

ARM-based Pico-ITX Series

VIA VAB-820

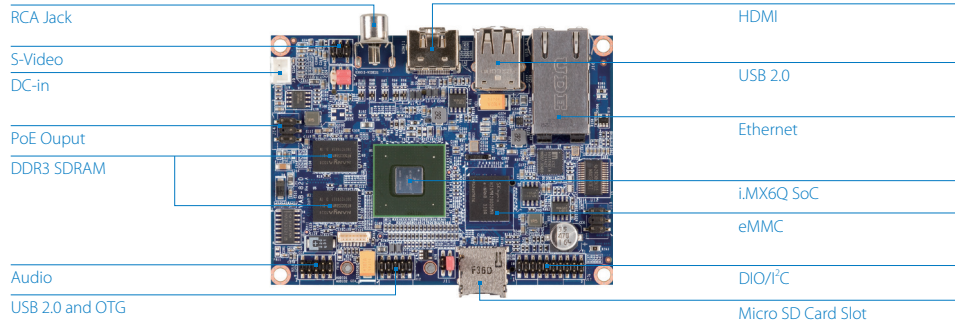
Low power quad-core platform with advanced multimedia capabilities for a wide variety of industrial applications

Features

- Compact 10cm x 7.2cm Pico-ITX form factor
- 1.0GHz NXP i.MX 6Quad Cortex-A9 quad-core SoC
- Flawless HD video performance up to 1080p
- Wide operating temperature range, -20°C ~ 70°C
- Linux and Android solution packs available



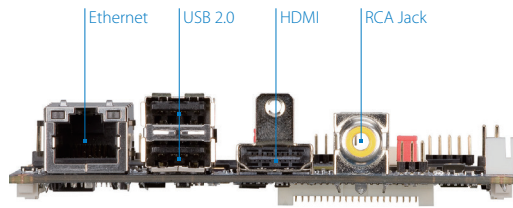
Board Placement



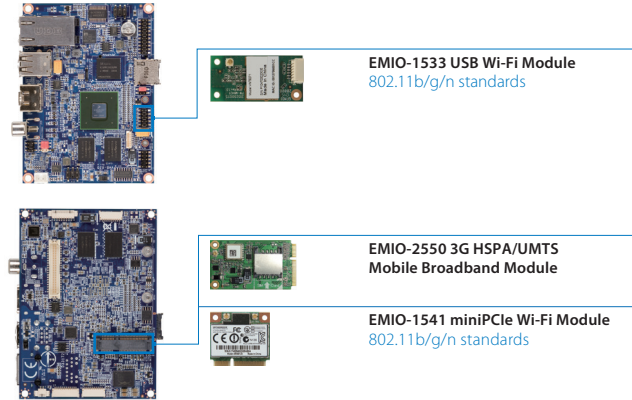
Specifications

Model Name	VAB-820
Processor	1.0GHz NXP i.MX 6Quad Cortex-A9 quad-core SoC
System Memory	1GB DDR3 SDRAM onboard
Storage	4GB eMMC Flash memory
Boot Loader	4MB SPI Flash ROM
Graphics	Vivante GC2000 GPU 3 integrated, independent 3D/2D and video graphics processing units Graphics engine supporting OpenGL® ES 2.0, OpenCL and OpenVG™ 1.1 hardware acceleration Supports MPEG-2, VC-1 and H.264 video decoding up to 1080p Supports SD encoding
LAN	Micrel KSZ9031RNX Gigabit Ethernet transceiver with RGMII support
Audio	NXP SGT5000 low power stereo codec
HDMI	Integrated HDMI 1.4 transmitter
USB	SMSC USB2514 USB 2.0 high speed 4-port hub controller
Expansion I/O	1 miniPCIe slot
Onboard I/O	1 USB 2.0 host port, and 1 USB2.0 OTG port pin header 1 COM port connector with power supply (supports 8-wire DTE mode) 1 COM/CAN port connector with power supply (supports 1 RS-232 (TX/RX) and 2 FlexCAN TX/RX ports) 1 Dual-channel 18/24-bit LVDS panel connector 1 Miscellaneous pin header for 1 I ² C pair, 1 Digital I/O (4 GPI + 4 GPO), system reset button and LEDs for power/WPAN/Wi-Fi/WWAN 1 RTC battery connector 1 MIPI CSI-2 connector (supports 2 data lanes) 1 SPI master pin header (supports 2 SPI slave devices) 1 S-video input pin header 2 Power pin headers (support optional PD power board) 1 Boot Flash select pin header (for SPI or micro SD) 1 Front audio pin header for Line-in, Line-out, Mic-in 1 DC-in connector 1 miniPCIe slot (supports multiple connections and buses including JTAG)
Front Panel I/O	1 Micro SD card slot
Back Panel I/O	2 USB 2.0 ports 1 HDMI port 1 Composite input RCA jack 1 Gigabit Ethernet port (supports optional IEEE 802.3 at type 2)
Power Supply	12V DC-in
Operating System	Android 4.4.2, Linux kernel 3.10
Watch Dog Timer	Integrated watch dog timer supports two comparison points. Each comparison point can interrupt ARM core, 2nd comparison point capable of generating external interrupts on WDOG line
Operating Temperature	-20°C ~ 70°C (3G & WiFi not included)
Operating Humidity	0% ~ 95% (non-condensing)
Form Factor	Pico-ITX (10cm x 7.2cm, 3.9" x 2.8")
Compliance	CE, FCC

Back Panel I/O



Accessories



Ordering Information

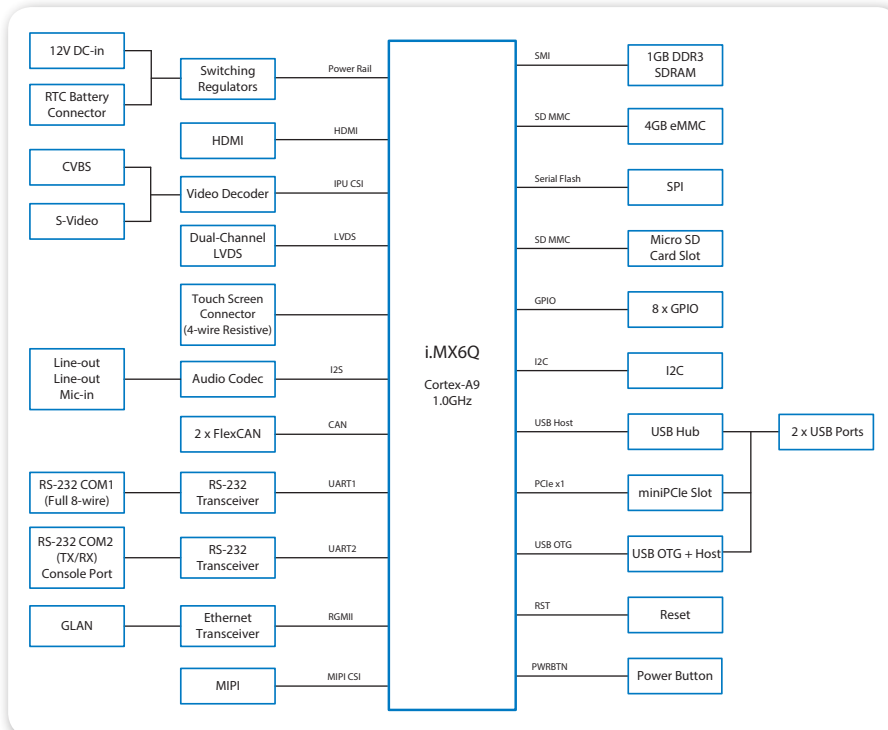
Part Number	SoC Frequency	Description
10GBF105000A0	NXP i.MX 6Quad Cortex-A9 quad-core SoC @ 1.0GHz	Pico-ITX board with 1.0GHz NXP i.MX 6Quad Cortex-A9 SoC, 4GB eMMC, 4MB SPI Flash ROM, 1GB DDR3 SDRAM, HDMI, LVDS, 4 USB 2.0, OTG USB 2.0, COM, Gigabit Ethernet, S-video, Micro SD card slot, miniPCIe slot, 2 CAN bus, 12V DC-in

Optional Accessories

Wireless Modules

Part Number	Description
EMIO-1533-00A2	VNT9271 IEEE 802.11 b/g/n USB Wi-Fi module with assembly kit
EMIO-1541-00A1	VNT9485 IEEE 802.11 b/g/n miniPCIe Wi-Fi module with assembly kit and antenna
EMIO-2550-00A1	3.75G HSPA/UMTS mobile broadband full size miniPCIe module with GPS and SIM card slot

Block Diagram



Packing List

Items
VAB-820 board
DC power cable
Console cable
Audio cable
USB cable