EKF

SYSTEM

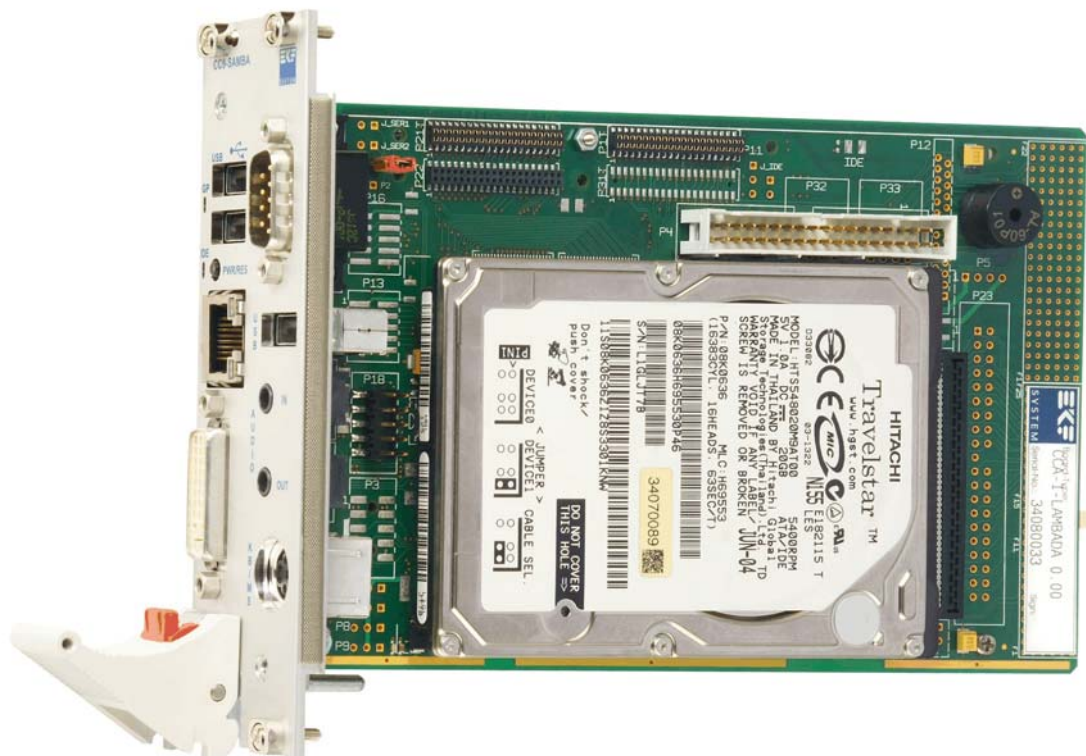# Technical Information

CCA-LAMBADA • I/O Companion Board

Document No. 3424 • Edition 8

2008-11

Contents

About this Manual

This manual is a short form description of the technical aspects of the CCA-LAMBADA, 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 # 3424 cca_tie.wpd	1	Technical Information CCA-LAMBADA English, Preliminary Edition	jj	24 March 2004
	2	Added block diagram CCZ-RIO	jj	7 May 2004
	3	Ed. 3 reflects board rev. 0 available: Added connector assembly drawing Changed table feature summary Removed connector tables P14 P15 P17 P19 P25 Changed connector function P10 Changed block diagram sht. 1-2	jj	19 August 2004
	4	Changed illustration CCA front panel	jj	24 August 2004
	5	Added images CCA/CC9 left/right mounted	jj	25 October 2004
	6	Added ordering numbers for CC9-SAMBA top/bottom mounting (shared front panel 8HP)	jj	11 November 2004
	7	Added rows to table 'Feature Summary': - Typical power consumption - Environment conditions, shock, vibration		21 December 2004
	8	Added photos C10 C17 C30	jj	27 November 2008

CCA-LAMBADA Mounted on Top of the CPU Card, with 2.5-Inch Drive

CCA-LAMBADA Mounted on Bottom of the CPU Card

Related Documents

For a description of the CC9-SAMBA and CCD-CALYPSO (3U) or CD3-JIVE (6U) CPU cards, which act as LPC/AC'97 controllers and carrier boards with respect to the CCA-LAMBADA, please refer to the correspondent CPU user guide, available by download from e.g. http://www.ekf.de/c/ccpu/ccd/ccd_e.html, and http://www.ekf.de/c/ccpu/cd3/cd3_e.html respective.

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, Celeron: ® Intel
CompactPCI : ® PICMG
Windows 98, Windows NT, Windows 2000, Windows XP: ® Microsoft

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.

CCA-LAMBADA Features

Feature Summary	
Form Factor	Single size Eurocard (160x100mm^2), front panel width 4HP (20.3mm) or custom specific
LPC Super-I/O [3] (SIO2)	LPC47B27x, parallel port, 2 serial ports, floppy drive controller port, keyboard controller & mouse port, infrared port, MIDI/gameport, fan control ports, GPIOs, serial IRQs
Firmware Hub [3] (FWH2)	82802 compatible device, 8Mbit Flash, LPC interface
Audio Codec [3]	Analog Devices (SoundMAX) AD1985 AC'97 Audio Codec
Serial Transceivers [3]	ADM211 or equivalent
Front Panel Connectors [1]	• Mini-Din connector PS/2 keyboard & PS/2 mouse • RS-232E D-Sub COM port connector • USB connector • Stereo audio jacks line input/output (option mic input/HP output)
On-Board Connectors [1]	LPC/AC'97 Interface, IDE/ATA 40-pin header 2.54mm, IDE/ATA 44-pin header 2.00mm (2.5-inch hard disk), socket for CompactFlash mezzanine module, floppy disk header 34-pin 2.54mm, floppy disk 26-pos. ZIF socket, floppy disk power, USB receptacle, serial port RS-232 header, 2 x serial port TTL header (EKF CU-module), CD audio input header, telephony set header (option auxiliary audio input), socket for mezzanine audio module, 2 x fan heatsink header (pulse width modulation), 2 x fan heatsink header (tacho generator), MIDI header, GPIO, reset
Rear I/O Connectors [1]	• J1: IDE, PS/2 KB/MS, gameport, reset • J2: Serial1/COM1, Serial2/COM2, LPT, floppy disk, USB, GPIO, IRDA, MIDI, speaker, fan (suitable rear I/O module is CCZ-RIO)
On-Board Functions	Speaker, optional LEDs: IDE activity, GPIO21, GPIO22, GPIO43, GPIO60, GPIO61
Mass Storage Options [2]	• Hard disk drive 2.5-inch optional on-board • Mezzanine module with 1.8-inch hard disk drive • CompactFlash mezzanine module optional on-board
Typical Power Consumption	• +3.3V +0.17V/-0.1V 0.2A max. • +5V ± 5% 0.1A max. (w/o external devices [4])
Thermal Conditions	• Operating temperature: 0°C ... +70°C • Storage temperature: -20°C ... +85°C
Environmental Conditions	• Humidity 5% ... 95% non condensing • Altitude -300m ... +3000m
Shock	15g 0.33ms, 6g 6ms
Vibration	1g 5-2000Hz
MTBF	tbd h

[1] Not all of these connectors may be present or functional on your actual CCA-LAMBADA board. Assembly of these connectors is highly custom specific. Discuss your needs with EKF before ordering.

[2] Options may be exclusive, i.e. not necessarily concurrently present.

[3] Silicon/function may not be present on your actual CCA-LAMBADA board. Assembly of components is highly custom specific. Discuss your needs with EKF before ordering.

[4] Typical external devices are: hard disk drive 2.5-inch, hard disk 1.8-inch mezzanine module, or ATA CompactFlash mezzanine module. Ask EKF regarding additional current requirements.

Short Description

Available as a companion board to the CC9-SAMBA CPU card, the CCA-LAMBADA is provided with common legacy I/O ports. Interconnection between the CCA I/O module and the CPU carrier board is achieved by the expansion connector, which incorporates e.g. the LPC (Low Pin Count) and AC'97 (audio) interface.

As an option, the CCA-LAMBADA is available with a rugged on-board 2.5-inch hard disk drive (1.8-inch as a mezzanine module).

The CCA-LAMBADA can be attached either left or right (bottom or top) to the CPU board, and is provided typically with a 4HP front panel.

In addition to its front panel I/O connectors, the CCA-LAMBADA has been designed also for rear I/O and therefore requires a non-bussed single-slot P1/P2 backplane in addition to the CompactPCI bus. However, if front panel I/O is solely needed, the J1/J2 connectors may be omitted as an option.

CCA-LAMBADA mounted on bottom of the CC9-SAMBA

The CCA-LAMBADA communicates to the host CPU by means of the expansion connector, which incorporates the LPC and AC'97 interfaces. The LPC (Low Pin Count) is a multiplexed ISA bus, enabling the super-I/O controller chip to emulate the legacy I/O interfaces. Among these are parallel and serial ports, the PS/2 interfaces, and last not least the classic 1.4/2.8MB floppy disk controller.

The AC'97 interface is used for control of an optional audio codec on the CCA-LAMBADA.

By connecting the boards together, the hosts ATA/IDE secondary interface is also available on the CCA-LAMBADA. Optionally, the board can be equipped with either a CompactFlash mezzanine module, or a robust 2.5-inch hard disk drive, particularly suited for use in a rugged environment. A mezzanine module will be also available which carries an 1.8-inch drive, as an alternative.

The CCA-LAMBADA can be mounted either on the left (bottom) side of the CPU board, or right (top) side. Specify your actual needs when ordering the unit.

In addition to front panel I/O, some of the interfaces of the CCA-LAMBADA are available for rear I/O across the connectors J1/P1 and J2/P2. A suitable rear I/O transition module such as the CCZ-RIO would be required in addition to gain access to the I/O ports from the systems back panel.

Several I/O functions are also directly available by on-board headers on the CCA, mainly the IDE and FD interfaces. Most of the on-board connectors are only stuffed as an option, however.

If equipped with the rear I/O connectors J1/J2, the CCA-LAMBADA must be inserted on a slot outside of the CompactPCI backplane. A single slot rear I/O P1/P2 backplane should be present in the system rack at the CCA reserved slot. Most EKF systems have the CPCI busprint justified to the left margin of the 19-inch rack, with the system slot (CPU slot) orientated to the right end of the backplane. Following next to the right side, the CCA-LAMBADA should be placed in between the remaining free mounting space.

CCA/CC9 Ordering Information		
Alias	Ordering No.	Short Description
LAMBADA	CCA-1L-LAMBADA	1 = DVI L = Left: CCA mounted on bottom of the CC9-SAMBA (DVI-I version), 3U/8HP common front panel
LAMBADA	CCA-1R-LAMBADA	1 = DVI R = Right: CCA mounted on top of the CC9-SAMBA (DVI-I version), 3U/8HP common front panel
LAMBADA	CCA-2L-LAMBADA	2 = VGA L = Left: CCA mounted on bottom of the CC9-SAMBA (VGA version), 3U/8HP common front panel
LAMBADA	CCA-2R-LAMBADA	2 = VGA R = Right: CCA mounted on top of the CC9-SAMBA (VGA version), 3U/8HP common front panel

please request for custom specific solutions (sales@ekf.de)

Single-Slot Rear I/O Backplane

CPCI System Slot

P2 P2 P2 P2 P2 P2

CC9-SAMBA (CPU)

P2
IDE

P1
LPC

P1 P1 P1 P1

CCA-LAMBADA

J2

J1

© EKF

CCA-LAMBADA mounted on top of the CPU carrier board

Block Diagram CCA-LAMBADA

FWH2

82 802

J-FWH

Sheet 1/3
Super I/O

Top & Bottom

CC9-SAMBA
CD2-BEBOP

P1

LPC

Reset

GPIO

Spkr

AC'97

USB5/6

Expansion Connector LPC/AC'97

External Floppy Disk

P4/5   **P12**

34   26

SIO2 (Low Pin Count Super I/O)

FD

P6-P9   FAN

IRDA

P11   MIDI

P3   GPIO

LPT

Spkr

USB6

SER1
TTL

COM1
RS-232E

SER2
TTL

COM2
RS-232E

Rear I/O J2

IN
AUD
OUT

USB5

COM
COM1
RS-232E

KB MS

Front Panel I/O

P2

AC'97

Reset

Game

KB/MS

Sht.3

J1
Sht.2

P13

CU
Module

ADM 211
SD

J-SER1

P16

CU
Module

ADM 211
SD

J-SER2

P18

RS-232

Block Diagram CCA-LAMBADA
© EKF

Block Diagram
CCA-LAMBADA
© EKF

Sheet 2/3
IDE Storage Options

CC9-
SAMBA
CD2-
BEBOP

Expansion
Connector
S-IDE

P21

Top or
Bottom

P22

**C10-CFA
CompactFlash**

CFA

Optional CompactFlash
ATA Mezzanine Board

Bus
Switch

EN

J-IDE

KB/MS
Super I/O
Sheet 1

Game
Super I/O
Sheet 1

Rear I/O J1

Optional On-Board
1.8-Inch HD Module

+5V   **P10**   +3.3V

P23 (ext. IDE)

IDE
40/80
2.54mm

P24 (2.5-" HD)

**Optional On-Board
2.5-Inch
Hard Disk Drive**

IDE
44
2.00mm

IDE

Reset
P1
Sheet 1

LINE IN/
MIC IN

LINE OUT/
HP OUT

AUD

IN

OUT

P31

MIC1/2, LINE IN

5.1 OUT, SPDIF

AC '97

Codec

TELEPHONY/
AUX IN

CD IN

P32

P33

Mezzanine Connector
for C12-AUDIO Module
(8HP Front Panel Width)

USB

COM

**KB
MS**

Front Panel I/O

AC'97

Sht.1

Block Diagram
CCA-LAMBADA
© EKF

Sheet 3/3
AC'97 AUDIO

Block Diagram CCZ-RIO

Block Diagram
CCZ-RIO

© EKF

CC0-CHILLOUT
CCA-LAMBADA
Rear I/O Connector

J2 Rear I/O

GPIO (J2) — GPIO — GPIO (J1) — J1

Floppy Disk I/F — Floppy 34 — Floppy ZIF 26

RS-232-2 (COM2) — 232-2

Serial-2 (TTL) — CU-2 — SA-2 — Rear Panel COM2 Optional Flat Cable

RS-232-1 (COM1) — 232-1 — Rear Panel COM1 Optional Flat Cable

Serial-1 (TTL) — CU-1 — SA-1

USB

Speaker — SPKR

Parallel Printer — LPT

Fan Control, IRDA I/O — FAN IRDA

MIDI — GAME/MIDI

Game

Option 8HP Rear Panel I/O

4HP Rear Panel I/O

CC0-CHILLOUT
CCA-LAMBADA
Rear I/O Connector

J1 Rear I/O

Reset, Key Lock — RST/KL

Ethernet (available with CC0-CHILLOUT as an option)

PS/2 Keyboard/Mouse

DVI-I Digital & Analog Video (available with CC0-CHILLOUT as an option)

GPIO (J1)

GPIO Connector

IDE/ATA I/F (Secondary IDE) — IDE 40 — IDE 44

RS-232-2 (J2) Optional Flat Cable — COM2 — USB

ETH

MS — KB MS

VGA

RS-232-1 (J2) Optional Flat Cable — COM1 — DVI-I

PWR

+5V

Top View Component Assembly CCA-LAMBADA

On-Board Connectors

P1	Main (First) Expansion Interface Connector (socket, available from top or bottom of the PCB) • LPC Low Pin Count interface • AC'97 Audio Codec • USB (2) • GPIO, Speaker, Reset
P2	Reset (hardware reset to the host CPU, pin header)
P3	GPIO General Purpose Inputs/Outputs pin header
P4	Floppy disk header 34-pin
P5	Floppy disk power
P6..P9	Fan heatsink pin headers
P10	Power connector for optional 1.8-inch hard disk mezzanine module
P11	MIDI interface pin header
P12	Floppy disk header 26-pos. ZIF socket (slim-line drive)
P13	Serial port 1 (TTL level), pin header suitable for EKF CU-series PHY module
P16	Serial port 2 (TTL level), pin header suitable for EKF CU-series PHY module
P18	Serial port 2 (RS-232E level), pin header suitable for D-Sub 9 COM port connector
P21	Second Expansion Interface Connector (socket, available from top or bottom of the PCB) • Secondary IDE/ATA Interface
P22	Socket for C10-CFA CompactFlash adapter mezzanine module
P23	IDE 40-pin header for an external DVD drive or hard disk drive (3.5-inch), alternatively used together with P10 for an 1.8-inch hard disk mezzanine module
P24	IDE 44-pin header for an on-board hard disk drive (2.5-inch)
P31	Mezzanine connector for C12-AUDIO module (requires 8HP front panel width)
P32	Telephony connector, optionally audio auxiliary input
P33	CD audio input
J1	Rear I/O metric connector 5 x 25 brown key
J2	Rear I/O metric connector 5 x 22

Please note: Not all of these connectors may be present or functional on your actual CCA-LAMBADA board. Assembly of these connectors is highly custom specific. Discuss your needs with EKF before ordering.

Front Panel Connectors

AUDIO IN [1]	Analog audio stereo line input or mono/stereo microphone input
AUDIO OUT [1]	Analog audio stereo line output or stereo headphone output
COM [1]	RS-232 serial communications port (on-board SIO2 COM1)
KB/MS	PS/2 keyboard connector (PS/2 mouse with additional splitter cable)
USB	USB connector (CC9-SAMBA USB5 port)

[1]   Not all of these connectors may be present or functional on your actual CCA-LAMBADA board. Assembly of these connectors is highly custom specific. Discuss your needs with EKF before ordering.

Jumpers

J-FWH [2]	Determines if the optional on-board firmware hub is acting as boot BIOS (jumper set) or as secondary BIOS (jumper removed).
J-IDE	Enables IDE bus switches when set. Please note: In order to make use of either connector P23 (external IDE device), P24 (2.5-inch on-board hard disk) or rear I/O IDE across J1, the jumper J-IDE must be set. However, if neither P23..P24 nor J1 IDE is in use, J-IDE must be removed in order to avoid reflections on the IDE bus caused by tapped signal traces.
J-SER1 [2]	Enables the optional RS-232 transceiver (on-board SIO COM1) when set. If removed, the transceiver is in a high-impedance shutdown mode. J-SER1 must be set in order to make use of the front panel connector COM.
J-SER2 [2]	Enables the optional RS-232 transceiver (on-board SIO COM2) when set. If removed, the transceiver is in a high-impedance shutdown mode.

[2]   Not all of these jumpers may be present or functional on your actual CCA-LAMBADA board. Assembly of these jumpers is highly custom specific. Discuss your needs with EKF before ordering.

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. Disconnect the system from its power source and from any telecommunication links, networks or modems before performing any of the procedures described in this chapter. Failure to disconnect power, or telecommunication links before you open the system or perform any procedures can result in personal injury or equipment damage. Some parts of the system can continue to operate even though the power switch is in its off state.

Caution

Electrostatic discharge (ESD) can damage components. Perform the procedures described in this chapter only at an ESD workstation. If such a station is not available, you can provide some ESD protection by wearing an antistatic wrist strap and attaching it to a metal part of the system chassis or board front panel. Store the board only in its original ESD protected packaging. Retain the original packaging (antistatic bag and antistatic box) in case of returning the board to EKF for rapair.

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 neighboured 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 neighboured 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 comply entirely 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)
Isolating Elements	ARP Datacom, 63115 Dietzenbach	Ordering No. 182 068 (Cheapernet T-connector)
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 - Connectors

Caution

Some of the connectors provide operating voltage (e.g. 5V and 3.3V) to devices inside the system chassis, such as fans and internal peripherals. 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.

Please Note

The CCA-LAMBADA transition module may be equipped with several on-board connectors for system internal usage. Not all of these connectors may be present on a particular board. Be sure to specify your individual needs when ordering the CCA board. Characteristic features and the pin assignments of each connector are described on the following pages (connector designation in alphabetical order within the groups 'front panel connectors', 'on-board connectors', and 'rear I/O connectors').

Front Panel Connectors

By default, the CCA-LAMBADA shares an 8HP (~40.6mm) front panel with the CPU carrier board. If a mezzanine audio module is required on P31 (which would be allow for additional audio input/output jacks), the front panel width will be enlarged to 12HP in total (~60.9mm). Further more, custom specific front panel options are available on request.

As of current, suitable CPU cards for use together with the CCA-LAMBADA are the CC9-SAMBA and CD2-BEBOB. The basic version of the CCA-LAMBADA may be mounted either left or right (top or bottom) with respect to the CC9-SAMBA or another suitable CPU carrier board, which results in two different front panel versions for the CPU and the companion board (illustrated below is the top mounting situation). When the J1/J2 rear I/O connectors of the CCA-LAMBADA are stuffed, be sure to position the board outside of the CPCI main backplane (this slot can be either right or left from the CPU board, dependent of where the system controller slot is situated on the backplane - right most or left most). The 12HP front panel width requires the CCA-LAMBADA to be mounted on top of the CPU board (right from the CPU).
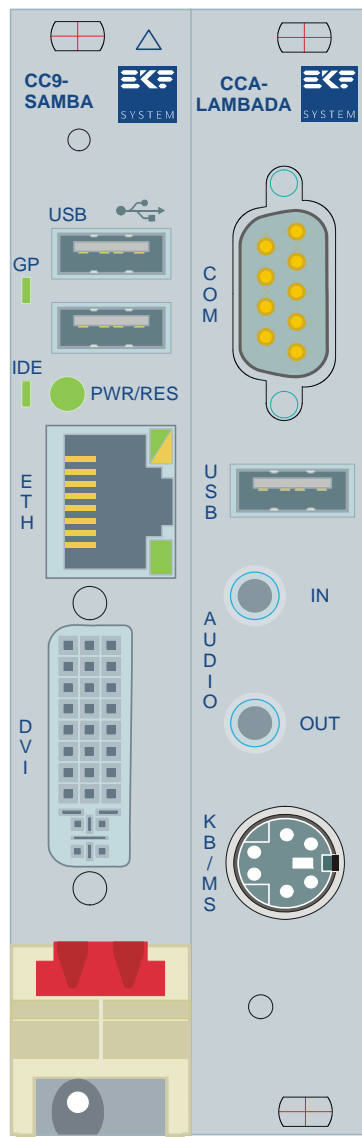
CCA-LAMBADA
(Mounting on top of CC9)

AUDIO IN Audio Jack

As an option, the CCA-LAMBADA may be equipped with an AC'97 Codec, which is controlled by the ICH (Input/Output Controller Hub) southbridge on the CPU board. A subset of the audio input functions of the Codec is available from the front panel audio input jack.

AUDIO IN Stereo Audio Jack 3.5mm Front Panel			
Line In			MIC In (Stuffing Option)
AGND	1		AGND
Line In Right	2		MIC In Right (Vref)
Jack Sense 2 [1]	3		Jack Sense 3 [1]
-	4		-
Line In Left	5		MIC in Left (MIC In Mono)

Stereo Audio Jack 3.5mm

[1]   Usage as an option only, circuitry not normally stuffed

By default, the input jack is dedicated to the AC'97 Codecs line input. As an alternative option, the CCA-LAMBADA can be stuffed for attachment of a mono- or stereo-microphone to the AUDIO IN jack. The Codec incorporates a software programmable gain microphone amplifier.

Typical Input Voltages	
Line Input Left/Right	1Vrms (2.83Vpp), 10kOhm
MIC In with 30dB Preamp	32mVrms (89mVpp)
MIC In with 20dB Preamp	100mVrms (283mVpp)
MIC In with 10dB Preamp	316mVrms (894mVpp)
MIC In with 0dB Preamp	1Vrms (2.83Vpp)

If larger input voltages must be processed, a divider circuitry can be stuffed as an option on the CCA-LAMBADA.

AUDIO OUT Audio Jack

As an option, the CCA-LAMBADA may be equipped with an AC'97 Codec, which is controlled by the ICH (Input/Output Controller Hub) southbridge on the CPU board. A subset of the audio output functions of the Codec is available from the front panel audio output jack.

AUDIO OUT Stereo Audio Jack 3.5mm Front Panel			
Line Out			HeadPhone (Option)
AGND		1	AGND
Line Out Right		2	Headphone Right
Jack Sense 0 [1]		3	Jack Sense 1 [1]
-		4	-
Line Out Left		5	Headphone Left

Stereo Audio Jack 3.5mm

[1]   Usage as an option only, circuitry not normally stuffed

By default, the output jack is dedicated to the AC'97 Codecs line output. As an alternative option, the CCA-LAMBADA can be stuffed for attachment of a headphone to the AUDIO OUT jack.

Typical Full-Scale Output Voltages		
Line Output Left/Right	1Vrms (2.83Vpp)	Load >2kOhm, <470pF
Headphone Output Left/Right	1Vrms (2.83Vpp)	Load >32Ohm, <470pF

COM Serial Port Connector

The on-board secondary Super-I/O (SIO) on the CCA-LAMBADA provides two asynchronous serial interfaces. Due to another (first) SIO typically available on the CC9-SAMBA host board, the serial interfaces are not necessarily dedicated to the COM1/COM2 ports of a typical PC. Verify or modify the accompanying CC9 BIOS settings for mapping of physical asynchronous serial I/O ports to the logical COM port order. Being ignorant of the actual port mapping, the serial port front panel connector is marked simply as COM.

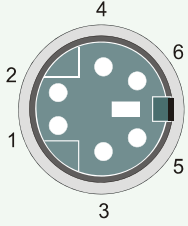| COM RS-232 Male D-Sub 9					
				1	DCD
	DSR	6			
				2	RXD
	RTS	7			
				3	TXD
	CTS	8			
				4	DTR
	RI	9			
				5	GND

The on-board ESD protected RS-232E transceivers on the CCA-LAMBADA allows a bitrate of up to 230kbps. In order to make use of the front panel connector COM, the jumper J-SER1 must be set, which enables the associated transceiver.

J-SER1(2)

removed ☒ ☒ shutdown

set ▮▮ enabled

RS-232E
Transceiver 1(2)
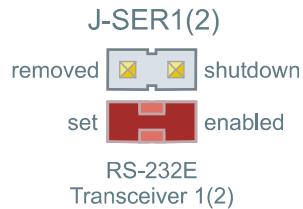
This COM port is alternatively also available via P15 for on-board usage and across J2 as rear I/O communications interface. Be sure not to attach peripherals on both line endings simultaneously, the front panel connector and the rear I/O connector, which would result in interfering data.

KB/MS PS/2 Keyboard & Mouse Connector

The PS/2 Mini-Din connector incorporates both inputs, keyboard and mouse. This method allows solely attachment of a PS/2 keyboard, or usage of a keyboard and a mouse by means of an additional splitter cable (available as accessory to notebook computers or from EKF).

PS/2 KB/MS Mini-Din 6-Position		
	1	DAT KB
	2	*DAT MS 2)*
	3	GND
	4	5V_KM 1)
	5	CLK KB
	6	*CLK MS 2)*
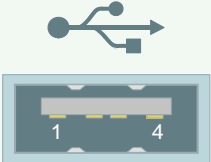
1) Fused by PolySwitch

2) Splitter cable required for attachment of both keyboard and mouse (EKF 280.7.400)

Please note: When using the splitter cable for simultaneous attachment of keyboard and mouse, the mouse connector must be plugged onto the receptacle marked as keyboard, and vice versa (this is true for the splitter cable part no. 280.7.400 by EKF).

USB Connector

The host CPU board CC9-SAMBA is equipped with an ICH4 (Input/Output Controller Hub), which incorporates six USB 1.1/2.0 ports. The ports 5 and 6 are routed across the LPC/AC'97 connector to the CCA-LAMBADA companion board. While USB port 6 is available for rear I/O on J2, port 5 is realized as a front panel connector.

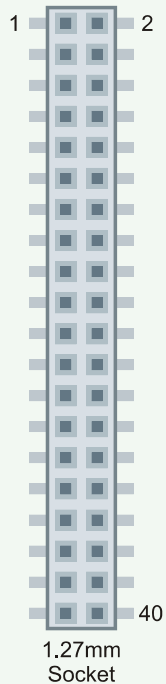| USB5 (Front Panel)		
1) Electronic Fuse	1	+5V_USB5 0.5A 1)
	2	DATA5-
	3	DATA5+
	4	GND

On-Board Connectors

The CCA-LAMBADA can be equipped with several on-board connectors. Some of these connectors are available as an option only or exclusive to each other, and therefore may not be present on your actual board.
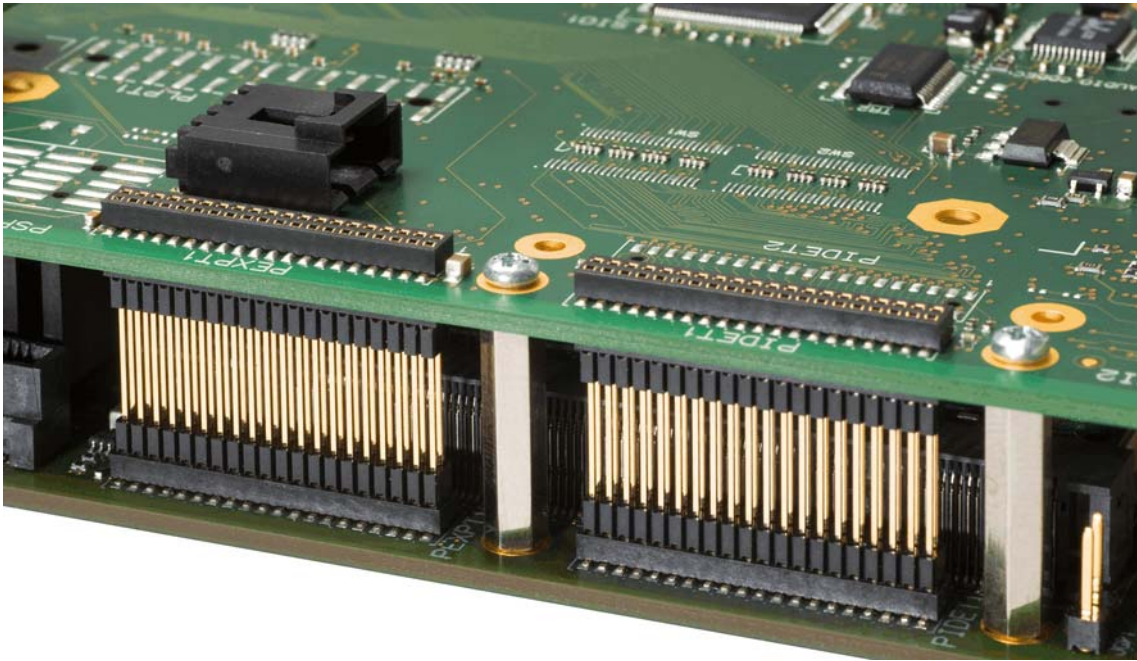
P1 Expansion Connector LPC/AC'97

The expansion connector P1 is mounted either on top, on bottom, or on both sides of the CCA-LAMBADA PCB. This allows to attach the CCA either on top (EKF standard) or on bottom of the CPU carrier board.
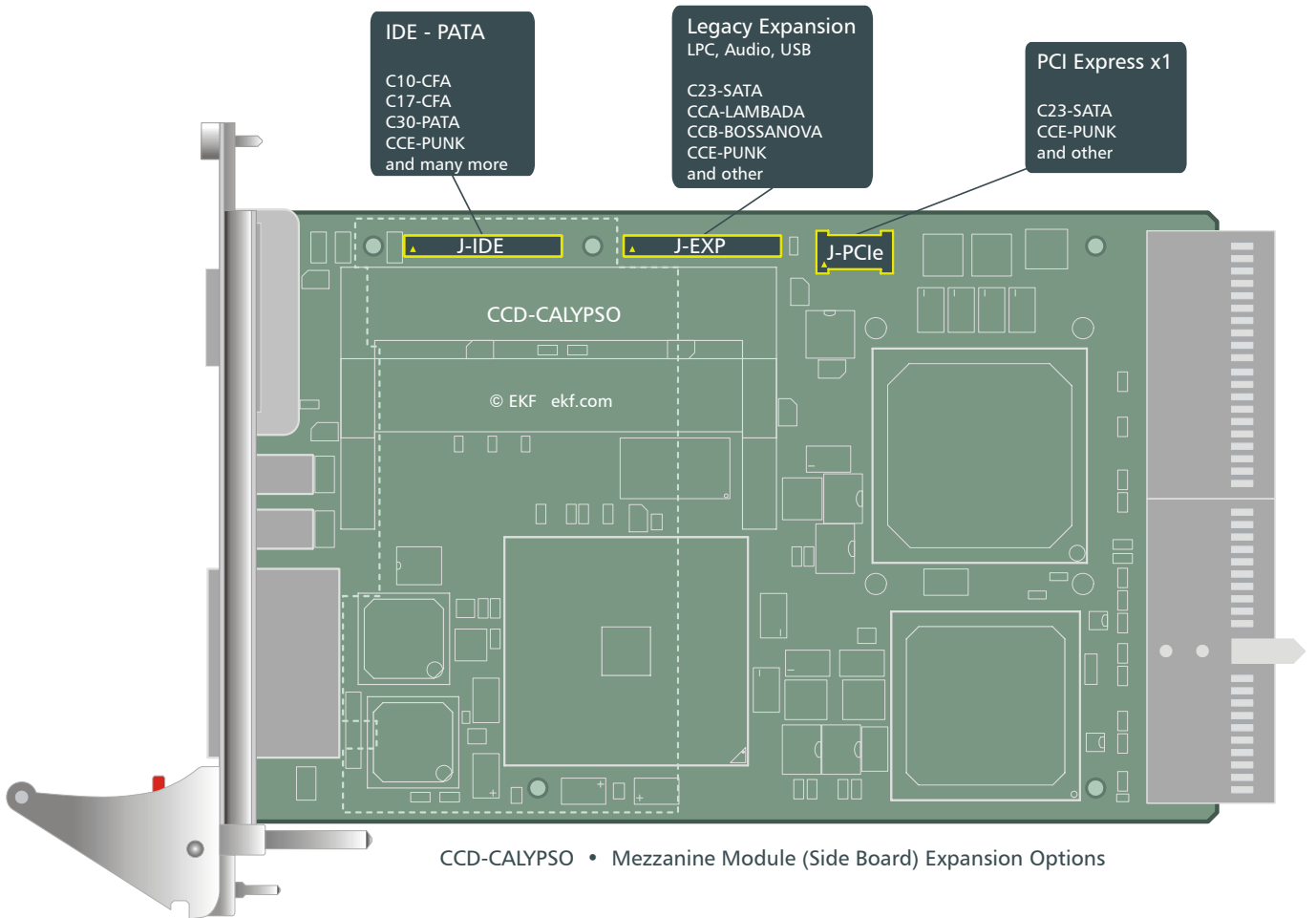
P1 (P1T/P1B) Expansion Board Interface (LPC/AC'97/USB/GPIO) 1.27mm Socket 2 x 20			
GND	1	2	+3.3V
pciclk	3	4	pcirst#
lad0	5	6	lad1
lad2	7	8	lad3
lframe	9	10	ldrq#
GND	11	12	+3.3V
serirq	13	14	lpme#
lsmi#	15	16	sio_clk14
fwhid0	17	18	fwhinit#
kbrst#	19	20	a20gate
GND	21	22	+5V
usb6_d-	23	24	usb5_d-
usb6_d+	25	26	usb5_d+
usb56_oc#	27	28	reset#
gp16	29	30	gp17
GND	31	32	+5V
ac_sdout	33	34	ac_sdin0
ac_rst	35	36	ac_sync
ac_bitclk	37	38	ac_sdin1
speaker	39	40	NC

1   2

40

1.27mm
Socket

Mezzanine Connectors

IDE - PATA

C10-CFA
C17-CFA
C30-PATA
CCE-PUNK
and many more

Legacy Expansion
LPC, Audio, USB

C23-SATA
CCA-LAMBADA
CCB-BOSSANOVA
CCE-PUNK
and other

PCI Express x1

C23-SATA
CCE-PUNK
and other

J-IDE   J-EXP   J-PCIe

CCD-CALYPSO

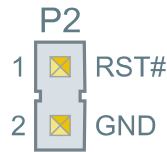© EKF   ekf.com

CCD-CALYPSO • Mezzanine Module (Side Board) Expansion Options

P2 Reset

Provided as an option, the pin header P2 can be used for resetting the CPU host board (processor reset) if wired to additional circuitry (e.g. watchdog or manual pushbutton). Tie reset# to GND with an open collector output.

P2

1 ☒ RST#

2 ☒ GND

P3 General Purpose Inputs/Outputs

The optional connector P3 can be used for general purpose digital I/O. Please note, that these signals are also available for rear I/O on J2 - do not attach peripherals to both endings of a particular GPIO line. The GPI signals GPI1 and GPI2 are not 5V tolerant.

P3 GPIO 2.54mm Pin Header 2 x 5				
GPI1 (on-Board FWH2) Input, 4.7k P/D, 3.3V only - not 5V tol.	1	2	GPI2 (on-Board FWH2) Input, 4.7k P/D, 3.3V only - not 5V tol.
GPIO16 (CC9-SAMBA SIO1) I/O, P/U 50K, 24mA, Input 5V tol.	3	4	GPIO17 (CC9-SAMBA SIO1) I/O, P/U 50K, 24mA, Input 5V tol.
GPIO21 (on-Board SIO2) I/O12, OD12, Input 5V tol.	5	6	GPIO22 (on-Board SIO2) I/O12, OD12, Input 5V tol.
GPIO43 (on-Board SIO2) I/O8, OD8, Input 5V tol.	7	8	GPIO60 (on-Board SIO2) I/O12, OD12, Input 5V tol.
GPIO61 (on-Board SIO2) I/O12, OD12, Input 5V tol.	9	10	GND

IO12   Input/Output, 12mA sink, 6mA source
OD12   Open Drain Output, 12mA sink
IO8   Input/Output, 8mA sink, 4mA source
OD8   Open Drain Output, 8mA sink

In addition, even more GPIO signals are available on P6..P9, P10, P11, P16..P17, J1, J2.

P4 Floppy Disk Connector

As an option, the CCA-LAMBADA is provided with a 34-pin header, suitable for attachment of a single floppy disk drive with mating connector across a suitable micro ribbon flat cable harness.

P4 Floppy Disk Interface 2.54mm Pin Header				
	GND	1	2	drvden0#
	GND	3	4	NC
	KEY	5	6	drvden1#
	GND	7	8	index#
	GND	9	10	mtr0#
	GND	11	12	NC
	GND	13	14	ds0#
	GND	15	16	NC
	GND	17	18	dir#
	GND	19	20	step#
	GND	21	22	wdata#
	GND	23	24	wgate#
	GND	25	26	trk0#
	GND	27	28	wrtprt#
	NC	29	30	rdata#
	GND	31	32	hdsel#
	NC	33	34	dskchg#

As an alternative, P12 is optionally available for attachment of a slim-line floppy drive. Since all floppy lines are as well available for rear I/O across J2, be sure to have only one of either P4, or P12, or the rear I/O floppy disk connector in use.
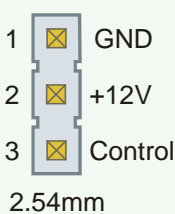
P5 Power Connector

The initial purpose of the optional connector P5 was to deliver +5V power to an attached floppy disk drive (if wired to P4). A suitable cable assembly matching the AMP 171826-4 would be required. Alternatively, P5 can be used to pass +5V redundantly (in addition to the expansion interface connector P1) to the CCA-LAMBADA, which can improve the power distribution when an on-board hard disk drive is in use (especially if a pair of drives is connected to P24). The current across P5 is limited by resettable fuses.

P5 Floppy Disk Power (External Power)		
	1	+5V_FD 1.5A
	2	GND
AMP 171826-4	3	GND
	4	+12V_FD 0.5A

If a floppy disk drive which requires +12V is supplied with power by P5, one of the header connectors P6..P9 must be used to derive +12V from an external power supply. There is no +12V feeding node available on the CCA-LAMBADA other than P6..P9 (+12V is also wired to J1, but would normally not be accessible for strapping, i.e. a custom specific rear I/O backplane would be required for sourcing +12V across J1).

P6..P9 Cooling Fan Headers

The on-board SIO2 is provided with control ports for cooling fans with either a tachometer output (P6/P7) or PWM input (P8/P9). The benefit of a tachometer is to realize a fan operation failure, which would allow to punctual shutdown a system before a damage can occur. A fan with PWM input would allow to control the number of revolutions dependent from the CPU temperature, which can increase the lifetime of a fan considerably. The optional pin-headers P6..P9 could be used for attachment of suitable cooling fans.

P6 - P9 (2.54mm Pin Row)	
1	GND
2	+12V 2.5A (in total)
3	Tachometer (P6/P7) Pulse Width Modulation (P8/P9)

If a +12V fan is supplied with power by either connector P6..P9, one of the remaining connectors P6..P9 must be used to derive +12V from an external power supply. There is no +12V/2.5A feeding node available on the CCA-LAMBADA other than P6..P9 (+12V is also wired to J1, but would normally not be accessible for strapping, i.e. a custom specific rear I/O backplane would be required for sourcing +12V across J1).

If P6..P9 are not required for fan control, the pins 3 of each header can be used as additional GPIOs:

P6	GPIO30
P7	GPIO31
P8	GPIO32
P9	GPIO33

Since all fan control lines are as well available for rear I/O across J2, be sure to have connected any signal only once, in order to avoid interference.
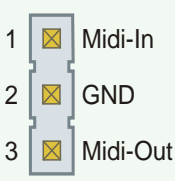
P10 Power Connector

The optional on-board power connector P10 can be used together with the IDE connector P23 for a mezzanine module with an 1.8-inch hard disk.
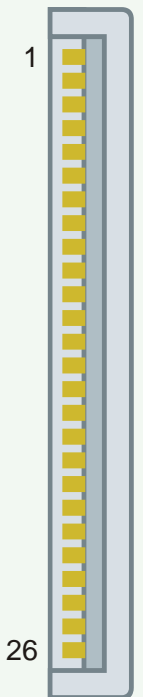
P10 Power 2.54mm Pin Header Dual Row 2 x 3					
	+3.3V	1	2	+3.3V
		3	4	
	+5V	5	6	+5V

P11 MIDI Header

As an option, a single row pin-header is stuffed, which in addition to P10 (or as an alternative) provides MIDI I/O.

P11 MIDI 2.54mm Pin Header Single Row		
	1	MIDI-IN / GPIO25
	2	GND
	3	MIDI-OUT / GPIO26

P12 Micro Floppy Disc Connector

P12 Slim Line Floppy Disk 1mm ZIF Receptacle		
	1	+5V_FDS 1)
	2	index#
	3	+5V_FDS 1)
	4	ds0#
	5	+5V_FDS 1)
	6	dskchg#
	7	NC
	8	NC
	9	drvden0#
	10	mtr0#
	11	NC
	12	dir#
	13	modsel
	14	step#
	15	GND
	16	wdata#
	17	GND
	18	wgate#
	19	GND
	20	trk0#
	21	NC
	22	wrtprt#
	23	GND
	24	rdata#
	25	GND
	26	hdsel#

1
26

1mm pitch
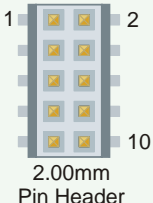FFC/FPC receptacle
vertical ZIF 26-position

1) Fused by PolySwitch 1.5A

In addition to P4, the CCA-LAMBADA is also provided with a 26-position FFC/FPC ZIF socket, suitable for attachment of a single floppy disk drive with mating connector (typically low profile drives, e.g. TEAC FD05HF5630, Y-E Data YD-702J-6637, Citizen X1DE-00R, Mitsumi D353F3, Samsung SFD-321S, NEC FD1238H).

You may chose either one for floppy disk drive attachment, the P4 connector or P12 or rear I/O across J2, but not two of them simultaneously.

P13/P16 Serial Port 1/2 CU-Module Header

The on-board SIO2 is provided with two asynchronous serial interfaces. For attachment of EKF CU-series PHY modules via a micro ribbon flat cable assembly, the CCA-LAMBADA is optionally equipped with suitable pin-headers. A PHY module is a transceiver from TTL level signals to a specific symmetric or asymmetric interface standard, e.g. EIA-485 or RS-232E, with or w/o galvanic isolation. Usage of a PHY module requires that the associated on-board RS-232 transceiver is either disabled (J-SER1/2 removed) or not stuffed.

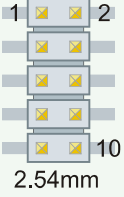| P13 & P16 Serial I/O CU-Module Standard 2.00mm Pin Header 2 x 5				
+5V_SER1(2) 0.5A 1)	1	2	DSR1(2)# / GPIO54 / IRQ9
RI1(2)# / GPIO50 / IRQ3	3	4	RXD1(2) / GPIO52 / IRQ5
TXD1(2) / GPIO53 / IRQ7	5	6	DTR1(2)# / GPIO57 / IRQ15
RTS1(2)# / GPIO55 / IRQ10	7	8	CTS1(2)# / GPIO56 / IRQ11
DCD1(2)# / GPIO51 / IRQ4	9	10	GND

2.00mm Pin Header

1) fused by PolySwitch

The triple function (GPIO or IRQ in addition to the UART) is available solely for the serial port 2 (P16). Since all lines are as well available for rear I/O across J2, be sure to have connected any signal only once, in order to avoid interference.
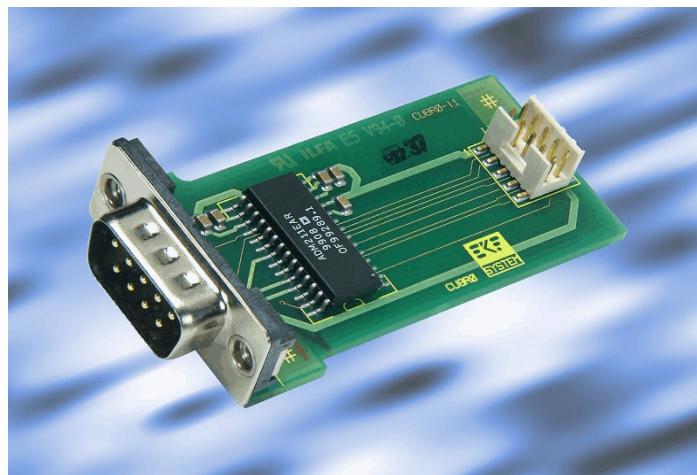

CU-Series PHY Module

P18 Serial Port 2 RS-232 Header

The CCA-LAMBADA is optionally provided with one or two on-board RS-232E transceivers. Usage of the transceivers requires the associated jumpers J-SER1/2 to be set. No external PHY should be present at P13/P16 or via rear I/O. While the serial port 1 transceiver is routed to the front panel connector, the serial port 2 pin-header P18 allows to attach another D-SUB9 COM-port connector by means of a flat cable harness. The D-SUB could be mounted e.g. into a custom specific front panel, or blind panel with suitable cutout.

P18 Serial RS-232 I/O 2.54mm Pin Header 2 x 5				
	DCD1(2)	1	2	DSR1(2)
	RXD1(2)	3	4	RTS1(2)
	TXD1(2)	5	6	CTS1(2)
	DTR1(2)	7	8	RI1(2)
	GND	9	10	NC

Since all lines are as well available for rear I/O across J2 (and partially from the front panel connector COM), be sure to have connected any signal only once, in order to avoid interference.

J-SER1(2)

removed ⊠ ⊠ shutdown

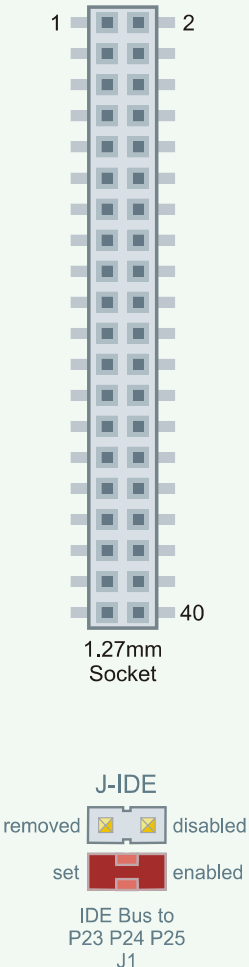set ▮▮ enabled

RS-232E
Transceiver 1(2)
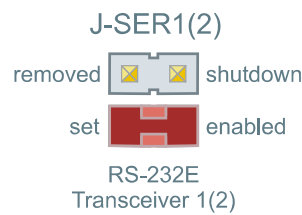
P21/P22 IDE Expansion Connector & CompactFlash Mezzanine Connector

The expansion connector P21 is mounted either on top, on bottom, or on both sides of the CCA-LAMBADA PCB. This allows to attach the CCA either on top (EKF standard) or on bottom of the CPU carrier board. In addition to the expansion interface connector P1, which incorporates mainly the LPC interface, P21 is dedicated to the Secondary-IDE channel of the ICH4 (Input/Output Controller Hub) on the host CPU board.

The optional connector P22 is identical to P21, but solely available on top of the CCA-LAMBADA. It can be used for a mezzanine module with a CompactFlash socket (EKF C10-CFA), or together with an 1.8-inch SSD/HDD storage module (C30-PATA).

P21 (P21T/P21B) & P22 CompactFlash/IDE Expansion Interface 1.27mm Socket 2 x 20			
ide0_reset#	1	2	GND
ide0_dd07	3	4	ide0_dd08
ide0_dd06	5	6	ide0_dd09
ide0_dd05	7	8	ide0_dd10
ide0_dd04	9	10	ide0_dd11
ide0_dd03	11	12	ide0_dd12
ide0_dd02	13	14	ide0_dd13
ide0_dd01	15	16	ide0_dd14
ide0_dd00	17	18	ide0_dd15
GND	19	20	+3.3V
ide0_dmarq	21	22	+3.3V
ide0_diow#	23	24	GND
ide0_dior#	25	26	GND
ide0_iordy	27	28	+5V
ide0_dmack#	29	30	+5V
ide0_intrq	31	32	GND
ide0_da1	33	34	ide0_cblid#
ide0_da0	35	36	ide0_da2
ide0_cs1#	37	38	ide0_cs3#
ide0_act#	39	40	GND

1.27mm Socket

J-IDE

removed — disabled
set — enabled

IDE Bus to
P23 P24 P25
J1

If the CompactFlash adapter module is the only IDE device on the CCA-LAMBADA and no rear I/O IDE is required, the IDE signal lines to all other IDE connectors P23, P24 and J1 should be interrupted (remove jumper J-IDE, which in turn disables an electronic bus switch). This helps to avoid reflections on the IDE bus, which could otherwise degrade the signal quality.

C10-CFA (Top Mount)

C17-CFA (Bottom Mount)
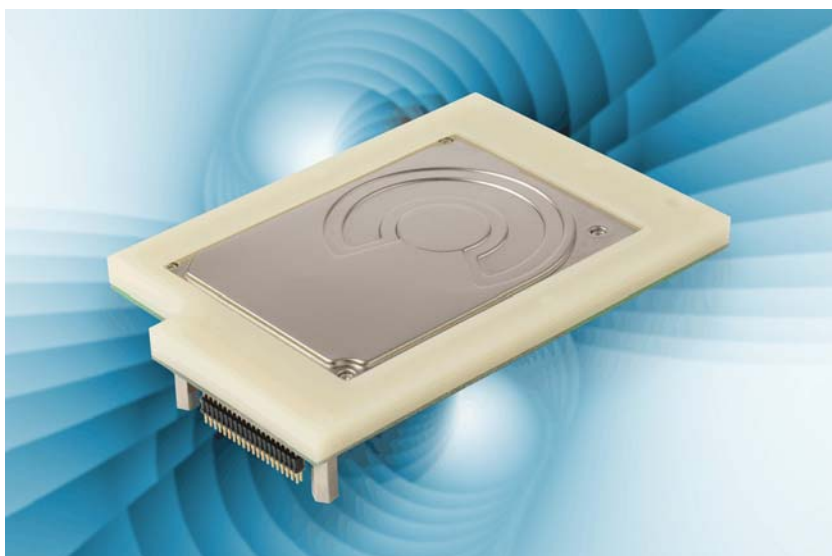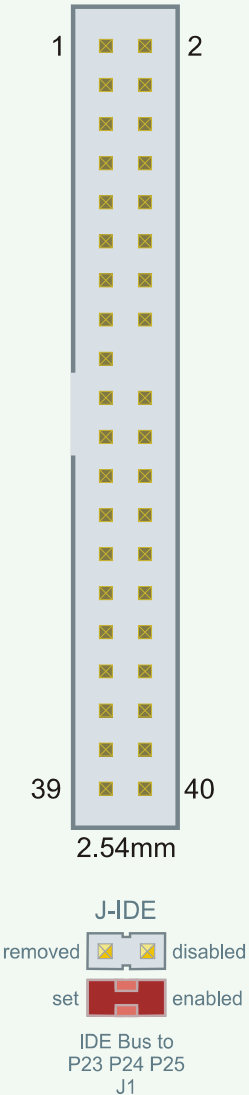
C30-PATA 1.8-Inch SSD (Top Mount)

C30-PATA Hooked on P21

P23 External IDE Header

P23 is provided optionally for attachment of classic IDE devices (e.g. 3.5-inch hard disk drive, DVD-ROM). In addition, P23 may be used in combination with the power connector P10 to attach an optional 1.8-inch hard disk mezzanine module.

Usage of the IDE connector P23 requires the IDE bus switches enabled (jumper J-IDE set). No stubs are allowed on an IDE cable assembly, i.e. concurrent operation of devices attached to P23 and other IDE dedicated connectors cannot be guaranteed.

P23 External IDE Device 2.54mm Dual Row Pin Header			
ide1_reset#	1	2	GND
ide1_dd07	3	4	ide1_dd08
ide1_dd06	5	6	ide1_dd09
ide1_dd05	7	8	ide1_dd10
ide1_dd04	9	10	ide1_dd11
ide1_dd03	11	12	ide1_dd12
ide1_dd02	13	14	ide1_dd13
ide1_dd01	15	16	ide1_dd14
ide1_dd00	17	18	ide1_dd15
GND	19	20	KEY
ide1_dmarq	21	22	GND
ide1_diow#	23	24	GND
ide1_dior#	25	26	GND
ide1_iordy	27	28	GND
ide1_dmack#	29	30	GND
ide1_intrq	31	32	NC
ide1_a1	33	34	ide1_cblid#
ide1_a0	35	36	ide1_da2
ide1_cs1#	37	38	ide1_cs3#
ide0_act#	39	40	GND

Connector diagram: pins 1, 2 at top, pins 39, 40 at bottom. 2.54mm.

J-IDE
- removed — disabled
- set — enabled

IDE Bus to
P23 P24 P25
J1

P24 IDE/ATA Connector for 2.5-Inch Drives

P24 is optionally provided for a 2.5-inch on-board hard disk drive. Usage of P24 requires the IDE bus switches enabled (jumper J-IDE set). No stubs are allowed on an IDE cable assembly, i.e. concurrent operation of devices attached to P24 and other IDE dedicated connectors cannot be guaranteed.
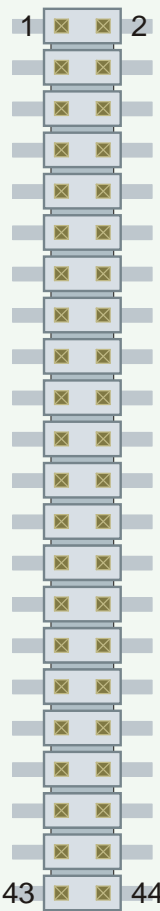
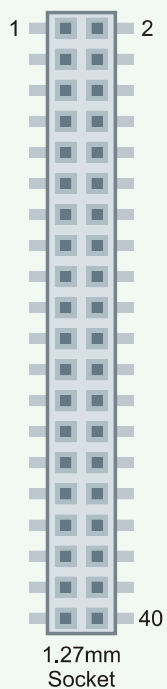| P24 On-Board 2.5-Inch Hard Disk Drive 2.00mm Pin Header 2x22			
ide1_reset#	1	2	GND
ide1_dd07	3	4	ide1_dd08
ide1_dd06	5	6	ide1_dd09
ide1_dd05	7	8	ide1_dd10
ide1_dd04	9	10	ide1_dd11
ide1_dd03	11	12	ide1_dd12
ide1_dd02	13	14	ide1_dd13
ide1_dd01	15	16	ide1_dd14
ide1_dd00	17	18	ide1_dd15
GND	19	20	KEY
ide1_dmarq	21	22	GND
ide1_diow#	23	24	GND
ide1_dior#	25	26	GND
ide1_iordy	27	28	GND
ide1_dmack#	29	30	GND
ide1_intrq	31	32	NC
ide1_da1	33	34	ide1_cblid#
ide1_da0	35	36	ide1_da2
ide1_cs1#	37	38	ide1_cs3#
ide0_act#	39	40	GND
+5V_HD	41	42	+5V_HD
GND	43	44	NC

1 2

43 44

2.00mm

J-IDE

removed — disabled

set — enabled

IDE Bus to
P23 P24 P25
J1

P31 Audio Mezzanine Connector

As an option, the CCA-LAMBADA is equipped with an AC'97 audio Codec. The standard 4HP front panel accommodates a single analog stereo input jack and a single analog stereo output jack. For applications which require additional features such as 5.1 surround audio or S/PDIF digital output, a mezzanine module (EKF C12-AUDIO) could be mounted either on top (P31T) or bottom (P31B) of the CCA-LAMBADA. A custom specific 8HP front panel would be required.

P31 (P31T/P31B) Audio Expansion Interface 1.27mm Socket 2 x 20			
js0	1	2	js1
js2	3	4	js3
AGND	5	6	AGND
Mic 1	7	8	Mic 2
AGND	9	10	AGND
Line In L	11	12	Line In R
AGND	13	14	AGND
CD L	15	16	CD R
CD Ref	17	18	AGND
Aux L	19	20	Aux R
AGND	21	22	AGND
Phone (Mono In)	23	24	Mono Out
AGND	25	26	+5V_A
Line Out L	27	28	Line Out R
Surround L	29	30	Surround R
Center	31	32	LFE
AGND	33	34	vrefout
GND	35	36	+3.3V
speaker	37	38	+5V
GND	39	40	SPDIF Out

1 — 2

40

1.27mm
Socket

P32 Telephony / Auxiliary Input Connector

If the CCA-LAMBADA is equipped with an audio Codec, the connector P32 can be provided as an option. By stuffing options, P32 can be used either as a bidirectional telephony connector, or as an auxiliary input. When operated as an auxiliary input, a voltage divider sets the typical full-scale input voltage to 2Veff (customizable).

P32 Telephony (Option AUX) Connector 4-Pin Header 2.54mm		
Molex 70553-0003	1	Phone In (Option AUX L In)
	2	AGND
	3	AGND
	4	Mono Out (Option AUX R In)

P33 CD-Audio Input Connector

If the CCA-LAMBADA is equipped with an audio Codec, the connector P33 can be provided as an optional CD-ROM audio input. A voltage divider sets the typical full-scale input voltage to 2Veff (customizable).

| P33 CD Audio Connector 4-Pin Header 2.54mm		
Molex 70553-0003	1	CD L
	2	CD Ref
	3	CD Ref
	4	CD R

J1/J2 Rear I/O

As an option, the CCA-LAMBADA can be equipped with the rear I/O connectors J1 and J2. A single slot rear I/O backplane (directly adjoining the CPCI backplane) would be required for handing over the available signal lines to a suitable rear I/O transition module.

The CCA-LAMBADA must not be plugged into a common CPCI slot in order to avoid damaging the board or other components of the system. A brown key on the J1 connector will prevent the user from erroneously inserting the CCA-LAMBADA into an unsuitable position.
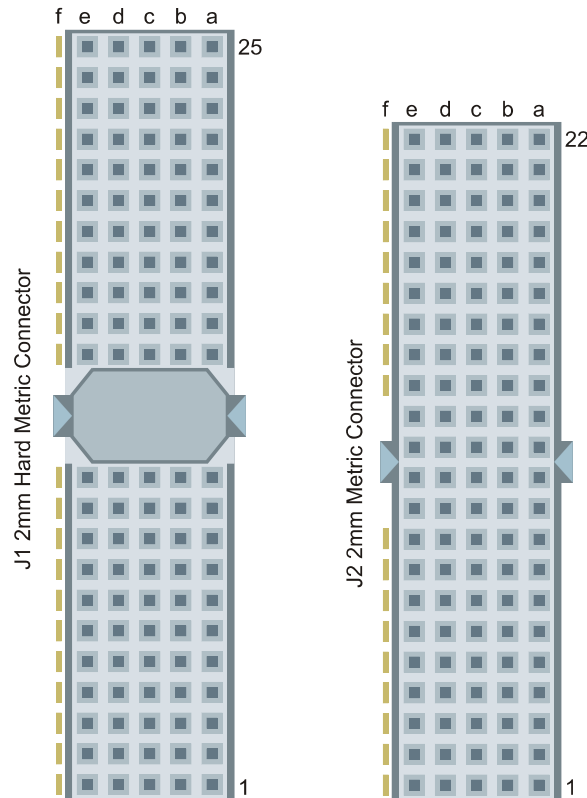
Signal names provided on the J1 and J2 connector tables hereafter are associated with their main function. However, the Super I/O controller allows a number of signals also be used as general purpose I/O. Please consult the SMSC LPC47B27x datasheet for details (www.smsc.com).

Please note, that the majority of signals is also available on-board or via front panel. Be sure to have connected any signal only once, in order to avoid interference.

With respect to the IDE/ATA interface, the jumper J-IDE must be set, in order to enable rear I/O mass storage attachment. No stubs are allowed on an IDE cable assembly, i.e. concurrent operation of devices attached to J1 and other IDE dedicated connectors cannot be guaranteed.

J1 Rear I/O Connector

#J1	A	B	C	D	E
25	+5V			+3.3V	+5V
24	IDE_d08	+5V	VI/O	IDE_reset#	IDE_d07
23	+3.3V	IDE_d09	IDE_d10	+5V	IDE_d06
22	IDE_d11	GND	+3.3V	IDE_d04	IDE_d05
21	+3.3V	IDE_d12	IDE_d13	M66EN (GND)	IDE_d03
20	IDE_d14	GND	VI/O	IDE_d01	IDE_d02
19	+3.3V	IDE_d15	IDE_dmarq	GND	IDE_d00
18	IDE_dmack#	GND	+3.3V	IDE_ior#	IDE_iow#
17	+3.3V	IDE_a1	IDE_cblid#	GND	IDE_iordy
16	IDE_a2	GND	VI/O	IDE_a0	IDE_intrq
15	+3.3V	IDE_cs1#	IDE_act#	GND	IDE_cs0#
14					
13			KEY (BROWN)		
12					
11				GND	KB_dat
10		GND	+3.3V		KB_clk
9				GND	MS_dat
8		GND	VI/O		MS_clk
7				GND	+5V_PS2
6		GND	+3.3V	GPI1	GPI2
5				GND	
4	dbreset#	GND	VI/O	GP16	GP17
3	GAME_but21	GAME_but22	GAME_joy2x	+5V	GAME_joy2y
2	GAME_but11	+5V	GAME_but12	GAME_joy1x	GAME_joy1y
1	+5V	-12V	keylock#	+12V	+5V

pin positions coloured gray: not connected

J2 Rear I/O Connector

#J2	A	B	C	D	E
22	GPIO21	GPIO22	GPIO43	GPIO60	GPIO61
21	COM1_ri	GND	COM2_ri	COM2_cts	FD_drvden0#
20	COM1_cts	GND	COM2_rxd	GND	FD_drvden1#
19	GND	GND	COM2_dsr	COM2_dcd	FD_index#
18	COM1_rxd	COM1_dsr	COM2_dtr	GND	FD_mtr0#
17	COM1_dcd	GND	COM2_rts	COM2_txd	FD_ds0#
16	COM1_dtr	COM1_rts	SER2_ri	GND	FD_dir#
15	COM1_txd	GND	SER2_cts	SER2_rxd	FD_step#
14	SER1_ri	SER1_cts	SER2_dsr	GND	FD_wdata#
13	SER1_rxd	GND	V(I/O)	SER2_dcd	FD_wgate#
12	SER1_dsr	SER1_dcd	SER2_dtr	GND	FD_trk0#
11	SER1_dtr	GND	V(I/O)	SER2_rts	FD_wrtprt#
10	SER1_rts	SER1_txd	SER2_txd	GND	FD_rdata#
9	SER1_shdn	GND	V(I/O)	SER2_shdn	FD_hdsel#
8	LPT_slct	LPT_pe	LPT_busy	GND	FD_dskchg#
7	LPT_ack#	GND	V(I/O)	USB6_d+	USB6_d-
6	LPT_d7	LPT_d6	LPT_d5	GND	+5V_USB
5	LPT_d4	GND	V(I/O)	MIDI_out	MIDI_in
4	V(I/O)	LPT_d3	LPT_slctin#	GND	speaker
3	LPT_d2	GND	LPT_init#	IRDA_tx	IRDA_rx
2	LPT_d1	LPT_error#	LPT_d0	FAN_tach2	FAN_tach1
1	LPT_alf#	GND	LPT_strobe#	FAN_pwm2	FAN_pwm1

pin positions coloured gray: not connected

RS-232E Transceivers

The Super-I/O chip provides two asynchronous serial ports (TTL level), which are passed via the J2 rear I/O connector to a rear I/O transition module.

Furthermore, the CCA-LAMBADA is optionally provided with two serial transceivers according to RS-232E. As with the TTL level serial port signals, also the RS-232 transmission lines are wired to the J2 rear I/O connector for usage on a transition module (back panel COM port connectors). Each transceiver can be individually disabled by the jumpers J-SER1 and J-SER2, if either the particular RS-232 interface is not at all required (with a power saving effect), or if a different interface type is required, e.g. EIA/TIA-485 or optically isolated RS-232 (physical transceivers located on the rear I/O transition module, attached to the TTL level signals).
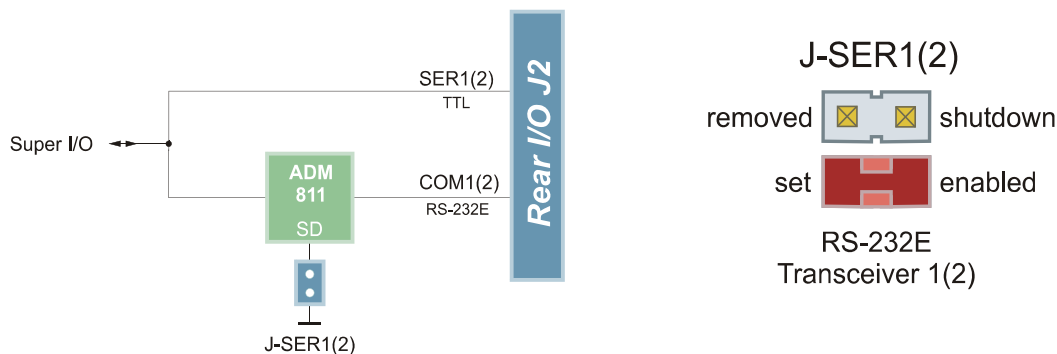
Conclusion: Each on-board transceiver on the CCA-LAMBADA must be enabled by setting its associated jumper J-SERx in order to use the COMx rear panel connector(s). If however the serial TTL lines are needed for a special interface solution, the particular on-board transceiver(s) must be disabled by removing its jumper J-SERx.

Firmware Hub 2

The CCA-LAMBADA is optionally provided with a 82802 compatible 8Mbit Flash (Firmware Hub), which can be used either as alternative boot BIOS, as an expansion memory to the CPU board BIOS, or for BIOS retrieval/rescue. The Firmware Hub is connected to the LPC (Low Pin Count) interface. The device ID of a particular FWH determines whether it is detected as BIOS after power on (ID = 0). If stuffed, the jumper J-FWH sets the on-board FWH2 ID to zero (and simultaneously changes the CC9-SAMBA FWH ID to 1) - hence the system will use the BIOS on the CCA-LAMBADA after power-on.
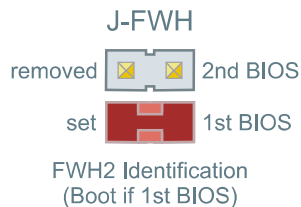
A programming tool for the Firmware Hub and latest BIOS releases can be obtained from the EKF website.

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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