EKF SYSTEM

Technical Information

C40-SCFA

CompactFlash Mezzanine Module

SATA & USB

Document No. 5180 • Ed. 5 • 29 March 2012

Contents

About this Manual

This manual is a short form description of the technical aspects of the C40-SCFA, required for installation and system integration. It is intended for the advanced user only.

Edition History

EKF Document	Ed.	Contents/*Changes*	Author	Date
Text # 5180 c40_tie.wpd	1	Technical Information C40-SCFA English, Preliminary Edition	jj	13 June 2008
	2	Added Sectional Drawings	jj	17 February 2009
	3	Added Photos	jj	5 March 2010
	4	Added Table Alternate Products	jj	25 August 2011
	5	Added Photo PC1 C40 Exploded View	jj	29 March 2012

Related Documents

For a description of the CCM-BOOGIE or PC1-GROOVE CPU cards, which may act as carrier board with respect to the C40-SCFA, please refer to the correspondent CPU user guide, available by download (change URL accordingly for other potential carrier cards).

Download CPU Card User Guides	
CCM-BOOGIE	www.ekf.com/c/ccpu/ccm/ccm_uge.pdf
PC1-GROOVE	www.ekf.com/p/pc1/pc1_uge.pdf
PC2-LIMBO	www.ekf.com/p/pc2/pc2_ug.pdf
SC1-ALLEGRO	www.ekf.com/s/sc1/sc1.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.

▸   Intel, Pentium, Celeron, Core 2 Duo, Merom, Penryn, iAMT: ® Intel
▸   Santa Rosa Platform, Crestline Chipset GM965: Intel
▸   Montevina Platform, Cantiga Chipset GS45: 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 document 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.

Standards

Specifications/Standards	
CompactFlash	CompactFlash Specification Rev. 4.1 (www.compactflash.org)
SATA	Serial ATA 2.5/2.6 Specification (www.sata-io.org)
USB	Universal Serial Bus Revision 2.0 specification (www.usb.org/developers)

C40-SCFA (CF Card) over CCM-BOOGIE CPU Carrier Card

C40-SCFA Features

Feature Summary	
Form Factor	Proprietary size mezzanine module, fits basically into the 4HP (20.3mm) envelope of the CPU carrier board, typically delivered as a ready to use assembly unit (including the CCM-BOOGIE or successor CPU card), mounting position right (on top of CPU board)
Host I/F Connector (Bottom Mount to CPU Carrier)	‣ High Speed mezzanine connector suitable for CCM-BOOGIE and successor CPU carrier boards ‣ 3 x SATA channels (2 RAID) ‣ 4 x USB ports
SATA Usage	‣ SATA1 (from ICH southbridge on CPU carrier board), bound to the C40-SCFA on-board SATA to PATA bridge, intended for true IDE mode CompactFlash storage card ‣ SATA2 and SATA3 (derived from the CPU carrier board secondary SATA controller), in use for SATA RAID level 0/1 or non-RAID applications, option vertical SATA latching connectors (P-SATA2 & P-SATA3), please note that additional headroom is required beyond 4HP for this option
USB Usage	‣ Up to 2 x USB SSD (Silicon State Drive) low profile mezzanine modules ‣ Up to 2 x USB type A receptacles
CompactFlash	‣ 50-pos. connector for CF Cards (Flash storage cards), screw locked retainer ‣ CF Card interface operated in IDE/PATA mode (PIO and UDMA)
Top Mount Connectors	‣ P-CF for a CF Card ‣ P-SATA2 and P-SATA3 for attachment of system internal SATA drives ‣ P-UFD1 and P-UFD2 for low profile USB SSD mezzanine modules ‣ J-USB3 and J-USB4 for system internal attachment of USB devices
Thermal Conditions Environmental Conditions	‣ Operating temperature: 0°C ... +70°C ‣ 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	‣ EN55022, EN55024, EN60950-1 (UL60950-1/IEC60950-1) ‣ 2002/95/EC (RoHS)
MTBF	tbd

Not all of the connectors may be present or functional on your actual C40-SCFA board; assembly is highly custom specific. Options may be exclusive, i.e. not necessarily concurrently present. Discuss your needs with EKF before ordering.

Short Description

Available as a mezzanine add-on expansion board to the CCM-BOOGIE and successor CPU carrier cards, the main purpose of the C40-SCFA is to provide a CompactFlash pin header suitable for attachment of all popular CF storage cards, as a rugged and proven mass storage media, which can be easy replaced. Basically, the C40-SCFA is designed to fit into the 4HP (20.32mm) envelope of a CPCI CPU carrier board, so that another 4HP pitch mezzanine expansion board can be stacked above the CPU/C40 assembly in addition.

Further more, the C40-SCFA can be optionally equipped with up to 2 USB Silicon State Drive (SSD) modules [1], or up to 2 USB type A host receptacles [1].

In addition, two SATA connectors (latching headers) are optionally available on the C40-SCFA [1], for attachment of system internal drives by ordinary SATA cable harnesses. The SATA channels may be either operated in a low level RAID (0/1) mode, or as universal non-RAID SATA ports.

The CompactFlash facility requires emulation of the legacy PATA/IDE interface (wich is no longer available within the latest generation of Intel's ICH southbridge) via the C40-SCFA on-board SATA to PATA bridge chip. This solution does not need any proprietary software drivers, since the bridge is connected to one of the ICH SATA channels and fully transparent to the BIOS and operating system. Industrial grade CF cards are widely available, with a capacity of up to 16GB as of now. Installation of an operating system on the CF card and system boot is straightforward for ruggedized systems. The CF card can be fastened by means of a screw locked retainer, for optimum reliability.

Low profile USB SSD modules (2.00mm connector pitch), as offered e.g. from Intel, STEC, Sandisk and others have become also very popular in embedded systems, with a capacity of up to 8GB as of current. One or two modules [1] can be optionally mounted on the C40-SCFA, either in addition to the CF card, or as alternate mass storage.

[1] Some of the population options mentioned may exceed the 4HP total stack height for the CPU carrier board and C40-SCFA assembly. Please read carefully the respective notes (subchapters 'P-UFD1 P-UFD2', 'J-USB3 J-USB4', and 'P-SATA2 P-SATA3'. For some EKF expansion boards slight violations of the 4HP envelope may be tolerable. Furthermore, some of the C40 stuffing options are exclusive to each other, due to space restrictions on the C40-SCFA (see table below).

C40-SCFA Stuffing Options			
True IDE Mode CF Card 4HP Envelope Maintained	USB Silicon State Drive Module(s) 4HP Envelope Slightly Exceeded	USB A Host Receptacle(s) 4HP Envelope Slightly Exceeded	Latching SATA Headers 4HP Envelope Exceeded with SATA Cable Assy
1 x CompactFlash	-	-	with or w/o SATA headers
1 x CompactFlash	1 x SSD	-	with or w/o SATA headers
1 x CompactFlash	-	1 x USB	with or w/o SATA headers
-	2 x SSD	-	with or w/o SATA headers
-	2 x SSD	1 x USB	with or w/o SATA headers
-	1 x SSD	2 x USB	with or w/o SATA headers

C40-SCFA (CF Card Version) on a CPU Carrier Board CCM-BOOGIE

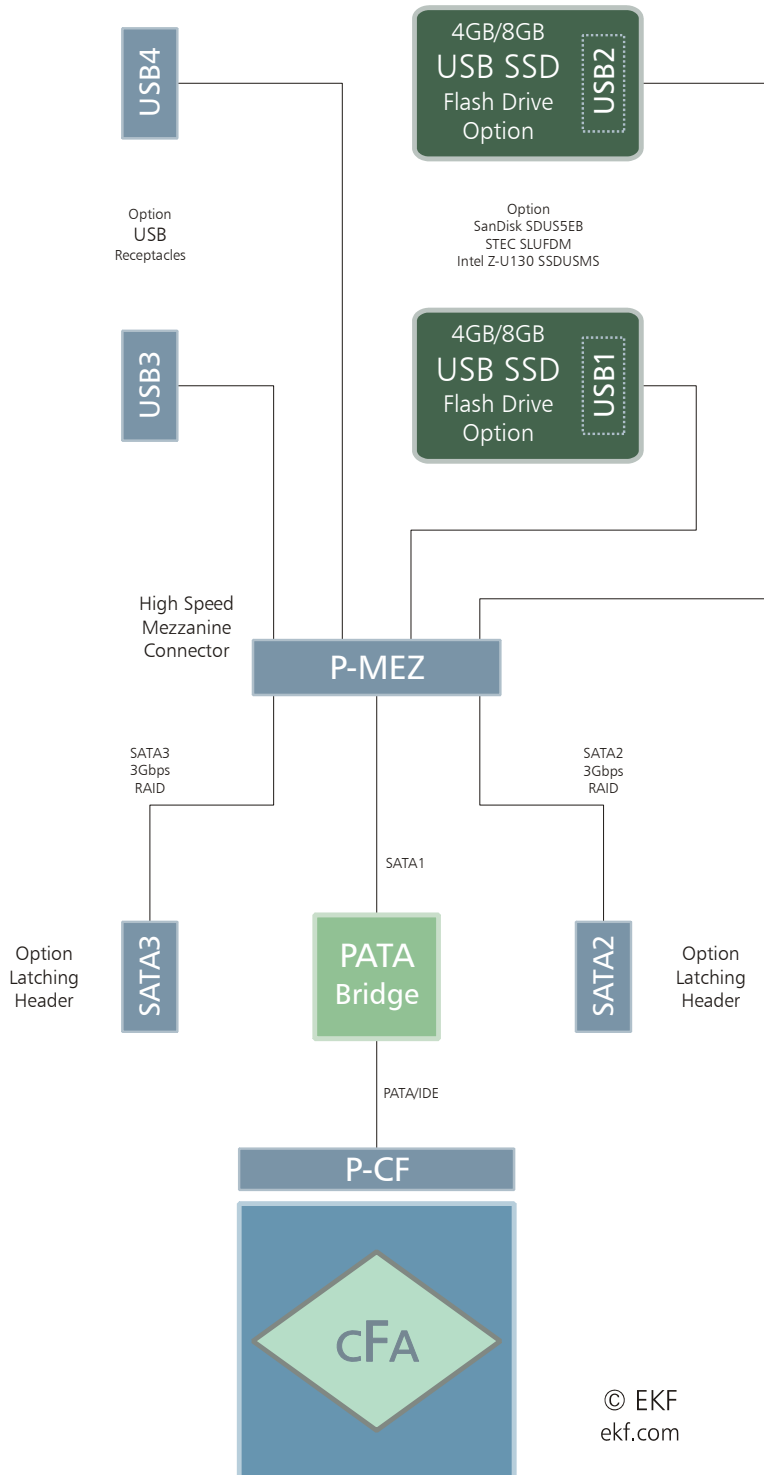C40-SCFA (USB SSD Module Version) on the CCM-BOOGIE

C40-SCFA (CF Card) over PC1-GROOVE CPU Carrier Board

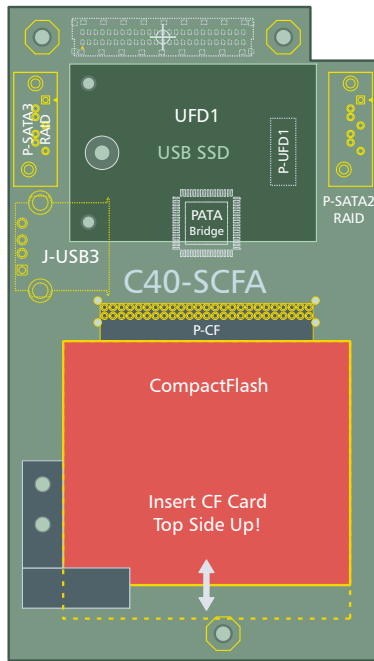C40-SCFA (USB SSD) over PC1-GROOVE CPU Carrier Board

Block Diagram C40-SCFA

Simplified Block Diagram
C40-SCFA

USB4

USB3

4GB/8GB
USB SSD
Flash Drive
Option
USB2

Option
USB
Receptacles

Option
SanDisk SDUS5EB
STEC SLUFDM
Intel Z-U130 SSDUSMS

4GB/8GB
USB SSD
Flash Drive
Option
USB1

High Speed
Mezzanine
Connector

P-MEZ

SATA3
3Gbps
RAID

SATA2
3Gbps
RAID

SATA1

Option
Latching
Header

SATA3

PATA
Bridge

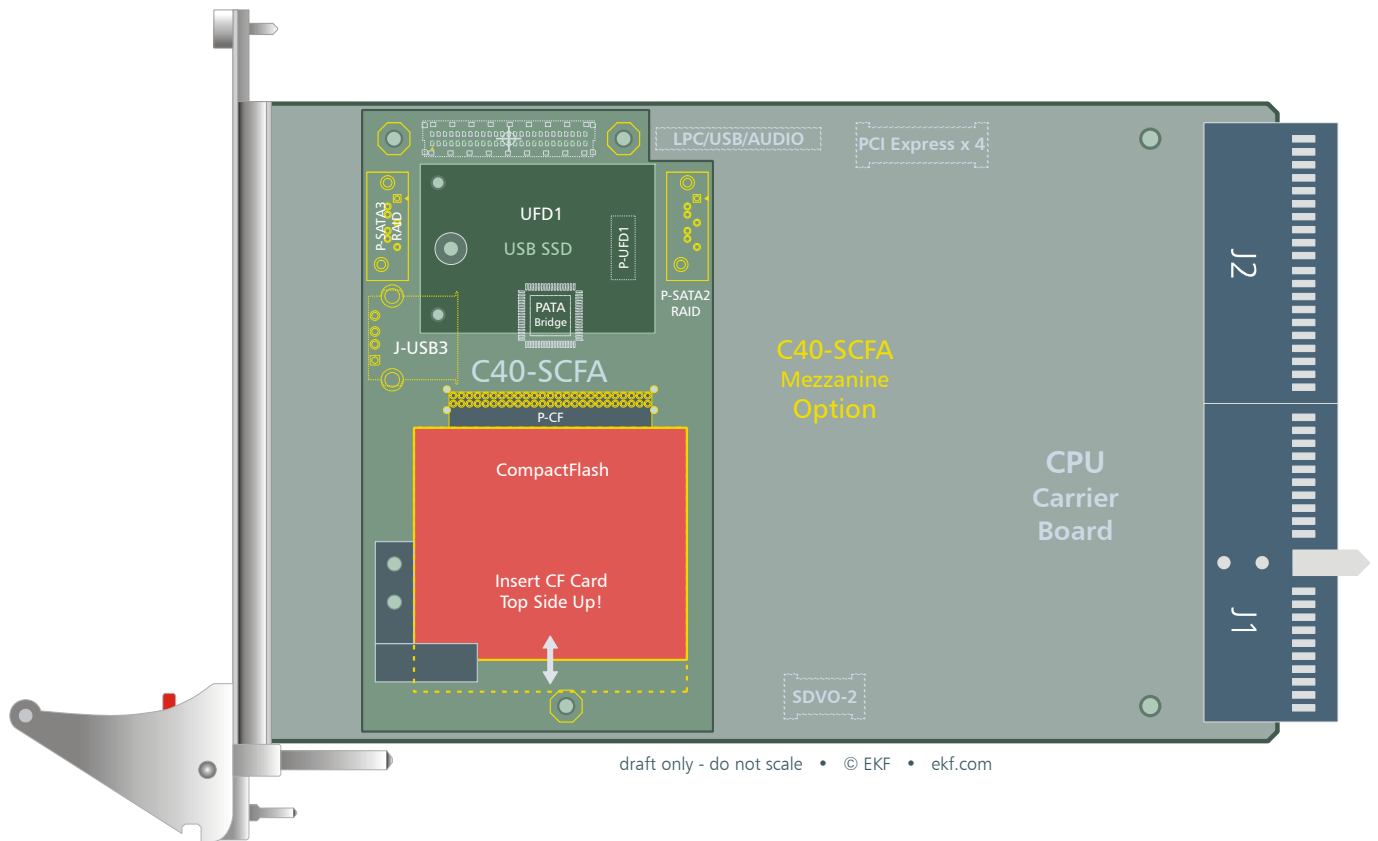SATA2

Option
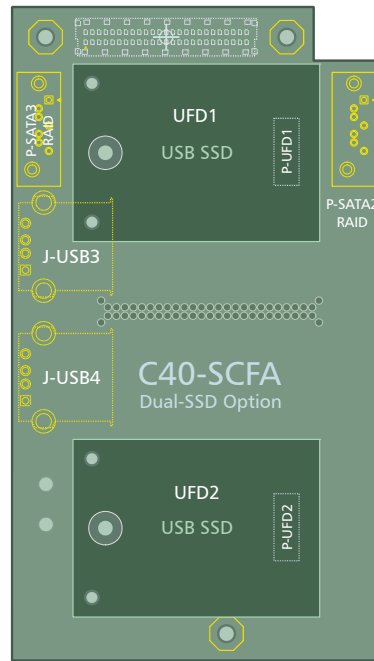Latching
Header

PATA/IDE

P-CF

cFA

© EKF
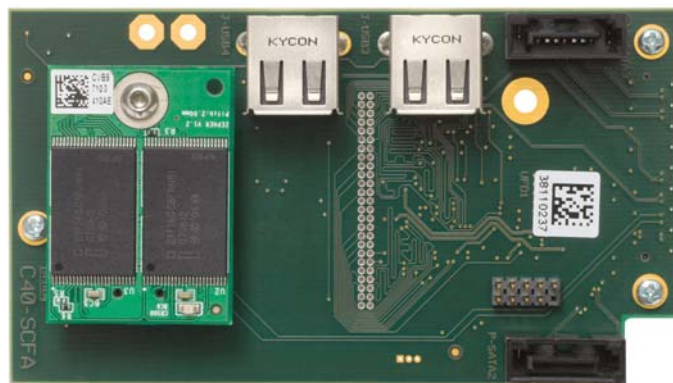ekf.com

Top View Component Assembly C40-SCFA

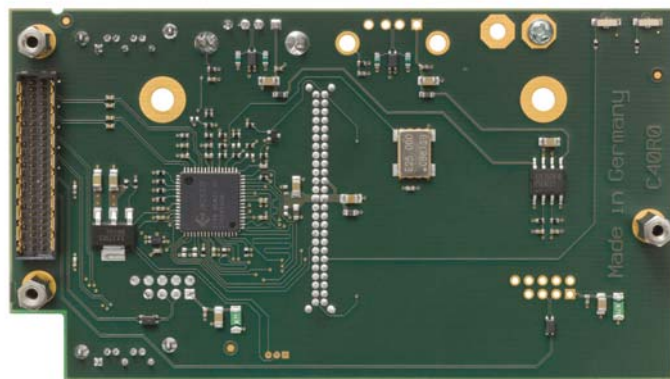draft only - do not scale • © EKF • ekf.com

draft only - do not scale • © EKF • ekf.com

C40-SCFA Top View (CF Card Version)

C40-SCFA Top View (USB Module Version)

C40-SCFA (Bottom View)

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 repair.

Installing the Board Assembly

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 Assembly

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

$C \epsilon$

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

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 - Connectors

Caution

Some of the connectors may provide operating voltage (e.g. +12V, +5V and +3.3V) to devices inside the system chassis, such as 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.
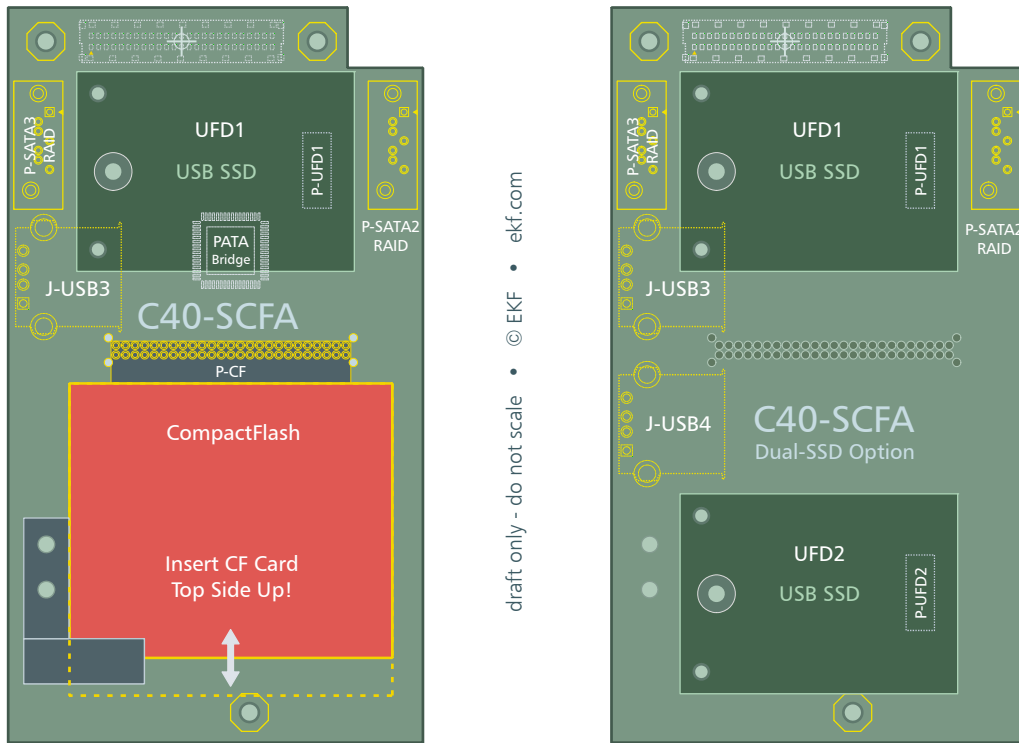
Please Note

The C40-SCFA mezzanine 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 C40-SCFA board. Characteristic features and the pin assignments of each connector are described on the following pages.

I/O Connectors

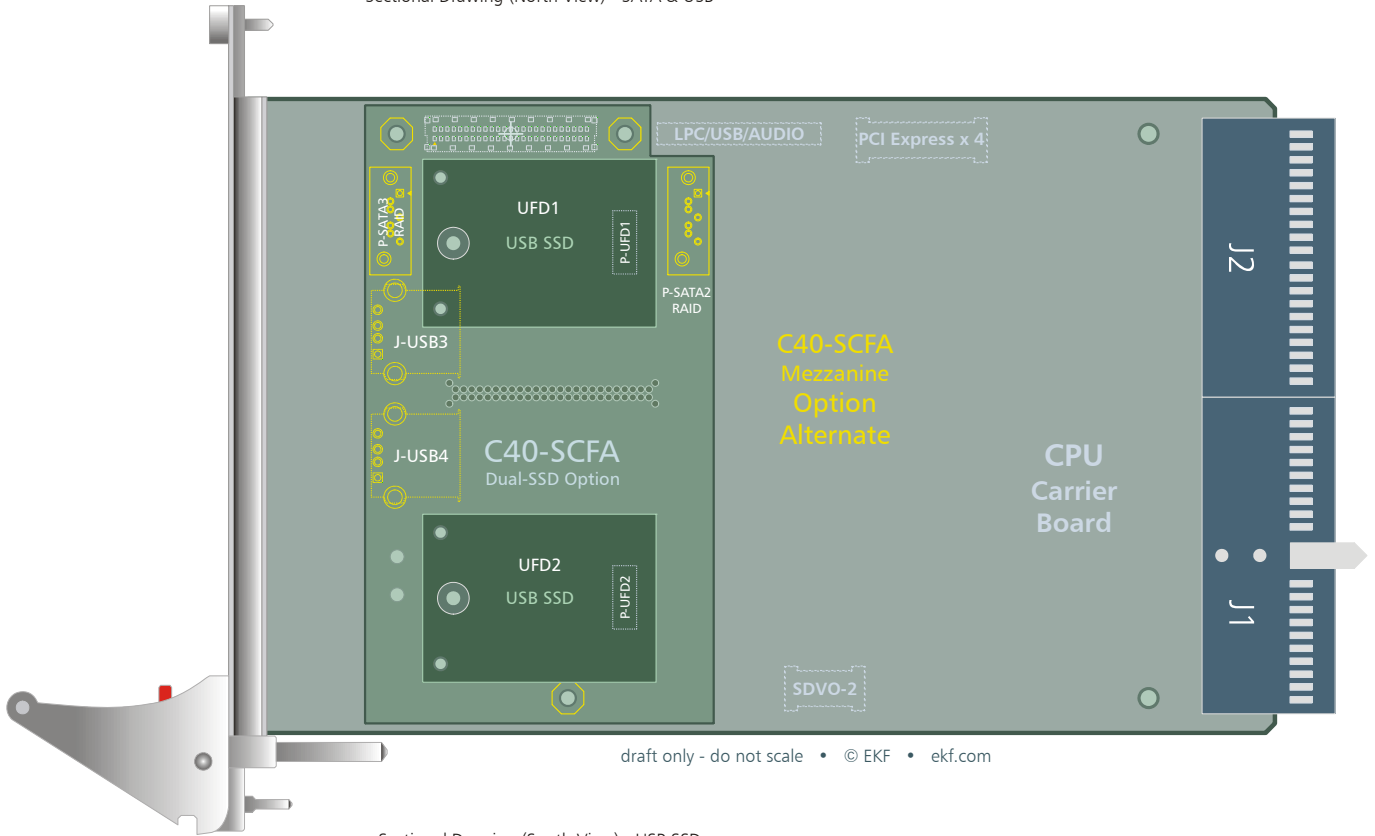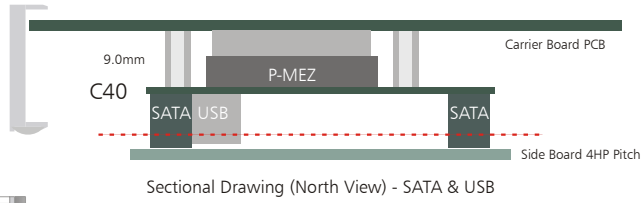The C40-SCFA can be equipped with several top side connectors. Some of these connectors are available as an option only or exclusive to each other, and therefore may not be functional or even present on your actual board.

Assembly of these connectors is highly custom specific. Discuss your needs with EKF before ordering, so that the optimum board configuration for your application will be chosen.

Carrier Board PCB

9.0mm

P-MEZ

C40

SATA USB   SATA

Side Board 4HP Pitch

Sectional Drawing (North View) - SATA & USB

LPC/USB/AUDIO   PCI Express x 4

J2

P-SATA3 RAID

UFD1
USB SSD

P-UFD1

P-SATA2 RAID

J-USB3

C40-SCFA
Mezzanine
Option
Alternate

C40-SCFA
Dual-SSD Option

CPU
Carrier
Board

J-USB4

UFD2
USB SSD

P-UFD2

J1

SDVO-2

draft only - do not scale   •   © EKF   •   ekf.com

Sectional Drawing (South View) - USB SSD

Side Board 4HP Pitch

5.2mm   P-UFD

C40

9.0mm

Carrier Board PCB

P-CF CompactFlash Header

As an option, the C40-SCFA can be provided with a CompactFlash pin header P-CF. It is suitable for CF cards operated in True IDE Mode (i.e. all popular CF memory cards), which are available up to 16GB as of current. When inserted, the CF card will have to be secured manually by a retainer assembly, in order to withstand shock and vibration.

The P-CF electrical interface is known as PATA or IDE. A PATA bridge on the C40-SCFA converts the SATA channel 1 (wich is derived from the ICH southbridge located on the CPU carrier board) to a legacy IDE port. The pin assignment of P-CF complies to CF Specification 4.1 CompactFlash Association. The PATA bridge chip supports IDE PIO mode 0 to 4, and UDMA transfer rates up to 150MB/s.

Warning:
The C40-SCFA does not provide a keyed guide rail mechanism for the CF card, hence twisted insertion (card turned up 180°) is a potential risk. Be sure to **insert** the **CF card** with its **top side up** (typically, a finger grip is recessed into the bottom side, while the top side of a CF card is evenly flat). Wrong insertion may cause permanent damage to the CF card and the C40-SCFA mezzanine module.

The CF card retainer assembly is comprised of several parts, which come with the C40-SCFA mezzanine module. If any element gets lost, spare parts may be obtained from EKF:

EKF Part #	Description	Qty
440.05.020.004	M2x4 cross recess screw	1
440.05.020.008	M2x8 cross recess screw	1
710.9.CFA.7	Base fixing element (PCB mount)	1
710.9.CFA.8	Removable fixing element	1

P-CF CompactFlash Header Assembly
1.27mm pitch terminal strip 218.2.050.20

© EKF • 218.2.050.20 • ekf.com

01   25

26   50

CompactFlash pin header assembly
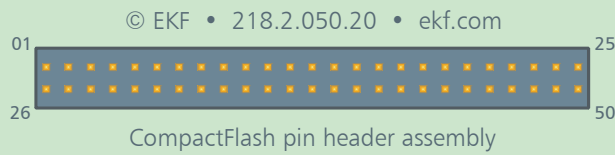
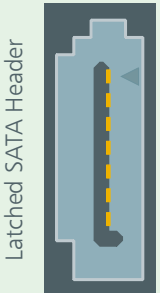|			
CD#	26	01	GND
IDE_DD11	27	02	IDE_DD03
IDE_DD12	28	03	IDE_DD04
IDE_DD13	29	04	IDE_DD05
IDE_DD14	30	05	IDE_DD06
IDE_DD15	31	06	IDE_DD07
IDE_CS1#	32	07	IDE_CS0#
NC *VS1#*	33	08	GND *A10*
IDE_DIOR#	34	09	GND 1) *ATASEL#*
IDE_DIOW#	35	10	GND *A09*
+3.3V 4) 5) *WE#*	36	11	GND *A08*
IDE_INTRQ	37	12	GND *A07*
+3.3V 4) 5)	38	13	+3.3V 4) 5)
GND 2) *CSEL#*	39	14	GND *A06*
NC *VS2#*	40	15	GND *A05*
IDE_RESET#	41	16	GND *A04*
IDE_IORDY	42	17	GND *A03*
IDE_DMARQ	43	18	IDE_DA2
IDE_DMACK#	44	19	IDE_DA1
IDE_DASP# 3)	45	20	IDE_DA0
NC *PDIAG#*	46	21	IDE_DD00
IDE_DD08	47	22	IDE_DD01
IDE_DD09	48	23	IDE_DD02
IDE_DD10	49	24	NC *IOCS16#*
GND	50	25	CD#

1)   True IDE Mode enabled
2)   CF card configured as IDE Master
3)   CF card activity output signal, wired to the corresponding on-board IDE LED
4)   Power rail switched on/off by CPU carrier board according to current sleep state
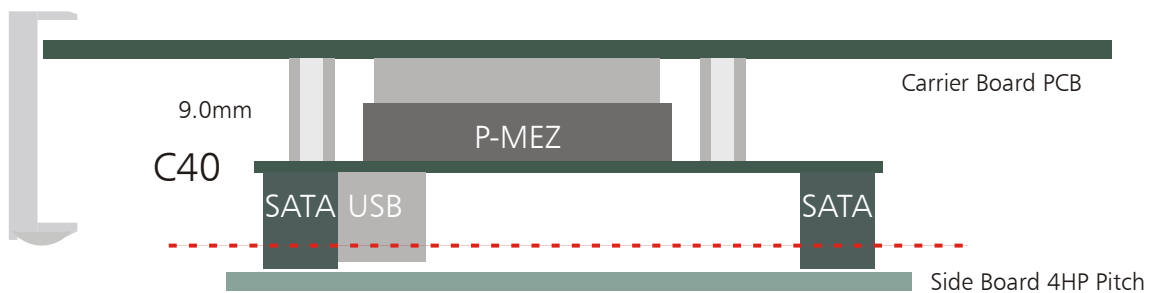5)   Alternate stuffing for +5VS by request

P-SATA2 P-SATA3

The C40-SCFA can be optionally stuffed with two vertical latched SATA signal headers. TX/RX designation of signals are shown with respect to the SATA controller. P-SATA2 corresponds to the SATA channel 0 of the JMB362 controller on the carrier board, and P-SATA3 is wired to the JMB362 SATA channel 1. The SATA ports can be used individually or as RAID 0/1.

Latching cable assemblies are recommended for reliable industrial usage. Both on-board SATA headers are aligned so, that a cable assembly with R/A plug leads to the rear side (opposite side with respect to the front panel), for system internal attachment of SATA drives.

Usage of P-SATA2/3 exceeds the 4HP total height of the board assembly (carrier board together with C40-SCFA mezzanine) by ~10mm, a cable harness with R/A SATA plug assumed. This is not tolerable for an additional 4HP mezzanine expansion card such as the CCL-CAPELLA or the CCI-RAP. Discuss your actual needs with sales@ekf.de before ordering.

P-SATA2 P-SATA3 #256.007.22.01 Latched Headers	
1	GND
2	SATA_TX+
3	SATA_TX-
4	GND
5	SATA_RX-
6	SATA_RX+
7	GND

Latched SATA Header
256.007.22.01   © EKF   ekf.com

9.0mm
C40
P-MEZ
SATA USB
SATA
Carrier Board PCB
Side Board 4HP Pitch

Sectional Drawing (North View) - SATA & USB

P-UFD1 P-UFD2

As a custom specific option, the C40-SCFA can be provided with one or two USB SSD (Solid State Drive) low profile mezzanine modules. However, the total stack height of the CPU carrier board and the C40-SCFA mezzanine module assembly would then exceed the 4HP envelope up to ~ 1.8mm. This may be tolerable under the condition that there is no 4HP pitch expansion side board mounted, or the locking screw for the USB Flash module is omitted, or the adjacent side board has no bottom mount components opposed to the USB SSD.

Sectional Drawing (South View) - USB SSD
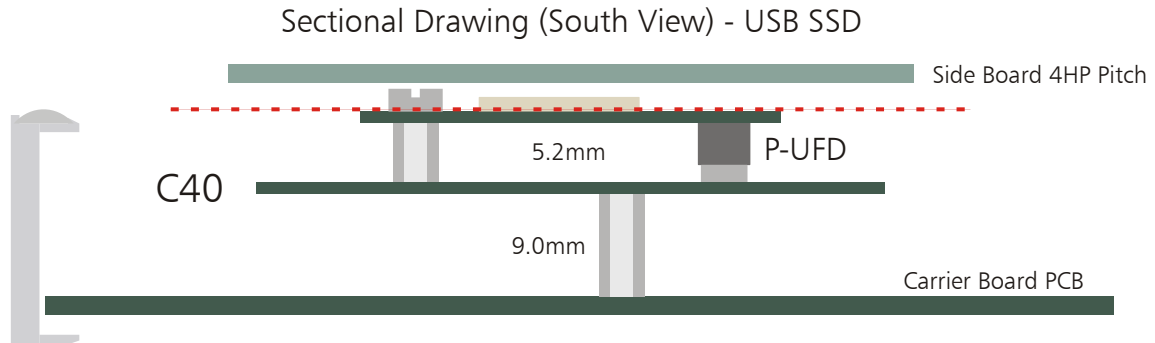
The UFD1 Flash module cannot be populated together with the J-USB3 receptacle, since both components would overlap each other. The UFD2 SSD is not available together with the CompactFlash connector P-CF for similar reasons. Be sure to discuss your needs with sales@ekf.de before ordering.

The C40-SCFA USB ports are derived from the ICH southbridge on the CPU carrier board. Self resettable fuses are provided on the C40-SCFA for short-circuit and overcurrent control regarding the P-UFD1 and P-UFD2 pin headers.

| P-UFD1 P-UFD2 • 2.00mm Pin Header 2x5 (251.1.0205.20.10) USB Solid-State Drive (Low Profile) 562.20.0004.00 (4GB) Sandisk uSSD 5000 • STec SLUFDM • Intel Z-U130 SSDUSMS				
	+5V 1)	1	2	NC
	USB_D-	3	4	NC
	USB_D+	5	6	NC
	GND	7	8	NC
	Mech. Key	9	10	NC

1)   Self resetting fuse 0.5A, power switched according to CPU carrier board sleep state
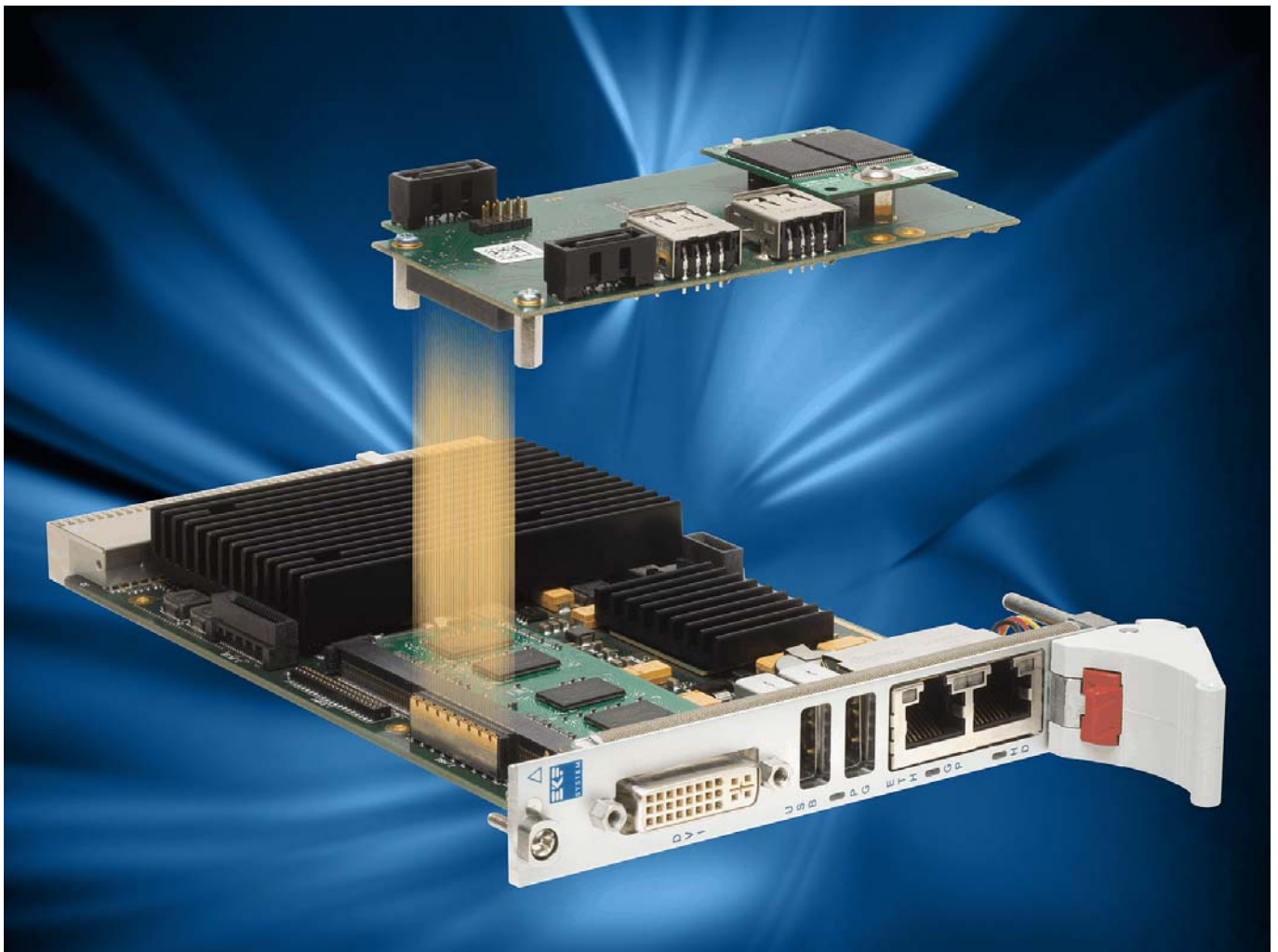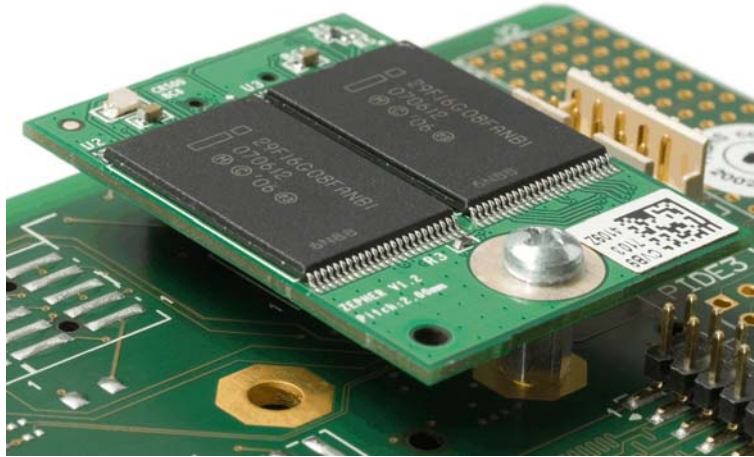
C40-SCFA (USB SSD) over CCM-BOOGIE CPU Carrier Card

J-USB3 J-USB4

As a custom specific option, the C40-SCFA can be provided with one or two USB receptacles. Due to the USB connector dimensions, the total stack height of the CPU carrier board and the C40-SCFA mezzanine module assembly will exceed the 4HP envelope about ~1.3mm. This may be tolerable in some situations, but should be nevertheless considered. USB cable assemblies with slim and short plugs are also required - not any USB harness matches with the C40-SCFA due to space restrictions. The same issue must be strictly observed if direct attachment of an USB stick (e.g. Flash Drive) is intended - only a very short, low profile stick (with an overall length of less than 50mm) would be suitable.
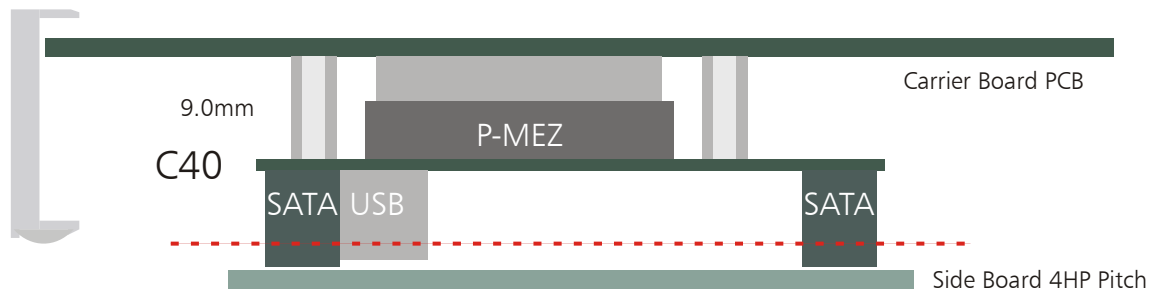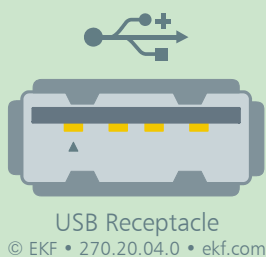

Sectional Drawing (North View) - SATA & USB

The J-USB3 receptacle cannot be populated together with the UFD1 Flash module, since both components would overlap each other. The J-USB4 receptacle is not available together with the CompactFlash connector P-CF for similar reasons. Be sure to discuss your needs with sales@ekf.de before ordering.

The C40-SCFA USB ports are derived from the ICH southbridge on the CPU carrier board. A dual electronic switch is provided on the C40-SCFA for short-circuit and overcurrent control regarding the J-USB3 and J-USB4 receptacles (0.5A).

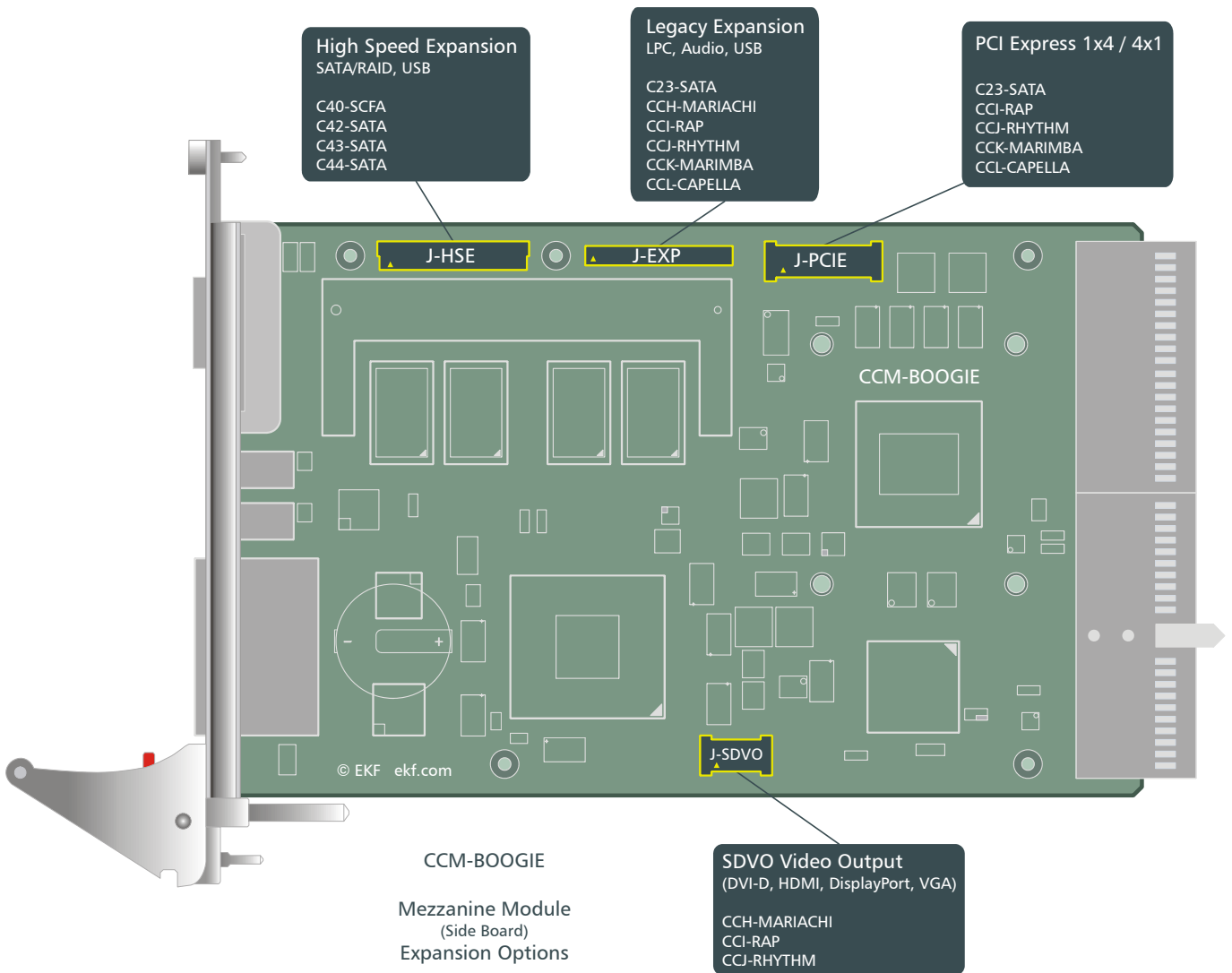| USB Receptacles J-USB3 & J-USB4 • 270.20.04.0		
USB Receptacle © EKF • 270.20.04.0 • ekf.com	1	+5V_USB 0.5A 1)
	2	DATA-
	3	DATA+
1) Dual Channel Electronic Switch Protection	4	GND

Inter-Board Connector

The C40-SCFA is equipped with a high speed mezzanine connector, mating with the CCM-BOOGIE CPU board and its successors. The inter-board connector is situated at the bottom of the C40-SCFA and establishes the data path and power link to the carrier board CPU via J-HSE. Since the C40-SCFA comes typically mounted as a unit together with the CCM-BOOGIE, there is normally no need for the user to get access to the inter-board connector. It is described here as a reference only and for better understanding of the C40-SCFA.

High Speed Expansion
SATA/RAID, USB

C40-SCFA
C42-SATA
C43-SATA
C44-SATA

Legacy Expansion
LPC, Audio, USB

C23-SATA
CCH-MARIACHI
CCI-RAP
CCJ-RHYTHM
CCK-MARIMBA
CCL-CAPELLA

PCI Express 1x4 / 4x1

C23-SATA
CCI-RAP
CCJ-RHYTHM
CCK-MARIMBA
CCL-CAPELLA

J-HSE

J-EXP

J-PCIE

CCM-BOOGIE

© EKF   ekf.com

J-SDVO

CCM-BOOGIE

Mezzanine Module
(Side Board)
Expansion Options

SDVO Video Output
(DVI-D, HDMI, DisplayPort, VGA)

CCH-MARIACHI
CCI-RAP
CCJ-RHYTHM

P-MEZ

The connector P-MEZ is a 1mm height shielded male pin header. Its counterpart on the CPU carrier board is a 8mm height receptacle, for a nominal headroom of 9mm between the boards.

| P-MEZ SATA & USB Mezzanine Interface			
1.00mm Pitch Male Connector 1mm Height (275.90.01.068.51)			
GND	b1	a1	GND
SATA3_TXP 4)	b2	a2	SATA1_TXP 3)
SATA3_TXN 4)	b3	a3	SATA1_TXN 3)
GND	b4	a4	GND
SATA3_RXN 4)	b5	a5	SATA1_RXN 3)
SATA3_RXP 4)	b6	a6	SATA1_RXP 3)
GND	b7	a7	GND
SATA4_TXP	b8	a8	SATA2_TXP 4)
SATA4_TXN	b9	a9	SATA2_TXN 4)
GND	b10	a10	GND
SATA4_RXN	b11	a11	SATA2_RXN 4)
SATA4_RXP	b12	a12	SATA2_RXP 4)
GND	b13	a13	GND
USB3_P	b14	a14	USB1_P
USB3_N	b15	a15	USB1_N
GND	b16	a16	GND
USB4_P	b17	a17	USB2_P
USB4_N	b18	a18	USB2_N
GND	b19	a19	GND
USB3_OC#	b20	a20	USB1_OC#
USB4_OC#	b21	a21	USB2_OC#
+5VS 2)	b22	a22	+3.3VS 1)
+5VS 2)	b23	a23	+3.3VS 1)
+5V	b24	a24	*+3.3V*
RSVD	b25	a25	*+12V*

1) 2)   Switched voltages from carrier board, according to CPU sleep state S0

3)   This SATA channel has been derived from ICH southbridge (dedicated to PATA bridge on C40-SCFA CompactFlash mezzanine module)

4)   These SATA channels are derived from the additional secondary PCIe SATA controller, RAID 0/1/10 capable

Notes:
‣   All s# connector pins (shield) are tied to GND
‣   All TX/RX designations with respect to SATA controller (TX controller = RX drive, RX controller = TX drive)

mSATA
CF
CFast
USB 2.0
SATA II
1.8" SSD
USB Flash

Low Profile Mezzanine Storage Card Area
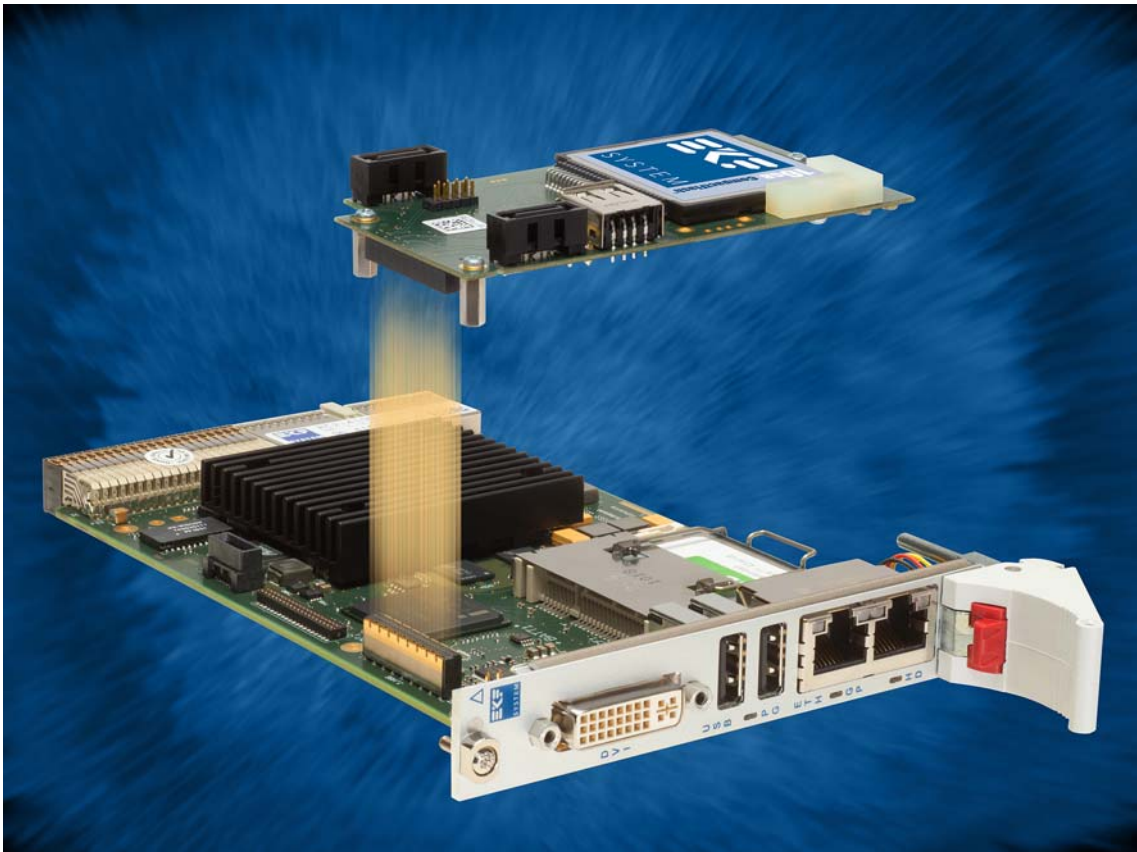
C40-SCFA (CF Card) over PC2-LIMBO CPU Carrier Board

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.

EKF reserves the right to refuse distribution of confidential information material for any reason that EKF may consider substantial.

Ordering Information

Ordering Information
For popular C40-SCFA SKUs please refer to www.ekf.com/liste/liste_20.html#C40

Alternate Products

Low Profile CPU Card Mezzanine Storage Modules		
C41-CFAST	CFast™	www.ekf.com/c/ccpu/c41/c41_tie.pdf
C42-SATA	Micro SATA	www.ekf.com/c/ccpu/c42/c42_tie.pdf
C47-MSATA	Dual mSATA	www.ekf.com/c/ccpu/c47/c47.html
Overview	J-HSE/P-MEZ Based Modules	www.ekf.com/c/ccpu/c4x_mezz_ovw.pdf

Industrial Computers Made in Germany
boards.   systems.   solutions.