

CP930

Fast Ethernet Switch

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The product described in this manual is in compliance with all applied CE standards.



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Explanation of Symbols



CE Conformity

This symbol indicates that the product described in this manual is in compliance with all applied CE standards. Please refer also to the section “Applied Standards” in this manual.



Caution, Electric Shock!

This symbol and title warn of hazards due to electrical shocks (> 60V) when touching products or parts of them. Failure to observe the precautions indicated and/or prescribed by the law may endanger your life/health and/or result in damage to your material.

Please refer also to the section “High Voltage Safety Instructions” on the following page.



Warning, ESD Sensitive Device!

This symbol and title inform that electronic boards and their components are sensitive to static electricity. Therefore, care must be taken during all handling operations and inspections of this product, in order to ensure product integrity at all times.

Please read also the section “Special Handling and Unpacking Instructions” on the following page.



Warning!

This symbol and title emphasize points which, if not fully understood and taken into consideration by the reader, may endanger your health and/or result in damage to your material.



Note...

This symbol and title emphasize aspects the reader should read through carefully for his or her own advantage.



For Your Safety

Your new Kontron product was developed and tested carefully to provide all features necessary to ensure its compliance with electrical safety requirements. It was also designed for a long fault-free life. However, the life expectancy of your product can be drastically reduced by improper treatment during unpacking and installation. Therefore, in the interest of your own safety and of the correct operation of your new Kontron product, you are requested to conform with the following guidelines.

High Voltage Safety Instructions



Warning!

All operations on this device must be carried out by sufficiently skilled personnel only.



Caution, Electric Shock!

Before installing your new Kontron product into a system always ensure that your mains power is switched off. This applies also to the installation of piggybacks.

Serious electrical shock hazards can exist during all installation, repair and maintenance operations with this product. Therefore, always unplug the power cable and any other cables which provide external voltages before performing work.

Special Handling and Unpacking Instructions



ESD Sensitive Device!

Electronic boards and their components are sensitive to static electricity. Therefore, care must be taken during all handling operations and inspections of this product, in order to ensure product integrity at all times.

Do not handle this product out of its protective enclosure while it is not used for operational purposes unless it is otherwise protected.

Whenever possible, unpack or pack this product only at EOS/ESD safe work stations. Where a safe work station is not guaranteed, it is important for the user to be electrically discharged before touching the product with his/her hands or tools. This is most easily done by touching a metal part of your system housing.

It is particularly important to observe standard anti-static precautions when changing piggybacks, ROM devices, jumper settings etc. If the product contains batteries for RTC or memory back-up, ensure that the board is not placed on conductive surfaces, including anti-static plastics or sponges. They can cause short circuits and damage the batteries or conductive circuits on the board.



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In order to maintain Kontron's product warranty, this product must not be altered or modified in any way. Changes or modifications to the device, which are not explicitly approved by Kontron Modular Computers GmbH and described in this manual or received from Kontron's Technical Support as a special handling instruction, will void your warranty.

This device should only be installed in or connected to systems that fulfill all necessary technical and specific environmental requirements. This applies also to the operational temperature range of the specific board version, which must not be exceeded. If batteries are present their temperature restrictions must be taken into account.

In performing all necessary installation and application operations, please follow only the instructions supplied by the present manual.

Keep all the original packaging material for future storage or warranty shipments. If it is necessary to store or ship the board please re-pack it as nearly as possible in the manner in which it was delivered.

Special care is necessary when handling or unpacking the product. Please, consult the special handling and unpacking instruction on the previous page of this manual.



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If the customer's eligibility for warranty has not been voided, in the event of any claim, he may return the product at the earliest possible convenience to the original place of purchase, together with a copy of the original document of purchase, a full description of the application the product is used on and a description of the defect. Pack the product in such a way as to ensure safe transportation (see our safety instructions).

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Chapter

1

Introduction



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1. Introduction

1.1 System Overview

The CompactPCI board described in this manual operates with the PCI bus architecture to support additional I/O and memory-mapped devices as required by various industrial applications. For detailed information concerning the CompactPCI standard, please consult the complete Peripheral Component Interconnect (PCI) and CompactPCI Specifications. For further information regarding these standards and their use, visit the homepage of the [PCI Industrial Computer Manufacturers Group \(PICMG\)](#).

Many system-relevant CompactPCI features that are specific to Kontron Modular Computers CompactPCI systems may be found described in the PEP CompactPCI System Manual. Due to its size, this manual cannot be downloaded via the internet. Please refer to the section "Related Publications" at the end of this chapter for the relevant ordering information.

The CompactPCI System Manual includes the following information:

- Common information that is applicable to all system components, such as safety information, warranty conditions, standard connector pinouts etc.
- All the information necessary to combine Kontron's racks, boards, backplanes, power supply units and peripheral devices in a customized CompactPCI system, as well as configuration examples.
- Data on rack dimensions and configurations as well as information on mechanical and electrical rack characteristics.
- Information on the distinctive features of Kontron CompactPCI boards, such as functionality, hotswap capability. In addition, an overview is given for all existing Kontron CompactPCI boards with links to the relating datasheets.
- Generic information on the Kontron CompactPCI backplanes, such as the slot assignment, PCB form factor, distinctive features, clocks, power supply connectors and signalling environment, as well as an overview of the Kontron CompactPCI standard backplane family.
- Generic information on the Kontron CompactPCI power supply units, such as the input/output characteristics, redundant operation and distinctive features, as well as an overview of the Kontron CompactPCI standard power supply unit family.



1.2 Product Overview

The CP930 Five Channel Unmanaged Ethernet Switch is part of a comprehensive concept to provide CompactPCI system integrators with a complete range of CompactPCI communications products for data networks. This concept ensures a maximum degree of system design flexibility, thus allowing efficient and effective use of available resources.

The function of this board is to provide applications with up to five Fast Ethernet interfaces. The major component involved in this process is the Marvell five port Fast Ethernet switch controller.

This controller provides full support for 10Base-T, 100Base-TX via all available ports and also for 100Base-FX operation on one port only. Board variants are available which provide a full spectrum of integration possibilities, see table 1-1 below:

The following table provides a quick overview of the CP930:

Table 1-1: CP930 Product Overview

CP930 FEATURES	DESCRIPTION
Ethernet Switch Controller	88E6063-RCJ from Marvell
External Interfaces	Power connection: <ul style="list-style-type: none">• CompactPCI• Molex connector Ethernet variants available: <ul style="list-style-type: none">• five copper RJ45 connectors• four copper RJ45 connectors on front panel, one internal RJ45 connector• four copper RJ45 connectors, single fiber optic (RJ45 connector, MTRJ multi-mode connector)
Monitor and Control	<ul style="list-style-type: none">• Status LED's: ACT, SPEED



1.3 Board Overview

1.3.1 Board Introduction

The CP930 five Channel Ethernet Switch is a 3U/4HP CPCI Board designed for use in a CPCI system.

The CP930 itself is equipped with a five channel switch controller (Marvell 88E6063-RCJ).

Network interfacing is accomplished using CAT5 UTP cabling for 10Base-T and 100Base-TX, and, optionally, for the fiber optical port, a MT-RJ multimode optical cable is recommended. For copper solutions, all MAC and PHY functions are integrated into the controller chip. Only galvanic isolation is performed externally. For the fiber optic solution, the controller also provides MAC and PHY functions, except for the optical transceiver interface. This is accomplished using an external transceiver module for the channel which also includes the connector to the optical link.

Host interfacing is provided by a CPCI connector, to provide power to the board.

1.3.2 Board Specific Information

Specific board components involved in the Ethernet communications and data handling process are:

- Front panel connectors (depending on variant):
 - Up to five RJ45 connectors
 - Up to five Magnetics modules for galvanic isolation (RJ45 front end)
 - One Agilent HFBR-5905 Fiber Optic Transceiver (optional)
 - with built-in connectors
 - 1300 nm InGaAsP LED and photodiode
- Fast Ethernet switch:
 - One five port Fast Ethernet switch from Marvell
- Three linear voltage regulators
- Front panel LED's:
 - Two per channel with RJ45 copper front end
- CompactPCI connector (optional)
- one Molex 4 pole

1.4 Board Diagrams

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

1.4.1 System Level Interfacing

There are two different possibilities, depending of the variant, to integrate the CP930 into a system. In the standard variant the CP930 is available with a J1 CPCI Connector for integration within a CompactPCI System (Note: this connector delivers only the power supply). The other possibility, the CP930-FD standalone variant, is available with a 3.5" housing and a power connector (4pol, MOLEX connector) suitable for ATX power supplies.



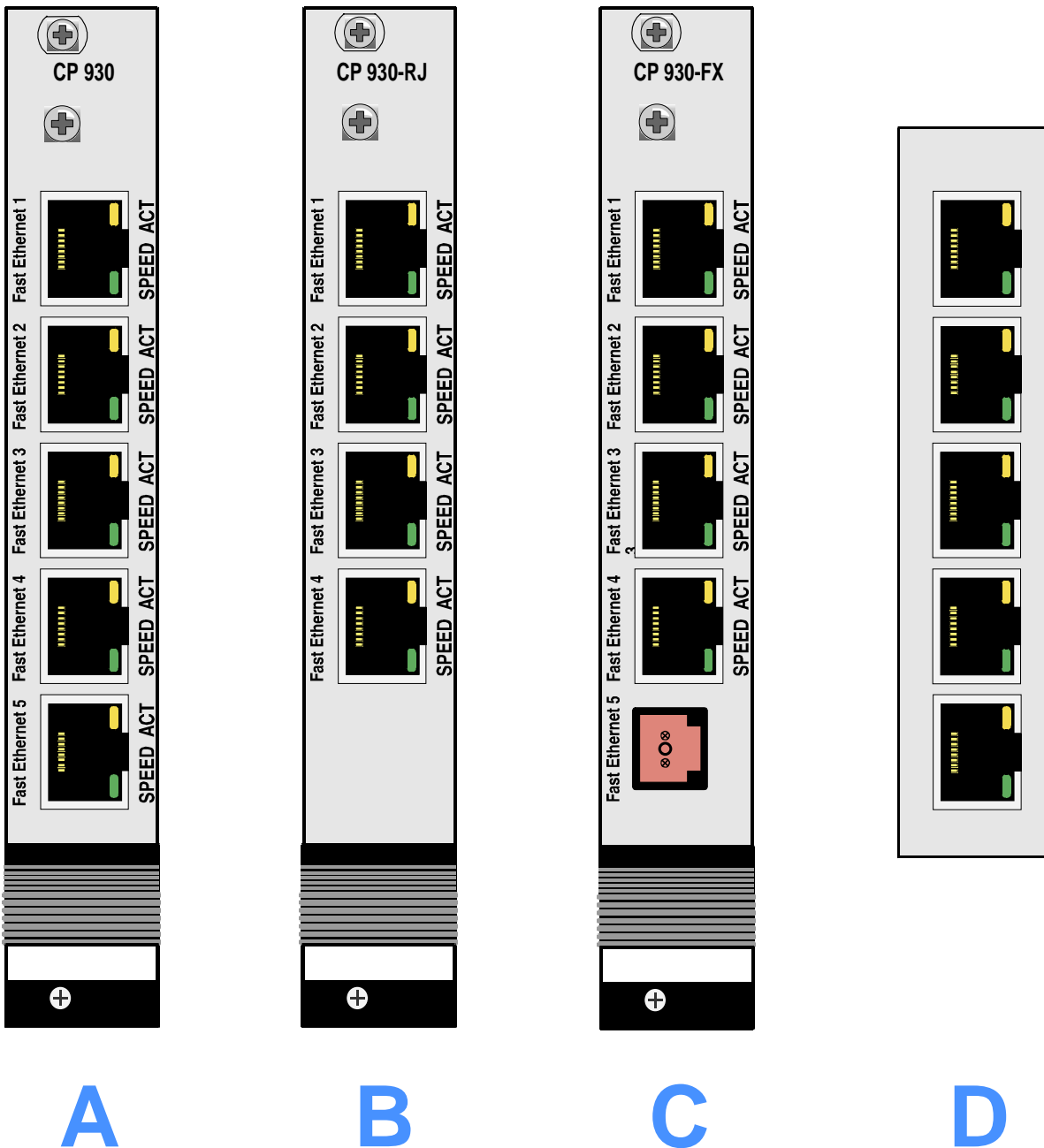
1.4.2 Front Panels

There are four standard variants of the CP930 available:

- Variant A: five front panel RJ45 connector and optionally extended temperatures
- Variant B: four front panel RJ45 connectors and one internal RJ45 connector
- Variant C: four RJ45 connectors; one MTRJ-type fiber optic connector, all on front panel
- Variant D: five front panel RJ45 connectors for mounting in a 3.5" FDD slot

The figure below shows the front panel layout for each of the above variants:

Figure 1-1: CP930 Front Panel Standard Variant Views

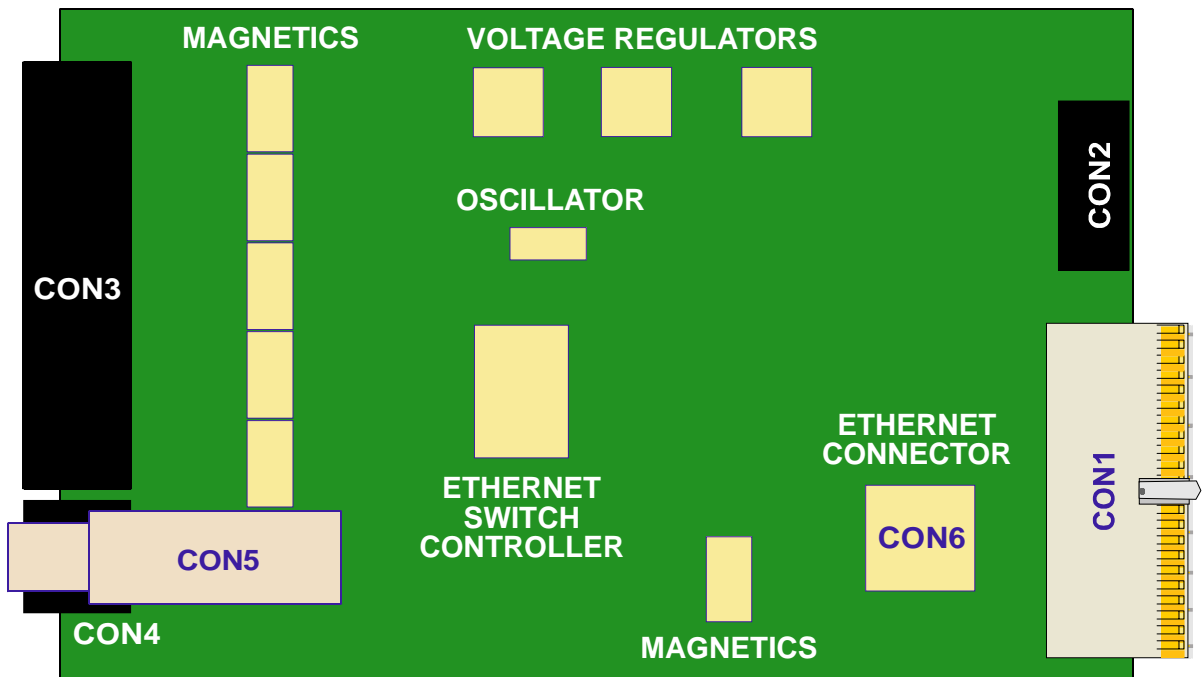




1.4.3 Board Layout

The following figure shows the board layout for the above indicated variants of the CP930.

Figure 1-2: CP930 Board Layout



1.5 Technical Specifications

Table 1-2: CP930 Main Specifications

GROUP	TYPE	DESCRIPTION
CONTROLLER	Marvell Ethernet Switch controller 88E6063-RCJ	<ul style="list-style-type: none"> Provides up to five channels Fast Ethernet including PHY Ethernet standards supported: 10Base-T, 100Base-TX, 100Base-FX
External Interfaces	Ethernet copper	Up to five, 8-contact, female, RJ45 connector(s) Supports up to five channels of full or half duplex 10Base-T, 100Base-TX Ethernet operation up to 100 meters cable length.
	Ethernet fiber optic	one optional, MT-RJ type fiber optic, transceiver connector Supports one channel of full duplex 100Base-FX Ethernet operation up to 2 kilometres link length.
	Power Connector	<ul style="list-style-type: none"> CompactPCI Molex connector
Indicators	Front Panel LED	One green and one yellow LED per channel for indicating Ethernet channel operational status: <ul style="list-style-type: none"> ACT: yellow: indicates channel activity and link SPEED: green: indicates Ethernet link speed, 10 Mbps or 100 Mbps
General	Mechanical	Conforms with IEEE1101.1
	Power Requirements	board power supply: 5 V, + or - 5%
	Power Consumption	See Table 1-3 for details
	Temperature Range	Operational: 0°C to +70°C Standard (see note) -40°C to +85°C Storage: -55°C to +125°C*
	Humidity	0% to 90% non-condensing
	Dimensions	100mm x 160mm single height Eurocard
	Board Weight	150 grams, 250 grams in the case of the FD variant

* +125°C is the re-bake temperature. For extended storage times greater than 24 hours, +85°C should be the maximum.

Table 1-3: CP930 Power Consumption

VARIANT	POWER CONSUMPTION AT (typical)		
	OPERATIONAL CONFIGURATION *		
	NO LINK	10 MBITS	100 MBITS
CP930	0,65W	1,3W	2,2W
CP930-RJ	0,65W	1,3W	2,2W
CP930-FX	2,3W	2,9W	3,6W
CP930-FD	0,65W	1,3W	2,2W

* Operational Configuration: All available channels in operation except where otherwise noted.



1.6 Applied Standards

The CP930 complies with the requirements of the following standards:

Table 1-4: Applied Standards

	TYPE	STANDARD
CE	Emission	EN50081-1
	Immunity, Industrial Environment	EN50082-2
	Immunity, IT Equipment	EN55024
	Electrical Safety	EN60950
MECHANICAL	Mechanical Dimensions	Conforms with IEEE1101.1
ENVIRONMENTAL TESTS	Vibration, Sinusoidal	IEC68-2-6
	Random Vibration, Broadband	IEC68-2-64 (3U boards)
	Permanent Shock	IEC68-2-29
	Single Shock	IEC68-2-27

1.7 Related Publications

Table 1-5: Related Publications

	ISSUED BY	DOCUMENT
CompactPCI Systems	PICMG	CompactPCI Specification, V. 2.0, Rev. 3.0
	<i>PEP Modular Computers</i>	CompactPCI Systems Manual (ID 19953)



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Chapter

2

Functional Description



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2. Functional Description

The following chapters present more detailed, board level information about the CP930 5-Channel Fast Ethernet Switch whereby the board components and their basic functionality are discussed in general.

2.1 General Information

The CP930 is comprised basically of the following:

- Signal conditioning: either (depends on the variant)
 - Galvanic isolation for CAT5 UTP cabling, or
 - Full duplex transceiver for fiber optic links
- Fast Ethernet Switch
 - 5- channel controller
 - Integrated (on chip):
 - MAC
 - PHY
 - 1 Mbit Frame buffer
 - MAC address aging time is about 300 seconds
- System interfaces for:
 - Up to five Fast Ethernet channels
 - Five RJ45, 8-contact, female connectors for CAT5 UTP cabling (CON3 and CON4 or CON6)
 - One MT-RJ type fiber optic transceiver connector for fiber optic linking with 1300 nm (CON5 if populated)
 - Power Supply
 - CompactPCI connector (CON1 if populated)
 - 4-pin Molex Connector (CON2 if populated)
- Monitor and Control
 - Up to five sets of two operational status LED's for monitoring of link, activity, and operational mode (link speed).

2.1.1 Signal Conditioning

Signal conditioning is a function of the type of network being serviced by the individual CP930 channel. Copper cabling networks are provided with galvanic isolation whereas the fiber optic link is interfaced using an MT-RJ type fiber optic connector with integrated transceiver for full duplex operation.

2.1.2 Fast Ethernet Switch Controller

The Fast Ethernet Switch controller is responsible for providing up to five channels of Fast Ethernet MAC and PHY layer functionality, and for providing the power supply via either a CompactPCI bus interface or a 4-pin Molex power connector. The switch also provides Auto-negotiation, MDI / MDI-X auto crossover and non-blocking.



2.1.3 System Interfaces

The CP930 provides interfacing capability for the following system elements:

- Up to 5 Fast Ethernet interfaces
- Power supply

Ethernet interfacing is achieved either via the CON3(RJ45), CON4(RJ45), CON5(FX), or CON6(RJ45) connectors depending on the CP930 variant in use and the type of network link: copper or fiber optic. One of the features of the Fast Ethernet switch controller is that it can automatically detect signal polarity so there is no need for using crossover cabling for direct copper links to a switch.

2.1.4 Monitor and Control

For each RJ45 port there are two LED's available to indicate status. The yellow LED indicates if the link is active, and if so whether there is activity on the link or not. If on, the link is active, if blinking there is activity on the link. The green LED indicates link speed: ON is 100 Mbit, OFF is 10 Mbit.

The fibre optic port has no indicators and is always 100 Mbit speed.

2.2 Board-Level Interfacing Diagram

The following figure demonstrates the interfacing structure between the internal processing modules of the CP930. Where CP930 system elements have common interfacing they are grouped into a block. Interfacing common to only one element of a block is indicated with a direct connecting line. The interfacing lines are shown in white where they are on board and in black for board external interfacing.

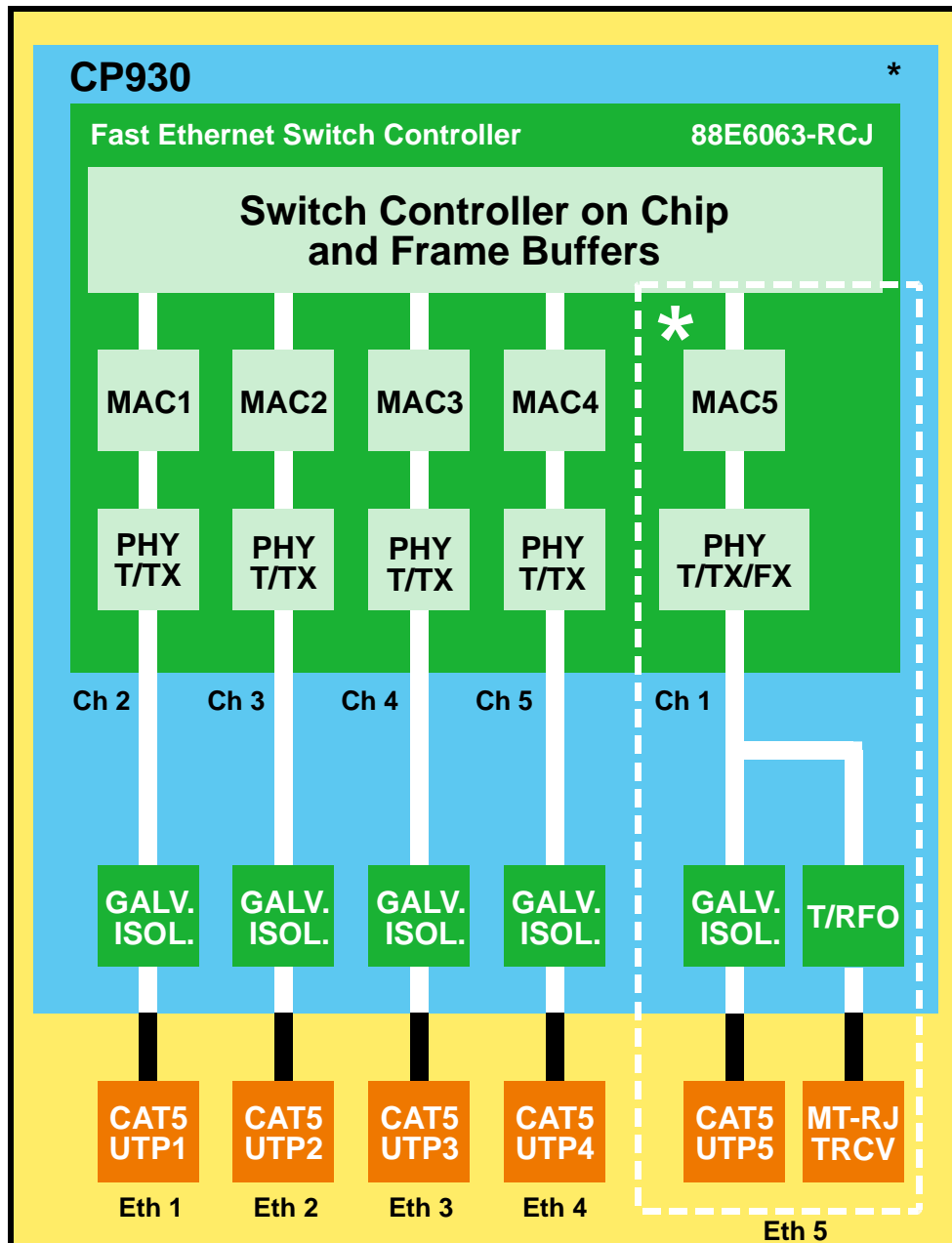
The "*" (asterisk) in the figure blocks indicate that the actual implementation depends on the CP930 variant employed.

Legend for Figure 2-1:

- GALV.ISOL. = galvanic isolation for copper links
- MT-RJ TRCV = MT-RJ-type transceiver for fiber optic links
- CAT5 UTP = category 5, unshielded twisted pair cabling (copper links)
- T/R FO = transmit and receive fiber optic links
- ETH = Ethernet Channel

As the Fast Ethernet controller provides automatic detection of the Ethernet standard in use on copper links the CP930 may be used with any mix of Ethernet networks with 10Base-T or 100Base-TX.

Figure 2-1: CP930 Board Level Interfacing



- * There are five variants of the CP930 available. Three of the variants have five Ethernet front panel connectors, the difference between the three being that the first is for standard temperatures and the second is for extended temperatures, and the last is for FDD-Slot mounting. The fourth variant has only four Ethernet front panel connectors, but an additional internal Ethernet connector. The fifth variant is equipped with four standard Ethernet interfaces on the front panel, plus an Ethernet Fiber Optic interface, which is routed via a duplex MT-RJ type connector receptacle on the front panel, for interfacing to fiber optic links.



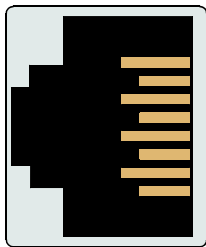
2.3 System Interfaces

2.3.1 Ethernet Wire Cabling Interface

The Ethernet wire cabling interface is implemented using up to five 8-contact, female, RJ45 connectors. CON3 is implemented as channel 1-4, and CON4 is implemented as channel 5 when installed, this numbering being the front panel numbering and not the numbering of the channels from the chip. As the Fast Ethernet controller is able to automatically detect the cabling configuration and Ethernet standard in use, the pinout of the individual connectors is a function of the implementation.

Figure 2-2: CON3/4 and CON6 Connectors

CON3, 4, 6



The following figure and table indicate the pin assignment and signal function for each connector as a function of the implementation.

The signal pinouts on the left side of the table are for the standard Media Dependent Interface (MDI) using appropriate CAT5 UTP cabling for the Ethernet standard in use.

The signal pinouts on the right side of the table are for the Media Dependent Interface Crossed (MDIX) using appropriate CAT5 UTP cabling for the Ethernet standard in use.

In addition, the input / output status of each signal is also indicated in the table.

Table 2-1: Pinouts of CON3, CON4 and CON6 Based on the Implementation

MDI / Standard Ethernet Cable				PIN	MDIX / Crossed Ethernet Cable			
10BASE-T		100BASE-TX			10BASE-T		100BASE-TX	
I/O	SIGNAL	I/O	SIGNAL		I/O	SIGNAL	I/O	SIGNAL
0	TX+	0	TX+	1	I	RX+	I	RX+
0	TX-	0	TX-	2	I	RX-	I	RX-
I	RX+	I	RX+	3	0	TX+	0	TX+
-	-	-	-	4	-	-	-	-
-	-	-	-	5	-	-	-	-
I	RX-	I	RX-	6	0	TX-	0	TX-
-	-	-	-	7	-	-	-	-
-	-	-	-	8	-	-	-	-



2.3.2 Channel 5 Interface

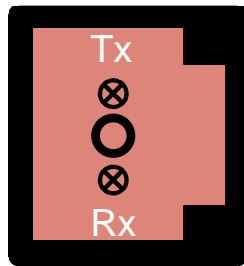
There are three variants of channel 5. One variant employs a standard Ethernet interface (RJ45) on the front panel, the second variant has a standard Ethernet RJ45 connector onboard, and the third variant has a duplex MT-RJ-type connector receptacle for interfacing to fiber optic links on the front panel. This variant is described below.

2.3.2.1 Ethernet Fiber Optic Interface

The Ethernet fiber optic interface is realized using an Agilent HFBR-M Fiber Optic Transceiver. These transceivers support full duplex 100Base-FX operation and are fitted with a duplex MT-RJ-type connector receptacle for interfacing to fiber optic links. CON5 is implemented as Channel 1 when installed.

The following figure indicates the positioning of the transmit and receive receptacles and orientation of the connectors and keying of the receptacles. The MT-RJ-type receptacle is designed to support self-locking duplex MT-RJ-type male connectors. This ensures that the fiber optic links are securely fastened to the receptacles.

Figure 2-3: CON5 Fiber Optic Receptacle, Front Panel View



Note...

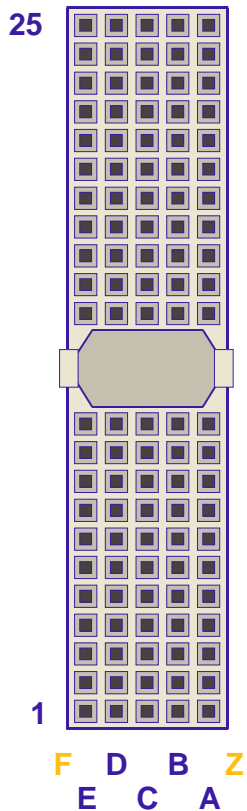
The maximum length of cabling over which the Ethernet transmission can operate effectively depends upon the transceiver in use.



2.3.3 CompactPCI Interface

The CompactPCI interface is based on the specification PICMG 2.0 R 3.0, 10/1/99. The following figure and table indicate the pin layout and pinout of the CompactPCI connector, CON1 (J1).

Figure 2-4: CompactPCI Connector CON1 Front View



Note:
Pinrows **F** and **Z**
are GND pins

Table 2-2: Compact PCI Connector CON1 Pinout

PIN	A	B	C	D	E	F
1	VCC	NC	NC	NC	VCC	GND
2	NC	VCC	NC	NC	NC	GND
3	NC	NC	NC	VCC	NC	GND
4	NC	GND	NC	NC	NC	GND
5	NC	NC	NC	GND	NC	GND
6	NC	GND	NC	NC	NC	GND
7	NC	NC	NC	GND	NC	GND
8	NC	GND	NC	NC	NC	GND
9	NC	NC	NC	GND	NC	GND
10	NC	GND	NC	NC	NC	GND
11	NC	NC	NC	GND	NC	GND
15	NC	NC	NC	GND	NC	GND
16	NC	GND	NC	NC	NC	GND
17	NC	NC	NC	GND	NC	GND
18	NC	GND	NC	NC	NC	GND
19	NC	NC	NC	GND	NC	GND
20	NC	GND	NC	NC	NC	GND
21	NC	NC	NC	NC	NC	GND
22	NC	GND	NC	NC	NC	GND
23	NC	NC	NC	VCC	NC	GND
24	NC	VCC	NC	NC	NC	GND
25	VCC	NC	NC	NC	VCC	GND



2.3.4 MOLEX Power Interface CON2

This connector is used for connecting the ATX power supply.

Figure 2-5: MOLEX Power Interface CON2

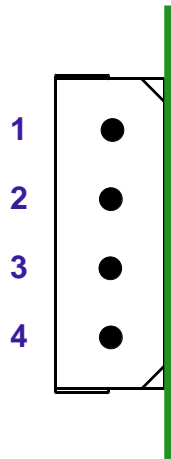


Table 2-3: MOLEX Power Interface Pinout

Pin	Signal
1	NC
2	GND
3	GND
4	5V

2.4 Monitor and Control (M/C)

Monitor and Control functions are divided essentially into Pre-operation and Operation. Pre-operation M/C deals with board configuration and system requirements. Operation M/C covers direct operator interfaces.

2.4.1 Pre-Operation M/C

Pre-operation M/C is a direct function of the application and the system requirements. These requirements dictate the module configuration as well as the overall system integration. Overall system integration and compliance with its requirements is beyond the scope of this manual.

2.4.2 Operation M/C

Operation M/C is a function of the CP930 driver software and the application. Direct interaction by the operator is limited to the functionality provided by the LED's assigned to the respective Ethernet channels. These LED's can be used to determine the basic operational status of a channel and if data is being transferred.



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Chapter

3

Installation



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3. Installation

The CP930 has been designed for easy installation. However, the following standard precautions, installation procedures and general information must be observed to ensure proper installation and to preclude damage to the board or injury to personnel.

3.1 Hardware Installation

The product described in this manual can be installed in any available 3U slot of a CompactPCI system except for the system master slot.

3.1.1 Safety Requirements

The board must be securely fastened to the chassis using the two front panel retaining screws located at the top and bottom of the board to ensure proper grounding and to avoid loosening caused by vibration or shock.

In addition the following electrical hazard precautions must be observed.



Caution, Electric Shock Hazard!

Ensure that the system main power is removed prior to installing or removing this board. Ensure that there are no other external voltages or signals being applied to this board or other boards within the system. Failure to comply with the above could endanger your life or health and may cause damage to this board or other system components.



ESD Equipment!

This Kontron board contains electrostatically sensitive devices. Please observe the following precautions to avoid damage to your board:

Discharge your clothing before touching the assembly. Tools must be discharged before use.

Do not touch any on board components, connector pins, or board conductive circuits.

If working at an anti-static workbench with professional discharging equipment, ensure compliance with its usage when handling this product.



3.1.2 Installation Procedures for use in CompactPCI Slot

To install the board proceed as follows:

1. Ensure that the safety requirements indicated above are observed (no Hotswap).



Warning!

Failure to comply with the instruction below may cause damage to the board or result in improper system operation.

2. Ensure that the board is properly configured for operation before installing.



Note...

Care must be taken when applying the procedures below to ensure that when the board is inserted it is not damaged through contact with other boards in the system.

3. To install the board perform the following:
 1. Prior to installation of the board disengage the insertion/extraction handle by first unlocking the handle and pressing it down.
 2. Insert the board into an appropriate slot, and, using the insertion/extraction handle, ensure that it is properly seated in the backplane. (Front panel is flush with the rack front; the insertion/extraction handle is locked.)
 4. Fasten the front panel retaining screws.
 5. Connect external interfacing cables to the board as required.
 6. Ensure that the interfacing cables are properly secured.

3.1.3 Removal Procedures for use in CompactPCI Slot

To remove the board proceed as follows:

1. Ensure that the safety requirements indicated above are observed.



Warning!

Care must be taken when applying the procedures below to ensure that when the board is removed it is not damaged through contact with other boards in the system.

2. Disconnect any interfacing cables that may be connected to the board.
3. Loosen both of the front panel retaining screws.
4. To remove the board from the backplane perform the following:
 1. Unlock the insertion/extraction handle by pressing down on the grey locking mechanism in the middle of the handle. (This should be achievable with a minimum of force. If necessary lift the handle up slightly while pressing down on the grey locking mechanism.)
 2. Disengage the board from the backplane by pressing down on the insertion/extraction handle and pull the board out of the slot ensuring that the board does not make contact with adjacent boards. (If the handle does not move, it is not unlocked. Repeat the unlocking procedure above and try again. Do not use force!)



3.1.4 Installation Procedures for Use in Floppy Disk Drive Slot

To install the board proceed as follows:

1. Ensure that the safety requirements indicated above are observed (no Hotswap).



Warning!

Failure to comply with the instruction below may cause damage to the board or result in improper system operation.

2. Ensure that the board is properly configured for operation before installing.



Note...

Care must be taken when applying the procedures below to ensure that when the board is inserted it is not damaged through contact with other boards in the system.

3. To install the board perform the following:
 1. Prior to installation of the board-assembly unmount slot covers or EMC-covers of the housing.
 2. Insert the board-assembly into an appropriate slot, with the mounting holes on bottom (the PCB must look up into the slot).
4. Fasten the retaining screws. Use at least 4x DIN 7985 or similar screws measuring M3x6 or M3x8
5. Connect external interfacing cables to the board as required.
6. Ensure that the interfacing cables are properly secured.
7. Close System cover according to its specific manual.

3.1.5 Removal Procedures for Use in Floppy Disk Drive Slot

To remove the board proceed as follows:

1. Ensure that the safety requirements indicated above are observed.



Warning!

Care must be taken when applying the procedures below to ensure that when the board is removed it is not damaged through contact with other boards in the system.

2. Open the system Cover.
3. Disconnect any interfacing cables that may be connected to the board.
4. Loosen all retaining screws.
5. Pull out the CP930-FDD by pulling out to the front side. (Do not use force if the assembly is canted!)



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Chapter

4

Configuration



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4. Configuration

The CP930 is designed for plug and play operation, and, as such, it does not have any user configurable board settings which are required for operation.



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