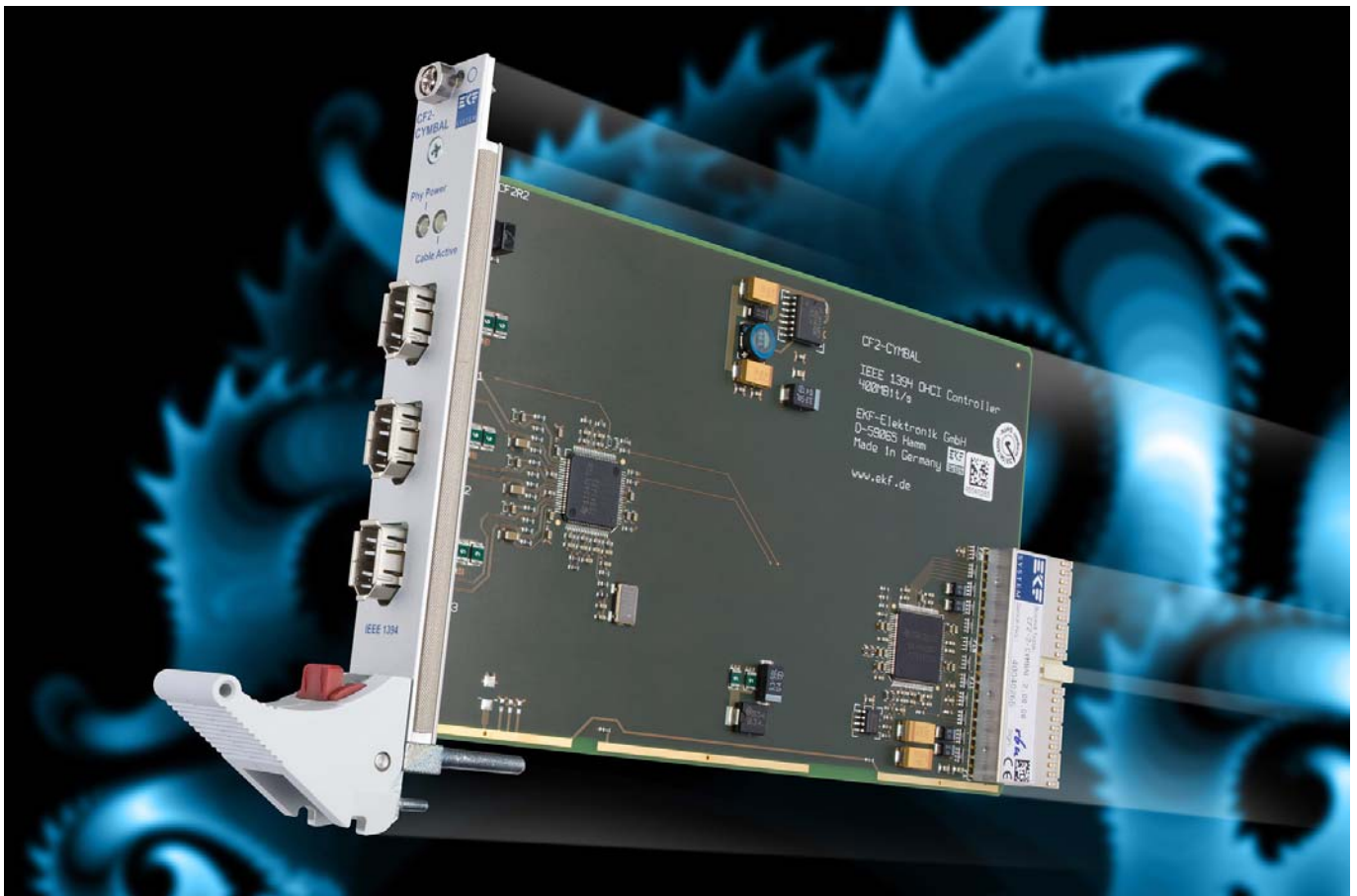# SYSTEM

Product Information

CF2-CYMBAL • *CompactPCI* ® IEEE 1394 Hostadapter

Document Nr. 2002 • Edition 19 May 2014

*The EKF **CF2-CYMBAL** is a **CompactPCI**®
hostadapter for the 400Mbps IEEE 1394a-2000
High Performance Serial Bus - also known as
FireWire™ (Apple) or i.LINK™ (Sony). The CF2-
CYMBAL is based on the OHCI standard (Open
Host Controller Interface), supported by all
popular operating systems such as Linux und
Windows®. The hostadapter provides
connectors for up to three 1394 peripheral
devices or bus segments.*

Isochronous data packets are issued on the
average of each 125us in support of time-
sensitive applications, which makes the
IEEE 1394 High Performance Serial Bus very
popular in vision systems (digital video). A high
quality video signal e.g. generates an
uncompressed continuous data flow of up to
200Mbps, which is passed across the
CF2-CYMBAL just-in-time to the CompactPCI
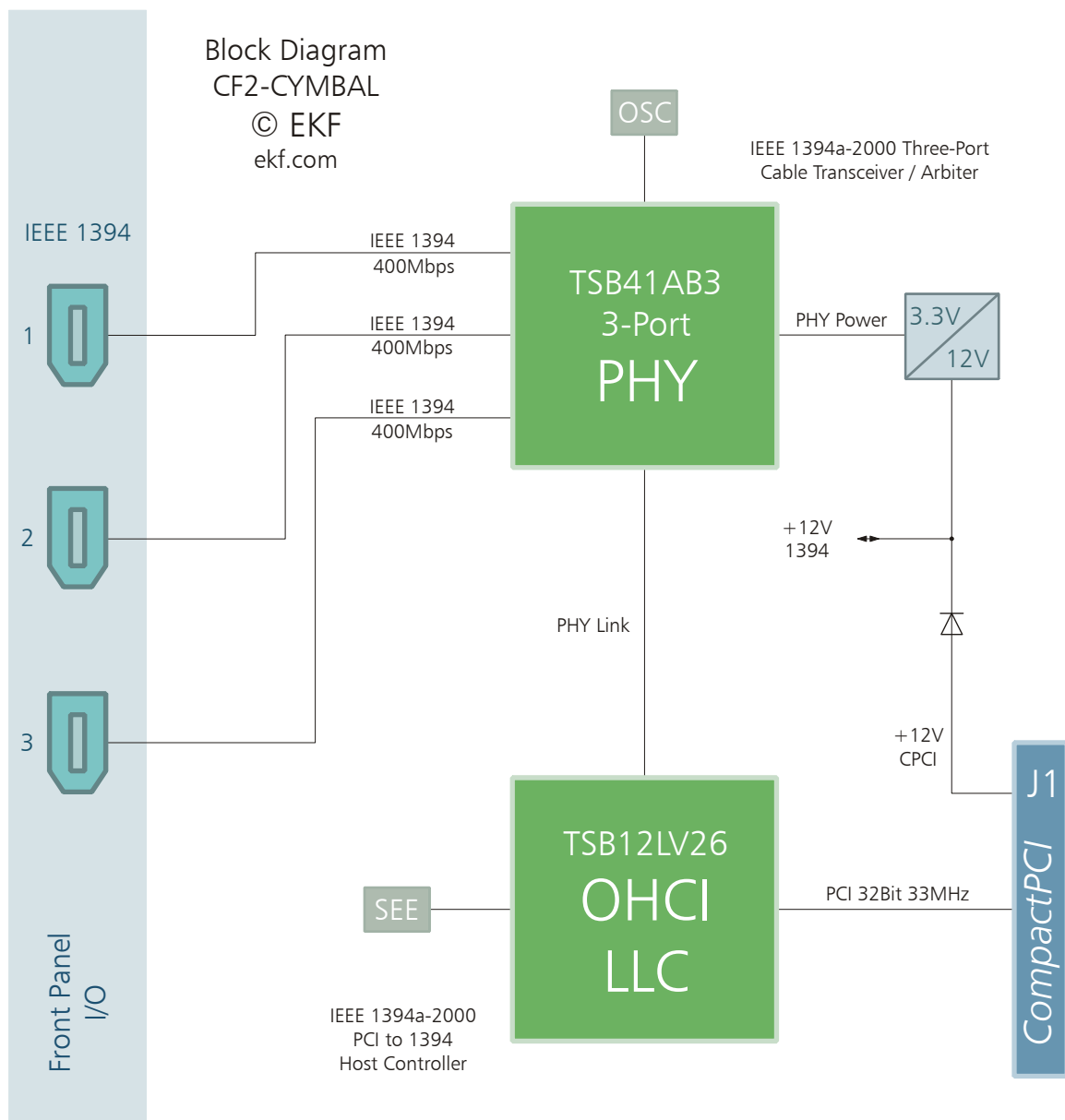system.

CF2-CYMBAL

The CF2-CYMBAL is housed on a 3U (single size) Eurocard. With its triple 1394 cable port, the board can be operated as a controller (master) and transceiver. For 6U systems, EKF offers a mechanical adapter kit to expand the front panel of the CF2-CYMBAL to the full 6U height.

The board is based on a Texas Instruments OHCI-Lynx link layer controller and PHY, which operate at data transfer rates up to 400Mbps, compliant to IEEE 1394a-2000. All three ports use 6-lead Molex connectors with cable power distribution.

The CF2-CYMBAL requires no proprietary software but OHCI compliant drivers, which are integral and reliable part of all popular operating systems.

Hence the IEEE 1394 CompactPCI® hostadapter CF2-CYMBAL is suitable for a wide range of industrial applications, typically image based control systems with real-time demand, such as vision- and inspection systems, e.g. AOI (automated optical inspection), production control, or traffic monitoring (toll recording).
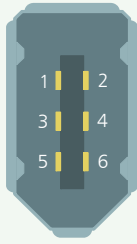
Block Diagram
CF2-CYMBAL
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IEEE 1394

IEEE 1394a-2000 Three-Port
Cable Transceiver / Arbiter

OSC

IEEE 1394
400Mbps

1

IEEE 1394
400Mbps

TSB41AB3
3-Port
PHY

PHY Power

3.3V
12V

2

IEEE 1394
400Mbps

+12V
1394

3

PHY Link

+12V
CPCI

J1

SEE

TSB12LV26
OHCI
LLC

PCI 32Bit 33MHz

CompactPCI

IEEE 1394a-2000
PCI to 1394
Host Controller

Front Panel
I/O

Block Diagram CF2-CYMBAL

| Summary of Technical Features	
Printed Circuit Board	3U Eurocard (100x160mm^2), front panel 4HP (20.3mm)
Front Panel Elements	▸ Three Molex receptacles, 6-leads with 12V power distribution, individually current protected by 1.5A resettable fuses ▸ Dual-LED, indicating PHY power present and cable active status
IEEE 1394 Chipset	▸ Texas Instruments OHCI Link Layer Controller 100, 200 und 400Mbps, IEEE 1394a-2000 ▸ Texas Instruments PHY 100, 200 und 400Mbps, IEEE 1394a-2000, Triple-Cable Transceiver/Arbiter, Cable Port Monitor, Cable Power Monitor, transceiver disabled when cable not active, short reset, switching regulator powers PHY from cable when board is switched off (1394 hub function maintained when CPCI system is powered down)
CompactPCI®	▸ 32-Bit, 33MHz (133MB/s), 3.3V or 5V interface, peripheral slot CPCI connector J1 ▸ Ready for usage within PXI® systems
Power Requirements	▸ +5V ±5% 0.1A max. ▸ +3.3V ±0.3V 0.3A max. ▸ +12V ±5% 0.1A max. (w/o 1394 cable power charge) ▸ +12V ±5% 1.6A max. (with 1394 cable power at max. load) ▸ V_{IO} +3.3V or +5V compliant, max. 0.1A
Thermal Conditions Environmental Conditions	▸ Operating temperature 0°C ... +70°C (industrial temperature range available on request) ▸ Storage temperature -40°C ... +85°C, max. gradient 5°C/min ▸ Humidity 5% ... 95% relative humidity, non condensing ▸ Altitude -300m ... +3000m ▸ Shock 15g 0.33ms, 6g 6ms ▸ Vibration 1g 5-2000Hz
Regulations	▸ EN55022, EN55024, EN60950-1 (UL60950-1/IEC60950-1) ▸ 2002/95/EC (RoHS)
MTBF	0.3 x 10^{6}h

specifications are subject to technical changes

1394a Receptacles

1394a FireWire Receptacle © EKF ekf.com Part No. 270.30.06.0	1	+12V 1394 Bus Power
	2	GND
	3	TP B-
	4	TP B+
	5	TP A-
	6	TP A+

The CF2-CYMBAL delivers +12V derived from the CompactPCI® backplane (J1) to the 1394 receptacles across a Schottky diode (which reduces slightly the externally available voltage). The maximum load at a particular receptacle is 1.5A (short circuit protected by self resetting fuses). The maximum total load for all three receptacles is also 1.5A. If the CPCI system is powered down, the 1394 PHY on the CF2-CYMBAL will be nevertheless functional if there is cable power present from an external source. This allows to maintain the 1394 hub function, which is signalled by the LED PHY Power.
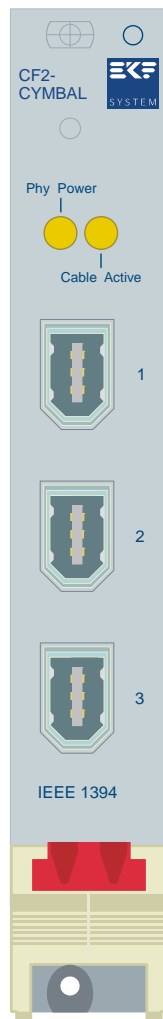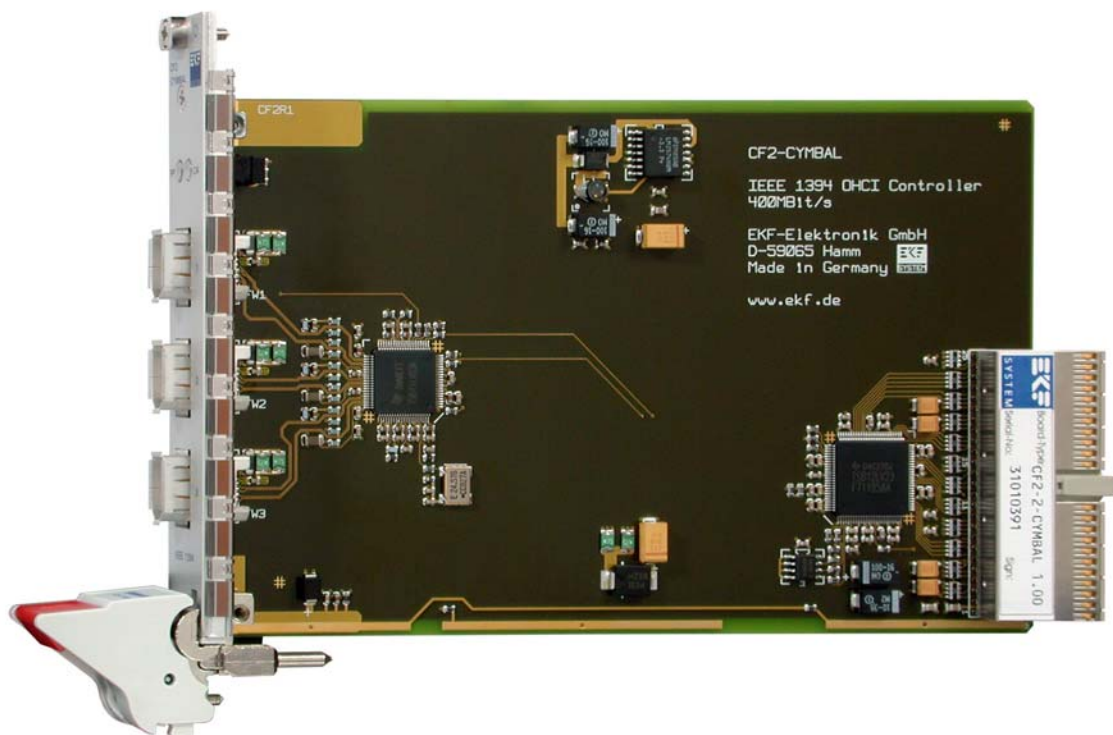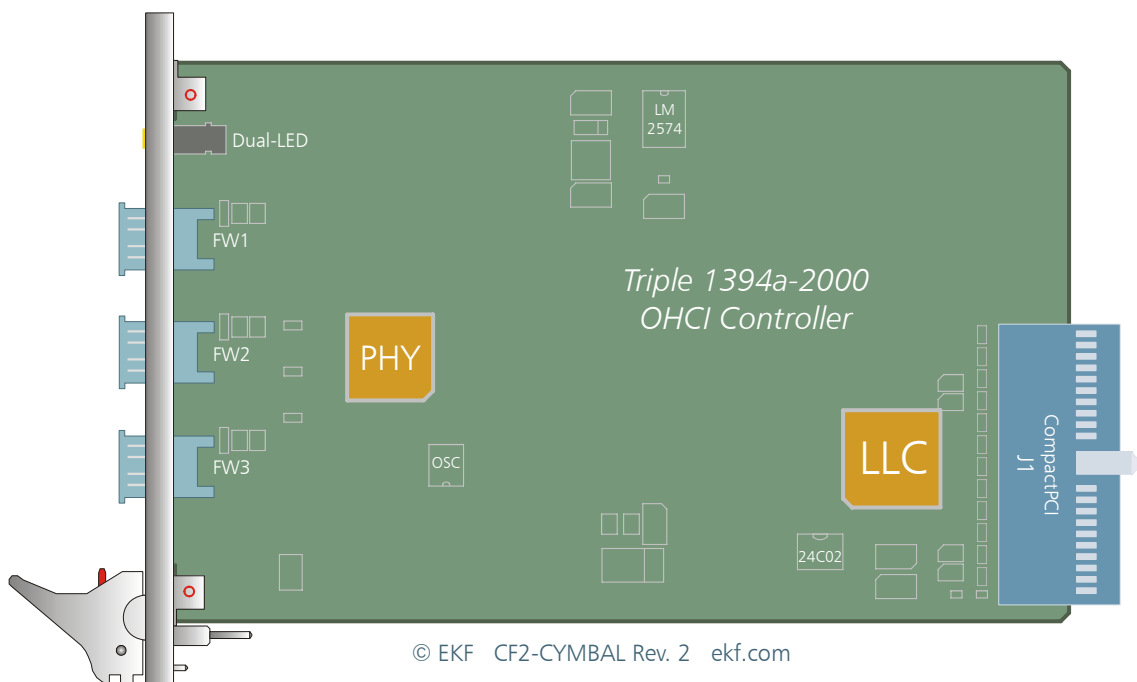

CF2-CYMBAL
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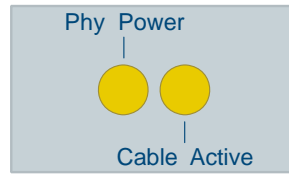
CF2-CYMBAL
Dual Front Panel LED
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CF2-CYMBAL Front View

CF2-CYMBAL

Ordering Information	
Ordering No.	Short Description
CF2-2-CYMBAL	CompactPCI® IEEE 1394 3-Port host adapter 400Mbps, OHCI-Lynx LLC (OHCI compliant) • www.ekf.com/c/cfiw/cf2/cf2.html
CR9-5-ADAPT	Mechanical kit, expands front panel to 6U • www.ekf.com/c/csys/cr9/cr9_e.html
Please refer also to www.ekf.com/liste/liste_20.html#CF2	

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