

## TA-331wc Web Control Reference Design

### Remotely control devices from LAN and WAN

#### Description

The TA-331wc Web Control Reference Design offers flexible I/Os for remote control functions of devices via a network. It has 10-pin GPIO and high speed UART (up to 1Mbps) interfaces which can easily control any device connected to it. A 20-pin connector is used to connect modules for applications such as VoIP and camera. It supports 8/16 bit interface to connect these modules

The high speed UART can be used to connect a modem. Data can be sent or received using dial up service instead of xDSL or Cable modem services. By providing a high speed UART and Ethernet, the TA-331wc can be used as a bi-directional RS-232 to Ethernet adaptor which allows connection to RS-232 devices using Ethernet. Users can remotely control the RS-232 devices through LAN or WAN.

The high speed UART can also connect with Bluetooth or Zigbee modules. TA-331wc will act as an "Access Point" for these devices. The Bluetooth or Zigbee devices can then be controlled through LAN or the Internet.

The unique architecture of TF-331 is ideal for applications needing a SoC for high speed RS-232, Ethernet and TCP/IP. The on-chip hardware Protocol Accelerator improves the handling of TCP, IP, UDP and ICMP protocols and advanced layer 2 and 3 filters ensures resilience of the CPU.

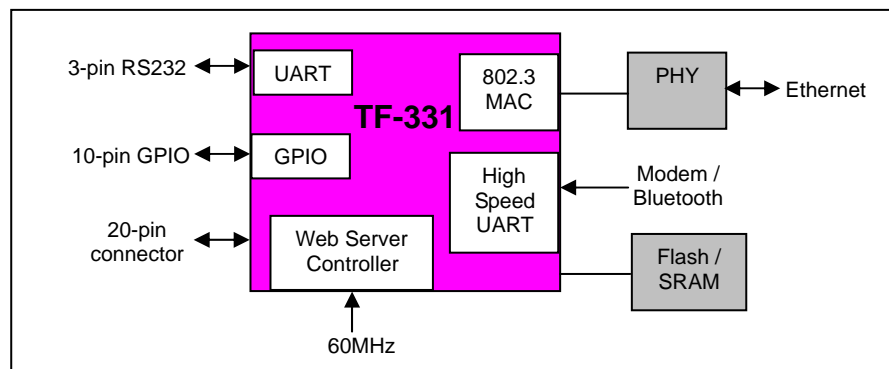
The embedded TCP/IP protocol stack and HTTP server reduces the development time and quickens the time to market. TF-331wc does not use any operating system resulting in smaller external SRAM and flash memory requirements. Most designs use 128KB of SRAM and 512KB of flash which saves significant costs compared to solutions using embedded operation systems.

The reference design board is shared with TF-332 which is pin-to-pin compatible with TF-331 but includes an USB 1.1 host controller. The USB function is disabled in the TF-331 and on the TA-331wc board.

#### Features

- ✓ Flexible web server controller for different devices
- ✓ Embedded TCP/IP protocol stack and HTTP server
- ✓ High speed UART (up to 1Mbps) for connection with modem, Bluetooth or Zigbee
- ✓ 20-pin connector for camera and VoIP modules
- ✓ Cost effective RS-232 to Ethernet converter

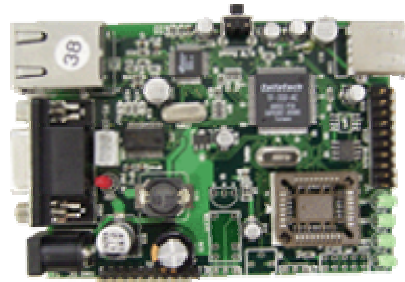
#### Block Diagram



# TA-331wc RS-232 Controller Reference Design

## TF-331 Web Server Controller

- ◇ Pipeline RISC core with 60MHz operating frequency, single cycle per instruction
- ◇ Supports up to 4M bytes Flash and SRAM respectively
- ◇ Five 8-bit GPIO ports
- ◇ Built-in 10/100Mbps MAC
- ◇ High speed UART (up to 1Mbps)
- ◇ Embedded 24K bytes SRAM for packet buffer and data memory
- ◇ Embedded 64K bytes ROM for high speed program execution and production burn-in test
- ◇ Built-in Internet Protocol Accelerator with flexible L2 and L3 filters to increase efficiency and BPDU handling for SPT protocol
- ◇ Supports 16 bit IO
- ◇ Dedicated 16/22 bit address and 8-bit data bus for external program, data memory and extended IO
- ◇ Supports 9 DMA channels, one active at a time.
- ◇ Supports linear access window
- ◇ Supports 5 transmit descriptors for MAC
- ◇ Supports WDT for hardware and software fatal error protection
- ◇ Power saving mode
- ◇ Customer IDs



## Hardware Platform

- ◇ One 10/100Mbps Ethernet port
- ◇ One high speed UART (up to 1Mbps) for connecting with modem, Bluetooth or Zigbee module
- ◇ External I/O pins
- ◇ 20-pin male connector for connecting with VoIP module or camera module
- ◇ One RS-232 console port for debugging
- ◇ External power: +5VDC @ 1A
- ◇ Internal power: regulated into 3.3V, 2.5V
- ◇ 512KB Flash
- ◇ 128KB SRAM
- ◇ EEPROM
- ◇ LEDs
- ◇ Hardware reset button

## Software Features

- ◇ Embedded TCP/IP protocol stack
- ◇ Browser based setup and configuration
- ◇ GPIO control
- ◇ High Speed UART
- ◇ DHCP client for automatic IP assignment
- ◇ Firmware upgrade through HTTP or TFTP
- ◇ Supports IE, Netscape and Firefox browsers

