



Technical Information

CCT-RIO • Rear I/O Transition Module

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About this Manual

This manual is a short form description of the technical aspects of the CCT-RIO, required for installation and system integration. It is intended for the very advanced user only.

Edition History

EKF Document	Ed.	Contents/Changes	Author	Date
Text # 3847 cct_tie.wpd	1	Technical Information CCT-RIO English Preliminary edition, to be completed later on	jj	22. Aug 05
	2	Added Component Assembly (Top View) Drawing	jj	12 October 2005
	3	Added photos CCT-RIO	jj	23 December 2005
	4	Added images CCD-CALYPSO	jj	4 January 2006
	5	Added image of a single slot rear I/O backplane	jj	24 March 2006
	6	Added photos of C29-RIO	jj	29 September 2009
	7	Added photos of CCT-99-RIO, removed photos of C29-RIO	jj	5 November 2009
	8	Added photos of CCM-BOOGIE with CCT-RIO	jj	5 March 2010

Related Documents

The CCT-RIO can be used together with several EKF CompactPCI® CPU cards. For a description of the particular CPU board, please follow the suitable link:

Links	
CCD-CALYPSO	www.ekf.com/c/ccpu/ccd/ccd_e.html
CCG-RUMBA	www.ekf.com/c/ccpu/ccg/ccg_e.html
CCM-BOOGIE	www.ekf.com/c/ccpu/ccm/ccm_e.html

Nomenclature

Signal names used herein with an attached '#' designate active low lines.

Trade Marks

Some terms used herein are property of their respective owners, e.g.

- ▶ Pentium, Pentium M, Celeron M, Core 2 Duo, Penryn: ® Intel
- ▶ **CompactPCI**: ® PICMG
- ▶ Windows 2000, Windows XP, Windows Vista: ® Microsoft
- ▶ EKF, ekf system: ® EKF

EKF does not claim this list to be complete.

Legal Disclaimer - Liability Exclusion

This manual has been edited as carefully as possible. We apologize for any potential mistake. Information provided herein is designated exclusively to the proficient user (system integrator, engineer). EKF can accept no responsibility for any damage caused by the use of this manual.

CCT-RIO Features

Feature Summary	
Form Factor	80x100mm ² , back panel width 4HP (20.3mm), optional rear panel width 8HP (40.6mm) as custom specific version, back panel height 3U
On-Board Connectors	Double Serial ATA connectors SATA0/SATA1 suitable for attachment of internal drives, USB connector for system internal use, serial port header P-CU 2x5-position 2.00mm (TTL level, suitable for EKF CU-series modules), serial port header P-SA 2x5-position 2.54mm (TTL level, suitable for MEN SA-series modules), serial port header P-232 2x5-position 2.54mm (RS-232E level, suitable for attachment of a 9-pin IDC D-Sub connector via micro ribbon flat cable), keyboard/mouse header P-PS2 2x5 position 2.54mm, GPIO port header P-GPIO 2x5 position 2.54mm, +5V power connector P-POW (floppy disk style)
Back Panel Connectors (4HP)	External Serial ATA (eSATA) connector, double USB receptacles, VGA (HD D-Sub 15), Gigabit Ethernet jack RJ45
Additional Back Panel Connectors (8-HP)	Requires custom specific back panel and mezzanine PCB: PS/2 keyboard/mouse Mini-DIN, serial COM port EIA-232E 9-pos. D-Sub male
CPCI Connector	J2 metric connector 2.00mm 5x22
Thermal Conditions Environmental Conditions	<ul style="list-style-type: none"> ▶ Operating temperature: 0°C ... +70°C (CPU dependent) ▶ Storage temperature: -40°C ... +85°C, max. gradient 5°C/min ▶ Humidity 5% ... 95% RH non condensing ▶ Altitude -300m ... +3000m ▶ Shock 15g 0.33ms, 6g 6ms ▶ Vibration 1g 5-2000Hz
EC Regulations	<ul style="list-style-type: none"> ▶ EN55022, EN55024, EN60950-1 (UL60950-1/IEC60950-1) ▶ 2002/95/EC (RoHS)

Short Description

Available as a rear I/O expansion board to the CCD-CALYPSO CPU card, the CCT-RIO is provided with several I/O port connectors, to be used either in addition to the CCD front panel connectors or alternatively. Being mainly a passive rear I/O transition module, groups of signals from the CCD-CALYPSO CPU board are passed across the CompactPCI J2/P2 connector to the CCT-RIO. Some of the data lines are available locally on the CCT board for system internal wiring only, while other connectors such as VGA-Video and Gigabit Ethernet are mounted into the back panel for external use. USB and SATA (eSATA) channels are provided both on-board and externally.

Typically the CCT-RIO ist equipped with a 4-HP rear panel (20.3mm width). As a custom specific option, an 8-HP panel is available with additional connectors.

Utilization of the CCT-RIO transition module adds a level of I/O functionality that is not available with the CCD-CALYPSO CPU board alone. Further on, swapping the CPU card is simplified by means of rear I/O, which is important for efficient system maintenance (MTTR).



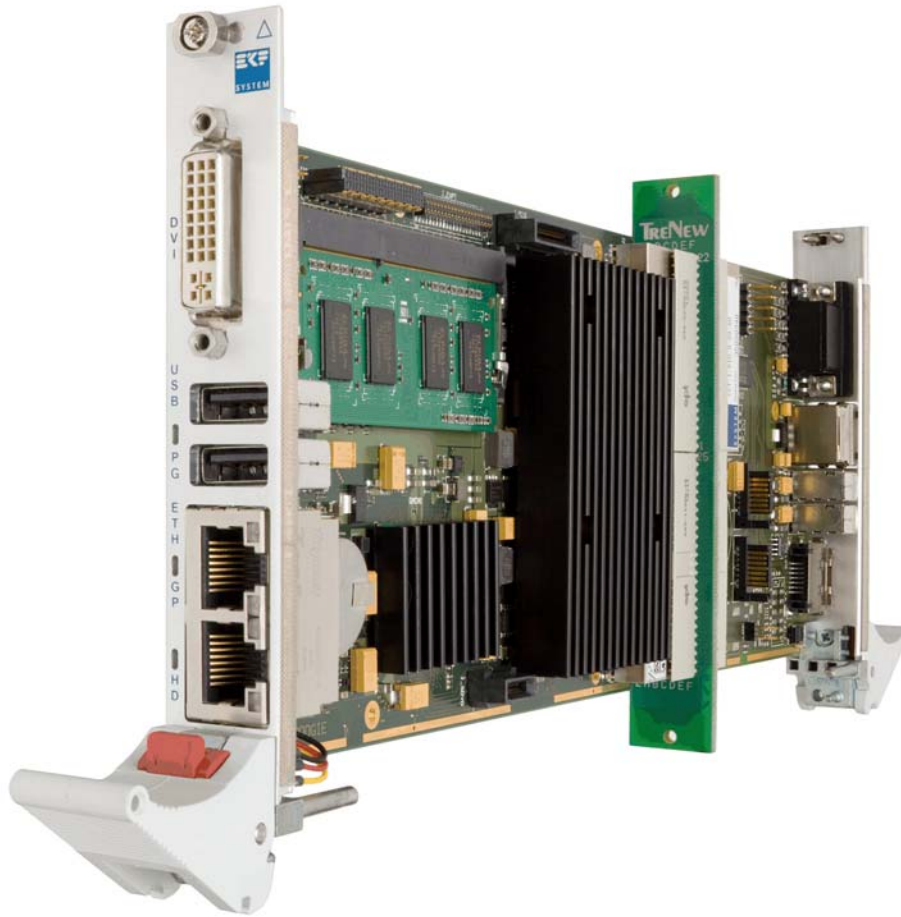
CCT-RIO Shown with on-Board USB Stick



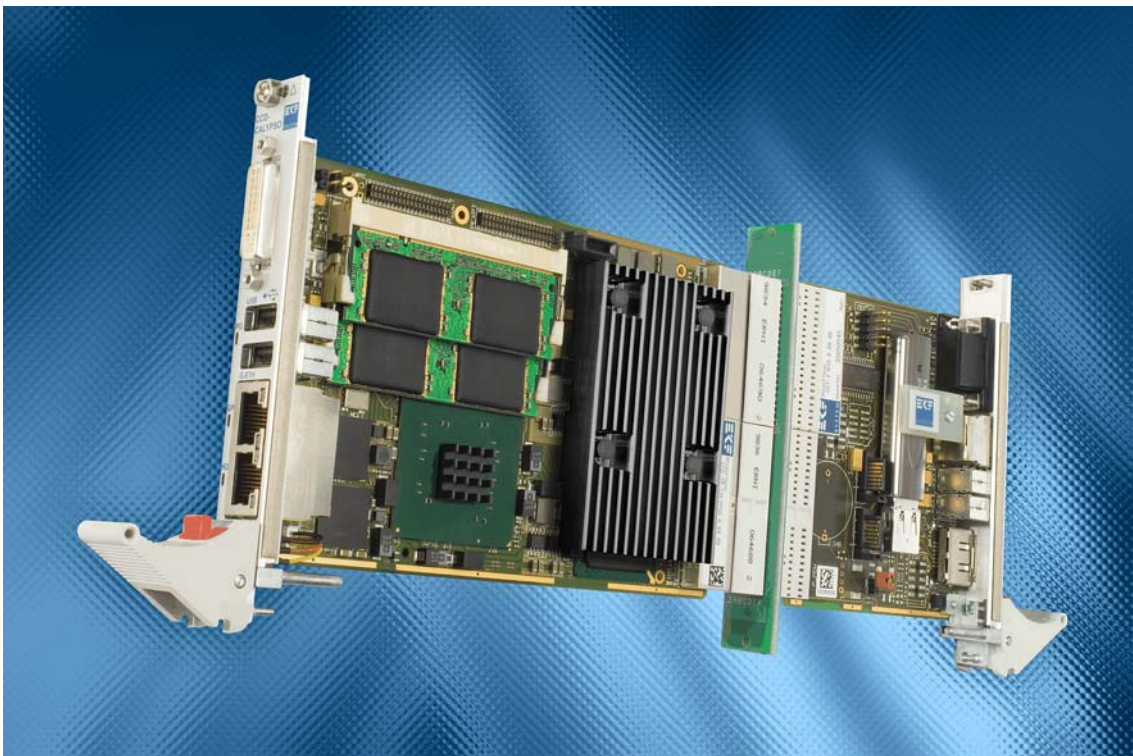
CCM-BOOGIE with CCT-RIO (Front View)



CCT-RIO with CCM-BOOGIE (Rear View)

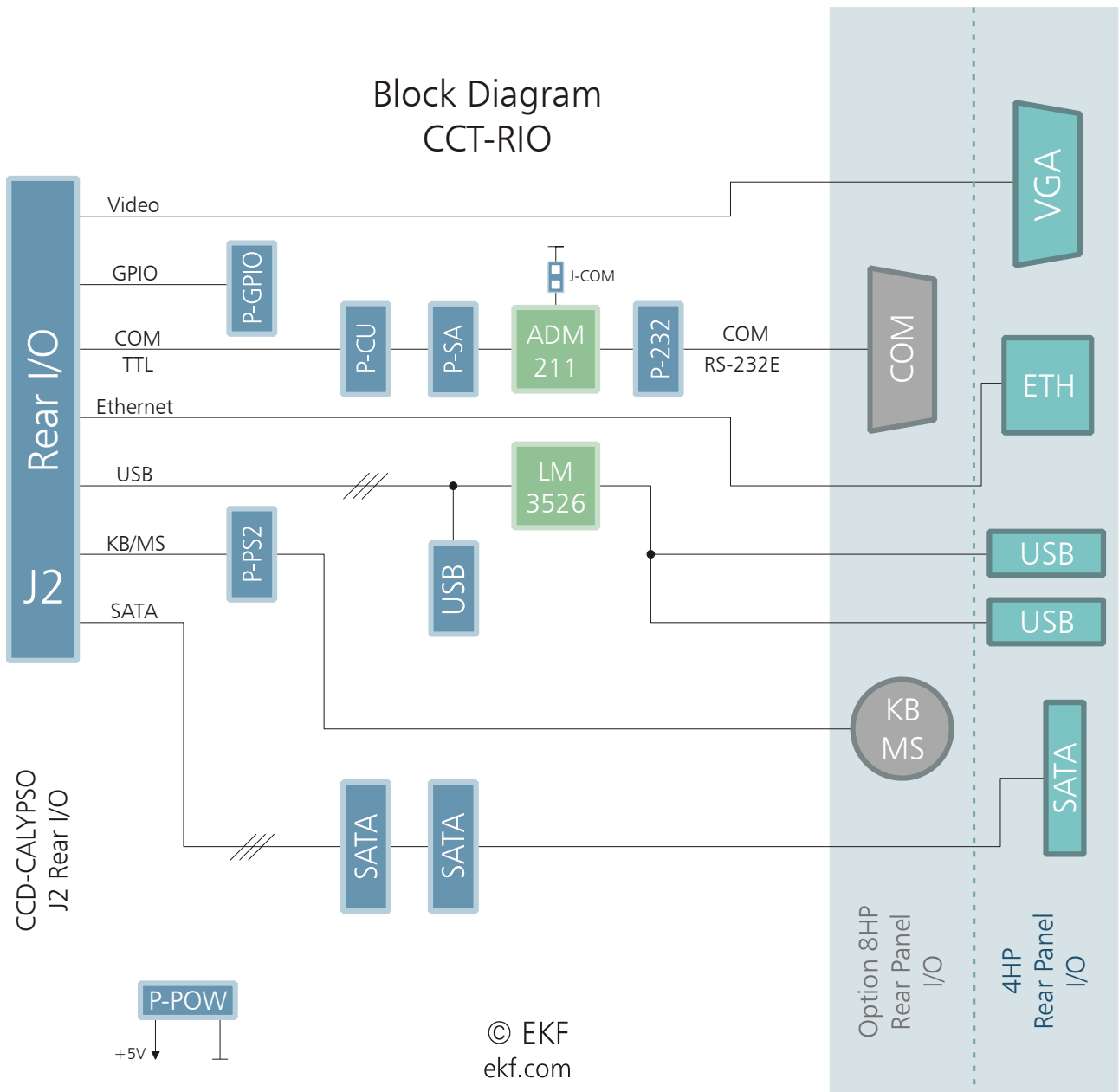


CCM-BOOGIE with CCT-RIO

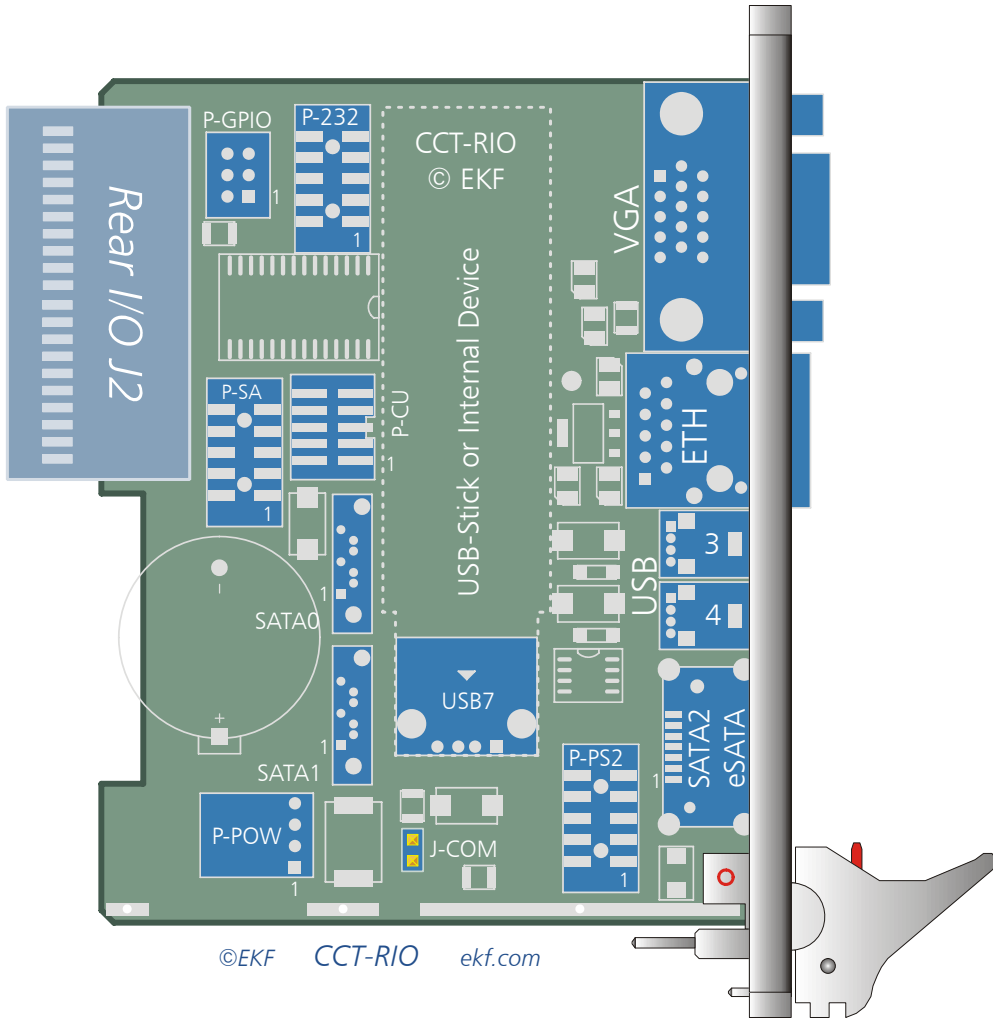


CCD-CALYPSO with CCT-RIO Rear I/O Module

Block Diagram



Top View Component Assembly



On-Board Connectors

J2	CompactPCI receptacle, matches the CPCI backplane P2 connector, takes signals from CCD-CALYPSO J2 connector
P-232	Serial interface pin header 2.54mm pitch (RS-232E level), suitable for attachment of an IDC style D-Sub connector via flat cable assembly or custom specific mezzanine adapter board together with a custom specific 8HP back panel; set jumper J-COM when using P-232
P-CU	Serial interface pin header 2.00mm pitch (TTL level), suitable for attachment of the CU7-RS485 and CU8-RS232 PHY interface modules via flat cable assembly; remove jumper J-COM when using P-CU
P-SA	Serial interface pin header 2.54mm pitch (TTL level), suitable for attachment of MEN SA-series PHY interface modules via flat cable assembly; remove jumper J-COM when using P-SA
P-GPIO	General Purpose I/O lines, pin header 2.54mm pitch (TTL level)
P-PS2	Keyboard & Mouse signals according to the PS/2 standard, but pin header 2.54mm pitch instead of Mini-DIN; a custom specific mezzanine adapter board together with a custom specific 8HP back panel would be required in addition for legacy style attachment of PS/2 type keyboard & mouse
P-POW	+5V Power connector (floppy disk style 4-position connector), can help supplying +5V power to the USB connectors
SATA0, SATA1	Dual Serial ATA connectors for internal system strapping
USB	Universal Serial Bus receptacle, for system internal usage, USB2.0

With the exception of J2, all on-board connectors are provided as an option. Be sure to discuss your actual needs with EKF when ordering the CCT-RIO.

On-Board Jumper

J-COM	When set, J-COM enables the on-board RS-232E transceiver (header P-232 in use) When removed, J-COM disables the on-board RS-232E transceiver (either header P-CU or P-SA in use)
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Back Panel Connectors (4HP)

eSATA	External SATA shielded connector for external attachment of a Serial ATA disk drive, requires suitable shielded eSATA cable (available as accessory)
GE	Gigabit Ethernet RJ-45 connector with integrated magnetics (signal LEDs not in use)
USB	Two independent USB A-style connectors, USB 2.0/1.1 interface, electronic over-current protection, max. current 2 x 0.5A
VGA	Video graphics output, 15-pos. high density D-SUB female connector

Additional Custom Specific Back Panel Connectors (8HP Option)

COM	9-pin male D-Sub connector, RS-232E serial interface
KB or KB/MS	PS/2 style (Mini-DIN) legacy connector; in addition to its native signals the connector KB (keyboard) can incorporate also mouse clock and data signals on the remaining free pins in order to allow attachment of both, KB and MS (mouse) across an external splitter cable (available as accessory)
MS	PS/2 style (Mini-DIN) legacy connector, for attachment of a mouse or other pointing device.

Installing and Replacing Components

Before You Begin

Warnings

The procedures in this chapter assume familiarity with the general terminology associated with industrial electronics and with safety practices and regulatory compliance required for using and modifying electronic equipment. source and from any telecommunication performing any of the procedures disconnect power, or telecommunication perform any procedures can result in Some parts of the system can continue to operate even though the power switch is in its off state.



Disconnect the system from its power links, networks or modems before described in this chapter. Failure to links before you open the system or personal injury or equipment damage.

Caution

Electrostatic discharge (ESD) can damage components. Perform the procedures described in this chapter only at an ESD workstation. If provide some ESD protection by wearing to a metal part of the system chassis or in its original ESD protected packaging. bag and antistatic box) in case of returning the board to EKF for repair.




such a station is not available, you can an antistatic wrist strap and attaching it board front panel. Store the board only Retain the original packaging (antistatic

Installing the Board

Warning

This procedure should be done only by qualified technical personnel. Disconnect the system from its power source before doing the procedures described here. Failure to disconnect power, or telecommunication links before you open the system or perform any procedures can result in personal injury or equipment damage.

Typically you will perform the following steps:

- Switch off the system, remove the AC power cord
- Attach your antistatic wrist strap to a metallic part of the system 
- Remove the board packaging, be sure to touch the board only at the front panel
- Identify the related CompactPCI slot (peripheral slot for I/O boards, system slot for CPU boards, with the system slot typically most right or most left to the backplane)
- Insert card carefully (be sure not to damage components mounted on the bottom side of the board by scratching neighbored front panels)
- A card with onboard connectors requires attachment of associated cabling now
- Lock the ejector lever, fix screws at the front panel (top/bottom)
- Retain original packaging in case of return

Removing the Board

Warning

This procedure should be done only by qualified technical personnel. Disconnect the system from its power source before doing the procedures described here. Failure to disconnect power, or telecommunication links before you open the system or perform any procedures can result in personal injury or equipment damage.

Typically you will perform the following steps:

- Switch off the system, remove the AC power cord
- Attach your antistatic wrist strap to a metallic part of the system
- Identify the board, be sure to touch the board only at the front panel
- unfasten both front panel screws (top/bottom), unlock the ejector lever
- Remove any onboard cabling assembly
- Activate the ejector lever
- Remove the card carefully (be sure not to damage components mounted on the bottom side of the board by scratching neighbored front panels)
- Store board in the original packaging, do not touch any components, hold the board at the front panel only



Warning

Do not expose the card to fire. Battery cells and other components could explode and cause personal injury.



EMC Recommendations



In order to comply with the CE regulations for EMC, it is mandatory to observe the following rules:

- The chassis or rack including other boards in use must be entirely compliant with CE
- Close all board slots not in use with a blind front panel
- Front panels must be fastened by built-in screws
- Cover any unused front panel mounted connector with a shielding cap
- External communications cable assemblies must be shielded (shield connected only at one end of the cable)
- Use ferrite beads for cabling wherever appropriate
- Some connectors may require additional isolating parts (e.g. 10Base-2 BNC T-connector)

Reccomended Accessories

Blind CPCI Front Panels	EKF Elektronik	Widths currently available (1HP=5.08mm): with handle 4HP/8HP without handle 2HP/4HP/8HP/10HP/12HP
Ferrit Bead Filters	ARP Datacom, 63115 Dietzenbach	Ordering No. 102 820 (cable diameter 6.5mm) 102 821 (cable diameter 10.0mm) 102 822 (cable diameter 13.0mm)
Metal Shielding Caps	Conec-Polytronic, 59557 Lippstadt	Ordering No. CDFA 09 165 X 13129 X (DB9) CDSFA 15 165 X 12979 X (DB15) CDSFA 25 165 X 12989 X (DB25)

Technical Reference

Caution

Some of the connectors may provide operating voltage (e.g. 5V) to devices inside the system chassis, such as internal drives. Not all of these connectors are overcurrent protected. Do not use these connectors for powering devices external to the computer chassis. A fault in the load presented by the external devices could cause damage to the board, the interconnecting cable and the external devices themselves.

General Considerations

Utilization of the CCT-RIO rear I/O transition module is bound to several preconditions, which must be completely satisfied.

- ▶ The CCD CPU card by default is suitable for a 64-bit CompactPCI backplane. However, the J2/P2 pin assignments of a 64-bit CPCI backplane differ substantially from a CompactPCI rear I/O backplane. Hence [usage of the rear I/O features is available only as stuffing options on the CCD CPU board, which have to be ordered explicitly](#). Pull-up resistor networks on the CPCI address/data lines AD33-AD63 and associated control signals must be removed, and pass-through resistor networks for the required rear I/O signals have to be filled on the CCD. Neither can these modifications be made afterwards on a CCD 64-bit J2 CPU board by the user, nor by EKF, due to the technical effort needed and costs incurred.
- ▶ [The system in use must be equipped with a P2 CompactPCI rear I/O backplane](#). If the system is provided with a P2 CompactPCI 64-bit backplane instead, several of the CCD rear I/O signals will collide with the 64-bit address/data lines on the backplane, with unpredictable results regarding the rear I/O signal integrity.

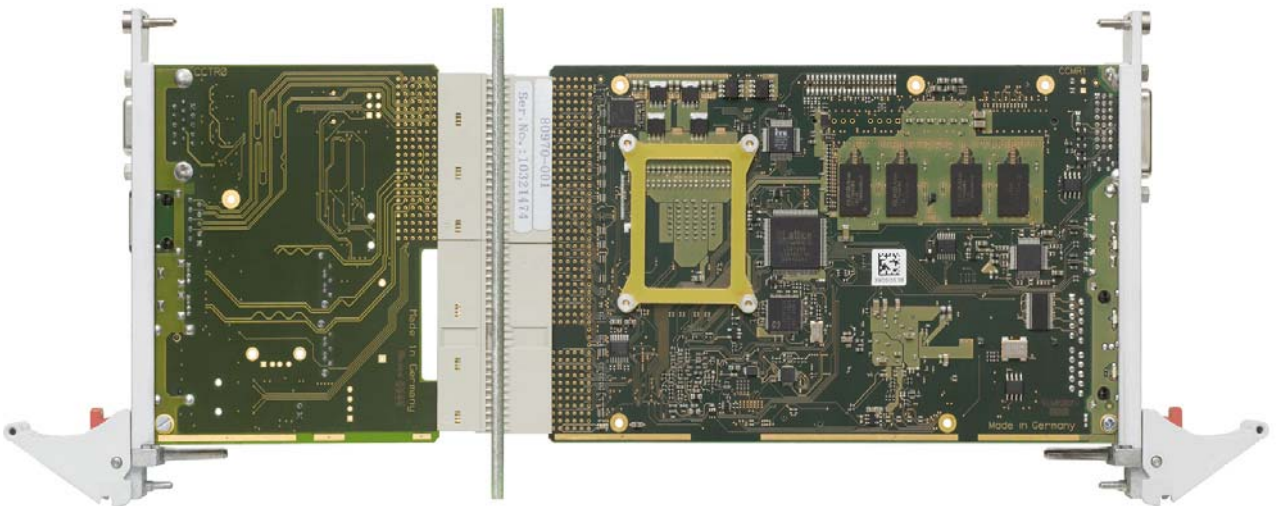


Single Slot Rear-I/O Backplane
EKF Part No. 932.4.01.080

Please note, that EKF is not only a manufacturer of boards, but also has many years of experience as a system integrator. Please contact sales@ekf.de for a quote on the complete system, tailored to your individual needs.



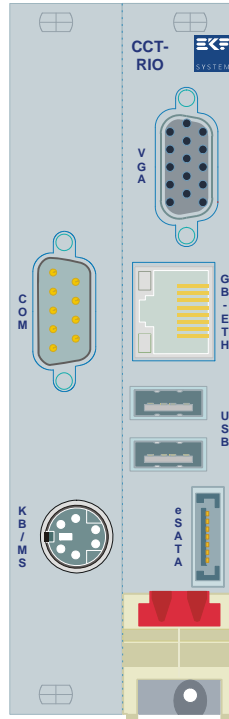
CCM-BOOGIE with CCT-RIO Top View



CCM-BOOGIE with CCT-RIO Bottom View

Back Panel Connectors

The CCT-RIO is provided with a 3U/4HP rear panel, which contains an eSATA (External Serial ATA) connector, two USB receptacles, the video connector, and the Ethernet RJ45 jack. In addition, with a custom specific 8HP back panel one ore two PS/2 mini-DIN connectors (keyboard and mouse) and a serial COM port D-SUB connector can be stuffed. Characteristic features and the pin assignments of each connector are described on the following pages.

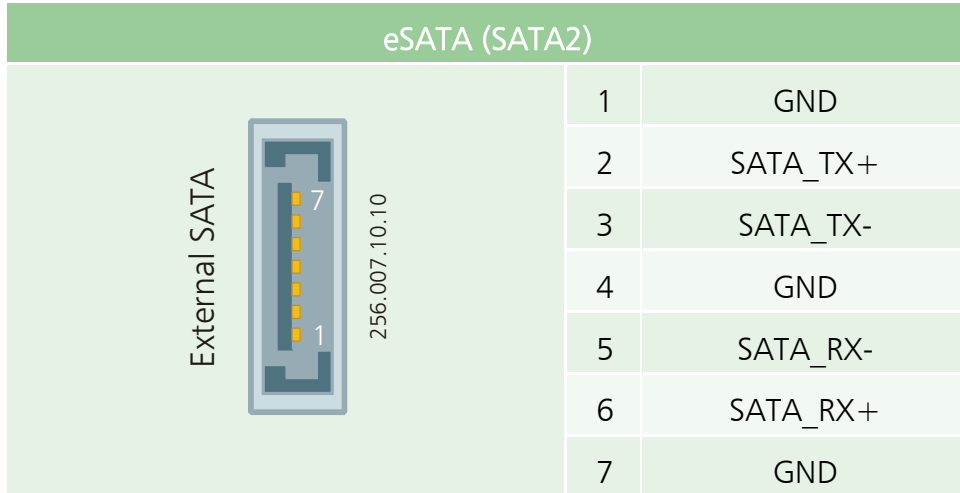


CCT-RIO 4/8HP



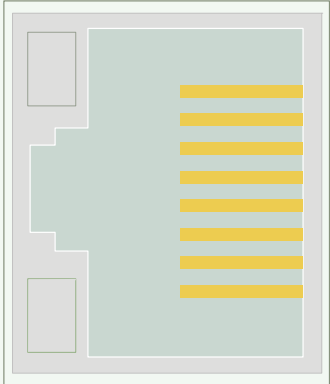
eSATA External Serial ATA

The CCT-RIO back panel is equipped with an eSATA connector, suitable for attachment of an external SATA device. The eSATA connector differs slightly from the standard (internal) SATA connector in order to provide better shielding, and likewise requires a shielded eSATA cable assembly. Available as accessory from computer stores or EKF are eSATA cable harnesses, either with dual eSATA connectors on both cable endings, or eSATA to SATA adapter cables. The typical external SATA cable length is either 1m or 2m (3ft or 6ft).



GE Gigabit Ethernet

The CCD-CALYPSO is equipped with a Gigabit Ethernet controller. An electronic switch allows usage of the Ethernet communications port either from the CCD front panel, or via the CCT-RIO rear panel.

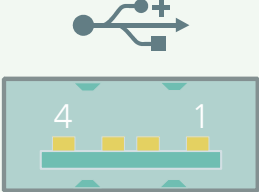
GE (RJ45)		
	1	MDX0+
	2	MDX0-
	3	MDX1+
	4	MDX2+
	5	MDX2-
	6	MDX1-
	7	MDX3+
	8	MDX3-

The back panel RJ45 jack may provide internal LEDs. These LEDs are not wired by default and therefore do not signal any Ethernet status. Instead, status information such as link/speed/activity can be observed from the CCD-CALYPSO front panel Ethernet jack.

As a custom specific stuffing option, SATA activity can be displayed through the lower LED in the Ethernet jack. This is not a standard feature in order to avoid any confusion.

Double USB

The rear I/O USB ports on the CCT-RIO transition module are independent from the CCD-CALYPSO CPU front panel USB interfaces, thus increasing the overall USB bandwidth available. The connectors can source up to 500mA into external devices and are protected by an electronic switch. The USB interfaces comply to the USB1.1 and USB2.0 specification.

2 x USB		
 <p>270.20.04.1</p>	1	+5V/0.5A
	2	DATA-
	3	DATA+
	4	GND

VGA Video

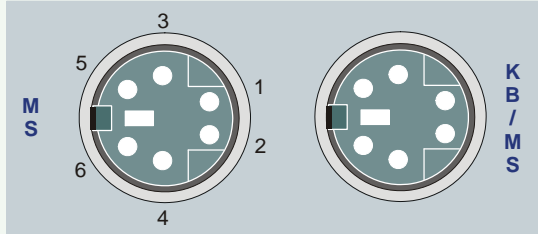
Alternatively, either the CCD-CALYPSO front panel DVI-I connector (integrated digital & analog video interface) may be used for attachment of a flat panel display or classic monitor, or the CCT-RIO back panel VGA socket (high density D-Sub 15-position, analog signals only). Electronic switches are provided on the CCD-CALYPSO to route the video signals to their required destination.

VGA Video Connector HD-DSUB15		
<p>261.51.015.02</p>	1	red
	2	green
	3	blue
	4	nc
	5	GND
	6	GND
	7	GND
	8	GND
	9	+5V/0.5A
	10	GND
	11	nc
	12	DDC Data
	13	Hsync
	14	Vsync
	15	DDC Clock

The DDC power on pin 9 is current limited by a PolySwitch to 0.5A.

Keyboard, Mouse (Custom Specific 8-HP Back Panel Only)

The CCT-RIO rear I/O transition module is provided with a 4-HP rear panel. As a custom specific solution, also an 8-HP back panel can be designed by EKF with additional cutouts for legacy keyboard and mouse connectors and a serial interface connector. In addition, a custom specific mezzanine PCB is required that fits onto the P-PS2 on-board header and accommodates the Mini-DIN and other 8-HP back panel connectors.

PS/2 KB/MS, MS (Option 8HP Rear Panel)			
		Mouse	Keyboard/Mouse
		DAT MS	1
	2	<i>DAT MS</i>	
GND	3	GND	
5V	4	5V	
CLK MS	5	CLK KB	
	6	<i>CLK MS</i>	

Normally a single PS/2 Mini-DIN connector would be sufficient, which provides both the keyboard and also the mouse signals. While a keyboard can be connected to the KB/MS socket directly, attachment of a keyboard and a mouse requires a suitable splitter cable. The splitter is available as notebook computer accessory either from EKF or computer stores. The most commonly available splitter cables are wired such that the mouse and keyboard function with respect to the CCT-RIO are swapped against each other. When using this type of splitter adapters, the mouse has to be connected to the splitter end marked as keyboard, and the keyboard must be attached to the splitter end labelled with the mouse symbol. Please note, that there are also splitter cables available with the opposite wiring schema (the correct order from the CCT-RIOs point of view). It would also be possible to have an additional PS/2 style connector in the back panel for direct attachment of a mouse. No splitter adapter cable is then required.

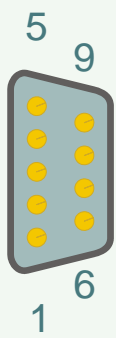
The 5V pins of both connectors (pin 4) are protected against short-circuit situations by a Polyswitch resettable fuse.

In order to get the PS/2 ports working, the CCD-CALYPSO on-board SIO must be active. Enter the CCD BIOS setup for checking the status.

Serial COM Port (Custom Specific 8HP Back Panel Only)

There is no space left on a 4-HP back panel for an asynchronous serial interface connector. However, when a custom specific 8-HP rear panel would be used, a cutout can be provided to accommodate a 9-pin D-Sub connector.

The CCD-CALYPSO CPU board passes over its SIO (Super-I/O) serial interface to the CCT-RIO transition module as TTL level signals. For an RS-232E compatible serial port, the CCT-RIO is stuffed with an optional on-board RS-232 transceiver (ADM211E). A short flat cable assembly would be needed, matching the on-board connector P-232 (dual-row pin header 2x5, 2.54mm pitch), with the D-Sub IDC connector attached to the opposite cable ending. Alternatively, a mezzanine PCB can be designed that fits on the P-232 header and accommodates the D-Sub and other 8-HP rear panel connectors such as PS/2 Mini-DIN.

COM (Male D-Sub 9)				
			1	DCD
	DSR	6		
			2	RXD
	RTS	7		
			3	TXD
	CTS	8		
			4	DTR
	+5V/0.5A	9		
			5	GND

The on-board transceiver can be disabled by means of a jumper. Observe that the jumper J-COM is set in order to use the on-board RS-232E interface. However, there is the choice to attach an external transceiver, e.g. an optically isolated RS-485 module. If an external PHY is required, the on-board transceiver must be shut down by removing the jumper J-COM.

For serial I/O, the CCD-CALYPSO on-board SIO must be active. Enter the CCD BIOS setup to check the status.

The modem signal RI (ring indicator) is not supported on the CCT transition module. As an option, the CCT can be stuffed suitable to deliver +5V power to pin 9 of the D-SUB connector.

The optional dual-row pin headers P-CU and P-SA may be used for attachment of a suitable PHY module, either from the EKF CU-series or MEN SA-series, via flat cable assembly. The PHY module itself can be fixed at the D-Sub 8-HP back panel cutout.

On-Board Connectors

The CCT-RIO transition module may be equipped with several on-board connectors for system internal usage. Be sure to specify your individual needs when ordering the CCT board. The on-board connectors optionally available are:

- ▶ P-232 Serial interface (EIA-232E level) 2 x 5 positions 2.54mm pin header
- ▶ P-CU Serial interface (TTL level) 2 x 5 positions 2.00mm pin header suitable for CU-series PHY-modules
- ▶ P-SA Serial interface (TTL level) 2 x 5 positions 2.54mm pin header suitable for SA-series PHY-modules
- ▶ P-GPIO GPIO connector 2 x 5 positions 2.54mm header
- ▶ P-POW External +5V power connector 1 x 4 positions 2.50mm floppy disk style
- ▶ SATA0/1 Double Serial ATA connectors
- ▶ J2 CompactPCI

P-232 Serial Interface Connector

The on-board EIA-232E asynchronous serial transceiver ADM211E is wired to the dual row pin header P-232. When using a micro ribbon flat cable assembly with an IDC 9-pin D-Sub connector, the signal order matches a legacy PC COM port. When a custom specific 8-HP back panel comes into consideration, the D-Sub connector can be mounted into a suitable panel cutout. As an alternative to the flat cable harness, EKF can design a custom specific mezzanine PCB that accommodates the D-Sub and other potential back panel connectors.

P-232 (Dual-Row Pin-Header 2.54mm)				
	DCD	1	2	DSR
	RXD	3	4	RTS
	TXD	5	6	CTS
	DTR	7	8	+5V/0.5A
	GND	9	10	NC

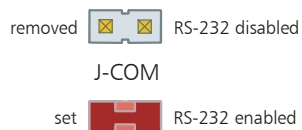
The jumper J-COM must be stuffed in order to enable the ADM211E transceiver.

However, if an external PHY transceiver (CU- or SA-module) is attached to P-CU or P-SA, the on-board transceiver must not be active (remove jumper J-COM). No more than a single transceiver is allowed to be in use, either attached to P-CU, P-SA or the on-board transceiver.

As a stuffing option, P-232 may source +5V/0.5A (fused by PolySwitch) to an external device. By default, this pin is left unconnected. The signal RI (ring indicator) is not supported by the CCT-RIO.

For serial I/O, the CCD-CALYPSO on-board SIO must be active. Enter the CCD BIOS setup to check the status.

EIA-232E Level Signals

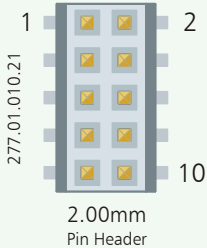


Set J-COM to enable the on-board transceiver when using P-232

P-CU Serial Interface Connector

If the on-board RS-232E transceiver ADM211E is either not stuffed or disabled by removing the jumper J-COM, alternatively external PHY modules can be attached to the CCT-RIO by means of a flat ribbon cable. The signal RI (ring indicator) is not supported by the CCT-RIO.

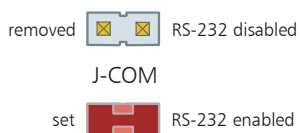
The rear I/O transition module is equipped with the header P-CU, suitable for the EKF CU7/CU8 series of PHY modules. The CU7-RS485 is an isolated fieldbus interface, available either for party-line configuration or full-duplex point-to-point.

P-CU Serial I/O CU-Module Standard 2.00mm Pin Header 2 x 5				
	+5V 0.5A	1	2	DSR
	NC (RI)	3	4	RXD
	TXD	5	6	DTR1
	RTS	7	8	CTS1
	DCD	9	10	GND

Another header P-SA may be provided on the CCT-RIO which complies with the MEN SA-series of PHY modules. No more than one transceiver is allowed to be in use, either P-CU, P-SA or the on-board transceiver.

For serial I/O, the CCD-CALYPSO on-board SIO must be active. Enter the CCD BIOS setup to check the status.

TTL Level Signals

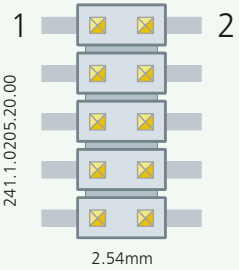


Remove J-COM to disable the on-board transceiver when using P-CU

P-SA Serial Interface Connector

If the on-board RS-232E transceiver ADM211E is either not stuffed or disabled by removing the jumper J-COM, alternatively external PHY modules can be attached to the CCT-RIO by means of a flat ribbon cable. The signal RI (ring indicator) is not supported by the CCT-RIO.

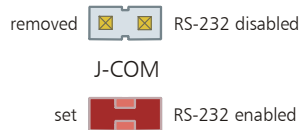
The rear I/O transition module may be equipped with the header P-SA, suitable for the MEN SA-series of PHY modules.

P-SA Serial I/O SA-Module Standard 2.54mm Pin Header 2 x 5				
	GND	1	2	+5V 0.5A
	TXD	3	4	RXD
	DTR	5	6	RTS
	DSR	7	8	CTS
	DCD	9	10	NC (RI)

Another header P-CU may be provided on the CCT-RIO which complies with the EKF CU-series of PHY modules. However, no more than one transceiver is allowed to be in use, either P-CU, P-SA or the on-board transceiver.

For serial I/O, the CCD-CALYPSO on-board SIO must be active. Enter the CCD BIOS setup to check the status.

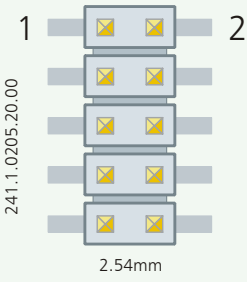
TTL Level Signals



Remove J-COM to disable the on-board transceiver when using P-SA

GPIO Connector P-GPIO

The connector P-GPIO is provided as a CCT-RIO stuffing option on special request only, since the related pins on the CPCI J2 connector are normally used as signals to the VGA video connector. Only if rear I/O video is not required, the CCT-RIO board may be equipped with the connector P-GPIO. Please refer to the CCD-CALYPSO user manual for a description of the rear I/O GPIO signals actually available.

P-GPIO 2.54mm Header 2 x 5				
	PXI Trig 0 *	1	2	PXI Trig 7 *
	PXI Trig 1	3	4	PXI Trig 6 *
	NC	5	6	NC
	NC	7	8	NC
	NC	9	10	GND

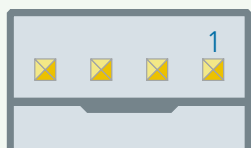
* Dual function signals - normally used for rear I/O video output

Please note: In order to use the connector P-GPIO on the CCT-RIO, also a special stuffing option of the CCD-CALYPSO is required (otherwise you will receive video signals on P-GPIO instead of the expected GPIO lines). Please discuss your needs with EKF before ordering your CCD/CCT board set!

Power Connector P-POW

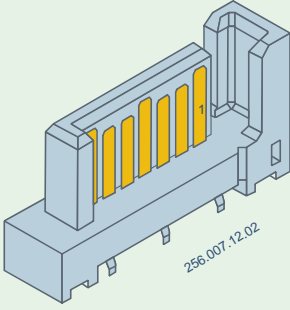
The CCT rear I/O transition module can be supplied with +5V across the J2 connector from the CCD-CALYPSO CPU board. +5V would be required for the CCT-RIO on-board RS-232E transceiver, and for such USB devices attached that are powered immediately from the USB connectors. In addition, the P-232, P-CU and P-SA headers may source +5V to the attached circuitry. When used, also the P-PS2 header passes directly power to the keyboard and mouse. The maximum current from the CCD-CALYPSO to the CCT-RIO across J2 is limited to 2.5A (PolySwitch fused).

With the optional connector P-POW, the systems power supply can be redundantly connected to the CCT-RIO transition module, up to a maximum of 2.5A @5V (PolySwitch fused). Likewise the power lines of the CCD-CALYPSO CPU board are relieved. The connector is an AMP EI series 4-position header, being very popular since it has been used also on 3.5-inch floppy disk drives.

P-POW 4-Position Horizontal Header		
	1	+5V/2.5A
	2	GND
	3	GND
	4	NC

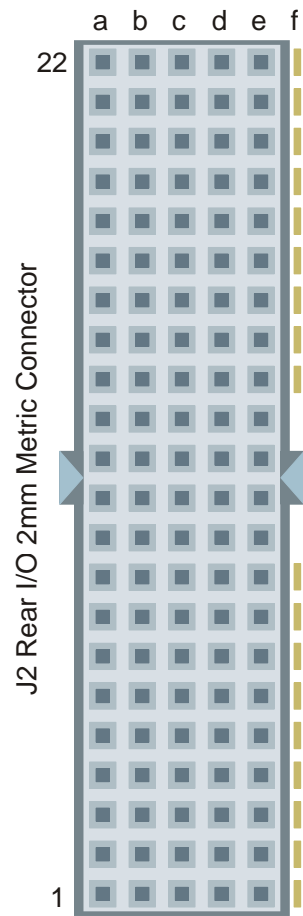
SATA Connectors

The CCT-RIO is provided with two SATA connectors (SATA0/1) for attachment of Serial ATA drives. Standard SATA cables for system internal strapping can be used. Right angled SATA connectors at the CCT side could be helpful in saving space.

SATA0 - SATA1 (on-Board Internal)		
	1	GND
	2	SATA_TX+
	3	SATA_TX-
	4	GND
	5	SATA_RX-
	6	SATA_RX+
	7	GND

In addition, the CCT-RIO is equipped with an eSATA back panel connector for an external SATA device.

CompactPCI J2



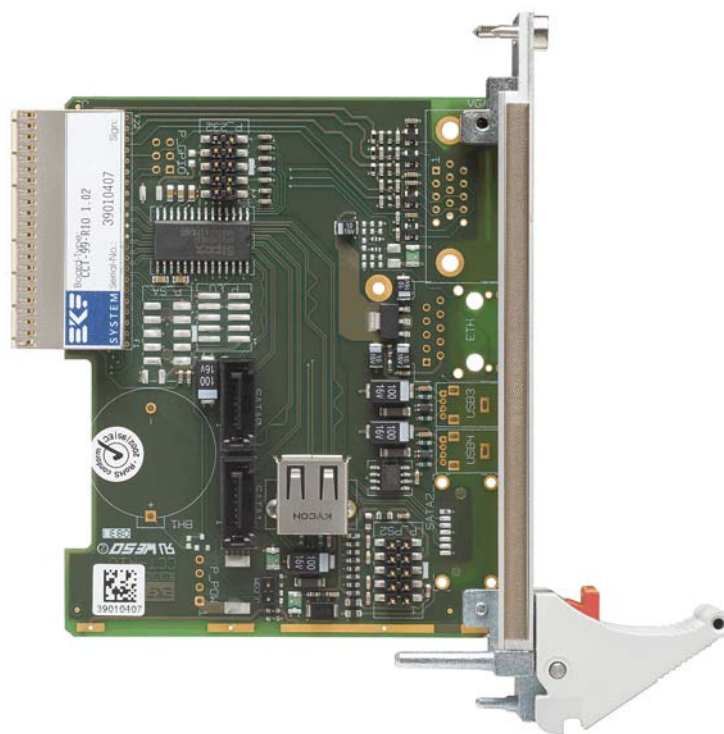
Column f is used for shielding

#J2	A	B	C	D	E
22	GA4	GA3	GA2	GA1	GA0
21	CLK6	GND	<i>RSV</i> ETH_MX2-	<i>RSV</i> ETH_MX3-	<i>RSV</i> ETH_MX3+
20	CLK5	GND	<i>RSV</i> ETH_MX2+	<i>GND</i> GND	<i>RSV</i> ETH_MX0+
19	GND	GND	<i>RSV</i> ETH_MX1-	<i>RSV</i> ETH_MX1+	<i>RSV</i> ETH_MX0-
18	<i>BRSVP2A18</i> VGA_RED	<i>BRSVP2B18</i> VGA_GREEN	<i>BRSVP2C18</i> VGA_HSYNC	GND	<i>BRSVP2E18</i> PXI_TRIG6 VGA_VSYNC
17	<i>BRSVP2A17</i> VGA_BLUE	GND	PRST#	REQ6#	GNT6#
16	<i>BRSVP2A16</i> PXI_TRIG1 +VCCRTC	<i>BRSVP2B16</i> PXI_TRIG0 DDC_SCL	DEG#	GND	<i>BRSVP2E16</i> PXI_TRIG7 DDC_SDA
15	<i>BRSVP2A15</i>	GND	FAL#	REQ5#	GNT5#
14	<i>AD35</i> SATA2_RN	<i>AD34</i> SATA2_RP	<i>AD33</i> SATA_ACT#	GND	<i>AD32</i> GND
13	<i>AD38</i> GND	GND	V(I/O)	<i>AD37</i> SATA2_TP	<i>AD36</i> SATA2_TN
12	<i>AD42</i> SATA1_RN	<i>AD41</i> SATA1_RP	<i>AD40</i>	GND	<i>AD39</i> GND
11	<i>AD45</i> GND	GND	V(I/O)	<i>AD44</i> SATA1_TP	<i>AD43</i> SATA1_TN
10	<i>AD49</i> SATA0_RN	<i>AD48</i> SATA0_RP	<i>AD47</i>	GND	<i>AD46</i> GND
9	<i>AD52</i> GND	GND	V(I/O)	<i>AD51</i> USB_7+	<i>AD50</i> USB_7-
8	<i>AD56</i> SATA0_TN	<i>AD55</i> SATA0_TP	<i>AD54</i> GND	GND COM1_DSR#	<i>AD53</i> COM1_TXD
7	<i>AD59</i> COM1_DTR#	GND COM1_CTS#	V(I/O) COM1_RXD	<i>AD58</i> COM1_RTS#	<i>AD57</i> COM1_DCD#
6	<i>AD63</i> USB_3+	<i>AD62</i> USB_3-	<i>AD61</i> USB_4+	GND USB_OC34#	<i>AD60</i> USB_4-
5	<i>C/BE5#</i> +5V HOST (1.5A)	GND (64EN#) GND	V(I/O)	<i>C/BE4#</i> MS_DATA	<i>PAR64</i> MS_CLK
4	V(I/O)	<i>BRSVP2B4</i> +5V HOST (1.5A)	<i>C/BE7#</i> KB_DATA	GND	<i>C/BE6#</i> KB_CLK
3	CLK4	GND	GNT3#	REQ4#	GNT4#
2	CLK2	CLK3	SYSEN#	GNT2#	REQ3#
1	CLK1	GND	REQ1#	GNT1#	REQ2#

Black = System Slot Rear I/O Backplane Signals *Gray/Italic* = System Slot 64-bit Backplane Signals Coloured = EKF Proprietary Rear I/O

Custom Specific RIO

EKF offers custom specific development of rear I/O transition modules. As an example, have a look on the CCT-99-RIO, which is a board for system internal attachment of devices (back panel closed).



Schematics

Complete circuit diagrams for this product are available for customers on request. Signing of a non-disclosure agreement would be needed. Please contact sales@ekf.de for details.

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