

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

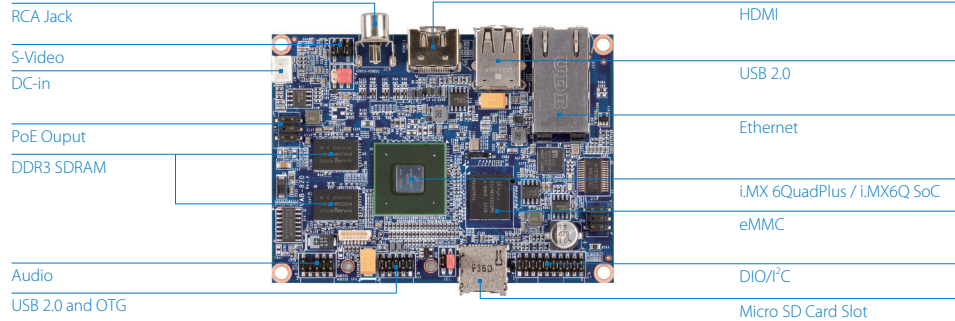
- Compact 10cm x 7.2cm Pico-ITX form factor
- 1.0GHz NXP i.MX 6QuadPlus or i.MX 6Quad Cortex-A9 quad-core SoC
- Flawless HD video performance up to 1080p
- Wide operating temperature range, -20°C ~ 70°C
- Linux and Android solution packs available

Microsoft
Azure

Certified



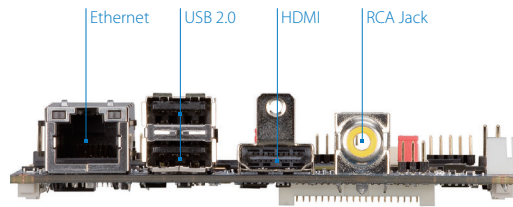
Board Placement



Specifications

Model Name	VAB-820-QP	VAB-820
Processor	1.0GHz NXP i.MX 6QuadPlus Cortex-A9 quad-core SoC	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	Vivante GC2000 GPU
	3 integrated, independent 3D/2D and video graphics processing units Supports OpenGL® ES 3.0, OpenCL and OpenVG™ 1.1 hardware acceleration Supports MPEG-2, VC1 and H.264 video decoding up to 1080p Supports SD encoding	
LAN	Micrel KSZ9031RNX Gigabit Ethernet transceiver with RGMII support	
Audio	NXP SGT15000 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 Dual-channel 18/24-bit LVDS panel connector 1 S-video input pin header 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 Miscellaneous pin header for 1 I²C pair, 1 Digital I/O (4 GPI + 4 GPO), system reset button and LEDs for power/WPAN/Wi-Fi/WWAN 1 MIPI CSI-2 connector (supports 2 data lanes) 1 SPI master pin header (supports 2 SPI slave devices) 1 Front audio pin header for Line-in, Line-out, Mic-in 1 Boot Flash select pin header (for SPI or Micro SD) 2 Power pin headers (support optional PD power board) 1 RTC battery connector 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	1 HDMI port 1 Composite input RCA jack 2 USB 2.0 ports 1 Gigabit Ethernet port (supports optional IEEE 802.3 at type 2)	
Power Supply	12V DC-in	
Operating System	Android 6.0, Linux kernel 4.1.15	
VIA Smart ETK	Watchdog timer, CAN Bus, GPIO, UART	
Operating Temperature	-20°C ~ 70°C (3G & Wi-Fi 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



EMIO-5531 USB Wi-Fi + BT Module
802.11 b/g/n standards
Bluetooth 2.1 + EDR specification



EMIO-1533 USB Wi-Fi Module
802.11 b/g/n standards



EMIO-2550 3G HSPA/UMTS Mobile Broadband Module



EMIO-2531 miniPCIe Wi-Fi + BT Module
802.11 b/g/n standards
Bluetooth 2.1 + EDR specification

Ordering Information

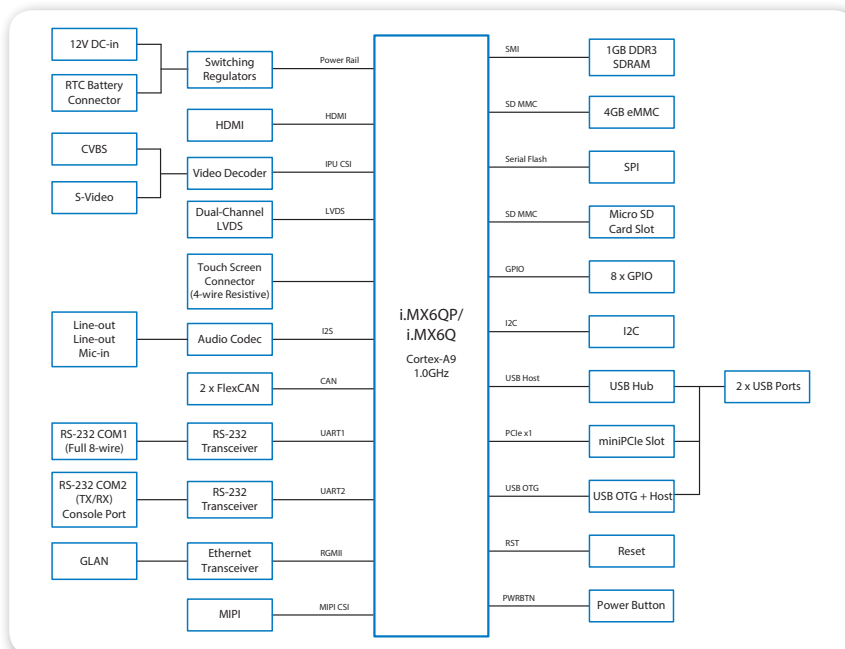
Part Number	SoC Frequency	Description
10GBF10H700A0	NXP i.MX 6QuadPlus Cortex-A9 quad-core SoC @ 1.0GHz	Pico-ITX board with 1.0GHz NXP i.MX 6QuadPlus Cortex-A9 SoC, 4GB eMMC, 4MB SPI Flash ROM, 1GB DDR3 SDRAM, HDMI, LVDS, S-video, 4 USB 2.0, OTG USB 2.0, COM, 2 CAN bus, miniPCIe slot, Gigabit Ethernet, Micro SD card slot, 12V DC-in
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, S-video, 4 USB 2.0, OTG USB 2.0, COM, 2 CAN bus, Gigabit Ethernet, miniPCIe slot, Micro SD card slot, 12V DC-in

Optional Accessories

Wireless Accessories

Part Number	Description
00GO27100BU2B0D0	VNT9271 IEEE 802.11 b/g/n USB Wi-Fi dongle
EMIO-1533-00A2	VNT9271 IEEE 802.11 b/g/n USB Wi-Fi module with assembly kit and antenna
EMIO-5531-00A1	VAB-820-W IEEE 802.11 b/g/n USB Wi-Fi & Bluetooth module with assembly kit and antenna
EMIO-2531-00A1	VAB-820-W-M IEEE 802.11 b/g/n miniPCIe Wi-Fi & Bluetooth module with assembly kit and antenna
EMIO-2550-00A1	3.75G HSPA/UMTS mobile broadband full size miniPCIe module with GPS, SIM card slot, assembly kit and antenna

Block Diagram



Packing List

Items
VAB-820 board
DC power cable
Console cable
Audio cable
USB cable
Screw pack for miniPCIe card