emPC-A/iMX6

Fanless and Compact Multi-Core ARM based Embedded Controller

PRODUCT DESCRIPTION

The emPC-A/iMX6 is a compact and fanless embedded controller system. It is based on the i.MX6Q ARM Cortex-A9 quad-core processor. The system combines a strong CPU unit with a fanless and robust system design, two Ethernet ports and either two CAN/CANopen or two RS232/RS485 interfaces, which makes it very suitable for machine control or IoT gateway applications.

emPC-A/iMX6 systems can be expanded with additional expansion boards which are connected internally to the CPU board via an 8/16 bit bus (iX-Bus).

On request the system will be equipped with an industrial grade CFast[1] card in the size of your choice which has a pre-installed Debian Linux operating system. Also, a CODESYS V3 PLC or a Java runtime environment can be installed at factory.

Optionally advanced security features are available. The A/iMX6 provides a full verified, signed and encrypted boot during the complete boot sequence and the operating system. The Janz Tec AG grants a full chain of trust.

FEATURES

Processor

- NXP i.MX6Q quad-core CPU based on ARM Cortex-A9, 800 MHz
- ARM TrustZone Security Technology
- Fanless cooling concept

Memory

- 2 GB DDR3 RAM system memory
- 128 kB battery-free NVRAM
- Internal 4Gbyte eMMC flash
- Internal CFast Socket for SATA SSD
  Internal SD card slot

Interfaces

- 2 x 10/100/1000 Mbit/s Ethernet
- 2 x USB (V 2.0), with 500 mA power supply capability
- 2 x 9-pin D-SUB connectors for CAN or serial ports[2]
- Serial port with RTS/CTS only
- Reset push button
- DVI-D graphic interface (Single Link)

Power Supply

- Input 9..34 V DC
- Power consumption ca. 6 W

Expansion

- Internal ix-Bus 8/16 bit interface for I/O and low speed peripherals
- Expansion boards available for additional I/O and other peripherals
- Radio expansion board for LTE and/or Wi-Fi support

Physical

- Ambient operating temperature -40 °C ... 70 °C (up to 75°C ensured with limited CPU load)
- Non-operating temperature range -40°C…85°C

[1] CFast – **C**ompact **F**lash **A**TA **S**erial **T**ransfer, flash based storage medium with SATA interface

[2] optionally with 2 x CAN ports, 2 x serial ports or 1 x CAN port and 1 x serial port

- 5%..95% r.H., non condensing
- Dimensions (w x h x d):
  - 2 DSUB: 52 x 105 x 117 mm
  - 4 DSUB: 72 x 105 x 117 mm
- Weight approx. 0.6 kg

CAN

- SJA 1000 CAN Controller
- Physical Layer ISO/DIS 11898-2, isolated from logic
- Internal 120 Ω resistor for bus termination, switchable by software

Supported Operating Systems

- Debian Linux
- other operating systems on request

Options

- CODESYS V3.5 IEC 61131-3 runtime environment
- Java runtime environment
- Security features:
  - Signed and encrypted boot
  - Hardware random generator (NIST certified)
  - Hardware accelerated cryptographic engine

RELATED PRODUCTS

emVIEW and emWEB product families	In the emVIEW product family emPC-A systems were combined with a display to a panel PC solution. emWEB systems have a mainboard based on emPc-A/iMX6 technology. Both are available in different sizes, with resistive or projective capacitive (PCT) touchscreen and in 4:3 or 16:9 aspect ratios.
Expansion boards	With help of expansions boards emPC-A systems can be expanded internally. In addition to standard features, the systems can be equipped with additional I/O and bus interfaces.
emIOT Expansion	The emPC-A/iMX6Q is also available with the Janz Tec Iot expansion board. It extends the embedded system with UMTS/LTE, Wi-Fi and 4 additional digital I/O's

ORDERING INFORMATION

Ordering No.	Product Name	Description
SY-EPC-64000	emPC-A/iMX6Q/0	Compact and fanless embedded controller system with 2 x RS232/RS485 on front-side D-SUB 9 connector
SY-EPC-64001	emPC-A/iMX6Q/1	Compact and fanless embedded controller system with 1 x CAN/CANopen and 1 x RS232/RS485 on front-side D-SUB 9 connector
SY-EPC-64002	emPC-A/iMX6Q/2	Compact and fanless embedded controller system with 2 x CAN/CANopen on front-side D-SUB 9 connector
SY-EPC-64004	emPC-A/iMX6Q/4	Compact and fanless embedded controller system with 4 x CAN/CANopen on front-side D-SUB 9 connector
CF-CFA-xxxxx	Storage medium	CFast storage medium in sizes of x GB, available are 2, 4, 8 and 16 GB
SO-CDS-	CODESYS V3 Control	Software license for CODESYS control runtime system
SO-CDS-xxxxx	CODESYS V3 TargetVisu	Software license for CODESYS target visualization
SO-CDS-xxxxx	CODESYS V3 WebVisu	Software license for CODESYS web visualization
SO-CDS-xxxxx	CODESYS V3 SoftMotion	Software license for CODESYS SoftMotion package
SO-JVM-EMB01	Java	Oracle Embedded Java SE Runtime license
SO-SOF-xxxxx	CANopen	CANopen protocol stack