CPCI System Subrack 3 U

User's Manual

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24579-080

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R1.0	January 14, 2008	Initial Release
R1.1	April 18, 2011	Fan Tray with mini compression latch

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The details in this manual have been carefully compiled and checked.

The company cannot accept any liability for errors or misprints. The company reserves the right to amendments of technical specifications due to further development and improvement of products.

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1 Safety

1.1 Intended Application

The CompactPCI (CPCI) system subrack, described in this manual, is intended as a platform for a microcomputer system based on the CompactPCI Standard PICMG 2.0 Rev.3.
The CPCI system subracks are designed for protection class IP 20 and can be used only in the resp. environments.
For higher protection requirements, e.g. IP 54/55 you must install the system subrack in a protective case.

CPCI system subracks are not end-products, so there is no valid approval for this unit. In order to enable stand-alone functionality, additional elements are required. An operational system is achieved only by way of appropiate CPCI boards.
The completion and final testing of the units have been carried out, or at least supervised, by qualified technicians. These instructions are directed exclusively to these qualified technicians i.e.engineers, trained and qualified electricians etc.

Make sure that:

- the finished system complies with the safety regulations currently applicable in the country it is going to be used.
- the finished system complies with all other regulations and specifications at the place and country of use, e.g. interference limits, approval by the tele-communications authorities.

1.2 Safety Instructions

The intended audience of this User's Manual is system integrators and hardware/software engineers.

1.2.1 Safety Symbols used in this document

	**Hazardous voltage!** *This is the electrical hazard symbol. Familiarise yourself with the danger of electrical voltages and the safety precautions to avoid accidents before starting to work with parts that carry dangerous voltages.*

	**Caution!** *This is the user caution symbol. It indicates a condition where damage of the equipment or injury of the service personnel could occur. To reduce the risk of damage or injury, follow all steps or procedures as instructed.*

	**Danger of electrostatic discharge!** *Static electricity can damage sensitive components in a system. To avoid damage, wear ESD wrist straps or at regular intervals touch blank enclosure parts.*

1.3 General Safety Precautions

	**Warning!** *Voltages over 60 VDC can be present in this equipment. This equipment is intended to be accessed, to be installed and maintained by qualified and trained service personnel only.* *This equipment is designed in accordance with protection class 1!* *It must therefore be operated only with protective GND/earth connection!*

- Service personnel must know the necessary electrical safety, wiring and connection practices for installing this equipment.
- Install this equipment only in compliance with local and national electrical codes.

2 Product Definition

The Schroff CPCI system subrack consists of:

- A shielded 19“ subrack with front and rear card cage for 6 U boards according to CompactPCI Standard PICMG 2.0 Rev.3
- A 6 U 6 slot CPCI Backplane, system slot left (bottom)
- Two slots for optional CPCI plug-in power supplies (250 W)
- Fans for the active cooling of the boards
- Power input module with IEC 320-C14 connector, mains/line switch, mains/line filter and fuses

2.1 References and Architecture Specifications

- User Manual CPCI Backplanes
  Order no.: 73972-101
- Technical Data Schroff CPCI Backplanes 23006-7xx
  Order no.: 73972-088
- User Guide Schroff CPCI Backplanes 23006-796
  Order no.: 63972-213

Further information can also be found in the catalogue „Electronic Packaging“ and on the internet under *www.schroff.biz*

2.2 Subrack System Overview

Figure 1: System Overview

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1	Fan Tray	4	Slot for CPCI Power Supply with Front panel 3 U / 8 HP
2	Front Card Cage	5	Front panel 3 U / 8 HP
3	Slot for CPCI Power Supply		

2.3 Subrack:

The 3 U 19” subrack is based on the Schroff europacPRO system with EMC shielding. The card cage enables the horizontal assembly of 6 CPCI front boards (6 U, 4 HP, 160 mm deep) and 6 Rear I/O Boards (6 U, 4 HP, 80 mm deep).

The right guide rails of the board cage are equipped with ESD clips.

2.4 CPCI Backplane

The horizontally assembled 6 U Backplane provides:

- CompactPCI bus (PICMG2.0 R.3.0) with System Slot left (bottom)
- Connector for the Fan Tray at the left side
- Two 47-position CPCI power connectors for the power supplies at the right side

A backplane with three 47-position connectors is available on request.

Applicable Specifications:

PICMG 2.0 R3.0 CPCI Core Specification

PICMG 2.01 R2.0 Hot Swap

PICMG 2.09 R1.0 System Management Bus

PICMG 2.10 R1.0 Keying

2.5 Power Supply

Hazardous voltage!

Parts of the power supply may be exposed with hazardous voltage. Always remove mains/line connector before carry out any assembly work.

Caution!

Your system has not been provided with a AC power cable. Purchase a AC power cable that is approved for use in your country. The AC power cable must be rated for the product and for the voltage and current marked on the product's electrical ratings label. The voltage and current rating of the cable should be greater than the ratings marked on the product.

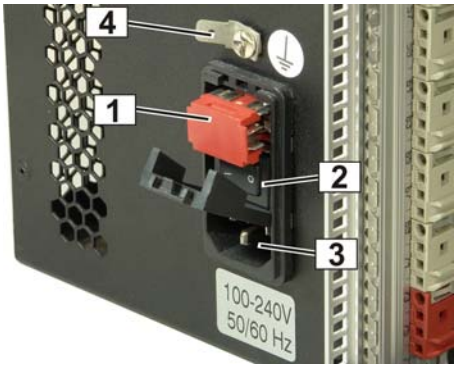
The CPCI system can be powered by CPCI plug-in power supplies with wide range input (100 - 240 VAC).

The power supplies can be plugged-in in dedicated slots at the right front side. The power supplies contact via 47-position connectors to the backplane.

The power input is provided by a AC mains/line module with IEC 320-C14 connector, integrated mains/line fuses and line filter.

The fuse rating is 8 A slow blow.

Figure 2: AC mains/line module



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1	Fuseholder	3	AC Connector (IEC320-C14)
2	Mains/line switch	4	6,3 mm faston connector

2.5.1 Grounding/Earthing

Caution!

The unit is designed in accordance with protection class 1! It must therefore be operated with protective earth/GND connection. Use only a three conductor AC power cable with a protective earth conductor that meets the IEC safety standards!

There is a 6,3 mm faston connector at the rear panel. This connector is only for equipotential bonding. Grounding is achieved through the protective earth conductor of the power cable!

2.5.2 CPCI Plug-In AC Power Supply (Order separately)

Figure 3: Power Supply

10006814

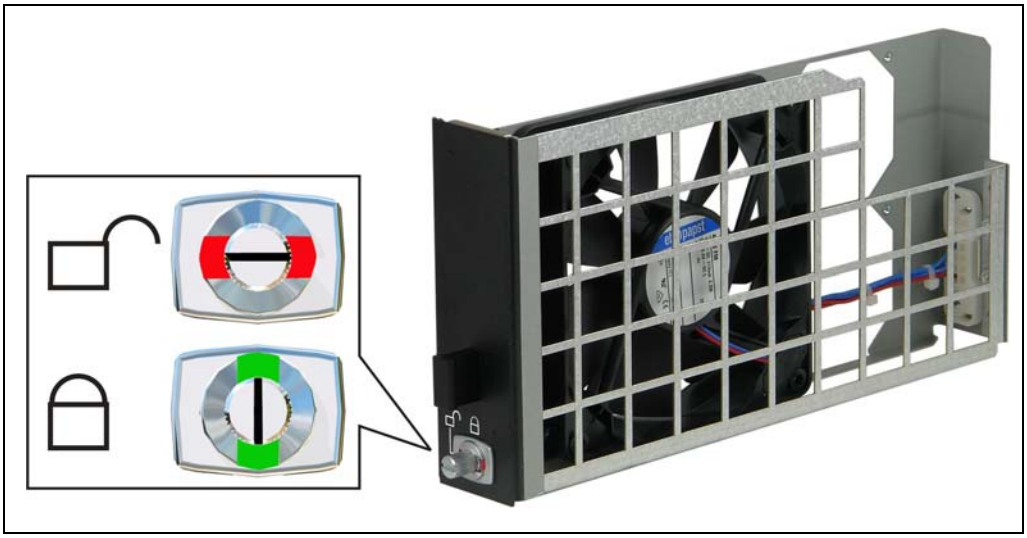
Table 1: Data AC Power Supply

Input voltage nominal	100 - 240 VAC
Mains Frequency	50 / 60 Hz
Output (max.)	250 W
Output voltages	3.3 V - 40 A 5.0 V - 40 A 12.0 V - 5.5 A -12.0 V - 2 A
Ripple	< 1 %
Dynamic response	< 1 % or 60 mV
Recovery time to within 1%	< 300 µsec
Overvoltage protection	for all voltages 120 – 130 % U > 5 Vr
Overcurrent protection	105 – 130 % of rated output current
Hold-up time	>= 20 ms

An 48 VDC power supply is available on request.

2.6 Cooling

Figure 4: Fan Tray



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The CPCI front boards are cooled by forced air convection through a 12 VDC axial fan (140 m³/h (82 cfm)).

The operating temperature is from 0°C to 50°C, but note that the power supply starts derating at 50°C.

2.7 Remove/Install Fan Tray

The Fan Tray is locked into the chassis by a mini compression latch with indicator red/green. In closed position the indicator shows green, in open position the indicator shows red.

Remove Fan Tray:

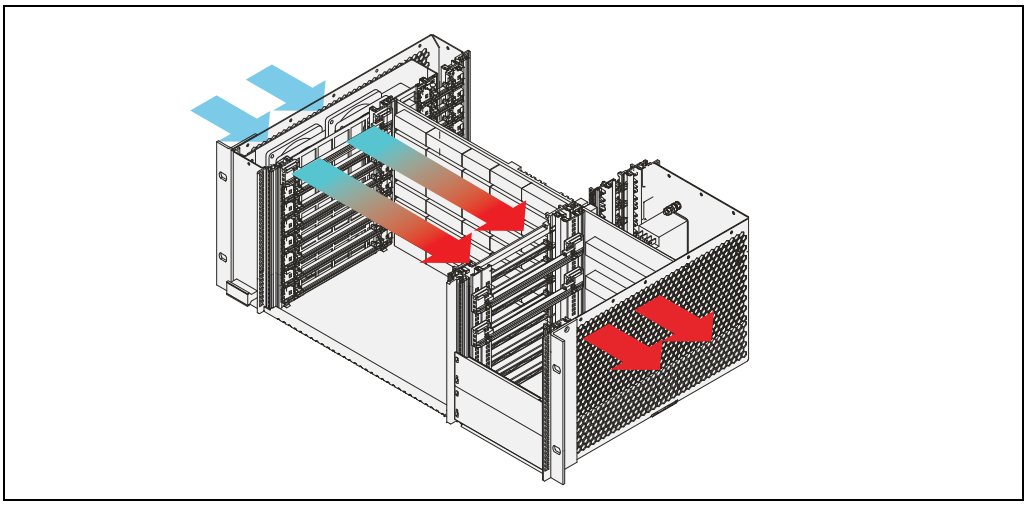
- Turn the knob counterclockwise until the indicator shows red.
- Pull out the Fan Tray:

Install Fan Tray:

- Insert the Fan Tray into the slot

Turn the knob clockwise until the Fan Tray is locked into the chassis.(By turning the knob clockwise, the cam is put into the latched position and the green indicator appears. Once latched, a further turning of the knob makes the cam starts its compression feature until the Fan Tray is locked.)

Figure 5: Airflow



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A Fan Tray with additional Fans for Rear I/O cooling is available on request.

	Caution! *To maintain proper airflow, all open slots must be covered with filler panels. The filler panel should include an airflow baffle that extends to backplane.*

3 Installation

3.1 General Installation Guidelines

3.1.1 Unpacking

Caution!
When opening the shipping carton, use caution to avoid damaging the system.

Consider the following when unpacking and storing the system:

- Leave the system packed until it is needed for immediate installation.
- After unpacking the system, save and store the packaging material in case the system must be returned.

If the packaging is damaged and possible system damage is present, report to the shipper and analyze the damage.

3.1.2 Ensuring Proper Airflow

- Install the system in an open rack whenever possible. If installation in an enclosed rack is unavoidable, ensure that the rack has adequate ventilation.
- Maintain ambient airflow to ensure normal operation. If the airflow is blocked or restricted, or if the intake air is too warm, an over temperature condition can occur.
- Ensure that cables from other equipment do not obstruct the airflow through the systems.
- Use filler panels to cover all empty chassis slots. The filler panel prevents fan air from escaping out of the front of an open slot.

Caution!
To maintain proper airflow, all open slots must be covered with filler panels. The filler panel should include an airflow baffle that extends to backplane.

3.2 Rack-Mounting

This subrack system can be installed in 19“ equipment racks. The rack must be accessible from the front and rear for equipment installation.

Mounting Instructions:

- Ensure that the rack is constructed to support the weight and dimensions of the system.
- Install any stabilizers that came with your equipment rack before mounting or servicing the system in the rack.
- Load the rack from the bottom to the top, with the heaviest system at the bottom, avoid uneven mechanical loading of the rack.

3.3 Initial Operation

Warning!

Voltages over 60 VDC can be present in this equipment. This equipment is intended to be accessed, to be installed and maintained by qualified and trained service personnel only.
This eqipment is designed in accordance with protection class 1!
It must therefore be operated only with protective GND/earth connection!

- Ensure that the system has not been damaged during transport, storage or assembly.
- Check the Protective Earth (PE) resistance, should be < 0,1 Ohm.
- Switch on the system and check all CPCI voltages directly on the backplane connectors before the board assembly.
- Plug-in the boards
- Cover all open Slots with filler panels.

4 Service

4.1 Technical support and Return for Service Assistance

We generally recommend to return the complete subrack system. For all product returns and support issues, please contact your Schroff sales distributor or *www.schroff.biz*.

We recommend that you save the packing material. Shipping without the original packing material might void the warranty.

4.2 Declaration of Conformity

SCHROFF CompactPCI system subracks are developed and manufactured according to EN 60950-1.

SCHROFF CompactPCI system subracks are not end-products with independent functionality as described in the definition of the EMC regulations, and therefore a CE marking is not required. However, when CPCI cards are assembled according to specification, the systems fulfill the requirements in accordance with EMC Directive 2004/108/EG and Low-voltage Directive 2006/95/EG.

Interference resistance and interference emissions are factors which are heavily influenced by the type and quantity of CPCI cards used in the system assembly. Through the use of high quality line filters and EMC optimized enclosure design, SCHROFF offers CPCI systems which serve as an ideal base for system integrators, which comply with the prescribed limits of EN 6100-6-3 and EN 61000-6-2

The systems are generally equipped with power supplies which possess CE markings in accordance with EN 60950-1, EN 61000-6-3, EN 61000-6-2).

Before delivery a high-voltage, protective earth and functionality test is carried out on each individual system.

4.3 Scope of Delivery

Quantity	Description
1	19” subrack, shielded, black powder coated (RAL9005)
1	CPCI backplane (PICMG2.0 R.3.0), 6 slot 6 U, system slot left
1	Front card cage for max. 6 boards 6 U 160 mm deep IEEE guide rails inc. ESD clips (ESD clip assembled at the right)
1	Rear card cage for max. 6 boards 6 U 80 mm deep IEEE guide rails inc. ESD clips
2	Slots fo 2 CPCI plug-in power supplies
1	Complete AC/DC cabling
1	Power input module with IEC 320-C14 connector, mains/line switch, mains/line filter and fuses
1	Fan Tray, hot swappable

4.4 Accessories

Order No.	Description
13100-141	250 W plug-in power supply with wide range input
24579-117	Fan Tray with additional fans for Rear I/O cooling
20848-7xx	Slot covers with front panel and EMC shielding for vacant slots. For dimensions, please see catalogue.
34562-8xx	Slot covers for vacant slots. For dimensions, please see catalogue.
24579-03x	Printed Circuit Board covers (perforated solder side covers). For dimensions, please see catalogue

4.5 Spare Parts

On request.

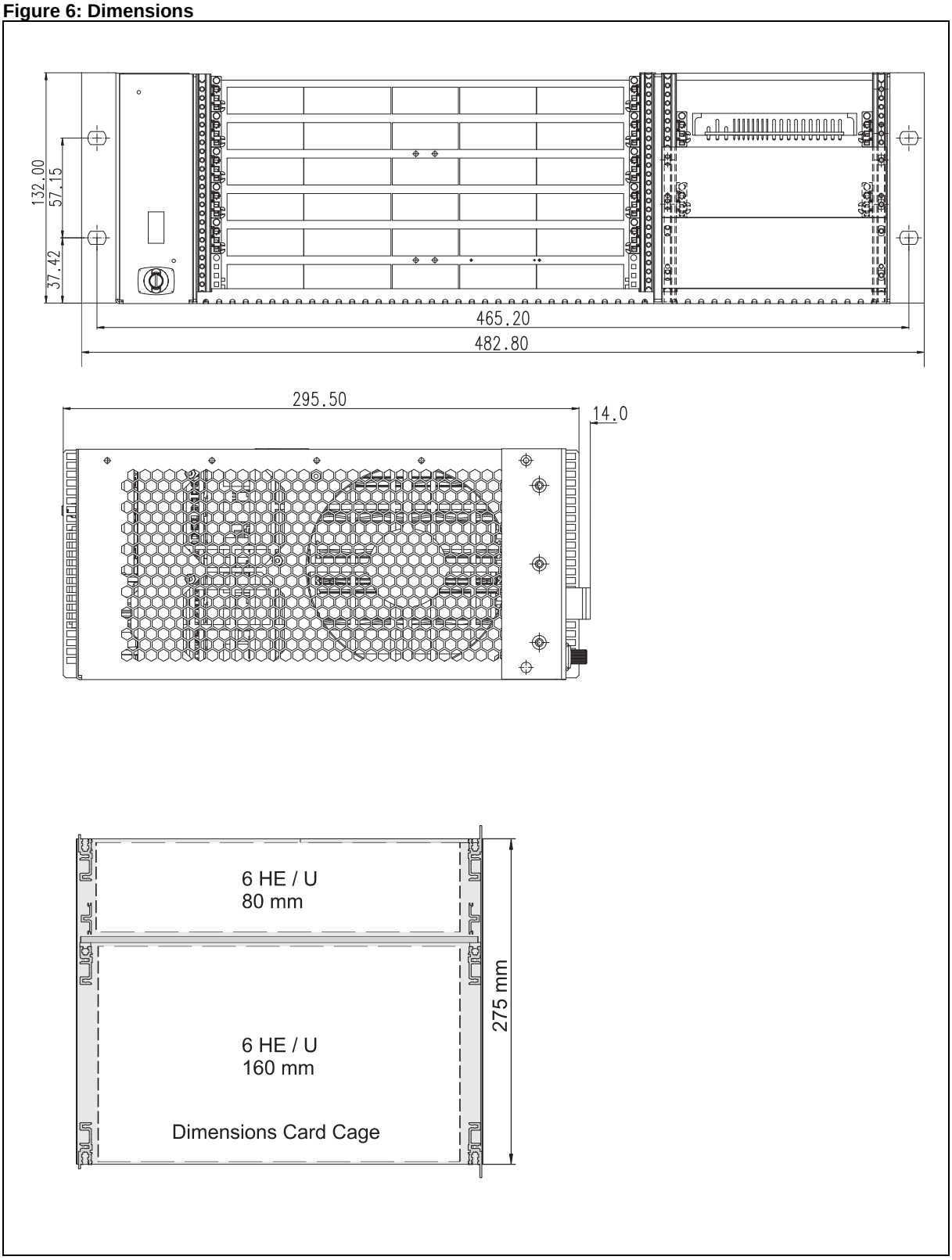
5 Technical Data

Table 2: Technical Data

Dimensions		
Height	132 mm (3 U)	
Width	482.80 mm (19“)	
Depth (Card cage)	275 mm	
Depth (Overall with handles)	303 mm	
Weight		
Completely assembled	6 kg	
Power Supply	(order separately)	
Input Voltage	100 VAC bis 240 VAC	
Frequency	50 / 60 Hz	
Power input	up to 250 W	
Cooling		
1 x 12 VDC fan	140 m³/h (82 cfm), free blow	
Ambient Temperature		
Operation	+0 °C to +50 °C	
Storage	-40 °C to +85 °C	
Humidity		
Admissible humidity	30 % to 80 %, non-condensing	
EMC, fulfils requirements for:		
Transient Emissions	EN 61000-6-3	
Interference Resistance	EN 61000-6-2	
Safety		
Test voltages according to EN 60950	Input - Output: Input - PE: Output - PE: Output - Output:	4,3 kVDC 2,2 kVDC 0,7 kVDC 0,7 kVDC
Shock and vibration:	EN 60068-2-6 and EN 60068-2-27	
Electromagnetic Shielding		
Shielding attenuation	typ. 40 dB at 1 GHz if shielded front panels are used.	

6 Dimensions

Figure 6: Dimensions



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