



# CRS-C2P-3CC1 COTS Rugged System

## Convection Cooled 3U CompactPCI Application Ready Computer

### Features

- Rugged convection cooled chassis
  - 2 slot 3U CompactPCI
  - MIL-C-38999 connectors
- Freescale MPC7448 @ 1.0 GHz
- VxWorks® Real-time operating system
- BIT support
- Optional SATA drive
- I/O capabilities
  - Ethernet
  - Serial
  - USB
  - MIL-STD-1553
  - Discrete
- Designed for manned and unmanned aerial, sea-going and ground vehicles

GE Intelligent Platforms' CRS-C2P-3CC1 COTS Rugged System is a packaged prevalidated control computer system with a Freescale-based processor single board computer that provides a rugged and highly flexible computing platform suited for applications requiring rock-solid reliability such as civilian and military manned and unmanned aircraft, helicopters, over- and underwater research vessels, ground vehicles, and locomotives.

GE's COTS-based CRS-C2P-3CC1 Application Ready computer system can be deployed in the field as soon as your application is ready, or use the CRS-C2P-3CC1 as a starting point for multiple application-specific configurations.

The arduous task of integrating off the shelf boards has already been done for you — shortening your time to project completion. You have one point of contact for all issues and a single part number — not a collection of parts.

The CRS-C2P-3CC1 successfully integrates GE's boards, and modules, drawn from their wide selection of COTS boards, into open modular systems that are tested and qualified for rugged systems deployment. The CRS-C2P-3CC1 contains a fully integrated set of boards and modules designed to fulfill control applications.

GE Intelligent Platforms' Systems Group is fully compliant with AS9100 processes and brings years of experience designing

rugged systems to your project. Our world class program management competencies are tailored to help mitigate your risk.

GE conducts all design, analysis, manufacturing, and testing in compliance with any system appropriate MIL and industry standards such as MIL-STD-810, 704, 461, 1472, and DO-160.

GE has integrated and tested the CRS-C2P-3CC1 and provides Board Support Packages (BSP's) and drivers that you can easily use to integrate your application and reduce your software development cycle time.

To help jump start your project, GE offers Laboratory Development Units, or starter kits, preconfigured for development purposes. Based on the required system controller architecture and bus system, GE can provide the appropriate development system for your specific needs.

GE offers a Product Lifecycle Management (PLM) program of innovative Long-Term Support services to reduce the overall cost of ownership and provide industry-leading safeguards against component obsolescence. GE Intelligent Platforms is committed to supporting customer programs throughout their lifecycle.

The next page illustrates a small subset of the configurations that are available with this system. If you are interested in additional configuration options please contact your sales representative.



# CRS-C2P-3CC1 COTS Rugged System

STANDARD CONFIGURATIONS*	CRS-C2P-3CC1-00	CRS-C2P-3CC1-01	CRS-C2P-3CC1-02	CRS-C2P-3CC1-03
Additional Memory (Flash, SSD, etc.)	N/A	N/A	N/A	SATA - 64GB
Ethernet Ports	1x 1000BaseT or 2x 10/100BaseT	1x 1000BaseT or 2x 10/100BaseT	1x 1000BaseT or 2x 10/100BaseT	1x 1000BaseT or 2x 10/100BaseT
Serial Ports	2x RS232/422, 12x RS232/422/485	2x RS232/422	2x RS232/422, 12x RS232/422/485	2x RS232/422, 12x RS232/422/485
USB Ports	1x USB 2.0	1x USB 2.0	1x USB 2.0	1x USB 2.0
MIL-STD-1553 Channels	N/A	N/A	1x MIL-STD-1553 1x RT_ADDR	1x MIL-STD-1553 1x RT_ADDR
Discrete I/O	4x GPIO and PRST, 8x Discrete	4x GPIO and PRST	4x GPIO and PRST, 20x Discrete** 6x HL Discrete (SE) In; 4x HL Discrete (SE) Out; 8x Discrete (DIFF) In/Out	4x GPIO and PRST, 20x Discrete** 6x HL Discrete (SE) In; 4x HL Discrete (SE) Out; 8x Discrete (DIFF) In/Out
Other I/O	1x IRIG In/Out	N/A	2x IRIG In/Out	2x IRIG In/Out
Power Dissipation	25W (max.)	22W (max.)	34W (max.)	34W (max.)
Order Number	920-100830-000	920-100830-001	920-100830-002	920-100830-003

STANDARD CONFIGURATIONS*	CRS-C2P-3CC1-04	CRS-C2P-3CC1-05	CRS-C2P-3CC1-06	CRS-C2P-3CC1-07
Additional Memory (Flash, SSD, etc.)	Compact Flash Carrier 4GB	N/A	SATA - 64GB	Compact Flash Carrier 4GB
Ethernet Ports	1x 1000BaseT or 2x 10/100BaseT	3x 10/100/1000BaseT	3x 10/100/1000BaseT	1x 1000BaseT or 2x 10/100BaseT
Serial Ports	2x RS232/422, 12x RS232/422/485	2x RS232/422, 12x RS232/422/485	2x RS232/422, 12x RS232/422/485	2x RS232/422
USB Ports	1x USB 2.0	1x USB 2.0	1x USB 2.0	1x USB 2.0
MIL-STD-1553 Channels	N/A	N/A	N/A	N/A
Discrete I/O	4x GPIO and PRST, 8x Discrete 6x HL Discrete (SE) In; 4x HL Discrete (SE) Out; 8x Discrete (DIFF) In/Out	4x GPIO and PRST, 8x Discrete 6x HL Discrete (SE) In; 4x HL Discrete (SE) Out; 8x Discrete (DIFF) In/Out	4x GPIO and PRST, 8x Discrete 6x HL Discrete (SE) In; 4x HL Discrete (SE) Out; 8x Discrete (DIFF) In/Out	4x GPIO and PRST
Other I/O	1x IRIG In/Out	1x IRIG In/Out	1x IRIG In/Out	N/A
Power Dissipation	32W (max.)	37W (max.)	38W (max.)	24W (max.)
Order Number	920-100830-004	920-100830-005	920-100830-006	920-100830-007

# CRS-C2P-3CC1 COTS Rugged System

STANDARD CONFIGURATIONS*	CRS-C2P-3CC1-08	CRS-C2P-3CC1-09	CRS-C2P-3CC1-10
Additional Memory (Flash, SSD, etc.)	Compact Flash Carrier 4GB	Compact Flash Carrier 4GB	SATA - 64GB
Ethernet Ports	1x 1000BaseT or 2x 10/100BaseT	3x 10/100/1000BaseT	1x 1000BaseT or 2x 10/100BaseT
Serial Ports	2x RS232/422	2x RS232/422	2x RS232/422, 12x RS232/422/485
USB Ports	1x USB 2.0	1x USB 2.0	1x USB 2.0
MIL-STD-1553 Channels	1x MIL-STD-1553 1x RT_ADDR	N/A	4x MIL-STD-1553 2x RT_ADDR
Discrete I/O	4x GPIO and PRST, 12x Discrete** 6x HL Discrete (SE) In; 4x HL Discrete (SE) Out; 8x Discrete (DIFF) In/Out	4x GPIO and PRST 6x HL Discrete (SE) In; 4x HL Discrete (SE) Out; 8x Discrete (DIFF) In/Out	4x GPIO and PRST, 14x Discrete** 6x HL Discrete (SE) In; 4x HL Discrete (SE) Out; 8x Discrete (DIFF) In/Out
Other I/O	1x IRIG In/Out	N/A	2x IRIG In/Out
Power Dissipation	33W (max.)	36W (max.)	38W (max.)
Order Number	920-100830-008	920-100830-009	920-100830-010

\* Contact factory for additional modification options.

\*\*An additional 6 Discrete channels are available if the RT\_ADDR channel is not used. SE = Single Ended, HL = High Level, DIFF = Differential, PRST = Pushbutton Reset

## Environmental Table

QUALIFICATION TEST	LEVEL(S)	PROCEDURE
High Temperature Operational (convection)	+55°C	Paragraph 4.5.2 of RTCA/DO-160F
High Temperature Operational (cold plate)	+71°C	Analysis
Low Temperature Operational	-40°C	Paragraph 4.5.4 of RTCA/DO-160F
High Temperature Storage	+100°C	Paragraph 4.5.3 of RTCA/DO-160F
Low Temperature Storage	-50°C	Paragraph 4.5.1 of RTCA/DO-160F
Temperature Variation	-40°C to +55°C	6 Cycles, Operating, Standard GE Procedure
Temperature/Altitude	-40°C to +55°C at 15,000ft	Operational Test, Standard GE Procedures
Random Vibration	0.1g <sup>2</sup> /Hz, 15-1000Hz; 6dB/octave decrease, 1000-2000Hz	MIL-STD-810F, Method 514.5, Procedure 1 (fixed wing, jet)
Shock	40g SRS	MIL-STD-810G, Procedure 1
Relative Humidity	240 hours, 95% non-condensing	RTCA/DO-160E Procedure 6, Category B
EMI	CE101, CE102, CS101, CS114, CS115, CS116, RE101, RE102, RS101, and RS103	MIL-STD-461F
Power (Holdup is not available)		MIL-STD-704F

\* Qualification test reports are available upon request

# CRS-C2P-3CC1 COTS Rugged System

## Specifications: All Systems

### Processor

- Freescale MPC7448 @ 1.0 GHz

### SBC RAM

- 512 MB with ECC

### SBC Flash Memory

- 256 MB

### Operating System

- VxWorks 6.7

### Cooling

- Convection and/or base plate cooled

### Form Factor

- 3U CPCI

### CPCI Slots

- 2

### Dimensions (H x W x D, excludes connectors)

- 3.96 x 7.15 x 9.03 (inches); 102 x 182 x 229 (mm)

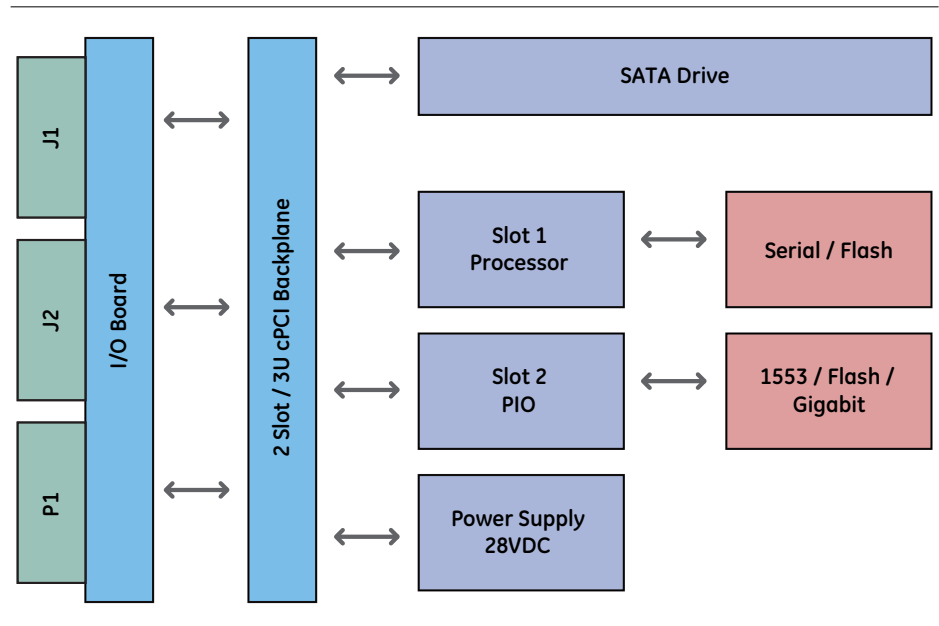
### Weight

- ~10.5 lbs (4.8 kg)

### Input Power

- 28VDC

## Block Diagram



## About GE Intelligent Platforms

GE Intelligent Platforms is a division of GE that offers software, control systems, services, and expertise in automation and embedded computing. We offer a unique foundation of agile and reliable technology providing customers a sustainable competitive advantage in the industries they serve, including energy, water, consumer packaged goods, oil and gas, government and defense, and telecommunications. GE Intelligent Platforms is headquartered in Charlottesville, VA. For more information, visit [www.ge-ip.com](http://www.ge-ip.com).

## GE Intelligent Platforms Contact Information

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