

services as well as a Bipolar product line. With a special interest in military, high speed digital circuit design, Calmos is supported by an extensive US sales representative and distributor network.

**CAPABILITY:** Calmos Systems Inc is in the business of designing and producing high quality integrated circuits for the semiconductor industry. A diversified company, Calmos seeks to meet the most demanding customer requirements with a variety of standard, custom and technology-based VLSI products and services. Calmos expertise focuses on the design, development and marketing of innovative and relatively complex products in both CMOS and Bipolar processes.

Standard CMOS products consist of the CA80C85B microprocessor, a line of high speed microprocessor peripherals and a line of communication peripherals, including SCSI and SCC devices. In the Bipolar arena, Calmos offers a line of FM receivers and codecs of data and cellular radio applications, plus a popular line of power supply supervisory circuits. Most parts can be qualified to aerospace and defense specifications.

Specialized custom design has produced a series of advanced CMOS memory devices and several digital signal processing circuits for a client base of major international corporations and government departments. A special application specific IC (ASIC) design and consulting service is available to those clients seeking low cost, fast turn-around prototype or low volume production runs. This service utilizes sophisticated E-beam technology, a substantially faster technique for processing custom designed devices.

Silicon wafer fabrication is contracted to outside wafer foundries, allowing Calmos to exploit existing capacity in the industry and take advantage of the latest in wafer fabrication technologies.

The future of the semiconductor industry lies in a systems-on-silicon philosophy, which is resulting in increasingly large and complex ICs. Such devices require a great corporate emphasis and commitment to systems and software knowledge. Future products now under development by Calmos will be supported by strategic alliances with companies already possessing significant systems and software experience. These are targeted towards such specialized fields as telecommunications, secure communications and advanced data processing.

**AVERAGE WORK FORCE:** PhD – 1  
Engineers – 20  
Others – 28

**GROSS SALES:** 1987 – \$2.0M  
1988 – \$5.0M

**PLANT SIZE:** 20,000 Sq Ft

**EQUIPMENT:** Complete integrated circuit (IC) design CAD facility, semiconductor assembly and test equipment. Computer systems include – Valid Logic Systems, VAX System, and Apple MacIntoshes and MS-DOS compatible PCs. Test equipment includes: Phoenix Test System, LTX Tester, K360 Test System, and Environmental Test Equipment.

**EXPERIENCE:** Present customers include the Department of National Defense (DND) and various other departments in the Canadian Government, and major aerospace and defense industries in Canada, the US and abroad.

**KEYWORDS:** ASICs; CMOS; Bipolar; Solid State Devices; Semiconductors; Integrated Circuits; Radiation Hard RAM; Static RAM; Memory Devices; Digital Signal Processing; Encryption; SCSI; Microprocessors; Peripherals; Communications; FM Receivers; Power Supply Monitors; DC-DC Converters; Codecs; Controllers; High Speed Digital Circuitry.

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## CAMETOID Ltd

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Whitby, Ontario, Canada  
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**CONTACT:** Mr D G Newman, President & General Manager –  
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**HISTORY:** Cametoid was incorporated in 1950 and was originally owned by Dowty Equipment of Canada Ltd. In 1968, it was acquired by the Newman family of Whitby, Ontario, and is today a wholly-owned subsidiary of Newman Aerospace Inc, a Canadian company.

In 1988, Newman Aerospace incorporated Cametoid Technologies Inc of Manchester, Connecticut to acquire assets of Chromalloy Technical Services, a division of Chromalloy Gas Turbine.

**CAPABILITY:** Cametoid Technologies Inc in Manchester, Conn has facilities for ion vapor deposition of aluminum (Ivadizing) in chambers similar to those at Cametoid Ltd. Additionally, this company has facilities for specialized spray coatings including epoxy and metal-rich paints.

Cametoid has three divisions:

- The Chemical Coatings Division – established in 1950, produces specification anodizing (chromic, sulfuric and hard); electroplating (cadmium, copper, nickel, nickel-cadmium, silver, tin and zinc); electroless nickel; chemical films on aluminum and magnesium; phosphates on steel; passivation of stainless steel; dry film lubricants of moly disulfide; and Dupont teflon™ sprayed coatings.
- The "Vacuum Coatings Division" – established in 1981, is one of the few facilities in the world capable of ion vapor deposition of aluminum (Ivadizing™) on large parts (narrow parts up to 14 ft long, and flat parts 5 ft x 10 ft), as well as on small parts like aircraft fasteners and round and square connectors.
- The "Optical Technologies Division" – established in 1984, this division specializes in the design, production and testing of optical coatings intended primarily for infrared applications. Development is also proceeding on the establishment of facilities for the manufacture of optical components and the production of optical materials.

**AVERAGE WORK FORCE:** 40 to 50 persons with 12 to 15 professionals (Canadian Facility)

**GROSS SALES:** \$2.0 – \$5.0M (Annually – Canadian Facility)

**PLANT SIZE:** 30,000 Sq Ft (Canadian Facility)

**EQUIPMENT:** Cametoid provides complete chemical, electrochemical and vacuum coating facilities, baking ovens, exhaust systems and an in-house water treatment plant. Optical coaters include four-pocket e-beam gun and laser-monitored deposition controller. Two laboratories, one for process control and one for research and development, are also available with suitable test equipment. Strategic production and test facilities are computer-controlled.

**EXPERIENCE:** Cametoid has more than 30 years of active subcontract experience in dealing with the aerospace, electronic, nuclear and general defense industries in Canada and the US. It is recognized as a "Special Process" facility by both the Department of National Defense and the Department of Transport Canada. It maintains approvals with its principal customers including Air Canada, Andrew Antenna, Invar Manufacturing, Bell Aerospace, Bell Helicopter, Boeing, CAE Electronics, Canadair, General Electric Canada, Cleveland Pneumatic, Computing Devices, de Havilland, Devtek, Dowty, Fleet, Garrett, Grumman, Hawker Siddeley, Indal, ITT Cannon, Kaman Aerospace, Leigh Instruments, Litton, Magna, Martin Marietta, McDonnell Douglas, Menasco, MBB, Pratt and Whitney, Sikorsky, Spar and Unisys.

In addition, the company serves a number of precision machine shops related to the aerospace industry in the Toronto, Ottawa and Montreal regions.

**KEYWORDS:** Anodizing; Chemical Films; Coatings; Coatings (Optical); Conductivity Testing; Dry Film Lubricants; Electroplating; Hardness Testing; Hydrogen Embrittlement; Ion Plating; Ion Vapor Deposition; Ivadizing™; Materials Processing; Metal Coatings; Metal Finishing; Multi-Layer Coatings; Optical Coatings; Protective