

in responding to all normal, abnormal and emergency conditions as well as to learn required operating procedures and techniques. In the avionics area, CAE Electronics develops and manufactures magnetic anomaly detection (MAD) systems used in antisubmarine warfare. Their cesium magnetometer system, which has been traditionally mounted in a stinger at the rear of the aircraft, can measure changes in the earth's magnetic field as small as one part in 5 million. The company now offers an integrated MAD system for inboard use on fixed wing aircraft and helicopters.

They have developed a "JETS" joint enroute/terminal data processing and display system for air traffic control. The system is modular and the displayed information is tailorable to user requirements. They are active in the space area as they are part of a Canadian consortium, responsible for developing and manufacturing the complete Manipulator Arm system for the NASA Space Shuttle. They have designed and are manufacturing the display and control panel, plus the rotational and translation hand controls that operate the manipulator itself. They have also designed and developed the simulation subsystem which is used as a design tool to test hardware and software modules of the system.

AVERAGE WORK FORCE: Total (CAE Electronics) - 2,850
Technical Staff - 1,500

GROSS SALES: 1986 - \$150M
1987 - \$295M

PLANT SIZE: 500,000 Sq Ft

EXPERIENCE: CAE Electronics customers include United Airlines, Air Canada, British Airways, KLM, Lufthansa, Swissair, TWA, FAA, Douglas Aircraft Co, Boeing, Lockheed California, the Canadian Forces, NASA, US Navy, and other departments of the Canadian Government. Current R&D activities include working with the USAF (AFHRL) on a joint program - Design Project for the development of a Wide Field of View, Helmet-Mounted, Infinity Display System, incorporating Area of Interest high resolution imagery slaved to the pilots eye movements; a recently completed study of the LAMARS Air-to-Surface visual system for the USAF; a study for the CAF for a Turret Interactive Crew Simulator; development of computer-based training (CBT) and computer-aided learning technique (CAL); and a recently completed NASA study and development of a six-degree-of-freedom hand controller. A modification of this device is being tested as a helicopter side arm control.

KEYWORDS: ATC Simulators; ATC; Avionics; Computer Graphics; Computers; Control Systems; Data Acquisition; Data Control Systems; Flight Simulators; Graphics; Hydraulics; Magnetic Anomaly Detection; Magnetometers; Nuclear Simulation; PC Board Design & Fabrication; R&O (Avionics); Radar; Radar Simulation; Real Time Control Systems; Real Time Graphics; Real Time Monitor Systems; Simulation; Simulation Programs; Simulators; Software Development; Software Services; Sonar Training Systems; Space Systems; Tactical Team Trainers; Tactical Training Systems; Tactical Team Trainers; Training; Training Simulators; Video Display Systems.

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CALIAN TECHNOLOGY Ltd

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HISTORY: Calian was founded in 1982 and sells highly specialized technical support services to the defense and aerospace sector. Calian is located in Ottawa and is 100% Canadian owned.

CAPABILITY: The company specializes in the electronics and communications support services including all aspects of quality control and assurance for advanced technology equipment as well as the operation and maintenance of Government owned facilities such as satellite ground stations and environmental testing laboratories.

AVERAGE WORK FORCE: Engineers - 4
Technologists - 15
Technicians - 35
Others - 10

GROSS SALES: Not released

EQUIPMENT: Calian's equipment includes: In-house computer systems (15 IBM PCs), complete MIL-standards microfiche system, training facilities, electronic publishing system, and electronics lab support equipment.

EXPERIENCE: The following is a partial list of current Calian clients and related projects:

- Frontec Logistics Corp - North Warning System Project (NWS). A two year contract to set up a quality control system used on the new early warning radar system located across Canada's north.
- Telesat Canada - Ministry of Defence Program. A contract to set up a software quality control system on a major systems integration project for British Aerospace of England.
- Honeywell Defence Systems - Maritime Command headquarters. A six month project to set up and operate a quality control system during the installation of a fiber optics secure communications system for the new maritime command building.
- deHavilland/Boeing - Navigational Training System. A project to plan and implement a complete qualification and test plan compliant with DOD-160 on computer equipment being installed on a Dash-8 for DND.
- Department of Communications - Test Facility Services. A three year contract to provide support services to Canada's foremost spacecraft testing labs (David Florida Lab).
- Department of National Defence - Search and Rescue Satellite. A three year contract to provide support services to DND related to the operation and maintenance of the SAR-SAT ground station.
- Energy Mines and Resources - CCRS Ground Stations. Two multi-year contracts to operate and maintain the two Canadian ground stations tracking remote sensing satellites.
- Department of National Defence - CPF/PMO. An ongoing project to provide data processing services related to tracking contract data on the Canadian Patrol Frigate Program.
- MEL SYSTEMS - Canadian Patrol Frigate Project. An ongoing project to provide trained inspectors to MEL for inspection on electronic subassemblies.

KEYWORDS: Environmental Testing; Reliability Engineering; Training; Standards and Specifications; Configuration Management; Software Quality Assurance; Quality Assurance; Engineering Services; Support Services.

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CALMOS SYSTEMS Inc

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HISTORY: Calmos was founded in April 1983, to design CMOS (Complementary Metal Oxide on Silicon) custom integrated circuits. CMOS devices are characterized by extremely low power consumption. Privately funded entirely from Canadian sources, Calmos has expanded to provide product packaging, testing and quality assurance