



► 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.



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Company Details

Registered Company Name	CCII Systems (Pty) Ltd
Company Registration Number	1990/005058/07
Company Trading Name	C ² I ² Systems
Street Address	Real-Time House Greenford Office Estate Block T Punters Way 7708 Kenilworth Cape Town Western Cape Republic of South Africa
Postal Address	P.O. Box 171 7701 Rondebosch Cape Town Western Cape Republic of South Africa
Contact Telephone Numbers	Telephone : (+27) (0)21 683 5490 Facsimile : (+27) (0)21 683 5435
Electronic Addresses	Email : info@ccii.co.za URL : www.ccii.co.za
Departmental Email Addresses	marketing@ccii.co.za sales@ccii.co.za support@ccii.co.za technical@ccii.co.za

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.

Methodology

Generally, software is developed in accordance with a documented company standard methodology known as **C²I² Systems C and C++ Coding Standard (C⁵S)** which uses MIL-STD-498 as a guide. The company is certified and accreditations in respect of the follows :

- ISO 9001 Monitoring and Quality Management
ISO 9001:2008 (ISO 9001:2015 by end-2015)
- IPC-A-610E Surface Mount Solder
Joint Workmanship Standards Class III
Acceptability of Electronic Assemblies
- Armscor Supplier Accreditation

Documentation

The company uses the CASE (Computer-Aided Software Engineering) with SoDA (*Software Documentation Automation*) tool. Generally, the Booch object-orientated notation is used as the standard notation.

Certifications and Accreditations

- Conventional Arms Marketing Permit
- Conventional Arms Development, Manufacturing and Services Permit
- Broad-Based Black Economic Employment
SANAS / SERA Level 2



► Company Products

System-Level Products		Board-Level Products	
IFFC	IFF Computer	<u>Network Adapters</u>	
IMS	Information Management System	<ul style="list-style-type: none"> • FDDI • CDDI • Fibre Channel • Dual Gigabit Ethernet • Dual 10 Gigabit Ethernet 	
PMS	Platform Management System	<u>Serial I/O Adapters</u>	
TRC	Tracker Radar Console	<ul style="list-style-type: none"> • 4-Channel High-Speed Serial I/O • 8-Channel High-Speed Serial I/O (10 Mbit/s) • 8-Channel Ultra High-Speed Serial I/O (20 Mbit/s) • 8-Channel UART Serial I/O • 16-Channel UART Serial I/O (with Voltage Isolation) 	
HTLS	Helicopter Take-off and Landing System	<u>Special I/O Adapters</u>	
CSA	Communications Simulator and Analyser	<ul style="list-style-type: none"> • MIL-STD-1553B • ARINC 429 • Multifunction I/O • FPGA and Special I/O • 8-Channel E1/T1 Telecomms • GPS + 4-Channel High-Speed Serial I/O • GPS + 7-Channel UART Serial I/O • up to 256-Channel Digital I/O (with or without Voltage Isolation) • to 64-Channel Analog-Digital Conversion (with or without Voltage Isolation) • Environmental Monitoring and Control • Vehicle Monitoring and Control 	
RTWW	Real-Time WeatherWatch		
SCU	Signal Concentrator Unit		
NDS	Navigation Distribution System		
AVLAN	Armoured Vehicle Local Area Network		
MNC	Multifunction Naval Console		
MHA	Mechanical Housing Assembly		
	Air-Cooled		
	Conduction-Cooled		
SRMU	Solar Remote Monitoring Unit		
UFH	Universal Fibre Hub		
VCCS	Vehicular Command and Control System		

SystemLevel 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).