Introduction to C²I² Systems

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- Company Overview and Mission
- Customer Base
- Board-Level Products
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Company History

- Establishment
  - 1992

- Present

Specialising in defence electronics and ruggedised electronic board-level I/O products, software and systems for military, aerospace and industrial control markets
Company Overview

- Real-time systems development and reliable data communications
- Systems architecture and implementation of complex, distributed, real-time control and management systems
- Specific capabilities in:
  - Systems Engineering
  - Software Engineering
  - Networking Solutions
  - Data Communications
  - Remote Monitoring and Control Systems
  - Renewable Energy Monitoring Systems
  - Project Management
  - Logistic Support
  - Obsolescence Re-Engineering
C²I² Systems’s mission is to provide...

- Value-Added
- Cost-Effective
- Multi-Disciplinary

...system solutions in the segments of:

- Defence Electronics
- Renewable Energy Systems
- Remote Monitoring Systems
Geography
C²I² Systems Premises

Greenford Office Estate, Punter’s Way, Kenilworth
Customer Base

- Indian Defence Force
- Italian Army
- Italian Navy
- Kuwaiti Naval Forces (KNF)
- French Navy
- Japanese Self-Defence Force
- NATO Air Force
- Royal Navy (RN)
- SA Navy (SAN)
- South Korean Navy
- Swedish Navy
- US Army
- US Air Force (USAF)
- US Marine Corps (USMC)
- US Navy (USN)
Board-Level Products

Function

Provide reliable, deterministic, real-time interconnection to local area networks, serial links and specialised I/O

Features

- Air-Cooled and Conduction-Cooled Variants
- Commercial, Industrial and Ruggedised Grades
- Real-Time Operating System Software Drivers
- Various Formfactors
- Various I/O Connector Options
- BIT Software
- Extended Environmental Capability
Product Categories

- Networking
- Serial I/O
- Data Bus
  - MIL-STD-1553B Multiplex Avionics Databus
- Analog and Digital I/O
  - Digital I/O
- Telecomms
- GPS
- Special Function I/O
  - Multi-Function I/O
  - User FPGA and I/O
  - Environmental Monitoring and Control
  - Vehicle Management and Monitoring
Environmental Grades

- Conduction-Cooled
  - Conduction-Cooled (-40 C to +85 C) - PMC, XMC, cPCI

- Air-Cooled
  - Ruggedised (-40 C to +85 C) - PMC, PCI-104, cPCI
  - Industrial (-15 C to +75 C) - PMC, XMC, PCI-104, PCI, cPCI
  - Commercial (0 C to +55 C) - PMC, XMC, PCI-104, PCI, cPCI
Formfactors

- PMC
- XMC
- PCI
- PC/104 Plus (specifically PCI-104)
- Compact PCI (3U and 6U)
- VPX (3U and 6U)

PC/104 Plus - ISA bus plus PCI bus
PC/104 - ISA bus only
PCI-104 - PCI bus only
Networking Adapters

- FDDI
- CDDI
- Dual 1 Gbps Fibre Channel over Copper with Active I/O Protection
- Dual 4 Gbps Fibre Channel over Fibre
- Dual Gigabit Ethernet
- 10 Dual Gigabit Ethernet
Serial I/O Adapters

- 4-Channel High-Speed Serial I/O - New Generation
- 8-Channel High-Speed Serial I/O
- 8-Channel Ultra High-Speed Serial I/O
- 8-Channel UART Serial I/O
- 7-Channel UART Serial I/O + GPS
- 2-Channel UART Serial I/O
- 2-Channel UART Serial I/O + GPS
- 16-Channel UART Serial I/O (with Voltage Isolation) [3U cPCI]
Analog and Digital I/O Adapters

- **Analog to Digital Conversion**
  - 64-Channel 6U cPCI
  - 32-Channel 3U cPCI
  - 32-Channel 3U VPX

- **Analog-to-Digital Conversion**
  - 16-Channel XMC / PMC

- **Digital-to-Analog Conversion**
  - 16-Channel XMC / PMC

- **Digital Input/Output**
  - 256-Channel 6U cPCI
  - 96-Channel 3U cPCI
  - 64-Channel 3U VPX

*with Voltage Isolation*
Special I/O Adapters

- GPS
  - + 1 channel UART Serial I/O
  - + 7 channels UART Serial I/O
  - + 4 channels High-Speed Serial I/O
- Environmental Monitoring and Control
- Vehicle Management and Monitoring
- Universal Fibre Hub
- Multi-Function I/O
- User FPGA
Ship-Based Information Systems

- IMS  Information Management System
- PMS  Platform Management System
- HTLS  Helicopter Take-off and Landing System
- NDS  Navigation Distribution System
Display Systems

- Control and Display System (CDS)
  - Integrated Fire Control System
  - Integrated Command and Control System

- Tracker Radar Console (TRC)
## Software Development

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<tr>
<th>Design</th>
<th>- Object-Oriented Methods</th>
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<tr>
<td><strong>Software Repository</strong></td>
<td>- Extensive, tested re-useable Object/Module Library</td>
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<tr>
<td><strong>High-Level Languages</strong></td>
<td>- C++, C, Ada (some past experience)</td>
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<tr>
<td><strong>Real-Time Operating Systems</strong></td>
<td>- VxWorks, Windows (NT, 2000, XP, V7) Linux, LynxOS, SCO Unix</td>
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<td><strong>Standards</strong></td>
<td>- DOD-STD-2167A, MIL-STD-498, ISO 12207</td>
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<tr>
<td><strong>Methodology</strong></td>
<td>- $C^5S = C^2I^2$ C and C++ Coding standard</td>
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Software Development

Computer-Aided Software Engineering (CASE)
- Rational Rose

Notation
- UML

Configuration Control
- PVCS

Documentation
- SoDA

Productivity
- SPICE
Accreditations

ISO 9001:2008
Certificate Number : 110102044/5

ISO 9001:2015 fully prepared for external quality audit Q1 2018

Company CAGE Codes
US DoD CAGE Code : SL140
NATO CAGE Code : VC096

Other Vendor Numbers
DUNS No. : 635 708 142
DUNS+4 No. : SM 21034

Force Multiplication through Information Technology ©
Facilities

- 850 m² purpose built offices, laboratories and specialist facilities
- system integration area
- own production facilities
- Environmental Test Chamber
- own Conformal Coating Room
Facilities

Development Laboratory

Force Multiplication through Information Technology ©
Facilities

SystemIntegrationLaboratory
Production

Outsourced at Barracuda (Pty) Ltd

Surface Mount Device Machine Assembly  

Testing

Force Multiplication through Information Technology ©
Production

Outsourced at Barracuda (Pty) Ltd

Integration

Inspection

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Facilities
Production, Assembly, Test and Repair

C²I² Systems’s Own Facilities

Final Assembly

Force Multiplication through Information Technology ©
Facilities
Production, Assembly, Test and Repair

C²I² Systems’s Own Facilities

Final Assembly
Inspection and Repair

Force Multiplication through Information Technology ©
Facilities
Production, Assembly, Test and Repair

C²I² Systems’s Own Facilities

Test and Repair with Environmental Chamber

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Logistic Support

- C²I² Systems can offer a programme supply contract to provide:
  - Prime Mission Equipment
  - Peculiar Support Equipment
  - 1st, 2nd, 3rd and 4th Line Spares (onboard, onshore, depot, factory)
  - User Training
  - Maintainer Training
  - Documentation
Use of COTS ICs and components has associated obsolescence implications

- Product-specific configuration control
- End-of-Life monitoring
- Last Time Buy notification
- Long-term chipset stockpiling by C²I² Systems
- Emulation of IC Chipsets in FPGA
- Obsolescence Re-Engineering
- etc.
Contact Details

Who to Contact

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This concludes the Introduction to C²I² Systems.

For more information on our products, services, press releases, etc., please visit our website at:

www.ccii.co.za

Thank You

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Other Company Presentations

Introduction to C²I² Systems

Systems and Equipment for Naval Vessels

Mission Systems and Equipment for Naval Vessels

Products and Systems

Ship-based Information Systems

Display Systems