





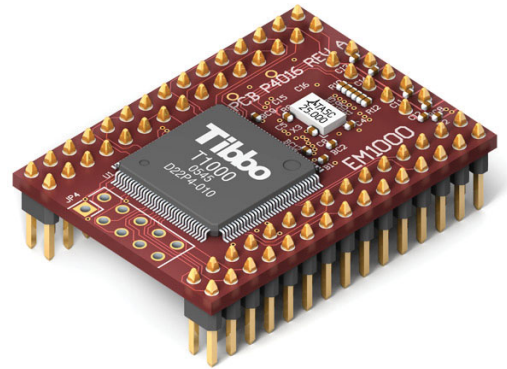


## Features

-  10/100BaseT Ethernet port
-  Flash disk and RTC onboard
-  Four high-speed TTL serial ports
-  Supports Wi-Fi, LCD, keypad, buzzer
-  Up to 53 I/O lines
-  Optional backup source for the RTC



## About

The EM1000 is Tibbo's most powerful and versatile BASIC-programmable embedded module.

The module's hardware is a potent combination that includes 100Base/T Ethernet, four serial ports, onboard flash, EEPROM, RTC with onboard backup power, and abundant I/O lines (up to 53!) to interface with external LCD, keypad, buzzer, and card readers.

Thus, the EM1000 is perfect for designing data collection and automation devices such as access control panels, time and attendance terminals, inventory control systems, factory floor automation terminals, and so on.

The EM1000 is excellent for prototyping your projects – its pin pitch is standard 2.54mm (0.1"). The module can also support Wi-Fi communications (this requires GA1000 add-on board).

## Specifications

- Based on high-performance purpose-built 88MHz T1000 IC
- 10/100BaseT auto-MDIX Ethernet port (no magnetics).
- Optional Wi-Fi interface (requires GA1000 add-on module).
- Four high-speed serial ports (CMOS-level):
  - Baudrates of up to 921,600bps;
  - None/even/odd/mark/space parity modes;
  - 7/8 bits/character modes;
  - Full-duplex mode with optional flow control;
  - Half-duplex mode with direction control;
  - Encoding and decoding of Wiegand and clock/data streams.
- Up to 1024KB flash memory for firmware, application, and data.
- 2KB EEPROM for data storage.
- RTC with backup power input (optional onboard supercapacitor).
- Supports external LCD and keypad.
- Programmable square-wave output for external buzzer.
- Up to 53 general-purpose I/O lines (including 8 interrupt lines).
- Four control lines for status LEDs.
- Software- and hardware-controlled onboard PLL.

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## Specifications (continued)

- Reliable power-on/brown-out reset circuit.
- Power: 230mA @ 3.3V (100BaseT mode, PLL on).
- Dimensions: 38.4x28.4x5.5mm.
- Firmware is upgradeable through the serial port or network.

## Programming

### Platform Objects

- Sock — socket comms (up to 16 UDP, TCP, and HTTP sessions).
- Net — controls Ethernet port.
- WIn — handles Wi-Fi interface (requires GA1000 add-on module)
- Ser — up to 4 serial channels (UART, Wiegand, and clock/data modes).
- IO — handles I/O lines, ports, and interrupts.
- Lcd — controls graphical display panels (several types supported).
- Kp — scans keypads of matrix and “binary” types.
- Rtc — keeps track of date and time.
- Fd — manages flash memory file system and direct sector access.
- Stor — provides access to the EEPROM
- Romfile — facilitates access to resource files (fixed data).
- Pat — “plays” patterns on up to five LED pairs.
- Beep — generates buzzer patterns.
- Button — monitors MD line (setup button).
- Sys — in charge of general device functionality.

### Function Groups

String functions (27 in total!), date/time conversion functions (8), encryption/hash calculation functions (AES128, RC4, MD5, SHA-1), and more.

### Variable Types

Byte, char, integer (word), short, dword, long, real, string, plus user-defined arrays and structures.

## Tibbo Integrated Development Environment (TIDE)

All BASIC-programmable Tibbo devices are provided with free TIDE software.

### Code in Comfort

Enjoy a modern code editor supporting syntax highlighting, context help, code hinting, and auto-completion.

### Debug with Ease

Set breakpoints, watch variables, inspect the stack, step through your code... the built-in debugger in Tibbo IDE provides all the tools for fast and convenient debugging.

Our debugger does not rely on any special hardware like an ICE machine or a JTAG board. Simply connect your Tibbo device to the Ethernet, select it in the IDE, and you are all set!

For more information on TIDE, see <http://basic.tibbo.com/product/tide.html>