ARM-based Pico-ITX Series

VIA

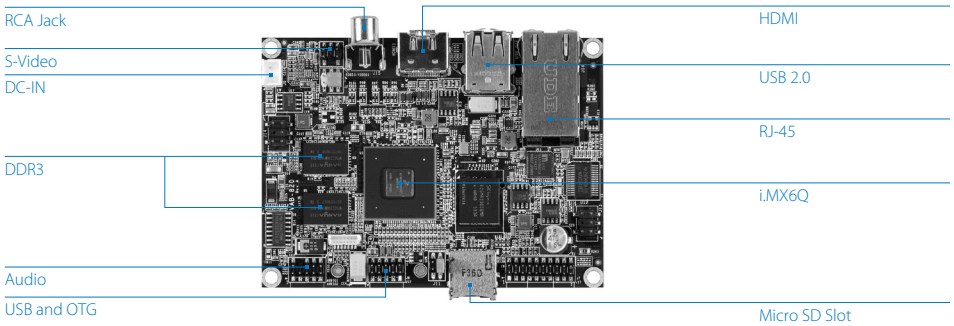
VAB-820

Pico-ITX quad core board with HDMI, LVDS, GigaLAN, OTG USB, COM, analog video input and optional PoE

Features

- Quad core Freescale ARM Cortex-A9 SoC
- 64-bit 1GB DDR3 and 4GB eMMC onboard
- One Mini PCIe slot
- 2-CH LVDS and HDMI with dual displays
- Composite and s-video analog video inputs
- OTG USB port, PCIe 2.0 expansion port
- Small form factor and low power design
- Optional PoE support

Board Placement



Specifications

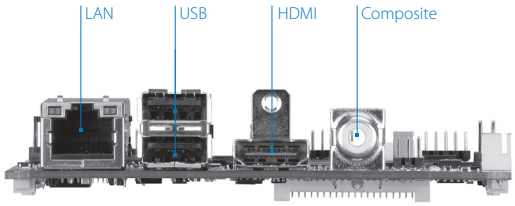
Model Name	**VAB-820**
Processor	1.0GHz Freescale i.MX 6Quad ARM Cortex-A9
System Memory	1GB DDR3-1066 SDRAM using 128M x16 memory devices
Flash	4MB SPI Serial Flash 4GB eMMC Flash
Graphics	Support three independent, integrated graphics processing units: an OpenGL® ES 2.0 3D graphics accelerator with four shaders (up to 200 MT/s and OpenCL support), 2D graphics accelerator, and dedicated OpenVG™ 1.1 accelerator
Ethernet	Micrel KSZ9031RNX Gigabit Ethernet transceiver with RGMII support
Audio	Freescale SGTL5000 low power stereo codec
Video Decoder	ADI ADV7180 10-Bit, 4 x oversampling SDTV video decoder
HDMI	Integrated HDMI 1.4 transmitter
USB	SMSC USB2514 USB 2.0 high speed 4-port hub controllers
Onboard I/O	COM connector with power supply (supports 8-wire DTE mode) COM/CAN connector with power supply (supports 2-wire RS232 Tx/Rx and 2 FlexCAN Tx/Rx ports) Dual-channel, 18/24-bit LVDS connector RTC battery connector MIPI CSI-2 connector (supports 2 data lanes) SPI master connector (supports 2 SPI slave devices) S-video input pin header 2 Power pin headers (support optional PD power board) Front audio pin header for line-in, headphone-out and MIC-in Boot flash select pin header (for SPI or micro SD) Miscellaneous pin header for 1 USB 2.0 host port, 1 USB2.0 OTG port Miscellaneous pin header for 1 I2C pair, 8 GPIOs, system reset button and LEDs for power/WPAN/WLAN/WWAN 12V DC-in power connector Mini PCI-e slot (supports multiple connections and buses including JTAG)
Front I/O	Micro SD connector
Rear I/O	HDMI port 2 USB 2.0 ports RJ-45 LAN port (supports optional IEEE802.3at type 2) Composite input RCA jack
Watch Dog Timer	The Watchdog Timer supports two comparison points during each counting period. Each of the comparison points is configurable to evoke an interrupt to the ARM core, and a second point evokes an external event on the WDOG line
Power Supply	12V DC-in
Operating System	Linux Kernel 3.0.35
Operating Temperature	Extended temperature SKU: -20~ 70°C
Operating Humidity	0% ~ 95% (relative humidity ; non-condensing)
Form Factor	8-layer PCB 10 cm x 7.2 cm

CE FC

ROHS COMPLIANT

VIA embedded

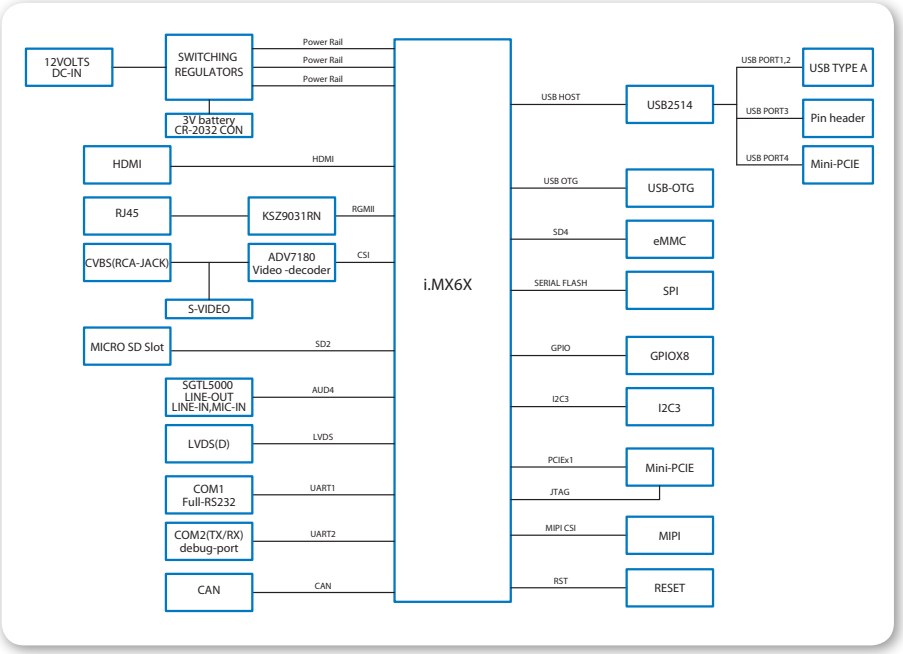
Back Panel I/O



Ordering Information

Model Name	CPU Frequency	Description
VAB-820	1.0GHz i.MX 6Quad	Pico-ITX board with 1.0GHz Freescale i.MX 6Quad Cortex-A9 CPU, 4GB flash, 1GB RAM, HDMI, 2-ch LVDS, 4 USB 2.0, OTG USB 2.0, COM, GLAN, DC-in power, PCIe, stereo audio, s-video, Micro SD slot, CAN bus, optional PoE

Block Diagram



Packing List

Items
One DC power cable
One debug COM cable
One audio cable
One 2-port USB cable