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A Prospectus on Success:

THE DEFENCE ELECTRONICS INDUSTRY IN CANADA

Electronics Directorate
Department of
Regional Industrial Expansion

THE DEFENCE ELECTRONICS INDUSTRY

INFORMATION CENTRE
CENTRE D'INFORMATION

FEB 9 1989

INVESTMENT CANADA
INVESTISSEMENT CANADA

YOU ARE IN GOOD COMPANY IN CANADA



Government
of Canada

Gouvernement
du Canada

Regional Industrial
Expansion

Expansion industrielle
régionale

AN INTRODUCTION

. . . . TO A DYNAMIC INDUSTRY

- **Playing a vital role in Canada's economy**
- **Recognized as being internationally competitive**
- **Facing significant prospects for continued growth**
- **Comprised of many of the major players**
- **Developing and manufacturing products for world markets**
- **Located in Canada for sound business reasons**
- **Growing with new business investments in Canada**

AN INTRODUCTION

. . . . TO CANADA, A PROSPEROUS NATION

- **Providing the Defence Electronics Industry with leading advantages**
- **Aimed at the enhancement of its unique relationships with the United States in the Defence Industry**
- **Committed to a hospitable business climate**
- **Endowed with abundant natural resources, a highly educated population and a well developed high technology infrastructure**
- **Offering companies that wish to invest in the Canadian Defence Electronics Industry some very appealing incentives**

AN INTRODUCTION

. . . . TO A GOVERNMENT TEAM OF ACTION-ORIENTED PEOPLE

- **Aspiring towards the continued growth of the Defence Electronics Industry in Canada**
- **Dedicated to working closely with corporate decision-makers both in Canada and at the corporate headquarters in the U.S.**
- **Offering a wide range of information and support to corporations wishing to either perform R&D in Canada, source Canadian products or locate manufacturing operations in Canada**

**AN INTRODUCTION
. . . . TO A DYNAMIC INDUSTRY**

**.... HAVING AN ESTABLISHED INFRASTRUCTURE
MANUFACTURING THE FOLLOWING
PRODUCTS IN CANADA**

- **Doppler, Omega, Tacan and Microwave Landing Systems**
- **Cockpit Instrumentation and Avionics Systems**
- **Emergency Location Transmitters for Aircraft**
- **Vessel and Air Traffic Control Systems**
- **Military Radios and Radars**
- **Sonobuoys and Sonars**
- **Commercial and Military Flight Simulators and Training Systems**
- **Automated Test Equipment for Avionics and Other Defence Electronics Systems**
- **Satellite Systems, Parts and Components**
- **Integrated Shipboard Communications and Control Systems**
- **Electronic Warfare Systems and Simulators**
- **Anti-Submarine Warfare Systems**
- **Data Imaging, Processing and Transmission Systems**

.... and many other defence and defence-related products

.... PLAYING A VITAL ROLE IN MANUFACTURING PRODUCTS FOR NATO COUNTRIES

.... For example

- Litton's Canadian subsidiary is the qualified second source for Cruise Missile inertial navigation systems in Toronto
- Canadian Marconi has over half of the free world market for VHF/UHF tactical military radio systems which are produced in Montreal
- Garrett's Canadian subsidiary has captured over 75% of the world market for aircraft temperature control systems which are manufactured in Toronto
- CAE Electronics has supplied many of North America's simulators for commercial aircraft such as the 747, the DC-8, etc, and has also supplied them for several fighter aircraft, helicopters and military transports from its plant located in Montreal

.... plus dozens of other World Product Mandates in plants which are located across Canada

.... RECOGNIZED AS BEING INTERNATIONALLY COMPETITIVE

- **Evidenced by a high level of exports**
 - nearly 80% of manufactured products are exported
 - primarily to the United States and Europe
- **The presence of many of the world's top defence electronics companies**
 - over 90% of industry revenues are realized by multinational enterprises with corporate headquarters located in the U.S.
- **Earned World Product Mandates**
 - most Canadian subsidiaries have product mandates to serve world markets
 - earned by successfully competing internally against other corporate divisions
- **A developed infrastructure**
 - consisting of world-class suppliers for components, parts and sub-systems
 - acknowledged for its state-of-the-art research and development facilities
 - leading to the establishment in Canada of International Procurement Offices serving the world-wide requirements of individual corporations

.... FACING SIGNIFICANT PROSPECTS FOR CONTINUED GROWTH

- **Aerospace and Defence Electronics Industry revenues**
 - were \$5.2 billion in 1985
 - are forecasted to be over \$6.0 billion in 1986
 - representing a compounded annual growth rate of 16% which has been maintained over the past five years
- **Our industry's share in world trade is 7%**
- **Currently employs over 40,000 Canadians**

**.... COMPRISED OF SOME OF THE INDUSTRY'S
LARGEST PLAYERS**

- Litton
- Honeywell Ltd.
- Garrett
- Sperry
- Bendix/Avalex
- Allied/Signal
- Raytheon
- IBM
- M/A Com
- Westinghouse
- Rockwell
- General Dynamics
- ITT
- Ford
- Boeing
- General Motors
- Philips
- Control Data

**.... All of these companies have manufacturing and
R&D facilities in Canada.**

.... LOCATED IN CANADA FOR SOUND BUSINESS REASONS

- **Wider market access**

- the Federal Government purchases of defence products are estimated at \$2.2 billion in 1985

- **Abundance of technological know-how**

- highly-skilled engineers, scientists and software designers
- internationally-renowned research laboratories and educational institutions

- **Significant cost advantages**

- prime location sites are plentiful
- land and building costs are 25% to 35% lower than those in the United States
- electric power is abundant and less than half the U.S. price
- industry labour rates are 10% to 15% below those in the United States
- transportation and communication facilities are among the world's best
- important Government sourcing preferences are available to companies that have R&D and manufacturing facilities in Canada.

.... MOVING AHEAD WITH NEW BUSINESS MISSIONS AND NEW WORLD PRODUCT MANDATES

- **Litton Systems Canada Ltd.**

- Cockpit Displays
- Avionics and Shipboard Systems Integration
- Airborne Radars
- LLAD Radars

- **Garrett Canada Ltd.**

- New Hybrid Thin and Thick Film Integrated Circuits

- **Canadian Marconi Ltd.**

- New Digital Military Radios
- Avionic Display and Data Management Products

- **Raytheon Canada Ltd.**

- Airport Radars and Displays

- **Control Data Canada Ltd. (Computing Devices Canada Ltd.)**

- ASW Acoustic Processors
- Thrust Computing Systems
- Fire Control Systems
- Security Systems

- **Sperry Canada Ltd.**

- Naval Minicomputers

.... And other foreign-owned companies are currently committing investments to perform R&D and/or manufacture defence electronics products in Canada

CANADA IS A PROSPEROUS NATION....

.... CANADA IS A LEADING WESTERN NATION

	Canada	U.S.A.	Japan	Germany	U.K.
GNP Per Capita (C\$ 1984)	16,732	20,041	13,313	13,054	9,658
Labour Participation Rate (%)	73	73	73	63	73
Unemployment Rate 1984	11.2	7.4	2.7	8.6	13.0
Doctors Per 1,000 Population	1.8	1.8	1.3	2.4	0.5
University Enrolment Per 100,000 Population	4,006	5,355	2,030	2,420	1,572

**..... CANADIAN UNIVERSITY ENROLLMENT
IS SECOND ONLY TO THE U.S.**

Discipline	1979/80	1983/84	Growth Rate
UNDERGRADUATE			
Science	46,399	66,559	
Engineering	37,079	42,333	
Total	83,478	108,892	30%
GRADUATE			
Science	3,632	5,003	
Engineering	3,235	5,722	
Total	6,867	10,725	56%
PART TIME			
Science	11,350	21,877	
Engineering	5,444	6,613	
Total	16,794	28,490	70%
Total	107,139	148,107	38%

.... PROVIDING THE DEFENCE ELECTRONICS INDUSTRY WITH LEADING ADVANTAGES

- **An exceptional quality of life for its people**
 - unbeatable medical, educational and recreational facilities
 - clean and safe cities
- **A stable economy**
 - with one of the world's fastest growing economies
 - 30% of GNP is trade related
 - supported through competitive interest rates and the competitive value of the Canadian dollar
 - served by a well-established financial community with international ties
- **Vital resource, manufacturing and service sectors**
 - representing a strong high-technology infrastructure
 - supplying the important support services, components and parts essential for successful manufacturing activities

..... CANADA HAS A SUPPLIER NETWORK FOR HIGH QUALITY COMPONENTS

- **Military and Commercial Power Supplies, Transformers and Inductors**
 - **MIL-SPEC'd Multi-Layer Printed Circuit Boards**
 - **High Quality Plastic Pressings**
 - **High Precision Machine Parts and Tools**
 - **Military Microwave Products and Components**
 - **Electrical Batteries**
 - **Fabricated Metal Products, Castings, Forgings**
 - **Injection Moulding Products and Tools**
 - **Structural Foam Products**
 - **Fibre Optics and Electrical Harnesses, Cables and Connectors**
 - **Control Panels**
 - **Custom Semiconductors**
 - **Data Communications Products and Components**
 - **System Software and Application Packages (there are over 1,800 Canadian software developers)**
- Just ask, and we will provide you with suppliers lists for specific products, by geographical areas, etc.**

.... COMMITTED TO A HOSPITABLE BUSINESS CLIMATE

- **“Canada is open for business.”**
 - as stated by Prime Minister Brian Mulroney in an address to the Economic Club in New York
- **Investment is recognized as the engine of growth**
 - foreign participation is welcome
 - Canada acknowledges the key role played by industry
- **The Government of Canada is committed to the long-term growth and prosperity of the electronics industry**
 - special measures recognize the strategic role played by the defence electronics industry
- **Companies with an established presence in the Canadian Defence Electronics Industry are supported by:**
 - taxation incentives (covering investments in R&D, manufacturing and regional development)
 - government assistance programs (covering investments in R&D, Source Establishment, Capital Acquisitions and Market Feasibility Studies)

..... CANADA HAS SOME OF THE MOST GENEROUS TAX CREDITS AND ALLOWANCES IN THE WORLD

	CANADA	U.S.
Deductions from Income: - R&D Current Expenditures: - R&D Capital Expenditures:	100% 100%	100% 3 to 5 year write-offs
Deductions from Tax Payable: - Investment Tax Credits <ul style="list-style-type: none"> • R&D Capital Expenditures: • R&D Current Expenditures: - Allowance for R&D current expenditures which are incremental over last 3 years' average:	20 to 35% 20 to 35% 0%	6% 0% 25%
Overall Tax Saving as a Percentage of Total Capital & Operating Expenditures - R&D Facilities - Manufacturing Facilities	42% to 53% 7% to 9%	17% to 22% 7% to 9%

**.... AIMING AT THE ENHANCEMENT OF ITS
UNIQUE RELATIONSHIP WITH THE UNITED
STATES**

- **Contributing to the strong partnership between the United States and Canada are:**
 - Defence Production Sharing Agreement (since 1955)
 - Defence Development Sharing Agreement (since 1963)
 - common time zones and language
 - cultural similarities
 - strong communication and transportation linkages
- **Canada is America's largest trading partner**
 - well ahead of European nations
 - and well ahead of Japan
- **Trade in the Defence Electronics Industry is especially significant**
 - over 80% of shipments are exported
 - 73% of Canada's exports are to the United States
 - nearly 80% of Canada's domestic market is imported from the United States
- **Tariffs or duties on trade of defence electronics parts, equipment and systems**
 - are non-existent between Canada and the U.S.

....THE U.S. AND CANADA'S ECONOMIES ARE CLOSELY INTERTWINED

1985 C\$ IN MILLION	SHIPMENTS	EXPORTS	% OF SHIPMENTS EXPORTED	% OF SHIPMENTS EXPORTED TO THE U.S.	APPARENT DOMESTIC	IMPORTS	% OF MARKET SUPPLIED BY IMPORTS	% OF MARKET SUPPLIED BY THE U.S.
ALL INDUSTRIES	\$242,863	\$119,241	49%	38%	\$228,536	\$104,914	46%	33%
ELECTRONICS	\$7,503	\$5,080	68%	50%	\$14,142	\$11,720	83%	60%
COMPUTERS	\$1,540	\$1,428	93%	71%	\$4,713	\$4,600	98%	82%
DEFENCE PRODUCTS	\$2,380	\$1,903	80%	70%	\$2,558	\$2,081	82%	78%

Canada is easily the largest trading partner of the U.S., just as the U.S. is Canada's largest trading partner. Proximity is one reason why this is so. While Canada is one of the world's largest countries, 90% of all Canadians live in urban centres within 200 miles of the U.S. border.

North-South transportation links in Canada facilitate access to

the American marketplace. The bulk of U.S. markets are within one day's trucking distance of Canadian cities.

It is quite revealing, for example, to observe that during 1985, \$1990 million of defence products were imported from the U.S., or 95% of total defence imports.

WE ARE DEDICATED TO WORKING CLOSELY WITH CORPORATE DECISION-MAKERS

- **In Canada, the United States and around the world**
- **Involved in the expansion of their companies in Canada**
- **Seeking information and support**
- **Advocating improvements to existing policies and programs**
- **Addressing sector-wide issues and concerns through their industry associations**
- **Seeking how to optimize profits by locating product mandates in Canada**
- **Looking to source lower cost products from Canadian manufacturers for plants in the U.S. or elsewhere**

WE OFFER A WIDE RANGE OF INFORMATION AND SUPPORT

- **General data on land and building prices, labour rates and other production input costs**
- **Statistics covering the Defence Electronics Industry in Canada and other electronics industry sectors**
- **Information regarding government taxation matters, policies and incentive programs**
- **Introduction to key government and industry advisors and decision-makers**
- **Assistance in identifying suppliers, markets, and prospective joint-ventures**
- **Advocacy support with Government of Canada organizations**
- **Government Assistance Programs for new R&D and/or production projects**
- **Information on major procurements**

.... FOR EXAMPLE, THE FOLLOWING BUSINESS OPPORTUNITIES IN CANADA MAY BE OF INTEREST

DEFENCE ELECTRONICS - MAJOR CROWN PROJECTS

NAME OF PROJECT	STATUS	VALUE	CLIENT	CONTRACTOR *
Radar Modernization Project	Contracted	\$810 M	Transport	Raytheon
North American Warning System	Contracted	\$268 M	DND	CANAC
Low Level Air Defence	Contracted	\$650 M	DND	Oerlikon-Litton
CF-18 Aircraft	Contracted	\$ 24 B	DND	McDonnell-Douglas
CF-18 Missiles	Contracted	\$300 M	DND	U.S. FMS
Electronic Support and Training Challenger Aircraft	Solicitation of Interest	\$120 M	DND	
Microwave Landing System	RFP 1987	\$455 M	Transport	
Flight Data Modernization Program	RFP 1987	\$275 M	Transport	
Tactical Command Control Communications System	RFP 1988	\$ 1.2 B	DND	
Control and Performance Monitoring System	In Planning	\$315 M	Transport	
Aeronautical Information Processing System	In Planning	\$200 M	Transport	
Flight Service Station Modernization	In Planning	\$370 M	Transport	
New Ship Aircraft - Mission Avionics	In Planning	\$950 M	DND	

*Prime Contractors are currently looking for sub-contractors

..... WHAT CAN WE DO FOR YOU?

..... JUST ASK

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Electronics Directorate
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Tel: (613) 954-3338**

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