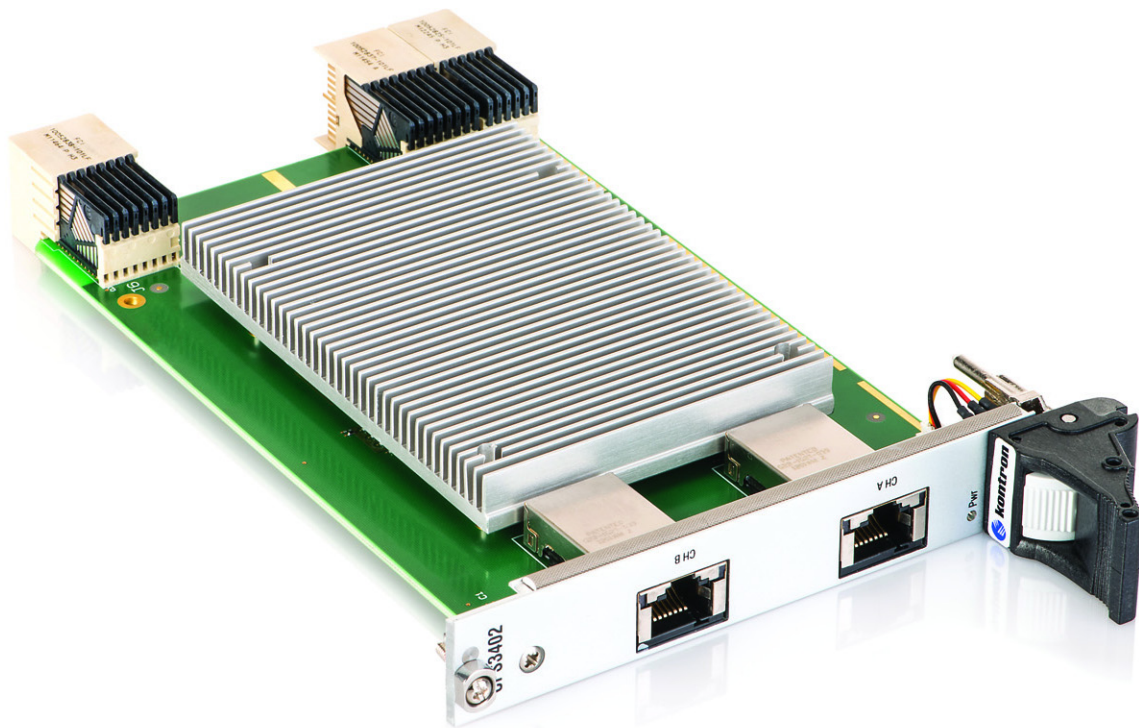


» User Guide «



CPS3402

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Warranty

This Kontron product is warranted against defects in material and workmanship for the warranty period from the date of shipment. During the warranty period, Kontron will at its discretion decide to repair or replace defective products.

Within the warranty period, the repair of products is free of charge as long as warranty conditions are observed.

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Environmental Protection Statement

This product has been manufactured to satisfy environmental protection requirements where possible. Many of the components used (structural parts, printed circuit boards, connectors, etc.) are capable of being recycled.

Final disposition of this product after its service life must be accomplished in accordance with applicable country, state, or local laws or regulations.

1 Introduction

1.1 Board Overview

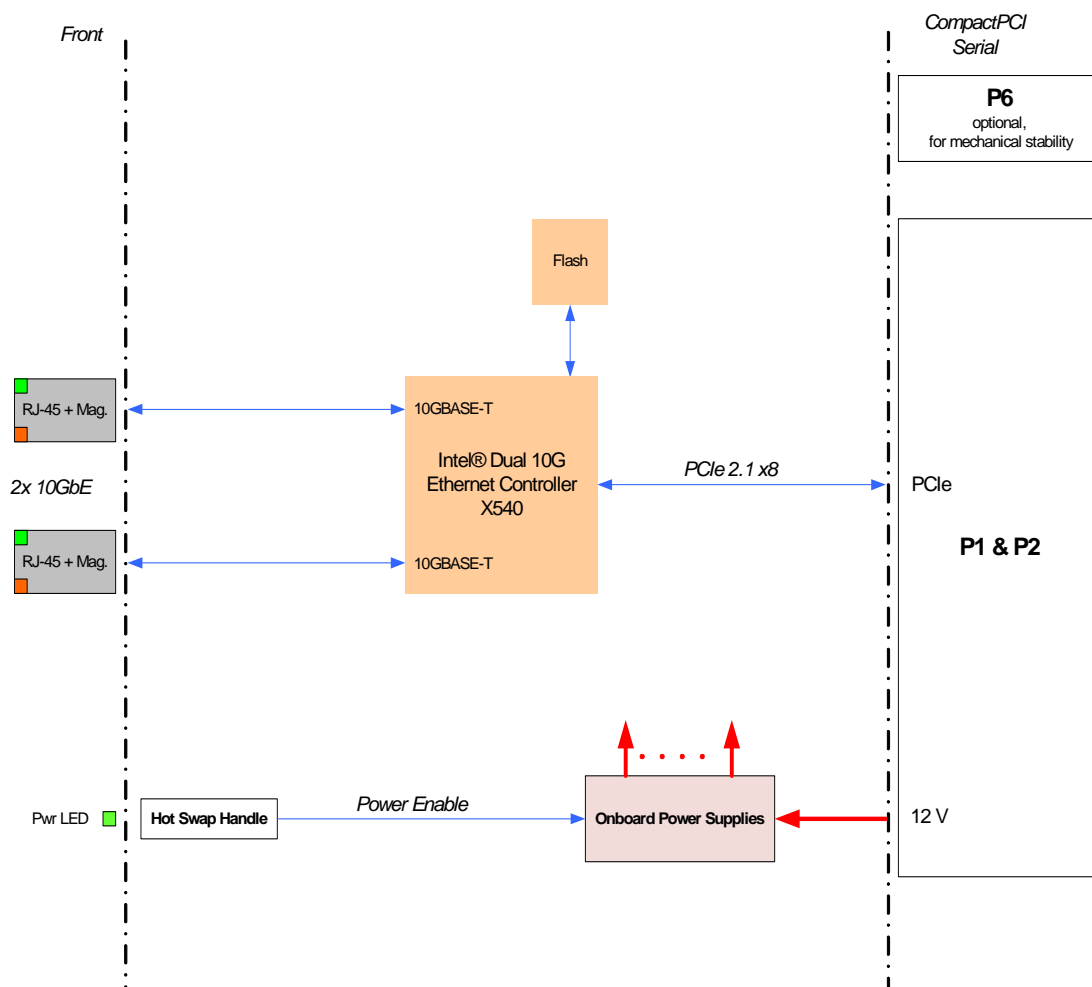
The CPS3402 is a 3U CompactPCI® Serial board providing two independent copper 10 Gigabit Ethernet interfaces via RJ-45 connectors. The board gives bandwidth-intensive applications a cost-effective solution to integrate latest 10GbE network performance. The CPS3402 is equipped with the Intel® X540 controller, a single-chip solution with an integrated MAC controller and two 10GBASE-T PHYs. For a smooth transition and easy migration to 10GbE, the Ethernet controller provides the ability to auto-negotiate between 100 Mb/s, 1 Gb/s, and 10 Gb/s speeds. The CPS3402 connects to CAT 7 cabling.

1.2 Board Diagrams

The following diagrams provide additional information concerning board functionality and component layout.

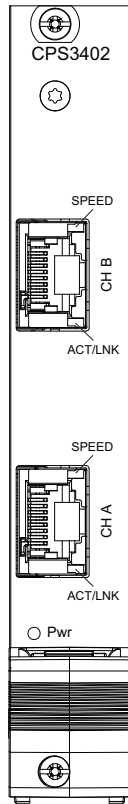
1.2.1 Functional Block Diagram

Figure 1: CPS3402 Functional Block Diagram



1.2.2 Front Panel

Figure 2: 4 HP CPS3402 Front Panel



Integral Ethernet LEDs

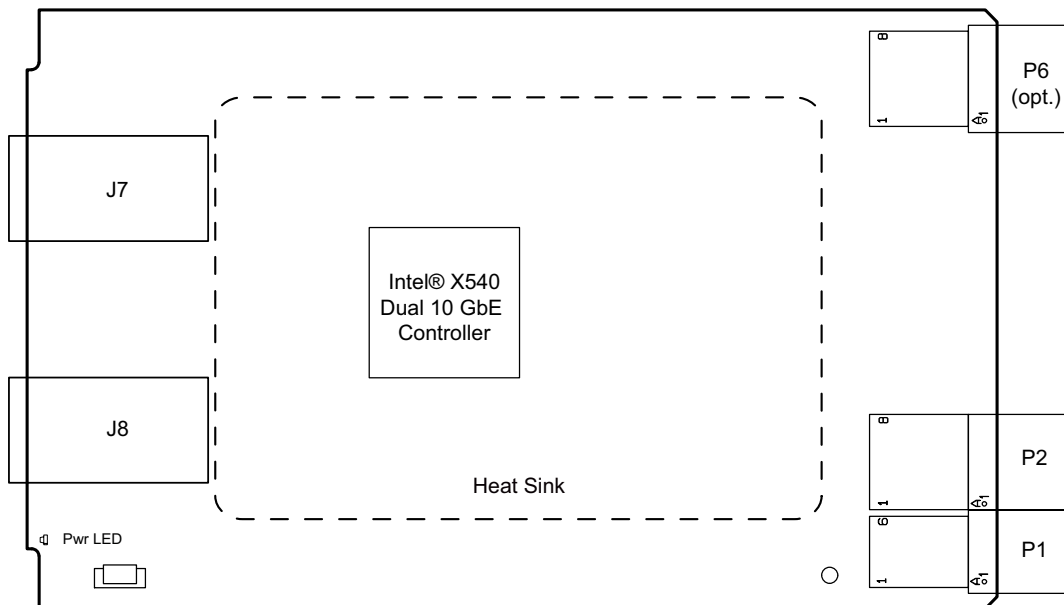
- ACT/LNK (green): Ethernet Link/Activity
- SPEED (orange): 1000Base-T Ethernet Speed
- SPEED (green): 10GBase-T Ethernet Speed
- SPEED (off) + ACT on: 100Base-TX Ethernet Speed

Power Status LED

- Pwr (green): Power Status of the CPS3402

1.2.3 Board Layout

Figure 3: 4 HP CPS3402 Board Layout (Top View)



1.3 Technical Specification

Table 1: CPS3402 Main Specifications

FEATURES		SPECIFICATIONS
Connectors	10 Gigabit Ethernet	Two 100 Base-TX/1000 Base-T /10GBase-T Gigabit Ethernet interfaces based on the Intel® X540 10 Gigabit Ethernet controller. The interfaces are implemented as two front panel RJ-45 connectors with status LEDs, J7 and J8.
	CompactPCI Serial	CompactPCI Serial interface on connectors P1 and P2: <ul style="list-style-type: none"> » Compliant with PICMG® CPCI-S.0 R 1.0 CompactPCI® Serial Specification » Support for one x8 PCI Express 2.1 interface One optional CompactPCI Serial connector P6 for increased mechanical stability
Hot Swap	Hot Swap	Hot swap handle with integrated hot swap switch for shutting down the power supplies in order to safely remove the CPS3402 from the system
LEDs	Front Panel LEDs	Integral Ethernet LEDs: <ul style="list-style-type: none"> » ACT /LNK(green): Ethernet Link/Activity » SPEED (orange): 1000Base-T Ethernet Speed » SPEED (green): 10GBase-T Ethernet Speed » SPEED (off) + ACT (on): 100Base-TX Ethernet Speed Power Status LEDs: <ul style="list-style-type: none"> » Pwr (green): Power Status of the CPS3402
General	Mechanical	3U, 4 HP, CompactPCI Serial-compliant form factor
	Power Consumption	CPS3402 in idle state (no 10 GbE port connected): approx. 6.0 W CPS3402 with one 10 GbE port connected: approx. 10.0 W CPS3402 with two 10 GbE ports connected: approx. 13.0 W
	Power Supply	+12V DC in accordance with the CompactPCI® Serial Specification
	Temperature Range	Operational: 0°C to +60°C Standard -40°C to +85°C Extended Storage: -40°C to +85°C
	Recommended Airflow	Volumetric Flow Rate: > 5 cfm Sufficient airflow must be provided to ensure optimal operation and long-term reliability of the CPS3402.
	Climatic Humidity	93% RH at 40 °C, non-condensing (acc. to IEC 60068-2-78)
	Dimensions	100 mm x 160 mm
	Board Weight	277 grams

1.4 Standards

This product complies with the requirements of the following standards.

Table 2: Standards

TYPE	ASPECT	STANDARD
CE	Emission	EN55022, EN50121-3-2, EN61000-6-3
	Immission	EN55024, EN50121-3-2, EN61000-6-2
	Electrical Safety	EN60950-1
Mechanical	Mechanical Dimensions	IEEE 1101.10
Environmental	Climatic Humidity	IEC60068-2-78
	WEEE	Directive 2002/96/EC Waste electrical and electronic equipment
	RoHS 2	Directive 2011/65/EU Restriction of the use of certain hazardous substances in electrical and electronic equipment

In addition, boards ordered with the ruggedized service comply with the following standards as well.

Table 3: Additional Standards for Boards Ordered with Ruggedized Service

TYPE	ASPECT	STANDARD	REMARKS
Environmental	Vibration (Sinusoidal)	IEC60068-2-6 IEC61131-2	Ruggedized version test parameters: 9-150 (Hz) frequency range 1 (g) acceleration 1 (oct/min) sweep rate 10 cycles/axis 3 axis
	Single Shock	IEC60068-2-27 IEC61131-2	Ruggedized version test parameters: 15 (g) acceleration 11 (ms) shock duration half sine 3 number of shocks per direction (total: 18) 6 directions 5 (s) recovery time

Note: Customers desiring to perform further environmental testing of the CPS3402 must contact Kontron for assistance prior to performing any such testing.

Boards **without conformal coating** must not be exposed to a change of temperature which can lead to condensation, as it may cause irreversible damage especially when the board is powered up again.

Kontron does not accept any responsibility for damage to products resulting from destructive environmental testing.

1.5 Related Publications

The following publications contain information relating to this product.

Table 4: Related Publications

PRODUCT	PUBLICATION
CompactPCI Serial Systems	PICMG® CPCI-S.0 R 1.0 CompactPCI® Serial Specification
All Kontron products	Product Safety and Implementation Guide, ID 1021-9142