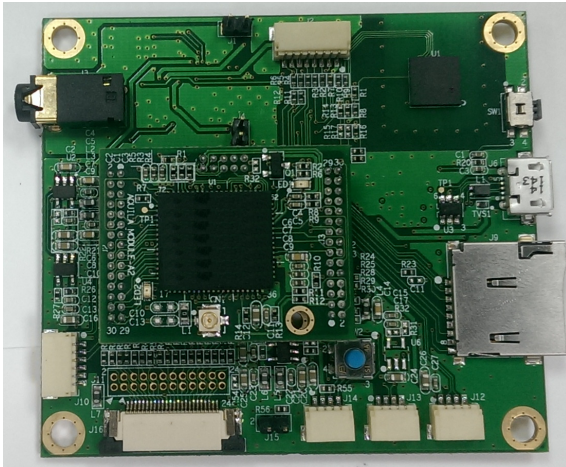


# Interactive IoT Platform (Aquila)

## Embedded iComExpress Single-Board-Computer



### Specifications

System Configuration	
Main Processor	ARM926 32-bit RISC CPU 200MHz
System Memory	32MB DDR2
Boot Memory	8MB SPI Flash (boot option by SD or USB)
CMOS Sensor I/F	Upto 2Mpixel CMOS Sensor
Connectivity	WiFi 802.11 b/g/n Bluetooth Low-Energy 4.0 compliant
Audio	Stereo Audio codec built-in Echo-canceling processor for MIC input (optional)
TV Out	Composite/Chroma output (optional)
General I/O	RTC, 32bit Timers, & 24bit WDT built-in SPI / I2C / GPIOs (optional) JTAG & USB 1.1 Host (debug use)
Panel I/O, Expansion Slot & Power Configurations	
Panel I/O Interface	Camera I/F connector (24-pin) x1 TV out I/F connector (24-pin) x1 HS USB 2.0 Device x1 microUSB / UART x1 Audio out & Microphone input x1 WiFi ANT (SMA) connector x1 Reset Button x1
Expansion Storage	Micro SD/SDHC x1
Power Req.	+5V DC (USB-powered)
Form Factor	65x58 mm <sup>2</sup> PCB board
Boot loader & Software Support	
BSP & AP	Linux 2.6 kernel based with customized AP

### Feature Highlights

- Low-power ARM926 200MHz 32-bit RISC CPU
  - Image scaling & JPEG/M-JPEG HW accelerator
- WiFi 802.11 b/g/n support
- Bluetooth Low-Energy 4.0 compliant
- HQ 2CH Audio (Audio-out & Microphone-in)
- MicroSD/SDHC x1
- Feature-expandable I/O through
  - CMOS Sensor Camera interface support
  - TV-out (Composite/Chroma)
  - HS USB 2.0 Device port, micro USB / UART, SPI / I2C / GPIOs, etc.
- USB-powered +5 VDC input
- Linux kernel 2.6 & Customized AP support
- Operating Temperature : Commercial (0°C ~ 60°C)
- Miniature size : 65 x 58 mm<sup>2</sup>

### Target Applications

- IOT-based Bridge, Gateway & iBeacon with BLE & WiFi support
- Proximity, Alarm, Security Monitoring for Home, Community, Retail Store or Factory application
- IP-Camera application

## ***Embedded iComExpress Single-Board-Computer***

The diagram illustrates the system architecture centered around the ARM9 SOC. Key components and their interconnections include:

- External Interfaces (Left):**
  - CMOS Sensor I/F (Input)
  - TV-Out I/F (optional) (Output)
  - SD Card I/F (Bidirectional)
  - MIC-in / Audio out (Bidirectional)
  - UART/USB 2.0 (Device) (Bidirectional)
- Internal Components:**
  - SDRAM 8~32MB:** Connected to the ARM9 SOC.
  - ARM9 SOC:** The central processing unit.
  - WiFi SOC 802.11 b/g/n:** Connected to the ARM9 SOC via SDIO.
  - BPF+ Balun:** Connected to the WiFi SOC, with an antenna output.
  - Echo Canceled (optional):** Connected to the ARM9 SOC and the BTSmart SOC via Serial Control.
  - BTSmart SOC:** Connected to the Echo Canceled block and has its own antenna.
  - Storage and Clocks:** SPI Flash, 12MHz, 26Mhz, and 32.768 KHz components at the bottom.
- External Interfaces (Right):**
  - Micro USB (Bidirectional)
  - JTAG (Bidirectional)
  - SPI /I2S /I2C /GPIO (Bidirectional)

Part Number	CPU	DRAM/Storage	Display	Connectivity	Panel I/O
Aquila IOT	ARM9 200MHz	32MB / 8MB SPI	TV-out (optional)	WiFi 802.11 b/g/n & BLE 4.0	Micro USB, USB Host/UART, SD Card, Audio-out / MIC-in, WiFi ANT Connector, etc.