Company Profile

Company Overview

CCII Systems (Pty) Ltd (C²I² Systems) is a company specialising in real-time systems development and especially data communications for real-time systems. These capabilities are applicable to the system architecture and implementation of complex, distributed, real-time control and management systems.

C²I² Systems is a dynamic growing company and have a considerable base of experience and expertise. C²I² Systems also has relationships with other companies who have complimentary capabilities to its own. All non-core activities are outsourced.

Along with capabilities in the areas of software engineering and system integration, C²I² Systems is well placed to provide effective solutions to any organisation's information engineering requirements.

Company Mission

C²I² Systems's mission is to provide value-added, cost-effective, multi-disciplinary, system solutions in the segments of Defence Electronics and Renewable Energy Systems.
Company Profile

Company Details

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Company CAGE Codes

A company CAGE (Contractor and Government Entity) code is a code used to uniquely identify every supplier to a government body as well as the government body itself. It is used by the codification people and is one of the inputs into determining an item’s ICN (International Codification Number) or NSN (National Stock Number).

NATO CAGE Code  : VC096
US DoD CAGE Code  : SL140

Other Vendor Numbers

DUNS No.  : 635 708 142
DUNS+4 No.  : SM 21034
Company Capabilities

C²I² Systems has the capabilities, experience, products and partners to offer turnkey solutions to any enterprise’s information technology requirements. These include capabilities in the following specific areas:

- Systems Engineering
- Computer Engineering
- Software Engineering
- Networking Solutions
- Data Communications
- Graphical Human-Machine Interfaces
- Project Management
- Logistic Support
- Obsolescence Re-Engineering

Outsourcing Capabilities

The Rapid Application Development (RAD) approach applied to many well known commercial operating systems for desktop environments has led C²I² Systems to providing application development solutions for the embedded market. The stringent requirements set for embedded, mission–critical and real-time applications are met by the current approaches being adopted by C²I² Systems for hardware and software application solutions. These capabilities acquired by C²I² Systems to project manage, design, develop and support applications for the embedded market can be exploited by any organisation wanting to outsource its software development.

System Requirements

An embedded application generally requires minimisation of hardware and software resources. Graphical applications require high-speed graphics solutions. Networking applications require high-speed protocol processing, high-bandwidth data throughput, guaranteed delivery latencies, node synchronisation, data timestamping, transparent application interfaces and provision of third party protocols.

Real-Time Systems

Real-Time Systems are required to execute multiple, concurrent tasks with hard deadlines; i.e. exhibit bounded and deterministic responses to external events. Compromising these deadlines may have catastrophic results, including loss of life, loss of platform or mission failure.

Mission-Critical Systems

Mission-Critical Systems have differing definitions in military, industrial process control and business environments. The definition provided below applies primarily to military or process control system.

Real–Time Definition

An action which must be accomplished within an allotted amount of time, failing which such accomplishment has no, diminishing or negative value.

Mission–Critical Definition

Mission-Critical Systems are those where failure of execution, or faulty execution, may have catastrophic results, including loss of life, serious injury, loss or serious damage to plant or platform or mission failure.
Company Capabilities

In business environments, information systems where failure could lead to loss of money (e.g. banking), serious inability to conduct business (e.g. online payment systems, investment systems or accounting systems), or serious operational chaos (e.g. electronic trading systems or electronic data interchange systems), as being mission-critical.

Object-Orientated Approach

C²I² Systems have adopted an Object-Orientated Approach (OOA) to application development. This approach provides for design solutions for both software and systems applications. They have acquired the capability to design, develop and support using a number of object-orientated, high-level software languages.

Acquisition Approach

The development approach involves an iterative design/develop/test/deploy cycle to achieve the best trade–off between cost, performance and timescales.

Software Repository

C²I² Systems current development efforts involve building up an extensive re-useable software repository for applications being developed by the company. The repository supports C²I² Systems in providing cost-effective application solutions.

Standards

Software is developed according to ISO/IEC 12207 Standard for Information Technology using templates from MIL-STD-498 Software Development and Documentation.

System-Level Products

Information Management System

The Information Management System (IMS) is a ship-borne network, based on SAFENET II, that manages the transfer of time-critical command and control messages, multimedia streams and background file transfer from many sources to many destinations. The IMS architecture supports unicast, broadcast and reliable multicast data transfer types. It also provides for network synchronisation and message timestamping as well as sophisticated built-in test and network management.

Platform Management System

The Platform Management System (PMS) is an integrated vessel control and monitoring system, providing centralised management of sub-systems by means of a computer network. Access to the functions of the PMS is via a man-machine interface, using a graphical environment to display information effectively.

Tracker Radar Console

The Tracker Radar Console (TRC) provides a sophisticated, graphically-orientated, human-machine interface for optronic and radar trackers such as the RTS 6400 Optronics Radar Tracker (ORT). The system simultaneously displays tracking video from several ORT sensors and overlays high-resolution graphics and symbology to facilitate searching for and tracking of targets by the operator, as well as weapons firing.
## Company Products

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<td><strong>Network Adapters</strong></td>
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<tr>
<td><strong>IMS</strong> Information Management System</td>
<td>• FDDI</td>
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<tr>
<td><strong>PMS</strong> Platform Management System</td>
<td>• CDI</td>
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<tr>
<td><strong>TRC</strong> Tracker Radar Console</td>
<td>• Fibre Channel</td>
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<td><strong>HTLS</strong> Helicopter Take-off and Landing System</td>
<td>• Dual Gigabit Ethernet</td>
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<tr>
<td><strong>CSA</strong> Communications Simulator and Analyser</td>
<td>• Dual 10 Gigabit Ethernet</td>
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<td><strong>RTWW</strong> Real-Time WeatherWatch</td>
<td><strong>Serial I/O Adapters</strong></td>
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<tr>
<td><strong>SCU</strong> Signal Concentrator Unit</td>
<td>• 4-Channel High-Speed Serial I/O</td>
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<td><strong>NDS</strong> Navigation Distribution System</td>
<td>• 8-Channel High-Speed Serial I/O (10 Mbit/s)</td>
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<td><strong>AVLAN</strong> Armoured Vehicle Local Area Network</td>
<td>• 8-Channel Ultra High-Speed Serial I/O (20 Mbit/s)</td>
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<td><strong>MNC</strong> Multifunction Naval Console</td>
<td>• 8-Channel UART Serial I/O</td>
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<td>(Air-Cooled)</td>
<td><strong>Special I/O Adapters</strong></td>
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<td>(Conduction-Cooled)</td>
<td>• MIL-STD-1553B</td>
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<td><strong>SRMU</strong> Solar Remote Monitoring Unit</td>
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<td><strong>UFH</strong> Universal Fibre Hub</td>
<td>• Multifunction I/O</td>
</tr>
<tr>
<td><strong>VCCS</strong> Vehicular Command and Control System</td>
<td>• FPGA and Special I/O</td>
</tr>
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### System-Level Products (contd)

**Armoured Vehicle Local Area Network**

The Armoured Vehicle Local Area Network (AVLAN) is a high-speed data network for Next Generation Armoured Vehicle Turrets and Platforms. The AVLAN is based on the IMS. The AVLAN has much more stringent requirements than the Naval IMS with guaranteed latencies in the sub-millisecond range. It can be based on either fibre or copper media.
Company Products

Communications Simulator and Analyser
The Communications Simulator and Analyser (CSA) is a versatile and generic data communications simulator and analyser. It provides the capability to interactively simulate and analyse message-based communications between any number of system components or sub-systems. The CSA system supports a multitude of protocols and communications media including Fibre Distributed Data Interface (FDDI), Ethernet, RS-422 (HDLC) and RS-232.

Real-Time WeatherWatch
Real–Time WeatherWatch (RTWW) provides real–time weather information from multiple remote sites on an interactive web page. Weather trends are displayed allowing clients to monitor and predict weather patterns. A digital camera captures high-resolution images which are displayed on a web page allowing the World Wide Web client to view the selected site and its weather conditions.

Remote Monitor and Controller
The Remote Monitor and Controller (RMC) provides an integrated solution for monitoring and controlling any electrical or electronic device by means of remote communications using SMS and GPRS. A Global Positioning System (GPS) module, various meteorological sensors and various communication technologies are optional.

The Solar Remote Monitor and Controller (SRMC) is an RMC configured with solar irradiation sensors, temperature sensors, voltage and current sensors specifically for monitoring and controlling renewable energy systems such as photovoltaic systems, solar/electric geysers and wind turbine generators.

Signal Concentrator Unit
The Signal Concentrator Unit (SCU) is a real-time distribution system for system sensor data. The SCU has been designed for mission-critical applications and therefore intrinsically supports a dual-redundant configuration of two or more SCUs.

Board-Level Products
C²I² Systems's adapters are available in PMC, PC/104 Plus (specifically PCI-104), PCI formfactors, as well as 3U and 6U Compact PCI (cPCI) offering maximum compatibility, performance, flexibility and cost-effectiveness.

All C²I² Systems's PMC and cPCI Adapters are available in two cooling versions, conduction-cooled and air-cooled.

The conduction-cooled versions have a -40 C to +85 C temperature specification.

Three air-cooled grades are offered:
- Ruggedised: -40 C to +85 C
- Industrial: -15 C to +75 C
- Commercial: 0 C to +55 C

C²I² Systems's adapters offer a range of Software Drivers for Real-Time Operating Systems. The adapters are offered with VxWorks, Linux, Windows XP and Windows 2000 Legacy software drivers as standard, with others as costed options.

The PC/104 Plus Adapters are offered in ruggedised, industrial and commercial grades, while the PCI Adapters are available in industrial and commercial grades.

All of the adapters have flexible I/O options, i.e. fibre, copper, frontpanel and rear connector (backplane).