

CB71C

Rugged COM Express Module with AMD V1000 ANSI-VITA 59 RCE Module

- » AMD V1000 APU
- » Up to 32 GB DDR4 RAM with ECC
- » Up to 4 Digital Display Interfaces (DP, eDP, HDMI, DVI)
- » Hardware memory encryption
- » Safety-relevant supervision functions
- » Virtualization-ready
- » Excellent price-performance ratio
- » -40°C to +85°C Tcase, depending on processor
- » Conduction cooling
- » VITA 59 in process, compliant with COM Express Basic, type 6
- » PICMG COM.0 COM Express version also available



Ultra-rugged VITA 59 COM Express

The CB71C is an ultra-rugged COM Express module for rail, public transportation and industry applications, e.g. data acquisition, infotainment, transcoding, live 3D. It is 100% compatible to COM Express Type 6 Pin-Out and conforms to the VITA 59 standard which specifies the mechanics to ensure reliable operation even under the harshest environmental conditions.

Perfect for Harsh Environments

The modules are embedded in a closed aluminum frame, which ensures optimum EMC protection and efficient conduction cooling. Direct air cooling is possible by placing a heat sink on the cover. The CB71C is designed for operation from -40°C to +85°C (housing). To withstand serious shock and vibration, only soldered components are used. The design is optimized for conformal coating.

Powerful Processing and Graphics on a Single Chip

The CB71C is based on AMD's V1000 APU family. It is equipped with a Radeon Vega next-generation 3D graphics engine and supports up to 4 displays with a resolution of up to 4k without the need for additional graphics hardware. With up to four high-performance

processor cores and AMD-V extension, the CB71C is also suitable for virtualization.

Excellent Price/Performance Ratio, Flexible Design

The CB71C can be equipped with a wide range of long-term available processors with scalable performance, all supporting ECC. Passive cooling is possible with low-power versions.

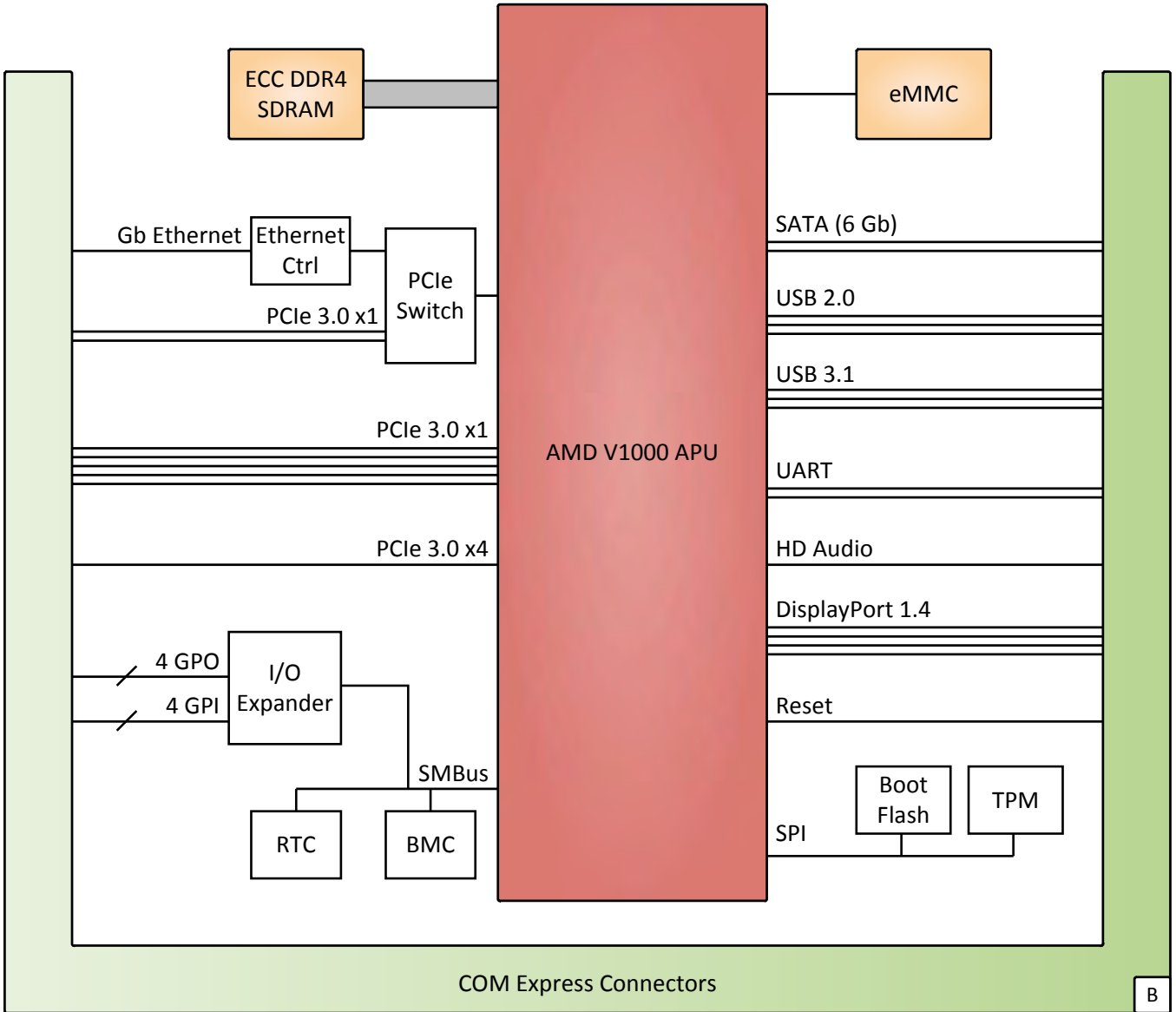
Safety and Security

The board features an advanced board management controller with monitoring functions for safety-relevant applications. In addition, the CB71C has a Trusted Platform Module and supports hardware memory encryption, providing protection against both physical and inter-VM storage attacks. This is essential for security-critical applications such as payment and ticketing terminals, fleet management or monitoring.

Memory and I/O

The CB71C can be equipped with up to 32 GB of directly soldered DDR4 main memory and a 16 GB eMMC. Available high-speed interfaces include PCI Express 3.0 links, DDI (DP, eDP, HDMI), SATA 3.0, Gigabit Ethernet and USB 3.0.

Onboard Options



Diagram



CPU

- The following CPU types are supported:
 - AMD V1404I, 4 cores, 4 threads, tbd GHz, 15W, 2 MB cache
 - AMD V1807B, 4 cores, 8 threads, 3.35 GHz, 35-54W, 2 MB cache

Memory

- System RAM
 - Soldered DDR4, ECC
 - 32 GB max.

Security

- TPM (Trusted Platform Module 2.0)

Mass Storage

- The following mass storage devices are assembled:
 - eMMC (soldered); 16 GB max.

Graphics

- Processor graphics
- Maximum resolution: 4096x2160 pixels @ 60 Hz, 24 bpp (DisplayPort 1.4)

Interfaces

- SATA
 - 2x SATA Revision 3.x, board to board
- Video
 - 4x DisplayPort, board to board
- HD Audio
 - 1x, board to board
- USB
 - 3x USB 3.1, board to board
 - 3x USB 2.0, board to board
- PCI Express
 - 7x PCIe 3.0, x1, board to board
 - 1x PCIe 3.0, x4, board to board
- Ethernet
 - 1x 1000BASE-T, board to board
- Serial
 - 2x UART, board to board
 - Physical interfaces, e.g., RS232 or RS422/RS485, depending on implementation on carrier board
- GPIO
 - 4x GPI, board to board
 - 4x GPO, board to board
- Reset
 - 1x, board to board

Supervision and Control

- Board management controller
- Watchdog timer
- Temperature measurement
- Real-time clock

Product Standard

- VITA 59 RCE: Basic, Pin-out Type 6, VITA 59 RCE Rugged COM Express in process
- COM Express: Basic, Pin-out Type 6, PICMG COM.0 COM Express Module Base Specification

Computer-On-Module Standard

- CB71C: VITA 59 RCE: Rugged COM Express in process
 - With conduction cooling cover and frame
 - Rugged COM Express Basic, Module Pin-out Type 6
- CB71: PICMG COM.0 COM Express Module Base Specification
 - COM Express Basic, Module Pin-out Type 6

Electrical Specifications

- Supply voltage
 - +12 V (9.5 to 15.5 V)

Mechanical Specifications

- Dimensions
 - 135 mm x 105 mm x 18 mm (models conforming to VITA 59 RCE Basic format, PCB mounted between a cover and a frame)
 - 125 mm x 95 mm (models conforming to PICMG COM.0 COM Express Basic format)

Environmental Specifications

- Temperature range (operation)
 - -40°C to +85°C Tcase (VITA 59 cover/frame), compliant with EN 50155:2007, class TX (model 15CB71C00)
- Temperature range (storage): -40°C to +85°C, compliant with EN 50155:2007
- Cooling Concept
 - Conduction-cooled versions according to VITA 59 RCE: Rugged COM Express in process
 - Air-cooled versions according to PICMG COM.0 COM Express standard
- Humidity: EN 50155:2007 (+25/+55 °C, 90-100 %)
- Altitude: -300 m to +3000 m
- Shock: EN 61373:2010
 - Location: Vehicle body (Cat. 1; Class B)
- Vibration: EN 61373: 2010
 - Location: Vehicle body (Cat. 1; Class B)

Safety

- Electrical Safety
 - EN 50155:2007
 - EN 50153:2014
 - EN 50124-1:2001 + A1:2003 + A2:2005
- Fire Protection
 - EN 45545-2, hazard level HL3

EMC (Railway)

- EMC behavior depends on the system and housing surrounding the COM Express module.
- Radiated Emission: EN 50121-3-2:2015
- Conducted Emission: EN 50121-3-2:2015
- Immunity: EN 50121-3-2:2015

EMC (Automotive)

- ECE R10 Rev.5 (E-mark)

BIOS

- AMI UEFI Firmware

Software Support

- Linux
- Windows (on request)
- For more information on supported operating system versions and drivers see Software.

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www.men.de/products/cb71c/

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