-on-board, or surface mount assembly into their plans for a competitive future.



# A Fertile Ground

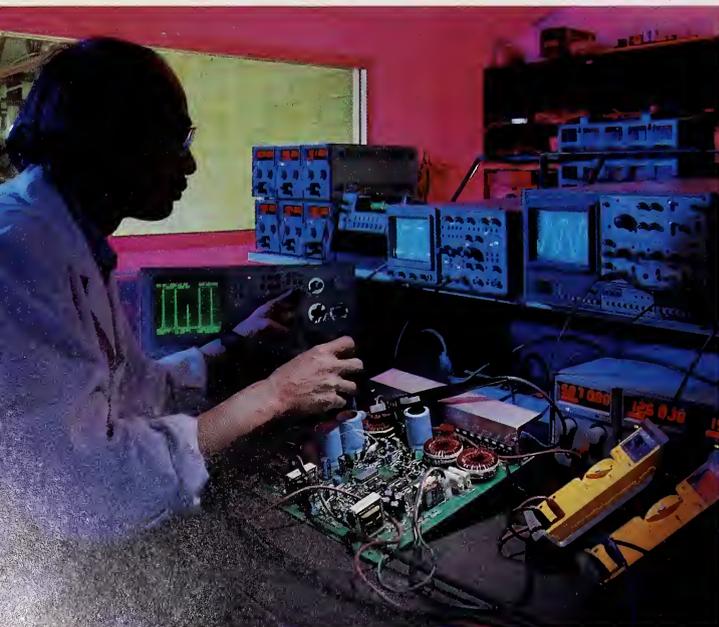
■ Alberta is a fertile environment for a vital, growing electronics industry because of the interlocking strengths of industry, electronics infrastructure, education and government.

## Industry

■ The Alberta electronics industry is characterized by a number of smaller companies which market strategic niche products or services and leading edge technologies. Roughly 85% of these companies enjoy sales of up to \$5 million and approximately two-thirds operate with up to 20 employees. Alberta companies are represented by the Electronics Industry Association of Alberta (EIAA), which actively promotes its members' interests.

■ Alberta industries such as energy and natural resources, agriculture, telecommunications, and transportation provide natural markets for Alberta-based electronics companies. Firms developed to meet this domestic demand have now tapped into much larger markets: out-of-province trade is significant.

Universal Power Corporation



## Electronics Industry Facts



**Fact...**A young emerging industry in the growth stage of its life cycle, 35% of Alberta's 130 electronics companies are less than five years old; 55% are less than eight years old.



**Fact...**Electronics companies in Alberta are active in diverse fields. Most companies have developed niche products in industry-driven market segments and many feature custom designed products.



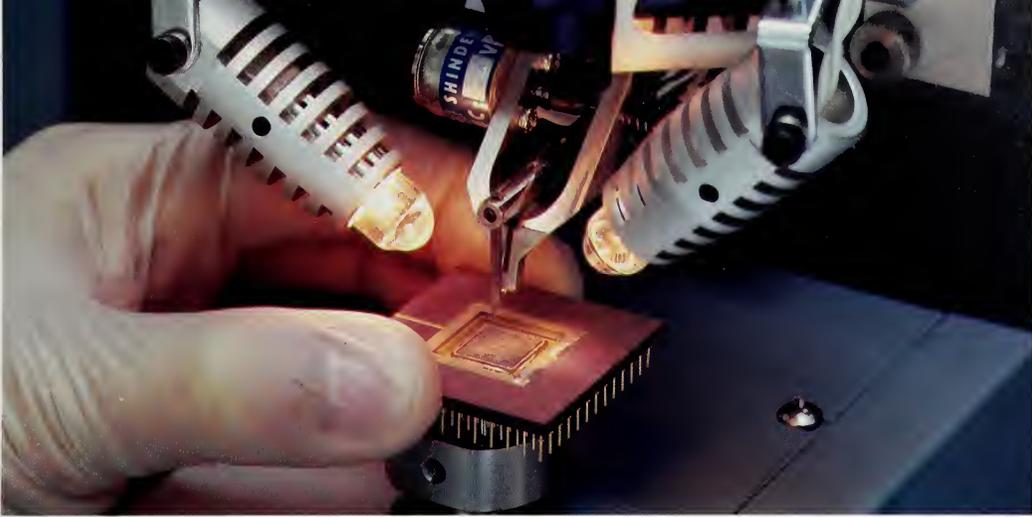
**Fact...**There are five types of electronics companies operating in the Province, often participating in joint venture activities: Research and Development firms, Manufacturers, Integrators, Service Providers, and Maintenance, Repair and Overhaul (MRO) Shops.



**Fact...**Alberta's well-established petroleum, telecommunications, and agricultural industries provide the firm foundation for a home-grown market from which electronics companies can generate revenues.



**Fact...**Alberta electronics companies export a large percentage of their products and services...notably to other provinces in Canada, the U.S.A., United Kingdom and Europe; approximately one-quarter of the companies earn at least 75% of their revenues from shipments outside the Province.



## Infrastructure

■ Alberta's initial commitment to a state-of-the-art electronics infrastructure, the **Electronics Network of Alberta (ENA)**, ensures that industry's needs and initiatives will be met with top flight facilities and human resources. These strategically-linked research and applied science centres are available to the commercial electronics industry.

■ The ENA serves business and industry needs in electronics product testing, engineering, microelectronics, telecommunications, lasers, machine intelligence, robotics, computing, instrumentation, and process control plus management and new venture development.

## Education

■ The electronics industry has access to an excellent pool of talent through Alberta's highly-respected universities and a range of technical training schools, colleges, and vocational centres. This valuable resource is assured with the Province's strong commitment to advanced education.

■ Alberta has the highest per capita concentration of scientists, engineers and technology specialists in Canada. There are more than 20,000 professional engineers registered in the Province, more than one-and-a-half times the North American ratio.

## Government

■ Alberta's reputation as Canada's "Province of Opportunity" is built on a diverse economy, vast natural resources, a free enterprise government, and one of the most dynamic business climates in North America. It is enhanced by over 70 provincial initiatives and business programs supporting the strategic growth of a broad spectrum of the Alberta economy.

■ When the Alberta government made the commitment to stimulate the electronics industry, it did so by keeping in mind the "small company" character of the Alberta industry. Since 1982, the number of electronics firms operating in the Province has more than doubled.



## ELECTRONICS EDUCATION

### Talent

- Four Universities
- Three Technical Institutes
- Eleven Public Colleges
- Four Private Colleges
- Six Vocational Training Centres

## ELECTRONICS INFRASTRUCTURE

### Technical Support

- Electronics Test Centre
- Alberta Microelectronic Centre
- Alberta Laser Institute
- Alberta Telecommunications Research Centre
- Advanced Technologies, Alberta Research Council
- University of Alberta: Centre for Machine Intelligence and Robotics, Management Advisory Institute
- University of Calgary: New Venture Development Group, Supercomputer Centre

## ALBERTA GOVERNMENT INITIATIVES AND PROGRAMS

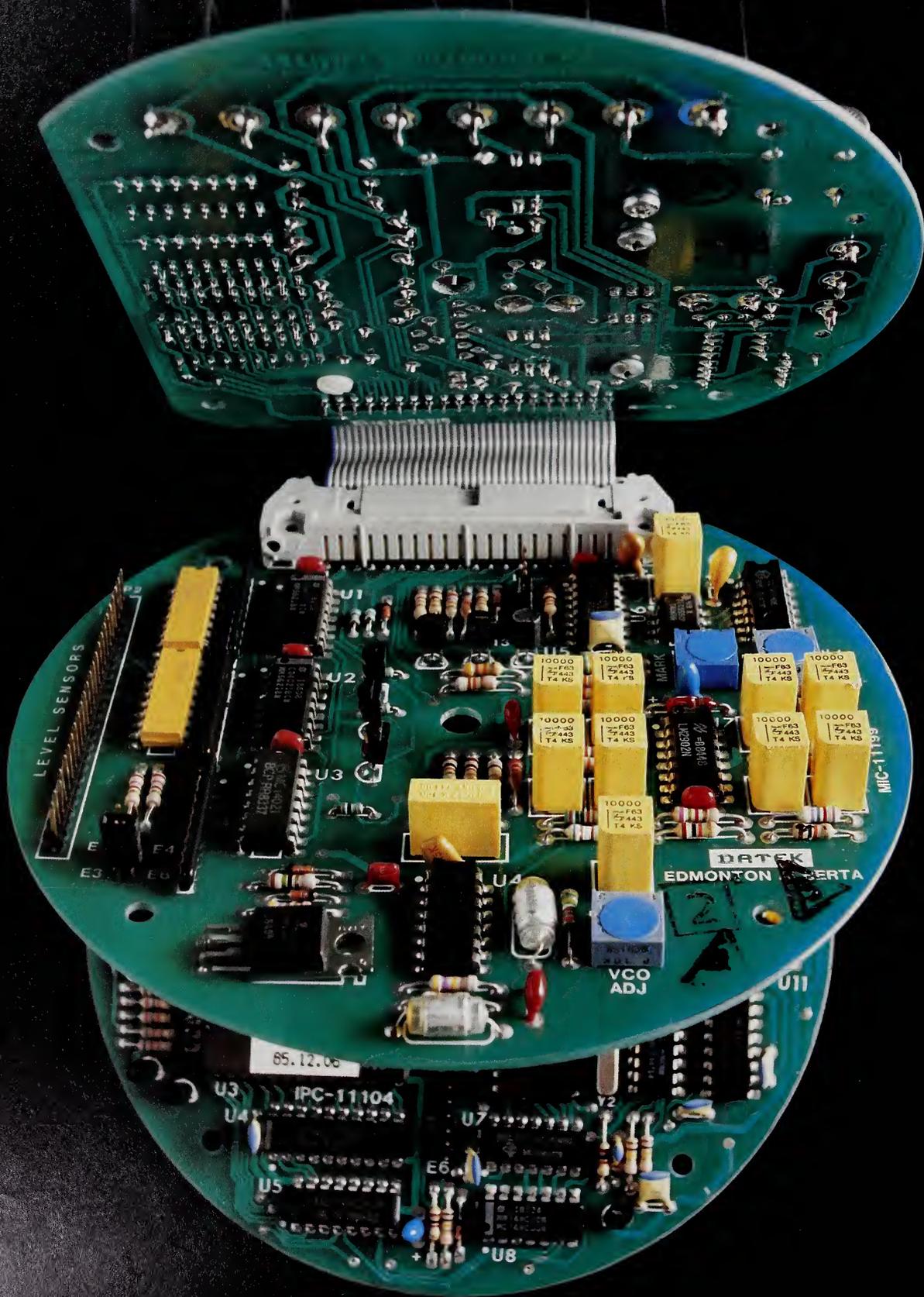
### Financial Support

- Vencap Equities Ltd.
- Alta-Can Telecom Inc.
- Alberta Opportunity Company
- Small Business Equity Corporation
- Spurt Investment Fund I
- Technology, Research and Telecommunications
- Energy
- Economic Development and Trade
- Transportation and Utilities
- Agriculture
- Forestry, Lands and Wildlife
- Career Development and Employment

# Electronics in Alberta

## ELECTRONICS INDUSTRY

- Research and Development Firms
- Integrators
- Service Providers
- Manufacturers
- Maintenance, Repair and Overhaul Shops



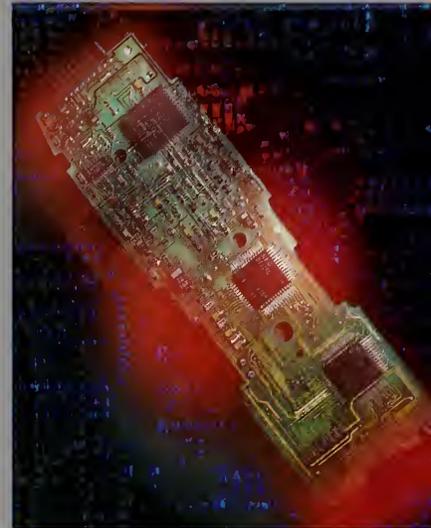
# An Innovative Environment

■ Alberta's innovative electronics environment has attracted major companies including **Northern Telecom Canada** and **LSI Logic Corporation of Canada Inc.** The Province is also home to a world leader in cellular telephones, **NovAtel Communications Ltd.**

■ **Northern Telecom Canada**, the fifth largest telecommunications company worldwide, has two major plants and corporate offices in Alberta. The Business Products Division in Calgary is the company's world centre for key telephone systems manufacturing, product development and marketing. The Calgary Digital Switching Division produces switches for more than 90 telephone companies in 30 countries.

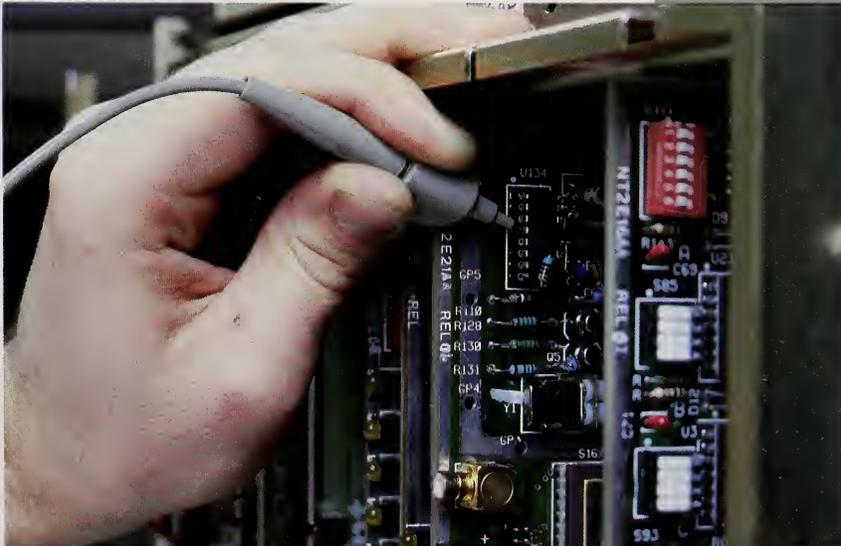
■ **LSI Logic Corporation of Canada Ltd.**, a world leader in chip design and manufacture, is an important presence in the Province. Its activities include the manufacture of Application Specific Integrated Circuit (ASIC) microchips as well as surface mount assembly and testing for an acquired subsidiary, Best Systems Corporation of Canada Inc.

■ **NovAtel Communications Ltd.**, a "home grown" Alberta company founded in 1983, is successful in the research and development, manufacturing and marketing of cellular radio telephones. Canada's only producer of cellular systems and terminals, the company boasts a significant share of the very competitive U.S. market.



NovAtel Communications Ltd

Northern Telecom Canada



# A Bridge to the Future

■ The Government of Alberta recognizes that a strong advanced technology industry requires a solid and extensive infrastructure. Since 1985, it has committed more than \$70 million to an innovative support structure which helps to provide Alberta high technology firms with the bridge to a successful electronics future.

## FOR ELECTRONICS

### Electronics Test Centre (ETC)

■ This \$10 million testing facility provides design-to-delivery, one-stop testing for a full range of electronics products, and is recognized by national and international certification agencies. ETC customers are located as far away as Europe and the Pacific Rim countries.

Electronics Test Centre





Alberta Microelectronic Centre

### Alberta Microelectronic Centre (AMC)

■ Serving clients on a contract basis, the AMC specializes in electronics and microelectronics applications designed to improve productivity or promote cost-effective product development. The Centre, Canada's first non-captive, university-based microchip design and fabrication facility, also provides design engineering services.

### Alberta Laser Institute (ALI)

■ Through the ALI, Alberta companies can use laser technology to lower costs, improve quality, and help in new product or new business development. Services include materials processing, laser sensing, and electronics and medical applications of lasers.

### Alberta Telecommunications Research Centre (ATRC)

■ Joint participation in the ATRC by industry, university, and government encourages projects emphasizing industrial application or research in telecommunications areas such as fibre optics, network engineering, protocols, integrated services digital network (ISDN), opto-electronics, and digital radio.



Alberta Laser Institute



Advanced Technologies, Alberta Research Council

## Advanced Technologies, Alberta Research Council

■ The Advanced Technologies Division specializes in the commercial application of automation and information technologies. It works with Alberta companies designing advanced software and production systems in areas such as energy, manufacturing, medicine, education, agriculture, forestry, and surveying.

## University of Alberta

### **Centre for Machine Intelligence and Robotics**

■ The Centre's expertise lies in the practical applications of artificial intelligence and robotics technology. It has worked with Alberta-based firms on projects such as grading meat and expert system analysis of medical symptoms.

### **Management Advisory Institute**

■ Since 1976, the Institute has been honing new business management skills. Its resources include access to over 70 Faculty of Business staff members from the University. The business faculty is considered one of the premier business research bodies in Canada.

## University of Calgary

### **New Venture Development Group**

■ The staff of the University's Engineering and Business Faculties assist advanced technology firms in conducting market studies, developing business plans, and obtaining financing.

### **Supercomputer Centre**

■ Pre-purchased time on the powerful Control Data Cyber 205 is available to Alberta-based industry on a grant basis from the Provincial Government. These vector computing capabilities are especially valuable to engineering and chip design firms which model physical problems with mathematics.

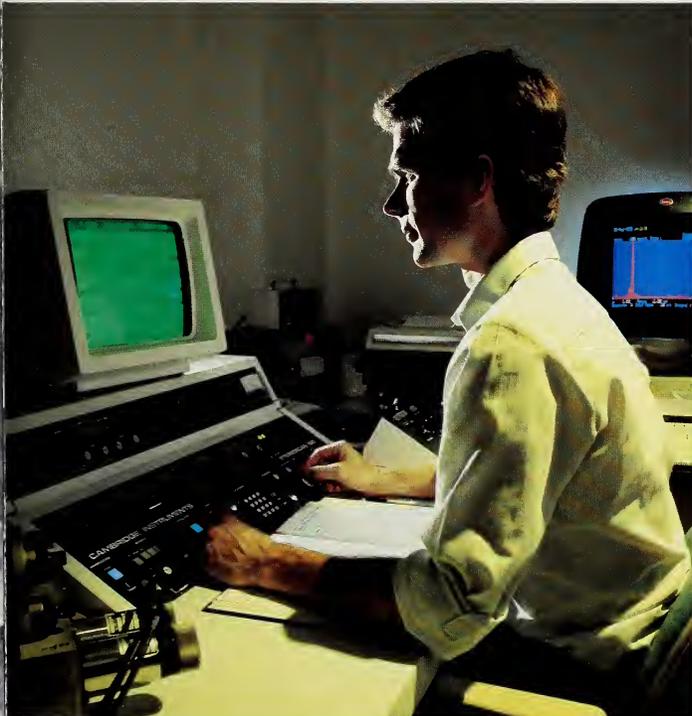
# Resource Rich in Talent

■ High technology successes are dependent upon people resources. In Alberta, people are the most important resource. Albertans are expert, innovative, and committed to excellence.

■ An educated workforce, particularly Alberta's outstanding supply of engineers and engineering graduates, is an essential component of the Province's vigorous electronics industry.

■ Alberta's major universities have aggressive technology transfer programs and welcome opportunities to work with industry to develop innovative technologies with commercial potential.

■ Alberta has been committed to research and the application and commercialization of technology since 1921 when the Alberta Research Council (ARC) was established. The Council's research departments, including one focussed on advanced technologies, is supported by a staff of expert scientists. ARC is the oldest and largest provincial research organization in Canada with service points in four Alberta cities.



## Electronics Education Facts



**Fact...**The University of Alberta's Electrical Engineering program is recognized as one of the top two in Canada.



**Fact...**The University of Calgary's Engineering program rates as one of the country's best in power systems, microelectronics, and seismic and surveying technology.



**Fact...**Both universities place considerable emphasis on graduate studies and have significant research programs including sensor work at the University of Alberta and Very Large Scale Integration (VLSI) research at the University of Calgary.



**Fact...**The Northern Alberta, Southern Alberta and Westerra Institutes of Technology, and the Devry Institute provide the necessary technical training for a wide range of electronics positions.



**Fact...**On a per capita basis, the Alberta government spends more on research and development than any of its provincial counterparts in Canada.



**Fact...**The Calgary-based Canadian Centre for Learning Systems is a joint effort of Alberta educational institutions and local and national corporations. It serves private industry by developing software for specific needs and computer-assisted learning training programs.

# Alberta Cultivates Success

■ Up to 1,200 advanced technology companies have written success stories in Alberta. Electronics and microelectronics companies comprise approximately 10% of that total. These companies generate nearly \$1 billion in annual revenue.

■ Many companies have succeeded by carving out a niche in areas such as instrumentation, process control, computing, telecommunications, agriculture, defence, oil and gas, mining, medical, and transportation electronics.

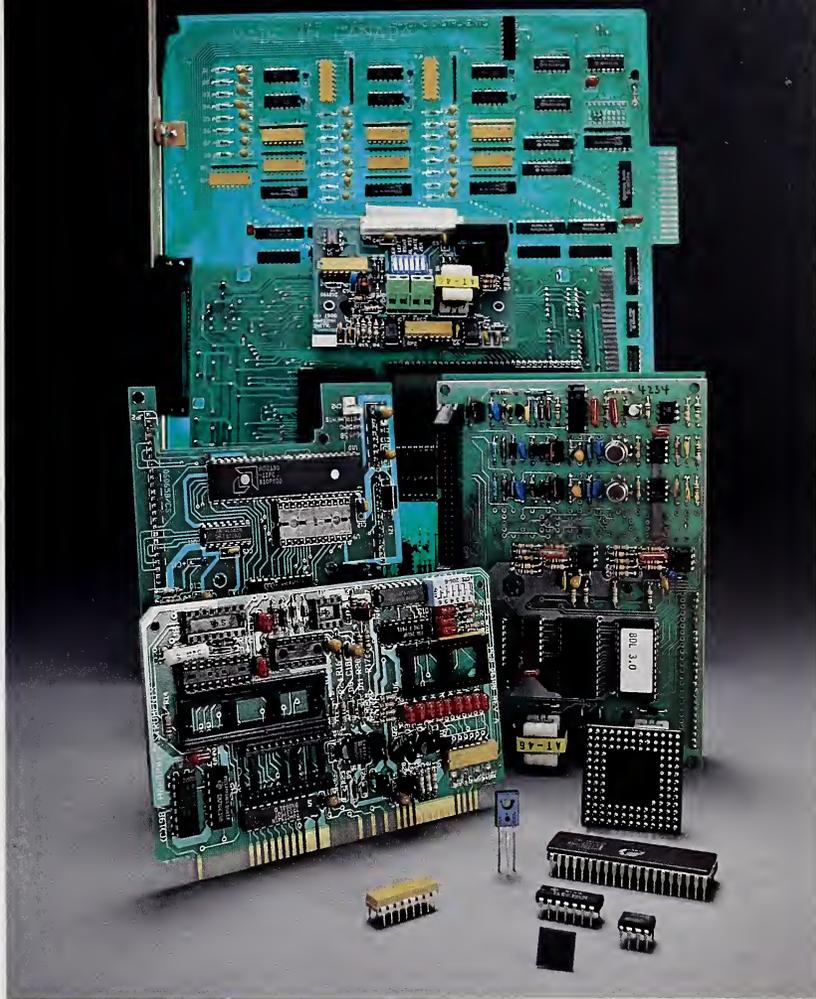
■ Alberta companies present a broad range of electronics and microelectronics expertise. The spectrum includes Supervisory Control and Data Acquisition (SCADA), cellular telephones, distance measuring equipment (DME) systems for airports, office automation systems, global positioning systems for satellite receivers, thermoelectric generators, and instrumentation for process industries.

■ **EDO Canada Ltd.** is a high technology product development company which markets marine integrated navigation systems, transit satellite receivers and Navstar GPS receivers to clients in the defense and petroleum industries. Products include sonar systems, transducers, fibre optic and line scan recorders.

EDO Canada Ltd.



IDACOM



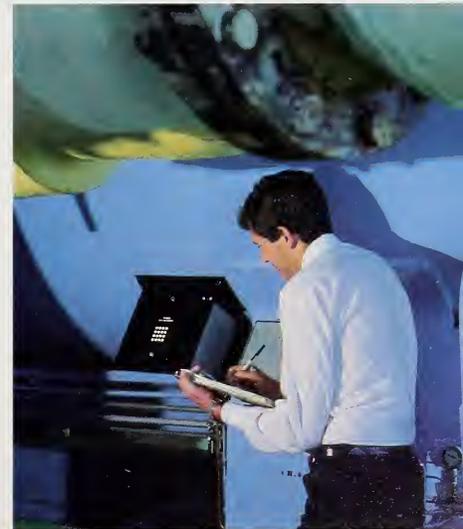
Harding Instrument Ltd.

■ **Harding Instrument Ltd.** produces microelectronics-based products for the telephone, oil and gas, and agricultural industries. A strong research and development component combines with an extensive marketing network for telephone products, and expertise in injection molded plastic packaging.

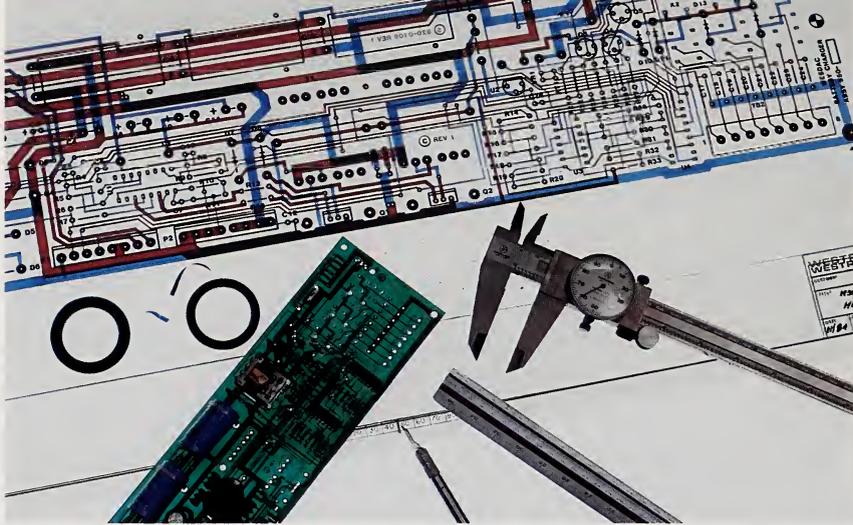
■ A manufacturer of electromechanical and electronics instrumentation, **ITT Barton Instruments'** products are designed to measure various conditions of gases or liquids for process industries requiring high reliability and accuracy.

■ A world leader in protocol testing, **IDACOM** specializes in the design and manufacture of sophisticated data communications testing equipment. Setting the international standard in protocol testing, IDACOM is the designated ISDN protocol development centre for Germany's giant telecommunications company, Siemens A.G.

■ **Pelorus Navigation Systems Inc.** manufactures and installs electronics distance measuring equipment (DME) for airports as well as the Automated Weather Observation and Reporting System (AWORS). Its major clients are federal, provincial, and municipal governments.



ITT Barton Instruments



Westronic Inc.

■ Alberta's Supervisory Control and Data Acquisition (SCADA) companies — **DATAP Systems**, **Westronic Inc.**, **Willowglen Systems Ltd.**, and **Valmet-Sentrol Limited**, provide network management and tele-control systems to a range of industries worldwide, including: oil and gas, electric utility, telecommunications, water, transportation, and energy management.

■ Another Alberta company making its mark is Calgary's **Norstar Instruments Ltd.** The company develops and manufactures Global Positioning Systems (GPS) satellite receivers. Norstar receivers have imbedded processing software and are sold to the surveying industry, government agencies, and the armed forces.



Valmet-Sentrol Limited

Norstar Instruments Ltd.



# Electronics Company Directory

- This directory presents a selection of companies in the electronics industry in Alberta; the list is by no means exhaustive.
- The Alberta electronics industry offers attractive opportunities for investors, entrepreneurs and innovative organizations who want to be part of leading edge electronics technology.
- Each profile provides a brief description of an enterprising Alberta company within the electronics industry. Please contact any of these firms for more information on their products and expertise.

Datek Industries Limited



## Categories of Products and Services

-  Agricultural Electronics
-  Computing Systems
-  Custom Design
-  Electric Power Systems
-  Electronic Subassemblies
-  Instrumentation
-  Medical Electronics
-  Oilfield Electronics
-  Control Systems
-  Aerospace
-  Telecommunications
-  Transportation Electronics
-  Ultrasonics
-  Visual Displays



### **A. Comeau & Associates Ltd.**

4718 - 90 A Avenue  
Edmonton, Alberta  
T6B 2P9  
(403) 465-9961

**Contact:** A. Comeau, President

**Company Founded:** 1976

**Products and Services:** A. Comeau & Associates develops and manufactures equipment for the protection and control of oilfield submersible pumps, including motor controllers, lightning filters, and specialized control relays. These devices offer longer pump run lives, improved oil production, and better operational data. The company also manufactures the Scanwell System for complete monitoring and control of oilfields from a central location.

The consulting engineering division offers electrical design, inspection and commissioning services and specializes in programmable logic control, Daniel flow computers, and Yokagawa distributed control systems for gas compression facilities.

### **Alberta Printed Circuits Ltd.**

#14, 3650 - 19 Street N.E.  
Calgary, Alberta  
T2E 6V2  
(403) 250-3406

**Contact:** Wayne Bamber, President

**Company Founded:** 1984

**Products and Services:** Alberta Printed Circuits Ltd. manufactures circuit boards. The company produces most kinds of boards, including: single- and double-sided, plated through holes, solder mask, silk-screened component mask, and special plating and routing if required.

Its affiliate, Bamber Electronics, provides drafting and assembly of electronic products including: wave soldering, hand assembly, wiring harness assembly, and circuit board assembly. It offers layout, engineering and assembly services and can take a product from the schematic stage to finished unit.

### **Alltemp Sensors Inc.**

9245 - 34 A Avenue  
Edmonton, Alberta  
T6E 5T6  
(403) 463-7035

**Contact:** Paul Poehman, President

**Company Founded:** 1978

**Products and Services:** Alltemp Sensors Inc. manufactures temperature sensors and temperature-related instruments, including thermocouples and resistance temperature detectors (RTDs).

**Sales Activity:** The company sells to the industrial petrochemical market and to the commercial temperature products market, and is involved in the resale of temperature control and indicating electronic instruments across Canada.

### **Alphatel Systems Ltd.**

  
  
16814 - 114 Avenue  
Edmonton, Alberta  
T5M 3S2  
(403) 451-5761

**Contact:** Dr. Robert A. Abell, President

**Company Founded:** 1981

**Products and Services:** The company specializes in the custom design of interactive computer-based information, training and directory systems. These systems provide animated, high impact, graphic displays in a full range of colors and combine laser videodisc video and sound. These systems are used primarily for commercial property and museum exhibits as well as in process control and security systems. The company has extensive experience in interfacing computers to various electromechanical systems as well as telecommunications devices. Alphatel Systems is affiliated with Alphatel Computer Products.

**Sales Activity:** The products and services are sold to government and educational organizations and the telecommunications industry.

### **Andor Scientific Services Ltd.**

  
  
14227 - 130 Avenue  
Edmonton, Alberta  
T5L 4K1  
(403) 451-1322

**Contact:** Gerry Ramsey, President

**Company Founded:** 1978

**Products and Services:** Andor manufactures products such as electronic differential cell counters, refrigerated incubators and other temperature-control devices. The company develops custom software and hardware for computer control and monitoring of testing or processing equipment, offers circuit-board assembly services and repair and maintenance of laboratory equipment. Additional services for all industries include consulting, custom design and manufacturing of hardware and software.

**Sales Activity:** Andor Scientific Services Ltd. provides products and services to the laboratory market.

### **Applied Microsciences Corporation Ltd.**

  
  
118, 17220 Stony Plain Road  
Edmonton, Alberta  
T5S 1K6  
(403) 484-8335

**Contact:** Gordon Adams, President

**Company Founded:** 1984

**Products and Services:** Applied Microsciences Ltd. manufactures a line of meteorological instruments including an anemometer, the WINDFLOW 540; and an aspirated temperature measure, the ASTEMP 100. Athabasca Research Corp. Ltd. is an affiliated company which also manufactures meteorological instruments.

**Sales Activity:** Both companies offer microprocessor-based process control systems and computer interface electronics for the laboratory, food, and petrochemical industries, and government.

**Austec Electronics Ltd.**

1006, 11025 - 82 Avenue  
Edmonton, Alberta  
T6G 0T1  
(403) 432-1878

**Contact:** W.K. Brokelsby, P. Eng.  
President

**Company Founded:** 1978

**Products and Services:** Austec designs and manufactures low power radio tracking and identification transmitters, receivers and associated equipment. The equipment is used in wildlife management, biological research and other radio location and telemetry applications. The company has experience in the design and use of thick-film microcircuit technology and in microwave circuits, in addition to more conventional electronics. Contract design and manufacture is undertaken.

**Sales Activity:** Products are sold mainly to government and educational organizations in several countries.



**B & W Technologies Ltd.**

#110, 3030 - 3 Avenue N.E.  
Calgary, Alberta  
T2A 6T7  
(403) 248-9226

**Contact:** Cody Slater, President

**Company Founded:** 1962

**Products and Services:** B & W Technologies Ltd. designs and produces gas monitoring systems. Products include RIG RAT, a complete wireless multipoint monitoring system; SHACK RAT, a stand-alone single-point monitoring system; PACK RAT, a personal hand-held monitor; and custom gas monitoring systems both hard-wired and wireless for in-plant and offshore installations. Options available include a data analysis/acquisition system, solar-powered versions, and interchangeable gas-specific sensors.

**BMP Energy Systems Ltd.**

1100, 777 - 8 Avenue S.W.  
Calgary, Alberta  
T2P 3R5  
(403) 234-7979

**Contact:** Gordon Duff

**Company Founded:** 1960

**Products and Services:** BMP Energy Systems Ltd. develops and markets software used for gas measurement, volume calculation, and data management (NGAS) to oil and natural gas producers. The company also designs and manufactures the

BMP-7000 and ChartPad models of electronic chart integration equipment.

**Sales Activity:** Sales offices are established in Alberta and Houston, Texas, and gas chart reading service facilities are in Alberta, British Columbia and Texas.

**Baker Electronic Enterprises Inc.**

8522 Davies Road  
Edmonton, Alberta  
T6E 4Y5  
(403) 465-0107

**Contact:** James Baker  
Operations Manager

**Company Founded:** 1986

**Products and Services:** Baker Electronic Enterprises Inc. designs and manufactures a variety of proprietary and custom electronic products ranging from portable electric fence chargers for livestock and wildlife control, to microprocessor-based monitors and controllers for agricultural machinery. The company has designed cost-effective electronic products to withstand an agricultural environment. The production facility includes thermoplastic injection molding of engineered plastic materials, electronic and mechanical assembly, and environmental and electrical testing.

**Sales Activity:** Products are primarily for the agricultural market.

**Barnett Engineering Ltd.**

215, 7710 - 5 Street S.E.  
Calgary, Alberta  
T2H 2L9  
(403) 255-9544

**Contact:** Brian Barnett, President

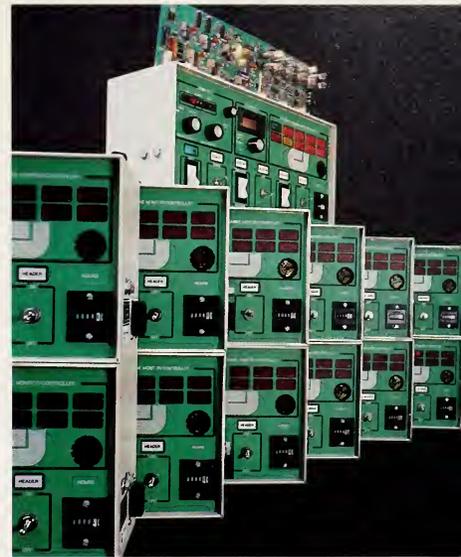
**Company Founded:** 1977

**Products and Services:** The company offers engineering services in telecommunications and electronics, in two major areas.

The first area is communications systems engineering for mobile radio (voice and data), point-to-point radio, remote control, alarm reporting and SCADA. Services include system design, cost and feasibility studies, propagation studies, performance and equipment specifications, tender evaluation, start-up assistance, and systems and operations manuals.

The second area is communications equipment engineering, specializing in tone signalling and voice synthesis. The company performs equipment design and manufacture, interfacing, systems integration, and contract product development. Major product lines include voice alarm reporting units for radio and/or telephones and automatic number identification (ANI) systems for vehicles.

**Sales Activity:** Barnett sells to petroleum and telecommunications industries, as well as to manufacturers and retailers.



Baker Electronic Enterprises Inc.

**Bartronics (1972) Ltd.**

11609 - 145 Street  
Edmonton, Alberta  
T5M 1V9  
(403) 455-6032

**Contact:** Raymond J. Barnes, President

**Company Founded:** 1972

**Products and Services:** Bartronics provides custom design, manufacturing and systems assembly of electronics equipment. One of its major areas is telecommunications electronics, including custom manufacturing of micro-processor controlled voice channel switching equipment.

**Beta Electronics Ltd.**

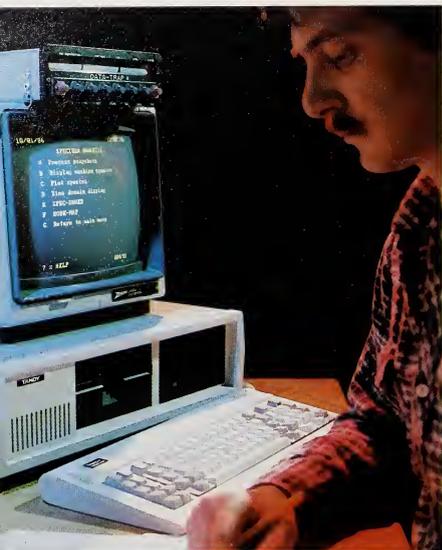
5951 - 103 A Street  
Edmonton, Alberta  
T6M 2J7  
(403) 436-8363

**Contact:** D.B. McDonald  
General Manager

**Company Founded:** 1973

**Products and Services:** Beta Electronics Ltd. sells and services electronic products, such as non-destructive test equipment (for example, flow detectors and pipe thickness testers), ultrasonic equipment and nuclear soil gauges. Beta specializes in nuclear and industrial electronic instrumentation and does custom manufacturing in industrial electronics.

**Sales Activity:** The company sells to manufacturers and provincial and federal government agencies in the petroleum, agricultural, and construction industries.



Beta Monitors and Controls Ltd.

### **Beta Monitors and Controls Ltd.**

Suite 300, 1615 - 10 Avenue S.W.  
Calgary, Alberta  
T3C 0J7  
(403) 245-5300

**Contact:** D. Schuh, President

**Company Founded:** 1979

**Products and Services:** Beta Monitors and Controls Ltd. provides microprocessor-based instruments for improvement of maintenance in rotating and reciprocating equipment. Products include the following portable data acquisition systems: the BETA-TRAP power cylinder peak firing pressure detector; the DATA-TRAP, for rotating machinery analysis; the RECIP-TRAP, for reciprocating machinery analysis; the COMBO-TRAP, for rotating and reciprocating machinery analysis; and software for all the above to run in the IBM PC/XT/AT environment. The BETA-TRAP and DATA-TRAP have both achieved significant success. The RECIP-TRAP is a new product that has already generated considerable interest, and makes predictive maintenance feasible for reciprocating equipment.

**Sales Activity:** The company markets primarily to the petroleum and the pulp and paper industries.



### **C.R. Electronics Ltd.**

7004 S - 5 Street S.E.  
Calgary, Alberta  
T2H 2G3  
(403) 253-5228

**Contact:** Cyril Russell, President

**Company Founded:** 1980

**Products and Services:** C.R. Electronics Ltd. manufactures single-layer printed circuit boards and provides custom manufacturing, custom research and design, and electronic maintenance services.

**Sales Activity:** Products and services are for specialized electronic computer and mechanical systems and are sold to a wide variety of industries.

### **CS4 Telecom Inc.**

2700 CN Tower  
10004 - 104 Avenue  
Edmonton, Alberta  
T5J 0K1  
(403) 436-0076

**Contact:** Rob Walker, General Manager

**Company Founded:** 1986

**Products and Services:** CS4 Telecom designs, manufactures and does implementation of telecommunications equipment and systems for the domestic and international marketplace. Products include ultra-linear amplifiers, microwave transmitters and receivers for Vsats, short-haul microwave transmission systems for R-F, and rebroadcast terminals. The company also does contract research, design and development of radio-frequency products.

**Sales Activity:** The company sells to the petroleum, mining, forestry, and telecommunications industries, as well as manufacturers and federal government agencies.

### **C.S.I. Communications Systems Ltd.**

P.O. Box 1769  
Morinville, Alberta  
T0G 1P0  
(403) 939-7560

**Contact:** Bob Haagensen, President

**Products and Services:** C.S.I. Communications manufactures advanced high frequency radio communications systems which facilitate communication from remote locations using telephone, data or facsimile transmissions patched through dedicated land lines. Its product, the ATR-10 communications console, provides a link between HF/VHF/UHF radio sys-

tems and devices such as telephones and telex equipment. The ATR-7 Selcal is a selective calling unit which codes and decodes messages electronically. C.S.I. also designs and builds vessel surveillance systems.

**Sales Activity:** The company provides communications for offshore drilling companies, major North American airlines and resource companies. The company also sells to major communications systems manufacturers, military organizations, and government.

**Export Activity:** C.S.I. exports to the United States, Europe and Southeast Asia.

### **Calgary Controls Ltd.**

7056 H Farrell Road S.E.  
Calgary, Alberta  
T2H 0T2  
(403) 253-6101

**Contact:** Walter H. Lindenbach, President

**Company Founded:** 1970

**Products and Services:** Calgary Controls communications products and services include: specialized voice frequency/DTMF equipment for use with two-way radio and four-wire facilities; telephone/radio interconnect equipment and voice and pager communications; DTMP control equipment for supervision of radio facilities and networks; alarm reporting, supervision and control equipment using DTMF signalling and synthesized voice annunciation; equipment for railroad communications including maintenance of way, locomotive, and passenger public address requirements; and complete two-way radio sales, service, and installation facilities.

**Sales Activity:** The company's customers include railroads, oil and gas companies, telephone, and utilities companies across Canada and the U.S.A.

### **Camcon Controls Ltd.**

4815 - 34 Avenue N.E.  
Calgary, Alberta  
T1Y 1R7  
(403) 285-3265

**Contact:** Paul Conkin  
Director/Researcher

**Company Founded:** 1981

**Products and Services:** Camcon Controls Ltd. develops and manufactures energy saving heat controls known as CONSERV (tm).

**Sales Activity:** Products are sold to companies for use in their warehousing locations and shipping bays.

**Research Activity:** The company is currently developing a microprocessor-based trouble shooting system to be applied to existing passenger and freight elevators known as MICROMAINTENANCE SYSTEM (tm).

**Campbell Scientific  
Canada Corp.**

9525 - 41 Avenue  
Edmonton, Alberta  
T6E 5X7  
(403) 461-5158

**Contact:** Claude Labine, President

**Company Founded:** 1978

**Products and Services:** Campbell Scientific Canada Corp. sells and services data acquisition systems. These are small, battery-operated, programmable dataloggers capable of operating in a wide range of environments. Common applications include environmental monitoring (climatology, meteorology, hydrology, air quality, etc.), industrial monitoring and control and vehicle testing. The company offers a variety of sensors for standard environmental parameters and is also manufacturing a range finder sensor with applications for snow depth or water level monitoring.

**Sales Activity:** Products and services are marketed to federal and provincial government agencies as well as consulting firms in the environment, forestry, agriculture and transportation industries.

**Canadian Offshore Group**

3640 Dartmouth Road S.E.  
Calgary, Alberta  
T2G 4A6  
(403) 243-6775

**Contact:** Jim Watson, President

**Company Founded:** 1979

**Products and Services:** Canadian Offshore International Marketing Service Inc. provides domestic and international marketing of telecommunications, intercom systems and station equipment for hazardous, industrial, marine and commercial locations. Marketing, procurement and consulting services are also available.

Canadian Offshore Safety Technology & Services Co. manufactures telecommunications, intercom systems, PABX, data links, interfaces, explosion proof telephones, lighting, station equipment and signalling devices, wire, cable, environmental connectors, and communication masts. It also offers a full system design, fabrication and installation service for telecommunications and electronics.

Linco Enclosures designs and fabricates: 19-inch rack systems, cabinets, consoles, instrumentation panels, workstations, security monitors, acoustic booths, radio and television consoles, marine bridge consoles, mechanical equipment enclosures, van bodies and canopies, and commercial exhibit displays.

Linco Medical manufactures and markets medical diagnostic equipment for audiology, including the Linco auditory response cradle and the Linco pediatric audiometer.

**Cantech Corp.**

1916 - 27 Avenue N.E.  
Calgary, Alberta  
T2E 7A5  
(403) 250-9666

**Contact:** Duane A. Schmeeckle

**Company Founded:** 1981

**Products and Services:** Cantech manufactures customized control panels for compressors, pumps and process control applications. Cantech fabricates temperature-sensing cables. Products distributed include precision valves, measurement and control instrumentation, energy conservation and safety instruments. Shop and field service is provided for products handled.

**Sales Activity:** Products are sold to process industries, including oil and gas, pulp and paper, petrochemical, power, etc.

**Canutel Industries Ltd.**

P.O. Box 610  
College Heights, Alberta  
T0C 0Z0  
(403) 782-4838

**Contact:** Hugo W. Wegmuller, President

**Company Founded:** 1981

**Products and Services:** Canutel provides a unique service, offering custom/contract assembly of electronic equipment. The company specializes in insertion, assembly and testing of printed circuit boards plus assembly and testing of complete electronic equipment on a build-to-print basis. The company is certified to manufacture to military standards such as AQAP6 and MIL-1-45208A and to relevant Q.A. and Q.C. procedures. Canutel is an approved supplier to major U.S. and Canadian prime contractors.

**Sales Activity:** Canutel's services are provided to various companies and government agencies in telecommunications, industrial, security, computer, and professional electronics fields.

**Export Activity:** Canutel has set up a similar operation in Michigan, U.S. through its associate company, Canutel Berrien Inc., and further U.S. operations are in the planning stage.

**Champ Armstrong  
Communications Inc.**

#5, 2010 - 30 Avenue N.E.  
Calgary, Alberta  
T2E 7K9  
(403) 250-3202

**Contact:** Keith A. Robson, President

**Company Founded:** 1986

**Products and Services:** Champ Armstrong specializes in the design, manufacture, and sale of radio frequency technology for civil aerospace markets, and has a unique capability in Surface Mount



Canadian Offshore Group

Device Technology. The company's products include transponders; anti-collision strobe lighting for air, land and marine vehicles; data port and fix station interfaces; hands-free unit testing equipment used for cellular telephone testing; and voice scramblers. Champ Armstrong also provides custom power supplies manufacturing services which include AC to DC constant power, DC constant power, and high and low voltage power supplies.

**Sales Activity:** The company sells to local industries and is also targeting its products at government and large military industries in the United States, Europe and Canada.

**Export Activity:** The company has found an export market for its strobe lighting in the United States.

**Chimo Equipment Ltd.**

100, 909 - 7th Avenue S.W.  
Calgary, Alberta  
T2P 1A6  
(403) 264-2245

**Contact:** Robert Logan, President

**Company Founded:** 1973

**Products and Services:** Chimo Equipment Ltd. designs, manufactures and markets electronic drilling instrumentation under the trade name "WATCHDOG". The company's engineering and technical staff are knowledgeable in the development and assembly of electronic systems, including the design and production of several CSA (Class I, Division 2, Groups A, B, C, D) approved lines of equipment. Service personnel are qualified and trained in repair and maintenance.

**Sales Activity:** Chimo markets its products and services to the petroleum industry.



Canutel Industries Ltd.

### Circa Telecommunications Ltd.

7210 G - 5 Street S.E.  
Calgary, Alberta  
T2H 2L9  
(403) 258-2011

**Contact:** Ivan Smith, President  
**Company Founded:** 1985

**Products and Services:** Circa specializes in the development and manufacture of protection and distribution devices, such as lightning arresters and electrical surge protectors for the telecommunications industry. Circa designs its products to accommodate customer modifications to meet the needs of individual telephone companies.

**Sales/Export Activity:** Circa sells to major telephone companies, including to the U.S.

### Commtronics Communications Ltd.

3800 - 19 Street N.E.  
Unit #6  
Calgary, Alberta  
T2E 6V2  
(403) 250-9260

**Contact:** Doug Michetti, President  
**Company Founded:** 1971

**Products and Services:** Commtronics manufactures printed circuit boards, general mobile telephone service test sets, digital voice alarm units, and remote control industrial control interfaces.

**Sales Activity:** The products are sold to the telecommunications industry.

### Comptronic Devices Ltd.

2113 - 85 Street  
Edmonton, Alberta  
T6K 2G1  
(403) 450-3729

**Contact:** Dave Siever, President  
**Company Founded:** 1981

**Products and Services:** Comptronic Devices designs and manufactures medical electronic equipment. The company's main product, the D.A.V.I.D. 1, is a device producing deep relaxation and hypnotic states. Other products manufactured include electronic muscle and nerve stimulators, various biofeedback devices, specialized data acquisition and signal conditioners, and portable analog to digital and digital to analog converters.

**Sales Activity:** Products are sold to doctors, professionals and counsellors in the medical industry.

### Continental Laboratories (1985) Ltd.

3601 A - 21 Street N.E.  
Calgary, Alberta  
T2E 6T5  
(403) 250-5125

**Contact:** J.A. Pennington, President  
**Company Founded:** 1954

**Products and Services:** Continental Laboratories Ltd. designs and manufactures its own line of hydrocarbon detection and data gathering equipment. The company designs, develops and manufactures specialized analog, digital and microprocessor-based equipment, including software. Current products include total hydrocarbon gas detectors; hydrogen flame chromatographs; hydrogen sulphide detectors; cutting gas detectors; atmospheric monitors; temperature monitors; drilling rig transducers; and drill tel data acquisition monitor and display computer systems.

**Sales Activity:** Products and services are marketed to the petroleum, agriculture and computer industries.

### Cool Grain Inc.

#5, 2010 - 30 Avenue N.E.  
Calgary, Alberta  
T2E 7K9  
(403) 250-8882

**Contact:** D. Crompton, President  
**Company Founded:** 1984

**Products and Services:** Cool Grain Inc. designs and manufactures systems to optimize the quality of grain in storage facilities.

The company has developed a system which measures temperature profiles of grain in storage bins. This system involves the use of low-cost temperature sensors built into a rugged cable assembly.

**Sales Activity:** Products are marketed to the agriculture industry.

D

### DATAP Systems

1167 Kensington Crescent N.W.  
Calgary, Alberta  
T2N 1X7  
(403) 283-3601

**Contact:** Victor Thomas, Vice President

**Products and Services:** DATAP Systems is a division of Sandwell Swan Wooster Engineering Company Ltd., with the head office in Calgary, and branches in Vancouver, British Columbia and Atlanta, Georgia. DATAP specializes in turnkey automation and control systems with specific focus on network management systems for the telecommunications industry. Network management applications include:

- Network Surveillance, control and performance monitoring for facilities such as terrestrial microwave, fibre optic transmission systems, satellite ground stations, digital cross connect switches and digital switches.
- Maintenance management applied in such areas as historical analysis of operational data, trouble ticket administration, force assignment and dispatch, facilities records and maintenance planning.
- Engineering and planning functions such as modeling, simulation and facility forecasting.
- Subscriber services such as service order administration.
- Traffic administration and control such as traffic metering, preplans and switch administration.

DATAP's IRIS 7 (Intelligent Realtime Information System) product forms the basis for application in network management described above as well as in applications such as pipeline control, oil and gas, production automation, electrical transmission and distribution networks and materials handling.

**Sales/Export Activity:** DATAP products and services are sold to domestic and international markets.

### **Datek Industries Limited**

 8522 Davies Road  
 Edmonton, Alberta  
 T6E 4Y5  
(403) 465-1530

**Contact:** Peter Van der Zee, President

**Company Founded:** 1971

**Products and Services:** Datek Industries supplies micro- and minicomputer-based systems to the industrial control market. Systems range from fully-integrated turn-key control systems to smaller stand-alone industrial controllers. The company has complete in-house hardware and software design capabilities, plus assembly and manufacturing facilities.

Datek's manufacturing facilities and engineering departments are available for outside contracting. Services include hardware circuit design, prototyping, PCB building, prototype sheet metal fabrication, and plastic injection mould design. Manufacturing services include through-hole plated or double-sided printed circuit board manufacturing, printed circuit board assembly and testing, and plastic injection moulding using a wide variety of injection materials (over 10 generic plastics), including consumer plastic material such as PVC and engineering plastic material such as ABS or Nylon. Datek has the flexibility to handle from the very small to large manufacturing runs.

**Sales Activity:** Datek markets its products and services to resource processors; municipal, provincial and federal government agencies; other manufacturers and retailers in the petroleum, utilities, defence, transportation, and mining industries.

### **Druid Electronics Co. Ltd.**

 10507 - 129 Street  
Edmonton, Alberta  
T5N 1W9  
(403) 453-5872

**Contact:** Michael D. Burke, President

**Company Founded:** 1971

**Products and Services:** Druid Electronics provides research and development services for special purpose scientific electronic and computer systems. It also produces original analog and sampled-data instrumentation for data gathering, processing and display of information involved in geophysical and industrial measurement programs.

**Sales Activity:** Services are provided to universities, research organizations, and industry.

### **Dycor Industrial Research Ltd.**

 130, 17303 - 102 Avenue  
Edmonton, Alberta  
T5S 1J8  
(403) 486-0091

**Contact:** Hank Mottl, General Manager

**Company Founded:** 1981

**Products and Services:** Dycor is working in many technology areas, including computer system design and integration, data acquisition and control systems, and custom instrumentation design. Dycor offers extensive software development facilities as well as marketing and distribution services.

**Sales Activity:** The company provides products and services to the research, industrial and military communities.

**Export Activity:** Dycor is active in the North American and worldwide markets.



### **EDO Canada Ltd.**

#8, 6320 - 11 Street S.E.  
Calgary, Alberta  
T2H 2L7  
(403) 255-6667

**Contact:** Fraser B. Rea

Marketing Manager

**Company Founded:** 1979

**Products and Services:** EDO Canada Ltd. is a three-division company specializing in the areas of electronics, fiber composites and structural ceramics.

The Electronics Division specializes in the manufacture of integrated navigation systems for navy surface vessels and satellite positioning and navigation instrumentation using both the Transit and GPS satellite system.

The Fiber Composites Division designs and manufactures lightweight, advanced fiber-reinforced structural composite products using "state-of-the-art" filament winding, laminating and geo-forming processes.

The Ceramics Division is in the development stage; it will consist of a production-sized pilot plant with full R & D staff and laboratories to address the application of ceramics in the aerospace industry.

**Sales Activity:** The products and services are sold to the aerospace, defence and survey industries worldwide.

**Export Activity:** EDO Canada is active in the international marketplace, selling in Europe, South America, the Far East and the United States.

### **Eddy Electronics Manufacturing Ltd.**

3239 - 97 Street  
Edmonton, Alberta  
(403) 450-0164

**Contact:** John Eddy, President

**Company Founded:** 1984

**Products and Services:** Eddy Electronics is a custom manufacturer and distributor of printed circuit boards including hybrid circuit boards, circuits printed on non-rigid surfaces, single-layer boards, multi-layer boards and double-sided boards.

The company has Computer Numerical Control drilling and chemical manufacturing facilities.



### **Galvanic Analytical Systems Ltd.**

 5664 Burleigh Crescent S.E.  
Calgary, Alberta  
T2J 2V6  
(403) 253-6576

**Contact:** Doug L. Fraser, President

**Company Founded:** 1974

**Products and Services:** Galvanic specializes in supplying and servicing gas analyzers and process instrumentation. Some areas of specific applications are: flow, BTU and Oxygen measurement in the combustion process; process measurement of H<sub>2</sub>S, moisture and fabrication of sampling systems, and Balston coalescing filters.

**Sales Activity:** The company markets to provincial and federal government agencies; and manufacturers, wholesalers, retailers and resource processors in the petroleum, mining and forestry industries.



**Gastech Instruments  
Canada Ltd.**

#13, 415 - 60 Avenue S.E.  
Calgary, Alberta  
T2H 2J5  
(403) 252-3323

**Contact:** Brad King

**Company Founded:** 1985

**Products and Services:** Gastech Instruments manufactures gas detection and analysis equipment and provides contract manufacturing, maintenance, training and consulting services.

**Sales Activity:** Products and services are sold to the oil and gas, petrochemical, pulp and paper, utilities, scientific, research, and telecommunications industries; and government.

**Global Thermoelectric  
Power Systems Ltd.**

902 - 5 Avenue  
Bassano, Alberta  
T0J 0B0  
(403) 641-3512

**Contact:** Russel H. Davyduke  
International Sales

**Company Founded:** 1975

**Products and Services:** Global Thermoelectric Power Systems manufactures highly reliable thermoelectric generators suited for power generation at remote, unattended telecommunication repeaters, and for other uses requiring up to 5 kw of d.c. power. The company specializes in custom engineering, design, manufacture, and installation of fully integrated power systems for unique applications in any climatic extreme.

Recent product developments include the Model 7120 liquid fueled generator. The 7120 will produce 120 watts of d.c. power, and is portable, weighing 13.6 kilograms.

**Sales/Export Activity:** The company has approximately 50 sales representatives worldwide. 5000+ remote generator systems are operating in over 40 countries; Global's equipment has successfully operated on all seven continents.

**Research Activity:** Innovative, state-of-the-art thermoelectric devices are currently under development; research and development in the application and enhancement of thermoelectric technology is ongoing.

**Gold Medal Group Inc.**

5904 - 35 Street S.E.  
Calgary, Alberta  
T2C 2G3  
(403) 279-2960

**Contact:** Richard B. Paquette, P. Eng.  
Vice President  
Research and Development

**Company Founded:** 1969

**Products and Services:** Gold Medal Group Inc. sells retail and hospitality management systems which usually include a cash register, computer, software and special communication devices. Head offices, research and manufacturing are located in Calgary. The company has developed expertise and products to allow computers to communicate with cash registers using proprietary protocols, including a family of software products to work with the communication devices. Successful software management products have also been developed.

**Sales Activity:** The company has 10 offices across Canada including four within Alberta, and has five locations in the U.S.A. Products and services are marketed to the retail and hospitality industries across North America through these offices as well as through various dealer networks.



**Harding Instrument Ltd.**

9431 - 41 Avenue  
Edmonton, Alberta  
T6E 5X7  
(403) 462-7100

**Contact:** Pat Harding, President

**Company Founded:** 1969

**Products and Services:** Harding Instrument offers electronic consulting, design and manufacturing, with expertise in a variety of areas such as, data acquisition, process control and measurement, telephone/telecommunications, bio-medical electronics, and application processing of CSA and UL certifications. Products designed and manufactured by the company include a flow totalizer, a flow computer, a telephone answering system, several telephone accessory products and an application rate monitor and control for agricultural processes.

**Sales Activity:** Harding markets to the petroleum, agriculture and telecommunications industries.

**Export Activity:** The company exports to the U.S.A.

**Hawk Jon Inc.**

8 - 205 Chatelain Drive  
St. Albert, Alberta  
T8N 2A2  
(403) 459-1242

**Contact:** Dale F. Hawkey, President

**Company Founded:** 1985

**Products and Services:** Hawk Jon Inc., a manufacturer and distributor of non-destructive testing equipment, specializes in ultrasonic and eddy current technologies. Research and development, as well as calibration and repair, are carried out at company headquarters in St. Albert. Marketing and additional research facilities are located in Texas and Connecticut.

**Sales Activity:** The company sells to the petroleum, mining, forestry, aeronautics and defence industries.

**Hayley Industrial  
Electronics Ltd.**

6814 D - 6 Street S.E.  
Calgary, Alberta  
T2H 2F4  
(403) 259-5523

**Contact:** J. Noel Hayley, President

**Company Founded:** 1978

**Products and Services:** Hayley Industrial Electronics' major product line includes a complete range of battery chargers and eliminators, sine wave inverters, and all transfers, distribution panels and other components necessary for complete standby power systems. The company also manufactures several products for the agricultural, automotive and petrochemical industries.

  
**ITT Barton Instruments**

3840 - 11 A Street N.E.  
Calgary, Alberta  
T2E 6M6  
(403) 291-4814

**Contact:** Peter Derviller, General Manager

**Company Founded:** 1966

**Products and Services:** ITT Barton designs electromechanical and electronic instrumentation to sense, monitor, compute, record, and control various conditions of liquids and gases in the process industries. This instrumentation is used to measure such variables as flow, level, differential pressure, density, corrosion and other physical and chemical properties of fluids.

Barton specializes in designing and producing instrumentation for customers whose measurement requirements call for high reliability and accuracy under harsh conditions (including extreme temperature, pressure, corrosion or radiation-related environments).

**Sales Activity:** The company sells to the petroleum, transportation, mining, pulp and paper, hydroelectric and nuclear power industries.

**IDACOM**

4211 - 95 Street  
Edmonton, Alberta  
T6E 5R6  
(403) 450-2468

**Contact:** Pauline Hale  
Section Manager, Marketing

**Company Founded:** 1981

**Products and Services:** IDACOM specializes in the design and manufacture of sophisticated data communications testing equipment. The company, a world leader in its field, produces high speed data network analyzers and communications protocol testing devices. Its major product is the PT/MPT Family of Protocol Analyzers, designed to monitor and emulate data communications protocols, and can be used as a development aid in simulation.

**Sales Activity:** Major clients are telephone companies and other signal carriers, manufacturers of communications equipment and private operators of data communications networks.

**Export Activity:** IDACOM products are currently in use in over 18 countries. Approximately 90 per cent of the products and services are exported, mainly to the U.S., Europe and Japan.

**Indecon Industries**

8111 Hunterview Drive N.W.  
Calgary, Alberta  
T3K 1B2  
(403) 275-2345

**Contact:** Werner Blum, President

**Company Founded:** 1973

**Products and Services:** Indecon Industries manufactures energy management systems, EMS-Z (tm), used to regulate the temperature of commercial buildings, irrigation systems, ST-9 (tm); and custom-built computerized systems. The company provides custom electronics manufacturing services for industrial controllers and various industrial instrumentation.

**Sales Activity:** Indecon markets its products and services to various commercial industries and manufacturers, as well as to golf clubs and municipal governments.

**Innovage Microsystems Inc.**

#5, 6125 - 12 Street N.E.  
Calgary, Alberta  
T2H 2K1  
(403) 255-9590

**Contact:** Michael Kaiser, President

**Company Founded:** 1981

**Products and Services:** Innovage Microsystems Inc. is involved in the microprocessor test equipment field. The company's major product, the TRACER 100XTR, originated from the need for a handheld, easy-to-operate, low-cost test instrument that could facilitate the quick identification and correction of problems in microprocessor-based products.

The TRACER has been designed to aid engineers and technicians in the complete product cycle: hardware design, software development, manufacture and service, and has distinct advantages in terms of price, functionality, ease of operation and flexibility. Additional interfaces for 16-bit microprocessors are being developed.

The company also provides consulting and R & D services in electronics.

**Sales Activity:** Innovage currently markets to the electronics, telecommunications and computer industries, as well as to other manufacturers.

**Instar Corporation**

178, 6815 - 8 Street N.E.  
Calgary, Alberta  
T2E 7H7  
(403) 295-8558

**Contact:** Graham Irving, President

**Company Founded:** 1983

**Products and Services:** Instar Corporation develops and produces leading edge information storage and retrieval systems for the data processing industry. A major focus of the company is the integration of optical storage technologies. Products include: the TE1000, an optical disk device that directly replaces a tape drive; and the ODI-PC, an optical disk interface for PC's which allows an optical disk to be accessed through DOS. Instar Corporation also undertakes research and development work.

**Sales Activity:** The company primarily markets its products to manufacturers, systems integrators, and distributors.

**INTERA Technologies Ltd.**

2500, 101 - 6 Avenue S.W.  
Calgary, Alberta  
T2P 3P4  
(403) 266-0900

**Contact:** Brian L. Bullock, President

**Company Founded:** 1974

**Products and Services:** Intera specializes in the applications of high technology remote sensing instrumentation in aircraft, and in the analysis and presentation of results from scientific data acquisition programs. It is the first company to develop synthetic aperture radar (SAR) systems for commercial use. The firm has introduced a new system called STAR-2, which will operate as a companion to STAR-1, the company's original airborne radar system. This new system incorporates advances such as enhanced processing speech, higher resolution data collection, all-digital display and recording systems and a superior annotation system. These new features mean better turnkey data collection and mapping services, including the ability to provide digital terrain models, radar image maps and other radar map products.

**Sales/Export Activity:** Intera's customers include governments and government agencies and major oil companies around the world: U.S.A., Canada, Indonesia, Europe. The company has branches in Texas and Ontario.



### Interalia Inc.

119, 2723 - 27 Avenue N.E.  
Calgary, Alberta  
T1Y 5R8  
(403) 291-0991

**Contact:** Garth Hunter, President

**Company Founded:** 1975

**Products and Services:** Interalia manufactures microprocessor-based telecommunications systems. All design, layout, hardware and software is handled with in-house expertise. Interalia's products include digital voice announcement devices, digital voice recording devices, and other specialized applications.

**Sales Activity:** The products are sold to the telecommunications industry.

**Export Activity:** The company has branches in Morgan Hill, California and Minneapolis, Minnesota.

### Invertor Technology

Division of McCrum  
Holdings Ltd.  
6, 245 - 2 Avenue E.  
Cochrane, Alberta  
T2M 4M5  
(403) 936-5888

**Contact:** Gordon McMillan, President

**Company Founded:** 1976

**Products and Services:** Invertor Technology specializes in manufacturing power conversion equipment. The company has total in-house capabilities to manufacture standard products as well as custom systems. The standard products line consists of: sine-wave invertors, uninterruptible power supplies, industrial battery-charging systems, laboratory power supplies, DC-DC converters, and a full line of printed

circuit fabrication products. New products include test equipment and stereo equipment in kit form.

**Sales Activity:** Invertor Technology markets to the petroleum, computer, office automation, telecommunications, transportation and mining industries.

### ITRES Research Limited

Suite 141, Calgary Advanced  
Technology Centre  
6815 - 8 Street N.E.  
Calgary, Alberta  
T2E 7H7  
(403) 274-7440

**Contact:** Dr. C.D. Anger, President

**Company Founded:** 1979

**Products and Services:** ITRES provides research and development services in electronics, electro-optics and advanced instrumentation. The company manufactures digital scientific cameras, airborne remote sensing, x-ray imaging, spectral analysis and lowlight-level video equipment.

**Sales Activity:** Their R & D services and products are sold to a wide variety of scientific and photonic organizations.

**Research Activity:** ITRES is collaborating with the University of Arizona on development of an imager spectrograph instrument to be used on the space shuttle. It is also developing a compact, low-cost airborne multispectral scanner for general remote sensing application.



### Kern Electronics Ltd.

#33 Parkway  
Maple Ridge Park  
Edmonton, Alberta  
T6P 1E1  
(403) 438-8033

**Contact:** Trevor J. Kern, President

**Company Founded:** 1982

**Products and Services:** Kern Electronics manufactures electronic nurse call systems and staff register systems. The company provides contract assembly, computer-aided engineering services, plotting services and is a dealer of Houston Instrument plotters.

**Sales Activity:** Nurse call and staff register systems are sold to contractors of medical facilities. Other products and services are marketed to a wide variety of industries.

### Keyword Office Technologies Ltd.

2816 - 11 Street N.E.  
Calgary, Alberta  
T2E 7S7  
(403) 250-1770

**Contact:** Robert Blackshaw, President

**Company Founded:** 1978

**Products and Services:** Keyword is a world pioneer in Document Interchange products and technology. The firm has developed the KEYWORD 8000/SERVICE-pak (tm), a combination hardware/software system which integrates incompatible word processing systems through high fidelity document conversion. Keyword has introduced a document interchange software package called KEYpak (tm), for VAX/VMS, UNIX OS12 and other systems.

**Sales Activity:** Keyword markets its products to manufacturers, retailers, provincial and federal government agencies, wholesalers and non-profit institutions.

**Export Activity:** The company has branch offices in most major cities in Canada and in many cities across the U.S. It markets its product in North America, Europe, Australia and Southeast Asia. Of special note, this firm has even sold to the White House.

### King Byte Inc.

106 Cochrane Crescent  
Cochrane, Alberta  
T0L 0W0  
(403) 932-4607

**Contact:** Lonnie Nunweiler, President

**Company Founded:** 1982

**Products and Services:** King Byte Inc. manufactures a custom-designed analog-to-digital converter board which has full 13-bit resolution on 32 channels, designed for the most demanding tasks, and works with all computers employing RS-232 communications.

King Byte's software/hardware systems currently in use in the oil and gas industry include: "Gasman" compressor station hardware/software, which provides gas flow readings from many sites (flow control and alarm modules are also available); "Spotman" portable gas flow monitors, which have ERCB approval; and "Scanwell" oilfield production monitoring software, developed for A. Comeau & Associates Ltd.

The company's software base is the multi-tasking "C" language. The company will consider almost any hardware/software development project.

**Sales Activity:** The company sells to the petroleum and natural gas industry.

L

### LSI Logic Corporation of Canada Ltd.

3410, 150 - 6 Avenue S.W.  
Calgary, Alberta  
T2P 3Y7  
(403) 263-7224

**Contact:** Brian Mackie  
Vice President of Marketing

**Products and Services:** LSI Logic Corporation of Canada Inc. provides design services, related software and leading-edge silicon products for application specific integrated circuits (ASICs). Building on this core technology, LSI Logic also markets total solutions in standard or customized PC chip sets, RISC microprocessors, and complete PC systems. At each of these levels of integration, LSI Logic can provide its customers with design expertise for customer specific requirements.

The corporation is a member of the LSI Group of companies which operates 34 Design Centres around the globe. Publicly traded with listings on the Toronto, Montreal and Alberta stock exchanges, six Design Centres are located cross Canada with manufacturing in Edmonton. For ASICs this facility provides state-of-the-art 1.5 micron wafer metallization, assembly and test, a fully automated assembly line handles printed circuit board and system assembly.

**Sales/Export Activity:** Their ASIC, PC chip set, and RISC microprocessor products and services are marketed primarily to manufacturers in the telecommunications, electronic data processing, military and aerospace industries in Canada and South Korea. System products and services have a global mandate.

### Lakewood Systems Ltd.

#200, 9258 - 34 A Avenue  
Edmonton, Alberta  
T6E 5P4  
(403) 462-9110

**Contact:** Don Hlibka, President

**Company Founded:** 1978

**Products and Services:** Lakewood Systems Ltd. manufactures portable IBM-related, low-power remote datalogging equipment and instrumentation devices for high- and low-speed data recording applications in most industries and environments. Lakewood's recording equipment can be used to monitor analog data, status data, and pulse count data for industrial applications.

The company supports over 85 products used in instrumentation monitoring and data recording systems.

**Sales Activity:** Industries marketed to include forestry, agriculture, transportation, defence, petroleum, mining, and aeronautics.

**Export Activity:** Lakewood is involved in technology transfer to the Pacific Rim and is extending its sales to international markets.

M

### Mactronic Ltd.

Box 548  
7897 - 48 Avenue  
Red Deer, Alberta  
T4N 5G1  
(403) 342-1822

**Contact:** Rod MacDonald, Vice President

**Company Founded:** 1979

**Products and Services:** Mactronic manufactures electronic flare equipment as well as electronic spark generators called Mac Igniters (tm) and Mini-Mac Igniters (tm). These devices are unique because they do not require pilot fuel or accessories to ignite vent gases.

Mactronic Ltd. has developed technology to answer the needs of the oil and gas industry, namely to eliminate the need for costly pilot fuels through the use of electronic and solar ignition systems. Mactronic is able to provide the complete engineering and design technology required for the ignition systems. The company has achievements in engineering, design and marketing of total flare systems worldwide.

### McAllister Petroleum Services Ltd.

107, 2507 - 12 Street N.E.  
Calgary, Alberta  
T2E 7L5  
(403) 250-1911

**Contact:** Norman J. McAllister, President

**Company Founded:** 1980

**Products and Services:** McAllister Petroleum Services Ltd. provides electronic instrumentation for surface and sub-surface pressure and temperature measurement, including well head monitor probes, conductor line digital pressure/temperature transmitters and electronic memory recorders. The company also offers annulus casing packers for production wells and drill stem testing tools and services.

### Mega Technical Industries Ltd.

9311 - 35 Avenue  
Edmonton, Alberta  
T6E 5R5  
(403) 450-3022

**Contact:** Bob Lindsay, President

**Company Founded:** 1986

**Products and Services:** The company custom designs and manufactures a wide range of electronic equipment. The major product is BRITEN-UP (tm), a solid state daytime driving light device. Other products include a dual antennae switching system for broad band two-way radio products. Mega Technical also acts as a manufacturing subcontractor for all stages of electronic manufacturing, including printed circuit boards, construction, assembly, and testing.

Mega Technical services radar equipment for the R.C.M.P.

**Sales Activity:** Products and services are sold to the automotive, communications, and oil and gas industries.

**Export Activity:** The company exports to the United States.

### Micro-Watt Control Devices Ltd.

#106, 3505 - 29 Street N.E.  
Calgary, Alberta  
T1Y 5W4  
(403) 250-1594

**Contact:** Ken Coffey, Owner

**Company Founded:** 1983

**Products and Services:** Micro-Watt Control Devices Ltd. offers a full range of electronic control products and services to the oil and gas, petrochemical, utility and agricultural industries. The company provides support in all project stages, including application assistance, design, procurement, custom manufacturing, start-up, commissioning and repair.

Micro-Watt Control Devices Ltd. distributes optical fire detection, combustible gas and H<sub>2</sub>S detection and burner management products (Detector Electronics Corporation); explosion proof electrical enclosures and apparatus (Curlee Manufacturing); programmable logic controllers, relays, timers, temperature controllers (Omron); industrial electronic instrumentation (Pribusin); and UPS/invertors (Cuesta Systems).

The company also distributes its own manufactured products including Industrial Alarm Displays and Electrical Power Demand Monitors.



DATAP Systems

### Microhmega Electronics Ltd.

116 Forge Road S.E.  
Calgary, Alberta  
T2H 0S8

**Contact:** Rod Stuart, President

**Company Founded:** 1983

**Products and Services:** Microhmega Electronics Ltd. provides custom design, development, and manufacture of microprocessor and microcomputer-based control systems for industrial, consumer, and educational applications.

### Micrologic Limited

#14, 2280 - 39 Avenue N.E.  
Calgary, Alberta  
T2K 4S6  
(403) 250-2911

**Contact:** R.C. Atkins, President

**Company Founded:** 1978

**Products and Services:** Micrologic Limited provides electronics engineering services. The company has developed expertise in the operation of instrumentation and telemetry systems under environmental extremes in frontier areas. More recently, Micrologic has become involved in the development of microprocessor-based instrumentation systems for measurement and control applications.

Systems designed, constructed and installed by Micrologic include satellite telemetry, automatic weather stations, miniature remote-operated vehicles, measurement-while-drilling data acquisition systems, micropower data collection systems and microprocessor drill rig monitoring equipment.

**Sales Activity:** Micrologic markets primarily to the petroleum industry, as well as to the agriculture, computer and transportation industries.

**Research Activity:** Micrologic Limited has a fully-equipped electronics research and development laboratory with a full range of modern test equipment. To facilitate equipment testing under field conditions, the company has a small cold chamber capable of -60 degrees Centigrade operation for extended periods. The lab is also equipped with three separate computer systems to facilitate simultaneous instrumentation development, data processing and sensor calibration. Close contact is maintained with various engineering consultants specializing in other areas.

### Mobiltex Data Ltd.

4A, 3516 - 26 Street N.E.  
Calgary, Alberta  
T1Y 4T7  
(403) 291-2770

**Contact:** Dale Poloway  
Marketing Manager

**Products and Services:** Mobiltex Data Ltd. designs and manufactures industrial mobile data systems and mobile radio signalling products, and provides OEM design, manufacturing, and consulting services in this area.

Mobiltex Mobile Data Systems are used worldwide in demanding environments such as surface mining, gas processing, pipeline, and tar sands operations. Applications include real-time production monitoring, computer-aided dispatch, vehicle location, and remote control and status monitoring. Products provided by Mobiltex include Mobile Data Terminals, Station Controllers, Radio Modems, and Host Computer Operating Systems.

Mobiltex signalling products are utilized primarily in the land mobile radio industry and include ANI encoder/display units, DTMF decoder/page transponders, DTMP encoders, CTCSS encoders/decoders, and paging encoders. These radio system enhancement products are distributed in Canada by ECD Electronic Communication Distributors Inc.

**Sales Activity:** The company sells to manufacturers, wholesalers, and end-users in the petroleum, mining and telecommunications industries.

N

### Newco Safety Tel Inc.

1921 - 10 Avenue S.W.  
Calgary, Alberta  
T3C 0K3  
(403) 228-6805

**Contact:** R.J. Stewart, President

**Company Founded:** 1986

**Products and Services:** The company manufactures CSA approved explosion-proof telephones and explosion-proof intercom systems including hydrogen approved equipment (Group B), hydrocarbon gases (Groups C and D) and dust approvals (Groups E, F and G). The telephone apparatus is DOC approved. Newco Safety Tel also sells audio signal devices and provides consulting services for explosion-proof systems.

### Norstar Instruments Ltd.

319 - 2 Avenue S.W.  
Calgary, Alberta  
T2P 0C5  
(403) 262-0800

**Contact:** Brad Timinski, General Manager

**Company Founded:** 1984

**Products, Services and Specialties:** Norstar develops and manufactures Global Positioning Systems (GPS) satellite receivers. The Norstar 1000 is a five channel high precision instrument used for precise positioning and navigating in dynamic and static modes. With a single instrument, accuracies of a few metres are achieved. In a differential mode, sub-metre accuracies are standard. Current production employs C/A code.

The company is developing other receiver models including a two channel P-code unit, and dual frequency L1 L2 models.

Norstar receivers have imbedded processing software. Post processing programs are available.

The company is a wholly owned subsidiary of Nortech Surveys (Canada) Ltd.

**Sales Activity:** Production started in 1987, and receivers have been sold to the surveying industry, government agencies and the armed forces.

**Export Activity:** Agents have been established in 26 countries. Export customers include the U.S. Air Force.

## ■ Northern Telecom Canada

P.O. Box 1974  
Edmonton, Alberta  
T5J 2P4  
(403) 441-3100

**Contact:** J. Hillier, Vice President

**Company Founded:** Calgary Business Products Division, 1981  
Calgary Switching Plant, 1975

**Products and Services:** Northern Telecom Canada Limited is Canada's leading telecommunications equipment designer and manufacturer, with 24 plants and 14 research centres in nine provinces. The company's Alberta locations consist of two plants in Calgary and corporate offices in Edmonton.

The Calgary Business Products Division manufactures sophisticated small business telephone systems for North American and export markets. The division designs, engineers, manufactures, and markets the Vantage family of small business telephone sets and systems. Features of the unit include: direct access intercom, handsfree operation, automatic redial, speed calling, call forwarding, and three-way calling.

The Digital Switching Plant manufactures the company's DMS (Digital Multiplex System) family of switches. The DMS-100 is a large local telephone switch designed to serve from 3,000 to 100,000 lines of local telephone subscribers. The DMS-200 is a toll switch for long distance calls with a 300 to 60,000 circuit capacity.

**Sales Activity:** The company's business products are sold to small and medium sized businesses either through distributors or telephone companies. The digital switching products are sold to more than 90 telephone companies in 30 countries.

**Export Activity:** The business products are marketed worldwide with approximately 40 per cent sold to export markets. The digital switching products have been installed throughout North America, the Caribbean, Europe, and the Pacific Rim.

## ■ NovAtel Communications Ltd.

1020 - 64 Avenue N.E.  
Calgary, Alberta  
T2E 7V8  
(403) 295-4500

**Contact:** David McDowell, Vice President  
Sales and Marketing

**Company Founded:** 1983

**Products and Services:** NovAtel is jointly owned by Nova Corp. and Alberta Government Telephones Ltd. The company is a worldwide leader in the research, development, manufacturing, and marketing of cellular radio telephones, communications systems, and services. NovAtel's decentralized cellular switching system is unique in the industry, offering the most cost-

effective architecture for smaller city, corridor and rural markets. Its family of cellular mobile and portable telephones and peripherals offers a wide range of configuration and feature options, available for operation on major systems worldwide, including 800/900 MHz and 400/450 MHz bands. NovAtel won a gold award in the Industrial Design category for its 8300/9300 series of cellular telephones from the Canada Awards for Business Excellence.

**Sales Activity:** NovAtel's products are sold to telephone companies, radio common carriers, automotive manufacturers, and authorized dealers and agents across North America and worldwide.

**Export Activity:** U.S. Cellular Phone distribution is through NovAtel/Carcom Inc. in Fort Worth, Texas; in the U.K. through the Carphone Group in Bath. U.S. Systems sales are through NovAtel Communications Inc. in Atlanta, Georgia. International Sales (Australia, New Zealand, China, etc.) are through Calgary Headquarters.

**Research Activity:** Calgary's R & D labs' capability includes VLSI-IC design, (CMOS, Bipolar) high frequency RF circuit and component design, digital communications, switching, software and mechanical/industrial design.

## ■ Nowasco Well Service Ltd.

1300, 801 - 6 Avenue S.W.  
Calgary, Alberta  
T2P 4E1  
(403) 261-2990

**Contact:** S.P. Shoudice  
Chairman of the Board

**Company Founded:** 1962

**Products and Services:** Nowasco Well Service is an international well-servicing company that provides cementing, acidizing, fracturing, nitrogen and coiled tubing services.

The instrumentation requirements of the company are handled by the Special Services Division, which is responsible for supplying the appropriate equipment either by selecting existing commercial instrumentation or by designing and manufacturing new products.

**Sales/Export Activity:** Nowasco sells to the petroleum industry in a variety of environments throughout the world, such as the desert regions of the Middle East, the offshore oilfields of Brazil, and the northern regions of Canada. In addition to these locations' conditions, the company has experience in the effects of vibration and the need for simplicity of operation. Some of the designs produced so far include computerized recording vans, digital pressure and rate indicators, and laboratory test equipment.



PSI Circuits Inc.



## ■ Oler Electronics

6407 - 89 Avenue  
Edmonton, Alberta  
T6B 2G5  
(403) 465-3593

**Contact:** Kenneth Oler, P. Eng., President

**Company Founded:** 1983

**Products and Services:** Oler Electronics specializes in the design, prototyping and assembly of any size electronic analog/digital monitoring and/or control systems. The company's experience profile extends from small two-IC boards to large micro-processor-based control systems.

Oler's Services include all aspects of electronic control device production: feasibility discussions, preliminary design proposals, prototype production, circuit board design, CSA/Alberta electrical protection approval, parts selection and ordering, assembly, testing, and servicing.

**Sales Activity:** The company markets its products and services primarily to the petroleum and agricultural industries.



Pelorus Navigation Systems Inc.

fluidics. All systems incorporate a balance of off-the-shelf components, application-specific custom products and innovative software in order to best meet client needs.

**Sales Activity:** Omnitek provides products and services to the petroleum, chemical, agriculture and computer industries.



### PLD Systems Ltd.

#1, 2023 - 2 Avenue S.E.  
Calgary, Alberta  
T2E 6K1  
(403) 248-3444

**Contact:** Keith Brown

**Company Founded:** 1986

**Products and Services:** The company manufactures and markets an Automatic Vehicle Tracking System, which can be applied to any kind of fleet operation that can be equipped with radio communications equipment. Typical urban applications include transit, police, taxi, courier and civic administration vehicle tracking. Typical industrial applications are in mines, ports and oilfields.

**Sales Activity:** PLD Systems Ltd. markets to the transportation and mining industries, as well as to the provincial government and fleet operators.

### PSI Circuits Inc.

#7, 2925 - 10 Avenue N.E.  
Calgary, Alberta  
T2A 5L4  
(403) 273-9896

**Contact:** Robert D. Watson, President

**Company Founded:** 1986

**Products and Services:** PSI Circuits Inc. manufactures single- and double-sided and multi-layered printed circuit boards, and provides Gerber photoplotting from modem or floppy disk, photo imageable masks and resists, blind/buried vias, and Mil-Spec multi-layer processes.

**Sales Activity:** The company markets to the electronics and telecommunications manufacturing industries.

### Palco Telecom Ltd.

7825 Flint Road S.E.  
Calgary, Alberta  
T2H 1G3  
(403) 255-4481

**Contact:** Barry L. McCallum  
Manager, C.S.D.

**Company Founded:** 1967

**Products and Services:** Palco has grown into a leading North American supplier of new and refurbished telephone equipment. Palco also offers design, engineering and production services related to a wide range of telecommunications station products.

**Sales Activity:** The company provides telecommunications services and products to telephone companies and interconnect companies across Canada and the United States.

**Export Activity:** Palco has subsidiaries in Toronto, Ontario; Shelbyville, Indiana; Huntsville, Alabama; Nashville, Tennessee; and Redlands, California.

**Research Activity:** The firm's current research is aimed at enhancing a chemical process for vapor polishing plastic components, and is also involved in printed circuit board test and repair.

### Pason Well Services Ltd.

6120 - 11 Street S.E.  
Bay 5  
Calgary, Alberta  
T2H 2L7  
(403) 264-6365

**Contact:** Jim Hill, General Manager

**Company Founded:** 1978

**Products and Services:** Pason Well Services manufactures electronic mud monitoring systems, pump stroke counters, and remote drilling chokes.

**Sales Activity:** The products are sold to the oil and gas industry.

### Pelorus Navigation Systems Inc.

#202, 575 Palmer Road N.E.  
Calgary, Alberta  
T2E 7G4  
(403) 250-9377

**Contact:** Ed Fitzhenry, President

**Company Founded:** 1982

**Products and Services:** Pelorus manufactures and installs electronic distance measuring equipment (DME) for airports. The company also produces the Automated Weather Observation and Reporting System (AWORS), which takes continuous observations of relevant weather data and transmits them to incoming aircraft using a microchip voice processor, for use at remote, untended airports.

### Omara Systems Ltd.

10639 - 172 Street  
Edmonton, Alberta  
T5S 1P1  
(403) 486-2252

**Contact:** D.P. Caouette, President

**Company Founded:** 1985

**Products and Services:** Omara Systems Inc. is a designer and manufacturer of high technology commercial and industrial control and monitoring products. Omara's primary product is a line of microprocessor-based electric heat tracing controllers. Secondary products include completely modular low voltage control and monitoring electronics suitable for applications in commercial lighting systems, parking lot power control, etc.

**Sales Activity:** Omara sells to the petroleum and petrochemical industries.

### Omnitek Computer Systems Ltd.

#106, 3505 - 29 Street N.E.  
Calgary, Alberta  
T1Y 5W4  
(403) 291-2988

**Contact:** B.J. Drain, President

**Company Founded:** 1979

**Products and Services:** Omnitek is a custom and semi-custom design and development company specializing in microprocessor-based data acquisition and control systems. Full facilities exist for prototype manufacturing, custom programming, machining and repair. Omnitek is experienced in laser systems for navigation and alignment, strain-gauge technology (force measurement), control and measurement of cryogenic fluids, electro-optics and

**Sales Activity:** Major clients are federal, provincial, and municipal governments which operate airports.

**Export Activity:** The company exports to Europe, the Pacific Rim, and the U.S. It has a branch office in Toronto, and a subsidiary in Tucson, Arizona.

**Research Activity:** Pelorus and the Alberta Research Council are developing a Microwave Landing System (MLS) Avionics Receiver. It will be part of a new microwave system replacing the current instrumental system used in the airports and aircrafts around the world.

### Polyphase Engineered Controls

8748 - 61 Avenue  
Edmonton, Alberta  
T6E 5P6  
(403) 465-3283

**Contact:** Ramesh Aggarwall  
Owner-Manager

**Company Founded:** 1977

**Products and Services:** Polyphase Engineered Controls fabricates, assembles and wires electrical and instrument control panels and consoles, power factor correction plants, SKV switching gear and unit substations. Polyphase also does detailed design and CAD drafting, as well as PLC programming.

**Sales Activity:** The company markets to the petroleum and agriculture industries.

### Profit-Air Engineered Systems Ltd.

5521 - 92 Street  
Edmonton, Alberta  
T6E 3A4  
(403) 437-2557

**Contact:** Steve Steckley, President

**Company Founded:** 1980

**Products and Services:** Profit-Air Engineered Systems Ltd. designs and manufactures electronically-controlled environmental management systems for high density livestock barns.

**Sales Activity:** Services are currently available to clients in Alberta, Saskatchewan, Manitoba, Montana, North and South Dakota, and Ontario.

# Q

### Q-Tron Ltd.

#9, 7003 - 30 Street S.E.  
Calgary, Alberta  
T2C 1N6  
(403) 279-0805

**Contact:** Vladimir Juranek, President

**Company Founded:** 1974

**Products and Services:** Q-Tron Ltd. is an electronics development and manufacturing company. Custom cable manufacturing and injection moulding are also offered by the firm.

Q-Tron Ltd. develops and manufactures microprocessor, analog and digital electronic equipment. It has developed and manufactured over 200 different electronic devices and related equipment.

The company has developed and manufactured equipment, ranging from a simple potted diode to a complex modular data acquisition system. Some examples are: a Locomotive Event Recorder, LCD "simulated analog" locomotive speedometer, Digital Tachometer, and a Locomotive Slow speed control.

**Sales Activity:** Q-Tron Ltd. develops and manufactures equipment mainly for the railway industry but also does work for the oil and gas, agriculture and defence industries.

# R

### RTS Electronic Manufacturing Ltd.

10334 - 172 Street  
Edmonton, Alberta  
T5S 1G9  
(403) 484-9031

**Contact:** Art Gaber, Operations Manager

**Company Founded:** 1981

**Products and Services:** RTS Electronic manufactures cathodic protection rectifiers, industrial transformers, switch mode power supplies, specialty power supplies, and power factor correction capacitors for pump motors.

**Sales Activity:** The cathodic protection rectifiers are sold to the oil and gas industry and the transformers to a wide variety of industries in Canada, U.S.A., Mexico, Africa, South America and some Middle East countries.



Q-Tron Ltd.

### Raffin Electric Co. Ltd.

5539 - 1 Street S.E.  
Calgary, Alberta  
T2H 1H9  
(403) 252-7551

**Contact:** Peter Raffin, President

**Company Founded:** 1957

**Products and Services:** Raffin Electric provides electronic product control systems design and manufacturing services. It manufactures high voltage portable switchgears, control panels, consoles and cabinetry, and custom electrical products.

**Sales Activity:** Products and services are sold to a wide variety of industries including oil and gas, food processing, potash and mining, utilities, and pulp and paper.

### Recom Engineering 1987 Ltd.

11550 - 115 Street  
Edmonton, Alberta  
T5M 3N8  
(403) 451-2020

**Contact:** Josef Repsch, Manager  
R & D and Engineering

**Company Founded:** 1984

**Products and Services:** Recom Engineering provides electronic and electrical engineering services, specializing in the design and manufacture of non-destructive measuring systems for sheet product manufacturing processes.

Current activities include manufacture of thickness-measuring systems for the board industry (plywood, oriented strand-board, waferboard, particle board, medium density fibreboard, etc.) and weight/density measuring systems for the board and

paper industries. All measuring systems and related equipment manufactured by the company utilize ultrasound, laser and soft radiation (Gamma, Beta) technology.

The company also offers consulting engineering services related to the design and construction of computer and PC-aided integrated process control systems in application to the forest product industries.

### **Research Electronics**

#### **Reselco Ltd.**

16302 - 80 Avenue  
Edmonton, Alberta  
T5R 3M6  
(403) 489-6207

**Contact:** P. Noel, President

**Company Founded:** 1965

**Products and Services:** Research Electronics Reselco Ltd. is active in consulting on special industrial problems (electrical, electronic, solid-state and nuclear) and building custom-designed devices for control, testing, and measuring purposes.

**Sales Activity:** The company provides its products and services to the energy and defence industries.

**Research Activity:** Research and development is conducted in the following areas: quantum engineering for medical, scientific and energy generation applications; electrical energy transfer systems; measurement and control of electrical, magnetic and nuclear radiation; living cell manipulation; and material bonding and dissociation for pollution and waste control applications.

### **Russell Technologies Ltd.**

4909 - 75 Avenue  
Edmonton, Alberta  
T6B 2S5  
(403) 469-4461

**Contact:** David E. Russell, President

**Company Founded:** 1972

**Products and Services:** Russell Technologies Inc. provides non-destructive testing services. The company manufactures eddy current equipment, ferrosopes, ultrasonic flow detectors, ultrasonic thickness gauges, ultrasonic plastic pipewall gauges, personal radiation safety meters, and safety alarms.

**Sales Activity:** Services and equipment are sold to the petrochemical, thermal generating, nuclear, oil and gas, pulp and paper, plastic, and various manufacturing industries.

**Research Activity:** Russell's research and development subsidiary, Cyberscope Industries Inc., developed the "Ferroscope" and the electromagnetic technology used in providing services for the inspection of carbon-steel heat exchange tubing and small diameter pipelines.



### **Sherrex Systems Ltd.**

4196 - 93 Street  
Edmonton, Alberta  
T6E 5P5  
(403) 462-4085

**Contact:** Wayne Sherrard, P. Eng.  
President

**Company Founded:** 1980

**Products and Services:** Sherrex has developed and manufactures more than 50 high technology products. The company manufactures Supervisory Control and Data Acquisition (SCADA) systems, and other products used by the industrial sector to control and monitor processes, buildings and computers. Sherrex also provides fibre optic communications products and industrial fibre optic systems including design, construction and installation services.

**Sales Activity:** Products and services are sold to various industries. Several products such as EPROM Programmers are sold across North America through distributors and representatives.

**Export Activity:** Sherrex sells to the U.S. and Australia.

**Research Activity:** The company's major research thrust is in development of micro-processor-based remote monitoring and control devices.

### **Spartan Controls Ltd.**

2810 - 12 Street N.E.  
Calgary, Alberta  
T2E 7P7  
(403) 250-7600

**Contact:** Ron Kuchinka, President

**Company Founded:** 1963

**Products and Services:** Spartan manufactures custom control panels; distributes control valves, process instruments, safety valves, and pressure and temperature switches; and is a manufacturer's representative for many control companies, such as Fisher Controls, Automay Controls, Crosby Valve, Digitec, etc.

**Sales Activity:** The company sells to a wide variety of industries including oil and gas, petrochemical, power generation, pulp and paper, mining, food processing, and government organizations.

### **Spartech Manufacturing Ltd.**

2860 - 12 Street N.E.  
Calgary, Alberta  
T2E 7P7  
(403) 250-5454

**Contact:** E.W. Yaskowich  
General Manager

**Company Founded:** 1971

**Products and Services:** Spartech is a custom manufacturer of instrument control systems such as pneumatic, electrical, and electronic control systems. Primary products are custom cabinets featuring pneumatic, electronic and electrical systems and components. These products are normally manufactured to customer specifications.

**Sales Activity:** The products are sold to all industries for control applications. Some examples are oil and gas production, water and waste, fibre optics manufacturing, etc.

### **Speedco Drives Ltd.**

5614 E Burbank Road S.E.  
Calgary, Alberta  
T2H 1Z4  
(403) 253-8738

**Contact:** Warren Single, President

**Company Founded:** 1980

**Products and Services:** Speedco is a sales and service organization specializing in electronic variable-speed motor drive systems.

In addition to stocking SCR drives, variable frequency controllers, DC motors and parts, a variety of electronic boards relating to these drives have been designed and manufactured. These include full isolation signal interface boards, pressure set points, transducers and controllers, and board controls. The boards provide for interfacing to and between drives, micro-processors, computers and transducers.

**Sales Activity:** The company primarily serves the petroleum, agriculture and construction industries in Alberta and parts of British Columbia and Saskatchewan.

T

**Telecommander Instruments Ltd.**

429 - 51 Avenue S.E.  
Calgary, Alberta  
T2H 0M8  
(403) 255-0505

**Contact:** A.T.G. Fairbrass, President

**Company Founded:** 1969

**Products and Services:** Telecommander Instruments Ltd. specializes in the design, manufacture, sales and service of electronic recording equipment for the seismic industry. The company designs and manufactures enclosures that provide and maintain the environment necessary for the continuous operation of sophisticated and delicate electronic equipment. Telecommander's products and services include cable checkers; trace transfer units; control panels; annunciators; power consoles; remote control systems; geophysical voltage standards; correlators; stackers; instrument cabins and field equipment; and sales, installation and service of geophysical instruments.

**Sales Activity:** Products and services are sold to the agriculture, petroleum and seismic industry. The enclosures are in service throughout the world in every climate.

**Telematic Controls 1979 Ltd.**

9808 - 47 Avenue  
Edmonton, Alberta  
T6E 5P3  
(403) 436-0511

**Contact:** Brian McClelland  
General Manager

**Company Founded:** 1979

**Products and Services:** Telematic Controls manufactures Thermal Dispersion Flow and Level Switches, and mass flowmeters. The company also distributes and services signal-conditioning equipment, ultrasonic flow measurement equipment, digital panel meters, electric and pneumatic-actuated air valves, relief valves, pneumatic regulators and controls, and pressure and temperature switches.

**Sales Activity:** The company markets to various industries which use process control systems including petroleum, mining and forestry.

**Thermo-Kinetics Company Limited**

L-6, 8181 Flint Road S.E.  
Calgary, Alberta  
T2J 2V5  
(403) 252-2778

**Contact:** Gordon Felt  
Sales/Service Representative

**Company Founded:** 1981

**Products and Services:** Thermo-Kinetics manufactures a Dry-Block Temperature Calibrator (DBTC) for use in testing and calibration of temperature control monitoring systems for heavy industry.

Thermo-Kinetics is an all-Canadian, privately-owned company with its head office in Toronto and branch offices in Calgary and Montreal. Manufacturing facilities are located in Toronto and Calgary.

**Sales Activity:** Industries marketed to include petroleum, mining, agriculture, and forestry.

**Trinity Electronic Systems Ltd.**

10708 - 181 Street  
Edmonton, Alberta  
T5S 1K8  
(403) 489-3199

**Contact:** Larry Kelly, General Manager

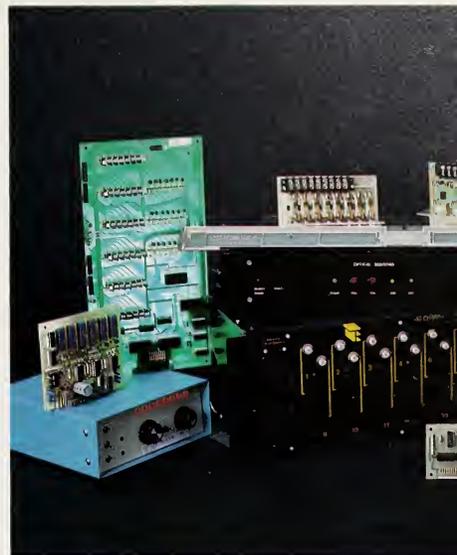
**Company Founded:** 1984

**Products and Services:** Trinity Electronics is a custom manufacturer of electronic equipment and assemblies. Major product lines include electronic displays and exhibits, electronic signage, audio components and traffic equipment.

Trinity Electronics has done work for most of the museums, science centres and interpretive centres in Alberta. This includes animated maps, timers, custom A.V. controls, models, games and interactive exhibits.

Traffic related products include over-height vehicle detectors, lamp flashers, monitoring systems and a portable electronic message centre known as the Traffic Advisor.

**Sales/Export Activity:** Sales are handled both directly and through distributors depending on the item. Traffic products have been sold to the U.S. through Alberta-based distributors. Electronic displays have been produced for Disney World, the CNE in Toronto, Expo '86 and travelling displays which have toured across the U.S.



Trinity Electronic Systems Ltd.

**Trison Instruments Ltd.**

485 Sioux Road  
Sherwood Park, Alberta  
T8A 4H2  
(403) 467-1644

**Contact:** Leo Tachuk, President

**Products and Services:** This company develops, designs and manufactures products including a program control unit for use in programming school time clocks, runway lighting control equipment, and a party line converter which gives subscribers privacy and allows them to use features not previously available such as extension phones, answering machines, designer phones and computer modems.

**Sales Activity:** Trison has sold its program control unit to Edwards of Canada, and its runway lighting control equipment to 40 major airports in Canada. The party line converters are targeted to the 8 million party line subscribers in North America.

**Export Activity:** The company exports to the United States.

**Tsiger Planar Technologies Inc.**

4254 - 93 Street  
Edmonton, Alberta  
T6E 5K6  
(403) 450-2358

**Contact:** Edward Sinclair, President

**Company Founded:** 1985

**Products and Services:** Tsiger manufactures flat, thin antennas for satellite reception. The company has developed a flat satellite ground receiver which is a foldable, portable, mini-earth station. Custom engineered designs can be manufactured.



Russell Technologies Ltd.

**Sales Activity:** One model is intended for the consumer market and other models will be custom engineered and built for telecommunications, aerospace, business, and defence purposes, and will be a replacement for existing parabolic antennae.

### **Tycor Electronic Products Ltd.**

6107 - 6 Street S.E.  
Calgary, Alberta  
T2H 1L9  
(403) 259-3200

**Contact:** Will Frey, President

**Company Founded:** 1976

**Products and Services:** Tycor manufactures power conditioning equipment — AC Powerline Filters, UPS Battery Backup, and Regulators. The AC Powerline Filter incorporates finely-tuned circuitry which virtually removes all normal and common mode noise, EMI, RFI, and protects against massive surges caused by lightning and switching power grids. Tycor offers computer grade power from an AC source for every type of microprocessor application worldwide, which also eliminates the necessity for dedicated lines. Tycor Regulators and UPS Battery Backups will supply regulated power as well as blackout protection where needed. Typical applications include: computers, CAD/CAM and robotics, point-of-sale terminals, programmable logic controllers, and military equipment.

**Sales Activity:** Tycor (tm) power line conditioning products are sold to the OEM's, third party groups, and distributors in the computer, electrical, and electronic industries and also to educational, government, and defence organizations.

**Export Activity:** Tycor products are marketed internationally through distributors. The company exports to the U.S., Australia, New Zealand, Hong Kong, and Singapore. It is presently negotiating with companies for distribution in India, Korea and the Philippines.

**Research Activity:** The firm's engineering, research and development department continuously tests and upgrades products to ensure they meet and exceed military and industry specifications and are compatible with all equipment loads.



### **Universal Power Corporation**

6, 1715 - 27 Avenue N.E.  
Calgary, Alberta  
T2E 7E1  
(403) 250-3479

**Contact:** E.R. Gale, President

**Company Founded:** 1986

**Products and Services:** Universal Power Corporation manufactures a power protection and regulation device. The company developed this ASIC-based Universal Power Regenerator, a solid state device which provides a complete stable and distortion-free supply of electricity, and replaces filters, surge protectors, power line conditioners, line voltage regulators, computer grade transformers and uninterruptible power systems. Universal developed its application specific integrated circuit (ASIC) as a result of nearly three years of intense and highly specialized research into the implementation of microprocessor control in power electronics and power distribution management.

**Sales/Export Activity:** Universal is targeting its marketing efforts primarily at the power regulator market in North America.



### **Valmet-Sentrol Limited**

1, 6325 - 12 Street S.E.  
Calgary, Alberta  
T2H 2K1  
(403) 253-9949

**Contact:** Larry Stack, Marketing Manager

**Company Founded:** 1973 as S.A. Engineering, 1981 as Sentrol Systems Ltd. (acquisition), and 1987 as Valmet-Sentrol Ltd. (acquisition).

**Products and Services:** The SCADA Products Division is in Calgary, Alberta, and the Forest Products Division in Toronto, Ontario. The company belongs to the Valmet Automation Group of Companies, Helsinki, Finland. Valmet-Sentrol is one of the largest Canadian suppliers of computer-based Supervisory Control and Data Acquisition systems to oil and gas pipelines.

**Sales Activity:** The company markets its SCADA products to the oil and gas, water and waste industries, worldwide.

**Export Activity:** Valmet-Sentrol's SCADA Products Division has expanded into the U.S. market by acquiring a SCADA operation in New Orleans, Louisiana and markets its products in Europe, South America, and the Pacific Rim countries through divisions and subsidiaries of the Valmet Automation Group of Companies.

### **Viatic Resource Systems Inc.**

1112- 40 Avenue N.E.  
Calgary, Alberta  
T2E 2N1  
(403) 291-3137

**Contact:** Wayne Ferrel, General Manager

**Company Founded:** 1980

**Products and Services:** Viatic Resource Systems manufactures oil wellhead process control equipment. Its products include variable speed control equipment, pump-off controllers, set-up box/dynameters, and master terminal units. The variable speed control units and the pump-off controllers can be linked to a microprocessor which communicates with the master terminal unit and terminal units located in the field. The set-up box/dynameter analyses the incoming data obtained from the controllers and feeds it to the master terminal unit.

**Sales Activity:** Products are sold to the oil and gas industry.

# W

## **W. Mueller & Associates Ltd.**

9203 - 99 Street  
Edmonton, Alberta  
T6E 3W1  
(403) 432-0615

**Contact:** Wilfred Mueller, President

**Company Founded:** 1978

**Products and Services:** W. Mueller & Associates Ltd. (WMA) is a high-technology electronics engineering firm specializing in the design of electronic, microprocessor and computer-based systems. WMA has developed a line of portable Traffic Statistics Recorders and associated product lines for traffic applications, including an automated vehicle inspection station.

Product development and expertise includes CMOS and SMD technology; dense packaging with enclosure design, including plastics and aluminum castings; statistical analysis including speed, length, congestion, vehicle, type and weight; battery-operated microprocessor electronics; structured multitasking software on PC's and dedicated computers; and an in-house CAD system.

**Sales Activity:** WMA markets its products through an independent marketing firm geared to the transportation industry worldwide, is an Original Equipment Manufacturer for state-of-the-art custom electronic devices, and is involved in electronic engineering projects in a variety of industries.

## **Wega-D Geophysical Ltd.**

100, 1301 - 8 Street S.W.  
Calgary, Alberta  
T2R 1B7  
(403) 228-9448

**Contact:** Werner Wenzel  
Chief Executive Officer

**Company Founded:** 1984

**Products and Services:** Wega-D Geophysical is introducing a geophysical hydrocarbon exploration service employing electromagnetics and induced polarization combined with a new data processing system using pattern recognition techniques. The company provides geophysical data acquisition, processing, mapping and interpretation services and conducts ongoing research and development to advance instrumentation used in electrical geophysics.

**Sales Activity:** Services are sold to the oil and gas industry. Instrumentation, software and know-how will be sold and licensed to the geophysical industry.

## **Western Instruments Inc.**

TWP Road 543 and Highway 794  
Box 72, Site 2, R.R. 1  
St. Albert, Alberta  
T8N 1M8  
(403) 459-6720

**Contact:** Rose Romanyshyn  
Sales Administrator

**Company Founded:** 1966

**Products and Services:** Western specializes in the manufacture of ultrasonic testing systems. These systems are designed to test automatic welds (resistance and fusion) in the tubular products industry. The equipment is also being applied to a variety of other automatic welding processes.

**Sales Activity:** Western's equipment is sold to tube and pipe mills, automotive component manufacturers, and oil country tubular inspection firms.

**Export Activity:** Western Instruments has installations throughout North America.

**Research Activity:** The company is recognized internationally for its aggressive research and development programs. Currently the company's R & D efforts are being supported by the Alberta Research Council and a host of tubular products manufacturers. Long-term directions include further work in ultrasonics, and other forms of non-destructive testing (NDT).

## **Western NDT**

16512 - 111 Avenue  
Edmonton, Alberta  
T5M 3V8  
(403) 484-2410

**Contact:** Ralph Locke, Sales Manager

**Company Founded:** 1983

**Products and Services:** Western NDT specializes in the development and sales of non-destructive testing equipment. Apparatus is sold and developed to automate testing procedures.

**Sales/Export Activity:** Western NDT primarily serves the Western Canadian market, focusing its attention on oilfield, transportation, mining, and marine industries, but has participated in trade shows throughout the United States and in Europe, raising its exposure in these markets.

**Research Activity:** The company has electronics, computer, and mechanical engineers and technicians utilizing computer-aided design equipment to carry out its contract research and development activities.



Western Research

## **Western Research**

Division of Bow Valley  
Resource Services Ltd.  
1313 - 44 Avenue N.E.  
Calgary, Alberta  
T2E 6L5  
(403) 291-1313

**Contact:** Joseph Lukas, Vice President  
Environmental Group BVRS

**Company Founded:** 1965

**Products and Services:** Western Research is a multi-disciplined engineering consulting and manufacturing company, offering a variety of environmental and process control products and services to industry worldwide.

The Instrumentation Section of the company designs, manufactures and distributes analyzers and systems for the measurement of gases and liquid species.

Research and development and production methods include an ongoing commitment to development and improvement of primary analytical detectors, electronic circuitries, microprocessor applications, computer (PC) interfaces, and sample handling techniques.

**Sales Activity:** The company serves oil and gas, sulphur recovery, pulp and paper, thermal power generation, smelters, municipal waste disposal, hazardous waste disposal, and waste industries, plus government agencies.

**Export Activity:** The company markets its expertise, products and services worldwide through offices in Canada, the U.S.A., and representatives in 13 other countries. Over 60 per cent of the company's revenue is generated from export sales.

**Westman Systems Limited**

134 Forge Road S.E.  
Calgary, Alberta  
T2H 0S8  
(403) 252-8803

**Contact:** Ken Lapp, President

**Company Founded:** 1981

**Products and Services:** Westman Systems Limited is a manufacturer of instrumentation shelters, sample systems for process analyzers, control system packages, electrical and electronic control panels, waste gas burners, flare stacks and ignition systems, vapour recovery packages, and metering skids.

**Sales Activity:** The company's products are sold mainly to the oil and gas, petrochemical, waste water treatment, pulp and paper, and mining industries on a worldwide basis.

**Westronic Inc.**

4525 Manilla Road S.E.  
Calgary, Alberta  
T2G 4B6  
(403) 243-3335

**Contact:** T. Graham, Vice President

**Company Founded:** 1980

**Products and Services:** Westronic Inc. is a leader in the design, manufacture and marketing of Supervisory Control and Data Acquisition (SCADA) Remote Terminal Units (RTUs), and telemetry equipment and systems. One of its major product lines is the microcomputer-based RTUs for energy management and control. Specialized units are also available for communication network management systems.

**Sales Activity:** The products are sold to the oil and gas, telecommunications, and electric utility industries.

**Export Activity:** Export accounts for 95 per cent of Westronic's business. The company has penetrated markets in the United States, the United Kingdom, Australia and Malaysia, and has won awards for its export achievements.

**Williams Electronics Ltd.**

17307 - 103 Avenue  
Edmonton, Alberta  
T5S 1J4  
(403) 489-3882

**Contact:** Ken Polanski, President

**Company Founded:** 1970

**Products and Services:** The company manufactures facsimile mobile interface devices, (FMID [tm]). The FMID permits Group III digital facsimile machines to send hard copy information, charts, maps and graphs via two-way radio/radio telephone in either simplex, half duplex and full duplex operation. The complete communications package (Radio-FMID-FAX) is a user-friendly system that provides the rapid transfer of hard copy information to and from remote sites.

**Sales Activity:** Products and services are sold to logging, mining, oil and gas, and transportation industries and to government.

**Research Activity:** R & D activities are performed by the affiliated company, Polanski Electronics Ltd.

**Willowglen Systems Ltd.**

1, 1235 - 64 Avenue S.E.  
Calgary, Alberta  
T2H 2J7  
(403) 253-3051

**Contact:** Malcolm Milne, President

**Company Founded:** 1974

**Products and Services:** Willowglen is the only international company which specializes totally in the design, engineering and supply of SCADA (Supervisory Control and Data Acquisition) systems. The firm supplies products for its own systems and for major industrial products engineered by others.

**Sales Activity:** Willowglen systems are sold to the electric power, oil and gas, water, transportation, telecommunications, and security and energy management industries worldwide.

**Export Activity:** The company's international contracts have included supplying an automation system to the Metropolitan Water District of Southern California, a control and monitoring system for 3,000 Singapore highrises, and an automation system for sour gas production for a Soviet gas field. Willowglen has subsidiaries in Los Angeles and Singapore.

**Research Activity:** Research and development focus on a new generation of SCADA systems and on the potential for spin-off products in other markets.

# Alberta For All the Right Reasons

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■ Vast natural resources with spin-off development opportunities.

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■ One of the lowest costs of living among Canadian provinces.

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■ Personal income and corporate tax among the lowest in Canada.

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■ No sales tax.

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■ Expert, educated, and committed workforce.

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■ Impressive transportation network.

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■ Superior educational and health care facilities.

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■ A dedication to free enterprise.

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