Product Information

CCM-BOOGIE • Core™ 2 Duo *CompactPCI* ® CPU

High Performance Dual Core Processor
Dual Screen Video • Dual Gigabit Ethernet • Dual Channel Memory • 6 x SATA RAID

Document No. 5198 • 14 February 2013

The CCM-BOOGIE is a versatile 4HP/3U CompactPCI® CPU board, equipped with an Intel® Core™ 2 Duo processor at up to 2.26GHz clock, and up to 6GB dual channel capable DDR3 RAM. Four native 3Gbps RAID capable Serial ATA channels are available for mass storage I/O, and in addition another two from a secondary RAID controller. The CCM-BOOGIE has been designed especially for systems which require dual core high performance at moderate power consumption.

The CCM-BOOGIE is provided with a high performance mobile chipset (Intel® GS45) which operates at up to 1066MHz FSB and up to 1066MHz DDR3 memory clock for optimum system throughput. The chipset is based on PCI Express® technology and has a powerful integrated graphics accelerator. The DVI-I front panel connector enables dual screen video operation. Two Gigabit Ethernet controllers are provided for high speed connectivity (one of them IEEE 802.1as TimeSync compliant).

CCM-BOOGIE with SATA SSD

The CCM-BOOGIE is equipped wit a set of local expansion interface connectors, which can be optionally used to directly attach a suitable (application specific) mezzanine side board, e.g. for audio- and legacy support, PCI Express based I/O circuitry, and a secondary DVI video output. Carrier board and side card come as a readily assembled 8HP unit typically. Most mezzanine cards can accommodate in addition a 2.5-inch drive. Also as an option, a suitable rear I/O transition module is available to the CCM-BOOGIE.

As a popular add-on option, the CCM-BOOGIE can be delivered with a small mezzanine module (C42-SATA), which accommodates a 1.8-inch SATA solid state drive (SSD). Alternatively, the C40-SCFA mezzanine card is provided with an industrial grade CompactFlash memory card, and/or an even more rugged USB Silicon State Drive (SSD). In addition, the C41-CFAST is available, equipped with a CFast™ card socket. Any of the C41...C43 mezzanine modules fits into the 4HP envelope of the entire assembly.

Benefits of the CCM-BOOGIE

▸ High Performance *CompactPCI*® System Slot Controller with or w/o Rear I/O

▸ Hybrid Systems Option 1 (Dual Backplane *CompactPCI*® & *CompactPCI® Serial*)

▸ Hybrid Systems Option 2 (Dual Backplane *CompactPCI*® & *CompactPCI® Express*)

▸ *Intel® Core™ 2 Duo SV* (45nm Penryn) Mobile Processor 2.26GHz 6MB L2 Cache (FSB 1066MHz)

▸ Scalable Series of Small Form Factor (SFF) Processors from 1.2GHz to 2.26GHz

▸ Cool Operation by Means of ACPI UEFI BIOS

▸ PCI Express Mobile Intel® 45 Express Chipset GS45 (Cantiga)

▸ Up to 6GB DDR3 Memory (Dual Channel Mode Capable, up to 1066MHz)

▸ One Memory Bank Soldered (Low Memory) for Extreme Ruggedized Systems

▸ Dual-Screen Graphics Controller

▸ Dual Gigabit Ethernet Controllers

▸ Four Native SATA Channels 3Gbps, Intel® Matrix Raid Storage Technology

▸ Two Additional SATA Channels 3Gbps, RAID capable with JMicron Drivers

▸ Eleven USB 2.0 channels

▸ SATA 1.8-Inch Solid State Drive (SSD) with C42-SATA Mezzanine Module Option (4HP Maintained)

▸ CFast™ Card and/or USB SSD with C41-CFAST Mezzanine Module Option (4HP Maintained)

▸ CompactFlash and/or USB SSD with C40-SCFA Mezzanine Module Option (4HP Maintained)

▸ Variety of Mezzanine Expansion Boards Available with and w/o PCIe

▸ TPM 1.2 Option (on Mezzanine Expansion Board or GS45 Internally)

▸ Rear I/O Transition Module Option

▸ Long Term Availability

▸ Coating, Sealing, Underfilling on Request

▸ RoHS compliant

CCM-BOOGIE

CCM-BOOGIE with CCT-RIO

CCM-BOOGIE w. C41-CFAST Mezzanine Storage Module

CCM-BOOGIE w. C43-SATA Internal Connectors Module

Feature Summary CCM-BOOGIE

Form Factor	Single size *CompactPCI* style Eurocard (160x100mm^2), front panel width 4HP (20.3mm)
Processor	Designed for Intel® Core™ 2 Duo SFF (Small Form Factor) processors (codename Penryn), 1066/800MHz FSB, maximum junction temperature 105°C, Enhanced Intel® Speedstep® Technology [1], Dual Core Multiprocessing [1], Intel® Virtualization Technology (VT) [1], Intel® 64 Architecture ▸ Core™ 2 SV • SP9300 • 2.26GHz • FSB 1066MHz • 6MB L2 Cache • 25W TDP ▸ Core™ 2 LV • SL9400 • 1.86GHz • FSB 1066MHz • 6MB L2 Cache • 17W TDP ▸ Core™ 2 ULV • SU9300 • 1.2GHz • FSB 800MHz • 3MB L2 Cache • 10W TDP ▸ Celeron® M ULV • 722 • 1.2GHz • FSB 800MHz • 1MB L2 Cache • 5.5W TDP [1] features not available with Celeron® M ULV 722 processor
Chipset	Mobile Intel® 45 (Codename Cantiga) chipset comprised of: ▸ GS45 Graphics/Memory Controller Hub (GMCH) with Intel® Gen. 5.0 integrated graphics engine with 10 fully-programmable cores, 1600x1200 dual independent display, HW support for H.264, MPEG2, VC-1, improved 3D capability (DirectX 10/OpenGL 2.0 support), estimated 533-MHz core render clock (low-power mode 266MHz), option Integrated Trusted Platform Module (ITPM) ▸ ICH9M-E Enhanced I/O Controller Hub, integrated GbE MAC, 12 x USB (2 x EHCI, 6 x UHCI cntrls.), 4 x SATA 3Gbps, Intel® Matrix Storage Technology (RAID 0, 1, 5, 10), High Definition Audio, unified SPI Flash support
Memory (RAM)	▸ Maximum theoretical memory capacity of 8GB DDR3 up to 1067MHz ▸ 512Mb, 1Gb, 2Gb technologies for x8 and x16 devices ▸ Dual channel symmetric – memory addresses interleaved for increased performance (module sizes must match) ▸ Intel® Flex Memory Technology (dual channel interleaved mode with unequal memory population) - memory module sizes maybe unequal in both the channels ▸ Dual channel asymmetric – memory module sizes may differ, including no memory in the second channel (single-channel) ▸ Channel 0 populated as directly soldered DDR3 devices (Low Memory) up to 2GB ▸ Channel 1 provided as SODIMM socket to accommodate DDR3 module PC3-8500 up to 4GB
Non Volatile Memory (NVM)	▸ Intel® Turbo Memory card (codename Robson) on CCI-RAP mezzanine side board optionally available ▸ PCI Express Mini Card 1G Byte Flash ▸ Microsoft® ReadyDrive and ReadyBoost (Windows® Vista) ▸ Intel® Turbo Memory driver
Video	▸ Both (concurrently) analog monitor and digital flat-panel display support by DVI-I connector (front panel), up to 2048x1536 pixel 16M colours @75Hz refresh rate (analog), up to 1600 x 1200 pixel 16M colours @60Hz (digital), incorporates PanelLink Digital technology (Silicon Image) ▸ Dual screen capable 2 x 1600 x 1200 pixel (one display attached to the front panel, the other to the back panel, or both to the front panel by means of a DVI-I to DVI-D/VGA splitter cable, or secondary DVI-D connector on mezzanine side board) ▸ Front panel option: D-Sub (female HD15) VGA connector available, replaces DVI-I connector ▸ Rear I/O option: Analog video output configurable (BIOS) across J2/P2 CCT-RIO rear I/O transition module ▸ Mezzanine option: Secondary DVI-D connector at mezzanine card front panel allows for dual digital flat panel operation, suitable mezzanine modules e.g. CCI-RAP, CCJ-RHYTHM, CCO-CONCERT

Feature Summary CCM-BOOGIE

USB	▸ All ports over-current protected, data transfer rate of up to 480Mbps, conforming to USB2.0 ▸ 2 x USB type A connector (front panel) ▸ 3 x USB ports J2/P2 Rear I/O option (CCT-RIO rear I/O transition module) ▸ 2 x USB ports via J-EXP expansion interface option (in use by several mezzanine side boards) ▸ 4 x USB ports via J-HSE (C40-SCFA mezzanine storage module) ▸ Dual EHCI / six UHCI controllers provided by ICH9M-E
Ethernet	▸ Two 10/100/1000Mbps Gigabit Ethernet controllers, accessible via RJ45 jacks from the front panel ▸ ETH1 equipped with Intel® 82567LM PHY (MAC provided by ICH9M-E), Jumbo Frame support up to 9KB ▸ ETH2 equipped with Intel® 82574L GbE controller, connected to local PCIe lane, supports 9018-byte jumbo packets, TimeSync Offload compliant with 802.1as specification ▸ Option ETH1 Gigabit Ethernet configurable (BIOS setup) across J2/P2 with attached CCT-RIO rear I/O transition module
SATA	▸ Total of six 3Gbps SATA channels available ▸ Triple-channel Serial ATA 3Gbps available for J2/P2 rear I/O option (derived from ICH9) ▸ Suitable rear I/O transition module CCT-RIO (2 x system internal SATA, 1 x eSATA for attachment of external devices) ▸ Intel® Matrix Storage Technology MST (Raid 1, 0, Matrix Raid) ▸ Secondary on-board PCIe to SATA controller JMB362, dual channel SATA RAID, available via J-HSE expansion connector (plus 1 SATA channel in addition from ICH9) ▸ C41-CFAST mezzanine module available providing a CFast™ Flash card header ▸ C42-SATA mezzanine module available providing a Micro SATA header (1.8-inch SSD) ▸ Additional PCIe to SATA controller on mezzanine side boards e.g. CCI-RAP, CCK-MARIMBA, CCL-CAPELLA, CCO–CONCERT
PATA (IDE)	▸ Option mezzanine module attached to J-HSE expansion connector ▸ C40-SCFA mezzanine module available with on-board SATA to PATA bridge and CompactFlash socket
PCI Express	▸ 4-Lane PCIe high-speed connector J-PCIE for CCJ-RHYTHM, CCO-CONCERT and other mezzanine expansion cards (side boards) ▸ Possible configurations 1 Link x 4 Lanes, 4 Links x 1 Lane
Mezzanine Side Board I/O	▸ J-EXP Legacy expansion interface connector LPC/USB/Audio (SIO, USB, HD Audio) ▸ J-HSE High-speed expansion interface connector (3 x SATA, 4 x USB) ▸ J-PCIE PCI Express 4-lane high-speed expansion connector ▸ J-SDVO secondary digital graphics port high-speed expansion connector ▸ Suitable mezzanine companion side boards available, e.g.: 　　▸ *CCI-RAP*: 2 x PCI Express® Mini Card sockets (WLAN, GSM, Wimax, Intel® Turbo Memory), options secondary DVI-D, IEEE 1394 (FireWire), USB SSD, C20-SATA mezzanine storage module (accommodates up to 2 SATA hard disk drives 2.5-inch RAID capable) 　　▸ *CCJ-RHYTHM*: CompactPCI® Express system slot controller function by on board 6-port 24-lane PCIe switch, options DVI-D, IEEE 1394 (FireWire) 　　▸ *CCK-MARIMBA*: PMC/XMC module carrier, option C20-SATA mezzanine storage module 　　▸ *CCL-CAPELLA*: Up to 4 Gigabit Ethernet ports, options IEEE 1394 (FireWire), USB SSD, C20-SATA mezzanine module 　　▸ *CCO-CONCERT*: Audio analog/digital, option secondary DVI-D 　　▸ *C23-SATA*: PCIe to 2 x SATA 1 x PATA controller 　　▸ *C40-SCFA*: SATA to PATA bridge & CompactFlash header, option USB SSD, 4HP envelope maintained 　　▸ *C41-CFAST*: CFast™ Flash card header, 4HP envelope maintained 　　▸ *C42-SATA*: 1.8-Inch SATA Solid State Drive, 4HP envelope maintained

Feature Summary CCM-BOOGIE	
CompactPCI® Express	▸ CCM-BOOGIE can be configured as CompactPCI Express System Board (system slot controller) by optionally available mezzanine expansion card (side board) CCJ-RHYTHM ▸ CPCIe 4-Link configuration (4-lanes each), for up to 4 CPCIe peripheral slots type 1 and/or type 2 on a passive CPCIe backplane ▸ Suitable for hybrid CompactPCI and CompactPCI Express systems/backplanes
Platform Management (on Request)	▸ *Hardware is ready for AMT 4.0 Intel® Active Management Technology (iAMT)* ▸ *ARM core based Manageability Engine (ME) in the GMCH* ▸ *Independent manageability firmware, to be stored in SPI Flash* ▸ *No iAMT BIOS support available as of current*
J2 Rear I/O	▸ Suitable rear I/O transition module CCT-RIO available ▸ 3 x Serial ATA (SATA), 2 x system internal SATA connectors, 1 x external eSATA connector ▸ 1 x Gbit Ethernet (switched by BIOS between front panel I/O and rear I/O) ▸ 3 x USB ▸ VGA Analog Video (switched by BIOS between front panel I/O and rear I/O) ▸ PS/2 Keyboard, Mouse ▸ COM port (TTL Level)
J1 *CompactPCI®*	▸ ICH9M-E integrated 32-bit PCI bridge, 33MHz 133MBps CPCI master ▸ Additional PCI arbiter in PLD for fully figured 8-slot CompactPCI backplane ▸ +5V V(I/O) default configuration (PCI pull-up resistors 1k - blue coding key on J1) ▸ +3.3V V(I/O) on request (PCI pull-up resistors 2.7k - yellow coding key on J1)
Secure Computing	▸ Option Trusted Platform Module TPM 1.2 according to Trusted Computing Group specifications ▸ Choose from either integrated solution (GS45 Intel® Trusted Execution Technology), or available as discrete controller on several mezzanine boards e.g. CCH/CCI/CCJ ▸ Discrete crypto engine silicon brands Infineon or Atmel at users choice
BIOS	▸ Phoenix BIOS with EKF enhancements for embedded systems ▸ SPI Flash memory 2 x 16/32/64 Mb ▸ Updates available from website ekf.com
Drivers (All Major OS)	▸ Intel® graphics driver, Intel® embedded graphics driver ▸ Intel® networking driver ▸ Intel® Matrix Storage Manager software ▸ Intel® Turbo Memory driver ▸ JMicron SATA driver
Thermal Conditions Environmental Conditions	▸ 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	▸ EN55022, EN55024, EN60950-1 (UL60950-1/IEC60950-1) ▸ 2002/95/EC (RoHS)
MTBF	141 x 10^3 h (16 years) @ 50° C

Feature Summary CCM-BOOGIE

		+3.3V +0.17V/-0.1V		+5V +0.25V/-0.15V	
Typical Power Requirements [1] Intel® SpeedStep® Frequency Modes LFM: Low Frequency Mode, HFM: High Frequency Mode [2] Add per Ethernet port 0.4/1.2A (link only/active) @1Gbps or 0.1/0.4A @ 100Mbps	Board	MaxPower LFM/HFM [1]	WinXP Idle LFM/HFM [1]	MaxPower LFM/HFM [1]	WinXP Idle LFM/HFM [1]
	CCM-6-BOOGIE	5.1/5.2A [2]	2.1/2.1A [2]	2.3/4.5A	0.3/0.5A
		S3: 200mA S4: 100mA S5: 100mA		S3: 50mA S4: 50mA S5: 30mA	

	Board	Processor	CPU/MEM Score
Performance Rating Measured with PCMark2005 under Windows XP, 2 x 2GB DDR3 1066	CCM-6-BOOGIE	SP9300	5650
	CCM-4-BOOGIE	SL9400	
	CCM-2-BOOGIE	SU9300	

all items are subject to changes

CCM-BOOGIE with C40-SCFA

Block Diagram CCM-BOOGIE

SP9300 Core™2 SV
2.26GHz/FSB1066/6MB L2
SL9400 Core™2 LV
1.86GHz/FSB1066/6MB L2
SU9300 Core™2 ULV
1.2GHz/FSB800/3MB L2
722 Celeron® M ULV
1.2GHz/FSB800/1MB L2

Core™2
2.26GHz
6MB L2

Montevina
Simplified Block Diagram
CCM-BOOGIE
© EKF
ekf.com
2008-07-01

Penryn

FSB
800/1066

Cantiga

Video

Panel
Link

DVI1

SDVO1

**GS45
GMCH**

DDR3 800/1066
2GB/4GB/8GB
Dual Channel

DDR3 SO-DIMM

DDR3 Soldered

DVI-I
Digital/Analog

RGB

VGA

SDVO2

PCIe

iAMT
ME

iTPM

J-SDVO

**SATA II
RAID**

VGA
D-SUB

DVI2/
DisplayPort

Opt. Mezz.
Expansion
Board

DMI x 4

RAID
SATA

USB

SATA

J-HSE

Opt.
Mezzanine
Storage
Module

USB1

USB

USB2

GLCI

VGA

SATA

USB

**ICH9M-E
RAID
iAMT**

SPI

Rear I/O

Opt. Rear I/O
CCT-RIO

Boazman

GbE
1

**82
567LM**

PCIe

USB

PCI

HD Audio

LPC

SIO

KB/MS

**87
61**

COM

GPIO

Gb ETH

J2

iAMT Gb
Ethernet

GbE
2

**82
574L**

BIOS & FW
2 x 16/32Mb

**SPI
Flash**

**SPI
Flash**

Gigabit
Ethernet
Hartwell

Glue Logic
PCI Arbiter

**isp
MACH**

7 x PCI
32bit/33MHz

CompactPCI

Front Panel I/O

4 x PCI

x 4 PCIe

J-PCIE

J-EXP

top/
bottom

J1

Opt. Mezz.
Exp. Board

Component Assembly CCM-BOOGIE (Top View)
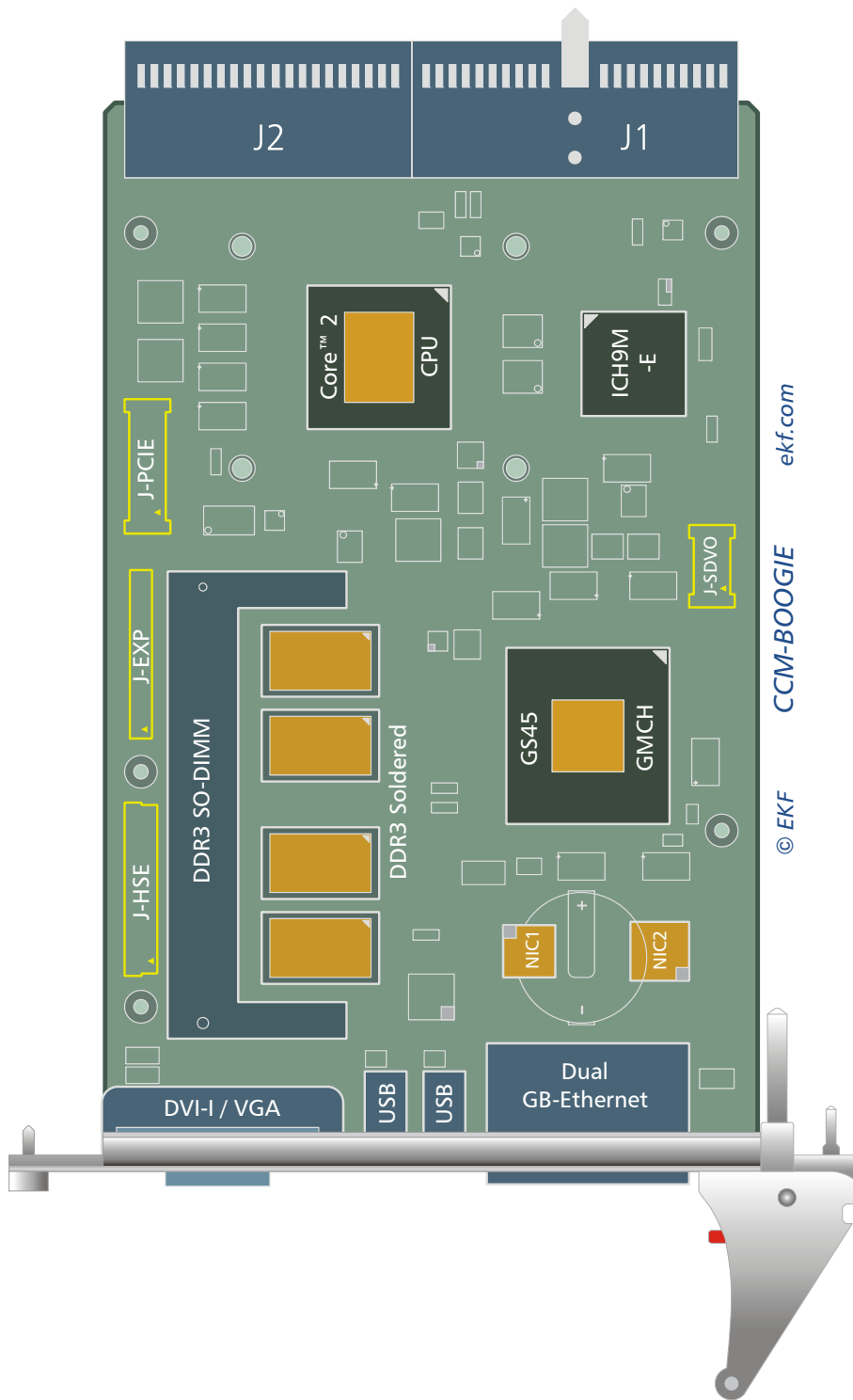
Front Panel Options CCM-BOOGIE

CCM-BOOGIE
DVI
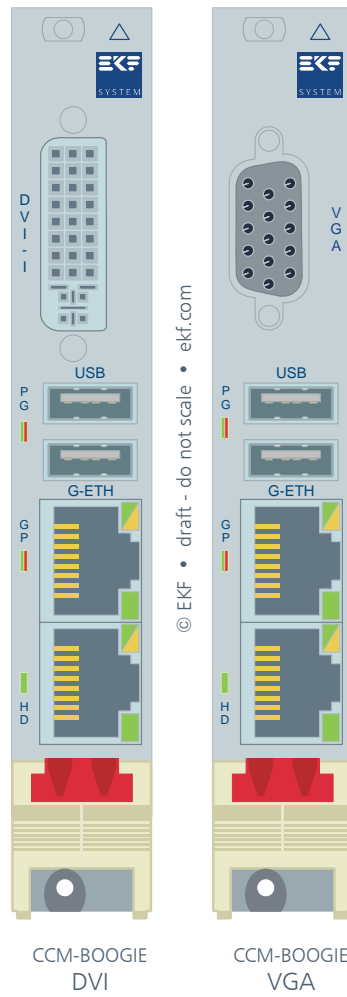
CCM-BOOGIE
VGA

CCM-BOOGIE w Side Card

Rear I/O Transition Module Option

Available as a rear I/O expansion board to the CCM-BOOGIE CPU card, the CCT-RIO is provided with several I/O port connectors, to be used either in addition to the CCM-BOOGIE front panel connectors or alternatively. Being mainly a passive rear I/O transition module, groups of signals from the CCM-BOOGIE 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 CCM-BOOGIE 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). Be sure to have ordered a CCM-BOOGIE rear I/O capable version and also the CPCI backplane suitable for rear I/O in order to use the CCT-RIO transition module.
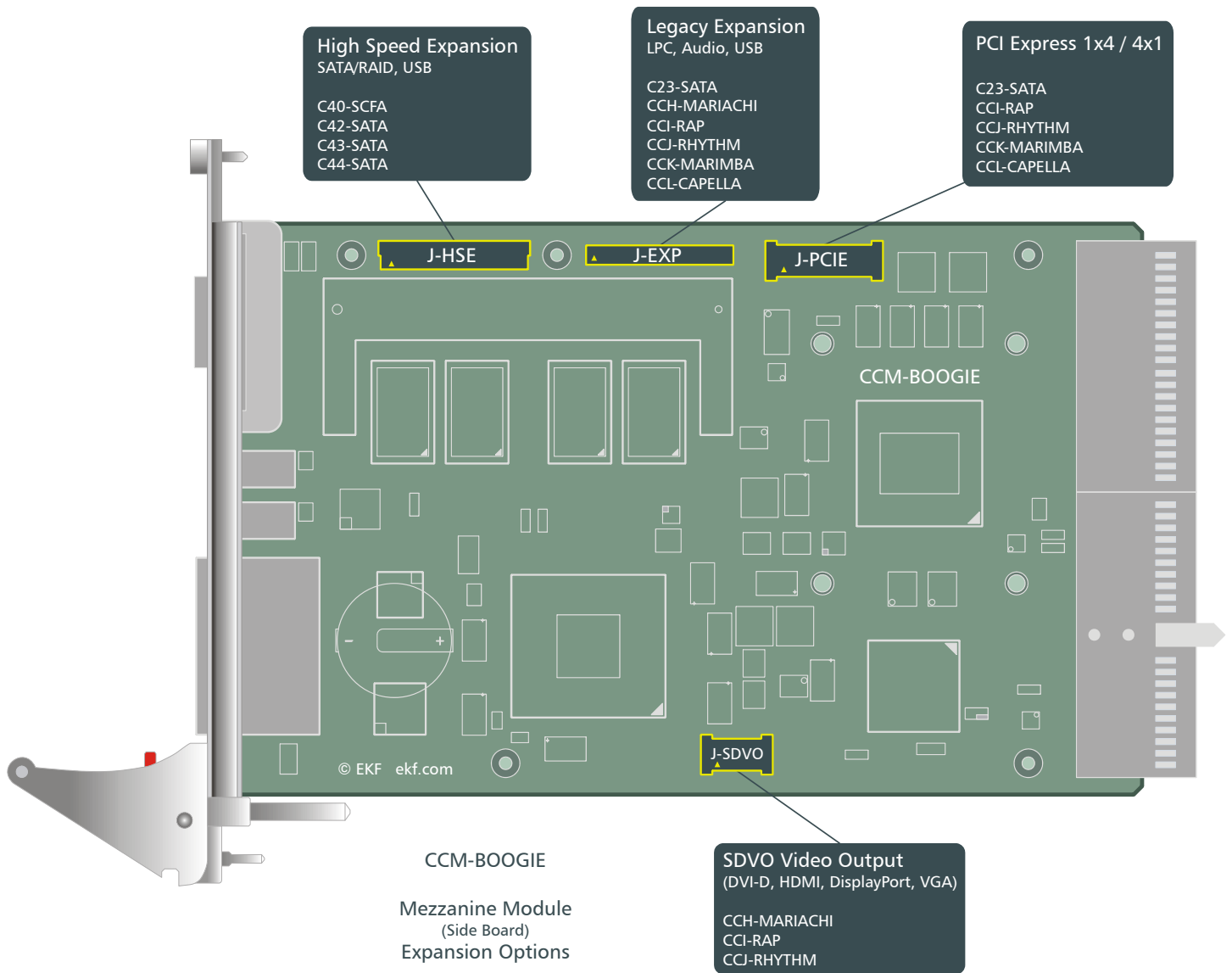
CCT-RIO (Shown with on-Board USB Stick)

CCM-BOOGIE w. CCT-RIO
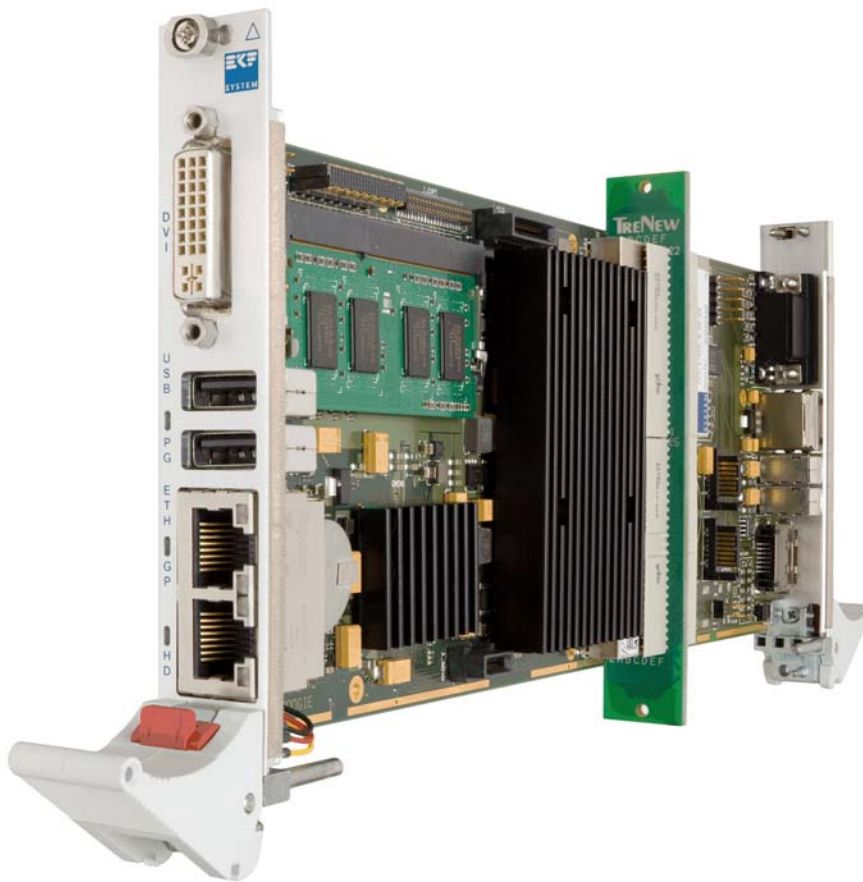
Mezzanine Side Board Options

The CCM-BOOGIE is provided with several stacking connectors for attachment of a mezzanine expansion module (aka side board), suitable for a variety of readily available mezzanine cards (please refer to www.ekf.com/c/ccpu/mezz_ovw.pdf for an overview). EKF furthermore offers custom specific development of side boads (please contact sales@ekf.de).

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

J-SDVO

CCM-BOOGIE

Mezzanine Module
(Side Board)
Expansion Options

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

CCH-MARIACHI
CCI-RAP
CCJ-RHYTHM

Most mezzanine expansion modules require an assembly height of 8HP in total, together with the CPU carrier board (resulting from two cards at 4HP pitch each).

In addition, cropped mezzanine modules are available for mass storage, which maintain the 4HP envelope (see illustrations next page), for extremely compact systems. Furthermore these small size modules may be combined with the full-size expansion boards (that means an assembly comprised of 3 PCBs).

The picture below illustrates a typical mezzanine stack, comprised of the CPU carrier board (shared front panel from 4HP to 12HP, individually tailored to customers configuration), a mezzanine side board with a variety of PCIe and legacy interface functions (front panel and/or rear I/O), and a SATA storage module (either SSD or hard disk, 1.8-inch or 2.5-inch, dual or single drive, RAID option).
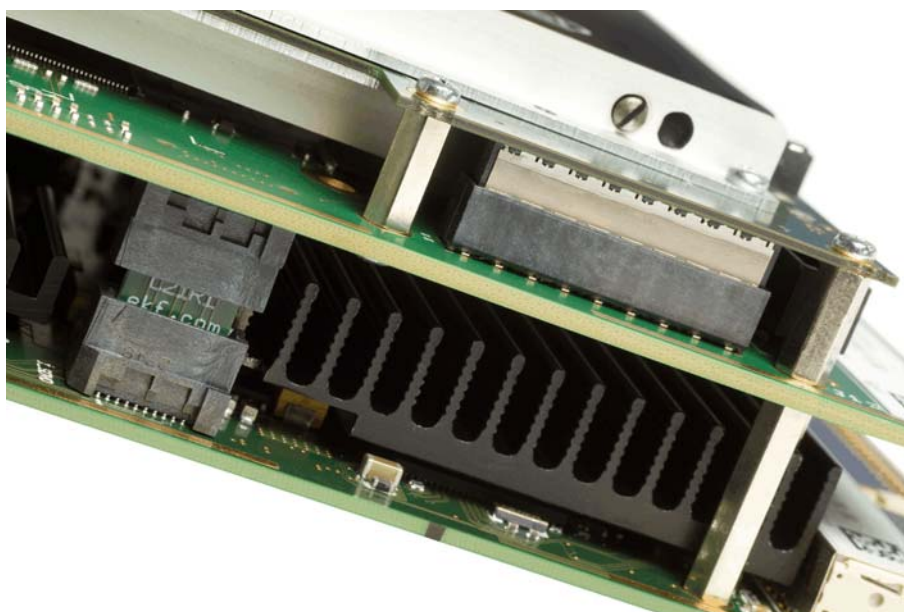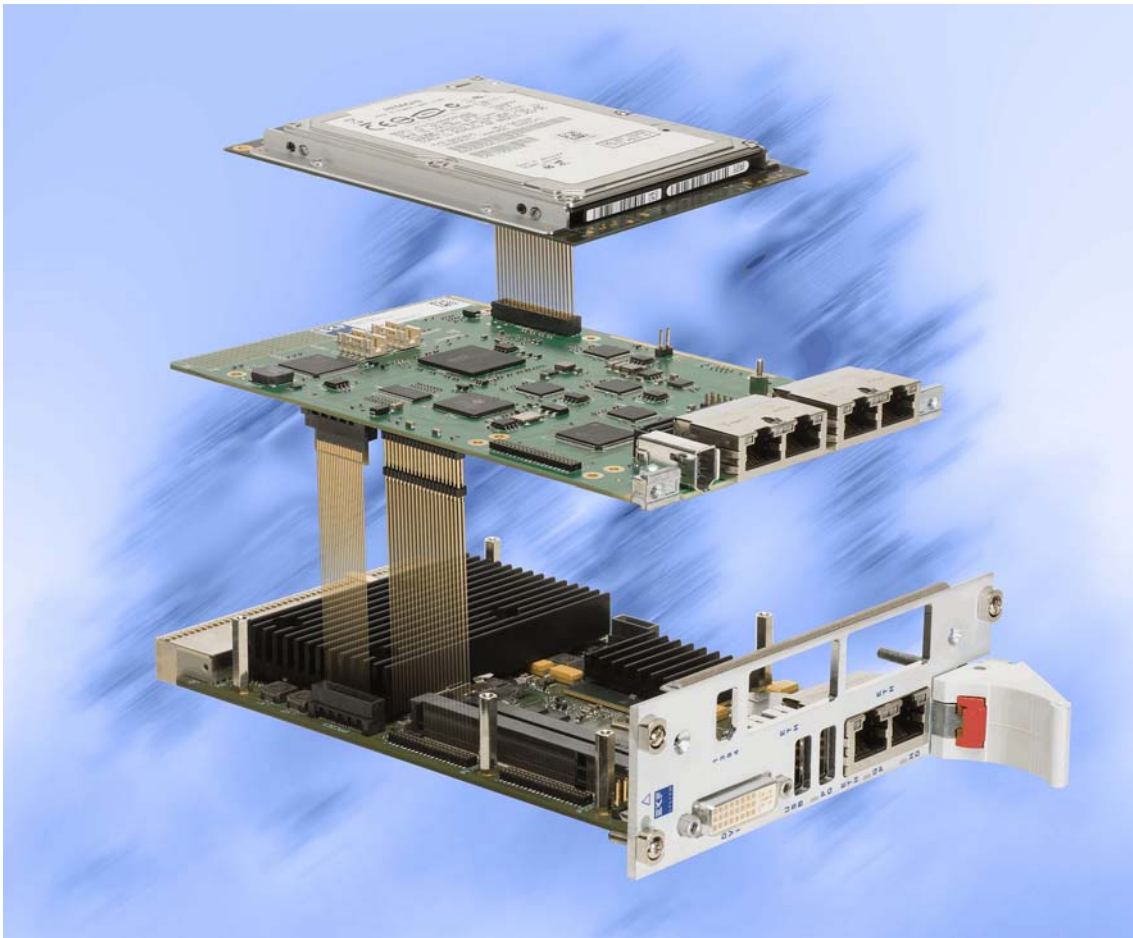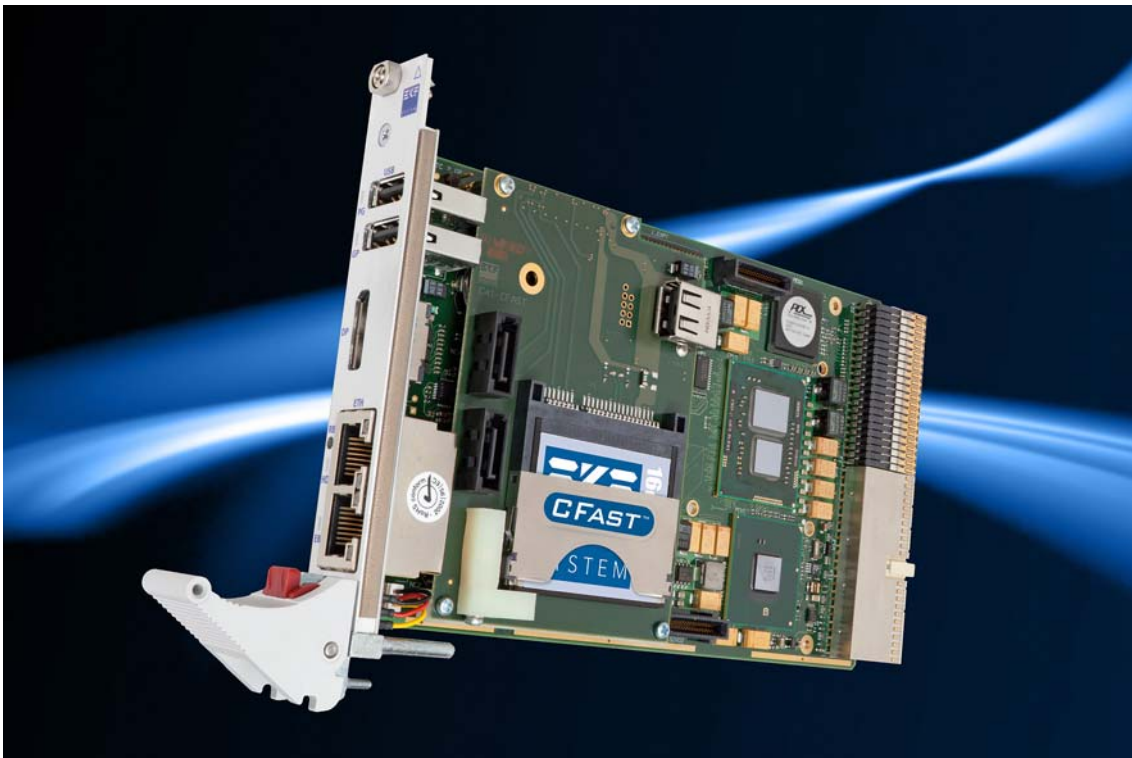
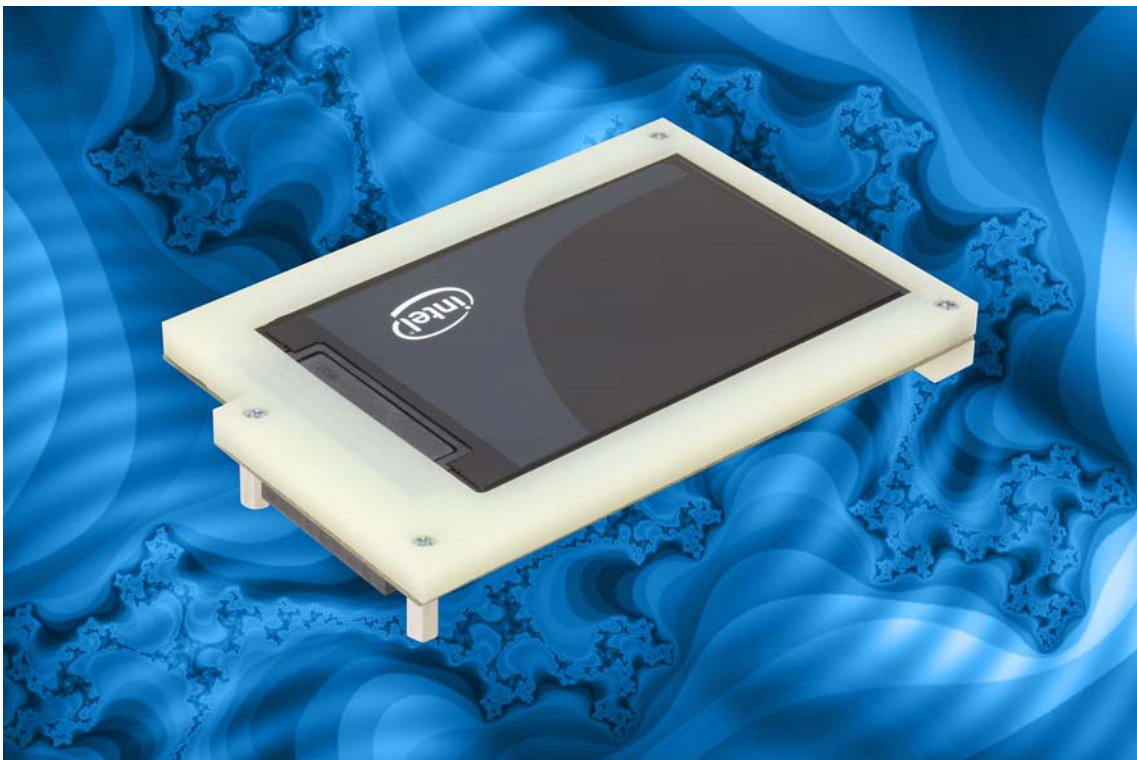CCM-BOOGIE with C40-SCFA

C40-SCFA CompactFlash Storage Module

C41-CFAST Storage Module on CPU Carrier Card

C41-CFAST SATA Based Storage Module

CCM-BOOGIE with C42-SATA

C42-SATA Storage Module

CCM-BOOGIE with C43-SATA

C43-SATA I/O Module on CPU Carrier Card

C43-SATA Mezzanine Module

CCM-BOOGIE with C44-SATA

CCM-BOOGIE w. C45-SATA (Internal Drive)

CCM-BOOGIE w. C45-SATA (Removable Drive)

C47-MSATA SSD RAID Storage Module on CPU Carrier Card

C47-MSATA over CPU Carrier Card

CCI-RAP Side Board on CPU Carrier Card Assembly

CPU Carrier Card w. CCJ-RHYTHM Side Board (Picture Similar)

CCM-BOOGIE w. CCK-MARIMBA Side Board

CCK-MARIMBA over Carrier CPU

CCL-CAPELLA Side Board with CPU Carrier Card Assembly

CCO-CONCERT Side Board & C20-SATA & C32-FIO with CPU Card Assembly

Links to Related Documents	
Short Description	URL (click to open document)
CCM-BOOGIE CPU Card User Guide	www.ekf.com/c/ccpu/ccm/ccm_e.html www.ekf.com/c/ccpu/ccm/ccm_uge.pdf
CCT-RIO Rear I/O Transition Module Technical Information	www.ekf.com/c/ccpu/cct/cct_tie.pdf
C23-SATA SATA RAID Controller Side Card Technical Information	www.ekf.com/c/ccpu/c23/c23_tie.pdf
C40-SCFA CompactFlash Mezzanine Module Technical Information	www.ekf.com/c/ccpu/c40/c40_tie.pdf
C41-CFAST CFast™ Flash Card Mezzanine Module Technical Information	www.ekf.com/c/ccpu/c41/c41_tie.pdf
C42-SATA Micro SATA SSD Mezzanine Module Technical Information	www.ekf.com/c/ccpu/c42/c42_tie.pdf
C43-SATA SATA/USB Mezzanine Module Technical Information	www.ekf.com/c/ccpu/c43/c43_tie.pdf
C44-SATA SATA/USB Side Card Technical Information	www.ekf.com/c/ccpu/c44/c44_tie.pdf
C45-SATA SATA/USB Side Card Technical Information	www.ekf.com/c/ccpu/c45/c45_tie.pdf
C47-MSATA SSD RAID Mezzanine Module Technical Information	www.ekf.com/c/ccpu/c47/c47.html www.ekf.com/c/ccpu/c47/c47_ti.pdf
CCI-RAP PE Mini Card Sockets & SATA Side Card Technical Information	www.ekf.com/c/ccpu/cci/cci_tie.pdf
CCJ-RHYTHM CompactPCI® Express System Slot Controller Side Card Technical Information	www.ekf.com/c/ccpu/ccj/ccj_tie.pdf
CCK-MARIMBA PMC/XMC Module Carrier Side Card Technical Information	www.ekf.com/c/ccpu/cck/cck_tie.pdf
CCL-CAPELLA Quad Gigabit Ethernet Side Card Technical Information	www.ekf.com/c/ccpu/ccl/ccl_tie.pdf
CCO-CONCERT Multifunction Side Card Technical Information	www.ekf.com/c/ccpu/cco/cco_tie.pdf

Versatile Expansion Interfaces
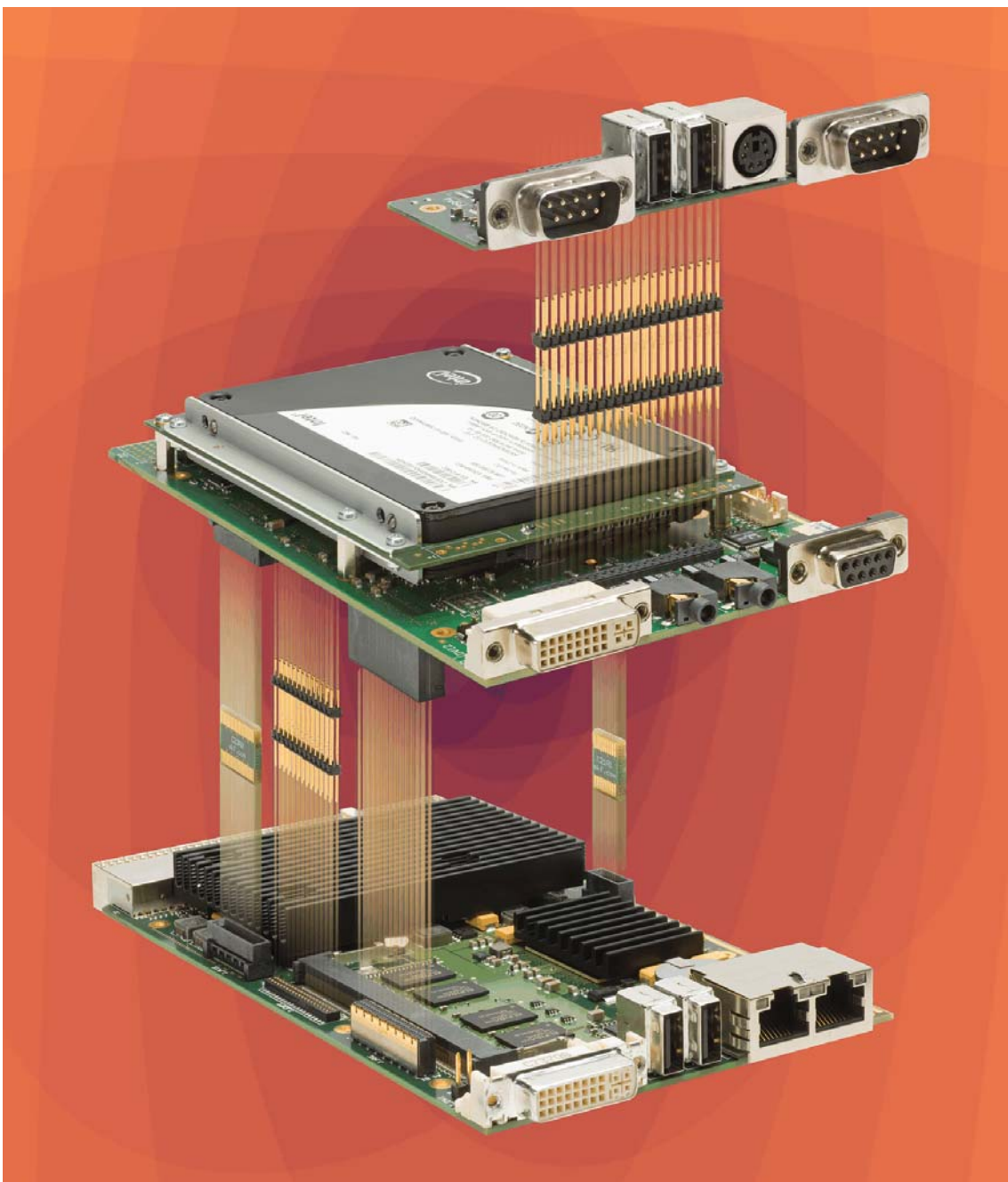
CCM-BOOGIE w. CCO-CONCERT C20-SATA C32-FIO

Ordering Information CCM-BOOGIE

Ordering No.	Short Description
CCM-21RD-BOOGIE	Core™ 2 ULV, Dual Core 1.2GHz, 3MB L2, FSB 800MHz
CCM-41RD-BOOGIE	Core™ 2 LV, Dual Core 1.86GHz, 6MB L2, FSB 1066MHz
CCM-61RD-BOOGIE	Core™ 2 SV, Dual Core 2.26GHz, 6MB L2, FSB 1066MHz
CCM-11RD-BOOGIE	*Celeron® M ULV, Single Core 1.2GHz, 1MB L2, FSB 800MHz*
CCI-RAP	3U/4HP Side board, 2 x PCI Express Mini Card sockets (e.g. WLAN/Wi-Fi, WiMAX, GSM/HSDPA, Turbo Memory), USB Flash Disk option, DVI-D, 2 x FireWire, on-board SATA hard disk option (1 or 2 drives), option TPM 1.2
CCJ-RHYTHM	3U/4HP Side board, System Slot side board for CompactPCI Express backplanes, 24-port PCI Express packet switch, DVI-D, 1 x USB, 2 x FireWire, 1 x RS-232 (COM), option TPM 1.2
CCK-MARIMBA	3U/4HP Side board, PMC/XMC module socket
CCL-CAPELLA	3U/4HP Side board, quad Gigabit Ethernet Controller, USB Flash Disk option, FireWire option, on-board SATA hard disk option (1 or 2 drives), option TPM 1.2
CCO-CONCERT	3U/4HP Side board, HD Audio, 2-4 x RS-232, secondary DVI-I (option), several on-board SATA drive options 1.8-inch and 2.5-inch (up to 2 drives), USB Flash Disk option, option TPM 1.2
C23-SATA	3U/4HP Side board, SATA/PATA controller, 2 x RS-232, 1 x RS-232/RS-485, USB SSD, option audio codec AC'97, option TPM module
C40-SCFA	Mezzanine module, SATA to PATA bridge, CompactFlash header, USB SSD option, fits into the 4HP envelope of the CCM-BOOGIE (J-HSE)
C41-CFAST	Mezzanine module, SATA based CFast™ Flash card header, USB SSD option, fits into the 4HP envelope of the CCM-BOOGIE (J-HSE)
C42-SATA	Mezzanine module, SATA 1.8-inch Solid State Drive, USB SSD option, fits into the 4HP envelope of the CCM-BOOGIE (J-HSE)
C43-SATA	Mezzanine module, 3 x SATA connectors (internal drives), 2 x USB connectors, USB SSD option, fits into the 4HP envelope of the CCM-BOOGIE (J-HSE)
C44-SATA	3U/4HP Side board, 2 x eSATA connectors (front panel), 3 x USB connectors (front panel), 2.5-inch SATA drive on-board (option)
C45-SATA	3U/4HP Side board, 2 x eSATA connectors (front panel), 3 x USB connectors (front panel), 1.8-inch SATA drive on-board (option), front panel removable drive (option)
C47-MSATA	Mezzanine module, dual mSATA SSD mini card sockets (RAID option), fits into the 4HP envelope of the CCM-BOOGIE (J-HSE)
CCT-RIO	Rear I/O transition module with SATA connectors

CCM-**R*-BOOGIE: suitable for rear I/O across J2
CCM-**X*-BOOGIE: suitable for 64-bit CPCI J2/P2 backplane
CCM-***D-BOOGIE: DVI-I video connector
CCM-***V-BOOGIE: VGA video connector

For custom specific configurations please mail to sales@ekf.de

For current product SKU please refer also to
www.ekf.com/liste/liste_20.html/#CCM

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